State of Vermont

Health Resource Allocation Plan

August 2005

Department of Banking, Insurance, Securities, and Health Care Administration
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Vermont . . .

Department of Banking, Insurance
Securities and Health Care Administration
Division of Health Care Administration

August 1, 2005

Dear Governor:

I am pleased to submit to you herewith, for your consideration and approval, a Health Resource Allocation Plan (HRAP): a four-year plan that identifies Vermont's needs in health care services, programs and facilities; the resources available to meet those needs; and the priorities for addressing those needs on a statewide basis. This HRAP differs slightly from the proposed HRAP I submitted to you on July 1, 2005.

This HRAP is being submitted to you pursuant to Act 53 (2003), in which the Department of Banking, Insurance, Securities and Health Care Administration (BISHCA), in consultation with the Secretary of the Agency of Human Services, was charged with developing a Health Resource Allocation Plan for your consideration and approval. Act 53 was passed to strengthen the state planning process for health care services and to address concerns about health care access, quality and costs.

Act 53 specifies that the HRAP must include hospital, nursing home and other inpatient services; home health and mental health services; treatment and prevention services for alcohol and other drug abuse; emergency care; ambulatory care services, including primary care resources, federally qualified health centers, and free clinics; major medical equipment; and health screening and early intervention services. In developing the HRAP, these services were considered in relation to: the continuum of care from prevention through end-of-life; a specific regulatory framework (the state Certificate of Need program); and the six Institute of Medicine Aims for health improvement which state that services be safe, effective, patient-centered, timely, efficient and equitable.

To develop an HRAP that both met Act 53 specifications and accurately reflected Vermont's needs, I appointed an advisory committee of consumers, providers and health care professionals to participate in the process. BISHCA staff spent several months studying state resources and met monthly with the advisory committee to evaluate resources and priorities and develop recommendations. Additionally, healthcare experts presented data and recommendations to the Committee and public input was sought through public hearings in April and May. The advisory committee also worked to ensure that the HRAP was congruent with the State Health Plan and the fifteen individual Community Needs Assessments conducted by the hospitals in Vermont.

The priorities and recommendations reach broadly across the Vermont health care system. This is the first time this scope of data has been gathered and presented in one place, helping to crystallize and quantify the information about our health care delivery system today. Seven key factors emerge as priorities that we must address in Vermont:

1) Demographics – The emergence of the baby boomers into middle age has resulted in a distribution of the population that continually pressures resources;

2) Chronic illness – Chronic illness, the leading cause of illness, disability, and death and the chief area for health care expenditures in Vermont and nationally, compels us to redirect our health care resources to focus on the six aims for improvement articulated by the Institute of Medicine; care should be safe, timely, effective, efficient, patient centered, and equitable;

3) Prevention – Improved prevention and health promotion activities are key areas of concern for addressing health care resources;

4) Workforce – Establishing and developing a workforce that can support the growing aged population in numerous healthcare services is a high priority;

5) Health Care Information Redesign – Information technology provides an opportunity to help re-design and improve the processes and outcomes of health care services;

6) Population-based analysis – This science pioneered by Dr. John Wennberg, MD will allow evaluation of health care current and projected use and need and allocation of health care resources accordingly;

7) Integration of care – The efficiency and effectiveness of health care can be improved by the continued integration of primary, specialty, physical and mental health care.

Establishing the recommendations to support these priorities will require the Commissioner to develop additional benchmarks, guidelines, and regulations particularly for administering the Certificate of Need law. Next Steps identifies several key first actions steps and plans for addressing these items. For example, the recommendation to use the science of population-based analysis to examine utilization trends and patterns will require guidelines to establish valid findings with consistency and objective information. This approach can also be adopted for other recommendations that will allow Certificate of Need applications to be reviewed with similar standards and scope of review.

The HRAP owes its existence to the generous contributions of time, energy and intellect provided by the advisory committee (member list follows), as well as numerous others who have been involved in the process. Many thanks to those individuals, and to all of you who will participate in the future updating and refining of a Health Resource Allocation Plan that will be used as a tool for future planning for all of Vermont.

Sincerely,

John P. Crowley
Commissioner, Department of Banking, Insurance
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SECTION ONE: OVERVIEW

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Executive Summary

Background and Overarching Themes

In 2003, the Vermont State Legislature, with a primary goal of strengthening the State planning process for health care services and to identify needs and priorities to address health care access, quality, and costs, passed Act 53. Pursuant to the Act, the Department of Banking, Insurance, Securities and Health Care Administration (BISHCA), in consultation with the Secretary of the Agency of Human Services, was charged with developing a Health Resource Allocation Plan (HRAP). The HRAP is a four-year plan that identifies (1) Vermont's needs in health care services, programs and facilities, (2) the resources available to meet those needs, and (3) the priorities for addressing those needs on a statewide basis.

In preparing the HRAP, a number of compelling themes became evident across all services and topics. These themes include:

- **Demographics.** An aging population leads to additional demand for health care services, and results in significant pressures on limited resources. Vermont's 65 year old and older population is projected to increase almost 50% from 2000 to 2015. The 65 and older population will therefore grow from just over 12.7% in 2000 to over 17.5% by 2015. The report, "Shaping the Future of Long-Term Care and Independent Living, 2004-2014" published by the Department of Aging and Independent Living in May 2005, addresses the implications of an aging population and the impact this trend has on the need for expanded services during that ten year period.

- **Chronic Illness**. Chronic conditions are the leading cause of illness, disability and death. It is estimated that 83% of national health care spending, 81% of hospital admissions, and 76% of physician visits are for people with chronic conditions. Care for people with chronic conditions in Vermont accounts for 78% of health care spending, 76% of hospital admissions, and 72% of physician visits. In addition, a 2004 RAND Report indicated that more than 50% of people with several chronic diseases are not managed adequately in the health care system. The burden of chronic illness creates additional demands on already-strained resources, requires a balancing of acute care and chronic care resources, and provides opportunities for improving the patient-centeredness, effectiveness and efficiency of the health care system. There is a need for more effective care for people with chronic disease, including education that will lead to improved self-management. There is also a need for enhanced prevention efforts to avoid or delay the onset of or complications from chronic illnesses.

- **Prevention services and activities.** A key concept that continually emerged during the Health Resource Allocation Plan Advisory Committee's discussion of

Vermont's health care resources was the need to invest in prevention. Health care delivery systems including provider reimbursement are designed around taking care of those that are ill. Prevention services and activities change this focus and provide an opportunity to make Vermonters healthier and the system more cost effective. This point is noted in the Vermont State Health Plan: *"The goals of prevention are to forestall illness, to decrease the incidence of disease and premature death, to reduce suffering, and to save money. The success of prevention has been well documented in the areas of immunization, sanitation, workplace safety and dental disease, among others. We have been far less successful in preventing chronic disease or the consequences of chronic disease (including mental health conditions and alcohol and drug dependency), and in preventing poor pregnancy outcomes."* The State Health Plan describes documented savings and encourages action steps the state should take to encourage both health care promotion and preventive care services. The HRAP further emphasizes the importance of prevention and identifies and encourages priorities and recommendations that address prevention throughout the report.

- **Workforce.** At the same time that demand is increasing, Vermont is experiencing workforce shortages and mal-distribution in a number of health care professions. The 2005 Vermont Report of the Healthcare Workforce Partnership outlines 20 such professions. Chief among these are nursing, primary care providers, psychiatrists and psychiatric nurse practitioners, and oral health providers. These needs are reiterated in the HRAP. An aging workforce is among the factors leading to a declining supply of providers; for example, the median age of nurses in 2002 was 46 years old, with 72% of them being over 40, and 95% of advance practice registered nurses working in mental health were over 40. Focused attention on recruitment, education, and retention is essential to addressing these supply issues.

- **Health Care System Redesign, Including Information Technology**. Information technology (IT) is playing an increasing role in the delivery of health care, and it is a priority of the State to engage health care IT in ways that improve care so that it is patient-centered, safe, efficient and cost-effective. IT is but one way of redesigning the system of care. There are other mechanisms for improving care processes and outcomes that should be evaluated and adopted to ensure that more effective care can be provided with a more efficient use of resources.

- **Population-Based Analysis**. Population-based analysis, pioneered by John Wennberg, MD at the Center for the Evaluative Clinical Sciences at Dartmouth Medical School, is a useful tool for examining health care utilization and outcomes. Going forward, population-based analysis should be used as the primary methodology for evaluating the use of health care services, the allocation of existing services, the need for additional services, and health care outcomes. The Commissioner will develop Guidelines with regards to population-based analyses.

- **Integration of Care**. The need to enhance integration of primary care and specialty care, physical health care and mental health care, and mental health care and substance abuse care is a recurring theme in the HRAP. Improved integration leads to safer and more patient-centered, efficient and effective care.

Legislative Charge and the HRAP Process

Act 53 specifies that the HRAP must include hospital, nursing home and other inpatient services; home health and mental health services; treatment and prevention services for alcohol and other drug abuse; emergency care; ambulatory care services, including primary care resources, federally qualified health centers, and free clinics; major medical equipment; and health screening and early intervention services. In developing the HRAP, these services were considered in relation to the continuum of care from prevention through end-of-life. The six Institute of Medicine Aims for health improvement which state that services should be safe, effective, patient-centered, timely, efficient and equitable were adopted as the primary principles and organizational framework for the HRAP. Finally, implications for the State Certificate of Need program were considered.

To develop an HRAP that both met Act 53 specifications and accurately reflected Vermont's needs, a thirteen-member advisory committee of consumers, providers, payers, Public Oversight Commission members, and health care professionals was appointed by the BISHCA Commissioner. In monthly public meetings, the advisory committee designed a statement of principles, developed a conceptual framework for organizing the document, provided extensive input on the content, consulted experts, evaluated needs and priorities, developed recommendations, and highlighted priorities. In addition, advisory committee members participated in a series of five public hearings around the State in April and May. The advisory committee also worked to ensure that the HRAP was congruent with the State Health Plan and the individual Community Needs Assessments conducted by the hospitals in Vermont. As a result of this process, the document reflects the work of a broad range of participants.

Conclusions

The Vermont Health Resource Allocation Plan is a complex document that integrates a great deal of data from a wide variety of sources, including the Vermont State Health Plan, the hospital Community Needs Assessments, The Vermont State Hospital Futures Report, the prior Health Resources Management Plans, "Crossing the Quality Chasm" from the Institute of Medicine, and a vast range of service specific reports and studies and research conducted and/or compiled by BISHCA staff and others. The purpose of the HRAP is to identify sufficiencies and needs across the Vermont health system, and to establish plans and frameworks for achieving optimal allocation of health resources across all services statewide.

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HRAP Priorities

Chapter 1: Inpatient, Hospital-based Outpatient and Emergency Services

The priorities for inpatient, hospital-based outpatient, and emergency services relate to determining and developing the appropriate amount and distribution of inpatient beds, outpatient and emergency services and major medical equipment.

To ensure adequate access and maximum cost efficiency, Vermont needs to have an appropriate number and distribution of inpatient beds, especially private beds, psychiatric beds, rehabilitation beds and nursing home beds. It is also important to have adequate levels of outpatient care, emergency care, and major medical equipment. Developing access standards and using the science of population-based analysis can help policymakers determine the appropriate number and distribution of inpatient beds, as well as adequate levels of outpatient services, emergency services, and major medical equipment.

Chronic illnesses and their complications are consuming an increasing proportion of total health care resources. A key element in containing health care costs and improving outcomes is to invest in preventive services and effective treatment for chronic illnesses at the inpatient and outpatient levels.

In the mental health area, safety and quality concerns, along with the elimination of federal funding for freestanding "Institutes of Mental Disease," have led to calls to close the 54-bed Vermont State Hospital. Plans for closure call for additional adult mental health inpatient, crisis bed and sub-acute level capacity at alternative sites. There is only one inpatient facility for children in Vermont, the Brattleboro Retreat.

One objective of an efficient, effective, patient-centered health care system is to minimize the need for inpatient care so that patients receive care in the least restrictive setting possible. However, gaps in emergency care could actually lead to increased inpatient care.

Chapter 2: Ambulatory Services

The priorities for primary care, specialty care, and oral health relate to an increased need for preventive care, recruitment and retention of primary care, specialty and dental health professionals, integration of physical, mental health and substance abuse care, and increasing the number of Vermonters with a dental health home.

Primary care must be widely available, comprehensive and focused on prevention and early screening and diagnosis to prevent, reduce, and delay complications, avoid hospitalizations, and more efficiently and effectively use specialty care.

Needs assessments emphasize gaps in outpatient mental health and substance abuse treatment as well as a lack of integration in physical, mental health and substance abuse care, particularly with primary care providers, as important factors to address in ambulatory care services. Population-based analyses of needs and related workforce shortages and mal-distributions of workforce resources are key to addressing these priorities.

In the area of specialty care, recruitment and retention of particular professionals is a priority. These include, particularly in more rural parts of the State, internists, psychiatrists and psychiatric advanced practice registered nurses (especially for children and adolescents), general surgeons, orthopedic surgeons, urologists, neurologists, hospitalists, dermatologists, and gastroenterologists.

Enhancing preventive care, improving access to dental services by Medicaid patients, and reducing inefficient emergency department treatment for dental care, is necessary to improve oral health for Vermonters and address the declining population of and mal-distribution of dental professionals.

Chapter 3: Community-Based Services

The priorities for community-based services relate to demographics; the need for additional personal caregivers; the goals of supporting independent living and patient-centered care; and the need for mental health and substance abuse prevention, screening and support services.

It is a certainty that demand for community-based health care, related social services and long-term care services will increase in the future due to the aging of the population. The challenge for Vermont's health care system will be to determine how to expand the full continuum of services for elders and younger persons with disabilities in order to keep pace with the changing demographics. There will be a corresponding increase in demand for personal caregivers. The challenge in meeting this workforce issue is to identify and implement strategies to increase the supply of qualified personal caregivers.

Successful community-based care requires that health care and related social services are coordinated in a way that supports opportunities for independent living and patient-centered case management and care.

In the area of mental health, the Act 53 Hospital Community Needs Assessments highlighted a need for more mental health and substance abuse prevention, screening and aftercare services. Suicide was the ninth leading cause of death in Vermont in 2002; there is a need for a comprehensive suicide prevention effort, which is being spearheaded by the Vermont Department of Health. Peer recovery programs initiated in Vermont, such as the Recovery Education Project, have been successful and should continue to be expanded. Supportive, affordable housing is highlighted as a need in several reports.

Chapter 4: Other Medical Services

The priority for the provision of other medical services is to provide high quality, evidence-based care. This includes defining roles for alternative care providers and improving access to other provider services, including, but not limited to, services provided by pharmacists and pharmacy technicians; opticians and optometrists; physical, occupational, respiratory and speech therapists; chiropractors; dieticians; and alternative care providers.

Chapter 5. Healthcare Workforce

The priorities for the healthcare workforce relate to identifying and addressing shortages or mal-distributions of providers. Workforce shortages are crucial, as we recognize an increase in the average age of certain professions, an increase in resource demand related to changing demographics and challenges for effective workforce recruitment, retention, and education.

Provider shortages and/or mal-distributions that have been identified in Vermont include: primary care physicians, psychiatrists, nurses, mid-level practitioners, oral health providers, certain medical specialists, hospitalists, and substance abuse professionals.

Chapter 6: Healthcare Information Technology

A coordinated healthcare information technology throughout Vermont's health care system is the overall priority for information technology. A collaborative implementation of appropriate healthcare information technology, especially models for electronic health/patient records, will be key to improving Vermont's health care system, especially in terms of making care more safe, efficient and effective.

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HRAP Recommendations

Note: Many of the recommendations listed here have detailed implementation options as part of the recommendation. These recommendations and any implementation options are included in each of the individual chapters.

Chapter 1: Inpatient, Emergency & Hospital-Based Services

Inpatient Services

Recommendation 1. Develop access standards to enable a consistent and logical framework for inpatient care. The access standards should follow the principles of the IOM criteria.

Recommendation 2. Adopt population-based analysis to determine the need for additional services and/or the allocation of additional services.

Recommendation 3. Continue to develop strategies for addressing inpatient workforce shortages as outlined in the Workforce chapter.

Recommendation 4. Vermont's acute care bed capacity, except as noted below, is sufficient. This is based upon comparison to other states beds per thousand, the capacity of out-of-state hospitals that are in relative close proximity, and the available licensed beds versus the number of beds that are currently staffed.

Recommendation 5. Implement the Futures Report recommendations as the foundation for determining future mental health and substance abuse inpatient planning.

Recommendation 6. Implement chronic care and prevention initiatives as priorities:

- For determining the allocation of hospital inpatient resources.
- For prioritizing appropriate workforce levels.
- For examination of individual CON applications and annual hospital budgets.

Recommendation 7. Vermont inpatient services should adopt information system technology priorities as outlined in the Health Information Technology chapter.

Hospital-Based Outpatient Services

Recommendation 1. Develop an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Adopt standards to enable a consistent and logical framework for examining outpatient care services. The standards should follow the principles of the IOM criteria, in particular, safety and effectiveness.

Recommendation 3. Prioritize the immediate hospital outpatient needs across the Vermont health care system.

Recommendation 4. Adopt population-based analysis to determine the need for additional services and/or the allocation of additional services.

Recommendation 5. Vermont hospitals should adopt information system technology priorities as outlined in the Health Information Technology chapter.

Recommendation 6. Develop strategies for addressing hospital outpatient workforce shortages as outlined in the Workforce chapter.

Mental Health/Substance Abuse Services

Recommendation 1. Support implementation of the broad recommendations in the Vermont State Hospital Futures Plan, including:

- An adequate number of beds to provide essential core services, including:
  - Inpatient beds at an appropriate general hospital (preferably an academic medical center),
  - Intensive care beds at another hospital,
  - Sub-acute beds in one to three locations,
  - A secure residential facility, and
  - Additional diversion beds in two or three locations.

    (Vermont State Hospital Futures Plan)
- Location of services in or near the most appropriate setting: academic medical centers, community hospitals, or other community-based facilities.
- Construction of new facilities when existing facilities are inadequate to meet the standard of care required for the service.
- This implementation should include a thorough clinical and operational planning process that includes the State's hospitals.

Recommendation 2. Allocate more resources to emergency services, given the intense need for services during the first hours of a psychiatric emergency and the reduction in inpatient admissions that could occur as a result of a well-coordinated emergency services system.

Recommendation 3. "Review the laws, regulations and practices regarding medical treatment for individuals who may lack capacity to make an informed decision regarding their treatment and recommend change where indicated." (Vermont State Health Plan 2005, p. 99)

Emergency Medical Services

Recommendation 1. Ensure Vermonters' continued access to a hospital emergency department (ED) within 30 minutes of travel.

Recommendation 2. Ensure patient and ED staff access to expert consultation, at least by phone, within 30 minutes of arrival to the ED.

Recommendation 3. Standardize and implement data collection for all emergency service providers.

Recommendation 4. Consider whether it is advisable to regionalize/consolidate services to potentially moderate issues around call frequency, maintaining expertise, and financial pressures.

Recommendation 5. Address the increasing difficulty in attracting and retaining volunteers to the EMS system.

Recommendation 6. Evaluate and determine whether emergency medical services need additional resources to stabilize and facilitate effective care, including performance standards for pre-hospital, intra-hospital, and emergency medicine.

Major Medical Equipment

Recommendation 1. Evaluate disbursement or acquisition of major medical equipment (MME) based on a population-based utilization analysis, clinical quality, CON criteria and standards, and financial feasibility. Other factors to consider include the availability of trained personnel, and an evaluation of patient need vs. convenience, urgent vs. non-urgent use, and single test vs. repetitive tests.

Recommendation 2. Generally, introduce major new medical equipment technology first at an academic medical center serving a significant number of Vermonters.

Chapter 2: Ambulatory Care Services

Primary Care Services

Recommendation 1. Support an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Support an integrated patient registry system, with initial emphasis on chronic care, as the cornerstone of a comprehensive clinical information

system that can enhance the care of individual patients by providing timely reminders about needed services, including prevention, screenings, and summarized data to track and plan care. (Blueprint for Health)

Recommendation 3. Support health promotion and wellness programs targeting obesity, nutrition, and/or physical activity as well as tobacco and substance use and other high-risk behaviors in communities statewide and specifically as served by the following hospitals: Brattleboro Memorial Hospital, Central Vermont Medical Center, Copley Hospital, Fletcher Allen Health Care, Gifford Hospital, North Country Hospital, Northeastern Vermont Regional Hospital, Porter Medical Center, Southwestern Vermont Medical Center, and Springfield Hospital. (Hospital Community Needs Assessments)

Recommendation 4. Support school-based health programs that include health education and counseling addressing these six preventable risk behaviors that are often established in early childhood as identified by the Centers for Disease Control (State Health Plan):

- tobacco use,
- unhealthy eating,
- inadequate physical activity,
- alcohol and other drug use,
- sexual behaviors that result in HIV infection, other sexually transmitted diseases or unintended pregnancies, and
- behaviors that result in violence and unintentional injuries, including those sustained in motor vehicle crash.

Recommendation 5. Support coordinated and community-based programs to address injury prevention including unintentional injury, intentional injury including suicide, homicide and domestic violence and other interpersonal violence issues including bullying, harassment, child abuse and elder abuse. (State Health Plan)

Recommendation 6. Support an ambulatory care system at both the community and statewide levels that has appropriate balance and integration of primary and specialty care resources to meet population-based need in a manner that is efficient, effective and coordinated across different providers and settings.

Recommendation 7. Support proven models that integrate social services with health services such as those that have been successfully implemented by some of the community health centers, federally qualified health centers, and other entities in Vermont.

Recommendation 8. Support proven models that integrate primary and specialty care with mental health and substance abuse care for providers who are either co-located or located off-site. Examples include the Chronic Care Collaborative for Depression implemented by the Office of Vermont Health Access and other entities such as federally qualified health centers.

Recommendation 9. Support an ambulatory care system that has adequate program resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Recommendation 10. Support an ambulatory care system that has the right number, appropriate mix, and distribution of workforce resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Recommendation 11. Support the effective use of mid-level practitioners to increase the capacity of local ambulatory care systems for both primary and specialty care.

Recommendation 12. Support the use of hospitalist models where appropriate to manage inpatient care on behalf of primary care physicians to increase capacity for primary care services, and to support local retention of primary care physicians.

Recommendation 13. Provide a primary care medical home for all children with special health needs (CSHN) that provide coordinated, ongoing and comprehensive care. (State Health Plan).

Specialty Care Services

Recommendation 1. Support an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Support an integrated patient registry system, with initial emphasis on chronic care, as the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services, including screenings, and summarized data to track and plan care. (Blueprint for Health)

Recommendation 3. Support an ambulatory care system at both the community and statewide levels that has appropriate balance and integration of primary and specialty care resources to meet population-based need in a manner that is efficient, effective and coordinated across different providers and settings.

Recommendation 4. Support proven models that integrate social services with health services such as those that have been successfully implemented by some of the community health centers, federally qualified health centers, and other entities in Vermont.

Recommendation 5. Advance proven models that integrate primary and specialty care with mental health and substance abuse care for providers who are either co-located or located off-site. Examples include the Chronic Care Collaborative for Depression implemented by the Office of Vermont Health Access and other entities such as federally qualified health centers.

Recommendation 6. Support an ambulatory care system that has adequate program resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Recommendation 7. Support an ambulatory care system that has the right number, appropriate mix, and distribution of workforce resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Recommendation 8. Support the effective use of mid-level practitioners to increase the capacity of local ambulatory care systems for both primary and specialty care.

Recommendation 9. Support information technology and communication strategies to facilitate effective communication among specialists, primary care providers, and community resources to improve coordination of care and reduce professional isolation.

Oral Health Services

Recommendation 1. Support additional education about the relationship between oral health and general health.

Recommendation 2. Support an increase in the percentage of Vermont residents served by public water systems that have optimally fluoridated water.

Recommendation 3. Support enhancement of the oral health workforce in Vermont to meet the needs of all Vermonters.

Recommendation 4. Support proven models for alternative dental delivery systems.

Recommendation 5. Support ways to prevent the inappropriate use of emergency room for dental problems.

Recommendation 6. Support the ability to evaluate the effectiveness, accessibility, and quality of oral health services.

Mental Health/Substance Abuse Services

Recommendation 1. Develop strategies for addressing known workforce shortages, and obtain and analyze data to identify additional workforce issues.

Recommendation 2. Improve "integration of mental health services into primary care focusing on prevention, screening, early intervention and referral when indicated…[and] integrate substance abuse services into primary care, with particular attention to pregnant women, focusing on prevention, screening, early intervention and referral when indicated." (Vermont State Health Plan 2005)

Recommendation 3. Increase resources for designated agency adult outpatient and substance abuse programs. (Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital, 2-4-05) This will help to ensure that Vermonters are treated in the most appropriate and least restrictive setting possible.

Recommendation 4. Focus efforts and resources on several special populations: children; opiate-dependent people (particularly males, pregnant women, and women without young children who do not currently have access to services); people experiencing co-occurring mental health and substance abuse disorders; and frail, homebound elders with mental health diagnoses. (HRAP Advisory Committee, 3-16-05)

Recommendation 5. Review and consider the recommendations in the Department of Corrections Comprehensive Mental Health Services Plan. (Corrections Mental Health Plan)

Recommendation 6. "Coordinate efforts with statewide work on the Chronic Care Initiative. The Chronic Care Initiative is focused on ensuring that providers and consumers have the information they need to identify people at risk for chronic illness; guidelines, incentives and self-management techniques to provide the best possible care; and outcome measures to determine effectiveness." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Recommendation 7. "Develop and maintain a full continuum of geographically accessible [substance abuse] treatment services including outpatient, inpatient and pharmacological treatment units. Expand the capacity for pharmacological treatment capacity for opioid addiction as follows:

- mobile or stationary methadone clinics
- office-based buprenorphine treatment.

Increase aftercare and recovery services, including treatment modalities that include a strong focus on recovery management and relapse prevention." (Vermont State Health Plan 2005)

Recommendation 8. "Continue to increase locally provided outpatient treatment and case management [substance abuse] services that are coordinated and integrated with other community services (e.g.: vocational counseling, criminal justice, and primary medical care), and that include safe and sober housing for people transitioning back from residential care and from incarceration." (Vermont State Health Plan 2005)

Recommendation 9. Integrate the State's private and public systems for mental health and substance abuse treatment to improve coordination of care and achieve a comprehensive continuum of care.

Chapter 3: Community-Based Services

Long-term Care Services

Recommendation 1. Continue to develop and support a continuum of long-term care options for persons requiring assistance with activities of daily living from nursing facilities to home and community based services. Models should be tailored to community need.

Recommendation 2. Continue to identify unmet transportation needs of elders and adults with disabilities to improve access to long-term care services and enhance the coordination of transportation services.

Recommendation 3. Identify consistently defined geographic community service areas based on patient's established travel patterns for primary care physician services, in concert with Vermont agencies that provide planning and oversight for health care and related social services. Ensure one acute care hospital in each identified service area.

Recommendation 4. To the extent possible based on financial resources and the availability of appropriately trained health care personnel, assure access to a comprehensive continuum of community based health care and related social services within each community service area. The following services, tailored to community needs, should be accessible within each area: nursing home care, home health care, area agency on aging services, primary care physician services, hospital acute care and ambulatory care services, community mental health services, adult day care, respite, assisted residential services, residential care homes, homemaker and attendant services and transportation.

Recommendation 5. Coordinate roles and services for all health care and related social services within each community service area to support opportunities for independent living and to assure comprehensive, patient-centered case management for each patient or client.

Recommendation 6. Establish and monitor appropriate quality and performance measures for each category of community health care and related social services.

Recommendation 7. Provide clear information to individuals regarding how to report concerns or problems related to the quality and performance of community services.

Mental Health/Substance Abuse Services

Recommendation 1. Enhance mental health community outreach and prevention programs to ensure timely treatment and reduce mortality.

Recommendation 2. Ensure that people experiencing mental health and substance abuse disorders have access to a full range of recovery and support services.

Recommendation 3. In the area of substance abuse prevention, "develop, support and maintain primary prevention coalitions, programs and activities…" (Vermont State Health Plan 2005)

Chapter 4: Other Medical Services

Recommendation 1. Assess the workforce needs for other medical services (including but not limited to physical therapists, occupational therapists, respiratory therapists, speech therapists, pharmacists, pharmacy technicians, dieticians, podiatrists, opticians, optometrists, chiropractors, and other alternative care providers) and explore options for better serving underserved areas.

Recommendation 2. Explore the need to identify quality measures and evidence-based practices for other medical services (including but not limited to physical therapists, occupational therapists, respiratory therapists, speech therapists, pharmacists, pharmacy technicians, dieticians, podiatrists, opticians, optometrists, chiropractors, and other alternative care providers).

Chapter 5: Healthcare Workforce

The following recommendations addressing primary and specialty care physicians are derived from the Report of the Healthcare Workforce Partnership and are endorsed by the HRAP:

Primary Care Physicians

Recommendation 1. Work with existing programs in the State (such as the UVM Area Health Education Center Program, Educational Loan Repayment and Freeman Scholarship programs) to target the mal-distribution of primary care specialties and

current and future high need primary care specialties, such as internal medicine, through the recruitment of physicians into the State and the education of physicians at Vermont's academic institution.

Recommendation 2. Provide better monitoring of the physician workforce in collaboration with the Department of Health, in order to more adequately predict physician workforce needs, taking into account influences such as education in primary care specialties, patient demand, technological changes and policy related factors.

Recommendation 3. Consider increasing the capacity of entry level and graduate medical education in Vermont.

Specialty Care Physicians

Recommendation 4. Work with existing programs in the State (such as the UVM Area Health Education Center Program, Educational Loan Repayment and Freeman Scholarship programs) to target the mal-distribution specialty care physicians such as general surgeons, urologists, neurologists, hospitalists, dermatologists and gastroenterologists.

Recommendation 5. Consider increasing the capacity of entry level and graduate medical education in Vermont.

Recommendation 6. Provide better oversight and monitoring of the physician workforce, in collaboration with the Department of Health, in order to more adequately predict physician workforce needs, taking into account influences such as those associated with rural remote practice.

Recommendation 7. Explore models and best practices addressing the issues of patient volume, professional isolation and financial sustainability of physician specialists.

Recommendation 8. Assist employers in anticipating need, based on retirement or loss of physicians, and engaging in in-state and out-of-state recruitment activities.

Mid-level Practitioners

The National Association of Pediatric Nurse Practitioners (NAPNP) has identified a shortage of advanced nursing professionals working in non-hospital environments. Nurse practitioners often practice in rural or underserved areas to supplement, or in some cases, replace physician care, when there are no physicians available. The NAPNP has identified ten solutions to the nursing workforce shortage, including advanced practice nurses:

Recommendation 1. Increase nursing education funding.

Recommendation 2. Develop nursing specialty and advanced practice internship programs supported by federal grants.

Recommendation 3. Increase funding for recruitment, retention, and graduation of minority students.

Recommendation 4. Develop career progression initiatives.

Recommendation 5. Develop qualified faculty and relevant curriculum to support increasingly independent practice role expectations and opportunities.

Recommendation 6. Increase efforts to educate NPs in or near their home communities.

Recommendation 7. Develop consistent regulations regarding licensure and certification.

Recommendation 8. Support legislation to remove barriers to practice, such as equitable reimbursement.

Recommendation 9. Develop innovative partnerships and faculty-practice models with local communities.

Recommendation 10. Develop a federal nursing workforce commission to expand data capacity for ongoing analysis.

On January 26, 2005, the American College of Nurse-Midwives recommended the following to the Department of Labor:

Recommendation 11. To begin accurately collecting the subsets of Advanced Practice Nurses defined as CRNA, CNM, and NP. This will allow for better projection of workforce shortages in the future.

The Report of the Healthcare Workforce Partnership includes the following recommendations related to psychiatric nurse practitioners:

Recommendation 12. Provide better monitoring of the workforce, in collaboration with the Department of Health, in order to more adequately predict psychiatric nurse practitioner workforce needs, taking into account influences such as rate of education of specialties, patient demand, technological changes and policy related factors.

Recommendation 13. Explore models of collaboration among other health professions in order to promote physical and mental health integration.

Recommendation 14. Develop educational opportunities to assist non-mental health specialists in addressing mental health issues more extensively within the scope of their practice, in order to utilize psychiatric nurse practitioners more effectively.

Recommendation 15. Assess the feasibility of collaborating with regional educational programs to offer certificate programs in mental health for existing advanced practice nurses and the provision of an APRN educational program.

Recommendation 16. Continue to use resources such as the State Educational Loan Repayment Program administered by the UVM AHEC Program to target the recruitment and retention of psychiatric nurse practitioners.

Recommendation 17. Develop other incentives such as scholarships and expanded financial assistance.

Nursing Professionals

The Report of the Healthcare Workforce Partnership recommends continuing support for the recommendations made by the 2001 Blue Ribbon Nursing Commission in Vermont that have been implemented to date:

Recommendation 1. Create a Center for Nursing located at the University of Vermont in collaboration with the Vermont State Colleges to address ongoing supply, education, practice and research.

Recommendation 2. Form a State-funded Vermont Nursing Education Loan Forgiveness Program. The UVM AHEC Program is currently administering Educational Loan Repayment for nurses while VSAC is administering a Loan Forgiveness Program for nurses in the form of scholarships.

Recommendation 3. Develop an aggressive fundraising effort to raise scholarship support for nursing students from private sources. (e.g. Freeman Scholarship)

The Healthcare Workforce Partnership recognizes that continued efforts in the following areas are needed:

Recommendation 4. Establish a partnership between the State of Vermont, health care providers, educators, and other health care partners to fund a comprehensive program to promote the nursing profession.

Recommendation 5. Increase State funding to expand nursing education programs so they can prepare more students.

Recommendation 6. Increase nurse salaries to retain current nurses and attract new nurses into the profession.

Additionally, in the time since the Blue Ribbon Commission on Nursing in 2001, the following recommendations have been made by the Office of Nursing Workforce Research, Planning, and Development at UVM:

Recommendation 7. Support creation of joint clinical appointments between health care facilities and schools of nursing to ease the nursing faculty shortage.

Recommendation 8. Develop an aggressive fundraising effort to raise scholarship support for advancement in nursing to prepare future nursing faculty. (i.e. Freeman and Light the Lamp Scholarships and other loan repayment options)

Recommendation 9. Develop incentives to attract and retain RNs in the nursing home setting.

Recommendation 10. Encourage job redesign to enable older nurses to stay on the job until or beyond the traditional retirement age.

Dentists

The following recommendation are derived from the Report of the Healthcare Workforce Partnership and are endorsed by the HRAP:

Recommendation 1. Provide more support and continue existing efforts for recruitment of dentists into the State, particularly to replace those dentists approaching retirement.

Recommendation 2. Enhance the recruitment of Vermonters to study dentistry and return to Vermont to practice.

Recommendation 3. Evaluate existing workforce initiatives, policies, programs and funding for their viability and direct resources to the most successful and effective areas.

Recommendation 4. Develop additional tools to inform and persuade dentists to begin practice in Vermont.

Recommendation 5. Continue programs such as the Educational Loan Repayment Program administered by the UVM AHEC Program.

Mental Health and Substance Abuse Professions

Recommendations from the Report of the Healthcare Workforce Partnership include:

Psychiatrists

Recommendation 1. Work with existing programs in the State (such as the UVM Area Health Education Center Program, Educational Loan Repayment and Freeman Scholarship programs) to target mal-distribution through the recruitment of physicians into the State and the education of physicians at Vermont's academic programs.

Recommendation 2. Provide better monitoring of the physician workforce in collaboration with the Department of Health to more adequately predict physician workforce needs, taking into account influences such as rate of educating primary care specialties, patient demand, technological changes and policy related factors.

Recommendation 3. Explore models of collaboration among psychiatry and other health professions in order to promote physical and mental health integration.

Recommendation 4. Explore how to sustain a variety of delivery modalities for psychiatry services and employment options for psychiatrists such as in community mental health systems, public and private practice settings.

Recommendation 5. Create a pipeline which includes development of practice options and opportunities in Vermont communities for psychiatrists.

Psychiatric Nurse Practitioners

Recommendation 6. Provide better monitoring of the workforce in collaboration with the Department of Health in order to more adequately predict psychiatric nurse practitioner workforce needs taking into account influences such as rate of education of specialties, patient demand, technological changes and policy related factors.

Recommendation 7. Explore models of collaboration among other health professions in order to promote physical and mental health integration.

Recommendation 8. Develop educational opportunities to assist non-mental health specialists in addressing mental health issues more extensively within the scope of their practice in order to utilize psychiatric nurse practitioners more effectively.

Recommendation 9. Assess the feasibility of collaborating with regional education programs to offer certificate programs in mental health for existing advanced practice nurses and the provision of an APRN educational program.

Recommendation 10. Continue to use resources such as State Educational Loan Repayment Programs administered by the UVM AHEC Program to target the recruitment and retention of psychiatric nurse practitioners.

Recommendation 11. Develop other incentives such as scholarships and expanded financial assistance.

The Council of Graduate Medical Education (COGME) recommends the following:

Recommendation 12. Offer more training in the highest need physician specialties, mainly primary care and psychiatry.

Recommendation 13. Enhance efforts to recruit practitioners in the highest need physician specialties such as primary care and psychiatry into areas with highest need, in particular rural and remote areas.

Other Professions

Podiatrists

Recommendation 1. Monitor access and foot health indicators to identify potential shortages or mal-distribution of podiatric care providers.

Direct Care Workers

The following recommendations are derived from the Report of the Healthcare Workforce Partnership addressing collaborative work with DAIL to alleviate the PCA workforce issues and are endorsed by the HRAP.

Recommendation 1. Improve recruitment and retention strategies.

Recommendation 2. Develop targeted compensation strategies.

Recommendation 3. Improve working conditions.

Recommendation 4. Improve orientation and education programs.

Recommendation 5. Explore the role of the PCA in other career ladders.

Recommendation 6. Supporting management staff through provision of education concerning leadership and supervision.

Recommendation 7. Collaborating to develop ongoing monitoring of the PCA workforce supply and demand.

Chapter 6: Healthcare Information Technology

Recommendation 1. Support the development of an interoperable and secure comprehensive clinical information system to enhance individualized care, population-based tracking and planning, performance monitoring, and quality improvement efforts.

Recommendation 2. Support VITL and other organizations' immediate implementation of demonstration projects that closely align with the Six Aims of the IOM Quality Report, especially safety, efficiency, effectiveness and patient-centeredness.

Recommendation 3. Give high priority to health information technology initiatives and projects that ensure continuity of care and patient safety, especially during transitions across patient care settings.

Recommendation 4. Support a collaborative model for development of a Vermont electronic health/electronic patient record (EHR, EPR) to ensure alignment with national standards for coding, security and privacy and feasibility for local implementation.

Recommendation 5. Ensure that proposed information technology investments by hospitals, health systems and other providers meets standards for extrinsic interoperability and other standards related to health care information and data exchange.

Recommendation 6. Support telemedicine, electronic exchange of information and clinical decision support systems to reduce provider and patient isolation and lack of access to specialty consults in rural areas of the State.

HRAP Next Steps

A number of high-priority "next steps" are apparent from the above recommendations. Implementation of next steps, to be effective, must include broad participation by stakeholders, including consumers, providers, payers, state agencies, and other interested organizations.

1) Identify, define, and adopt guidelines and methodologies to ensure valid population-based analysis and the application of population-based standards.
2) Define hospital service areas, community service areas, and other health care service areas as appropriate. This effort should recognize overlapping service areas, services provided by out-of-state providers, and services provided by Vermont facilities to out-of-state consumers.
3) Identify and define geographic access standards for Vermont to ensure the delivery of health care services consistent with the HRAP, including the Principles and IOM aims outlined in the Overview. These standards will be adapted as needs and technology change; the goal is to ensure that Vermont residents have access to an appropriate continuum of services.
4) Identify and define utilization benchmarks for use in allocating health care resources. These benchmarks should be adapted as needs and technology changes.
5) Promote outreach, health promotion, health screening, prevention, and chronic care efforts, as in the Vermont Blueprint efforts, to reduce the incidence of disease and complications and to provide more timely, patient-centered and effective treatment. In the area of community-based services, coordinate roles and services for health care and social services in each service area to support independent living and patient-centered case management.
6) Support additional research on evidence-based practices, quality improvement and performance standards, specifically for Emergency Medical Services, oral health, and other medical services. Standardize and implement data collection for Emergency Medical Services providers. Research what other states are doing to promote quality and license other medical services. Collect and analyze data on future needs for rehabilitation services to determine how and where those services may be most appropriately provided.
7) Support ongoing efforts by the industry to assess workforce needs; address shortages through recruitment, retention and education strategies; and explore alternative delivery systems, particularly for primary care, mental health and substance abuse treatment, oral health, and other medical services.
8) Monitor the need for, and, where appropriate, support the improvement of information technology across all settings. Priorities include developing an electronic health record, integrated patient registry, clinical information systems, telemedicine, secure electronic exchange of information, and clinical decision support systems.
9) Support improved integration of primary care with mental health and substance abuse care.

10) Engage in administrative rulemaking where applicable, including adopting procedural guidelines for CON.

Act 53 describes the HRAP as a four-year plan, to be revised biannually or as needed with ongoing public comment. An important "next step" is to develop a clear and comprehensive process for receiving ongoing public comment and revising the HRAP as needed.

Such public comment and revision is essential to continuously improving the safety, timeliness, effectiveness, efficiency, equity and patient-centeredness of Vermont's health care system. This first Health Resource Allocation Plan should be seen as a foundation for the future. Ongoing public comment and revision are vital elements in assuring that the HRAP remains relevant in a dynamic and rapidly shifting health care environment. The Department welcomes continuing public input to that discussion.

HRAP User's Guide

How the HRAP is Organized: A "User's Guide"

The HRAP that emerged from this process is a comprehensive document that catalogues State health care resources, needs and priorities and considers each in the context of existing guidelines and frameworks. For ease of use, the HRAP is divided into five sections:

Section One – Overview

This section includes the Executive Summary, the identified HRAP priorities and HRAP recommendations, and the next series of action steps that must be completed. In addition, this section includes a Statement of Principles that reflects how the national Institute of Medicine's "six aims" (that health care be safe, effective, patient-centered, timely, efficient and equitable) set the foundation for the HRAP. This section also includes a summary of Health Care Expenditures that explains how health care costs influence the HRAP, and comprehensive summaries of both the Community Needs Assessments and State Health Plan, which highlight where needs identified in these evaluations intersect with recommendations developed in the HRAP.

Section Two – List of Acronyms and Glossary of Terms

A list of health care acronyms and a glossary of terms has been prepared to assist the reader of the Health Resource Allocation Plan (HRAP).

Section Three – HRAP Chapters 1-6

The main body of the HRAP, Section Three, comprises six topical chapters. These chapters are the backbone of the document, detailing the current supply and distribution of resources; statewide needs and priorities; and recommendations for the appropriate distribution of existing and new resources in six specific areas:

1. Inpatient, Emergency, and Hospital-based Services;
2. Ambulatory Care Services;
3. Community-based Services;
4. Other Medical Services;
5. Healthcare Workforce; and
6. Healthcare Information Technology

Each chapter begins with a summary of the service and a number of quick facts or data highlights taken from the chapter material. Chapters one through five all include a description of the services, facilities and resources; an assessment of current supply and demand; an assessment of needs and priorities as informed by the Vermont State Health Plan, Community Needs Assessments, the six Institute of Medicine Aims, staff research,

and Certificate of Need program; priorities and special considerations and recommendations; and, where relevant, a discussion of State policy implications, challenges and opportunities. Chapter six has a different structure in order to best describe how information technology relates to the provision of health care services. To be comprehensive, several chapters include service-specific sub-chapters, all of which adhere to the above format.

Section Four – Certificate of Need (CON) Standards

A separate section on CON Standards assists applicants in meeting the requirement in the CON law that CON projects be "consistent with the Health Resource Allocation Plan" and maps those standards to the HRAP Statement of Principles and Recommendations.

Section Five – Appendices

The Appendices at the end of the HRAP document include reports, data, schedule, and maps that support findings and/or are descriptive of information presented in the HRAP chapters. The HRAP document can be found on the WEB at:

http://www.bishca.state.vt.us/HcaDiv/HRAP_Act53/HRAP_index.htm

Statement of Principles

Under Act 53, Vermont is required to have a health resource allocation plan (HRAP) to identify: Vermonters' needs for health care services, programs, and facilities; the resources available to meet those needs, and the priorities for addressing those needs on a statewide basis. The plan must include a statement of principles that reflect policies to be used in allocating resources and in establishing priorities for health care services. A widely recognized framework that incorporates the policies delineated in 18 V.S.A. §§ 9401 and 9431 is the Institute of Medicine's (IOM) vision for a health care system articulated in a report titled, *Crossing the Quality Chasm*. The six aims of the IOM vision are that health care be safe, effective, patient-centered, timely, efficient and equitable. The principles also reflect core concepts and definitions related to quality of care and appropriate care (See Concepts and Definitions in the final Section). The following principles are organized by the six aims from *Crossing the Quality Chasm* and shall guide the decision-making process for identifying the health care needs of Vermonters, for establishing priorities for health care services and for allocating resources.

Principle 1. Safety – The Vermont health care system will be made ***safe*** by identifying strategies and implementing mechanisms to avoid injuries to patients from the care that is intended to help them and to avoid injuries to provider staff from the environment that is intended to support them.

Sub-principle 1 (A). Health care providers should accept accountability for and public oversight of their services to ensure that they are appropriate, safe, effective and financially responsible.

Sub-principle 1 (B). Vermont should implement strategies to support use of information technology to improve quality and ensure safety by providing tools to providers, patients and their families to reduce medical errors, avoid unnecessary duplication of tests and other services, and improve coordination of patients' care.

Principle 2. Effectiveness – The Vermont health care system will be ***effective*** by identifying strategies and implementing mechanisms to provide services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit.

Sub-principle 2 (A). Vermonters should have access to health care services that support timely prevention, treatment and management of disease, with a particular emphasis on cost-effective services that are evidence-based or based on best practices.

Sub-principle 2 (B). Health care providers should maintain and measurably improve the quality of health care services offered to Vermonters.

Sub-principle 2 (C). High quality healthcare requires the collection and analysis of comprehensive and uniform utilization, health outcomes, price and cost data that are made available in a timely way to all providers, payers and purchasers to evaluate quality and quality improvement.

Sub-principle 2 (D). Best practices and benchmark measures, including population-based measures, should be utilized to assess and evaluate the efficiency and effectiveness of Vermont's health care system and individual services proposed in CON applications.

Sub-principle 2 (E). Vermont should apply multiple strategies that consider equity, market, Certificate of Need, and others to achieve rationale allocation of health care resources.

Sub-principle 2 (F). The Vermont health care system should collaborate with the education system and employers to provide a continuum of workforce development and professional education programs to ensure the quality and availability of all types of health care workers required to meet the health care needs of Vermonters.

Principle 3. Patient-centeredness – The Vermont health care system will be ***patient-centered*** by identifying strategies and implementing mechanisms for provision of care that is respectful of and responsive to individual patient preferences, needs, and values and for ensuring that patient values guide all clinical decisions.

Sub-principle 3 (A). Vermont should support access to appropriate care and promote the provision of information necessary to enable patients to make a choice among providers that is consistent with safety, effectiveness, and efficiency.

Sub-principle 3 (B). In addition to providers, patients must be directly involved in determining quality standards and measures of outcomes.

Sub-principle 3 (C). Individuals and families should be primarily responsible, to the best of their ability and resources, for the maintenance of their health. State health policy should encourage providers and payers to provide incentives, education, and tools to encourage and assist individuals in taking responsibility for appropriate management of their health throughout their lifespan.

Sub-principle 3 (D). Vermont should promote education to help individuals make personal behavior choices that protect and foster good health including self-management of chronic diseases.

Sub-principle 3 (E). Vermont should support incentives to help payers, purchasers, providers and public health entities implement informed health care

decision-making tools to help consumers make informed decisions about health plans, providers, medical treatments and costs.

Sub-principle 3 (F). Vermonters have the right to have the confidentiality of their personal, identifiable, healthcare related data protected in all systems, public and private.

Principle 4. Timeliness – The Vermont health care system will provide ***timely care*** by identifying strategies and implementing mechanisms to promote appropriate waits and avoid harmful delays for both those who receive and those who give care.

Sub-principle 4 (A). Vermont should implement strategies to encourage use of information technology by providers, patients and their families to identify and implement timely and appropriate care for prevention of disease and management of chronic diseases.

Sub-principle 4 (B). Vermont providers and payers should facilitate timely access to distant or out-of-state services that cannot be provided safely and efficiently in local settings.

Principle 5. Efficiency – The Vermont health care system will be ***efficient*** by identifying strategies and implementing mechanisms to avoid waste, in particular waste of equipment, supplies, ideas, energy and money.

Sub-principle 5 (A). Vermont's health care system should include consumer and provider incentives that encourage cost-effective health service utilization and best care management practices.

Sub-principle 5 (B). Vermont's healthcare resources should be integrated to offer an appropriate range of services in appropriate settings based on defined needs, and include primary, secondary, and tertiary interventions for all physical and mental conditions.

Sub-principle 5 (C). Stakeholders in Vermont's health care system should collaborate on planning, developing and operating programs, facilities and services to promote a high quality and cost-effective system.

Sub-principle 5 (D). Vermont should implement strategies to encourage use of information technology to decrease the occurrence of redundant medical tests and treatments.

Sub-principle 5. (E). Vermont should implement strategies to encourage use of information technology to increase provider productivity and to control costs in a manner that also ensures safety and quality of care.

Principle 6. Equity – The Vermont health care system will be ***equitable*** by identifying strategies and implementing mechanisms to provide care that does not vary in quality because of personal characteristics that are not in the control of individuals such as gender, ethnicity, geographic location, and socioeconomic status.

Sub-principle 6 (A). All Vermonters should have access throughout the lifespan to appropriate and quality health services at costs that are affordable.

Sub-principle 6 (B). Vermont should ensure that resource allocation decisions are based on the principles of population-based need in order to achieve cost-effective and high quality health facility operations. The decision making process should also include consideration of other factors including requirements for service-specific clinical skills and patient travel distance to facilities.

Guiding Concepts and Definitions

Appropriate care means that an intervention or service (e.g., a lab test, procedure, medication) is considered appropriate if, for individuals with particular clinical and personal characteristics, its expected health benefits (e.g., increased life expectancy, pain relief, decreased anxiety, improved functional capacity) exceed its expected health risks (e.g., mortality, morbidity, anxiety anticipating the intervention, pain caused by the intervention, inaccurate diagnoses) by a wide enough margin to make the intervention or service worth doing. (Brook et al., 1986)

A subset of appropriate care is necessary or crucial care. Care is considered necessary if there is a reasonable chance of a nontrivial benefit to the patient and if it would be improper not to provide the care – in other words, if it might be considered ethically unacceptable not to provide this care (Kahan et al., Laouri et al., 1997).

- Institute of Medicine, *Crossing the Quality Chasm*, pp. 232-233

Quality of care means the degree to which health services for individuals and populations increase the likelihood of desired health outcomes, decrease the probability of undesired health outcomes and are consistent with current professional knowledge. Good quality means providing patients with appropriate error free services in a technically competent manner, with good communications, shared decision making, and cultural sensitivity.

- Institute of Medicine, Vermont Rule 10.00

Health Care Expenditures Summary

The ongoing trend of annual increases in the rate of health care spending in Vermont and the nation continues to be of concern. In 2003, health care spending on Vermont residents totaled over $3.0 billion accounting for 14.7 % of the Gross State Product, the highest level recorded since tracking of Vermont expenditures began in the early 1990s. According to BISHCA's forecast, spending on health care in Vermont for the period of 2004-2008 is expected to grow an average of 7.8% per year. This sustained rate of increase will continue to pressure businesses providing health insurance coverage for employees and dependents, public programs such as Medicaid and Medicare assisting low-income, elderly and disabled Vermonters with medical expenses, and Vermont residents paying their share of rising health insurance premiums and uncovered medical expenses. Act 53 was passed in 2003 to help address the ever-increasing costs.

Moreover, the health care dollar is being heavily consumed by spending on chronic diseases. In Vermont, 51% of adults responding to the Behavioral Risk Factor Surveillance System (BRFSS) in 2001 reported that they had been told they had at least one chronic disease. Nationally, data indicates that care for people with chronic conditions currently represents 78% of health care spending, 76% of hospital admissions, 72% of all physician visits and 88% of prescriptions written. The Vermont Department of Health indicates that a reduction of only 10% in the cost of caring for people with chronic disease would reduce health care expenditures in Vermont by more than $200 million per year.

It is the expectation that the Health Resource Allocation Plan (HRAP) will begin to address priorities for health care spending across the State. Many of the categories of health care resources, programs and facilities contained in the HRAP chapters can be mapped to categories in the Vermont health care expenditure analysis. This provides a rudimentary road map to the allocation of health spending and growth trends across the major provider categories. This road map quantifying the flow of dollars through Vermont's health care system is a key piece needed to begin a dialogue for examining and adopting polices that will best address Vermont's health care needs. Consideration of health spending patterns in combination with consideration of best health care practices, the six IOM aims, initiatives in prevention, and strategies for chronic care management will more effectively inform efforts to allocate health resources. This effort will be ongoing and require continuous collaboration among stakeholders and communities participating in Vermont's health care system.

Please see the 2003 Vermont Health Care Annual Expenditure Analysis & Forecast for additional details about health care spending in Vermont at www.bischa.state.vt.us (See Health Care Administration, Data & Reports).

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Vermont State Health Plan Summary

The HRAP was developed in consideration of the priorities of the Vermont State Health Plan (SHP). Pursuant to Act 53, the Vermont Department of Health was charged with developing a statewide health plan that "…sets forth the health goals and values for the state. […] The plan shall contain sufficient detail to guide development of the state health resource allocation plan."

The primary goal of the Vermont State Health Plan 2005 is to change the Vermont system of health care in ways that will address the challenges of chronic illness, emphasize prevention, improve quality, and endorse a collaborative care model that recognizes the role of the patient in health and wellness. The SHP proposes a "Vermont Model for Lifelong Prevention and Care" that combines the collaborative models of public health with the chronic care model of clinical health care. It covers all of health and public health care and encompasses the Vermont Blueprint for Health. The Blueprint focuses on chronic disease care and is led by a public-private partnership that includes State government, health plans, business and community leaders, healthcare providers and consumers.

The SHP identifies the major stakeholders that make up the essential components of the Vermont Health Care System. At the core of the model are the people who deliver and receive health services in a "patient-provider" partnership. Three key factors influence this partnership and the overall effectiveness of health services 1) the health care sector, including patients, hospitals, and providers in all settings; 2) communities, including resources that impact health such as schools, housing, transportation, and recreation facilities; and 3) public health including needs, programs, and services available to populations across Vermont. Each plays a greater or lesser role depending on the issue presented, patient needs or services delivered. All, however, must be aligned, supported, and work in concert to achieve the goal of healthy Vermonters living in healthy communities. The SHP provides outcomes and action steps needed for each of these focus areas.

Essential to effective and efficient systems and applicable to all organizational focus areas are five overarching (key) priorities that apply to all sectors of the health system and must be addressed to achieve the Plan's goals. These key policy areas include: prevention, access to care, quality of care, accountability and transparency and integrated information systems. Outcomes and action steps needed are included for each.

Taken together, 10 planning areas are identified in the State Health Plan. All issues and needs identified in the SHP were categorized into one of these 10 planning areas and then framed in terms of an "outcome desired." For example, in the Health Care sector, one of the "outcomes desired" was presented as:

> *The multiple entities that constitute the Vermont health care sector collaborate in the redesign of service delivery to implement the Vermont Model for Health to ensure the efficient delivery of high quality services to all Vermonters.*

To achieve each "outcome desired," each issue was paired with one or more "action needed" steps. Among the most prevalent issues identified statewide were chronic disease, health promotion, infectious disease, unintentional injuries, long-term care and mental health and substance abuse.

In developing the HRAP, many of the "action needed" steps from the SHP could be correlated to HRAP service recommendations, which are included in chapters 1-6 of this document. For example, the following "action needed" step from the Health Care sector planning area of the SHP is directly addressed in a recommendation in HRAP Chapter 3, "Community Based and Home Health Services":

- SHP Action:

  Ensure the availability of community based services that support care in the most integrated, least restrictive community settings possible.

- HRAP Community-Based and Home Health Services recommendation:

  To the extent possible based upon financial resources and the availability of appropriate trained health care personnel, Vermont should assure access to a comprehensive continuum of community based health and related social services within each community service area.

More than 96 specific target indicators were identified in the State Health Plan process. These objectives have been grouped into eight health outcome objectives for the Vermont Health Plan. The health systems change advocated in this plan is essential to improving the health outcome objectives of Healthy Vermonters 2010.

1. **Eliminate health disparities among different groups within the population.** These include differences that occur because of gender, race or ethnicity, education or income, disability, living in rural localities or sexual orientation.

2. **Increase quality and years of healthy life.** Help individuals gain the knowledge, motivation and opportunities they need to make informed decisions about their health.

3. **Improve access to primary health care services in Vermont.** The specific measures of success for this objective include the proportion of people with a source of on-going primary care and with insurance coverage.

4. **Increase the availability of community services that support healthy behaviors.** These Healthy Vermonters objectives are targeted to school interventions; other plans for improving health identify objectives directed at worksites, localities and other community entities.

5. **Increase the proportion of Vermonters engaged in behaviors that reduce their risk of disease and injury; and/or reduce the risk complications of disease.** There are 25 specific measures of success in this area addressing alcohol, cancer, food safety, heart disease, HIV/STD, injury, nutrition, physical activity, and tobacco. In addition, there are two objectives related specifically to self-management education for people with diabetes and asthma.

6. **Ensure that the environment in which Vermonters live, work and play protects them from risk and promotes their health.** Seven objectives address environmental issues for Vermonters include restaurant safety, drinking water, fluoridation, radon, fire protection, workplace safety and hunger.

7. **Increase the proportion of Vermonters that receive, from their health care provider, the preventive and treatment services known to be effective in promoting health and preventing and controlling disease.** There are 14 measures indicating that people have received the screening, counseling and immunization services appropriate to their age and risk. These address alcohol, chronic disease, mental health and oral health. In addition, there are six measures indicating that people have received specific services related to management of their health condition.

8. **Increase the percent of people who are actively engaged in developing their own written health care plan with their provider(s).**

Due to its strong prevention focus and reliance on the US Healthy People 2010 document to guide its development, Healthy Vermonters 2010 does not include objectives related to the availability of specialty services, facilities/services for treatment, rehabilitation, long-term care or end-of-life care.

The relationship between the HRAP and the State Health Plan

A comprehensive matrix that maps all relevant State Health Plan "actions needed" (as well as Community Needs Assessment priorities) onto the HRAP is included at the back of this document as Appendix i.A. In developing the HRAP, synergies among these initiatives and the needs they identify were taken into consideration wherever possible.

Importantly, however, because the State Health Plan is *population focused* and the Health Resource Allocation Plan is *service focused*, there are numerous areas where SHP actions needed could not be mapped on to an HRAP recommendation. For reference purposes, those actions needed are included as Appendix i.B.

In addition to the specific actions identified in the matrix, the SHP influenced the development of the HRAP in other important ways. Most importantly, the emphasis on prevention in the State Health Plan, which does not readily translate into the various service sectors of the HRAP, was nonetheless incorporated throughout. Likewise, the need for a comprehensive Vermont information infrastructure as called for in the Blueprint for Health and the SHP, has been incorporated in the HRAP.

For further information, a complete copy of the State Health Plan can be found at the Vermont Department of Health website. Please visit:

The SHP is posted on the VDH website at
http://www.healthyvermonters.info/pubs.shtml#healthplan

Community Needs Assessments Summary

One of the many charges of the HRAP was to develop a plan for addressing needs identified in Vermont hospitals' Community Needs Assessments (CNAs). Subsequent to the passage of Act 53 in 2003, every four years, each hospital in the State of Vermont is required to conduct an assessment of the needs of the community it serves. The first assessment was completed January 1, 2005, based on guidelines developed with assistance from the Vermont Association of Hospitals and Health Systems (VAHHS) and approved by the Commissioner of BISHCA. The CNA process targeted the following:

- Identification and prioritization of the health care needs of the service area/patient population that each hospital serves
- Solicitation of public input into the hospital's strategic planning processes
- Collaboration with community members, including other health care professionals, local government officials, community organizations and local businesses
- Offering of at least one public meeting solely for soliciting public comment
- Developing mechanisms for receiving ongoing public comment, including an annual public meeting regarding the Community Needs Assessment
- Development of a mechanism for updating the CNA biennially
- Summarizing the assessment in the hospital's "community report" (another new Act 53 requirement)

In contrast to hospital community reports, the process and standards for CNAs were not required to be established by rule, but only to be prepared in a uniform format approved by the Commissioner. All Vermont hospitals, with the assistance of VAHHS, participated in developing the CNA's utilizing the uniform format. BISHCA's task was to subsequently consider the information from the CNAs in making recommendations for the appropriate supply and distribution of health resources, programs and services in the HRAP. Because of Retreat Healthcare's unique position in the State, BISHCA further facilitated a discussion among Retreat Healthcare, the Vermont Council on Developmental and Mental Health Services and the Division of Mental Health to identify an approach for surveying providers and data sources to identify local mental health and substance abuse service, resource and program needs. Additionally, Dartmouth-Hitchcock Medical Center was invited to participate in the CNA process.

The result was a total of 16 CNAs, as follows:

i. Brattleboro Memorial Hospital
ii. Retreat Healthcare
iii. Central Vermont Hospital
iv. Copley Hospital
v. Dartmouth-Hitchcock Medical Center

vi. Fletcher Allen Health Care
vii. Gifford Memorial Hospital
viii. Grace Cottage Hospital
ix. Mt. Ascutney Hospital
x. North Country Medical System
xi. Northeastern Vermont Regional Hospital
xii. Northwestern Medical Center
xiii. Porter Medical Center
xiv. Rutland Regional Medical Center
xv. Southwestern Vermont Health Care
xvi. Springfield Hospital

Each assessment included both a qualitative component, developed based on interviews, surveys, focus groups and public meetings, and a quantitative component that reported a series of measures from the Department of Health related to health status, health habits and behaviors and hospital utilization.

While no two CNAs were identical, there were a number of prevalent health care needs identified in the assessments, as follows:

Need identified in CNAs	**# of Assessments**
Additional mental health and substance abuse services	14
Substance abuse prevention programs	14
Chronic disease care and prevention (diabetes, heart disease)	12
General preventive care/health education programs	12
Access to dental care services, particularly for low income population	12
Health promotion programs targeting obesity, nutrition, exercise	10

Other needs identified in more than one CNA included: non-emergency transport to healthcare services; access to primary care for low-income populations; increased mental health services for children and adolescents; emergency transport services; access to urgent care or walk-in clinics; access to and availability of renal dialysis; access to eldercare services; access to complementary and alternative medical therapies; immunization rates among the elderly; and access to and availability of radiation oncology services.

To the extent possible, the HRAP was developed mindful of the needs identified in the CNAs. A significant number of CNA priorities correlate to specific HRAP recommendations, which can be found in chapters 1-6 of this report, and a comprehensive matrix that maps all relevant CNA priorities (as well as State Health Plan "actions needed"). See Appendix i.A for reference to obtain access to these matrices. However, because the CNAs have a patient-needs focus and the HRAP has a service focus, there are areas where the assessments and allocation plan do not connect. Some needs identified in the CNA fall outside the scope of the HRAP (for example, Brattleboro

Memorial Hospital's identified need to increase access to spiritual counseling for hospital patients.) These needs are included at the back of this report as Appendix i.C.

For further information on the CNAs, please visit the BISHCA website. The CNAs are also posted on individual hospital websites.

Links to electronic copy of all assessments can be found at:

www.bishca.state.vt.us/HcaDiv/HRAP_Act53/hosp_reports_indiv_index.htm

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SECTION TWO: LIST OF ACRONYMS AND GLOSSARY OF TERMS

List of Acronyms

A

AANA:	American Association of Nurse Anesthetists
ACSC:	Ambulatory case sensitive condition
ADL:	Activities of daily living
AHA:	American Hospital Association
AHEC:	Area health education center
AHRQ:	Agency on Health Research and Quality (Agency for Healthcare Research and Quality)
ALOS:	Average length of stay
ANSI:	American National Standards Institute
APRN:	Advance practice registered nurse
ASC:	Ambulatory surgical center
ASP:	Attendant services program

B

BCBSVT:	Blue Cross and Blue Shield of Vermont
BISHCA:	Department of Banking, Insurance, Securities, and Health Care Administration
BLS:	Bureau of Labor Statistics
BPOC:	Bar-coded technology at the point of care

C

CAM:	Complementary and alternative medicine
CCBH:	Connecting Communities for Better Health
CCHIT:	Certification Commission for Healthcare Information Technology
CCS:	Clinical Classification Software
CDC:	Centers for Disease Control
CDSS:	Clinical decision support software
CMS:	Centers for Medicare and Medicaid Services
CNA:	Community Needs Assessment; Certified nurse anesthetist; Certified nurse assistant
CNM:	Certified nurse midwife
COGME:	Council on Graduate Medical Education
CON:	Certificate of Need
COVE:	Community of Vermont Elders
CPOE:	Computerized physician order entry
CPR:	Computer-based patient record; cardiopulmonary resuscitation
CRNA:	Certified registered nurse anesthetist
CRT:	Community rehabilitation and treatment
CSAT:	Center for Substance Abuse Treatment
CSHN:	Children with special health care needs
CT:	Computerized tomography
CVMC:	Central Vermont Medical Center

D

DAD:	Department of Aging and Disabilities
DAIL:	Department of Disabilities, Aging, and Independent Living
DHHS:	Department of Health and Human Services
DHMC:	Dartmouth-Hitchcock Medical Center
DICOM:	Digital imaging and communications in medicine
DO:	Doctor of Osteopathy
DOH:	Department of Health

E

EAP:	Employee assistance program
EBRS:	Electronic-based record system
ECA:	Emergency care attendant
ECG:	Electrocardiogram
ED:	Emergency department
EDI:	Electronic data interchange
EEG:	Electroencephalogram
EHR:	Electronic health record
EKG:	Electrocardiogram
EMAR:	Electronic medication administration record system
EMR:	Electronic medical record
EMS:	Emergency medical services; Emergency medical system
EMT:	Emergency medical technician
E-MUP:	Exceptional medically underserved population
ERC:	Enhanced residential care

F

FAHC:	Fletcher Allen Health Care
FDA:	Food and Drug Administration
FQHC:	Federally qualified health center
FTE:	Full-time equivalent
FY:	Fiscal year

G

GAO:	U.S. General Accounting Office
GMENAC:	General Medical Education National Advisory Committee
GRSA:	Governor-certified rural shortage area

H

HCA:	Home care assistant
HCBWP:	Home and community based waiver program
HEDIS:	Health employer information data set
HHA:	Home health aide
HHS:	U.S. Department of Health and Human Services
HIEI:	Health care information exchange and operability

HIMSS:	Healthcare Information and Management Systems Society
HIPAA:	Health Information Portability and Accountability Act
HIT:	Healthcare information technology
HIV:	Human immunovirus
HMO:	Health maintenance organization
HRAP:	Health Resource Allocation Plan
HRMP:	Health Resources Management Plan
HPSA:	Health professional shortage area
HRI:	Health resources inventory
HRN:	Health record network
HRSA:	Health Resources and Services Administration
HSA:	Hospital service area

I

ICD-9:	International classification of diseases, version 9
ICU:	Intensive care unit
IHE:	Integrating the Healthcare Enterprise
IMU:	Index of medical under-service
IOM:	Institute of Medicine
IT:	Information technology

L

LICSW:	Licensed clinical social worker
LNA:	Licensed nurse assistant
LOINC:	Logical observation identifiers names and codes
LPN:	Licensed practical nurse

M

MCO:	Managed care organization
MD:	Doctor of medicine
MedPAC:	Medicare Payment Advisory Commission
MGMA:	Medical Group Management Association
MHSA:	Mental health and substance abuse
MME:	Major medical equipment
MRI:	Magnetic resonance imaging
MUA:	Medically underserved area
MUP:	Medically underserved population
MVP:	MVP Health Plan is an insurer. The “MVP” is not an abbreviation or acronym.

N

NAMI:	National Alliance for the Mentally Ill
NAPNP:	National Association of Pediatric Nurse Practitioners
NCDCW:	National Clearinghouse on the Direct Care Workforce
NCPDP:	National Council for Prescription Drug Programs
NECLA:	North-East Community Labor Alliance
NEDSS:	National electronic disease surveillance system

List of Acronyms

NEHEN:	New England Healthcare Electronic Data Interchange Network
NHII:	National Health Information Infrastructure
NHIN:	National Health Information Network
NHSC:	National Health Service Corps
NHTSA:	National Highway Traffic Safety Administration
NIH:	National Institutes of Health
NMC:	Northwestern Medical Center
NOHSS:	National Oral Health Surveillance System
NP:	Nurse practitioner

O

OB/GYN:	Obstetrics and gynecology
OCMS:	Outreach clinical messaging system
OMB:	Office of Management and Budget
ONCHIT:	Office of the National Coordinator for Health Information Technology

P

PA:	Physician assistant
PCA:	Personal care attendant
PCSA:	Primary care service area
PET:	Positron emission tomography
PHIN:	Public health information network
PNS:	Professional Nurses Service
PPS:	Prospective payment system
PT:	Physical therapist

R

RHC:	Rural health center or rural health clinic
RHIO:	Regional health information organization
RN:	Registered nurse
ROI:	Return on investment
RRMC:	Rutland Regional Medical Center
RSA:	Rational service area

S

SAMHSA:	Substance Abuse and Mental Health Service Administration
SAP:	Student assistance program
SDO:	Standards Developing Organization
SFY:	State fiscal year
SNOMED:	Systemized nomenclature of medicine clinical terms
STD:	Sexually transmitted disease
SVMC:	Southwestern Vermont Medical Center

T

TBI:	Traumatic brain injury
TVHP:	The Vermont Health Plan

V

VA:	Veteran's Administration
VAHHA:	Vermont Assembly of Home Health Agencies
VAHHS:	Vermont Association of Hospitals and Health Systems
VAPCP:	Vermont Association of Professional Care Providers
VC3:	Vermont Chronic Care Collaborative
VCCU:	Vermont Coalition of Clinics for the Uninsured
VDH:	Vermont Department of Health
VDIS:	Vermont Diabetes Information System
VHAP:	Vermont Health Access Plan
VITL:	Vermont Information Technology Leadership
VMS:	Vermont Medical Society
VPQHC:	Vermont Program for Quality in Health Care
VSH:	Vermont State Hospital

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Glossary of Terms

1915(c) Home and Community Based Medicaid Waiver:	A program providing long-term care services to elders and adults with physical disabilities who live at home or in the community. Services include personal care, adult day care services, respite care, companion services, personal emergency response systems, home modification, assistive devices and case management. Priority is given to persons who, without these services, would most likely enter a nursing home.
Ambulatory care:	The full range of health services provided on an outpatient basis across the continuum from prevention and screening through emergency care, urgent care, management of chronic care and rehabilitation, to end-of-life care.
Adult day services:	Programs provided during the daytime hours for adults with disabilities. Programs include activities, social interaction, nutritious meals, health screening and monitoring, personal care and transportation. Adult day services also provide valuable respite for family caregivers.
Advance practice registered nurse:	Advance Practice Registered Nurses (APRNs) are licensed and certified by the Vermont State Board of Nursing (State Board) and include but are not limited to Adult Nurse Practitioner, Certified Nurse Midwife, Certified Nurse Anesthetist, Clinical Specialist in Psychiatric and Mental Health Nursing, and other Clinical Specialists who meet criteria set by the State Board. An APRN is a registered nurse licensed in Vermont who has completed a program in advanced practice nursing recognized by the State Board and is certified by a national certifying organization also recognized by the State Board. An APRN performs medical acts independently within a collaborative practice with a licensed physician under practice guidelines which are mutually agreed upon between the APRN and the physician and are jointly acceptable to the nursing and medical professions. An APRN may write and sign prescriptions for medications that are covered in practice guidelines and in compliance with all other state laws and regulations.[1]

[1] State of Vermont Board of Nursing. Administrative Rules, Chapter 4, Subchapter 8, Advanced Practice Nursing. Effective March 1, 2004.
http://vtprofessionals.org/opr1/nurses/forms/nursingrules.pdf

Area health education center program:	Area Health Educations Centers Program (AHEC) is a nationwide system of programs designed to address health staffing distribution and the quality of primary care through community-based initiatives. The program is designed to encourage universities and educators to look beyond institutions to form partnerships to promote solutions to meet community health needs. AHEC's are administered by university-based schools of medicine and each program office administers a multidisciplinary academic consortium that includes medical schools, one or more nursing schools and schools of other health professions, such as social work and physical therapy. The University of Vermont's College of Medicine AHEC program was established in 1996 and includes the Program Office at the University of Vermont, the Northeastern Vermont AHEC in St. Johnsbury, the Champlain Valley AHEC in St. Albans, and the Southern Vermont AHEC located in Springfield.
Assisted living:	Licensed, private-occupancy housing combined with health and supportive services that promote resident independence and aging in place (enabling people to remain in their current circumstances). Assisted Living Residences are required to provide residents with the lightest level of care traditionally provided by nursing facilities. Assisted living residences are eligible to apply to the Medicaid State Plan ACCS (Assistive Community Care Services) Program and Medicaid Waivers to become participating providers.
Attendant services program:	A program providing assistance with personal care for adults with disabilities. Program funds pay attendants, allowing people with disabilities to live independently. Most participants manage their own care and hire, train and supervise their attendants.
Average length of stay:	The average number of days of services rendered to each inpatient discharged during a given period.
Certificate of Need:	A program to define standards for implementing Vermont health care related initiatives such that they are non-duplicative, cost-efficient, maintain or improve the quality of and access to services and promote the rational allocation of resources in the State. The need, cost, type, level, quality and feasibility of any new health care project is subject to review under these standards before it can go forward.

Community Needs Assessment:	Under Act 53, Vermont hospitals are mandated to conduct community needs assessments every four years (with interim updates every two years) to identify and prioritize the health care needs of each hospital's service area/patient population and engage the public in the hospital's strategic planning process including having mechanisms in place for receiving ongoing public comment. Findings from the CNAs are considered in setting priorities in the HRAP.
Complementary and alternative medicine:	A group of diverse medical and health care systems, therapies and products that are not presently considered part of conventional medicine. Complementary medicine is used together with conventional medicine, whereas alternative medicine is used in place of conventional treatments.
Discharge:	An individual inpatient hospitalization.
Educational Loan Repayment Program for Dentists	This program is funded by the State of Vermont, through the Department of Health and is administered by the University of Vermont College of Medicine's Area Health Education Centers (AHEC) Program. The purpose of the program is to help recruit and retain dentists in Vermont and increase access to dental care for the Medicaid population. Award recipients sign a contract for one year of service for each year of the award. In the contract, the number of Medicaid patients to be seen is negotiated, with the goal of increasing access to the Medicaid population from current levels at the practice site. Educational loan repayment funds are considered taxable income and reported on a 1099 form.
Electronic health record:	Electronic Health Record (EHR) - A real-time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decision-making. The EHR can automate and streamline a clinician's workflow, ensuring that all clinical information is communicated. It can also prevent delays in response that result in gaps in care. The EHR can also support the collection of data for uses other than clinical care, such as billing, quality management, outcome reporting, and public health disease surveillance and reporting.
Employee and student assistance programs:	Programs that seek to help people with mental health and substance abuse disorders in the settings where they spend much of their time: work and school.

Enhanced residential care:	A program that allows certain licensed residential care homes to provide 24-hour care and supervision to people who would otherwise need nursing facility care. Homes must also meet additional requirements for care and services. To participate, residents must be clinically eligible for nursing facility level of care and financially eligible for Medicaid long-term care coverage.
Exceptional medically underserved population:	A federal designation defined as a rational area for the delivery of service with an Index of Medical Underservice (IMU) score greater than 62. (See MUA). There must be documentation of unusual local conditions, which are a barrier to access to, or the availability of personal health services. The designation must be recommended by the Governor and local officials of the State where the population resides.
Federally qualified health center:	A type of provider defined by the Medicare and Medicaid statutes and includes all organizations receiving grants under section 330 of the Public Health Service Act, which defines federal grant funding opportunities for organizations such as community health centers to provide care to underserved populations. FQHCs must provide culturally competent, comprehensive primary care services for all age groups including preventive health services on site or by arrangement with another provider. Other requirements that must be provided directly by an FQHC or by arrangement with another provider include: dental services, mental health and substance abuse services, and transportation services necessary for adequate patient care. FQHCs must offer a sliding fee scale, accept Medicare, and provide services regardless of ability to pay.[2]
FQHC Look-alike:	Federally Qualified Health Center Look-alikes meet all the requirements as an FQHC except they receive no section 330 federal funding but are eligible for cost-based reimbursement under Medicaid and Medicare and to participate in the 340(b) Federal Drug Pricing program. This program, administered by the federal Bureau of Primary Health Care, was designed to strengthen the safety net for populations at risk despite the lack of federal grant funding. At a national level, the FQHC Look-alike program has grown from the initial 28 designations in 1991 to the current 111 designated health centers, with 182 sites, providing primary care services to

[2] U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. Glossary available at: http://www.cms.hhs.gov/glossary/default.asp?Letter=F&Language=English#Content

	over 1,120,000 users.[3]
Free clinic:	A clinic that provides health care to Vermont's working poor, population defined as those who earn too much to qualify for Vermont Health Access Plan (VHAP) but not enough to afford private health insurance and who have jobs that do not provide health insurance as a benefit. In addition to health care services, free clinics help with enrollment in Medicaid and Medicaid extension programs, referral to social services, and free pharmaceuticals for clients as available.
Freeman Foundation Educational Loan Repayment Program for Physicians	This program is funded by a gift from the Freeman Foundation to the UVM College of Medicine, and by local communities. It is administered by the University of Vermont College of Medicine's Area Health Education Centers (AHEC) Program.
Freeman Scholarship Program	This program assists University of Vermont medical students to become Vermont doctors, especially in rural and underserved areas. In accepting the Freeman Scholarship, medical students have expressed their commitment to practice in Vermont after completing medical school and residency training.
Full-time equivalent:	A measure of clinical resources in a given area, defined as a provider or providers working 40 or more hours per week at least 48 weeks per year.
Governor certified rural shortage area:	A Vermont-specific process for designation that was approved by the federal government in 2002 based on criteria including: definition of primary care service areas for the State; determination that the physician ratio is inadequate to meet the medical needs of the population; and has a high Medical Need Index score (combination of social, economic, health status, health behavior and access factors).[4]
Healthcare information technology:	Electronic clinical information tools and software systems developed to improve patient care by increasing patient safety, reducing medical errors, enhancing quality and reducing costs by standardizing and automating patient data and making that data available to a wide range of caregivers.

[3] U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau for Primary Health Care:
[4] Vermont Department of Health, Office of Rural Health and Primary Care. *Health Care Underservice in Vermont: Designations, Guidelines and Process.*

Health Information Portability and Accountability Act:	National standards in effect since April 14, 2003, that must be followed by health plans, doctors, hospitals and other health care providers to protect individuals' medical records and other personal health information and to give patients more control over their health information. HIPAA sets limits on the use and release of health records and establishes safeguards that providers and health plans must implement to protect the privacy of health information.
Health professional shortage area:	Health Professional Shortage Area is a rational area for the delivery of care that has lack of access to services in surrounding areas due to distance, over-utilization or access barriers.[5]
Health Resource Management Plan:	The Plan was prepared during the 1990s and the goal of the plan was to "identify the health care, facility and human resource needs in Vermont, the resources available to meet those needs, and priorities for addressing those needs on a statewide basis."
Home Health Services:	Twelve Medicare certified Home Health Agencies provide home health services in individuals' homes. Medicare, Medicaid, private health insurance, long-term care insurance, and private funds are all used to pay for these services. Services include nursing, home health aide, personal care, physical, occupational and speech therapies, homemaker services, hospice care and social work services (most also offer psychiatric nursing). Home health services are also provided by non-Medicare certified agencies, but the scope of services is not as expansive.
Homemaker program:	A program that provides assistance with shopping, cleaning and housework, personal care, respite care and one-time purchases or services. Homemaker services are provided by the 12 Medicare-certified home health agencies.
Hospital Service Area:	See Section Three, Chapter 1, page 87.
Inpatient:	A person admitted to a hospital for bed occupancy for purposes of receiving services and care; the services and care delivered to a person being cared for in a hospital.

[5] Ibid

Institute of Medicine principles:	Six principles of health care set forth by the Institute of Medicine: timeliness, effectiveness, efficiency, safety, patient-centeredness, and equitability. These six principles served as one of several guides for the development of the HRAP.
Medically underserved area:	A federal designation defined as a rational area for the delivery of service that has an Index of Medical Underservice (IMU) score of 62 or lower with the score based on: percent of the population below the poverty level; percent of the population aged 65 and over; infant mortality rate (five-year average); and the number of primary care physicians per 1000 population.[6] Federally Qualified Health Centers, FQHC Look-alikes, and Rural Health Clinics (RHCs) must have a federal designation as an MUA.
Medically underserved population:	A federal designation defined as a rational area for the delivery of service with a population group with access barriers to care due to culture, language, and economics. MUPs have an Index of Medical Underservice (IMU) score of 62 or less.[7] The criteria for medically underserved areas (MUAs) are applied to the population. FQHCs and FQHC Look-alikes may serve medically underserved populations.
Nursing Home facilities:	Facilities that provide 24-hour nursing and personal care, supervision, hospice care and rehabilitative care. These facilities are regulated and licensed by the Department of Aging and Independent Living.
Patient day:	A stay in a hospital for all or part of a day.
Physician assistant:	A State-certified clinician qualified by education, training, experience and personal character to provide medical services under the direction and supervision of a Vermont licensed physician. A PA's scope of practice is delegated to the PA by the supervising physician and may not exceed the normal scope of the supervising physician's practice. The State board of medical practice regulates the number of physician's assistants permitted to practice under the direction and supervision of a physician after a review of the system of care delivery in which the physician and physician's assistants propose to practice.

[6] Vermont Department of Health, Office of Rural Health and Primary Care. *Health Care Underservice in Vermont: Designations, Guidelines and Process.*
[7] Ibid

Primary care:	Basic or general health care traditionally provided by doctors trained in family practice, pediatrics or internal medicine. Some definitions of primary care also include gynecology.
Primary Care Educational Loan Repayment Program	This program is funded by the State of Vermont, through the Department of Health and is administered by the University of Vermont College of Medicine's Area Health Education Centers (AHEC) Program. The purpose of the program is to ensure a stable and adequate supply of primary care providers to meet the health care needs of Vermonters. The Primary Care Educational Loan Repayment Program includes family practice, general internal medicine, general pediatrics, obstetrics/gynecology, and psychiatry. Eligible practitioners include physicians, physician's assistants, nurse practitioners and certified nurse midwives. Award recipients sign a contract for one year of service for each year of the award. Educational loan repayment funds are considered taxable income and reported on a 1099 form.
Rural health clinic:	A clinic certified by the federal government to receive special Medicare and Medicaid reimbursement. The purpose of the RHC program is to improve access to primary care in areas that have been designated as rural by the Bureau of the Census and medically underserved within the last three years by the Secretary of the U.S. Department of Health and Human Services. RHCs are not required to provide services to uninsured and indigent patients.
Rational service area:	A geographic area for the delivery of primary care services. There are 38 rational service areas in Vermont with a median population of 8,596 ranging from a low of 2,816 and a high of 87,581. Assignment of towns to RSAs is based on utilization patterns such as primary care service areas for Medicare, Medicaid assignment of clients to primary care providers, and responses to the "town of residence" and "town of primary care" questions on the Vermont Behavioral Risk Factor Survey.
Secondary care:	Specialist care provided by a physician acting as a consultant at the request of a primary care physician.
Tertiary care:	Specialized consultative care, usually on referral from either primary or secondary care personnel, by specialists working in a center that has the personnel and facilities for special investigation and treatment of highly complex cases.

Vermont Program for Quality in Healthcare: (VPQHC)	VPQHC is a private, non-profit corporation formed in 1988 and governed by a board of directors that includes representatives of consumers, hospitals, insurers, HMOs, employers, physicians and State government. VPQHC is charged with improving the quality, efficiency, and cost effectiveness of Vermont's health care system.
Vermont State Health Plan:	A statewide health plan prepared by the Vermont Health Department that sets forth the health goals and values for the State. The Plan was to provide sufficient detail so as to guide development of the State health resource allocation plan.
Vermont State Hospitals Futures Report:	A comprehensive plan for the delivery of services currently provided by the Vermont State Hospital (VSH), within the context of long-range planning for a comprehensive continuum of care for mental health services." (Vermont State Hospital Futures Plan, page 1) The plan was required by the Legislature in Section 141 (a) and (b) of the Appropriations Act for 2005.

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SECTION THREE: HEALTH RESOURCE ALLOCATION PLAN

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Section Three: Health Resource Allocation Plan

Chapter 1: Inpatient, Emergency and Hospital-Based Services

SUMMARY

Vermont hospitals provide a comprehensive level of health care services. Besides traditional inpatient acute care services, they provide diagnostic, outpatient, emergency, trauma, surgical, prevention and long-term care services to each region of Vermont. Owing to changed health care reimbursement methodologies and a range of technological advances, hospitals saw a significant shift from inpatient to outpatient care nationwide in the 1980s. Vermont, like the rest of the nation, has experienced a downward trending in inpatient utilization, and an evaluation of inpatient bed occupancy suggests sufficient capacity in the system at this time. A statewide analysis does not take into account distribution of beds across hospital service areas or bed-type, however, and multiple communities identify a range of service shortages in their Community Needs Assessments. Recommendations call for the development of consistent access standards for inpatient care, use of a population-based analysis to determine the need for additional services and allocation of existing services, criteria to prioritize hospital workforce needs, and reprioritization of chronic care and prevention initiatives. To reflect the full scope of hospital-based services, this chapter includes analyses of emergency services, mental health and substance abuse and both diagnostic- and treatment-related major medical equipment in addition to traditional inpatient acute care services.

I. Inpatient Services

Quick Facts

- Owing to changed health care reimbursement methodologies and a range of technological advances, hospitals began to see a shift from inpatient to outpatient care nationwide in the 1980s. In Vermont, inpatient utilization fell from 137 discharges per 1000 population in 1983 to 87 discharges per 1000 population in 2002.

- Vermont has 2.4 beds per 1000 population, lower than the U.S. benchmark of 2.8, but comparable to the New Hampshire rate of 2.3.

- Since 1990, inpatient utilization rates per 1000 population have trended downward in Vermont, from 104 per 1000 population to 87 per 1000 population in 2002.

- Across all Vermont hospitals, inpatient occupancy rates average 59%. While this suggests sufficient capacity in the system, distribution of beds across hospital service area and bed-type are not reflected in this data.

- Access to hospital services for Vermonters shows that over 90% of all residents are within 60 miles of tertiary care services, over 95% are within 45 miles of secondary care services, and 100% are within 30 miles of primary care services.

- In 2002, 17.6% of all Vermont resident inpatient discharges were from New Hampshire, New York, and Massachusetts border hospitals, a total of 10,251 discharges.

List of hospitals and associated acronyms

BMH	Brattleboro Memorial Hospital
	Retreat Healthcare
CVMC	Central Vermont Medical Center
	Copley Hospital
DHMC	Dartmouth-Hitchcock Medical Center
FAHC	Fletcher Allen Health Care
	Gifford Memorial Hospital
	Grace Cottage Hospital
	Mt. Ascutney Hospital
	North Country Hospital
NVRH	Northeastern Vermont Regional Hospital
NMC	Northwestern Medical Center
PMC	Porter Medical Center
RRMC	Rutland Regional Medical Center
	Springfield Hospital
SVMC	Southwestern Vermont Medical Center
VSH	Vermont State Hospital
	Veteran's Administration Medical Center

1. Service/Facility/Resource Description

An inpatient is a person who has been admitted to a hospital for bed occupancy for purposes of receiving services and care. Generally a person is considered an inpatient if she or he is admitted to the hospital with the expectation of remaining at least overnight and occupying a bed.

Vermont hospitals provide an array of inpatient services, from basic community level medical care to treatment of serious, complex, medical illnesses (typically at tertiary care facilities). All acute care is provided to various types of patients on the basis of

physicians' orders and approved nursing care plans.[8] The range of services can be broken down as follows:

1. Medical-surgical intensive care: Intense acute inpatient care. Requires specially trained staff/equipment.
    a. Level 1 Trauma services (see Emergency Services sub-chapter.)

2. Pediatric medical-surgical care: Pediatric patients

3. Obstetrics: Uncomplicated maternity and newborn cases

4. Psychiatric and substance abuse care: Patients admitted for diagnosis and treatment of psychiatric problems and patients with alcoholism or other drug dependencies. (See further discussion in the Mental Health and Substance Abuse sub-chapter.)

5. Rehabilitation: Patients needing rehabilitative services under a multidisciplinary coordinated team approach to upgrade the patient's ability to function.

6. Skilled nursing care: see Chapter 3, Community-Based Care.

7. Swing beds: Hospital beds that can be used for either acute or long-term care depending on patient needs. Specifically defined by Medicare law.

8. General medical-surgical care – Any patient not specified above

Each of these defined areas can be looked at more closely in terms of the specific disciplines that comprise them and the severity of illness of patients treated. For example, orthopedics, which is the surgical or manipulative treatment of disorders of the skeletal system, is included as part of the General Medical Surgical category above. Pediatric care includes care for normal deliveries, deliveries with complications, or care for those with very serious abnormalities. Importantly, all levels of care are not available at each hospital beyond a certain level of intensity, as determined by the attending physician and available resources. For example, basic neurology services may be available at a local hospital but more complex neurological cases may require the patient to travel to a tertiary center to receive a more specialized level of care.

Hospital services are often categorized into three major areas: tertiary care, secondary care, and primary care.[9]

[8] American Hospital Association , *Annual Survey 2003*
[9] John Hopkins Medicine web site; *www.hopkinsmedicine.org/patients/insurance_footnotes.html*

- Primary care: Basic or general health care traditionally provided by doctors trained in family practice, pediatrics or internal medicine. Some definitions of primary care also include gynecology.

- Secondary care: Specialist care provided by a physician acting as a consultant at the request of a primary care physician.

- Tertiary care: Specialized consultative care, usually on referral from either primary or secondary care personnel, by specialists working in a center that has the personnel and facilities for special investigation and treatment of highly complex cases.

2. Current Supply and Distribution

Since the mid-1980s, hospital inpatient utilization in the United States has seen a shift in the volume of care to the outpatient setting. Changes in reimbursement methodologies and many new technological advances explain much of this shift.[10] Short-stay hospital discharges have gone from 122 per 1000 population in 1990 to 114 per 1000 in 2000. This is contrasted with increases seen in office-based physician visits (from 2,777 in 1990 to 3,004 in 2000), hospital ER visits (from 236 in 1990 to 304 in 2000), and hospital outpatient department visits (from 356 in 1990 to 394 in 2000).[11] Improved care processes have reduced length of stay in the hospital and in many cases inpatient care is now handled on an outpatient basis. This decline in inpatient utilization is occurring though the population is growing and aging.[12] However, it is expected that this trend will level off and stabilize some because certain inpatient care can only be done in a hospital.[13]

In Vermont, trends are similar. Hospital inpatient utilization has trended from 137 per 1000 population in 1983 to 104 per 1000 in 1991 to 87 per 1000 in 2002.[14] Vermont's utilization per 1000 has typically been lower than the United States. However, that is due to its homogenous population. In fact, when the U.S. rate is adjusted for the "non-white" population, its rate is similar to Vermont's.[15]

The aging of the population has been well documented by Economic and Policy Resources, Inc. for the Vermont Association of Hospitals and Health Systems. The group's report indicates that the number of Vermonters over age 65 will double by 2030

[10] U.S. Department of Health and Human Services, *Health Care in America, p. 22*
[11] U.S. Department of Health and Human Services, *Health Care in America, p. 23*
[12] U.S. Department of Health and Human Services, *Health Care in America, p. 8*
[13] U.S. Department of Health and Human Services, *Health Care in America, p. 22*
[14] Vermont Department of Health, *2002 Vermont Hospital Monograph Series, p.9;* Vermont Health Care Administration, *Vermont Hospital Data Council, 1992 Annual Report, p.9*
[15] Vermont Department of Health, *2001 Vermont Hospital Monograph Series, p.3;*

and that the increased incidence in chronic diseases will place pressure on the hospital system.[16] This may have implications for bed need and/or access to services.

Table 1 illustrates the current distribution of inpatient beds for all Vermont hospitals.[17] All counties except Essex and Grand Isle have a local hospital. Hospital beds are classified based on Medicare reporting requirements. While beds are classified by type, there are instances where a medical/surgical bed could serve as a bed for a patient in need of pediatric services and vice versa. Other bed types such as Rehab and ICU are dedicated bed units that are supported by very specific equipment and staff needs to provide the necessary services. For purposes of measuring available capacity and/or need, acute care beds are counted in total.

Table 1: Community Hospital Inpatient Beds - 2005

	Staffed Beds by Service						Other Staffed Beds					
	MED/SURG	PEDI	OBS	ICU	PSYCH	TOTAL	REHAB	NURSERY	SNF/ECF	SWING	TOTAL	Grand Total
TOTAL BEDS IN THE STATE - community hospitals	**697**	**41**	**136**	**121**	**83**	**1078**	**54**	**129**	**78**	**36**	**297**	**1375**
Brattleboro Memorial Hospital	34	0	8	5	0	**47**	0	10	0	0	**10**	**57**
Central Vermont Hospital	52	0	13	14	15	**94**	0	15	0	0	**15**	**109**
Copley Hospital	27	0	5	4	0	**36**	0	6	0	6	**12**	**48**
Fletcher Allen Health Care	271	34	43	52	30	**430**	32	38	0	0	**70**	**500**
Gifford Memorial Hospital	9	0	0	0	0	**9**	0	10	20	10	**40**	**49**
Grace Cottage Hospital	9	0	0	0	0	**9**	0	0	0	10	**10**	**19**
Mt. Ascutney Hospital	12	0	0	3	0	**15**	10	0	58	8	**76**	**91**
North Country Hospital	22	1	2	3	0	**28**	0	2	0	0	**2**	**30**
Northeastern Vermont Regional Hospital	25	4	10	4	0	**43**	0	4	0	2	**6**	**49**
Northwestern Medical Center	46	0	18	6	0	**70**	0	10	0	0	**10**	**80**
Porter Medical Center	34	2	6	3	0	**45**	0	10	0	0	**10**	**55**
Rutland Regional Medical Center	65	0	10	10	19	**104**	12	10	0	0	**22**	**126**
Southwestern Vermont Medical Center	53	0	15	12	0	**80**	0	6	0	0	**6**	**86**
Springfield Hospital	38	0	6	5	19	**68**	0	8	0	0	**8**	**76**
VA Medical Center	50					**50**						
Vermont State Hospital					56	**56**						
Brattleboro Retreat						**149**						

Note: Swing bed services are also available at Porter Hospital and North Country Hospital.

Inpatient psychiatric and substance abuse beds

See the Mental Health and Substance Abuse Services section of this chapter.

[16] Vermont Association of Hospital and Health Systems, Vermont's Hospitals and Health Systems Sector, An Assessment of Economic Impact; EPR Inc. 2003

[17] Vermont Health Care Administration, *Hospital budget submissions, FY 2005*

Rehabilitation beds

A 1990s general study of need for rehabilitation beds in Vermont found need for additional rehabilitation capacity in multiple areas. There were four separate Certificate of Need (CON) reviews of the need for dedicated units. The Burlington unit was enlarged and new units were approved in Windsor and Rutland. The need in the Newport area was found to be too small to support a dedicated unit.[18] The statewide number of rehabilitation beds is included in Table 1. There is no State agency examining the need issue on any periodic basis at this time.

Beds per 1000 population

One approach for evaluating need is to measure the number of acute care beds available to the population in Vermont. Vermont hospitals' acute beds per 1000 population are 2.4 beds per 1000 (Table 2). This is lower than the United States benchmark of 2.8 per 1000 and about the same as New Hampshire's bed per 1000 of 2.2. Beds per 1000 have been trending downward in the U.S., as they were measured at 3.0 beds per 1000 in 1999.[19]

Table 2: Beds per 1000 - Benchmark data

Per 1000 population	Beds per 1000
United States	2.8
New Hampshire	2.2
Maine	2.8
Iowa	3.7
Wyoming	3.5
Vermont	2.4

Notes: *Data are for community hospitals, which represent 85% of all hospitals. Federal hospitals, long-term care hospitals, psychiatric hospitals, institutions for the mentally retarded, and alcoholism and other chemical dependency hospitals are not included. U.S. figure does not include territories: 2.04 hospital beds per 1000 population in Puerto Rico. Iowa and Wyoming are included for comparison based on population, geographic and other demographic characteristics comparable to those for Vermont. 2003 Kaiser Family Foundation data*

The bed per 1000 population measure does not consider Vermonters' access to border hospitals. In addition to Vermont hospitals, residents also receive a significant amount of care at New Hampshire, New York, and Massachusetts hospitals. A total of 10,251 discharges represented care provided in these states in 2002, comprising 17.6% of all Vermont-resident inpatient discharges in 2002. Of the 8,413 discharges to New Hampshire hospitals, 67% were from Dartmouth-Hitchcock Medical Center and the Mary

[18] Vermont Health Resource Management Plan, 1996-1999, p.129
[19] The Kaiser Family Foundation, *Statehealthfacts.org*; *2003 AHA Annual Survey Copyright 2004 by Health Forum LLC*

Hitchcock Psychiatric Unit. Another 1,838 residents were discharged from hospitals in Massachusetts (1,109 discharges) and New York (729 discharges).[20]

Table 3: 2002 Vermont-Resident Inpatient Discharges at Border-State Hospitals

State	Discharges	Charges	% Discharges	% Charges
New Hampshire	8,413	$143,745,119	82.1%	72.7%
Massachusetts	1,109	$34,368,206	10.8%	17.4%
New York	729	$19,483,147	7.1%	9.9%
Total	10,251	$197,596,472	100.0%	100.0%

Includes newborns

Vermont residents' access to the border hospitals and the low occupancy rate of 59% across Vermont hospitals (see Table 4) suggest that there is sufficient capacity in the system to serve an increase in need that might emerge from the aging of the population. If hospital utilization in Vermont moved to the U.S national rate of 114 per 1000, occupancy levels in Vermont would rise from 59% to 87%.[21] However, this analysis leaves open the question of capacity by hospital service area. For example, if the increase in need occurred primarily in Chittenden County, the number of available beds could be considered too low.

Another factor that must be considered is the type of beds that might be needed. Across the country there are hospitals constructing or renovating semi-private rooms to private beds. Patients are seeking privacy and quiet and hospitals sometimes need to isolate patients in order to prevent infection.[22] This has implications for cost and some have suggested that it may move the medical system to a two-tiered system of care.[23]
How capacity is measured and for what circumstances may reflect different findings. For example, "surge capacity" might be needed in Vermont hospitals for extraordinary events. The Vermont Department of Health has an Emergency Operations Plan and has identified surge capacity as a high priority. They are currently working with other agencies and hospitals to plan for such emergencies.[24]

Finally, measurements of capacity may yield different results when evaluating inpatient beds. Very different results may occur depending upon whether staffed beds or licensed beds are used in the calculations. The findings below were measured using staffed beds.

[20] Vermont Department of Health, *Hospital Discharge data set, 2002*
[21] Vermont Health Care Administration, calculation with 2002 Monograph data
[22] Boston Globe, 9/7/2003, "Hospitals scramble to meet demand for private rooms", Liz Kowalczyk
[23] Boston Globe, 9/7/2003, "Hospitals scramble to meet demand for private rooms", Liz Kowalczyk
[24] Vermont Department of Health, 5/27/2005, email

Table 4: Vermont Community Hospitals

2005	Hospital Service Area	Population of HSA	Staffed Beds	Acute Daily Census	Occupancy Rate	Total Inpatient Admissions
Vermont Community Hospitals		619,100	1,078	636	59.0%	58,273
Brattleboro Memorial Hospital	Brattle boro	32,386	47	25.9	55.1%	2,520
Central Vermont Hospital	Barre	66,227	94	46.3	49.3%	4,180
Copley Hospital	Morris ville	26,213	36	12.7	35.3%	1,725
Fletcher Allen Health Care	Burlington	168,274	430	310.8	72.3%	22,511
Gifford Memorial Hospital	Rand olph	14,529	9	8.3	92.2%	1,649
Grace Cottage Hospital	Brattle boro	32,386	9	1.8	20.0%	421
Mt. Ascutney Hospital	White River	49,311	15	4.6	30.7%	1,099
North Country Hospital	New port	27,773	28	15.0	53.6%	2,381
Northeastern Vermont Regional Hospital	St John sbury	27,374	43	14.0	32.6%	1,913
Northwestern Medical Center	St Albans	44,290	70	24.0	34.3%	2,955
Porter Medical Center	Middle bury	28,393	45	17.1	38.0%	1,937
Rutland Regional Medical Center	Rutland	64,371	104	74.3	71.4%	6,855
Southwestern Vermont Medical Center	Bennington	41,056	80	49.7	62.1%	5,235
Springfield Hospital	Spring field	28,913	68	31.4	46.2%	2,892
VA Medical Center						2491
Vermont State Hospital						216
Brattleboro Retreat						2117

Access to inpatient hospital services

For purposes of analysis, all hospital services have been categorized into statewide, regional, and local community services as defined by the State Health Resource Management Plan completed in 1999. Table 1.A-1 in Appendix 1.A of this document shows the current distribution of these services across Vermont hospitals and nearby New Hampshire and New York hospitals.

An analysis of Vermonters' access to hospital services was completed by measuring how far residents live from each hospital, based upon travel distances of 15, 30, 45, or 60 miles. Travel times can be estimated by assuming two minutes for each mile of travel. Vermont resident access is reflected in a series of maps (see sub-section VI of this chapter, page 77) that show travel distances for local, regional, and statewide services. Table 5 summarizes the degree to which Vermonters have reasonable travel time access to the various services.

Table 5: Percent of population covered for Primary, Secondary and Tertiary Services

	Distance from hospital			
Hospital service	**15 miles**	**30 miles**	**45mile**	**60 miles**
Tertiary (statewide)	---	---	>75%	>90%
Secondary (regional)	---	>90%	>95%	---
Primary (local)	>90%	100%	---	---

Tertiary care services, such as open-heart surgery, are high-cost and specialized and thus access standards (travel distance) allow for more travel time. Other specialized services like inpatient psychiatric units and inpatient medical rehabilitation units are less costly and generally have higher patient volumes and thus the access standards are somewhat more local than the tertiary care services. True local services like emergency care that have high usage and a large number of patients are established to have access standards that call for relatively short travel times.

3. Assessments of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.
- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[25]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Minimum access standards (i.e., minimum travel times) were established for various "new institutional health services" during the development of the HRMP in 1999. These guidelines were prepared to assist and guide decision-making for the CON process. Below are the various guidelines that existed prior to adoption of this Health Resource Allocation Plan:

Access Guidelines

Access to hospital services can be defined in terms of travel time required to reach a service. Some services have to be readily accessible to every Vermonter, and some can be more widely scattered in a manner that still provides reasonable access. Travel-time guidelines are an approach for measuring Vermonters' access to a given service. The HRMP states:

[25] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

In order to achieve reasonable geographic access to needed health services, the following travel time guidelines should be maintained or achieved:

Each of the following services should be available to most Vermonters within 30 minutes travel by ambulance from the center of town:

- *Low-risk maternity care (including nursery)*
- *General inpatient medical/surgical care*
- *General intensive care*
- *Pediatric care (not necessarily in a dedicated unit)*
- *Short-term psychiatric care (not necessarily in a dedicated unit)*
- *Routine imaging service (x-ray, radiographic/fluoroscopic, ultrasound,*
- *Mammography, basic nuclear medicine and CT scanning)*
- *Therapies (physical, speech, occupational and nutritional)*
- *Emergency care, including stabilizing major trauma cases before*
- *Transfer and including psychiatric emergencies*
- *Ambulatory surgery*

The following services should be available to most Vermonters within 60 minutes' travel time by ambulance from the center of town:

- *Psychiatric services in dedicated units*
- *Magnetic resonance imaging*
- *Medical rehabilitation services in dedicated units*

The following services should be available to most Vermonters within 90 minutes' travel time by ambulance from the center of town:

- *Cardiac catheterization lab services*
- *Kidney transplantation*
- *Major trauma treatment (massive head and or chest trauma)*
- *Neonatal intensive care*
- *Open-heart surgery*

Vermonters who need the following services will have to travel out-of-state for them:

- *Experimental procedures (unless 100% supported by grant funds)*
- *Major burn care*
- *Organ transplantation (other than kidney or kidney/pancreas)*
- *Specialty pediatric care (e.g., open-heart surgery)*

B. Vermont State Health Plan

The Vermont State Health Plan addressed inpatient care in the following key services:

- Chronic care - Ensure adequate support, including funding, to guide and manage the redesign of the system of care for people with chronic conditions. Specific items addressed include:
  - Alzheimer's disease
  - Diabetes
  - Prevention services for cancer, heart disease, diabetes
  - Education services
  - Improved chemotherapy treatment services

- Mental health/substance abuse care - Continued integration of mental illness diagnosis and treatment with the diagnosis and treatment of all other illnesses. (See more discussion in Mental Health & Substance Abuse section of this chapter.)

- Nursing home care - Develop and use informed decision-making processes to assist people in making long-term-care decisions that best support their needs, values and preferences (see Chapter 3, Community-Based Care).

C. Hospital Community Needs Assessments

All Vermont hospitals prepared Community Needs Assessments and identified a variety of needs as expressed to them by their community. Inpatient-related needs included:

- Central Vermont Medical Center identified the need for a State hospital with 32 acute-intensive beds and 16 long-term rehab beds.
- Gifford Medical Center called for more access to specialists and specialized services.
- Grace Cottage identified a priority for monitoring and improving health of patients with heart and circulatory conditions requiring oral anticoagulation therapy.
- Rutland Regional Medical Center identified a need for invasive cardiology and noted the hospital was studying the feasibility.
- Springfield Hospital prioritized building and staffing another operating room.
- Porter Medical Center, Springfield Hospital, Central Vermont Medical Center and Copley Hospital called for improved services for women's care (including midwifery services, and increasing female physician staff).
- The need for technology in clinical and information systems was recognized statewide.

D. The Six Institute of Medicine (IOM) Aims

All six IOM Aims (timely, effective, efficient, safe, patient-centered, and equitable) are applicable to inpatient care. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Measuring inpatient utilization variation

John Wennberg, MD, is an acknowledged leader and founder of the study of hospital utilization variation in populations. His work began in Vermont in the 1960s and he continues these efforts today. He manages The Center for the Evaluative Clinical Sciences (CECS) at Dartmouth College established in 1989.[26]

Early in his career, Wennberg found that the rate at which Vermonters were hospitalized varied depending on where they lived. Wennberg and his colleagues studied variations in medical care use and distribution during the 1990s and subsequently published *The Dartmouth Atlas.* Its findings "…seem to indicate that region and the supply of medical resources is a much more important predictor of probability of treatment than either sex or race. They also suggest there may be extensive underuse of effective care in the Medicare population."[27] Analysis of his finding indicated that different physicians care differently for similar people with the same illness.

The Vermont Department of Health has built on this research and prepares an annual *Vermont Hospital Monograph Series*. This publication calculates and presents hospital inpatient and outpatient utilization for both Vermont hospitals and Vermont hospital service areas. (See sub-section VI of this chapter, page 77.) The Vermont data shown in Table 6 indicate that variation exists across Vermont, though assessing its significance requires more in-depth study.

[26] Center for the Evaluative Clinical Sciences, *www.dartmouth.edu*
[27] Dr. John Wennberg, presentation at the American Healthcare Symposium, 2004

Table 6: Statewide Utilization Rate per 1000

Hospital Service Area	Population of HSA	Age-Adjusted Days per 1000 population				
		1998	1999	2000	2001	2002
Vermont	**619,100**	**417.0**	**436.0**	**440.0**	**436.0**	**426.0**
Brattle boro	32,386	422	447	435	400	422
Barre	66,227	358	384	385	398	389
Morris ville	26,213	425	418	409	415	380
Burlington	168,274	445	486	493	439	440
Rand olph	14,529	372	403	418	395	398
White River	49,311	386	397	406	383	369
New port	27,773	378	391	364	403	412
St John sbury	27,374	374	337	379	400	368
St Albans	44,290	405	400	445	438	466
Middle bury	28,393	441	494	412	477	447
Rutland	64,371	494	512	524	526	496
Bennington	41,056	427	422	435	480	471
Spring field	28,913	416	461	477	492	436

Hospital Service Area	Population of HSA	Age-Adjusted Discharges per 1000 population				
		1998	1999	2000	2001	2002
Vermont	**619,100**	**87.6**	**88.6**	**90.5**	**90.8**	**86.9**
Brattle boro	32,386	88.8	91.5	86.0	83.0	82.1
Barre	66,227	73.0	77.9	78.2	82.1	78.5
Morris ville	26,213	91.5	88.8	89.7	89.6	82.3
Burlington	168,274	80.7	83.4	83.7	81.5	80.0
Rand olph	14,529	88.7	90.0	90.1	90.4	87.9
White River	49,311	93.3	89.5	92.4	86.7	80.6
New port	27,773	91.1	95.0	99.4	106.2	94.9
St John sbury	27,374	89.1	81.7	87.6	89.7	84.8
St Albans	44,290	87.4	81.7	92.4	89.4	92.7
Middle bury	28,393	79.7	89.8	84.4	96.8	88.1
Rutland	64,371	101.7	100.4	107.2	106.2	100.7
Bennington	41,056	99.0	98.9	98.2	102.3	103.1
Spring field	28,913	99.6	105.3	111.5	111.7	99.2

These data show that the utilization rate per 1000 for the entire State has been relatively flat for the period 1998 through 2002, whether measured in days or admissions. This "leveling off" comes after a period in the 1990s where utilization rates were over 900 days per 1000 and 130 admissions per 1000. These trends are comparable with similar trends found across the United States during that period and reflect changing reimbursement approaches and technology.

The *Monograph Series* breaks down the use rates by examining them by major diagnostic category or the aggregation of diagnosis-related groups into 25 groups that define major body systems.[28] The *Monograph Series* publishes numerous tables that examine the utilization rates for various major diagnostic categories across hospital service areas.[29]

[28] Vermont Department of Health, *Vermont Hospital Monograph Series, 2002, p.414*
[29] Vermont Department of Health, *Vermont Hospital Monograph Series, p.9*

Variation from the norm can then be measured to determine whether it is "statistically significant."

It should be noted that variation, while high or low, does not in and of itself suggest a problem or that the level of care is wrong. Further analyses are required to understand the variation, such as has been completed by The Vermont Program for Quality in Health Care. They use the findings as presented in the *Monograph Series* as part of its study of efficiency and resource consumption in its *2004 Quality Report.* Their findings identify where the variation is "statistically significant" by HSA for major surgery of the intestines, back and neck surgery, hip, knee, and ankle replacement surgery, and hysterectomy.[30] These findings are shared with physicians and hospitals across Vermont.

Other

Critical Access Hospitals (CAH) is a new class of designated Medicare providers that was introduced through the Balanced Budget Act of 1997. The Centers for Medicare and Medicaid Services (CMS; known as the Health Care Financing Administration (HCFA) in 1997) recognized that small rural hospitals were having difficulty recovering costs under the prospective payment system, so they designed a program to allow cost reimbursement under a certain set of conditions. The reimbursement CAHs receive is intended to improve their financial performance and reduce the possibility of closure.[31]

States are required to develop rural health plans before hospitals can be eligible for CAH designation. In Vermont, the Vermont Department of Health manages this plan and the CAH program. CAHs are described as limited service hospitals and are allowed to operate no more than 25 acute care inpatient beds. CAHs must also maintain an annual average length of stay of 96 hours or less. Another consideration for CAHs is that they must provide 24-hour emergency services that include medical staff on-site, or on-call and available on-site within 30 minutes.[32]

Six hospitals have achieved CAH status in Vermont and Porter has recently applied for the CAH designation. The six hospitals that have achieved this status are Grace Cottage Hospital, Mount Ascutney Hospital and Health Systems, Gifford Medical Center, Copley Hospital, North Country Hospital, and Northeastern Vermont Regional Hospital.

4. Priorities and Special Considerations

The priorities for inpatient, hospital-based outpatient, and emergency services relate to determining and developing the appropriate amount and distribution of inpatient beds, outpatient and emergency services and major medical equipment.

[30] Vermont Program for Quality in Health Care, *The Vermont Health Care Quality Report 2004, p. 42-45*
[31] Health Care Financing Review, Fall 2003, Dalton Ph.D., Slifkin Ph.D., Poley, and Fruhbeis M.S.P.H., pages 115-116
[32] Rural Assistance Center, Information Guides, Hospitals, www.raconline.org/info_guides

To ensure adequate access and maximum cost efficiency, Vermont needs to have an appropriate number and distribution of inpatient beds, especially private beds, psychiatric beds, rehabilitation beds and nursing home beds. It is also important to have adequate levels of outpatient care, emergency care, and major medical equipment. Developing access standards and using the science of population-based analysis can help policymakers determine the appropriate number and distribution of inpatient beds, as well as adequate levels of outpatient services, emergency services, and major medical equipment.

Chronic illnesses and their complications are consuming an increasing proportion of total health care resources. A key element in containing health care costs and improving outcomes is to invest in preventive services and effective treatment for chronic illnesses at the inpatient and outpatient levels.

In the mental health area, safety and quality concerns, along with the elimination of federal funding for freestanding "Institutes of Mental Disease," have led to calls to close the 54-bed Vermont State Hospital. Plans for closure call for additional adult mental health inpatient, crisis bed and sub-acute level capacity at alternative sites. There is only one inpatient facility for children in Vermont, the Brattleboro Retreat.

One objective of an efficient, effective, patient-centered health care system is to minimize the need for inpatient care so that patients receive care in the least restrictive setting possible. However, gaps in emergency care could actually lead to increased inpatient care.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for inpatient health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 2. Adopt population-based analysis to determine the need for additional services and/or the allocation of additional services.

Recommendation 1. Develop access standards to enable a consistent and logical framework for inpatient care. The access standards should follow the principles of the IOM criteria.

Recommendation 6. Implement chronic care and prevention initiatives as priorities:

- For determining the allocation of hospital inpatient resources.
- For prioritizing appropriate workforce levels.
- For examination of individual CON applications and annual hospital budgets.

All recommendations:

Recommendation 1. Develop access standards to enable a consistent and logical framework for inpatient care. The access standards should follow the principles of the IOM criteria.

Implementation Option 1.1.

- Hospital services will be defined into tertiary-level services, secondary level services, and community level services. (See Appendix 1.A, Table 1.A-1)

- Hospital services will periodically be updated and reviewed as new technologies and practice protocols emerge.

- Adopt and establish statewide (tertiary-level) care services based upon geographic and/or time limit standards.
    - Until further research is completed, a mileage standard of 60 miles should be used for tertiary care
    - The availability of out-of-state facilities should be evaluated for the 60 mile standard.
    - Research the existence of other available criteria that assist other states and/or major providers to determine appropriate investment for tertiary care services.

Recommendation 2. Adopt population-based analysis to determine the need for additional services and/or the allocation of additional services.

Implementation Option 2.1. The Health Department in consultation with BISHCA will establish and report findings of hospital service areas on an annual basis.

Implementation Option 2.2. Vermont's hospital service areas will include mechanisms to recognize populations served outside of the Vermont borders.

Implementation Option 2.3. As hospital service areas are established, the Health Department (in consultation with BISHCA) will calculate and publish HSA use rates for hospital inpatient services in the Vermont Monograph Series.

Implementation Option 2.4. BISHCA and the Health Department will establish hospital service areas that include outpatient usage patterns of care in order to measure population services.

Implementation Option 2.5. BISHCA and the Health Department will work with other State agencies to coordinate hospital service area determinations with other providers.

Implementation Option 2.6. BISHCA and the Health Department will work with the hospitals to continue to enhance and standardize the inpatient data collection for analyses of quality and cost.

Implementation Option 2.7. The Vermont Program for Quality in Health Care should continue to study the variation in inpatient service utilization across populations to:

- determine possible needs in the population
- inform resource allocation decisions
- evaluate chronic care needs
- evaluate prevention and health promotion efforts
- improve practice protocols

Recommendation 3. Continue to develop strategies for addressing inpatient workforce shortages as outlined in the Workforce chapter.

Implementation Option 3.1. BISHCA and the Health Department will monitor gaps in workforce shortages on a periodic basis. Hospital budget requests and CON requests will be required to address shortages as part of their planning strategies.

Implementation Option 3.2. BISHCA, the Department of Aging and Independent Living, and the Health Department will develop measures to better assess geographic and utilization shortfalls and/or excesses for positions identified in the Workforce chapter (including the VAHHS "Challenges and Opportunities for the Vermont Health Care Workforce.")

Recommendation 4. Vermont's acute care bed capacity, except as noted below, is sufficient. This is based upon comparison to other states beds per thousand, the capacity of out-of-state hospitals that are in relative close proximity, and the available licensed beds versus the number of beds that are currently staffed.

Implementation Option 4.1. Implement the Futures Report's recommendations to address the needed number of Psychiatric beds for the Vermont resident population.

Implementation Option 4.2. Examine population use rates, research clinical criteria, and other states' standards to determine the proper balance for private and semi-private inpatient rooms.

Implementation Option 4.3. Establish population use rates, research clinical criteria, and other states' standards to determine the needed number of Rehabilitation beds for the Vermont resident population over the next 10 years.

Implementation Option 4.4. BISHCA should periodically examine population use rates, research clinical criteria, and other states' standards to evaluate the needed acute care bed capacity for the Vermont resident population.

Implementation Option 4.5. BISHCA should adopt the findings of the Department of Aging and Independent Living for evaluating the appropriate levels of nursing home beds through the year 2013. (See discussion in Community based service chapter.)

Recommendation 5. Implement the Futures Report recommendations as the foundation for determining future mental health and substance abuse inpatient planning.

Recommendation 6. Implement chronic care and prevention initiatives as priorities:
- For determining the allocation of hospital inpatient resources.
- For prioritizing appropriate workforce levels.
- For examination of individual CON applications and annual hospital budgets.

Recommendation 7. Vermont inpatient services should adopt information system technology priorities as outlined in the Health Information Technology chapter.

6. State Policy Implications: Challenges and Opportunities

Many issues remain that must be considered for prioritizing hospital health care services in Vermont.

- The impact of HIPAA has emerged during the State CON and budget hearings, suggesting hospitals' interest for re-design of their infrastructure and operations. The issue of the interest in private beds is one example.
- Federal law changes impact in other ways. The recent change around the regulations for Critical Access Medicare funding may be advantageous for certain Vermont hospitals. However, this changes raises both operational and cultural issues within the hospital that must be addressed.
- Medicaid funding pressures are being seen across the country and could have an effect on hospital operations and services.
- Recent Vermont initiatives around Coalition 21 and the Vermont Blueprint for Health are a part of Vermont's plans to improve and re-direct health care resources. Prevention services and focus on chronic disease have emerged as

initiatives aimed at addressing health care costs and needs. The difficulty will be in implementing the changes and re-directing funding and priorities to achieve the benefits expected from those efforts.

- De-certification and proposed closure of Vermont State Hospital and impending loss of federal funding for freestanding Institutes of Mental Disease (impacts both VSH and Retreat Healthcare)

II. Hospital-Based Outpatient Services

Quick Facts

- Owing to changed health care reimbursement methodologies and a range of technological advances, hospitals saw a significant shift from inpatient to outpatient care nationwide in the 1980s.

- According to a Kaiser Family Foundation study, in 2003 Vermont had the highest number of hospital outpatient visits per 1000 population in the United States, at 3,571. The national average was 1,937. At this time, it is unclear why there are such differences; perhaps reporting issues cause some variation.

- Vermont hospital outpatient service revenues were budgeted to be more than double inpatient revenues in 2005, at $1.3 billion versus $712 million

- Analyses indicate all Vermont residents have access to most outpatient services within 30 miles, and that 90% of Vermonters have access within 15 miles. Access to specialty outpatient services such as cardiac catheterization and dialysis is considerably more limited.

- Technological advances have made it possible to shift some surgical procedures from the inpatient to outpatient setting. While this is a positive, inconsistent classification systems have made quantifying inpatient versus outpatient procedures problematic.

- Community Needs Assessments indicate mental health and substance abuse services are limited in all hospital service areas, and some hospitals indicate needs in cardiac rehabilitation services and the availability of radiological imaging.

- Outpatient medical record reporting is less mature and sophisticated than hospital inpatient reporting. In order to better evaluate outpatient services, reporting systems need to be improved to enable utilization variation analysis for both inpatient and outpatient services.

- Increased outpatient care services are often recognized as a positive development when it offsets the need for inpatient care services.

1. Service/Facility/Resource Description

Vermont hospitals provide a wide range of preventive, diagnostic, therapeutic, rehabilitative, surgical, and emergency services to patients in outpatient/ambulatory care setting, providing treatment for disease or injury for a period of time generally not exceeding 24 hours.[33] Services range from blood tests for cholesterol to complicated surgical procedures. Outpatient ancillary services include MRI exams, CT scans, ultrasound tests, speech and physical therapy visits, ER visits, radiology diagnostic tests, and many others. Most of these services are available at all hospitals, although there are exceptions, such as cardiac catheterizations, that can only be done at certain facilities because of the specialized equipment or skills that must be available.

The use of outpatient services has grown dramatically in selected areas. Since the mid-1980s, hospital utilization in the United States has seen a shift in the volume and type of care from the inpatient to outpatient setting. Changes in reimbursement methodologies and many new technological advances explain much of this shift.[34] Short-stay hospital discharges have gone from 122 per 1000 population in 1990 to 114 per 1000 in 2000. This is contrasted with increases seen in office-based physician visits (from 2,777 in 1990 to 3,004 in 2000), hospital ER visits (from 236 in 1990 to 304 in 2000), and hospital outpatient department visits (from 356 in 1990 to 394 in 2000).[35] In Vermont, outpatient services in hospitals show continued growth since FY 2000.[36] Moreover, according to the Kaiser Family Foundation, Vermont has the highest number of outpatient visits per 1000 in 2003, at 3,571 against the U.S. average of 1,937.[37]

2. Current Supply and Distribution

Seven service categories account for 70% of the total outpatient revenues billed by Vermont's community hospitals: emergency room visits, operating room procedures, laboratory tests, MRI, CT scan procedures, radiology-diagnostic procedures and drugs sold. Table 7 provides the outpatient units of service for six out of the seven major categories (there are no units of service available for the "drugs sold" category.)

[33] South Carolina, Department of Health & Human Services, *www.dhhs.state.sc.us*
[34] U.S. Department of Health and Human Services, *Health Care in America, p. 22*
[35] U.S. Department of Health and Human Services, *Health Care in America, p. 23*
[36] Health Care Administration, *Hospital budget submissions, FY 2005*
[37] The Kaiser Family Foundation, *Statehealthfacts.org*; *2003 AHA Annual Survey Copyright 2004 by Health Forum LLC*

Table 7: Outpatient Units of Service for Community Hospital Major Service Categories

	Emergency Room Visits		Operating Room Procedures		Laboratory Tests	
Vermont Community Hospitals	Actual 2000	Budget 2005	Actual 2000	Budget 2005	Actual 2000	Budget 2005
Brattleboro Memorial Hospital	11,176	11,424	2,451	2,896	184,885	182,753
Central Vermont Hospital	26,856	26,928	4,191	4,261	356,043	377,102
Copley Hospital	10,523	10,837	2,008	1,757	198,064	250,000
Fletcher Allen Health Care	50,886	52,000	33,549	41,143	1,751,208	2,208,165
Gifford Memorial Hospital	6,392	6,200	1,632	1,436	70,541	97,250
Grace Cottage Hospital	1,536	2,178	188	25	35,751	54,231
Mt. Ascutney Hospital	4,073	4,802	748	747	44,399	51,562
North Country Hospital	11,019	10,901	2,408	2,820	234,881	368,433
Northeastern Vermont Regional Hospital	13,860	15,000	2,950	3,450	143,316	159,000
Northwestern Medical Center	22,061	27,847	2,515	3,423	172,542	243,232
Porter Medical Center	13,785	13,535	3,299	2,178	173,858	211,942
Rutland Regional Medical Center	32,885	33,741	4,997	5,236	373,178	464,112
Southwestern Vermont Medical Center	17,440	19,866	4,232	4,535	279,106	404,034
Springfield Hospital	11,305	12,709	1,727	1,800	133,650	124,189
Vermont Total	**233,797**	**247,968**	**66,895**	**75,707**	**4,151,422**	**5,196,005**
Ave annual change		**1.2%**		**2.5%**		**4.6%**

	Magnetic Resonance Imaging		CT Scan Procedures		Radiology-diagnostic	
Vermont Community Hospitals	Actual 2000	Budget 2005	Actual 2000	Budget 2005	Actual 2000	Budget 2005
Brattleboro Memorial Hospital	1,222	1,866	3,034	3,426	18,854	22,204
Central Vermont Hospital	1,644	2,609	6,743	9,999	28,254	31,293
Copley Hospital	634	800	2,089	2,900	21,340	18,407
Fletcher Allen Health Care	9,308	14,587	22,921	40,852	91,677	108,262
Gifford Memorial Hospital	0	560	1,377	1,329	8,489	12,000
Grace Cottage Hospital	0	0	0	0	2,274	2,416
Mt. Ascutney Hospital	0	0	0	1,096	6,502	7,520
North Country Hospital	481	1,025	1,667	2,283	12,862	15,437
Northeastern Vermont Regional Hospital	182	465	4,834	4,930	12,653	15,500
Northwestern Medical Center	909	1,709	3,780	4,895	24,236	32,252
Porter Medical Center	848	988	2,264	2,697	17,483	17,840
Rutland Regional Medical Center	3,252	6,190	5,988	11,159	27,563	39,672
Southwestern Vermont Medical Center	1,746	4,000	6,227	10,250	23,271	39,785
Springfield Hospital	694	999	2,706	3,350	13,119	11,681
Vermont Total	**20,920**	**35,798**	**63,630**	**99,166**	**308,577**	**374,269**
Ave annual change		**11.3%**		**9.3%**		**3.9%**

Source: Annual hospital budget submissions
Note: outpatient services are also provided at the VA Hospital and Retreat Healthcare. Units of service information is not available for these facilities at this time, however.
NE Vt. Regional Hospital FY2005 ER visits includes an estimated 5,400 urgent care visits to their clinic.

A range of other services comprises the remaining 30% of outpatient revenues billed by Vermont's community hospitals. Table 8 presents all outpatient services as reported in the hospital budget process. Most of these services are located at each hospital, though there are exceptions. Because of the specialty services required as back-up support, for example, cardiac catheterizations are only available at Fletcher Allen Health Care (FAHC) and Rutland Regional Medical Center. Renal dialysis must be supported by a tertiary care center and therefore is only available currently at sites affiliated with FAHC.

Table 8: Outpatient Ancillary Services

OUTPATIENT ANCILLARY SERVICES	**BUD 05**
- EMERGENCY ROOM PHYSICIANS (VISITS)	141,296
- LABOR & DELIVERY (PROCEDURES)	6,217
- RECOVERY ROOM (PROCEDURES)	32,317
- ANESTHESIOLOGY (PROCEDURES)	48,225
- RADIOLOGY - THERAPEUTIC (PROCEDURES)	46,539
- BLOOD BANK (UNITS ISSUED)	18,174
- EKG (PROCEDURES)	57,107
- EEG (PROCEDURES)	10,037
- EMG (PROCEDURES)	600
- MED/SURG SUPPLIES SOLD	278,689
- IV THERAPY (CHARGES)	561,669
- PHYSICAL THERAPY (TREATMENTS)	378,846
- INHALATION THERAPY (TREATMENTS)	109,299
- REHABILITATIVE SERVICES (TREATMENTS)	196,572
- PULMONARY FUNCTION (PROCEDURES)	13,031
- NUCLEAR MEDICINE (PROCEDURES)	22,640
- CARDIAC CATHETERIZATION (PROCEDURES)	32,909
- RENAL DIALYSIS (TREATMENTS)	43,565
- KIDNEY ACQUISITION (# ACQUIRED)	0
- PSYCHOLOGICAL TESTING (TREATMENTS)	8,670
- AMBULANCE SERVICE (OCC. OF SERVICE)	384
- ULTRASOUND (EXAMS)	57,590
- CARDIAC REHAB	27,756
- CLINICS	77,229
- PHYSICIAN OFFICE PRACTICES	2,110,038
- OBSERVATION CARE	41,574

Note: Clinics, physician offices, and observation care are reported as "visits." Recovery room procedures are an estimate.

Access to outpatient hospital services

For purposes of analysis, all hospital services have been categorized into tertiary, secondary, and primary community services as defined in the Health Resource Management Plan (HRMP) completed in 1999. A grid that shows the current distribution of these services across Vermont hospitals and nearby New Hampshire and New York hospitals is included in Appendix 1.A, Table 1.A-1.

Vermonters' access to hospital services was assessed on 15-, 30-, 45-, and 60- mile travel/distance standards. The travel times were established based on the guidelines in the HRMP to support Certificate of Need applications. Vermont resident access is reflected in a series of maps (see sub-section VI of this chapter, page 77) that show travel distances for primary, secondary, and tertiary care services. Table 9 summarizes the degree to which a percent of the Vermont population has reasonable travel time access to those services.

Table 9: Access to Hospital Services

	Distance from hospital			
Hospital service	**15 miles**	**30 miles**	**45mile**	**60 miles**
Tertiary (statewide)	---	---	>75%	>90%
Secondary (regional)	---	>90%	>95%	---
Primary (local)	>90%	100%	---	---

Assuming that outpatient services must be accessible locally, the chart illustrates that all Vermonters have access to most outpatient services at the 30-mile measure and that more than 90% do at the 15-mile measure. For certain outpatient services such as cardiac catheterization and renal dialysis, current access is much more limited. The Division of Health Care Administration is awaiting a report on renal dialysis that reflects the current access status for those services as well as a determination of its need. Other services will require their own study to examine issues of need and access. (Further discussion of access is included in the Emergency Services and Major Medical Equipment sections of this chapter.)

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.

- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[38]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

[38] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Minimum access standards (i.e., minimum travel times) were established for various "new institutional health services" during the development of the HRMP in 1999. These guidelines were prepared to assist and guide decisionmaking for the CON process. Below are the various guidelines that existed prior to adoption of this Health Resource Allocation Plan:

i. *Access Guidelines*

Access to hospital services can be defined in terms of travel time required to reach a service. Some services have to be readily accessible to every Vermonter, and some can be more widely scattered in a manner that still provides reasonable access. Travel-time guidelines are an approach for measuring Vermonters access to a given service. The HRMP stated:

> *To achieve reasonable geographic access to needed health services, the following travel time guidelines should be maintained or achieved:*
>
> *Each of the following services should be available to most Vermonters within 30 minutes travel by ambulance from the center of town:*
>
> - *Routine imaging service (x-ray, radiographic/fluoroscopic, ultrasound, mammography, basic nuclear medicine and CT scanning)*
> - *Therapies (physical, speech, occupational and nutritional)*
> - *Emergency care, including stabilizing major trauma cases before transfer and including psychiatric emergencies*
> - *Ambulatory surgery*
>
> *The following services should be available to most Vermonters within 60 minutes travel time by ambulance from the center of town:*
>
> - *Magnetic resonance imaging*
>
> *The following services should be available to most Vermonters within 90 minutes travel time by ambulance from the center of town:*
>
> - *Cardiac catheterization lab services*

Vermonters who need the following services will have to travel out-of-state for them:

- *Experimental procedures (unless 100% supported by grant funds)*

B. Vermont State Health Plan

- Chronic care: Ensure adequate support, including funding, to guide and manage the redesign of the system of care for people with chronic conditions. Specific items addressed include:
  - Alzheimer's disease
  - Diabetes
  - Prevention services for cancer, heart disease, diabetes
  - Education services
  - Improved chemotherapy treatment services

C. Hospital Community Needs Assessments

- Gifford Medical Center called for more access to specialists and specialized services.
- Grace Cottage identified a priority for monitoring and improving health of patients with heart and circulatory conditions requiring oral anticoagulation therapy.
- Springfield Hospital identified a need to build and staff another operating room.
- Porter Medical Center, Springfield Hospital, Central Vermont Medical Center and Copley Hospital called for improved services for women's care (including midwifery services, and increasing female physician staff).
- The need for technology in clinical and information systems was recognized statewide.
- Continued integration of mental illness diagnosis and treatment with the diagnosis and treatment of all other illnesses was also recognized as a statewide priority.

D. The Six Institute of Medicine (IOM) Principles

All six IOM Aims (timely, effective, efficient, safe, patient-centered, and equitable) are applicable to outpatient hospital care. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Ambulatory Surgery

Technological advances have led to many prior inpatient care surgeries now being provided on an outpatient basis. This shift has led to complications in defining surgery. The Centers for Disease Control's National Center for Health Statistics notes "The distinction between surgical and non-surgical procedures has become less meaningful in the last two decades with the development of minimally invasive and noninvasive procedures. The procedures classified as non-surgical may not have less operative or anesthetic risk or require less highly trained personnel or special equipment than those classified as surgical."[39] As outpatient data collection matures, definitions will need to be revised to measure changes in the health care system.

Vermont has two sources of outpatient surgery data, each with its own limitations. The Hospital Budget Review process collects utilization and revenue data at the operating room level (see Table 7.) The cost center (defined under the hospital budget review process) and units of service are provided on an annual basis, providing counts of events for various surgical utilization services over time. However, there is no detail beyond the number of events and the cost center to which each event belongs. In addition, a large portion of the outpatient services in the hospital budgets is physician visits, with over two million expected in 2005. There is no detail that describes these services.

At a patient level, Vermont collects outpatient surgical detail from each hospital, as it has done since 1989, when the Hospital Data Council instituted the requirement.[40] The data required were defined as only surgeries occurring in the operating room. Because the criteria are different, this method yields a different count than what is obtained in the hospital budget information approach. However, this method is much richer in that the data can be sorted by ICD-9 procedure, which allows more precise identification of the type of surgical event being provided (see Tables 10 and 11).[41]

Beginning in reporting year 2001, the outpatient definition was revised to include more procedures within the ICD-9-CM code range occurring in hospital-based outpatient settings besides the operating rooms. In addition, Vermont began collecting outpatient emergency visits data in 2001 and just recently published information for 2002. These data, along with the inpatient discharge data set and the outpatient surgery procedures, allows a comparison across health care settings (see Appendix 1.A, Table 1.A-2). Using Clinical Classification Software (CCS), the principal diagnosis and procedure codes for each setting can be collapsed into meaningful categories. CCS was developed at the Agency for Healthcare Research and Quality.[42]

[39] Kozak LJ, Lawrence L. National Hospital Discharge Survey: Annual summary, 1997. National Center for Health Statistics. Vital Health Stat 13(144).1999, p.45
[40] Vermont Department of Banking, Insurance, Securities, and Health Care Administration, *Outpatient Surgery at Vermont Hospitals, 199, p. 3*
[41] Vermont Department of Health, *Vermont Hospital Monograph Series, 2002, p.346-348*
[42] Vermont Department of Health, *Vermont Hospital Monograph Series, 2002, p.398*

Table 10: Outpatient Surgical Procedures, 2002

Outpatient Surgical Procedures 2002 **Residents and non-residents**	**Procedures**
Brattleboro Memorial Hospital	5,353
Central Vermont Hospital	4,787
Copley Hospital	2,555
Fletcher Allen Health Care	32,060
Gifford Memorial Hospital	2,060
Grace Cottage Hospital	111
Mt. Ascutney Hospital	1,074
North Country Hospital	2,457
Northeastern Vermont Regional Hospital	3,141
Northwestern Medical Center	2,213
Porter Medical Center	2,600
Rutland Regional Medical Center	7,605
Southwestern Vermont Medical Center	4,536
Springfield Hospital	2,980
Veteran's Administration	468
	74,000

Table 11: Outpatient Procedures by ICD-9 Code

Top 20 Outpatient Procedure Groups
Vermont Hospital data, 2002 residents and non-residents

ICD-9-CM code	Description	Outpatient units
45	Intestinal Incision, Excision	16902
86	Skin & Subcutaneous operations	6125
13	Operations on Lens of Eye	4948
81	Joint repair and plastic operations	2169
75	Other obstetric operations	2634
80	Incision, Excision of Joint	3340
3	Spinal cord & canal operations	3021
79	Reduction of fracture, dislocation	1775
73	Assisting, inducing delivery, NEC	90
4	Cranial & peripheral nerve operations	2559
38	Vessel incision, excision, occlusion	1744
85	Operations on the breast	2332
37	Other heart & pericardium operations	1344
53	Repair of hernia	2133
36	Operations in heart vessels	65
51	Biliary Tract operations	1252
68	Other uterine incision, excision	441
69	Other uterus & supporting structure operations	1472
57	Urinary bladder operations	991
83	Other muscle, tendon, fascia, bursa, operations	1102
	All others	17561
		74000

Outpatient utilization variation

Just as inpatient use rates can be evaluated for variation by hospital service area, outpatient use rates could also be evaluated along similar approaches. However, there is one issue that makes that immediate prospect unlikely at this time: Vermont's lack of access to outpatient data from border states. In some HSAs, outpatient service could be fairly measured without those data because outpatient care is local. However, that would certainly not be true in the Vermont hospital service area that is in close proximity to Dartmouth-Hitchcock Medical Center and perhaps similarly in southwestern Vermont, where many New York patients might be served by Southwestern Vermont Medical Center by virtue of its proximity to many New York towns. Furthermore, even if these data were available, the information might not be in the same format as Vermont's and thus it would take time to build a history to examine trends and prepare comparisons.

Another consideration for the review of utilization variation is the need to ensure that inpatient and outpatient surgical procedures are grouped appropriately for any analysis. The more precision that can be achieved when analyzing ICD-9-CM procedure codes for

surgical events, the higher the likelihood that the correct setting for the event will be accurately captured. Typically, individual patient health status is the major factor in determining where to perform surgical procedures.[43]

Summary

Hospital outpatient services, including physicians employed by the hospitals, account for more than $1.3 billion in charges, almost double inpatient gross revenues of approximately $712 million. However, the data to evaluate outpatient services are still being developed. The complex breadth and scope of these services presents many data challenges. Much additional staff research needs to be completed.

Benchmarking data and comparative events for outpatient data was found to be lacking. As noted earlier, the Kaiser Family Foundation indicates that Vermont has the highest number of outpatient visits per 1000 in 2003, at 3,571 against the U.S. average of 1,937. However, specifics about the outpatient visits are unknown. The multitude of services and the various procedures, visits, exams and treatments make for difficult reporting comparisons and a lack of precision. As data systems mature and Vermont is able to build data sharing arrangements with other states, this information will improve and will allow variation analysis similar to the inpatient data.

A number of items remain clear. Chart 8 shows the growth in selected services since FY 2000. High technology imaging services such as CT and MRI scanning continue to grow. There are no current methods to easily assess need for these services; the technology changes rapidly and physicians are finding more uses for the medical equipment. (See Major Medical Equipment section of this chapter for more information.)

Additionally, the shift from inpatient to outpatient service has changed the space needs of hospitals. The need for inpatient bed space has lessened while more space is needed for waiting areas, changing rooms, special procedure rooms and recovery rooms. Many hospitals have already re-designed their physical plant to address these changes and others are contemplating infrastructure changes.

Workforce: Vermont hospitals and nursing homes are struggling with recruitment of various skilled positions such as registered nurses, anesthesiologists, pharmacists and medical record transcriptionists. Chapter 5 of this HRAP, Healthcare Workforce, provides discussion and analyses for a broad spectrum of health care workers. In addition, the Vermont Association of Hospital and Health Systems recently completed a report called "Challenges and Opportunities for the Vermont Health Care Workforce." Each of these provides valuable information for quantifying and analyzing the workforce issues.

[43] Vermont Department of Banking, Insurance, Securities, and Health Care Administration, *Outpatient Surgery at Vermont Hospitals, 199, p. 9,10*

Prevention: See the State Health Plan and The Vermont Blueprint for Health.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Inpatient Services sub-chapter on page 17.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for hospital-based outpatient services. The boxed recommendations are considered the highest priority for these services.

Recommendation 4. Adopt population-based analysis to determine the need for additional services and/or the allocation of additional services.

Recommendation 1. Develop an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Adopt standards to enable a consistent and logical framework for examining outpatient care services. The standards should follow the principles of the IOM criteria, in particular safety and effectiveness.

Recommendation 5. Vermont hospitals should adopt information system technology priorities as outlined in the Health Information Technology chapter.

All recommendations:

Recommendation 1. Develop an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Adopt standards to enable a consistent and logical framework for examining outpatient care services. The standards should follow the principles of the IOM criteria, in particular safety and effectiveness.

> **Implementation Option 2.1** Research best practices, establish need standards, and establish volume standards to ensure the volume of service is sufficient to support safe and effective delivery of care.

Implementation Option 2.2. Research best practices and establish measures to ensure the care is effective.

Recommendation 3. Prioritize the immediate hospital outpatient needs across the Vermont health care system.

Implementation Option 3.1. See Major Medical Equipment section for outpatient services supported by major medical equipment.

Recommendation 4. Adopt population-based analysis to determine the need for additional services and/or the allocation of additional services.

Implementation Option 4.1. The Health Department in consultation with BISHCA will establish hospital service areas on an annual basis.

Implementation Option 4.2. Vermont's hospital service areas will include mechanisms to recognize populations served outside of the Vermont borders.

Implementation Option 4.3. BISHCA and the Health Department will research how to establish hospital service areas to include outpatient patterns of care in order to measure population services.

Implementation Option 4.4. As hospital service areas are established, Vermont should calculate and publish HSA use rates for outpatient services in the Vermont Monograph Series.

Implementation Option 4.5. BISHCA and the Health Department will work with other State agencies to coordinate hospital service area determinations with other providers.

Implementation Option 4.6. BISHCA and the Health Department will work with other State agencies and the hospitals to standardize and enhance the outpatient data collection for analyses of quality and cost.

- Examine the scope of the existing hospital outpatient data collection.

Implementation Option 4.7. BISHCA will prioritize the future needs and allocation of outpatient services by:

- Establishing proper access standards according to a geographic access standards
- Identifying geographic gaps in services
- Prioritizing gaps of services
- Consideration of the prevention services that are available
- Consideration of the chronic care support services that are available

Implementation Option 4.8. BISHCA will work with the Vermont Program for Quality in Health Care to develop the study of variation in outpatient service utilization across populations to:

- determine possible needs in the population
- inform resource allocation decisions
- evaluate chronic care needs
- evaluate prevention efforts
- improve practice protocols

Recommendation 5. Vermont hospitals should adopt information system technology priorities as outlined in the Health Information Technology chapter.

Recommendation 6. Develop strategies for addressing hospital outpatient workforce shortages as outlined in the Workforce chapter.

Implementation Option 6.1. BISHCA and the Health Department will monitor gaps in workforce shortages on a periodic basis. Hospital budget requests and Certificate of Need requests will be required to address shortages as part of their planning strategies.

Implementation Option 6.2. BISHCA and the Health Department will develop measures to better assess geographic and utilization shortfalls and/or excesses for positions identified in the Workforce chapter (including the VAHHS "Challenges and Opportunities for the Vermont Health Care Workforce."

6. State Policy Implications: Challenges and Opportunities

Please refer to summary discussion in staff research section, above.

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III. Hospital-Based Mental Health and Substance Abuse Services

Quick Facts

- The 2002-2003 National Surveys on Drug Use and Health indicate an estimated 8.62% of Vermont adults experienced serious mental illness during the previous year, roughly mirroring a national rate of 8.76%.

- Inpatient services for mental health and substance abuse include inpatient psychiatric care, inpatient detoxification programs and emergency services.

- The decertification and proposed closure of the Vermont State Hospital will need to be compensated for by increased inpatient capacity in other locations.

- Law enforcement officers are the first point of contact for more than 3,000 Vermonters in need of substance abuse emergency or crisis services each year.

1. Service/Facility/Resource Description

Mental health and substance abuse inpatient services include:

- Inpatient psychiatric care;
- Inpatient substance abuse treatment;
- Inpatient and residential detoxification;
- Sub-acute rehabilitation (proposed in the Vermont State Hospital Futures report);
- Emergency services (for ease of discussion, includes providers and services in hospital and community settings, such as mental health screeners, services provided in hospital emergency rooms, and psychiatrists on call to designated hospital emergency rooms); and
- Diversion/crisis stabilization beds.

2. Current Supply and Distribution

Inpatient psychiatric care: While all of Vermont's general hospitals may have some capacity to provide initial inpatient care to people with mental illness or substance abuse disorders, that capacity varies greatly by hospital owing to different physical plant and personnel resources. The State relies on a system of four designated general hospitals and two freestanding psychiatric hospitals that have committed significant resources to psychiatric care to provide the bulk of the inpatient care. Many of the State's involuntary psychiatric patients are treated at the Vermont State Hospital (VSH), but designated hospitals have been taking an increasing number of involuntary patients in recent years. The Smith 4 Program at Fletcher Allen Health Care is the only designated hospital psychiatric unit in the State that is not routinely locked[44]. VSH accepts Department of Corrections inmates with serious mental illness for inpatient treatment. The Veterans

[44] *Vermont State Hospital Futures Report,* 2005

Administration Hospital in White River Junction and Dartmouth-Hitchcock Medical Center also provide significant amounts of inpatient psychiatric care to Vermont residents.

Table 12: Adult Psychiatric Beds and 2002 Average Daily Census for Vermont Psychiatric Inpatient Care

Hospital	HSA	Town or city	Facility type	Number of psychiatric beds	Average daily census, CY 2002
Central Vermont Medical Center	Barre	Berlin	Designated	14	11.0
Fletcher Allen Health Care	Burlington	Burlington	Designated	28	19.3
Rutland Regional Medical Center	Rutland	Rutland	Designated	19	12.7
Windham Center	Springfield	Bellows Falls	Designated	19	11.4
Retreat Healthcare	Brattleboro	Brattleboro	Freestanding	46	26.6 (40.4 reported by Retreat Healthcare)
Vermont State Hospital	Barre	Waterbury	Freestanding	54	48.0
Dartmouth-Hitchcock Medical Center	Other	Hanover, NH	Other	24	
Veterans Administration Hospital	White River	White River Junction	Other	12 (Veterans only)	

Source: Vermont State Hospital Futures Plan; interviews with staff from the VA Hospital and Dartmouth-Hitchcock Medical Center

Inpatient services for children are provided at one in-state facility, Retreat Healthcare in Brattleboro. Retreat Healthcare has 25 inpatient beds for children and adolescents. Two border state facilities also provide inpatient treatment for Vermont children and adolescents: Cheshire Medical Center in Keene, New Hampshire and Champlain Valley Psychiatric Hospital in Plattsburg, New York.

Retreat Healthcare also has 51 residential care beds for children and adolescents. In addition to Retreat Healthcare, intensive residential treatment for children is provided at the Baird Center for Children and Families (a division of the Howard Center for Human Services) and Northeastern Family Institute. These facilities offer short-term placements of 30 to 60 days, long-term residential placements of 9 to 18 months, and group home placements of 9 to 12 months. Intensive residential treatment is characterized by around-the-clock staffing, medical and psychiatric back-up, in-house crisis back up, and an array of psychological assessment and treatment services.[45]

[45] ***Pathways: A Resource Guide Connecting Families with Services and Supports for Children and Adolescents who Experience a Serious Emotional Disturbance***, Vermont Agency of Human Services, Department of Developmental and Mental Health Services, July 2002

Table 1.B-1 in Appendix 1.B includes quantitative information on Vermont residents receiving inpatient behavioral health care by hospital for calendar year 2002.

Inpatient substance abuse treatment: Inpatient substance abuse facilities are defined as facilities that provide 24-hour nursing care. Those facilities include:

Table 13: Vermont Inpatient Substance Abuse Treatment Facilities

Facility	Town or city	HSA
Valley Vista[46]	Bradford	White River
Retreat Healthcare	Brattleboro	Brattleboro
VA Hospital	White River Junction	White River

Source: Act 129 Substance Abuse Subcommittee Treatment Inventory, 2005

Inpatient and residential detoxification: Acute detoxification with medical complications requires treatment at a facility with an intensive care unit. Vermont's general hospitals, Retreat Healthcare, the VA Hospital and Dartmouth-Hitchcock can provide these services. Rutland Regional Medical Center and Retreat Healthcare have specific programs for substance abuse detoxification.

Other conditions and services related to inpatient and residential detoxification include:
- Acute detoxification without medical complications
- Acute withdrawal with primary psychiatric diagnoses
- Non-acute residential detoxification, when consumers do not have a history of seizures or experience delirium tremens or other acute withdrawal symptoms. These are residential facilities that do not have 24 hour a day nursing services.

The following table outlines the facilities that provide services for people experiencing acute detoxification without medical complications, acute withdrawal with a primary psychiatric diagnosis, and non-acute detoxification in a residential setting:

[46] Valley Vista is not a licensed hospital.

Table 14: Vermont Detoxification Facilities

Facility	HSA	Acute detox without medical complications	Acute withdrawal w/primary psychiatric Diagnosis	Non-acute residential detox
Windham Center	Springfield	X	X	
Retreat Healthcare	Brattleboro	X	X	
Valley Vista	White River	X		X
Maple Leaf Farm	Burlington	X		X
Serenity House	Rutland	X		X
Fletcher Allen Health Care	Burlington		X	
Central Vermont Medical Center	Barre		X	
Rutland Regional Medical Center	Rutland		X	
Dartmouth-Hitchcock Medical Center (Hanover, NH)	Other		X	
VA Hospital	White River		X	
Act One/Bridge	Burlington			X
Conifer Park (Scotia, NY)	Other	X		X

Source: Act 129 Substance Abuse Subcommittee Treatment Inventory

Sub-acute rehabilitation (proposed in the Vermont State Hospital Futures Plan): While this level of care does not currently exist for mental health treatment in Vermont (or perhaps anywhere else in the nation), it is a key recommendation of the Vermont State Hospital Futures Plan. It is envisioned as a level of care similar to physical rehabilitation, where consumers can consolidate their inpatient gains, develop new skills, and regain lost capacity.[47]

Emergency services (mental health screeners and services provided in hospital emergency rooms): Emergency services are available 24 hours a day, seven days a week to people who are in crisis, although access to specialized mental health and substance abuse emergency services varies among geographic areas and hospitals. All of the general hospitals and the VA Hospital provide emergency services; however, hospital administrators in some areas report that there is a lack of on-call psychiatry services in emergency rooms. In addition, all ten of the community mental health centers listed above provide emergency services to Vermont residents. These services include court-ordered, acute and involuntary mental health assessments (often in hospital emergency rooms), telephone support, and mobile crisis teams that provide evaluation and referral in some areas of the State. Table 1.B-2 in Appendix 1.B shows clients serviced and clinical interventions by community mental health center emergency service programs, FY 2004.

[47] Vermont State Hospital Futures Plan, 2005

Law enforcement officers are the first point of contact for more than 3000 people each year in Vermont who need substance abuse emergency or crisis services. Many of these people end up being incarcerated for brief periods of time due to a lack of shelter services.[48]

Diversion/Crisis Stabilization Beds: The primary function of diversion beds is to provide an alternative to hospitalization that will meet the needs of consumers in crisis or transition. The services at these facilities might include triage and observation care, crisis stabilization, hospital alternative care, and hospital step-down care. There are currently 19 crisis stabilization and triage beds in the State. They are distributed as follows:

Table 15: Statewide Distribution of Crisis Stabilization and Triage Beds

HSA	Facility	Number of beds
Burlington	Assist (Howard Center for Human Services)	4
Bennington	Battelle House (United Counseling Service)	5
Barre	Home Intervention (Washington County Mental Health)	6
Springfield	Alternatives (Health Care and Rehabilitation Services)	4

Source: Vermont State Hospital Futures Plan

According to the Vermont State Hospital Futures Plan, there are up to 33 additional hospital diversion and step down beds in six locations, specifically for community rehabilitation and treatment (CRT) clients.

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.
- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a

[48] Substance Abuse Crisis Services in Vermont (Addendum: Law Enforcement Response), 2005

discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[49]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the

[49] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Under pre-HRAP CON laws and guidelines, the provision of mental health services by individual mental health practitioners is generally excluded from CON review (18 V.S.A. § 9435(a)). Commissioner-designated agencies in the community and inpatient psychiatric units that receive public-sector oversight are generally reviewed under CON or similar review procedures when new services are introduced. Current CON Guidelines focus on developing a coordinated system that encourages access to the appropriate level of care. CON Guidelines state that organizations providing mental health services should have linkage agreements with other appropriate providers in the community to assure a coordinated system of care that allows access to the appropriate level of care. Additionally, according to CON Guidelines, CON decisions should reflect the desirability of retaining the designated local provider network for the treatment of individuals with long-term and severe psychiatric needs.

Access guidelines pertaining to inpatient mental health and substance abuse treatment include the following:

- Short term psychiatric care (not necessarily in a dedicated unit) and psychiatric emergency care should be available to most Vermonters within 30 minutes of travel
- Psychiatric services in dedicated units should be available to most Vermonters within 60 minutes of travel

B. Vermont State Health Plan

Please see Staff Research, below.

C. Hospital Community Needs Assessment

Please see Staff Research, below.

D. The Six Institute of Medicine (IOM) Aims

All six IOM Aims (Safety, Timeliness, Effectiveness, Efficiency, Equity, and Patient-Centered) apply to mental health and substance abuse services. There is particular focus in Vermont on achieving patient-centered (and family-centered) mental health and substance abuse care (see Vermont State Hospital Futures Plan and the Vermont State Health Plan). Safety is also currently a key focus for the most seriously mentally ill Vermont residents, given the recent decertifications of the Vermont State Hospital due to safety concerns. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Inpatient Services: Vermont collects annual HEDIS® data on mental health and substance abuse inpatient treatment for the members of the State's four largest managed care organizations (MCOs). The rate of inpatient mental health treatment covered by MCOs in 2003 ranged from 0.13% to 0.25%. The national average was 0.23% and the regional average was 0.24%. Inpatient substance abuse treatment rates ranged from 0.05% to 0.15%, with the national average at 0.09% and the regional average at 0.13%. It is hard to evaluate these rates; it may be preferable to have less inpatient care if the lower rates are reflective of good preventive, ambulatory and community-based care.

Table 16: Percent of Managed Care Patients Receiving Inpatient Mental Health/Substance Abuse Services - 2003

	BCBSVT	Cigna	MVP	TVHP	National	NE Regional
% Insureds Receiving Inpatient Mental Health Service	0.17%	0.15%	0.25%	0.13%	0.23%	0.24%
% Insureds Receiving Inpatient Substance Abuse Services	0.05%	0.15%	0.15%	0.07%	0.09%	0.13%

Rule 10 data filed by the State's largest managed care plans indicates that, based on a 60-minute travel time standard, there is a lack of access to inpatient chemical dependency services in Essex, Orleans, Orange and Caledonia Counties.

The decertification of the Vermont State Hospital and the proposal for closure of that facility mean that beds to replace the VSH beds will need to be developed. While the Vermont State Hospital Futures Plan suggests that there is not a need to add additional beds beyond those at VSH, capacity at other locations will need to be added to replace the existing beds. There should be further analysis of the geographic distribution of capacity and need to determine the best location and number of beds. Table 17 shows the 2002 estimated prevalence of serious mental illness by county for adults, along with episodes of hospitalizations and number of people hospitalized. Additional geographic use of inpatient services over the past 13 years can be found in a series of tables from the Division of Mental Health's "Inpatient Behavioral Health Care Services Provided for Vermont Residents During 1990-2002" (see Appendix 1.B). These tables show episodes of hospitalization, episodes of hospitalization per 100,000 population, average daily census, and unduplicated number of people hospitalized by county of residence and hospital type. The tables show data for children, adolescents, and for adults.

Table 17: Adults with Serious Mental Illness, and Hospitalization – 2002

County	Estimated Number of Adults Experiencing Serious Mental Illness[1]	Number of Episodes of Hospitalization for Adults with Mental Health Diagnosis[2]	Number of People Hospitalized with Mental Health Diagnosis (95% Confidence Interval)[2]	Estimated Hospitalization Rate for Adults with Serious Mental Illness[3]
Chittenden	7,835	744	543 (+/- 4.5)	7%
Rutland	2,591	676	463 (+/- 4.0)	18%
Washington	2,504	494	323 (+/- 3.0)	13%
Windsor	2,367	517	358 (+/- 3.3)	15%
Franklin/Grand Isle	2,138	241	178 (+/- 1.8)	8%
Windham	1,880	509	357 (+/- 3.2)	19%
Addison	1,624	182	128 (+/- 1.4)	8%
Bennington	1,483	295	184 (+/- 1.9)	12%
Caledonia	1,169	143	101 (+/- 1.2)	9%
Orange	1,129	233	150 (+/- 1.6)	13%
Lamoille	1,067	117	89 (+/- 1.2)	8%
Orleans	1,001	120	94 (+/- 1.2)	9%
Essex	223	23	20 (+/- 0.5)	9%
Unknown		28	26 (+/- 0.6)	

[1]Calculated by multiplying prevalence rates for adults with serious mental illness (U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, "Estimation of 12 Month Prevalence of Serious Mental Illness (SMI)," 1997) by estimated 2002 population of adults 18 and over (Vermont Department of Health, Center for Public Health Statistics, "Vermont Intercensal Population Estimates, 2002 Vermont Population Estimates," March, 2002

[2]Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital. Because these data sets do not share unique person identifiers, Probabilistic Population Estimation was used to determine caseload size (with 95% confidence intervals). Hospital discharge data were supplied by the Vermont Association of Hospitals and Health Systems - Network Services Organization and the Vermont Department of Banking, Insurance, Securities and Health Care Administration. These organizations disclaim responsibility for analyses, interpretations and conclusions, and BISHCA disclaims responsibility for errors in the data.

[3]Calculated by dividing "Estimated Number of Adults Experiencing Serious Mental Illness" by "Number of People Hospitalized with Mental Health Diagnosis".

Mechanisms to allow voluntary patients to be treated in unlocked settings and to increase voluntary treatment should be considered and developed.

Emergency Services: The Sustainability Study of the State's designated agencies noted that the number of clients served by the emergency services programs increased by 21.8% from fiscal year 1998 through fiscal year 2004. At the same time, State-funded revenues declined by 10.5% (some of those resources were reallocated to the CRT program for emergency services). This disparity between revenue growth and caseload growth has resulted in total losses of $5.7 million in the designated agency emergency services programs.

Substance Abuse Crisis Services in Vermont and the accompanying *Law Enforcement Response* outline gaps in the State's capacity to treat people experiencing substance abuse emergencies. Key recommendations in those reports aimed at improving treatment include moving from a law enforcement approach to a public health approach, and developing additional shelter and crisis beds.

Map 1 in sub-section VI depicts Vermont residents' access to local hospitals within a 15-mile radius for emergency room and short-term psychiatric care. As noted above, there is a 30-minute travel time access guideline for those services.

In a systemic sense, a lack of access to outpatient and community services may have an impact on the demand for inpatient and emergency services. According to the Vermont State Hospital Futures Plan, "It is likely the general erosion in availability of outpatient services increases the demand for more costly emergency and hospital-based care, but there are no data to prove this conclusively."[50]

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Inpatient Services sub-chapter on page 17.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for hospital-based mental health and substance abuse services. The boxed recommendations are considered the highest priority for these services.

Recommendation 1. Support implementation of the broad recommendations in the Vermont State Hospital Futures Plan, including:

- An adequate number of beds to provide essential core services, including:
  - Inpatient beds at an appropriate general hospital (preferably an academic medical center),
  - Intensive care beds at another hospital,
  - Sub-acute beds in one to three locations,
  - A secure residential facility, and
  - Additional diversion beds in two or three locations.

  (Vermont State Hospital Futures Plan)
- Location of services in or near the most appropriate setting: academic medical centers, community hospitals, or other community-based facilities.
- Construction of new facilities when existing facilities are inadequate to meet the standard of care required for the service.
- This implementation should include a thorough clinical and operational planning process that includes the State's hospitals.

Recommendation 2. Allocate more resources to emergency services, given the intense need for services during the first hours of a psychiatric emergency and the reduction in inpatient admissions that could occur as a result of a well-coordinated emergency services system.

[50] Vermont State Hospital Futures Plan, p. 20

All recommendations:

Recommendation 1. Support implementation of the broad recommendations in the Vermont State Hospital Futures Plan, including:

- An adequate number of beds to provide essential core services, including:
  - Inpatient beds at an appropriate general hospital (preferably an academic medical center),
  - Intensive care beds at another hospital,
  - Sub-acute beds in one to three locations,
  - A secure residential facility, and
  - Additional diversion beds in two or three locations.

    (Vermont State Hospital Futures Plan)
- Location of services in or near the most appropriate setting: academic medical centers, community hospitals, or other community-based facilities.
- Construction of new facilities when existing facilities are inadequate to meet the standard of care required for the service.
- This implementation should include a thorough clinical and operational planning process that includes the State's hospitals.

Implementation Option 1.1. In considering the Futures Plan recommendations, pay particular attention to determining the geographic capacity versus the geographic need for adult inpatient services (voluntary, involuntary and long-term services), children's inpatient services, and crisis/diversion beds.

Implementation Option 1.2. Determine the appropriate geographic distribution of inpatient services, considering the need for a "critical mass" of inpatient services at each location (for clinical and economic reasons) and the existence of comprehensive outpatient services to provide adequate aftercare.

Implementation Option 1.3. Ensure that community hospitals are reimbursed adequately to provide these additional services and the recommended staffing levels.

Recommendation 2. Allocate more resources to emergency services, given the intense need for services during the first hours of a psychiatric emergency and the reduction in inpatient admissions that could occur as a result of a well-coordinated emergency services system.

Implementation Option 2.1. Develop secure assessment and triage facilities in hospital emergency rooms,

Implementation Option 2.2. Provide additional training and support for first responders to psychiatric emergencies,

Implementation Option 2.3. Increase resources for designated agency emergency service programs,

Implementation Option 2.4. Increase resources for psychiatric emergency services at general hospitals,

Implementation Option 2.5. Review and consider implementation of proposals contained in *Substance Abuse: A Public Health Problem requiring Appropriate Intervention* and the accompanying addendum entitled *Law Enforcement Response* (Vermont Division of Alcohol and Drug Abuse Programs, February 2005) to improve treatment for the more than 3000 Vermont residents involved in substance abuse emergencies and crises each year,

Implementation Option 2.6. Increase resources for crisis/triage/diversion beds for both mental health and substance abuse. (HRAP Advisory Committee, 3-16-05, Vermont State Hospital Futures Plan, Substance Abuse: A Public Health Problem Requiring Appropriate Intervention).

Recommendation 3. Consider "Review the laws, regulations and practices regarding medical treatment for individuals who may lack capacity to make an informed decision regarding their treatment and recommend change where indicated." (Vermont State Health Plan 2005, p. 99)

6. State Policy Implications: Challenges and Opportunities

Vermont faces many challenges in the mental health and substance abuse arenas.

Obvious challenges include:

- the decertification of and calls to close the Vermont State Hospital;
- the loss of federal funding for freestanding Institutes of Mental Disease;
- concerns about access to high-quality mental health and substance abuse treatment for offenders in the State's Corrections System;
- calls to improve care for involuntary and forensic patients;
- funding concerns in the designated agency system;
- the need to shore up outpatient, community-based and preventive services; and
- troubling statistics about the prevalence of substance abuse and dependence and serious mental illness, particularly among the State's youth.

Statistics on prevalence indicate that there might be unmet need for services; funding concerns, along with potential uncertainty about the most effective treatments, may be obstacles to designing the ideal treatment system.

These same pressures create opportunities to improve mental health and substance abuse treatment in Vermont. The challenges surrounding inpatient care, corrections mental health, and the designated agency system present an opportunity to engage in intentional redesign of the treatment system. The studies that have been done in response to these issues contain valuable information on how to begin to accomplish the redesign. Vermont can also build on existing strengths in mental health and substance abuse treatment. The State has been a national leader in community-based services, peer support and other initiatives; this expertise can serve as a building block for strengthening outpatient and community-based care. In addition, the cohesive, active and effective peer, family and advocacy organizations can help move Vermont toward the goal of a more patient-centered, consumer- and family-driven, and community-based system of care.

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IV. Emergency Medical Services (EMS)

Quick Facts

- Vermont's Emergency Medical Services (EMS) system is made up of 180 licensed First Response and ambulance services staffed by 3,000 certified EMS providers.
- The number of EMS organizations is growing, while the number of providers, including hospital Emergency Department medical staff, has remained steady.
- Vermont's EMS system reports more than 75,000 responses annually.
- Over 90% of the Vermont population has hospital Emergency Department access within 30 minutes or 15 miles.
- Six out of 14 Community Needs Assessments indicate a need for more comprehensive emergency medical services.

1. Service/Facility/Resource Description

Emergency Medical Services are an integrated system of personnel, equipment, communication and services that provide pre-hospital, in-hospital and inter-hospital medical treatment to individuals who have suffered illness or injury in order to prevent loss of life, the aggravation of the illness or injury, or to alleviate suffering. This can include both basic and advanced emergency medical treatment.

The emergency medical services system links hospitals with ambulance services and first responder services. The essential components of this system are trained individuals working in organizations, good communication systems, and specialized transport vehicles. In addition, the EMS system incorporates components such as public education, prevention, system access, and rehabilitation.

The Vermont State Health Plan states that all acute care hospitals in Vermont operate around-the-clock emergency departments; however, while every hospital can handle the majority of cases, only a few can handle complex cardiac, trauma, pediatric, neonate, psychiatric, or other complex problems. When a patient's needs exceed the capabilities of the hospital they are at, an inter-facility transfer is arranged. Emergency patients who require specialty care are typically transferred to Fletcher Allen Health Care, Dartmouth-Hitchcock Medical Center, and Albany Medical Center, all of which have been designated Level 1 Trauma Centers by the American College of Surgeons.[51]

[51] Vermont State Health Plan

Vermont's system EMS system is made up of approximately 180 licensed First Responder and Ambulance services staffed by 3,000 certified EMS providers. These pre-hospital emergency care personnel include Emergency Care Attendants (ECAs), Emergency Medical Technician Basics (EMT-B), EMT Intermediates (EMT-I), and Paramedics (EMT-P). The majority of EMS providers are volunteers. These providers often start by becoming certified ECAs and with further training can become EMTs. More advanced certification allows them to perform certain techniques, such as starting intravenous treatments or defibrillating cardiac patients. While all certified EMS personnel can provide basic emergency medical treatment to the level of their training, advanced procedures constitute the practice of medicine and require a medical physician's authorization, which is sometimes a standing order and at other times a direct order by radio, telephone, or other means.

The Vermont Office of EMS and Injury Prevention is the State office responsible for EMS regulation and system development. The Office licenses EMS organizations, provides ambulance inspections, administers certification exams for EMS providers and is active in system development and injury prevention programs.

Vermont has thirteen EMS districts that provide identification of training needs and coordination of training programs on the local level. They also serve as coordinating entities within the primary emergency service area of the receiving hospital, organizing not only training and medical direction at roughly the county level, but also mutual aid and planning. Each ambulance has a communication link to at least one hospital emergency department so that hospitals can be advised of incoming cases and so that medical orders can be given for advanced procedures in the field.

Emergency medical care is available by dialing 9-1-1. The Enhanced 9-1-1 system for police, fire and emergency medical services enables number and location information to be automatically delivered to a public safety answering point: a facility assigned the responsibility of receiving 9-1-1 calls and, in some cases, directly dispatching emergency response services or transferring or relaying the calls to other public or private safety agencies.

2. Current Supply and Distribution

The Vermont State Health Plan states that the delivery of EMS to ill and injured citizens requires a coordinated, systematic response of resources. In Vermont, more than 75,000 responses occur annually for emergency medical care or transportation. Ninety ground ambulance services, 92 first responder services, one air ambulance, more than 3,000 certified personnel, and 15 hospitals [14 acute care Vermont community hospitals and Dartmouth-Hitchcock Medical Center in New Hampshire] operating emergency departments all combine their efforts to handle a range of incidents from minor injuries or illnesses to cardiac arrests and major trauma.[52]

[52] Vermont State Health Plan

A weighted average response time for an ambulance or first responder to arrive at the scene from first receiving a call is approximately nine minutes. Response times, however, can vary due to many factors including geography, population distribution, and appropriate available EMS resources. About 60% of the ambulance and first responder personnel are at the Intermediate level. The remaining 40% of providers are split approximately equally between Basic level service and Paramedic level service.

Relating to workforce, the State Health Plan states:

> The size of the Vermont EMS workforce has been nearly level at just over 3,000 persons for several years. Within the workforce, a steady migration to higher levels of training and certification has been a positive change. Also, during the past few years, the number of EMS organizations has continued to grow, which is resulting in competition among them for a steady number of personnel. Many services are finding it increasingly difficult to recruit, train and retain the number of qualified EMS providers they need, particularly volunteers.

The number of physicians specializing in emergency medicine has also remained fairly steady over time. The following table shows a breakdown of these physicians by hospital service area for 2002. Only Vermont emergency medicine physicians are included.

Table 18: Emergency Physicians and Physician FTEs by HSA

Hospital Service Areas (HSAs)	HSA Population	# of Emergency Physicians	# of Emergency Physician FTEs	FTE's per 100,000 pop.
Barre	66,227	9	7.2	10.9
Bennington	41,056	8	6.3	15.3
Brattleboro	32,386	5	2.7	8.3
Burlington	168,274	23	12.8	7.6
Middlebury	28,393	8	3.0	10.6
Morrisville	26,213	5	4.3	16.4
Newport	27,773	5	3.5	12.6
Randolph	14,529	7	3.1	21.3
Rutland	64,371	16	8.4	13.0
Springfield	28,913	1	1.0	3.5
St. Albans	44,290	7	4.5	10.2
St. Johnsbury	27,374	8	3.2	11.7
White River Jct.	49,311	2	0.6	1.2
Statewide Totals	619,110	92	60.6	9.8

Notes:
Source: VT Dept. of Health 2002 Physician Survey - Draft.
Only VT physicians included.
Physicians may be counted more than once due to covering more than one HSA.

Because Dartmouth-Hitchcock Medical Center in Hanover, New Hampshire, is not included in the above table, the White River Junction hospital service area appears underserved. The Springfield service area also appears underserved compared to the other areas and the Randolph service area appears to have a sufficient supply of emergency medicine physician FTEs.

The following table shows Emergency Department visits for Vermont hospitals and some New Hampshire border hospitals, along with the HSAs associated with each. Also included are utilization measures based on Vermont's population and benchmarks from other states and the nation.

Table 19: Emergency Department Visits by Hospital

Emergency Services

Source: Vermont Hospital Discharge Database (Table E3, E10 - 2002 Monograph)

			2002		
Hospital Name	**Hosp service area assigned**	**HSA Pop.**	**VT Hosp ED Visits (VT residents & non residents)**	**VT & NH Hosp ED Visits (VT residents only)****	**Visits Per 1,000 (VT Residents)****
Brattleboro Memorial Hospital	Brattleboro	32,386	9,695	6,976	N/A
Central Vermont Hospital	Barre	66,227	19,778	18,712	N/A
Copley Hospital	Morrisville	26,213	10,622	10,306	N/A
Fletcher Allen Health Care	Burlington	168,274	44,081	41,108	N/A
Gifford Memorial Hospital	Randolph	14,529	6,112	5,802	N/A
Grace Cottage Hospital	Brattleboro	32,386	1,808	1,502	N/A
Mt. Ascutney Hospital	White River	49,311	3,976	3,104	N/A
North Country Hospital	Newport	27,773	9,437	8,661	N/A
Northeastern Vermont Regional Hospital	St Johnsbury	27,374	14,005	13,006	N/A
Northwestern Medical Center	St Albans	44,290	20,925	20,268	N/A
Porter Medical Center	Middlebury	28,393	12,831	11,081	N/A
Rutland Regional Medical Center	Rutland	64,371	31,875	28,058	N/A
Southwestern Vermont Medical Center	Bennington	41,056	16,525	12,376	N/A
Springfield Hospital	Springfield	28,913	12,317	10,103	N/A
OTHER					
Brattleboro Retreat	Brattleboro	32,386	N/A	N/A	N/A
Dartmouth Hitchcock Medical Center	White River	49,311	n.a.	9,210	N/A
VA Medical Center	White River	49,311	n.a.	n.a.	N/A
Vermont State Hospital	Barre	66,227	N/A	N/A	N/A
Other NH Hosp	N/A	N/A	N/A	11,807	N/A
Total Vermont Community Hospitals	**Vermont**	**619,110**	**213,987**	**191,063**	**308.6**
TOTAL (inc DHMC & Other NH Hosp)	**Vermont**	**619,110**		**212,080**	**342.6**

BENCHMARK DATA - 2002 AHA Survey	
Per 1,000 population (US)	382.0
Vermont	374.0
New Hampshire	432.0
Maine	548.0
Iowa	365.0
Wyoming	427.0

Notes:

Includes VT Residents and Non-Residents (Except DHMC which is only VT resident visits).

Inpatient discharges originating in the Emergency Department (21,676 for 2002) are included.

Inpatient discharges exclude newborns (MDC 15)

Data is not age-adjusted.

Note also that hospital definitions may vary as to what is considered an emergency department visit.

For example, if a hospital offers an after-hours clinic in the emergency room, those visits may be included in the ED data set.

**Only have ED visit data for VT residents in VT and NH facilities. Thus, rate/1000 is understated since VT residents with ED visits in MA or NY hospitals are not included.

N/A = Not Applicable

n.a. = not available

The larger hospitals clearly serve more patients in their emergency departments than the smaller hospitals. This is likely attributable both to the fact that they offer a wider range of services and because they are in more populated areas.

Approximately 93 % of Vermont's population has access to an ED within 30 minutes (assuming two minutes per mile travel time). According to benchmarks in the 2002 American Hospital Association (AHA) Survey noted in the table above, Vermont has fewer emergency department visits per 1000 population than the nation and most other peer states.

There are 16 rape and domestic violence crises service centers in Vermont. Over 1,100 people were served at these centers following sexual violence in 2003 and almost 6,900 were served following domestic violence.

The percentage of Vermont's population covered within 15 miles of an emergency department at a hospital is approximately 93%. This includes all acute care community hospitals, the Veteran's Administration hospital, and Dartmouth-Hitchcock Medical Center.

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.
- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan

including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[53]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

The pre-HRAP CON Guidelines indicate that emergency care, including stabilizing major trauma cases before transfer and psychiatric emergencies, should be available to most Vermonters within 30 minutes of travel. If ambulance and first responder services are taken into account, based on response times, then some level of emergency care is available to all Vermonter's within 30 minutes

[53] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

In addition, any entity applying for a CON to open an Ambulatory Surgical Center (ASC) in Vermont must develop and maintain a transfer agreement with an EMS service for its emergency transport requirements.

B. Vermont State Health Plan

The Vermont State Health Plan includes emergency medical services as a focus area. The Plan makes the following conclusions:

Outcome desired: A high quality, fully integrated, response system is available to serve all Vermonters in emergency situations.

Actions needed:

- Improve the stability of the Vermont's EMS system. This includes
  - Reducing the shortfall between the cost of EMS operations and patient revenues.
  - Examination of potential to improve efficiency both within EMS organizations and in the system as a whole.
  - Coordination of recruitment of new, and retention of existing, EMS personnel.
- Enhance accountability to the community by establishing specific measures of quality and service delivery (response times and clinical levels) for different types of communities (rural, urban, large, small).
- Establish a State trauma registry to monitor the quality and timeliness of trauma care; determine if a formally organized trauma care system is needed in the State; and, if so, develop and implement such a system.

Please see the Vermont State Health Plan for more details.

C. Hospital Community Needs Assessments

Six of the fourteen acute care hospital CNAs indicate a greater need for more comprehensive emergency services.

- The Brattleboro area would like to strengthen the area ambulance system.
- The Copley Hospital community indicates the hospital should expand its emergency department and waiting area.
- North Country Hospital's community lists general emergency care services as a priority.
- The areas around Porter Medical Center and Southwestern Vermont Medical Center indicate access issues around transport, including more consistent ambulance coverage, inter-hospital transport, and other transport.
- The Rutland community would like to increase the efficiency of its emergency response system.

D. The Six Institute of Medicine (IOM) Principles

All six IOMs influence emergency medical services. For pre-hospital services, safety, effectiveness, and timeliness are priorities. Patient-centeredness becomes important as well for in-hospital services. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Vermont has detailed operational and clinical protocols that provide a common framework for the provision of pre-hospital emergency medical treatment. Although other states may base their protocols on a similar foundation, comparisons to Vermont are difficult due to the lack of comparative data.

The National Highway Traffic Safety Administration (NHTSA), National EMS Research Agenda recommends, "There should be standardized data collection methods at local, regional, state, and national levels. These data must be devoid of information that allows individual patient identification. All EMS provider agencies should adopt the Uniform Prehospital Data Elements for data collection."[54] The recommendation includes "State-lead EMS agencies should require all EMS organizations in their jurisdictions to collect and submit to the state the Uniform Prehospital Data Elements at a minimum, and states should report that information to a national EMS data repository."[55]

The State Health Plan states, "The Vermont EMS system has historically placed a high value on the ability of communities to operate independent ambulance services that meet local preferences for cost, clinical capability, response times and other attributes within a statewide framework of minimum quality standards."[56] As such, data on comparative measures are not currently collected in any systematic way. These data are important in order to assess the capacity of the system to meet the needs of Vermonters. In addition, collecting certain EMS data within Vermont can be difficult because some people with emergencies go directly to a hospital or physician, thereby bypassing the EMS system (other than a possible interface in the hospital emergency department).

No EMS provider delivering 9-1-1 services in Vermont has been able to recover its full operating costs solely from patient revenues. Providers get remaining funding from volunteer labor, grants, fund-raising activities, in-kind contributions, and local taxes. Rural locations in particular might have lower patient volumes, which force funding onto these other subsidies. Due to these financial stresses, rural EMS providers, whose communities might benefit most from an increase in personnel and equipment, have to watch costs carefully and balance investments in workforce, training, and technology.

[54] http://www.nhtsa.dot.gov/people/injury/ems/EMS03-ResearchAgenda/executive-create.htm
[55] http://www.nhtsa.dot.gov/people/injury/ems/EMS03-ResearchAgenda/executive-create.htm
[56] Vermont State Health Plan

Another challenge is that hospitals repeatedly cost-shift the balance of their emergency department costs to other payer sources because revenues generated by these departments do not fully support them. Uninsured patients sometimes use emergency departments as their primary source of health care for non-emergency situations, bypassing other primary care services, a practice that ties up valuable resources that could be better utilized for real emergency cases. To present the converse argument, however, others in emergency medicine claim that without a sufficient volume of primary care in the ED, it would be impossible to afford to deliver true emergency care.

i. Access

Local access includes all Vermont hospitals, Dartmouth-Hitchcock Medical Center, and Littleton Regional Hospital in Littleton, NH (see local access map). Analysis of access to local services within a 15-mile radius of each hospital shows that approximately 93% of Vermonters are covered, with various gaps throughout the State that may be covered if other out-of-state border hospitals were included in the analysis.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Inpatient Services sub-chapter on page 17.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for emergency medical services. The boxed recommendations are considered the highest priority for these services.

Recommendation 1. Ensure Vermonters' continued access to a hospital emergency department (ED) within 30 minutes of travel.

Recommendation 6. Evaluate and determine whether emergency medical services need additional resources to stabilize and facilitate effective care, including performance standards for pre-hospital, intra-hospital, and emergency medicine.

Recommendation 3. Standardize and implement data collection for all emergency service providers.

All recommendations:

Recommendation 1. Ensure Vermonters' continued access to a hospital emergency department (ED) within 30 minutes of travel.

Implementation Option 1.1. Develop measures and collect data relating to timely ED access.

Recommendation 2. Ensure patient and ED staff access to expert consultation, at least by phone, within 30 minutes of arrival to the ED.

Implementation Option 2.1. Develop measures and collect data relating to timely ED staff access to expert consultation.

Recommendation 3. Standardize and implement data collection for all emergency service providers.

Implementation Option 3.1. Develop and adopt protocols for transferring patients to set priorities and improve safety, including when to hold a patient, when to transfer a patient, and access and other standards for safe transfer agreements.

Implementation Option 3.2. Collect time data for each of the following stages. Access and service standards, if available, should be included.

- Stabilization and first response
- Assessment and initial treatment
- Access to diagnostic regimen
- Access to necessary specialty expertise
- Time to ED
- Time to transfer to larger hospital

Implementation Option 3.3. Measure ED outcomes, service quality, and mortality rates. Ensure that data collection is non-intrusive.

Recommendation 4. Consider whether it is advisable to regionalize/consolidate services to potentially moderate issues around call frequency, maintaining expertise, and financial pressures.

Implementation Option 4.1. Research how other states have addressed issues around call frequency, maintaining expertise, and financial pressures.

Implementation Option 4.2. Work together with the Office of EMS and EMS providers to identify and evaluate risks and opportunities of regionalizing/consolidating services.

Recommendation 5. Address the increasing difficulty in attracting and retaining volunteers to the EMS system.

Implementation Option 5.1. Coordinate the recruitment or new, and retention of existing, EMS personnel. (State Health Plan)

Recommendation 6. Evaluate and determine whether emergency medical services need additional resources to stabilize and facilitate effective care, including performance standards for pre-hospital, intra-hospital, and emergency medicine.

Implementation Option 6.1. Look to other states for guidance in addressing EMS funding issues, efficiencies, policy recommendations, and local vs. regional control.

6. State Policy Implications: Challenges and Opportunities

The State Health Plan states the following challenges in providing adequate EMS coverage, particularly in rural areas:

- The cost of staffing and operating a single ambulance on an annual basis is about $350,000.
- More than one-third of Vermont's 90 ambulance services respond to fewer than one call a day.
- Maintaining skills with a low volume of calls is difficult for responders.
- There is no ambulance service in Vermont providing 9-1-1 responses that is able to cover its full cost of operations from patient revenues without a financial subsidy from covered communities, volunteer labor, or more typically, both.

Despite these challenges, the Plan also states that "community hospitals in Vermont all have made commitments to local EMS providers, including supervision by emergency department physicians, training, and financial assistance. In some areas, they have taken on additional responsibilities to more fully integrate the services with the emergency department and hospital services, ensure competency and sustain the service."

The independent nature of many of Vermont's emergency medical service providers, as well as the different levels of service they offer, present a challenge in determining appropriate standards that would serve as benchmarks against which to measure utilization, quality, and access. Opportunities exist here, however, in setting up a comprehensive system of data tracking that would enable analysis at the local, regional, and statewide level, and also enable comparisons to other state and national data.

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V. Major Medical Equipment

Quick Facts

- Major medical equipment includes, among other devices, radiotherapy systems (linear accelerators), scanning systems (PET, MRI and CT devices as well as ultrasound), and radiographic/fluoroscopic systems (catheterization labs and angiography).

- Statewide, and including Dartmouth-Hitchcock Medical Center, there are:
  - 8 linear accelerators (all fixed)
  - 4 PET scanners (one fixed and three mobile)
  - 17 MRI devices (seven fixed, 10 mobile)
  - 8 catheterization labs (all fixed)
  - 20 CT scanners (all fixed)
  - 7 angiographic systems (all fixed)

- For PET, MRI and CT, Vermont exceeds U.S. averages in number of machines per 100,000 population.

- Over 90% of Vermonters have access to MRIs and CT scans within approximately 30 minutes of travel and two thirds or more Vermonters have access to linear accelerators, PET scans, cath labs, and a angiographic systems within approximately 60 minutes of travel.

1. Service/Facility/Resource Description

Major medical equipment is used for the provision of medical and other health services. Some of these devices can be grouped as radiotherapy systems (linear accelerator), medical imaging scanning systems (PET, MRI, CT), and radiographic/fluoroscopic systems (cath lab, angiography). Radiotherapy systems address need primarily in the sub-acute and chronic care areas, with some need possibly relating to acute care and prevention. Scanning systems and radiographic/fluoroscopic systems are appropriate in the areas of prevention, emergency care, acute care, sub-acute care, and chronic care. These devices can range from expensive, highly specialized equipment to more routine imaging equipment, with corresponding costs ranging from under $100,000 to over $3 million.

Radiotherapy systems involve the use of electromagnetic or particulate radiation in the treatment of disease. Low-energy linear accelerators are used primarily to treat tumors of the head, neck, and breast, while high-energy linear accelerators are used to treat deep-seated neoplasms and tumors of the pelvis and thorax.

Medical imaging scanning systems examine and image the body noninvasively, and range from the relatively inexpensive ultrasound (around $130,000) to the almost $2 million PET scanner. The more expensive scanning devices usually produce greater imaging detail, with capabilities for multiple cross-sections and three-dimensional images. These systems can precisely locate problem areas to allow more accuracy in diagnosis, surgery, and other treatment in which effective therapy is highly dependent on the precise size, location, and cell characteristics of a tumor.

- Positron Emission Tomography, or PET, is used most often to detect cancer and to evaluate the effectiveness of cancer therapy. Because PET allows study of body function, it can help physicians detect alterations in biochemical processes that suggest disease before changes in anatomy are apparent on other imaging tests such as CT or MRI scans. More recently developed combination PET/CT machines produce merged images using both PET and CT technology.

- Magnetic resonance imaging, or MRI, is a diagnostic imaging technique that uses magnetic fields and radio waves to produce two- or three-dimensional images of organs and other features inside the body. It provides better resolution for soft tissue imaging than radiation-based techniques such as CT.

- CT scans also image both bone and soft tissues, including organs, muscles, and tumors. Each image is generated by a computerized synthesis of multiple x-ray transmission data taken from many different angles translated into a single plane. Actual cost of a CT scanner purchased by a community hospital is generally lower than the list replacement cost in Table 20, between $600,000 and $700,000.

Radiographic/fluoroscopic systems examine tissues and deep structures of the body using a fluoroscope, which projects radiographic images onto a screen monitor in a movie-like sequence, thereby making it possible to see internal organs in motion.

A catheter is a long, thin, flexible tube inserted into the body that can be used for diagnosis and therapeutic intervention, such as in cardiac catheterization. A hospital providing this service in cardiology is generally referred to as having a “cath lab.” (Catheters may also be used to drain fluids such as draining urine from the bladder or pus from an abscess cavity.) An angiographic system is used to examine blood vessels after the injection of a contrast medium through a catheter. This technique is used to image arteries in the brain, heart, kidneys, gastrointestinal tract, aorta, neck, chest, limbs, pulmonary circuit, or any other organ in the body. Interventional or therapeutic procedures such as angioplasty or stent placement are performed in both cardiac cath labs and in angiography suites.

In Vermont, all but six devices have an median list replacement cost of less than $600,000 and these six most expensive pieces of equipment have a median list

replacement cost of over $1 million each, the threshold for requiring a Certificate of Need, under current CON law.

Table 20: Vermont Major Medical Devices Requiring CON

Device	Median List Replacement Cost
Linear Accelerator	$3.0 million
PET Scan	$1.9 million
MRI	$1.6 million
Catheterization Lab	$1.5 million
CT Scan	$1.1 million
Angiographic System	$1.1 million

Note that actual costs are generally less than shown above and can vary greatly depending on the level of technology and negotiations with the manufacturer.

2. Current Supply and Distribution

The following table shows the distribution of major medical equipment among Vermont hospitals and some border hospitals located in neighboring states. Only devices with a median list replacement cost of over $1 million are included. The numbers represent the number of devices for each hospital and are shown as either fixed or mobile equipment. Mobile equipment is equipment that is at the hospital for only a certain number of days per week and can be moved to different locations to serve different areas.

Table 21: Distribution of Major Medical Devices in Vermont Hospitals

Hospitals with Major Medical Equipment over $1.0 Million
Sorted by Equipment Count at Hospitals and Median List Replacement Cost

	Fixed / Mobile	Linear Accelerator*	Positron Emission Tomography (PET)	Magnetic Resonance Imaging (MRI)	Catheterization Lab	CT Scanner	Angiographic System*	**Hospital Total**
Median List Replacement Cost (millions)		$3.0	$1.9	$1.6	$1.5	$1.1	$1.1	
Hospital								
Fletcher Allen Health Care	Fixed	2		3	4	3	3	**15**
	Mobile		1					**1**
Rutland Regional Medical Center	Fixed	1		1	1	1		**4**
	Mobile		1					**1**
Southwestern Vermont Medical Center	Fixed	1				1		**2**
	Mobile			1				**1**
Northeastern Vermont Regional Hospital	Fixed	1				1		**2**
	Mobile			1				**1**
VA Medical Center	Fixed					1	1	**2**
	Mobile							**0**
Brattleboro Memorial Hospital	Fixed					1		**1**
	Mobile		1	1				**2**
Central Vermont Hospital	Fixed					1		**1**
	Mobile			1				**1**
North Country Hospital	Fixed					1		**1**
	Mobile			1				**1**
Gifford Memorial Hospital	Fixed					1		**1**
	Mobile			1				**1**
Springfield Hospital	Fixed					1		**1**
	Mobile			1				**1**
Copley Hospital	Fixed					1		**1**
	Mobile			1				**1**
Northwestern Medical Center	Fixed					1		**1**
	Mobile			1				**1**
Porter Medical Center	Fixed					1		**1**
	Mobile			1				**1**
Mt. Ascutney Hospital	Fixed					1		**1**
	Mobile							**0**
Brattleboro Retreat	Fixed							**0**
	Mobile							**0**
Grace Cottage Hospital	Fixed							**0**
	Mobile							**0**
Vermont State Hospital	Fixed							**0**
	Mobile							**0**
Dartmouth Hitchcock Medical Center (NH)		3	1	3	3	4	3	**17**
Champlain Valley Phys Hosp Med Ctr (NY)		na		◆	◆	◆	na	**3**
Littleton Regional Hospital (NH)		na				◆	na	**1**
Albany Medical Center (NY)		na	na	na	na	na	na	**0**
Service Total (VT hospitals plus Dartmouth)	**Fixed**	**8**	**1**	**7**	**8**	**20**	**7**	**51**
	Mobile	**0**	**3**	**10**	**0**	**0**	**0**	**13**

Data Source: Most of this information was self-reported by hospitals either in the form of 2003 American Hospital Association (AHA) Annual Survey or Navigant Hospital survey (fielded September 2004).

Actual cost of equipment is generally less than median list replacement cost.

* Non AHA Survey Hospital Service. Data is currently being researched; na = currently not available.

◆ for out-of-state hospitals indicates a hospital has the equipment but detail is not available.

Brattleboro Memorial Hospital's mobile PET scanner is scheduled for one time per month. Sometimes it is cancelled due to a lack of patients.

The following table shows the percentage of Vermont population covered at different mile radii and the number of pieces of equipment per 100,000 population, including national and other state benchmarks. Out-of-state hospitals are not included in this analysis except for Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire. Note that some of these devices serve out-of-state populations and some out-of-state hospitals provide access to these types of equipment to Vermonters.

Table 22: Number of Devices Per 100,000 Population

Vermont Population Covered and Number of Devices per 100,000 Population

	Linear Accelerator	Positron Emission Tomography (PET)	Magnetic Resonance Imaging (MRI)	Catheterization Lab	CT Scanner	Angiographic System
Percent of Vermont Population within Mile Radius						
15 Mile Radius	n.a.	n.a.	91%	n.a.	91%	n.a.
30 Mile Radius	66%	73%	100%	66%	n.a.	66%
60 Mile Radius	96%	73%	n.a.	96%	n.a.	96%
Vermont Inventory of Devices (per 100,000 Population)*						
Vermont Community Hospitals	0.6	0.1	1.4	0.8	2.4	0.5
Total VT Hospitals (includes BR,VA,VSH,&DHMC)	1.1	0.2	1.9	1.3	3.2	1.1
AHA Survey Benchmarks (per 100,000 population)**						
US	n.a.	0.2	0.9	n.a.	1.3	n.a.
Vermont	n.a.	0.3	2.1	n.a.	2.1	n.a.
New Hampshire	n.a.	0.6	1.2	n.a.	2.1	n.a.
Maine	n.a.	0.4	1.1	n.a.	2.7	n.a.
Iowa	n.a.	0.4	1.9	n.a.	3.6	n.a.

Population percentages from VPQHC. Some are approximate.

* Total pieces of equipment divided by Vermont population, per 100,000. Mobile units are prorated based on number of days per week of use.
BR = Brattleboro Retreat, VA = Veterans Administration Hospital, VSH = Vermont State Hospital, DHMC = Dartmouth Hitchcock Medical Center.

** Benchmarks from 2003 American Health Association Survey - 2001 data.

n.a. = not available

There are limited detailed utilization data and waiting time data from the hospitals on these pieces of equipment. Data submitted through the hospital budget process show that over 90,000 CT scans and over 32,000 MRI scans were completed in 2004, and the table below shows what is budgeted for Vermont hospitals for 2005. Also shown is the growth for MRI scans, CT scans, and diagnostic radiology procedures from 2000 to 2005.

Table 23: Hospital Equipment Utilization Data

Hospital Equipment Utilization Data
Source: BISHCA Hospital Budget Submissions

	MRI Scans		CT Scans		Radiology-Diagnostic Procedures	
Vermont Community Hospitals	**Actual 2000**	**Budget 2005**	**Actual 2000**	**Budget 2005**	**Actual 2000**	**Budget 2005**
Brattleboro Memorial Hospital	1,222	1,866	3,034	3,426	18,854	22,204
Central Vermont Hospital	1,644	2,609	6,743	9,999	28,254	31,293
Copley Hospital	634	800	2,089	2,900	21,340	18,407
Fletcher Allen Health Care	9,308	14,587	22,921	40,852	91,677	108,262
Gifford Memorial Hospital	0	560	1,377	1,329	8,489	12,000
Grace Cottage Hospital	0	0	0	0	2,274	2,416
Mt. Ascutney Hospital	0	0	0	1,096	6,502	7,520
North Country Hospital	481	1,025	1,667	2,283	12,862	15,437
Northeastern Vermont Regional Hospital	182	465	4,834	4,930	12,653	15,500
Northwestern Medical Center	909	1,709	3,780	4,895	24,236	32,252
Porter Medical Center	848	988	2,264	2,697	17,483	17,840
Rutland Regional Medical Center	3,252	6,190	5,988	11,159	27,563	39,672
Southwestern Vermont Medical Center	1,746	4,000	6,227	10,250	23,271	39,785
Springfield Hospital	694	999	2,706	3,350	13,119	11,681
Vermont Total	**20,920**	**35,798**	**63,630**	**99,166**	**308,577**	**374,269**
Ave annual change		**11.3%**		**9.3%**		**3.9%**

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.
- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence,

that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[57]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Prior to adoption of the HRAP, the need to acquire or replace a particular machine or start a service at Vermont hospitals has been evaluated on a case-by-case basis by CON review. In these assessments each hospital provides data to justify its proposal. Need for less expensive technologies may not fall under CON review and hospitals and physicians may have assessed local need for such equipment and purchased it when a gap is perceived and it is financially feasible.

[57] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

Vermont's CON program also evaluates the purchase of major medical equipment for use in settings other than hospitals because of concerns about possible inappropriate use of the equipment and the cost of having duplicate technology. Settings outside of hospitals do not have the same level of utilization review required by hospitals.

Current CON law states that acquisition of diagnostic or therapeutic equipment in excess of $1 million requires CON review. For hospitals, equipment above $750,000 may require a CON based on the Commissioner's discretion. For non-hospitals, equipment above $500,000 may require a CON based on the Commissioner's discretion.

The pre-HRAP CON Guidelines indicate that routine imaging (x-ray, radiographic/fluoroscopic, ultrasound, mammography, basic nuclear medicine, and CT scanning) should be available to most Vermonters within 30 minutes of travel. Over 90% of Vermonters have access to CT scanning within 30 minutes (assuming two minutes of travel time per mile). The Guidelines also state that a mobile CT service can be converted into a fixed CT unit if it can be accomplished without any increase in costs and charges for the service at the hospital. The Guidelines also indicate that MRI scans should be available within 60 minutes of travel (current supply and distribution show that this guideline is being met).

In addition, the pre-HRAP CON Guidelines specify that a proposal for a new linear accelerator should demonstrate that the machine would perform at least 6,000 treatments per year by the second year of operation. They also specify that fixed MRI capacity should not be increased until current capacity is in excess of 5,000 medically necessary exams per year and sufficient additional need can be demonstrated. For CT scanning, the CON Guidelines indicate that a mobile CT service can be converted into a fixed CT unit if it can be accomplished without any increase in costs and charges for the service at the hospital.

Please see the HRAP CON Standards for information related to these areas, as the pre-HRAP Guidelines sunset when the HRAP is adopted and will be replaced with the HRAP and the CON Standards contained therein.

B. Vermont State Health Plan

The Vermont State Health Plan does not address needs or priorities for major medical equipment.

C. Hospital Community Needs Assessments

Broadly, hospital CNAs indicate a greater need for more or updated equipment in certain areas of the State. The CNAs for Central Vermont Medical Center, Copley Hospital, and Springfield Hospital designate need for a fixed MRI in each of their locations. All three hospitals currently have mobile MRIs. Copley's community also indicates that the hospital needs to update its CT scanner and acquire an obstetric ultrasound, as well as to update technology in its operating room and acute care unit. Springfield Hospital's

community recognizes a need for x-ray coverage in Bellows Falls, providing around-the-clock ultrasound, providing bone density testing, and modernizing its day surgery and endoscopy units. The Burlington area indicates a need for a PET scanner at Fletcher Allen (the hospital has a mobile unit one day per week) and an MRI for breast exams.

D. The Six Institute of Medicine (IOM) Aims

All six IOM Aims influence major medical equipment, in particular safety, effectiveness, and efficiency. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Rapid technology changes in the medical field mean that what was state-of-the-art a few years ago may have become commonplace and much less expensive today. In addition, examinations and procedures have evolved to better use current technologies and may even necessitate use based on "best practice" medicine. Physicians may be familiar with many major medical devices by virtue of having used them while training in medical school and teaching hospitals.

There are limited data and benchmarks with which to compare Vermont's experience, including limitations in collecting Vermont hospital data. Waiting times, for example, is one statistic that might be appropriate for analyzing need for equipment such as CT or MRI with higher utilization.

Research on PET scanners shows that there are approximately 500 fixed and 900 mobile PET scanners in the country with over 50% growth in the number of scans from 2002 to 2003.[58] In western New York State, of the seven sites that offer PET scans, all emergency scans were done within one day and all routine scans were done within seven days waiting time. In addition, none of the machines were scheduled on the weekends. "Nationally in 2002, 12% of sites provided routine service in less than one day, another 20% within one to two days; 42% of sites reported a five- to seven-day wait for routine service." There were approximately 170 PET scans per 100,000 population in 2002. [59] The western New York study concluded that the area is "demanding/using about the right number of PET scans, but doing so on many more units than needed. If scanners were efficiently used, there would be 'need' region-wide for about two scanners instead of the present 5.2 full-time equivalent PET units operating (6.2 units early next year)."[60] Given the recent development in PET scanning technology and increase in national usage, careful analysis of any PET equipment is warranted. The apparent oversupply of these devices in western New York State indicates that Vermont should be cautious in its acquisition of this technology in order to avoid a similar situation.

[58] http://www.imvlimited.com/mid/news_a.html
[59] http://www.myhealthfinder.com/hcac/PETreport03.pdf
[60] ibid.

Over 45 million CT procedures were performed nationally in 2002, up 15 % from 2001. Technology advances in the multi-slice CT scanner, as well as an increase in the types of scans possible due to the better technology, is helping drive the market.[61] This would also include the newer PET/CT combination machines that have better imaging capabilities.

Almost 22 million MRI procedures were performed nationally in 2002, up 22 % from 2001. Different levels of MRI equipment (based on the size of the magnet – 0.5, 1.0, 1.5, 3.0 Tesla), the introduction of "open" MRIs, and the reduction in costs, have resulted in upgraded and replaced machines, two-thirds of which were 1.5 Tesla in 2002.[62]

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Inpatient Services sub-chapter on page 17.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for major medical equipment services. The boxed recommendations are considered the highest priority for these services.

Recommendation 1. Evaluate disbursement or acquisition of major medical equipment (MME) based on a population-based utilization analysis, clinical quality, CON criteria and standards, and financial feasibility. Other factors to consider include the availability of trained personnel, and an evaluation of patient need vs. convenience, urgent vs. non-urgent use, and single test vs. repetitive tests.

Recommendation 2. Generally, introduce major new medical equipment technology first at an academic medical center serving a significant number of Vermonters.

All recommendations:

Recommendation 1. Evaluate disbursement or acquisition of major medical equipment (MME) based on a population-based utilization analysis, clinical quality, CON criteria and standards, and financial feasibility. Other factors to consider include the availability of trained personnel, and an evaluation of patient need vs. convenience, urgent vs. non-urgent use, and single test vs. repetitive tests.

Implementation Option 1.1. Analyze usage data, benchmarks, and other state data, as well as compare data with Community Needs Assessments.

[61] http://www.imvlimited.com/mid/pdf/News/1003/CT%200203-Release-Oct%202003.pdf
[62] http://www.imvlimited.com/mid/pdf/News/1003/MRI%200203-Release-Oct%202003%20(1).pdf

Implementation Option 1.2. Include professional input from physicians when evaluating MME acquisition.

Implementation Option 1.3. Develop standardized measures to monitor volume, quality outcomes, and standards of care for MME devices.

Implementation Option 1.4. Continually review and update measures, standards, and benchmarks used to evaluate volume, quality outcomes, and standards of care for MME devices.

Implementation Option 1.5. Collect more information on Vermont hospitals' existing MME to evaluate the supply and distribution of the different technologies.

Recommendation 2. Generally, introduce major new medical equipment technology first at an academic medical center serving a significant number of Vermonters.

Implementation Option 2.1. Community hospital proposals to introduce new medical equipment technology should show how they link up with an academic medical center serving a significant number of Vermonters, and how they meet safety, utilization, and non-duplication standards.

Implementation Option 2.2. Scientific evidence supporting the acquisition of technology should be in applications to add such equipment, and in the case of community hospitals, that the scientific evidence supports the migration of the technology outside of tertiary care facilities.

6. State Policy Implications: Challenges and Opportunities

There are four main challenges to Vermont State planning in regards to major medical equipment. They are:

- Ever-changing state-of-the-art technology issues
- Determining appropriate supply
- Sources of skilled workforce
- Needs vs. identifying unmet need

The increased use of more expensive medical equipment poses a challenge to Vermont as more physicians recommend the technology and more patients demand it. Whereas before one particular diagnostic tool may have been recommended and utilized, now two or even three different pieces of equipment may be used because they are available and the multiple (and different) images increase diagnostic confidence and therapeutic results. This can quickly drive up the cost of care in the health care system as higher utilization drives the purchase of new equipment.

In addition, finding a skilled workforce to staff this equipment has become increasingly difficult as the increased prevalence of these technologies demand more technicians than the current supply offers.

On the other hand, much of this technology is quite beneficial to patients because it leads to more accurate diagnoses, surgeries, and other treatments. Care must be taken to keep the acquisition of new and updated technology at reasonable levels. Crafting a balance between good, appropriate use of equipment and the costs of equipment to the health care system will be a challenge for the State and the providers and payers of health care.

VI. Access to Hospital Services

BISHCA HRAP Map Specifications

Two maps for each of statewide, regional, and local hospital coverage are included. The coverage within the mileage distances indicates the distances from the center of the town a hospital is located in to the center of other Vermont towns. BISHCA is reviewing the results and new maps may be prepared.

Access can be broken down into statewide, regional, and local access to services (see accompanying maps).

Statewide services are defined as being served by tertiary hospitals (Fletcher Allen and Dartmouth-Hitchcock, Albany Medical Center), and an analysis of patient access shows that approximately 95% of Vermonters are within a 60-mile radius of these three hospitals. Vermont's Northeast Kingdom is the primary service area that remains unserved by either of these two hospitals within this distance.

Regional access, which adds Central Vermont Medical Center, Rutland Regional Medical Center, and Southwestern Vermont Medical Center to the above three tertiary hospitals, indicates that 89% of Vermonters are within a 30-mile radius of a regional service. As with the statewide analysis, the Northeast Kingdom remains unserved by regional services.

Local access includes all Vermont hospitals, Dartmouth-Hitchcock, and Littleton Regional Hospital in Littleton, NH. Analysis of access to local services within a 15-mile radius of each hospital shows that approximately 93% of Vermonters are covered, with various gaps throughout the State that may be covered if other out-of-state border hospitals were included in the analysis.

Statewide Maps

These maps are standalone maps with no external gap analysis charting. Each of the two maps pinpoint only three hospitals:

Hospitals:

- Fletcher Allen Health Care
- Dartmouth-Hitchcock Medical Center (NH)
- Albany Medical Center (NY)

Mileage Display:

- 45 miles
- 60 miles

Layout:

Graded colors to illustrate overlay coverage areas

Regional Maps

These maps are standalone maps with no external gap analysis charting. Each of the two maps pinpoint only 7 hospitals:

Hospitals:

- Fletcher Allen Health Care
- Dartmouth-Hitchcock Medical Center (NH)
- Albany Medical Center
- Central Vermont Hospital
- Rutland Regional Medical Center
- Southwestern Vermont Medical Center
- VA Medical Center

Mileage Display:

- 30 miles
- 45 miles

Local Maps

These maps are standalone maps with no external gap analysis charting. Each of the two maps pinpoint the 20 regional hospitals:

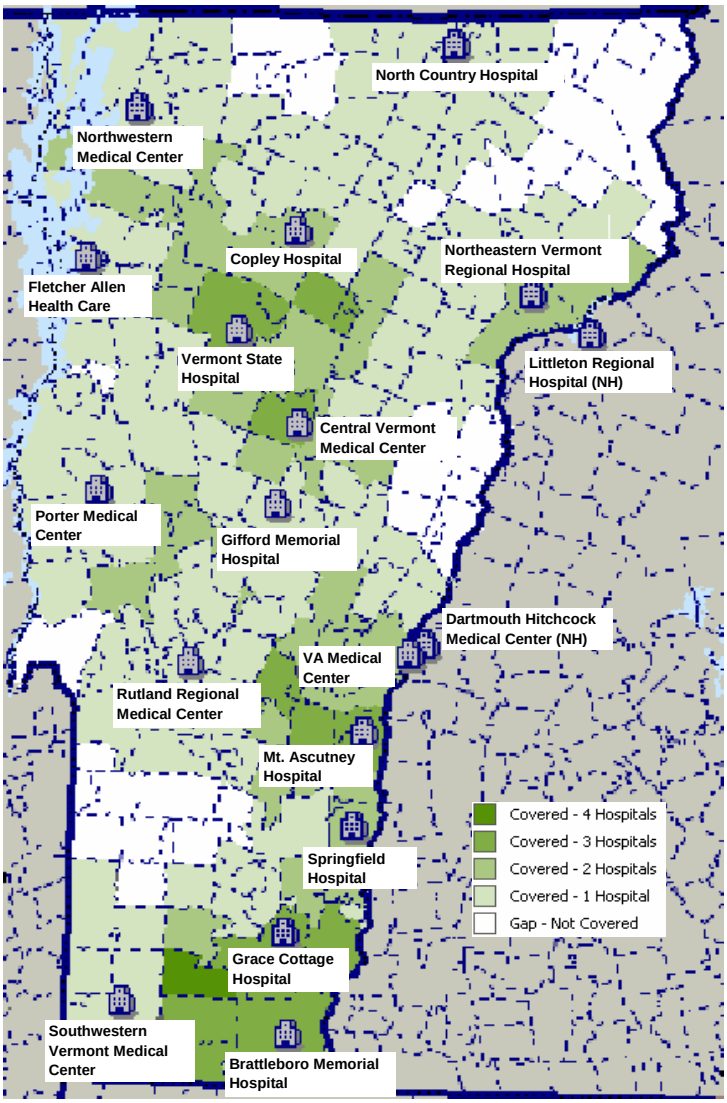
Hospitals:

- Fletcher Allen Health Care
- Rutland Regional Medical Center
- Central Vermont Hospital
- Southwestern Vermont Medical Center
- VA Medical Center
- Brattleboro Memorial Hospital
- North Country Hospital
- Gifford Medical Center Hospital
- Mt. Ascutney Hospital
- Springfield Hospital
- Northeastern Vermont Regional Hospital
- Copley Hospital
- Northwestern Medical Center
- Porter Medical Center
- Grace Cottage Hospital
- Retreat Healthcare
- Vermont State Hospital
- Albany Medical Center (NY)
- Dartmouth-Hitchcock Medical Center (NH)
- Littleton Regional Hospital (NH)

Mileage Display:

- 15 mile
- 30 miles

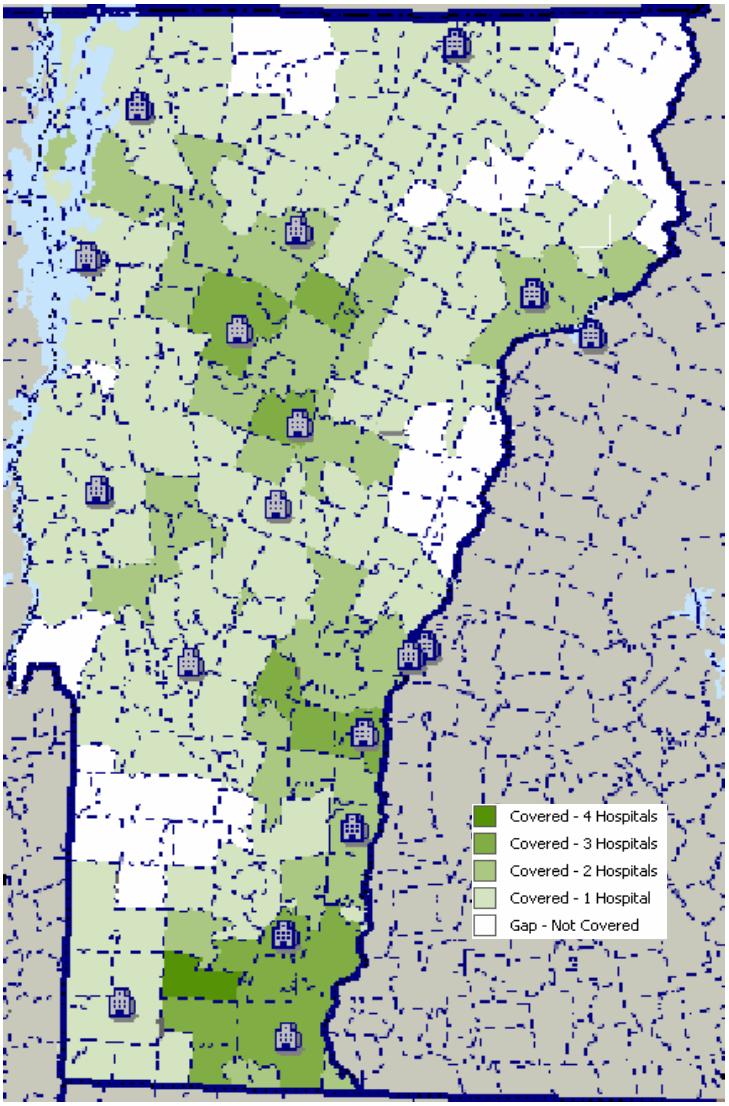
Map 1: Local -15 miles (with hospital labels)



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Rutland Regional Medical Center
Central Vermont Hospital
Southwestern Vermont Medical Center
VA Medical Center
Brattleboro Memorial Hospital
North Country Hospital
Gifford Memorial Hospital
Mt. Ascutney Hospital
Springfield Hospital
Northeastern Vermont Regional Hospital
Copley Hospital
Northwestern Medical Center
Porter Medical Center
Grace Cottage Hospital
Brattleboro Retreat
Vermont State Hospital
Albany Medical Center (NY)
Dartmouth Hitchcock Medical Center (NH)
Littleton Regional Hospital (NH)

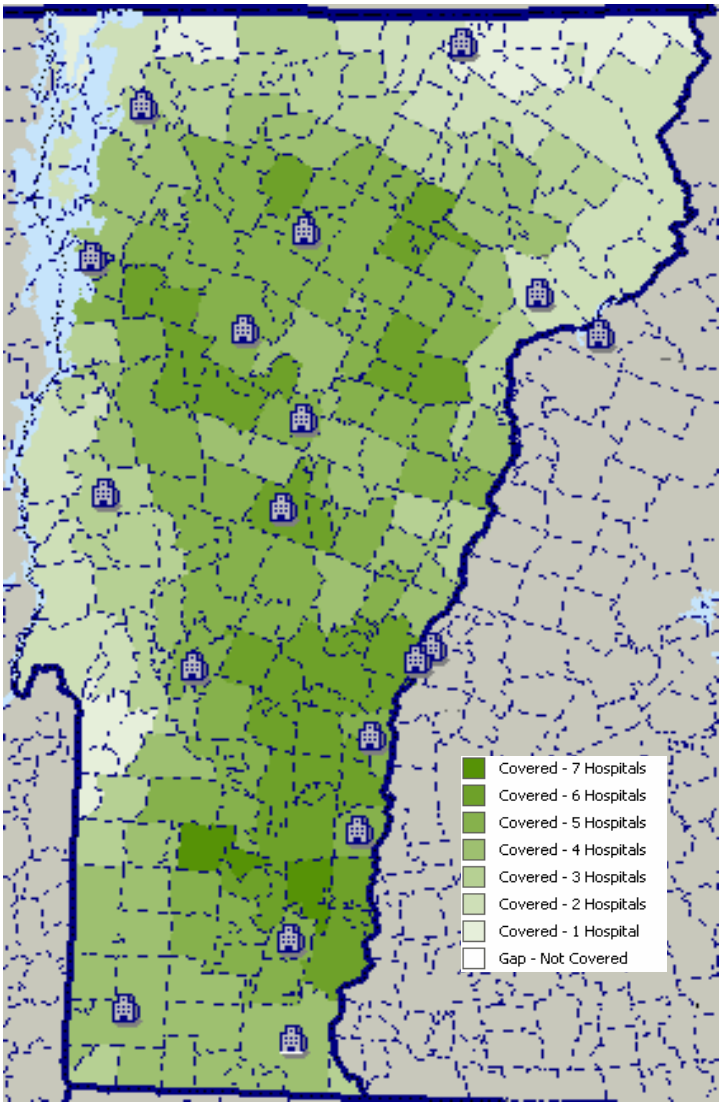
Map 2: Local - 15 miles



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Rutland Regional Medical Center
Central Vermont Hospital
Southwestern Vermont Medical Center
VA Medical Center
Brattleboro Memorial Hospital
North Country Hospital
Gifford Memorial Hospital
Mt. Ascutney Hospital
Springfield Hospital
Northeastern Vermont Regional Hospital
Copley Hospital
Northwestern Medical Center
Porter Medical Center
Grace Cottage Hospital
Brattleboro Retreat
Vermont State Hospital
Albany Medical Center (NY)
Dartmouth Hitchcock Medical Center (NH)
Littleton Regional Hospital (NH)

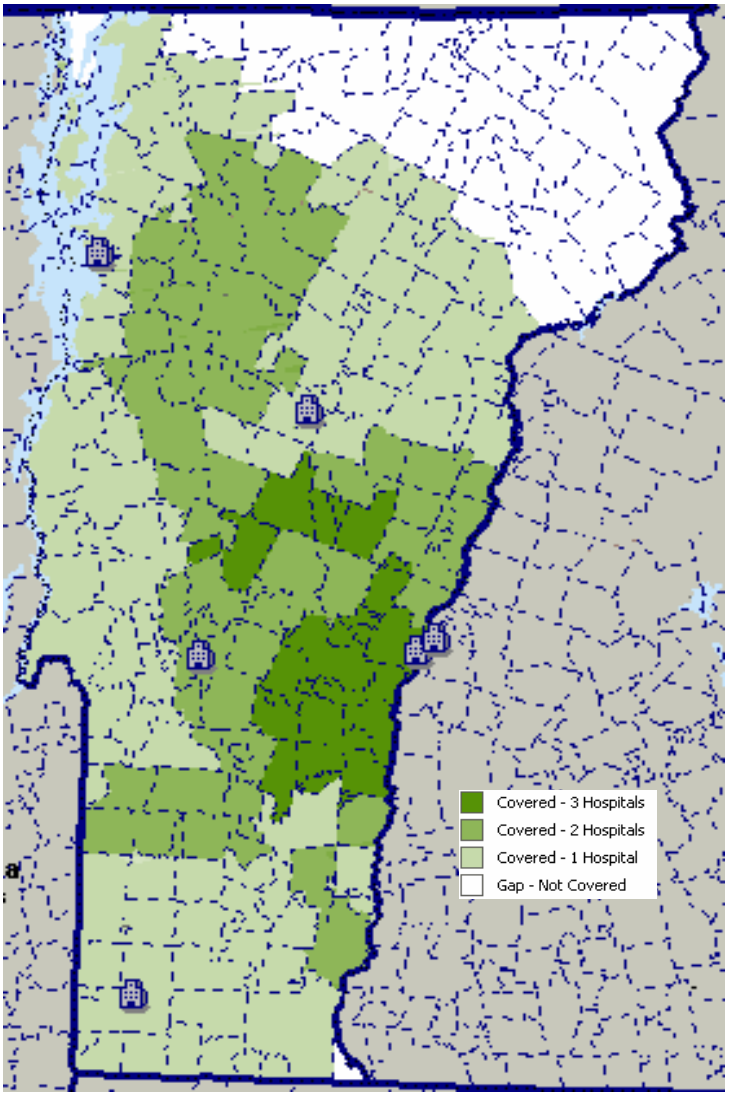
Map 3: Local - 30 miles



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Rutland Regional Medical Center
Central Vermont Hospital
Southwestern Vermont Medical Center
VA Medical Center
Brattleboro Memorial Hospital
North Country Hospital
Gifford Memorial Hospital
Mt. Ascutney Hospital
Springfield Hospital
Northeastern Vermont Regional Hospital
Copley Hospital
Northwestern Medical Center
Porter Medical Center
Grace Cottage Hospital
Brattleboro Retreat
Vermont State Hospital
Albany Medical Center (NY)
Dartmouth Hitchcock Medical Center (NH)
Littleton Regional Hospital (NH)

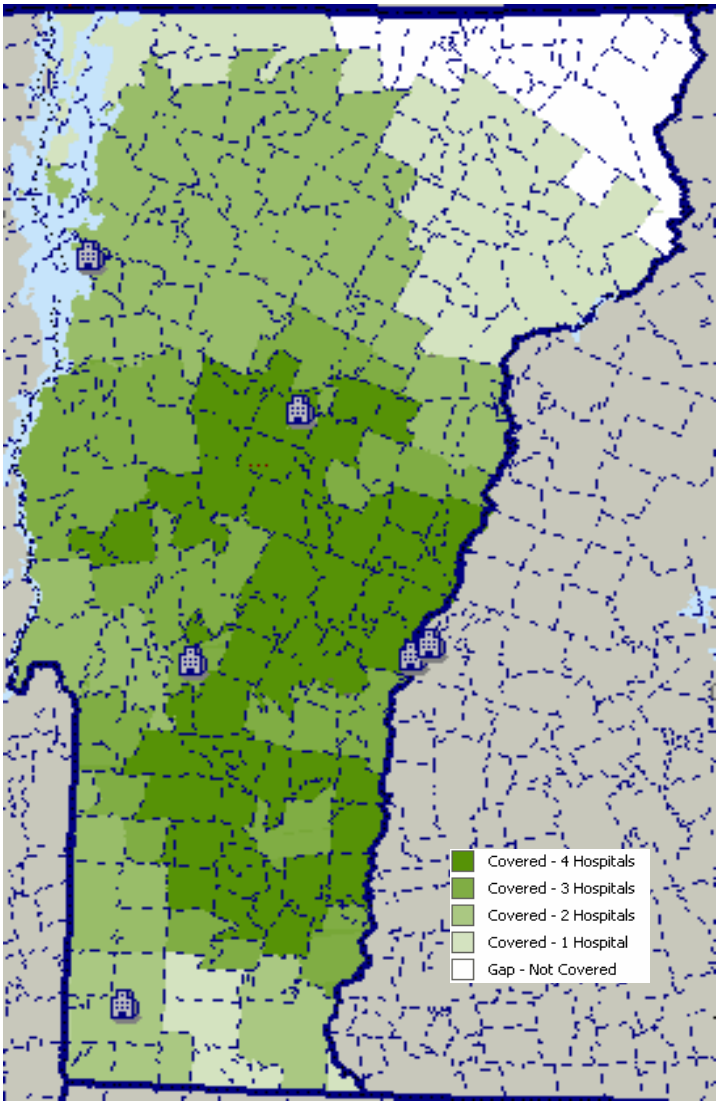
Map 4: Regional - 30 miles



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Dartmouth Hitchcock Medical Center (NH)
Albany Medical Center (NY)
Central Vermont Hospital
Rutland Regional Medical Center
Southwestern Vermont Medical Center
VA Medical Center

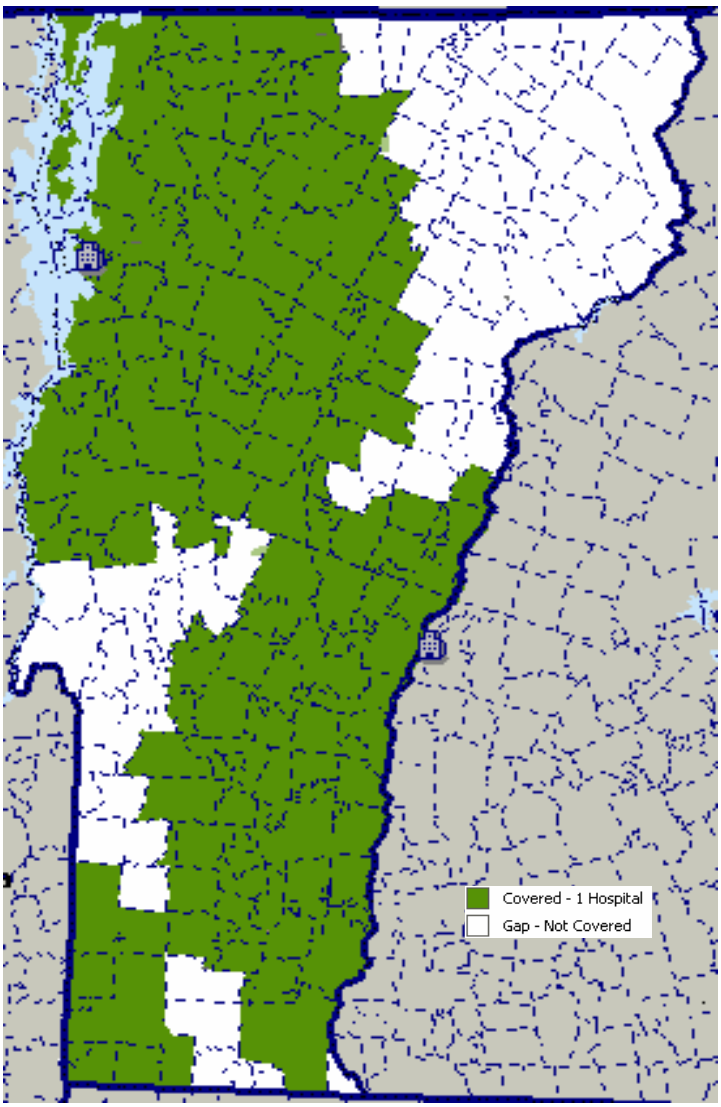
Map 5: Regional - 45 miles



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Dartmouth Hitchcock Medical Center (NH)
Albany Medical Center (NY)
Central Vermont Hospital
Rutland Regional Medical Center
Southwestern Vermont Medical Center
VA Medical Center

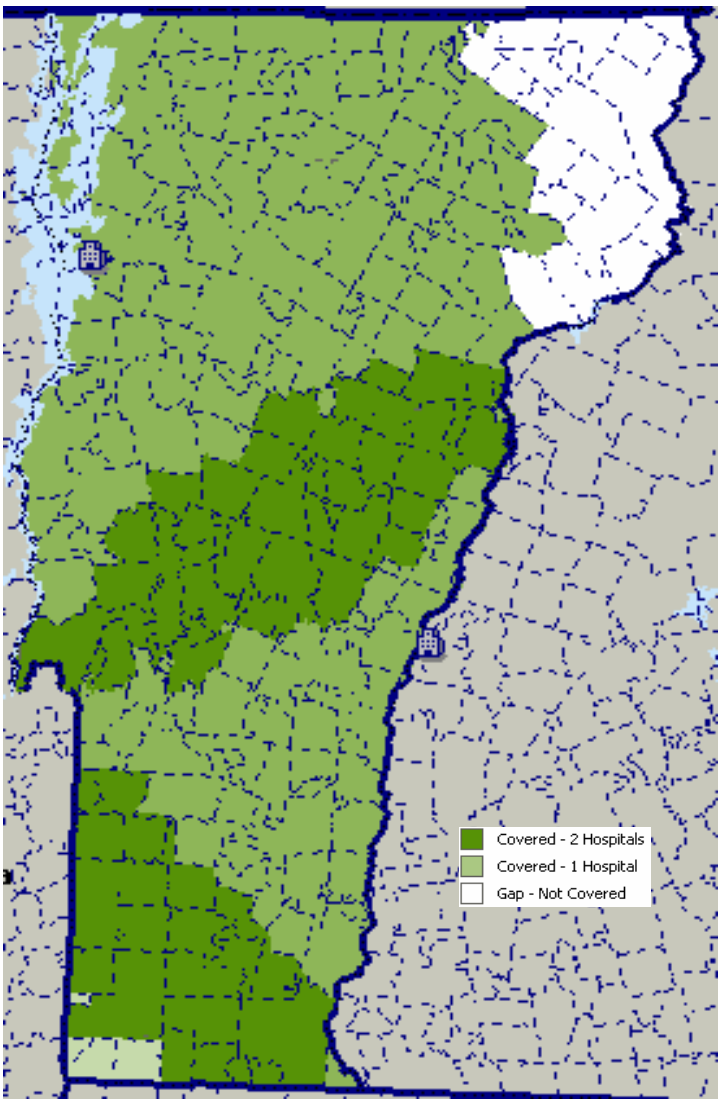
Map 6: Statewide - 45 miles



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Dartmouth Hitchcock Medical Center (NH)
Albany Medical Center (NY)

Map 7: Statewide – 60 miles



HOSPITALS INCLUDED:

Fletcher Allen Health Care
Dartmouth Hitchcock Medical Center (NH)
Albany Medical Center (NY)

VII. Vermont Hospital Monograph Series Hospital Service Area Analyses

Inpatient discharge data have been the core of the *Vermont Hospital Monograph Series* since 1975. These data have been helpful in hospital planning and have provided a longitudinal view of hospital utilization and the health of Vermonters.

Units of Measure

The inpatient Monographs use three measures of hospital utilization:

A ***discharge*** is an individual inpatient hospitalization. Discharge dates, not admission dates, are used to indicate when a case is reported. A count of discharges measures how often care is sought. The same individual will be counted as more than one discharge if hospitalized more than once during the time studied.

A ***patient day*** is defined as a stay in a hospital for all or part of a day. Patient days are one way of measuring the amount of care provided.

The ***average length of stay*** is the total patient days divided by the number of discharges in a selected category. It is a rough measure of the amount of care provided during a typical hospital stay.

Hospital Service Area Analyses

The majority of the eight inpatient Monographs compare data for residents of hospital service areas. Each HSA is created by identifying the geographically distinct population of Vermonters who are highly dependent on a hospital or group of hospitals. Once the HSAs are defined, each inpatient record is assigned an HSA. This permits comparison of hospital utilization patterns for residents of the various HSAs, regardless of where they are hospitalized.

Statistics for HSA analyses include population-based rates that are adjusted for differences such as age distribution in population characteristics from one HSA to another. Using population-based rates, especially age-adjusted rates, differences in hospitalization patterns for residents of different regions of the State can be identified.

HSAs are less relevant for certain services that have historically been regionalized such as acute inpatient mental health services for persons with severe mental illness. In 2002, four out of the fourteen Vermont community hospitals had dedicated inpatient psychiatric units in addition to Retreat Healthcare and the Vermont State Hospital.

Hospitals take interest in HSAs because residents of their HSAs are usually their principal Vermont consumers. Analysis of anomalies and trends within its service area can aid a hospital in identifying practice variations and in strategic planning. Finally, the

size and shape of an HSA can be indicative of a hospital's market penetration and the environment in which it operates.

Vermont hospitals near Vermont's borders may provide care to people in neighboring, non-Vermont towns. However, out-of-state residents are excluded from the population-based HSA comparisons. In order to include out-of-state residents in a hospital service area, information would need to be collected on all hospitalizations of the residents in those areas, including use of non-Vermont hospitals. In contrast to the HSA comparisons, out-of-state residents using Vermont hospitals are included in the hospital-based comparisons.

While hospitals may provide the majority of care within their service area, a substantial quantity of the care received by the population may also come from other hospitals. If the hospital is a regional referral center, the hospital may be providing the majority of care to residents within its service area while also providing specialty care to residents from other service areas.

Chapter 2: Ambulatory Care Services

SUMMARY

Ambulatory care encompasses a full range of health services provided on an outpatient basis across the continuum, from prevention and screening through emergency and urgent care, acute care, management of chronic conditions and disabilities and rehabilitation to the delivery of end-of-life care. To reflect the full scope of ambulatory services, this chapter includes analyses of outpatient care, primary care, specialty care, oral health, and mental health and substance abuse services. Because of the nature of the care provided, ambulatory services place more emphasis on prevention and health maintenance than do other service areas; this chapter includes significant discussion of workforce, facility and program resources associated with the delivery of ambulatory services. Many Vermont communities indicate shortage or mal-distribution of care providers and services in their Community Needs Assessments; accordingly, recommendations propose a broad range of measures to better quantify geographic and population-based needs for ambulatory services across the continuum; develop school- and community- based programs in health promotion, prevention and screening; and address the adequacy and mix of the distribution of ambulatory-based providers across the State.

1. Service/Facility/Resource Description: Ambulatory Care

Ambulatory care includes all types of health services that are provided on an outpatient basis (including physician housecalls), in contrast to services provided in the home or in an inpatient setting. Ambulatory care touches many points along the health care continuum, including prevention, screening, emergency and urgent care, acute care, management of chronic conditions and disabilities, rehabilitative care and end-of-life care.

Clinical Preventive Services

Ambulatory providers of both primary care and specialty services are crucial for the delivery of preventive care. According to the State Health Plan, clinical preventive services as including services intended to prevent disease, reduce risk, or identify conditions early, and comprise the "second line of defense" following broader efforts in environmental protection and discouragement of risky health behaviors.[63] The U.S. Preventive Services Task Force has made recommendations regarding more than 55 screening tests demonstrated to be effective in reducing morbidity, mortality and the cost of interventions, including newborn metabolic screening, cholesterol screening, mammograms, colorectal cancer screening and many others.[64] The State Health Plan recognizes immunization as a critical preventive service for both children and adults,

[63] Vermont Department of Health. The Vermont State Health Plan. Published in 2005
[64] Ibid

especially for high-risk children and adults needing protection against influenza and pneumonia. Counseling in the ambulatory setting about tobacco use, HIV prevention, household and motor vehicle injury prevention, alcohol use, violence prevention, and prevention of unintended pregnancy is also recognized as an important clinical preventive service.[65]

Management of Chronic Conditions

According to the Blueprint for Health: Vermont's Chronic Care Initiative, care for people with chronic conditions currently represents 78% of health care spending, 76% of hospital admissions, 72% of all physician visits, and 88% of prescriptions written.[66,67] In 2003, health spending on Vermonters totaled $3 billion, with an estimated $2.3 billion spent on treatment of chronic disease.[68] There is ample evidence that improving care of people with chronic conditions such as diabetes and hypertension can improve health outcomes, prevent or slow the progression of disease, and reduce costs. In addition to monitoring and medication, ambulatory care providers must strive to assist patients in developing self-management skills including making referrals to appropriate self-management and community resources. Effective management of chronic disease requires active self-care management, proactive planned care and a continuous relationship between patient and provider.[69] Continuity of care is highly dependent on a well-designed ambulatory care system with adequate clinical and information resources.

Hospitalizations for Ambulatory Care Sensitive Conditions

Ambulatory Care Sensitive Conditions (ACSCs) are medical conditions for which physicians broadly concur that a substantial proportion of cases should not advance to the point were hospitalization is needed if they are treated in a timely fashion with adequate primary care and managed properly on an outpatient basis.[70] High-quality primary and preventive care could have averted the need for nearly 5 million admissions to U.S. hospitals costing over $26 billion in 2000.[71] Although the Vermont multiyear discharge rate for preventable hospitalizations was lower than the national average, between 1998 and 2002 there were 37,705 hospitalizations (Table 1) in Vermont for ambulatory sensitive conditions. In Vermont, ACSCs accounted for an average of 6,000 potentially avoidable hospitalizations per year, or approximately 10% of all hospital discharges.

[65] Ibid
[66] Vermont Department of Health. *The Blueprint for Health: Vermont's Chronic Care Initiative*, http://www.healthyvermonters.info/hi/chronic/chroniccare.shtml
[67] *Chronic Conditions: Making the case for ongoing care*. Partnership for Solutions, Johns Hopkins University for the Robert Wood Johnson Foundation. December 2002
[68] Department of Banking, Insurance, Securities and Health Care Administration. *2003 Vermont Health Care Expenditure Analysis*, February 2005.
[69] Vermont Department of Health. *The Blueprint for Health: Vermont's Chronic Care Initiative*, http://www.healthyvermonters.info/hi/chronic/chroniccare.shtml
[70] U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services. Glossary available at: http://www.cms.hhs.gov/glossary/default.asp?Letter=A&Language=English#Content
[71] U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. Preventable Hospitalizations: A Window Into Primary and Preventive Care, 2000. Rockville, MD: September 2004.

Table 1: Hospital Discharges for Ambulatory Sensitive Conditions

Hospital Discharges for Ambulatory Sensitive Conditions/ Prevention Quality Indicator	Vermont Data		US 2000
	# Hospital Discharges 1998-2002	Risk Adjusted Rate	Risk Adjusted Rate
Adult Asthma: Rate per 100,000 pop age 18+	1,325	57.9	113.3
Angina: Rate per 100,000 pop age 18+	1,896	82.4	66.1
Bacterial Pneumonia: Rate per 100,000 pop	9,931	319.4	374.3
Chronic Obstructive Pulmonary Disease: Rate per 100,000 pop age 18+	4,954	217.1	279.6
Congestive Heart Failure: Rate per 100,000 pop age 18+	7,131	309.7	512.3
Dehydration: Rate per 100,000 pop	2,287	75.8	134.5
Diabetes Long Term Complications: Rate per 100,000 pop age 18+	1,941	83.0	120.8
Diabetes Short Term Complications: Rate per 100,000 pop age 18+	746	34.0	51.2
Diabetes Uncontrolled: Rate per 100,000 pop age 18+	160	6.4	28.5
Hypertension: Rate per 100,000 pop age 18+	278	10.9	45.2
Low Birth Weight: Rate per 1,000 neonates	1,726	53.7	56.8
Lower Extremity Amputation: Rate per 100,000 pop age 18+	782	33.5	41.9
Pediatric Asthma: Rate per 100,000 pop age less than 18	530	76.7	200.6
Pediatric Gastroenteritis: Rate per 100,000 pop age less than 18	348	52.5	108.6
Perforated Appendix: Rate per 1,000 appendicitis admissions	848	316.8	313.9
Urinary Infection: Rate per 100,000 pop	2,822	91.1	145.9
Total Hospital Disharges	37,705		

Risk adjustment refers to age and sex adjustments. Adjustments are made to all measures except the low birthweight indicator.

Source: Prepared by the VT Department of Health for the 2004 Hospital Community Needs Assessments with data from the Agency for Healthcare Reaserch and Quality. Descriptions of conditions are available at http://hcup.ahrq.gov/HCUPnet.asp

The ambulatory sensitive condition with the highest number of discharges between 1998 and 2002 nationally was bacterial pneumonia, which accounted for 9,931 discharges. The Vermont average discharge rate for bacterial pneumonia was lower (319.4 per 100,000 population) than the national average (374.3 per 100,000 population). However, at the hospital service area level, the Bennington, Middlebury, Rutland, Springfield and St. Albans hospital service areas had adjusted discharge rates that exceeded the U.S. average discharge rate. The Vermont data were adjusted to account for differences in the age and sex distribution within populations across the hospital service areas. Comparatively high discharge rates for conditions such as bacterial pneumonia could be indicative of local need for ambulatory care services targeting specific populations and conditions.

Table 2: Prevention Quality Indicator by HSA

Ambulatory Care Sensitive Condition-Bacterial Pneumonia Hospital Discharge Rate per 100,000 Population	Hospital Service Area Data	
	Count 1998-2002	**Risk Adjusted Rate**
Barre	938	279.2
Bennington	1,155	498.9**
Brattleboro	465	254.6
Burlington	1,591	248.6
Middlebury	583	425.2**
Morrisville	438	340.8*
Newport	443	284.2
Randolph	257	319.3
Rutland	1,365	379.1**
Springfield	647	358.7**
St. Albans	860	418.2**
St. Johnsbury	438	286.5
White River Junction	751	281.3
Statewide Total	9,931	
Statewide Risk Adjusted Rate	319.4	
U.S. Average Discharge Rate	374.3	

*Higher that Vermont average.
**Higher than U.S. average

Source: Prepared by the VT Department of Health for the 2004 Hospital Community Needs Assessments with data from the Agency for Healthcare Research and Quality. Descriptions of conditions are available at http://hcup.ahrq.gov/HCUPnet.asp

I. Primary Care Services

Quick Facts

- Primary care includes MD and DO physicians, physician's assistants (PAs) and advance practice registered nurses (APRNs) delivering care in the areas of family practice, general internal medicine, pediatrics, and obstetrics and gynecology.

- Vermont experienced a net increase of 43 primary care physicians between 2000 and 2002, from 585 to 628.

- The largest number of primary care FTEs is in the Burlington hospital service area, though the highest population-based ratio of primary care FTEs is in the Middlebury hospital service area.

- Four of the 13 Vermont hospital service areas (HSAs) have a serious shortage of primary care physicians according to the General Medical Education National Advisory Committee (GMENAC) standard of at least 67 primary care FTEs per 100,000 persons .

- More than half of the State's 484 mid-level practitioners including advanced practice registered nurses (APRN) and physician's assistants (PA) practice in primary care.

- Statewide, there has been a decline in the number of primary care practices accepting new patients and Medicaid patients.

1. Service/Facility/Resource Description

Primary care is basic or general health care focused ideally on the point at which a patient first seeks assistance from the medical care system. Primary care is considered comprehensive when the primary care provider takes responsibility for the overall coordination of the care of the patient's health problems, be they biological, behavioral, or social. Primary care includes an emphasis on preventive services including immunization, screening for early detection of health problems and education about prevention. The appropriate use of specialty consultants and community resources is an important part of effective primary care. Such care is generally provided by physicians but is increasingly provided by other personnel such as nurse practitioners and physician's assistants.[72]

[72] AcademyHealth. Glossary of Terms Commonly Used in Health Care. Washington, D.C.: 2004 Edition, p.26

2. Current Supply and Distribution

There are a multitude of population-based and geographic perspectives from which to evaluate the supply, distribution and adequacy of primary care resources such as health professionals and safety net programs. These perspectives are primarily based upon federal and state designations including health professional shortage areas (HPSA), medically underserved areas (MUA), medically underserved populations (MUPs), enhanced medically underserved populations (E-MUPs), and the Vermont governor – certified rural shortage areas (GRSAs). Geographic perspectives include counties, hospital service areas (HSA) and rational service areas for primary care (RSA). RSAs are 38 areas in Vermont based on utilization patterns for primary care for Medicaid and Medicare and self-reported survey data. (See Maps 1 and 2 in sub-section V of this chapter, page 175-176.)

The analysis of supply and distribution of primary care resources is focused on clinicians who provide primary care services in a variety of private (offices, residential facilities, clinics) and publicly subsidized settings (FQHCs, RHCs, free clinics, public schools). Relying on a simple count of clinicians is not a precise method for quantifying workforce resources since according to the Vermont Department of Health, 27 % of physicians, 19% of APRNs and 23% of PAs work less than 30 hours per week. It is more accurate to use full time equivalents (FTEs) to measure workforce resources. An FTE is defined as working 40 (or more) hours per week for at least 48 weeks per year. FTEs for a single clinician can also be allocated among multiple locations for clinicians practicing at multiple sites that cross hospital service areas, rational service areas or counties.

The main data sources for much of the following analysis are surveys of clinicians (advanced practice registered nurses, physicians, physician's assistants) licensed in the State of Vermont. As can be seen on Map1, which identify Rational Service Areas for primary care, several towns along the eastern border of Vermont (Canaan, Averill, Lemington, Bloomfield, Brunswick, Maidstone, Granby, Guildhall, Ryegate, Thetford, Norwich) have populations served by out-of-state clinicians. Any clinicians not licensed in Vermont who serve these populations are not counted due to lack of data sources.

Primary Care Physicians

Primary care is the provision of a broad range of personal medical care (preventive, diagnostic, palliative, therapeutic, curative, counseling and rehabilitative) in a manner that is accessible, comprehensive and coordinated by a licensed MD/DO physician over time.[73]

In 2002, there were 1,565 physicians (1229.63 FTEs or 2.0 FTEs per 1000) licensed to practice medicine in the State of Vermont. Of these, 40% (628 physicians and 492.9 FTEs) worked mainly in primary care, defined by the Vermont Department of Health as general/family practice, general internal medicine, obstetrics/gynecology and pediatrics.

[73] Vermont Report of the Healthcare Workforce Partnership: a study of the human resource needs of the healthcare industry, 2005. Page 51.

Vermont saw a net increase of 43 primary care physicians (20.7 FTEs) and 42 specialty care physicians (44.6 FTEs) between 2000 and 2002. In five out of 14 counties, 10% or more of primary care physicians are over the age of 60, so attrition through retirement is a consideration. Windham (17%) and Windsor (15%) counties have the highest rates for primary care physicians over 60. The majority of primary care physicians provide care in group practices.

From the perspective of HSAs, the largest proportion of primary care physician FTEs were in Burlington (30.6%), followed by Barre (9.3%), Rutland (8.8%) and Bennington (7.8%). However, the population-based ratios of primary care physician FTEs range from a low of 56 per 100,000 in the St. Albans HSA to a high of 114 per 100,000 in the Middlebury HSA. (Table 3)

Using the ratio recommended by the Graduate Medical Education National Advisory Committee (GMENAC) of at least 67 primary care physicians per 100,000, 4 out of 13 Vermont HSAs are categorized as having serious shortages including the Morrisville, Newport, St. Albans and White River Junction HSAs.[74]

[74] Vermont Department of Health. Health Care Underservice in Vermont: Designations, Guidelines and Process.

Table 3: Distribution of Primary Care Physicians by County and HSA
Vermont 2002

	Number of Physicians	FTEs	FTE % of Total	FTEs per 100,000 Population	Population per FTE
County					
Addison	40	32.2	6.5%	88.19	1,134
Bennington	45	35.6	7.2%	95.56	1,046
Caledonia	26	21.6	4.4%	72.13 *	1,386
Chittenden	189	144.1	29.2%	97.19	1,029
Essex	4	2.9	0.6%	44.52 **	2,246
Franklin	30	27.0	5.5%	58.32 **	1,715
Grand Isle	1	0.9	0.2%	13.05 **	7,660
Lamoille	24	17.7	3.6%	74.33 *	1,345
Orange	22	16.2	3.3%	56.76 **	1,762
Orleans	18	17.3	3.5%	64.81**	1,543
Rutland	50	44.4	9.0%	69.94 *	1,430
Washington	50	46.0	9.3%	78.86	1,268
Windham	54	37.8	7.7%	84.78	1,179
Windsor	75	49.1	10.0%	84.53	1,183
Hospital Service Area					
Barre	51	46.0	9.3%	69.86 *	1,431
Bennington	48	37.9	7.7%	92.54	1,081
Brattleboro	44	28.3	5.7%	87.82	1,139
Burlington	198	150.8	30.6%	90.39	1,106
Middlebury	40	32.2	6.5%	114.17	876
Morrisville	22	17.0	3.4%	65.4 **	1,529
Newport	20	18.2	3.7%	65.6 **	1,524
Randolph	17	13.7	2.8%	94.13	1,062
Rutland	50	44.4	9.0%	69.09 *	1,447
Springfield	29	27.1	5.5%	93.45	1,070
St. Albans	27	24.5	5.0%	56.12 **	1,782
St. Johnsbury	24	21.1	4.3%	77.57 *	1,289
White River Junction	58	31.7	6.4%	64.55 **	1,549
Statewide Total	628	492.9	100.0%	80.70	1,249

Source: 2002 Physician Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Graduate Medical Education National Advisory Committee standard for primary care physician FTE

** < 67 FTEs per 100,000 = Serious shortage

* 67- 78 FTEs per 100,000 = Moderate shortage

>78 FTEs per 100,000 = Adequate supply

From the perspective of the more localized RSAs for primary care, 14 out of 38 Vermont RSAs do not meet the GMENAC standard for at least 67 primary care physicians per 100,000 persons with the lowest three being the Chelsea/Corinth, Arlington and Waitsfield RSAs. (Please refer to Table 4 and Map 3 in sub-section V of this chapter, page 177.)

Table 4: Distribution of Primary Care Physicians by Rational Service Area
Vermont 2002

Rational Service Area	Number of Physicians	FTEs	FTE % of Total	FTEs per 100,000 Population	Total Population
Arlington	1	1.0	0.2%	27.6 **	3,627
Bennington	40	29.0	5.9%	123.3	23,539
Bradford	8	4.9	1.0%	77.1 *	6,318
Brandon	5	3.9	0.8%	82.9	4,716
Brattleboro	33	24.1	4.9%	106.3	22,632
Brighton	2	1.1	0.2%	31.9 **	3,436
Bristol	5	4.1	0.8%	46.8 **	8,845
Burlington	153	98.6	20.0%	110.1	89,518
Cambridge	5	3.2	0.6%	71.4 *	4,517
Castleton	8	6.8	1.4%	52.4 **	13,054
Chelsea / Corinth	3	1.5	0.3%	22.1 **	6,871
Enosburg	8	4.1	0.8%	39.9 **	10,167
Essex/Williston	58	38.5	7.8%	78.2	49,194
Hardwick	3	2.5	0.5%	35.4 **	6,956
Hartford	29	10.7	2.2%	89.30	11,961
Londonderry	1	1.0	0.2%	33.9 **	2,947
Ludlow	5	4.0	0.8%	68.3 *	5,785
Manchester	12	5.6	1.1%	76.8 *	7,260
Middlebury	32	23.1	4.7%	123.10	18,771
Milton / South Hero	18	12.5	2.5%	55.4 **	22,645
Montpelier/Barre/Berlin	46	39.7	8.1%	79.70	49,786
Morristown	19	11.8	2.4%	70.3 *	16,831
Newport	23	17.1	3.5%	77.7 *	22,054
Pawlet	4	2.5	0.5%	75.4 *	3,262
Randolph	19	14.4	2.9%	95.60	15,088
Rockingham	9	6.4	1.3%	69.9 *	9,196
Rutland	40	31.2	6.3%	74.4 *	41,981
Springfield	20	16.0	3.2%	101.40	15,742
St Albans	27	18.4	3.7%	63.5 **	29,026
St Johnsbury	25	21.1	4.3%	76.6 *	27,527
Stowe	4	2.7	0.5%	59.3 **	4,502
Townshend	13	4.0	0.8%	66.7 *	5,973
Vergennes	6	5.0	1.0%	62.3 *	8,015
Waitsfield	2	2.0	0.4%	31.9 **	6,274
Waterbury	8	4.3	0.9%	69.5 *	6,241
Wilmington	3	2.3	0.5%	38.8 **	5,925
Windsor	15	9.4	1.9%	105.70	8,857
Woodstock	7	4.4	0.9%	71.2 *	6,241
Statewide Total	719	492.9	100.0%	80.07	605,280

Source: 2002 Physician Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Physicians may work in multiple service areas. There are a total of 628 primary care physicians in Vermont.

Graduate Medical Education National Advisory Committee standard for primary care physician FTEs:

** < 67 FTEs per 100,000 = Serious shortage

* 67- 78 FTEs per 100,000 = Moderate shortage

>78 FTEs per 100,000 = Adequate supply

The total Vermont population is 615,611. The populations of rational service areas served by out-of-state primary care physicians are not included.

Health Professional Shortage Areas (HPSAs) for primary care physicians are listed below. (See Map 4 in sub-section V of this chapter, page 178 for more information.) HPSAs are rational areas for the delivery of care with one physician per 3500 or more people (or 1:3000 and high need population) that lack access to services in surrounding areas owing to distance, over-utilization or other barriers. These areas contain automatic designations associated with Federally Qualified Health Centers (FQHC and CHC) and Rural Health Centers (RHC).

Primary Care Health Professional Shortage Areas[75]

Route 100
- Addison County- Granville, Hancock
- Rutland County- Pittsfield
- Windsor County- Rochester, Stockbridge

Hardwick Service Area
- Caledonia County- Hardwick, Stannard, Walden
- Orleans County- Craftsbury, Greensboro
- Washington County- Woodbury

Island Pond
- Essex County- Avery's Gore, Brighton, Ferdinand, Lewis, Norton, Warner's Grant, Warren's Gore
- Orleans County- Charleston, Morgan

Richford-Enosburg
- Franklin County- Bakersfield, Berkshire, Enosburg, Fairfield, Franklin, Montgomery, Richford, Sheldon
- Orleans County- Jay

RSA 40- Chelsea/Corinth
- Orange County- Chelsea, Corinth, Strafford, Topsham, Turnbridge, Vershire

Low Income- Castleton RSA 7
- Rutland County- Benson, Castleton, Fair Haven, Hubbardton, Poultney, West Haven

Mad River Valley
- Washington County- Fayston, Moretown, Waitsfield, Warren

Automatic HPSA Designations
- Caledonia and Essex Counties- Northern Counties Health Care
- Chittenden County - Community Health Center of Burlington

[75] Vermont Department of Health, Office of Primary Care and Rural Health

- Franklin County- Northern Tier Center for Health
- Orleans County- North Country Hospitals
- Washington County- The Health Center Correctional Facility
- Orleans County- Northern State Correctional Facility

Despite Vermont's ongoing efforts to attract and retain primary care physicians, there is still some geographic mal-distribution, particularly in remote rural areas. Furthermore, certain primary care specialties such as primary care internal medicine are reporting a decrease in availability and access to all patients, regardless of payment source. In 2004, the Northeastern Vermont Area Health Education Center reported that 56% of internists serving Orleans, Essex, Caledonia, Lamoille, Orange and Washington counties in primary care were not accepting new patients compared to 32% of all primary care physicians.[76] In 2002, the Physician Survey indicated that on a statewide basis 73% of primary care internists were accepting new patients and only 61% were accepting new Medicaid patients. Internal medicine is a key profession in serving the needs of an older population and, with a rapidly aging population, the demand on primary care internal medicine will continue to grow.[77]

Table 5: Primary Care Physicians by Specialty, Vermont 2002

Primary Care Specialty	# of Physicians	% of Primary Care Physicians	# FTEs	% of FTEs
Family Practice	259	41.2%	200.68	41.2%
Primary Care Internal Medicine	198	31.5%	144.79	29.7%
Obstetrics and Gynecology	68	10.8%	64.7	13.3%
Pediatric Primary Care	103	16.4%	77.19	15.8%
Statewide Total	628	100.0%	487.36	100.0%

Source: 2002 Physician Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Analysis of the supply of clinicians trained to meet the primary care needs of older adults is hampered by a lack of consensus nationally and by the need to evaluate the combined contributions of primary care internists, family physicians and mid-level practitioners to meet the needs in Vermont. A population-based analysis of the distribution of primary care internal medicine physicians by two older age patient cohorts of 45+ and 65+ revealed that the HSAs with the lowest ratios were Middlebury, Morrisville, Rutland, St. Albans, and St. Johnsbury. The potentially inadequate supply of clinicians can pose challenges for meeting the needs of an aging population with chronic conditions such as diabetes and cardiovascular conditions that require specialized, comprehensive and

[76] Northeastern Vermont Area Health Education Center. *Annual Primary Care Survey*, December 2004.
[77] Vermont Report of the Healthcare Workforce Partnership: a study of the human resource needs of the healthcare industry, 2005. Page 53.

ongoing management to maintain health and prevent or delay the onset of complications. Implementation of the Vermont Blueprint for Health and related chronic care initiatives will require efforts to recruit and retain a variety of clinicians with geriatric skills.

Table 6: Distribution of Primary Care Internist FTEs, Vermont 2002

Hospital Service Area	# FTEs	FTEs per 10,000	FTEs per 10,000 aged 45+	FTEs per 10,000 aged 65+	FTE % Total
Barre	13.0	1.97	5.01	16.08	8.9%
Bennington	11.2	2.74	6.31	17.14	7.7%
Brattleboro	7.2	2.23	5.31	16.26	4.9%
Burlington	53.5	3.21 *	9.81*	34.92 *	36.8%
Middlebury	3.6	1.23 **	3.49 **	10.88 **	2.5%
Morrisville	2.8	1.08 **	2.83 **	8.74 **	1.9%
Newport	7.3	2.63	6.28	18.03	5.0%
Randolph	3.2	2.20	5.27	15.49	2.2%
Rutland	10.3	1.60 **	3.83 **	10.91 **	7.1%
Springfield	6.4	2.21	4.83	13.00 **	4.4%
St. Albans	5.8	1.33 **	3.72 **	11.34 **	4.0%
St. Johnsbury	4.6	1.69 **	4.14 **	11.75 **	3.2%
White River Junction	16.6	3.38 *	7.93 *	24.19 *	11.4%
Statewide Total	145.5	2.36	6.13	18.83	100.0%

Source: 2002 Physician Survey Statistical Report, VT Department of Health

Out of a total of 221 primary care internists, 198 are "mainly" primary care internists.

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

** FTEs per 10,000 are at least 25% below the statewide rate

* FTEs per 10,000 are at least 25% above the statewide rate

Table 7: Distribution of Primary Care Pediatrician FTEs

Hospital Service Area	# FTEs	FTEs per 10,000 children under 18	FTE % Total
Barre	5.0	3.2 **	6.1%
Bennington	4.0	4.2	4.8%
Brattleboro	3.8	5.0	4.6%
Burlington	26.9	6.8	32.7%
Middlebury	6.7	9.8 *	8.1%
Morrisville	1.2	1.9 **	1.5%
Newport	3.2	4.5	3.9%
Randolph	2.7	7.9 *	3.3%
Rutland	6.7	4.5	8.1%
Springfield	5.3	8.2 *	6.4%
St. Albans	7.2	6.0	8.8%
St. Johnsbury	4.3	6.5	5.3%
White River Junction	5.3	4.4	6.4%
Statewide Total	82.2	5.56	100.0%

Source: 2002 Physician Survey Statistical Report, VT Department of Health

There are 103 primary care pediatricians.

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

** FTEs per 10,000 children are at least 25% below the statewide rate

* FTEs per 10,000 children are at least 25% above the statewide rate

Analysis of the supply of clinicians trained to meet the needs of children is hampered by the lack of clear national guidelines and by the need to evaluate the combined contributions of pediatricians, family physicians and mid-level practitioners. A population-based evaluation of primary care pediatrician FTEs per 10,000 children under the age of 19 indicated that ratios are especially low in the hospital service areas of Barre and Morrisville. Within local areas, the supply of all categories of relevant clinicians will need to be analyzed to more accurately determine areas of shortage.

Table 8: Primary Care Practice Availability, Vermont 2002

Primary Care Specialty	# of Physicians	Accept New Patients	Participate in Medicaid	Accept New Medicaid Patients	Participate in Medicare	Accept New Medicare Patients
Family Practice	259	81%	94%	70%	98%	73%
Primary Care Internal Medicine	198	73%	98%	61%	99%	69%
Obstetrics and Gynecology	68	97%	98%	95%	100%	97%
Pediatric Primary Care	103	99%	100%	98%	n.a.	n.a.
Statewide Total Primary Care	628	83%	97%	75%	99%	75%
For Comparative Purposes						
Statewide Total Specialty Care	807	99%	98%	94%	99%	96%

Source: 2002 Physician Survey Statistical Report, VT Department of Health

Whereas 99% of Vermont's 807 specialty physicians were accepting new patients in 2002, only 81% of the 628 primary care physicians indicated availability to accept new patients. (Table 8) The lowest rates for accepting new patients were in the primary care areas of internal medicine (61%) and family medicine (70%) for Medicaid enrollees. From a more local perspective, the lowest rates of availability to accept new patients in primary care – especially Medicaid enrollees- were in Washington, Chittenden and Bennington counties. (Table 9)

Table 9: Primary Care Practice Availability by County, Vermont 2002

County	# of Offices	Accept New Patients	Accept New Medicaid Patients	Accept New Medicare Patients
Addison	43	88%	83%	83%
Bennington	52	76%	60%	70%
Caledonia	30	100%	100%	100%
Chittenden	231	73%	65%	65%
Essex	5	100%	100%	100%
Franklin	42	92%	87%	83%
Grand Isle	3	100%	100%	100%
Lamoille	30	85%	78%	82%
Orange	26	91%	91%	88%
Orleans	27	92%	92%	86%
Rutland	55	91%	71%	86%
Washington	58	73%	68%	71%
Windham	66	89%	76%	84%
Windsor	87	91%	87%	88%
Statewide Total	755	83%	75%	78%

Source: 2002 Physician Survey Statistical Report, VT Department of Health

Per updated information from David Reynolds, Northern Counties Health Care, Inc., there are 2 primary care offices in Essex County.

Primary Care Advanced Practice Registered Nurses and Physician's assistants

Advanced practice registered nurses (APRNs) and physician's assistants (PAs) provide comprehensive primary and specialty care services in collaboration with, or under the supervision of, physicians according to the scope of practice permitted by each type of licensure under State laws and regulations. APRNs and PAs play a key role in safety net programs for delivery of comprehensive primary care for medically underserved populations through the federally qualified health centers and the rural health clinics. In addition to the federal requirement that RHCs use APRNs and PAs for 50% of the time that clinics are operating, these practitioners accounted for 14.88 or 45% of the total of 33.14 FTEs dedicated to direct medical services provided at the Vermont FQHCs in 2003.

In 2002, a total of 484 APRNs and PAs were licensed in Vermont: 354 advanced practice nurses and 130 physician's assistants. Out of the total 359.9 FTEs attributed to these 484 practitioners, 205.1 FTEs or 57% were attributed to primary care. The supply and distribution of PAs and APRNs can be evaluated from two perspectives. One perspective is to measure the supply and distribution by practitioner type: APRN or PA separately. Another is to measure the supply and distribution of both types of practitioners jointly. Since there are differences between the two practitioner types in terms of scope of practice and in specialization within primary care, either perspective yields high-level information with limited precision.

In 2002, out of a total of 251 FTEs attributed to 354 APRNs, 151 FTEs (234 APRNs) or 60.1% of APRN FTEs were categorized as primary care.(Table 10) With the statewide average of 24.5 primary care APRN FTEs per 100,000 persons, the population-based ratios ranged from a low of 7.29 per 100,000 in the Northwestern HSA to a high of 50.5 in the Windham HSA. (Table 11) Analysis of combined FTEs for primary care APRNs and PAs may yield more meaningful information. Analysis of the supply and distribution of APRN subspecialties within primary care would be more meaningful in relationship to particular policy questions pertaining to specific populations and health needs.

Table 10: Advanced Practice Registered Nurses by Specialty
Vermont 2002

PRIMARY CARE	# of APRNs	APRN FTEs	% of Primary Care FTEs	% of Total APRN FTEs
Adult	58	33.5	22.2%	13.4%
Family	83	51.5	34.1%	20.5%
Gerontology	7	2.8	1.9%	1.1%
Midwife	30	20.2	13.4%	8.1%
Obstetrics/Gynecology	63	29.7	19.7%	11.8%
Pediatric	25	13.2	8.7%	5.3%
Statewide Total Primary Care	234	150.9	100.0%	60.2%

SPECIALTY CARE	# of APRNs	APRN FTEs	% of Specialty Care FTEs	% of Total APRN FTEs
Emergency Care	14	8.0	8.0%	3.2%
Anesthesiology	34	27.3	27.3%	10.9%
Medical/Surgical	4	3.0	3.0%	1.2%
Mental Health	39	25.0	25.0%	10.0%
School	7	3.1	3.1%	1.2%
Other	50	33.5	33.5%	13.4%
Statewide Total Specialty Care	146	99.9	100.0%	39.8%
Statewide Total All APRNs	354	250.8		

Source: Advanced Practice Registered Nurses 2002 Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Some APRNs work in multiple specialties so FTEs are a better measure.

Table 11: Distribution of Primary Care APRN FTEs, Vermont 2002

Hospital Service Area	# of APRNs	APRN FTEs	APRN FTEs per 100,000	APRN FTE % Total
Central Vermont	22	12.4	18.49	8.2%
Chittenden	78	45.7	27.41	30.3%
Copley	9	7.9	30.42	5.2%
Gifford	8	5.1	27.79	3.4%
North Country	7	4.9	17.66	3.2%
Northeastern	15	10.0	33.20	6.6%
Northwestern	5	3.2	7.29	2.1%
Porter	12	5.4	19.29	3.6%
Rutland	22	13.5	21.00	9.0%
Southwestern	18	8.7	21.36	5.8%
Springfield	13	5.5	21.14	3.6%
Upper Connecticut Valley	20	12.1	27.56	8.0%
Windham	27	16.3	50.50	10.8%
County				
Addison	12	5.45	14.90	3.6%
Bennington	18	8.23	22.09	5.5%
Caledonia	15	9.78	32.64	6.5%
Chittenden	75	43.91	29.61	29.1%
Essex	2	0.90	13.88	0.6%
Franklin	5	3.18	6.87	2.1%
Grand Isle	1	0.47	6.51	0.3%
Lamoille	10	8.51	35.71	5.6%
Orange	12	6.90	24.15	4.6%
Orleans	7	4.91	18.42	3.3%
Rutland	22	13.50	21.26	9.0%
Washington	21	11.65	19.97	7.7%
Windham	32	18.87	42.36	12.5%
Windsor	26	14.55	25.04	9.6%
Statewide Total	234	150.80	24.50	100.0%

Source: Advanced Practice Registered Nurses 2002 Survey Statistical Report, VT Department of Health

The 2002 APRN data are available by Hospital Service Areas used in the Hospital Monograph Series prior to 2002. HSAs listed in this table do not match the current HSA list used in other parts of this report.

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Some APRNs work in multiple HSAs or counties.

Per updated information from David Reynolds, Northern Counties Health Care, Inc., there are 0.5 APRN FTEs or 1 APRN in Essex County.

In view of the aging population, it is interesting to note that out of 224 APRNs categorized as working “mainly” in primary care, only four had a specialization in gerontology in 2002. Again, it may be more meaningful to analyze the joint profile APRNs and PAs in combination with primary care physicians to get a more comprehensive view of primary care workforce resources.

In 2002, out of a total of 109.1 FTEs attributed to 130 PAs, 54.4 FTEs or 49.9% of PA FTEs were categorized as primary care, compared to 60.1% for APRNs. With the statewide average of 8.82 primary care PAs FTEs per 100,000 persons, the ratios ranged from a low of 0.6 FTEs per 100,000 in the Copley HSA and a high of 22.4 in the Springfield HSA. Analysis of combined FTEs for primary care APRNs and PAs, in combination with consideration of primary care physician FTEs at a local level, may yield more meaningful information

Out of the 69 PAs working "mainly" in primary care (49.8% of PA FTEs), 53 reported working in family practice, eight in obstetrics and gynecology, seven in primary care internal medicine and one in pediatric primary care. In addition to a lower proportion of PAs working in primary care than APRNs, 49% of PAs are males, compared to 9% of APRNs, and 26.9% of all PAs work in emergency medicine.

Table 12: Physician Assistants by Specialty, Vermont 2002

PRIMARY CARE	# of PAs	PA FTEs	% of Primary Care FTEs	% of Total PA FTEs
Family	58	43.6	80.1%	40.0%
Internal Medicine	9	5.3	9.7%	4.9%
Obstetrics/Gynecology	9	4.5	8.3%	4.1%
Pediatric	2	1	1.8%	0.9%
Statewide Total Primary Care	73	54.4	100.0%	49.9%

SPECIALTY CARE	# of PAs	PA FTEs	% of Specialty Care FTEs	% of Total PA FTEs
Emergency Medicine	40	29.4	53.6%	26.9%
Internal Medicine	1	1.0	1.8%	0.9%
Orthopedic Surgery	8	7.5	13.7%	6.9%
Other Surgery	6	4.1	7.5%	3.8%
Anesthesiology	3	2.9	5.3%	2.7%
Psychiatric	1	0.6	1.1%	0.5%
Other	17	9.4	17.1%	8.6%
Statewide Total Specialty Care	66	54.9	100.0%	50.3%
Statewide Total All PAs	130	109.1		

Source: Physician Assistants 2002 Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Some PAs work in multiple specialties so FTEs are a better measure.

Table 13: Distribution of Primary Care Physician Assistant FTEs
Vermont 2002

Hospital Service Area	# of PAs	PA FTEs	PA FTEs per 100,000	PA FTE % Total
Central Vermont	11	8.0	11.96	14.7%
Chittenden	25	17.2	10.34	31.7%
Copley	1	0.2	0.60	0.4%
Gifford	3	2.2	12.15	4.1%
North Country	3	2.9	10.57	5.3%
Northeastern	1	0.8	2.70	1.5%
Northwestern	2	2.0	4.57	3.7%
Porter	3	2.6	9.30	4.8%
Rutland	7	6.0	9.33	11.0%
Southwestern	5	3.4	8.24	6.3%
Springfield	10	5.9	22.44	10.9%
Upper Connecticut Valley	2	1.2	2.69	2.2%
Windham	3	1.8	5.64	3.3%
County				
Addison	3	2.6	7.18	4.8%
Bennington	4	3.3	8.80	6.1%
Caledonia	1	0.8	2.70	1.5%
Chittenden	25	17.2	11.63	31.7%
Essex	1	1.0	14.78	1.8%
Franklin	2	2.0	4.30	3.7%
Grand Isle	0	0.0	--	0.0%
Lamoille	1	0.2	--	0.4%
Orange	3	1.4	5.05	2.6%
Orleans	2	2.0	7.43	3.7%
Rutland	7	6.0	9.44	11.0%
Washington	11	8.0	13.80	14.7%
Windham	7	3.2	7.14	5.9%
Windsor	11	6.6	11.32	12.2%
Statewide Total	73	54.3	8.82	100.0%

Source: Physician Assistants 2002 Survey Statistical Report, VT Department of Health

The 2002 PA data are available by Hospital Service Areas used in the Hospital Monograph Series prior to 2002. HSAs listed in this table do not match the current HSA list used in other parts of this report.

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Some PAs work in multiple HSAs or counties.

Per updated information from David Reynolds, Northern Counties Health Care, Inc., there are 1.9 PA FTEs or 2 PAs in Essex County.

Although the education, training, scope of practice and mix of primary care specialties differ among the physicians, APRNs and PAs, each type of clinician plays a role in coordinating and delivering primary care services. Therefore, it may be instructive to take a combined look at all three disciplines with the caveat that they are not completely interchangeable. Table 14 below quantifies the proportion of FTEs allocated to physicians and mid-level practitioners by county.

Table 14: Distribution of Primary Care Workforce by County, Vermont 2002

Note: Data for the three categories of health professionals are not available at the Hospital Service Area level. The HSAs used in the APRN and PA surveys pre-date the HSAs used in the physician survey.

Full Time Equivalencies	MD/DO	APRN	PA	Mid-level Total	Primary Care Total (MD/DO plus Mid-level)	Percent Physician	Percent Mid-level
Addison	32.2	5.5	2.6	8.05	40.25	80.0%	20.0%
Bennington	35.6	8.2	3.3	11.5	47.13	75.5%	24.5%
Caledonia	21.6	9.8	0.8	10.6	32.18	67.1%	32.9%
Chittenden	144.1	43.9	17.2	61.1	205.21	70.2%	29.8%
Essex	2.9	0.9	1.0	1.9	4.80	60.4%	39.6%
Franklin	27.0	3.2	2.0	5.2	32.18	83.9%	16.1%
Grand Isle	0.9	0.5	0.0	0.5	1.37	65.7%	34.3%
Lamoille	17.7	8.5	0.2	8.7	26.41	67.0%	33.0%
Orange	16.2	6.9	1.4	8.3	24.50	66.1%	33.9%
Orleans	17.3	4.9	2.0	6.9	24.21	71.5%	28.5%
Rutland	44.4	13.5	6.0	19.5	63.90	69.5%	30.5%
Washington	46.0	11.7	8.0	19.7	65.65	70.1%	29.9%
Windham	37.8	18.9	3.2	22.1	59.87	63.1%	36.9%
Windsor	49.1	14.6	6.6	21.2	70.25	69.9%	30.1%
Statewide FTE Total	492.8	150.8	54.3	205.1	697.9	70.6%	29.4%
FTE Ratio (Per 100,000 population)							
Addison	88.19	14.90	7.18	22.08	110.27	80.0%	20.02%
Bennington	95.56	22.09	8.80	30.89	126.45	75.6%	24.43%
Caledonia	72.13	32.64	2.70	35.34	107.47	67.1%	32.88%
Chittenden	97.19	29.61	11.63	41.24	138.43	70.2%	29.79%
Essex	44.52	13.88	14.78	28.66	73.18	60.8%	39.16%
Franklin	58.32	6.87	4.30	11.17	69.49	83.9%	16.07%
Grand Isle	13.05	6.51	--	6.51	19.56	66.7%	33.28%
Lamoille	74.33	35.71	--	35.71	110.04	67.5%	32.45%
Orange	56.76	24.15	5.05	29.20	85.96	66.0%	33.97%
Orleans	64.81	18.42	7.43	25.85	90.66	71.5%	28.51%
Rutland	69.94	21.26	9.44	30.70	100.64	69.5%	30.50%
Washington	78.86	19.97	13.80	33.77	112.63	70.0%	29.98%
Windham	84.78	42.36	7.14	49.50	134.28	63.1%	36.86%
Windsor	84.53	25.04	11.32	36.36	120.89	69.9%	30.08%
Statewide Ratio	80.70	24.50	8.82	33.32	114.020	70.8%	29.22%

Source: 2002 Statistical Reports for Physicians, Advanced Practice Registered Nurses, Physician Assistants. Vermont Department of Health

Per updated information from David Reynolds, Northern Counties Health Care, Inc., there are 0.5 APRN FTEs or 1 APRN and 1.9 PA FTEs or 2 PAs in Essex County.

In 2002, the statewide average ratio of primary care clinician FTEs, including physicians, APRNs, and PAs, was 114 per 100,000 persons. From a county perspective, the top three counties were Chittenden (138.43), Windham (134.28), and Bennington (126.45). The counties with the lowest ratios included Grand Isle (19.56), Franklin (69.49) and Essex (73.18). As noted earlier in this report, there is a lack of national consensus on guidelines

for the combined contributions of types of clinicians related to overall primary care as well as care for specific populations such as the elderly and children. There are also different standards and criteria applied to defining geographic areas for identification of population-based need, supply, and utilization.

Primary Care Safety Net Providers

There are a number of designations that areas in the State have or can receive to develop Federal Qualified Health Centers with satellite sites, FQHC Look-alikes and Rural Health Centers. In addition to financial benefits such as cost-based reimbursement for services provided to Medicare and Medicaid enrollees, the safety net providers have access to a variety of physician placement and loan repayment programs.

Table 15: Benefits of Federal Program Designation

Federal Program Benefit	HPSA	MUA	MUP E-MUP*	Governor Rural Shortage Area
FQHC*	X	X	X	X
FQHC, look-alike*	X	X	X	X
Rural Health Clinic*	X	X		X
NHSC Placement	X			
NHSC Loan Repayment	X			
J-1 Physician	X	X	X	
Medicare Bonus	X			
State Loan Repayment	X	X	X	X

Source: Office of Primary Care and Rural Health, Vermont Department of Health
*Additional financial benefit: Reimbursement at "cost" for services to Medicare and Medicaid enrollees. For Rural Health Clinics, the basis used for calculation results in lower reimbursement than for FQHC and FQHC look-alike, but still higher than standard reimbursement rates.

***Governor-Certified Rural Shortage Areas*:** In addition to the federal designations, Vermont has also received approval for a GRSA designation process. This designation is unique to Vermont and is intended to provide a comprehensive standardized and reasonable method for identifying areas and populations in Vermont with an exceptionally high need for health resources. This designation process includes rational areas of primary care service, and criteria of need that includes population to physician ratios and Medical Need scores. A Governor's Rural Shortage Area designation provides the benefit of eligibility for Rural Health Clinics and State loan repayment programs. A Governor's designation must be updated every three years. Currently, ten areas in Vermont have been approved as GRSAs and there is one application pending. (Please refer to Map 5 in sub-section V of this chapter, page 179.)

Governor-Certified Rural Shortage Areas[78]

Arlington
- Arlington, Sandgate, Sunderland

Brighton
- Brighton, Island Pond, Norton, Avery's Gore, Ferdinand, Lewis, Warner's Grant, Warren's Gore, Charleston, Morgan and Westmore

Chelsea/Corinth
- Chelsea, Corinth, Topsham, Tunbridge, Strafford and Vershire.

Hardwick
- Hardwick, Greensboro, Craftsbury, Walden, Woodbury and Stannard.

Londonderry
- Landgrove, Peru, Londonderry, Weston

Ludlow
- Mt. Holly, Ludlow, Cavendish, Plymouth

Waitsfield
- Fayston, Moretown, Waitsfield and Warren.

Waterbury
- Waterbury, Duxbury

Wilmington
- Readsboro, Searsburg, Dover, Whitingham, Wilmington, Somerset

Federally Qualified Health Centers: Vermont currently has three FQHCs, which provide comprehensive primary care services in medically underserved areas primarily in the northern part of the State for all age groups, regardless of ability to pay. Included are the Community Health Center of Burlington (CHC), Northern Tier Center for Health (NoTCH), which has four sites in Franklin and Grand Isle counties, and Northern Counties Health Care, Inc. (NCHC), with six primary care sites and two dental sites in Essex and Caledonia counties. In 2003, the Vermont FQHCs had 41.1 clinical full time equivalents (FTEs) as follows: primary care physicians (18.2 FTEs); nurse practitioners and physician's assistants (14.2 FTEs); dentists (2.7 FTEs); and dental hygienists (4.6 FTEs). In comparison to the national median direct medical support ratio of 1.5, Vermont had a direct medical support ratio of 1.23, putting the State just above the U.S. 25th percentile. This may be indicative of a shortage of health professionals.

[78] Vermont Department of Health, Office of Primary Care and Rural Health
Department of Banking, Insurance, Securities, and Health Care Administration
89 Main Street, Drawer 20, Montpelier, VT 05620-3601
Tel: (802) 828-2900 Fax: (802) 828-2949

Table 16: FQHC Direct Medical Support Ratios, 2003

Vermont	1.23
U.S. Average- All	1.62
U.S. Average- Rural FQHCs	1.59
U.S. Median	1.50
U.S. 25th Percentile	1.13
U.S. 75th Percentile	1.86

Source: Bureau of Primary Health Care. Section 330 Grantees
Uniform Data System, 2003 Vermont Rollup Report

In April 2005, two Vermont organizations received notification that their applications for FQHC designation have been approved and would be funded in December 2005. The applicants will then have up to 120 days from their formal Notice of Grant Award to transition to full operational status, meaning that by mid-winter 2006, Vermont could have a total of five FQHCs. The two new organizations are Little Rivers Health Care, operating sites in Bradford, East Corinth, and Wells River, and Community Health Centers of the Rutland Region, operating sites in Brandon, Castleton and Pawlet.

Table 17: Vermont Federally Qualified Health Centers, 2004

					Not Available at All Sites	
FQHC	FQHC Health Center/Clinic	Location	Hospital Service Area	County	Pharmacy	Dental Care
NCHC	Danville Health Center	Danville	St. Johnsbury	Caledonia	yes	no*
NCHC	Hardwick Area Health Center	Hardwick	Morrisville	Caledonia	yes	yes
NCHC	Caledonia Internal Medicine	St. Johnsbury	St. Johnsbury	Caledonia	yes	no*
NCHC	St. Johnsbury Family Health Center	St. Johnsbury	St. Johnsbury	Caledonia	yes	no*
NCHC	Concord Health Center	Concord	St. Johnsbury	Essex	yes	no*
NCHC	Island Pond Health Center	Island Pond	Newport	Essex	yes	yes
CHC	Old North End Clinic	Burlington	Burlington	Chittenden	no	yes
CHC	Safe Harbor Clinic	Burlington	Burlington	Chittenden	no	no
CHC	Spectrum Health Center	Burlington	Burlington	Chittenden	no	no
NoTCH	Enosburg Health Center	Enosburg Falls	St. Albans	Franklin	yes	no
NoTCH	Richford Health Center	Richford	St. Albans	Franklin	yes	yes
NoTCH	Swanton Health Center	Swanton	St. Albans	Franklin	yes	no
NoTCH	Alburg Health Center	Alburg	St. Albans	Grand Isle	yes	no
					10	**4**

*Patients at these NCHC sites are referred to the two sites that have dental care.

NCHC=Northern Counties Health Care, Inc.
CHC=Community Health Center of Burlington
NoTCH=Northern Tier Center for Health

Data Source: HRI Database, Navigant Survey of FQHCs, RHCs, Free Clinics

Services available at Vermont FQHCs include:

- Primary care for all life cycles (family medicine, internal medicine, pediatric medicine)
- After hours coverage
- Hospital admission and follow up
- Wellness and health promotion
- Screening and preventive care
- Nutritional assessment and referral
- Patient health education (by clinical staff, certified dietitians and nutritionists, and diabetes and other health educators)
- Referrals to and coordination of specialty care and other health services
- Case management
- Mental health and substance abuse services (both internal and by referral) including substance abuse screening and treatment, tobacco abuse treatment
- HIV/AIDS care
- Immunizations
- Patient outreach for benefits enrollment
- Enabling services such as transportation, translation, and patient education
- Clinical diagnostic and laboratory services
- X-ray and other diagnostic procedures
- Certain surgical procedures
- Dental services on-site or through contract

In 2003, about 84% of the FQHC users were in households earning less than 200% of the Federal Poverty Level, (equal to $25,660 for family of two or $38,700 for family of four), 29% were enrolled in Medicaid and 18% were uninsured.[27] In 2003, the three FQHCs provided services to 31,806 Vermont residents for a total cost of $15.2 million, allocated among medical care services (75.3%), dental services (11.5%), mental health (4.0%), pharmacy (3.2%) and other professional services/enabling services/administration (6.0 %).[79]

Eighty-three percent of encounters were with a medical provider, followed by 9% with a dental provider and 4.5% with a mental health provider. Users of substance abuse services (58 people or 0.18% of total users) had an average of 11 encounters apiece, making this the category with the highest average ratio of encounters to users.

[79] U.S. Department of Health and Human Services, Health Resources and Services Administration Bureau of Primary Health Care. Section 330 Grantees Uniform Data System, 2003 Vermont Rollup Report.

Table 18: Encounters and Users by Service Category, Vermont FQHCs 2003

Service Category (FTE Type)	Encounters	Percent of Encounters	Users*	Encounters per User
Medical	110,546	82.6%	28,874	3.83
Dental	11,509	8.6%	4,923	2.34
Mental Health	6,000	4.5%	1,085	5.53
Substance Abuse	638	0.5%	58	11.00
Other Professional	0	0.0%	0	0.00
Enabling	5,150	3.8%	1,109	4.64
TOTAL	133,843	100.0%	36,049	3.71

* Some users had encounters in multiple service categories.
Source: Bureau of Primary Health Care Section 330 Grantees Uniform Data System, 2003 Vermont Rollup Report

Excluding immunizations, the bulk of the encounters for 68% of Vermont FQHC users in 2003 were concentrated in diagnostic categories requiring chronic management, including mental disorders, diabetes, hypertension, respiratory conditions and heart disease.

Table 19: Top Diagnostic Categories, Vermont FQHCs 2003

	Encounters	Users
Mental Disorders (excluding substance abuse)	12,429	4,519
Hypertension	8,475	3,632
Immunizations	7,819	6,698
Respiratory (Asthma, chronic bronchitis, emphysema)	5,063	3,514
Diabetes	6,568	1,777
Heart Disease	4,628	1,407
Subtotal of Top Diagnostic Categories	44,982	21,547
GRAND TOTAL	133,843	31,806

Source: Bureau of Primary Health Care. Section 330 Grantees Uniform Data System, 2003 Vermont Rollup Report

FQHC Look-alikes: FQHC Look-alikes meet all the requirements that FQHCs must meet except that they receive no section 330 federal grant funding, which averages about $650,000 per year. FQHC Look-alikes are eligible for cost-based reimbursement under Medicaid and Medicare and to participate in the 340(b) Federal Drug Pricing program. At a national level, the FQHC Look-alike program has grown from the initial 28 designations in 1991 to the current 111 designated health centers, with 182 sites, providing primary care services to more than 1.1 million users. In view of increased competition for federal funding available to start new FQHCs, the Look-alike program offers another option for developing primary care delivery sites with most of the benefits available to full FQHCs. According to the Bi-State Primary Care Association serving Vermont and New Hampshire, The Health Center in Plainfield and Copley Professional Services Group in Lamoille County have Look-alike applications under development and these will be submitted to the federal government in the summer or fall of 2005.

Rural Health Clinics: In Vermont, there are RHCs and associated medical practices certified by the federal government to improve access to primary care in underserved rural areas in Bennington, Caledonia, Orleans, Franklin, Grand Isle, Lamoille,

Washington, Orange, Windsor and Windham counties. According to the Rural Health Care Services Act, RHCs are required to provide the following core services directly or through arrangements with other providers:

- Primary care services
- Basic laboratory tests
- Emergency care
- X-rays
- Referrals for specialty care

While the majority of RHCs provide health screening, preventive services, family medicine and immunizations, RHCs do not provide dental services and relatively few provide pharmacy, HIV/AIDS or substance abuse screening and treatment. There is currently no data source for details on utilization and patient characteristics related to Vermont's RHCs. A federally funded national study concluded that RHCs meet the Institute of Medicine's criteria for being "safety net" providers in that 70% of the revenues and visits were attributed to care provided to Medicare beneficiaries (30%), Medicaid enrollees (25%) and the uninsured (15%), and that 60% of the providers have policies for free and reduced-cost care based on family income. [80]

Table 20: Vermont Rural Health Clinics, 2004
(This table does not include data for recent addition of an RHC in Arlington in Bennington County)

Rural Health Clinic	Location	HSA Name	County	Diabetes Education	Nutrition Services	Urgent Care	Pharmacy	Tobacco Abuse Treat.	Case Mgt MH/SA	Substance Abuse Screening	HIV/AIDS Services	Outpatient Subst. Abuse Treatment	Dental Care
Corner Medical Clinic	Lyndonville	St. Johnsbury	Caledonia	yes	no	no	no	no	no	no	no	no	no
St. Johnsbury Pediatrics	St. Johnsbury	St. Johnsbury	Caledonia	yes	no	no	no	no	no	no	no	no	no
Community Medical Associates	Newport	Newport	Orleans	yes	yes	no	no	no	no	no	no	no	no
Family Practice of Newport	Newport	Newport	Orleans	yes	yes	no	no	no	no	no	no	no	no
Newport Pediatrics/Adolescent Medicine	Newport	Newport	Orleans	yes	yes	no	no	no	yes	no	no	no	no
Orleans Medical Clinic	Orleans	Newport	Orleans	no	no	no	yes	no	no	no	no	no	no
Cold Hollow Family Practice	Enosburg Falls	St. Albans	Franklin	yes	no	no	no	no	no	yes	no	no	no
Keeler Bay Family Practice	South Hero	Burlington	Grand Isle	no	yes	yes	no	no	no	no	no	no	no
Ryder Brook Pediatrics	Morrisville	Morrisville	Lamoille	no	yes	no	no	no	no	no	no	no	no
Mad River Valley Health Center	Waitsfield	Barre	Washington	no	yes	yes	no	no	no	no	no	no	no
Waterbury Medical Associates	Waterbury	Barre	Washington	no	yes	no	no	no	yes	no	no	no	no
The Health Center of Plainfield	Plainfield	Barre	Washington	yes	yes	yes	yes	yes	no	yes	yes	yes	no
Wells River Clinic	Wells River	White River Jct	Orange	no	yes	yes	no	no	no	no	no	no	no
Valley Health Center	East Corinth	White River Jct	Orange	no	yes	no	no	no	no	no	no	no	no
Ludlow Family Medicine	Ludlow	Springfield	Windsor	yes	no	yes	no	no	no	no	no	no	no
Greater Falls Family Practice	Bellows Falls	Springfield	Windham	yes	no	yes	no	no	no	no	no	no	no
Bellows Falls Internal Medicine	Bellows Falls	Springfield	Windham	yes	no	no	no	no	no	no	no	no	no
Mountain Valley Health Center	Londonderry	Springfield	Windham	no	no	no	no	no	no	no	no	no	no
Carlos G. Otis Health Care	Townshend	Brattleboro	Windham	yes	yes	yes	yes	yes	no	no	no	no	no
Timothy Shafer	Townshend	Brattleboro	Windham	yes	yes	yes	yes	yes	no	no	no	no	no
Total				**12**	**12**	**8**	**4**	**3**	**2**	**2**	**1**	**1**	**0**

Source: HRI Database, Navigant Survey of FQHCs, RHCs, Free Clinics

Free Clinics: In Vermont, there are nine clinic programs located throughout the State that belong to the Vermont Coalition of Clinics for the Uninsured (VCCU), an incorporated 501(c)(3) organization.[81] The clinics provide health care to people who have no medical

[80] University of Southern Maine, Edmund S. Muskie School of Public Service. *The Characteristics and Roles of Rural Health Clinics in the United States: A Chartbook*. January 2003 available at: http://muskie.usm.maine.edu/Publications/rural/RHChartbook03.pdf
[81] Vermont Coalition of Clinics for the Uninsured. *2004 Annual Report*

or dental insurance, those who are inadequately insured, or those whose incomes fall below 200% of the federal poverty level. The programs are sustained through an annual grant from the State of Vermont, local fundraising, private and patient donations, volunteer work by local health care providers and the support of community hospitals. In 2004, the VCCU clinics were staffed by 11 full time equivalent employees and were dependent on more than 100 physicians and 300 non-physician health care providers and community members who volunteered to provide clinical and administrative support services. Ten community hospitals provided care policies that allowed patients to go from a free clinic to a hospital for care ranging from testing and outpatient services to specialized care and inpatient services.

Clinics may be either freestanding or incorporated. Six of the programs operate as freestanding health care facilities, two of which have dental clinics. Another two of the six provide dental financial support.

- Good Neighbor Clinic and Red Logan Dental Clinic, White River Junction
- Open Door Clinics (Financial support for dental), Middlebury and Bristol
- Park Street HealthShare (medical and dental services), Rutland
- People's Health and Wellness Clinic, Barre
- Precision Valley Free Clinic (Financial support for dental), Springfield
- Putney Walk-in Clinic, Putney

Four programs work through local hospitals and local medical care practices and incorporate their clients into mainstream health care provision. In this system, individuals are screened for eligibility in assistance programs that include affordable care programs available through specific hospitals and Medicaid extension programs.

- Health Access Program (Financial support for dental), Fletcher Allen Health Care, Burlington
- Health Connections, Gifford Medical Center, Randolph
- Windsor Community Health Center, Mt. Ascutney Hospital, Windsor
- Walk-in clinic at Brattleboro Memorial Hospital

The core services provided by the clinic programs include case management (eligibility, enrollment, and care), primary and preventive care, referrals to specialized services, prescription medication and assistance, complementary therapies and dental services. In 2004, the VCCU clinics provided direct health care and assistance with enrollment in Medicaid and Medicaid extension programs to 1,300 clients and referral to social services for 4,435 people. There were a total of over 12,500 primary health care, specialized care and referral visits – two and a half times the number of services provided in 1999. The clinic programs distributed over $700,000 worth of free pharmaceuticals.

School-based Health Centers and Services: School-based health services range from the more traditional school clinic model designed to provide basic screenings and respond to student illnesses and injuries on-site to more comprehensive school-based health centers.

According to the State Health Plan, schools are strategic community settings for delivery of health education and services focusing on prevention and health promotion. Both the Vermont Department of Health and the Department of Education recognize the value of a coordinated approach to school health to improve students' well being and their capacity to learn. This approach includes promoting a health education curriculum that is designed to motivate and assist students in maintaining and improving their health, preventing disease, and reducing health-related risk behaviors by demonstrating increasingly sophisticated health-related knowledge, skills and practices.

The federal Centers for Disease Control and Prevention has identified six preventable risk behaviors that are often established in early childhood:

- tobacco use
- unhealthy eating
- inadequate physical activity
- alcohol and other drug use
- sexual behaviors that result in HIV infection, other sexually transmitted diseases or unintended pregnancies.
- behaviors that result in violence and unintentional injuries, including those sustained in motor vehicle crashes.

Availability of comprehensive data quantifying school-based health resources and services is limited. Approximately 270 nurses provide health services in the public schools. Due to increasing financial demands on school budgets, both health services and health education are at increased risk of being cut from school budgets. Although laws, rules and guidelines for comprehensive health education are in place, resources are limited and compliance is far from universal.

Table 21: School-based Health Center, Vermont 2004

School	Hospital Service Area	County	Behavioral Health	Chronic Condition Care	Dental Referrals	Health Screening	Immunizations	Medication-Related Services	Mental Health	Nutrition Services	School Nursing	State-Mandated Health Education
Arlington High School	Bennington	Bennington	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
Burr and Burton Academy	Bennington	Bennington	yes	yes	no	yes	yes	yes	yes	yes	yes	no
Mount Anthony Union High School	Bennington	Bennington	no	no	yes	yes	yes	yes	no	yes	yes	no
H.O. Wheeler Elementary School	Burlington	Chittenden	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Lawrence Barnes Elementary	Burlington	Chittenden	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Bellows Free Academy St. Albans	St. Albans	Franklin	No	Yes	No	Some	Yes	Yes	No	Yes	Yes	No
Missisquoi Valley Union High School	St. Albans	Franklin	No	Yes	No	Some	Yes	Yes	Yes	Yes	Yes	Yes
South Royalton Schools	White River Jct	Windsor	no	no	no	no	no	no	no	no	yes	yes
Newton Elementary School	White River Jct	Orange	no	yes	yes	no	yes	yes	yes	no	yes	yes
Kimball House School-Based Health Clinic	White River Jct	Orange	no	no	no	no	no	no	no	no	no	no

Source: Navigant HRI database (Cites Burlington School-Based Health Centers Annual Report)
Additional detail provided by the Vermont Department of Health

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such

projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

Per 18 V.S.A. § 9435, most offices of physicians, dentists or other practitioners of the healing arts are generally exempted from the CON process except in certain circumstances as stated in 9435(c).

- Not all CON Standards will be applicable for a particular CON application.

- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[82]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;

[82] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

B. Primary Care

State Health Plan

Prevention and management of chronic conditions requires that services be delivered within a continuous relationship- seeing the same primary care provider and other service providers over time to develop trust and understanding.

Ensure that public health and the health care sector work together to provide a strong safety net for the uninsured and underinsured, including physical, mental and oral health services.

Integrate substance abuse screening, diagnosis and treatment with the screening, diagnosis and treatment of all other illnesses in the primary care setting

Identify and implement strategies to ensure full funding of a comprehensive immunization program for children and high-risk adults.

Hospital Community Needs Assessment

Increase screening resources for cancer (colon, breast) and chronic diseases (diabetes, heart disease, respiratory) and make screening accessible to all populations. (Copley Hospital, Grace Cottage Hospital, Porter Medical Center, Southwestern Vermont Medical Center)

Increase immunization programs for adults and the elderly (Copley Hospital, Porter Medical Center, Springfield Hospital)

Increase access to primary care (Brattleboro Memorial Hospital, Mt. Ascutney Hospital, North Country Hospital, Rutland Regional Medical Center, Springfield Hospital), especially for low-income adult populations, under- and uninsured (Copley Hospital).

Recruit and retain primary care and specialty providers, including mid-level practitioners, into primary care (Copley Hospital, Mt. Ascutney Hospital, Rutland Regional Medical Center).

Increase capacity for well-child care for all school age children (Porter Medical Center, Rutland Regional Medical Center).

4. Priorities and Special Considerations

The priorities for primary care, specialty care, and oral health relate to an increased need for preventive care, recruitment and retention of primary care, specialty and dental health professionals, integration of physical, mental health and substance abuse care, and increasing the number of Vermonters with a dental health home.

To prevent, reduce and delay complications, avoid hospitalizations, and more efficiently and effectively use specialty care, Primary care must be widely available, comprehensive and focused on prevention and early screening and diagnosis to prevent, reduce, and delay complications, avoid hospitalizations, and more efficiently and effectively use specialty care.

Needs assessments emphasize gaps in outpatient mental health and substance abuse treatment as well as a lack of integration in physical, mental health and substance abuse care, particularly with primary care providers, as important factors to address in ambulatory care services. Population-based analyses of needs and related workforce shortages and mal-distributions of workforce resources are key to addressing these priorities.

In 2002 there were 80.1 primary care FTEs per 100,000 persons in Vermont, compared to 73.4 in 1996. Despite this increase, there are indications of mal-distribution and limited availability of primary care physicians across the State. In 2002, 83% of primary care physicians were accepting new patients, compared to 92% in 1996. Only 75% were accepting Medicaid patients in 2002 compared to 86% in 1996. Within primary care, the availability rate was lowest for internal medicine in 2002 with 73% of internists accepting new patient and only 61% accepting new Medicaid patients.

There are multiple factors influencing the recruitment and retention of physicians that pose challenges for Vermont. Some of the factors include variations in reimbursement across payers, the size of educational loans, increases in malpractice premiums and other practice costs, availability of call coverage and the rural nature of Vermont that can contribute to professional isolation and geographic factors that make specialty referrals challenging for patients.

As noted earlier in the report, there is a lack of national guidelines regarding the combined contributions of primary care physicians and mid-level practitioner required to meet the primary care needs of specific populations such as the elderly and children. Basing strategies and recommendations on the evaluation of single categories of clinicians and primary care specialties does not lead to a comprehensive approach for evaluating and remedying shortages.

The report also noted that for populations along the eastern border of Vermont, primary care workforce data were limited to data sources for physicians, APRNs and PAs licensed in Vermont. There was no data source to support population-based analysis that includes clinicians licensed in New Hampshire who serve Vermont residents along the border.

Vermont's communities and primary care providers continue to take advantage of federal designations and programs designed to increase local access to a comprehensive array of primary care services. As noted in addition to the five FQHCs currently serving the northern end of the State, two new FQHCs in the Rutland and Wells River areas will likely be operational in 2006. The Plainfield Health Center in Washington County and the Copley Professional Group in Lamoille County are preparing applications seeking designations as FQHC look-alikes. There are currently 21 RHCs including the recent addition of an RHC in Arlington in Bennington County. The rational service areas of Chelsea/Corinth and Wilmington have received designations as Governor Certified Rural Shortage Areas and have yet to develop Rural Health Clinics with benefits related to cost-based reimbursement for Medicare and Medicaid enrollees and the State loan repayment program for physicians.

5. Recommendations for Appropriate Supply and Distribution of Primary Care Services

Following are recommendations and implementation options for primary health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 9. Support an ambulatory care system that has adequate program resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Recommendation 1. Support an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Support an integrated patient registry system, with initial emphasis on chronic care, as the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services, including prevention, screenings, and summarized data to track and plan care.

All recommendations:

Health Promotion, Prevention and Screening

Recommendation 1. Support an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Implementation Option 1.1. Enact policies within the health care sector through collaboration among public and private entities involved in the financing, development, regulation and delivery of ambulatory care services that ensure that all Vermonters have access to evidenced-based clinical preventive services as recommended by the U.S. Clinical Preventive Services Task Force and other health authorities (State Health Plan).

Implementation Option 1.2. Design incentives for patients, providers, payers and employers to encourage adequate and timely access to the core clinical preventive services recommended by the U.S. Clinical Preventive Services Task Force and other health authorities.

Implementation Option 1.3. Set targets, through a collaborative effort among the Department of Health, ambulatory care providers, academic training centers, peer-review organizations such as VPQHC and public and private payers, to improve delivery of the following clinical preventive services recommended by the U.S. Clinical Preventive Services Task Force and other health authorities (State Health Plan):

- Screenings, including newborn metabolic screening, cholesterol screening, mammograms, colorectal cancer screening and many others.
- Adoption and use of the U.S. Preventive Health Services Task Force recommendations for screening people at risk for injury in the primary care setting
- Integration of substance abuse screening with the screening of all other illnesses in the primary care setting.
- Training opportunities and use of information technology for primary care providers to ensure access to state-of-the-art screening tools for mental health conditions and substance abuse.
- Immunization of high-risk adults and children against influenza and pneumonia.
- Increasing immunization rates among the elderly was listed as an area of need or concern in the Hospital Community Needs Assessments by Copley Hospital, Porter Medical Center, and Springfield Hospital.
- Counseling about tobacco use, HIV prevention, household and motor vehicle injury prevention, alcohol use and prevention of unintended pregnancy. These are areas where counseling by health care providers has proven to be effective.

- Counseling regarding advance directives and referral to resource organizations such as the Vermont Ethics Network for additional information and guidance.

Implementation Option 1.4. Identify barriers to meeting targets for delivery of recommended clinical preventive services and formulate strategies that address reimbursement policies, resource constraints, practice re-engineering and health information technology.

Recommendation 2. Support an integrated patient registry system, with initial emphasis on chronic care, as the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services, including prevention, screenings, and summarized data to track and plan care. (Blueprint for Health)

Implementation Option 2.1. Implement an integrated patient registry system based on conditions and clinical populations recognized by the Chronic Care Initiative or similar public-private initiatives as priorities.

Implementation Option 2.2. Provide educational support and incentives to encourage providers to participate in an integrated patient registry system for the purpose of improving timeliness and effectiveness of care.

Recommendation 3. Support health promotion and wellness programs targeting obesity, nutrition, and/or physical activity as well as tobacco and substance use and other high-risk behaviors in communities statewide and specifically as served by the following hospitals: Brattleboro Memorial Hospital, Central Vermont Medical Center, Copley Hospital, Fletcher Allen Health Care, Gifford Hospital, North Country Hospital, Northeastern Vermont Regional Hospital, Porter Medical Center, Southwestern Vermont Medical Center, and Springfield Hospital.(Hospital Community Needs Assessments)

Recommendation 4. Support school-based health programs that include health education and counseling addressing these six preventable risk behaviors that are often established in early childhood as identified by the Centers for Disease Control (State Health Plan):

- tobacco use,
- unhealthy eating,
- inadequate physical activity,
- alcohol and other drug use,
- sexual behaviors that result in HIV infection, other sexually transmitted diseases or unintended pregnancies, and
- behaviors that result in violence and unintentional injuries, including those sustained in motor vehicle crash.

Recommendation 5. Support coordinated and community-based programs to address injury prevention including unintentional injury, intentional injury including suicide, homicide and domestic violence and other interpersonal violence issues including bullying, harassment, child abuse and elder abuse. (State Health Plan)

Ambulatory Care Systems

Recommendation 6. Support an ambulatory care system at both the community and statewide levels that has appropriate balance and integration of primary and specialty care resources to meet population-based need in a manner that is efficient, effective and coordinated across different providers and settings.

> **Implementation Option 6.1.** Improve data systems, assessment tools and collaboration among public agencies and private health care organizations to continually assess need and address priorities for ambulatory care services at the statewide and community levels.
>
> **Implementation Option 6.2.** Design community-based treatment to reduce unnecessary inpatient care through monitoring hospitalization rates for ambulatory care sensitive conditions at the HSA or RSA levels and targeting specific conditions and subpopulations for improved ambulatory care.
>
> **Implementation Option 6.3.** Deploy the Community Needs Assessment process and findings to identify opportunities for improved coordination of services at the community and statewide levels.
>
> **Implementation Option 6.4.** Develop local ambulatory care systems based on community-driven planning.
>
> **Implementation Option 6.5.** Establish integrated teams for improved coordination of ambulatory care services at the community level through partnerships among hospitals, primary care providers and specialists.

Recommendation 7. Support proven models that integrate social services with health services such as those that have been successfully implemented by some of the community health centers, federally qualified health centers, and other entities in Vermont.

Recommendation 8. Support proven models that integrate primary and specialty care with mental health and substance abuse care for providers who are either co-located or located off-site. Examples include the Chronic Care Collaborative for Depression implemented by the Office of Vermont Health Access and other entities such as federally qualified health centers.

Access to Care and Workforce Adequacy

Recommendation 9. Support an ambulatory care system that has adequate program resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Implementation Option 9.1. Improve analytical methods and tools for projecting population-based need for primary care services including preventive, screening, acute, urgent/crisis, and chronic care services.

Implementation Option 9.2. Support applicants wanting to develop Rural Health Clinics in Governor Certified Rural Shortage Areas including the rational service areas of Chelsea/Corinth and Wilmington.

Implementation Option 9.3. Develop primary care resources for low income populations statewide and as designated in Hospital Community Needs Assessments for primary care or rational service areas served by Brattleboro Memorial Hospital, Copley Hospital, Mt. Ascutney Hospital, North Country Hospital, Porter Medical Center, Rutland Regional Medical Center, Springfield Hospital.

Implementation Option 9.4. Since they are mandated to provide access to care for all without regard to ability to pay, support applicants for FQHC and FQHC Look-alike status as another option for providing more local safety net systems in each county for comprehensive ambulatory care services with mechanisms for recruitment and retention of primary care providers, cost-based Medicare and Medicaid reimbursement, and an opportunity to provide prescription drugs at discounted prices to all regardless of income level.

Recommendation 10. Support an ambulatory care system that has the right number, appropriate mix, and distribution of workforce resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Implementation Option 10.1. Improve analytical methods and tools for projecting population-based need for both primary care and specialty services including preventive, screening, urgent/crisis, and chronic care in order to determine the appropriate balance between primary and specialty care and mix of specialties within primary care and specialty care.

Implementation Option 10.2. Pursue joint planning with adjoining academic medical centers to address in-state recruitment and targets for balancing primary and specialty care and developing the appropriate mix of specialists to meet population-based need.

Implementation Option 10.3. Adopt valid and reliable metrics to assess workforce adequacy and distribution that are more comprehensive and accurate including: the panel size of practices; age of clinicians; whether individual clinicians or group practices are accepting new patients, especially Medicaid enrollees; inclusion of FTEs, distribution and specialization of mid-level practitioners in criteria and formulas addressing health professional shortages; and consideration of combined contributions of physicians and mid-level clinicians in the management of specific populations including, but not limited to, the elderly and children.

Implementation Option 10.4. Work with the Area Health Education Centers (AHECs) to obtain and analyze data collected through their annual primary care survey as a source of local detail to supplement other existing data sources. (Report of the Healthcare Workforce Partnership).

Implementation Option 10.5. Improve monitoring of the primary care physician workforce in collaboration with the Department of Health into order to more accurately predict physician workforce needs and shortfalls taking into account the following: the aging and retirement of the primary care workforce; the rate of educating primary care specialists in the State; number of medical students planning to practice primary care in Vermont; indicators of population-based need and patient demand for primary care services; technological change; and policy-related factors. (Report of the Healthcare Workforce Partnership)

Implementation Option 10.6. Improve efforts to monitor the supply of health care professionals working in mental health, alcohol and substance abuse in ambulatory and educational/school settings. (Report of the Healthcare Workforce Partnership)

Implementation Option 10.7. In view of the geographic mal-distribution of psychiatrists and inadequate supply of child and adolescent psychiatrists, consider a variety of collaborative delivery modalities for psychiatric services in community mental health systems and public and private practice settings that include a mix of psychiatrists, Masters-prepared social workers, psychiatric nurse practitioners, Bachelors-prepared professionals, and primary care professionals (such as nurses, nurse practitioners and physicians) to maximize coordination of care, outcomes, and efficient utilization.

Implementation Option 10.8. Work with existing programs in the State (Area Health Education Centers, State Educational Loan Repayment and Freeman Scholarship programs) targeting the current mal-distribution of primary care specialties and future need for primary care specialties through efforts to recruit physicians into the State and to educate physicians at Vermont's academic programs (Report of the Healthcare Workforce Partnership).

Implementation Option 10.9. Adopt valid and reliable ambulatory care access standards for emergent, urgent and routine care for primary care including standards used in the Vermont Health Care Administration's Rule 10.000 for managed care organizations and federal designations for medically underserved populations and areas.

Recommendation 11. Support the effective use of mid-level practitioners to increase the capacity of local ambulatory care systems for both primary and specialty care.

Implementation Option 11.1. Increase the use of specialty certifications for mid-level practitioners as a solution for meeting future needs for a variety of primary care services in rural communities; i.e. mental health, gerontology and aging populations.

Implementation Option 11.2. Based on the recommendation of the Healthcare Workforce Partnership, assess the feasibility of supporting an in-state certification program for advanced practice nurses in mental health and/or collaborate with regional education programs to offer certificate programs in mental health for existing advanced practice nurses.

Implementation Option 11.3. Develop educational opportunities for non-mental health clinicians to address mental health issues more extensively within the scope of their practice in order to utilize psychiatric nurse practitioners more effectively. (Report of the Healthcare Workforce Partnership)

Implementation Option 11.4. Use resources such as State Educational Loan Repayment Programs administered by the AHECs to target the recruitment and retention of psychiatric nurse practitioners and develop other incentives such as scholarships and expanded financial assistance (Report of the Healthcare Workforce Partnership).

Recommendation 12. Support the use of hospitalist models where appropriate to manage inpatient care on behalf of primary care physicians to increase capacity for primary care services, and to support local retention of primary care physicians.

Recommendation 13. Provide a primary care medical home for all children with special health needs (CSHN) that provides coordinated, ongoing and comprehensive care. (State Health Plan).

Implementation Option 13.1. Train primary care providers at the student, residency and practice levels in the care of CSHN.

Implementation Option 13.2. Employ information technology and communication strategies to facilitate effective communication among specialty care, primary care, community services, and families when caring for CSHN.

5. State Policy Implications: Challenges and Opportunities

As noted throughout the primary care section of this chapter, Vermont's rural character and other characteristics of its health care and health professionals education systems continue to pose challenges for the recruitment, retention and rational distribution of primary care clinicians.

Starting with measurement and evaluation of primary care resources, efforts need to be made to incorporate the combined contributions of physicians and mid-level clinicians into standards for workforce adequacy. This includes the need to incorporate practitioner data from border states, especially New Hampshire, which identifies utilization patterns for Vermont residents.

Vermont's academic medical center at the University of Vermont should be encouraged and supported in efforts to train and offer scholarships and loan repayment options for physicians, mid-level and allied health professionals training in primary care specialties and committed to working in primary care settings throughout Vermont's rural communities.

Efforts and funding should be dedicated to the implementation of health information technology tools in decision support systems, patient self-management tools, registries, and telemedicine options that support the practice needs of primary care practices and programs situated in rural areas to reduce professional isolation and help clinicians deliver state-of-the-art primary care.

Consideration should be given to variations in reimbursement across payers and payer mix factors in primary care settings and implement strategies that ensure clinician recruitment and retention and ensure the ongoing solvency of primary care practices and programs.

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II. Specialty Care Services

Quick Facts

- In 2002, 937 of the State's 1,565 doctors, or 60%, practiced as specialists.
- In the same year, 14% of specialists were age 60 or older.
- Thirty-seven percent of nurse practitioners and 47% of physician's assistants in the State are specialty practitioners.
- No standards exist for recommending specific specialist-to-population ratios. However, psychiatry is recognized statewide as a specialty in short supply, particularly in child and adolescent disciplines, and particularly in rural areas.
- General surgery, orthopedic surgery, urology, neurology, dermatology, gastroenterology and hospitalist positions are broadly recognized as the most difficult specialties to recruit.

1. Service/Facility/Resource Description

In addition to primary care, a comprehensive system of care also includes specialty care and a high level of coordination between primary care providers and specialists. Specialists generally rely on costlier technologies, facilities and support services that are heavily hospital-based. Many specialists are dependent upon a regional population base and practice in affiliation with larger hospitals in order to retain an adequate practice volume and to have access to costly diagnostic and therapeutic technologies.

A specialist is defined as a physician, dentist, or other health professional who has special training in a certain branch of medicine or dentistry related to specific services or procedures (e.g., surgery, radiology, pathology); certain age categories of patients (e.g., geriatrics); certain body systems (e.g., dermatology, orthopedics, cardiology); or certain types of diseases (e.g., allergy, periodontics). Specialists usually have advanced education and training related to their specialties.[83]

Specialty Care Physicians

While all physicians are trained and licensed to diagnose and treat illnesses and to prescribe medications, the majority choose to specialize. In 2002 in Vermont, 937 or 60% of a total of 1,565 licensed physicians worked mainly in specialty care.[84] In contrast to primary care, there are not recommended specialist-to-population ratios. At a system-wide level, primary care and psychiatry - especially child and adolescent psychiatry - have been identified as physician specialties that are in short supply in rural and remote

[83] AcademyHealth. *Glossary of Terms Commonly Used in Health Care*. Washington, D.C.: 2004 Edition, p.31.
[84] Vermont Department of Health. *2002 Physician Survey*. Statistical Summary.

areas and/or are mal-distributed.[85] In 2002, 14% of Vermont specialty physicians were over the age of 60, including 26% of ophthalmologists, 23% of pathologists and 22% of general surgeons.

In 2002 in Vermont, there were 117.3 specialty physician FTEs per 100,000 population compared to 104.37 in 1996 (excluding pathologists). An increase of 88 physicians or 12.9 FTEs/100,000 occurred since 1996. The two specialties with the greatest increase in FTE ratios per 100,000 since 1996 were radiology (22 radiologists, 14.5 FTEs) and anesthesiology (13 anesthesiologists, 12.7 FTEs). Although psychiatry experienced a decline of six active clinicians from 1996-2002, the number of FTEs increased by 11.6.

In 2002, the physician specialty categories with the highest number of clinicians and FTEs were psychiatry and internal medicine. Importantly, although psychiatry has the highest number of clinicians (146, 115.7 FTEs), the geographic distribution is heavily concentrated in the Brattleboro, Burlington and White River Junction HSAs or Windham, Washington and Chittenden counties. This pattern indicated concentration closely aligned with Retreat Healthcare in Brattleboro, the academic medical centers, and the Vermont State Hospital in Waterbury. The Burlington HSA was the practice location of 37.7% of psychiatrist FTEs in Vermont. Seven out of 13 HSAs have FTE ratios for psychiatrists per 100,000 persons at least 25% below the statewide ratio of 18.81 with the lowest ratios in the Morrisville (6.17), St. Johnsbury (6.62), and St. Albans (6.87) HSAs.

[85] Vermont Report of the Healthcare Workforce Partnership: a study of the human resource needs of the healthcare industry, 2005. Page 18.

Table 23: Distribution of Psychiatrists, Vermont 2002

Hospital Service Area	FTEs	FTEs per 100,000	FTE % Total
Barre	15.1	22.93	13.0%
Bennington	7.9	19.29	6.8%
Brattleboro	12.8	39.71*	11.1%
Burlington	43.7	26.19*	37.7%
Middlebury	2.5	8.86**	2.2%
Morrisville	1.6	6.17**	1.4%
Newport	2.1	7.56**	1.8%
Randolph	1.5	10.33**	1.3%
Rutland	7.1	11.04**	6.1%
Springfield	4.3	14.84	3.7%
St. Albans	3.0	6.87**	2.6%
St. Johnsbury	1.8	6.62**	1.6%
White River Junction	12.4	25.22*	10.7%
Counties			
Addison	2.5	6.84**	2.2%
Bennington	7.9	21.21	6.8%
Caledonia	1.8	6.00**	1.6%
Chittenden	43.7	29.47*	37.7%
Essex	0.0	0.00**	0.0%
Franklin	3.0	6.47**	2.6%
Grand Isle	0.0	0.00**	0.0%
Lamoille	1.6	6.71**	1.4%
Orange	2.2	7.70**	1.9%
Orleans	2.1	7.88**	1.8%
Rutland	7.1	11.18**	6.1%
Washington	15.1	25.89*	13.0%
Windham	16.1	36.15*	13.9%
Windsor	12.7	21.86	11.0%
Total	115.8	18.81	100.0%

Source: 2002 Physician Survey, Vermont Department of Health

** FTEs per 100,000 are at least 25% below the statewide ratio

* FTEs per 100,000 are at least 25% above the statewide ratio

Specialty internal medicine (practices such as cardiology, endocrinology, gastroenterology, etc.) had the second highest number of clinicians (128) and FTEs (96.8) with 58.6% of internists FTEs practicing in the Burlington HSA. The geographic distribution of specialty internists is highly concentrated in the Burlington and Bennington HSAs.

Table 24: Internal Medicine FTEs, Vermont 2002

Hospital Service Areas	FTEs	FTEs per 1,000	FTE % Total
Barre	7.9	12.00	8.2%
Bennington	10.0	24.42*	10.3%
Brattleboro	4.4	13.65	4.5%
Burlington	56.7	33.98*	58.6%
Middlebury	1.6	5.67**	1.7%
Morrisville	1.3	5.01**	1.3%
Newport	0.6	2.16**	0.6%
Randolph	0.2	1.38**	0.2%
Rutland	9.2	14.31	9.5%
Springfield	0.5	1.73**	0.5%
St. Albans	1.1	2.52**	1.1%
St. Johnsbury	0.3	1.10**	0.3%
White River Junction	2.9	5.90**	3.0%
Counties			
Addison	1.6	4.378**	1.7%
Bennington	10.0	26.85*	10.3%
Caledonia	0.3	1.00**	0.3%
Chittenden	56.7	38.24*	58.6%
Essex	0.0	-	0.0%
Franklin	1.1	2.37**	1.1%
Grand Isle	0.0	-	0.0%
Lamoille	1.3	5.45**	1.3%
Orange	0.4	1.40**	0.4%
Orleans	0.6	2.25**	0.6%
Rutland	9.2	14.48	9.5%
Washington	7.9	13.54	8.2%
Windham	4.4	9.88**	4.5%
Windsor	3.3	5.68**	3.4%
Total	96.8	15.72	100.0%

Source: 2002 Physician Survey, Vermont Department of Health

** FTEs per 100,000 are at least 25% below the statewide ratio

* FTEs per 100,000 are at least 25% above the statewide ratio

According to the Vermont Report of the Healthcare Workforce Partnership published in 2005, health care employers reported that general surgeons, urologists, neurologists, hospitalists, dermatologists and gastroenterologists were the most difficult specialists to recruit. While national organizations predict an adequate supply of specialty physicians, rural areas in states like Vermont may struggle with recruitment and retention of specialty physicians. This may be attributed to lower densities of patients and potential professional isolation that can lead to difficulties with recruitment and financial sustainability of specialists.

Specialty Care Advance Practice Registered Nurses and Physician's assistants
In 2002 in Vermont, there were 354 advanced practice registered nurses (APRNs) and 130 physician's assistants (PAs) practicing in Vermont. Whereas 37% of APRNs (130) practiced in specialty care, 47% (61) PAs practiced in specialty care.[8687] The distribution across specialties is very different between the two types of mid-level clinicians.

- 26.9% of all PAs practiced in emergency medicine in contrast to no APRNs in this area.
- About 10% of APRNs practiced in anesthesiology in contrast to only three PAs (or 2%).
- Another 10% of APRNs practiced in mental health, in contrast to only one PA.

The Vermont Report of the Healthcare Workforce Partnership published in 2005 identified psychiatric nurse practitioner as a clinician category that met multiple criteria for staffing-related concern, including vacancy rates, turnover rates and an expectation that demand will exceed supply in the future. Out of 18 APRNs who worked in psychiatric care, 38% worked in a community mental health center, followed by 33% in independent practice and 22% in hospitals. Hospitals cited psychiatric nursing as the sixth- most needed specialty, averaging 19 weeks to fill. Demand is expected to remain high due to an ongoing shortage of adult and child psychiatrists; the increasing diagnosis and early recognition of mental health issues in adults, children and seniors; and increasing advances in brain research, which will offer more treatment options and modalities.

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

Per 18 V.S.A. § 9435, most offices of physicians, dentists or other practitioners of the healing arts are generally exempted from the CON process except in certain circumstances as stated in 9435(c).

- Not all CON Standards will be applicable for a particular CON application.

- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a

[86] Vermont Department of Health. *Advanced Practice Registered Nurses: 2002 Survey*.
[87] Vermont Department of Health. *2002 Physician's Assistant Survey*.

discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[88]

- **VII. Safety**: avoiding injuries to patients from the care that is intended to help them;
- **VIII. Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
- **IX. Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
- **X. Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
- **XI. Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
- **XII. Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

[88] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

State Health Plan

Ensure that public health and the health care sector work together to provide a strong safety net for the uninsured and underinsured, including physical, mental and oral health services.

Hospital Community Needs Assessment

Improve the availability specialty services- dialysis (Central Vermont Medical Center, Gifford Hospital, North Country Hospital, Northeastern Vermont Regional Hospital, Porter Medical Center), ENT (Central Vermont Medical Center, Copley Hospital, North Country Hospital), Oncology/Radiation Oncology (Mt. Ascutney, North Country Hospital, Northeastern Vermont Regional Hospital), Cardiology (Central Vermont Medical Center, Copley Hospital), Dermatology (Central Vermont Medical Center, Copley Hospital), Pain Management (Copley Hospital, Springfield Hospital).

Recruit and retain specialty providers (Copley Hospital, Mt. Ascutney Hospital, Rutland Regional Medical Center).

4. Priorities and Special Considerations

In the area of specialty care recruitment and retention of particular professionals is a priority. These include, particularly in more rural parts of the State, internists, psychiatrists and psychiatric advanced practice registered nurses (especially for children and adolescents), general surgeons, orthopedic surgeons, urologists, neurologists, hospitalists, dermatologists, and gastroenterologists.

There are indications that the supply of specialists continues to grow faster than the supply of primary care clinicians. Despite overall increases, the distribution of specialists indicates population-based concentration in area closer to specialty resources such as academic medical centers and psychiatric programs. There is a shortage and mal-distribution of psychiatrists and psychiatric APRNs, especially for child and adolescent psychiatry. In 2002, psychiatric workforce resources were concentrated in the Brattleboro, Burlington and Barre HSAs. Internal medicine FTEs were highly concentrated in the Burlington HSA in 2002 with a population-based rate more than double the statewide average.

Overall, there may continue to be problems recruiting and retaining specialists such as general surgeons, orthopedic surgeons, urologists, neurologists, hospitalists, dermatologists and gastroenterologists in more rural areas of the State with less dense patient populations and risk of professional isolation for clinicians.

5. Recommendations for Appropriate Supply and Distribution of Specialty Care Services

Following are recommendations and implementation options for specialty health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 1. Support an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Recommendation 2. Support an integrated patient registry system, with initial emphasis on chronic care, as the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services, including prevention, screenings, and summarized data to track and plan care.

All recommendations:

Health Promotion, Prevention and Screening

Recommendation 1. Support an ambulatory care system that recognizes health promotion, prevention and screening as priorities and delivers a comprehensive array of clinical preventive services that are adequately supported, disseminated and deployed throughout Vermont's health care system.

Implementation Option 1.1. Enact policies within the health care sector through collaboration among public and private entities involved in the financing, development, regulation and delivery of ambulatory care services that ensure that all Vermonters have access to evidenced-based clinical preventive services as recommended by the U.S. Clinical Preventive Services Task Force and other health authorities. (State Health Plan)

Implementation Option 1.2. Design incentives for patients, providers, payers and employers to encourage adequate and timely access to the core clinical preventive services recommended by the U.S. Clinical Preventive Services Task Force and other health authorities.

Implementation Option 1.3. Set targets, through a collaborative effort among the Department of Health, ambulatory care providers, academic training centers, peer-review organizations such as VPQHC and public and private payers, to improve delivery of the following clinical preventive services recommended by the U.S. Clinical Preventive Services Task Force and other health authorities (State Health Plan):

- Screenings, including newborn metabolic screening, cholesterol screening, mammograms, colorectal cancer screening and many others.

- Immunization of high-risk adults and children against influenza and pneumonia.
- Increasing immunization rates among the elderly was listed as an area of need or concern in the Hospital Community Needs Assessments by Copley Hospital, Porter Medical Center, and Springfield Hospital.
- Counseling about tobacco use, HIV prevention, household and motor vehicle injury prevention, alcohol use and prevention of unintended pregnancy. These are areas where counseling by health care providers has proven to be effective.
- Counseling regarding advance directives and referral to resource organizations such as the Vermont Ethics Network for additional information and guidance.

Implementation Option 1.4. Identify barriers to meeting targets for delivery of recommended clinical preventive services and formulate strategies that address reimbursement policies, resource constraints, practice re-engineering and health information technology.

Recommendation 2. Support an integrated patient registry system, with initial emphasis on chronic care, as the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services, including screenings, and summarized data to track and plan care. (Blueprint for Health)

Implementation Option 2.1. Implement an integrated patient registry system based on conditions and clinical populations recognized by the Chronic Care Initiative or similar public-private initiatives as priorities.

Implementation Option 2.2. Provide educational support and incentives to encourage providers to participate in an integrated patient registry system for the purpose of improving timeliness and effectiveness of care.

Ambulatory Care Systems

Recommendation 3. Support an ambulatory care system at both the community and statewide levels that has appropriate balance and integration of primary and specialty care resources to meet population-based need in a manner that is efficient, effective and coordinated across different providers and settings.

Implementation Option 3.1. Improve data systems, assessment tools and collaboration among public agencies and private health care organizations to continually assess need and address priorities for ambulatory care services at the statewide and community levels.

Implementation Option 3.2. Design community-based treatment to reduce unnecessary inpatient care through monitoring hospitalization rates for ambulatory care sensitive conditions (ACSC) at the HSA or RSA levels and target specific conditions and subpopulations for improved ambulatory care.

Implementation Option 3.3. Deploy the Community Needs Assessment process and findings to identify opportunities for improved coordination of services at the community and statewide levels.

Implementation Option 3.4. Develop local ambulatory care systems based on community-driven planning.

Implementation Option 3.5. Establish integrated teams for improved coordination of ambulatory care services at the community level through partnerships among hospitals, primary care providers and specialists.

Recommendation 4. Support proven models that integrate social services with health services such as those that have been successfully implemented by some of the community health centers, federally qualified health centers, and other entities in Vermont.

Recommendation 5. Advance proven models that integrate primary and specialty care with mental health and substance abuse care for providers who are either co-located or located off-site. Examples include the Chronic Care Collaborative for Depression implemented by the Office of Vermont Health Access and other entities such as federally qualified health centers.

Access to Care and Workforce Adequacy

Recommendation 6. Support an ambulatory care system that has adequate program resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Implementation Option 6.1. Improve analytical methods and tools for projecting population-based need for specialty care services including screening, acute, urgent/crisis, and chronic care services.

Recommendation 7. Support an ambulatory care system that has the right number, appropriate mix, and distribution of workforce resources to meet population-based needs for preventive, acute, urgent/crisis, and chronic care services in a manner that is timely, effective and patient-centered regardless of demographic, geographic and/or socio-economic disparities.

Implementation Option 7.1. Improve analytical methods and tools for projecting population-based need for both primary care and specialty services including preventive, screening, urgent/crisis, and chronic care in order to determine the appropriate balance between primary and specialty care and mix of specialties within primary care and specialty care.

Implementation Option 7.2. Pursue joint planning with adjoining academic medical centers to address in-state recruitment and targets for balancing primary and specialty care and developing the appropriate mix of specialists to meet population-based need.

Implementation Option 7.3. Adopt valid and reliable metrics to assess workforce adequacy and distribution that are more comprehensive and accurate including: the panel size of practices; age of clinicians; whether individual clinicians or group practices are accepting new patients, especially Medicaid enrollees; inclusion of FTEs, distribution and specialization of mid-level practitioners in criteria and formulas addressing health professional shortages; and consideration of combined contributions of physicians and mid-level clinicians in the management of specific populations including, but not limited to, the elderly and children.

Implementation Option 7.4. Improve monitoring of the specialty care physician workforce in collaboration with the Department of Health into order to more accurately predict physician workforce needs and shortfalls taking into account the following: the aging and retirement of the specialty care workforce; the rate of educating specialists in the State; number of medical students planning to practice specialty care in Vermont; indicators of population-based need and patient demand for specialty care services; technological change; and policy-related factors.

Implementation Option 7.5. In view of the aging of the population with an increasing burden of chronic conditions, work with existing programs in the State (Area Health Education Centers and Freeman Scholarship programs) to improve the recruitment, retention and distribution of specialty care physicians including general surgeons, urologists, neurologists, hospitalists, dermatologists, and gastroenterologists. (Report of the Healthcare Workforce Partnership)

Implementation Option 7.6. Provide better oversight and management of the specialty physician workforce in collaboration with the Department of Health in order to more accurately predict specialty physician workforce needs in view of Vermont's rural environment with potential for professional isolation. (Report of the Healthcare Workforce Partnership)

Implementation Option 7.7. Based on the recommendation of the Healthcare Workforce Partnership, consider models and best practices addressing patient volume, professional isolation (rural practice consideration), and financial sustainability of physician specialists in determinations of adequacy and distribution of specialists. (Report of the Healthcare Workforce Partnership)

Implementation Option 7.8. Assist employers to anticipate need based on aging, retirement or loss of specialty physicians and with in-state and out-of-state recruitment efforts. (Report of the Healthcare Workforce Partnership)

Implementation Option 7.9. In view of the geographic mal-distribution of psychiatrists and the inadequate supply of child and adolescent psychiatrists, consider a variety of collaborative delivery modalities for psychiatric services in community mental health systems and public and private practice settings that include a mix of psychiatrists, Masters-prepared Social Workers, psychiatric nurse practitioners, Bachelors-prepared professionals, and primary care professionals (such as nurses, nurse practitioners and physicians) to maximize coordination of care, outcomes, and efficient utilization.

Implementation Option 7.10. Adopt valid and reliable ambulatory care access standards for emergent, urgent and routine care for specialty care including standards used in Rule 10.000 for managed care organizations and federal designations for medically underserved populations and areas.

Recommendation 8. Support the effective use of mid-level practitioners to increase the capacity of local ambulatory care systems for both primary and specialty care.

Implementation Option 8.1. Increase the use of specialty certifications for mid-level practitioners as a solution for meeting future needs for a variety of specialized services in rural communities; i.e. mental health, gerontology and aging populations.

Implementation Option 8.2. Based on the recommendation of the Healthcare Workforce Partnership, assess the feasibility of supporting an in-state certification program for advanced practice nurses in mental health and/or collaborate with regional education programs to offer certificate programs in mental health for existing advanced practice nurses.

Implementation Option 8.3. Develop educational opportunities for non-mental health specialists to address mental health issues more extensively within the scope of their practice in order to utilize psychiatric nurse practitioners more effectively. (Report of the Healthcare Workforce Partnership)

Implementation Option 8.4. Use resources such as State Educational Loan Repayment Programs administered by the AHECs to target the recruitment and retention of psychiatric nurse practitioners and develop other incentives such as scholarships and expanded financial assistance. (Report of the Healthcare Workforce Partnership)

Recommendation 9. Support information technology and communication strategies to facilitate effective communication among specialists, primary care providers, and community resources to improve coordination of care and reduce professional isolation.

6. State Policy Implications: Challenges and Opportunities

As noted throughout the specialty care section of this chapter, Vermont's rural character and other characteristics of its health care systems continues to pose challenges for the recruitment, retention and rational distribution of specialty clinicians.

Efforts need to be made to measure and evaluate population-based need for primary and specialty care to determine the appropriate balance of primary and specialty care needed at regional, statewide and local levels. Consideration should be given to shifting the health care system towards more primary and secondary prevention especially related to cost-effective and evidence-based management of chronic conditions.

Vermont's academic medical center at the University of Vermont should be encouraged and supported in efforts to train and offer scholarships and loan repayments options for physicians, mid-level and allied health professionals training in specialties that are hard to recruit and who are committed to practicing in Vermont in areas with high need and recruitment deficits.

Efforts and funding should be dedicated to the implementation of health information technology tools in decision support systems, patient self-management tools, registries, and telemedicine options that support the practice needs of specialty practices and situated in rural areas to reduce professional isolation.

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III. Oral Health

Quick Facts

- Oral health encompasses care of teeth and gums and their supporting connective tissues, ligaments and bones, hard and soft palate, mucosal tissue lining throat and mouth, tongue, lips, salivary glands, chewing muscles, and upper and lower jaws and temporomandibular joints.

- In 2003, there were 367 dentists working in Vermont, 80% of whom were primary care dentists.

- Specialty dental coverage varies widely by county. Counties including Essex, Grand Isle and Orange report no specialty or pediatric dentists; four of the State's nine pediatric dentists are located in Chittenden County.

- 17% of dentists are age 60 or older (35% are 55-plus), indicating a possible future shortage of oral health care providers statewide.

- Vermont exceeds national averages on a range of oral health and dental access status measures. In 2002, 60% of Vermont first through third graders are caries free, better than the 2010 U.S. Healthy People goal of 58%; in the same year, 74.6% of Vermont adults reported visiting a dentist in the past year, versus a 69.2% national average.

1. Service/Facility/Resource Description

Good oral health means much more than healthy teeth and the absence of disease. In a 2000 report on oral health, the U.S. Surgeon General recommended that oral health be considered integral to general health and well-being, and that the terms oral health and general health should not be interpreted as unrelated concepts.

The term *oral disease* includes common dental diseases and other oral infections that can occur at any stage of life, as well as birth defects in infancy, and chronic facial pain conditions and oral cancers seen in later years. Without proper treatment, oral diseases are progressive and become increasingly more complex over time. Oral disease can affect a person's ability to perform essential functions, such as breathing, eating, and speaking, and also can compromise the ability to work, attend school and function effectively in the community. Oral disease remains the number-one chronic childhood disease.[89]

[89] Oral Health America. *Keep America Smiling: Oral Health in America*. Chicago, IL, 2003, p.2.

2. Current Supply and Distribution

Oral health care in Vermont is largely supplied by dentists and their professional staff in private office settings. According to the *2003 Vermont Survey of Dentists* by the Vermont Department of Health, there were 367 dentists working in Vermont (Table 25).[90] Of these, 80% were primary care dentists (284 in general dentistry and nine in pediatric dentistry) and 20% (74 dentists) were specialty care dentists (orthodontists, oral surgeons, periodontists, endodontists, and prosthodontists).

Table 25: Count of Active Dentists by Main Specialty in Vermont, 2003*

	2003	
	Count	%
Total Active Dentists	**367**	**100.0%**
Primary Care Dentists	**293**	**79.8%**
General Practice	284	77.4%
Pediatric Dentistry	9	2.5%
Specialist Dentists	**74**	**20.2%**
Oral Surgery	22	6.0%
Endodontics	10	2.7%
Orthodontics	26	7.1%
Periodontics	10	2.7%
Prosthodontics	3	0.8%
Other Specialties	3	0.8%

** Each dentist is counted only once in his or her main practice setting in Vermont.*
Data Source: 2003 Vermont Dentist Survey, Vermont Department of Health

Fifty-one of the 367 dentists (14%) are female, and 63 of the 367 dentists (17%) are 60 years old or older. All dentists 60 years or older are male.

Vermont Dentists' Practice Characteristics

According to the *2003 Vermont Dentist Survey*, approximately 50% of Vermont dentists indicated providing care in a solo practice; 28% reported providing care in a practice setting of two dentists; and 19% reported providing care in a practice with three or more dentists.[91] Only 3% reported a primary practice setting of nursing home, volunteer, or other. In addition to private dental offices, dental care is also provided in health clinics (including Federally Qualified Health Centers and Rural Health Clinics), hospital emergency departments, the Dental Hygiene Program at Vermont Technical College, and the dental residency program at Fletcher Allen Health Care and the University of Vermont's College of Medicine. In 2002, there were 4,478 emergency room visits for

[90] State of Vermont, Agency of Human Services, Department of Health. *2003 Dentist Survey*. This survey was conducted by the Vermont Department of Health in cooperation with the Secretary of State's Office and the Vermont State Dental Society and was included with the dental relicensing renewal form in the fall of 2003. The data only include dentists who are actively practicing in Vermont.
[91] Each dentist was asked to identify the type of practice setting in his or her main practice in Vermont. Therefore, no dentist was counted in more than one type of practice setting.

treatment of disorders of teeth and jaw in Vermont. This represented approximately 2% of total emergency room visits at Vermont hospitals in 2002.[92]

According to the *2003 Vermont Dentist Survey*, the average wait time for a dental appointment was 3.1 weeks for a new patient and 2.5 weeks for a current patient. The wait time was greatest for pediatric dental care (5.0 weeks for new patient and 4.8 weeks for current patient). There are only nine pediatric dentists in the State, and four of those dentists are located in Chittenden County.

The 2003 Vermont Dentist Survey also measured the percentage of dental offices accepting Non-Medicaid and Medicaid patients. The percentages varied considerably across counties, and access to a dental provider who accepts Medicaid patients is more limited for primary care than specialty care. Statewide, 88% of Vermont primary care dental offices reported accepting new Non-Medicaid patients. This compared to 57% of Vermont primary care practices accepting new Medicaid patients. In 2004, 48% of Medicaid-eligible children and 26% of Medicaid-eligible adults were utilizing oral health services in Vermont. Overall Medicaid utilization was 39% in Vermont.[93] This compares to a national average of approximately 20–25%.[94]

[92] State of Vermont, Department of Banking, Insurance, Securities and Health Care Administration. *2002 Vermont Hospital Utilization Monographs*, December 2004, p. 367.
[93] State of Vermont, Agency of Human Services, Department of Health. *Draft Vermont Oral Health Plan 2005*. p. 23.
[94] Vermont Healthcare Workforce Partnership – Human Resource Investment Council. *Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry* (Draft), 2004, p. 23.

Table 26: Dental Practice Availability by County & Medicaid Dental Utilization, 2003*

Practice Availability by County in Vermont & Medicaid Dental Utilization, 2003

County	Accept Any New Patients (%)						% Medicaid Eligible that Received Dental Care	
	Primary Care			Specialty Care				
	Dental Offices	Non-Medicaid	Medicaid	Dental Offices	Non-Medicaid	Medicaid	Children	Adults
Addison	12	75%	58%	5	100%	80%	46%	24%
Bennington	21	71%	29%	5	80%	80%	45%	25%
Caledonia	16	94%	88%	2	100%	100%	55%	28%
Chittenden	97	94%	55%	15	100%	82%	44%	29%
Essex	1	100%	100%	0	N/A	N/A	57%	26%
Franklin	18	100%	88%	6	100%	100%	49%	26%
Grand Isle	1	100%	100%	0	N/A	N/A	46%	23%
Lamoille	8	100%	88%	3	100%	100%	49%	27%
Orange	8	88%	63%	0	N/A	N/A	44%	21%
Orleans	6	83%	83%	3	100%	100%	59%	29%
Rutland	33	85%	55%	9	100%	88%	52%	27%
Washington	32	84%	48%	12	100%	92%	44%	26%
Windham	28	89%	46%	8	88%	25%	46%	27%

Note: Data are for office settings only. Included are private practices and community health centers.
Data Sources: 2003 Vermont Dentist Survey, Vermont Department of Health; Vermont Office of Vermont Health Access

Vermont Dentists' Distribution of FTEs

The distribution of dentists and full time equivalent dentists is shown in Table 27.[95] Chittenden, Windham, and Bennington counties reported the largest number of dentist FTEs per 100,000 population (more than 50 per 100,000), while Essex and Grand Isle had the lowest (less than 13 per 100,000). The average number of dentist FTEs per 100,000 for the State was 45.

The distribution of specialty care dentists is extremely variable by county (Table 27). Chittenden County reported the highest number of specialty dentist FTEs per 100,000 of 15.9 in 2003. In fact, Chittenden County accounted for 43.8% of specialty dentist FTEs in Vermont. This compares to 28.9% of primary care dentist FTEs. Several counties (Essex, Grand Isle, Orange) reported having no specialty care dentist FTEs.

The Vermont Department of Health identified four Dental Health Professional Shortage Areas (DHPSA) with three categorized as Low Income DHPSAs in the Lamoille River, Gifford and Springfield areas and another in Essex County. (See Map 8 in sub-section V of this chapter, page 182) VDH also identified three counties with a serious shortage of primary care dentists defined as fewer than 25 FTEs per 100,000 in Essex, Grand Isle, Orleans, and Orange counties (See Map 9 in sub-section V of this chapter, page 183.)

[95] Per the *2003 Dentist Survey*, Full Time is defined as 40 or more patient care hours in Vermont per week, 48 hours per year. A dentist reporting more than 40 hours per week is defined as one FTE regardless of number of hours. See p.46 of the *2003Dentist Survey* for more information.

Between 1999 and 2003, the number of FTE dentists in Vermont decreased from 290 to 281. As is true on the national level, this trend is reflective of the aging of the Vermont dental workforce. For example, in 1999, 25% of Vermont dentists were age 55 or older; by 2003, this percentage increased to 35%. The average patient care hours per week have also declined over this same time period from 35 to 31 hours per week. According to the *2003 Vermont Dentist Survey*, more than one-third of dentists indicated that they plan to retire within the next 10 years. Rutland and Addison counties may expect the largest turnover of dentists, as more than one-third of their dentists are presently aged 60 and over. The aging of the dental workforce may have adverse impact on the availability of dental care in Vermont in the future.

Table 27: Number of Dentists and FTEs by County in Vermont, 2003*

	All Dentists			Primary Care			Specialty Care		
County	Dentist Count	Dentist FTEs	Dentist FTEs/ 100,000	Dentist Count	Dentist FTEs	Dentist FTEs/ 100,000	Dentist Count	Dentist FTEs	Dentist FTEs/ 100,000
Addison	17	10.8	29.3	12	9.3	25.2	5	1.6	4.3
Bennington	28	20.2	54.3	23	17.2	46.3	5	3	8.1
Caledonia	20	15.1	50.4	18	13.7	45.8	2	1.4	4.7
Chittenden	122	89.4	60.0	86	65.6	44.0	36	23.7	15.9
Essex	1	0.8	12.2	1	0.8	12.2	0	0	0.0
Franklin	26	14.8	31.5	20	13.1	27.9	6	1.7	3.6
Grand Isle	1	0.8	10.7	1	0.8	10.7	0	0	0.0
Lamoille	12	6.9	28.4	9	6.6	27.2	3	0.4	1.6
Orange	8	6.5	22.4	8	6.5	22.4	0	0	0.0
Orleans	12	5.9	21.8	9	5.3	19.6	3	0.6	2.2
Rutland	44	31.5	49.6	35	23.6	37.2	9	7.9	12.4
Washington	45	30	51.0	33	24.2	41.1	12	5.8	9.9
Windham	37	24.7	55.7	29	21	47.3	8	3.7	8.3
Windsor	40	23.3	40.2	31	18.9	32.6	9	4.4	7.6
Statewide	**367**	**280.8**	**45.4**	**293**	**226.7**	**36.6**	**74**	**54.1**	**8.7**

**Dentists may be counted in more than one county.*

Data Source: 2003 Vermont Dentist Survey, Vermont Department of Health; Rate per 100,000 computed by BISHCA.

Vermont Dental Hygienists and Dental Assistants

Dental hygienists and dental assistants are also key personnel in the dental workforce. Dental hygienists are allied health professionals who provide extensive educational and clinical services in preventive oral health care settings. According to the Vermont Secretary of State Office of Professional Regulation, there were 530 active, licensed dental hygienists in Vermont as of February 22, 2005. According to the 2005 Vermont Oral Health Plan, there is a shortage or mal-distribution of dental hygienists in Vermont, particularly in rural areas.[96] (More information about the 2005 Vermont Oral Health Plan can be found under Priorities and Special Considerations in this subchapter.) The Oral Health Plan does not, however, provide any additional information about this shortage.

[96] State of Vermont, Agency of Human Services, Department of Health. *Draft Vermont Oral Health Plan 2005.* p. 20.

Dental assistants are professionals who assist dentists in providing care to patients and may perform certain tasks under the direct supervision of a licensed dentist. Registered dental assistants are classified as traditional (trained under the direct supervision of a license dentist) or certified (graduate of an accredited school). Only certified dental assistants may perform expanded dental functions for which they have received formal training. According to the Vermont Secretary of State Office of Professional Regulation, there were 105 active, licensed certified dental assistants and 613 traditional dental assistants in Vermont as of February 22, 2005. The Oral Health Plan indicates that a shortage of dental assistants has not been identified in Vermont.[97]

Dental Schools

Exacerbating the problem of an aging dental workforce is the fact that Vermont is one of 16 states without a dental school. New England and specifically Vermont sends proportionally fewer students to dental schools relative to its population than other states.[98] As a result, recruitment of dentists remains a significant challenge, and Vermont is more dependent on recruiting dentists who are not trained in-state. Vermont has one dental residency program, one dental hygiene school, and one dental assisting school. The dental residency program at Fletcher Allen Health Care and the University of Vermont's College of Medicine currently places three dental residents per year in Vermont. The residency program is for one year. Over one-third of former dental residents have stayed in Vermont to practice dentistry upon completion of residency.

Fluoridation in Public Water Supply

The importance of fluoridation as a preventive measure in reducing decay rates is widely recognized. In Vermont, approximately 56% of the population has fluoridated drinking water, which is close to the national average of 58%.[99] Table 28 identifies Vermont communities that are currently non-fluoridated but are potentially eligible to receive fluoridated water. Major towns that have fluoride-deficient water include Bennington, Brattleboro, and Hartford.

[97] Ibid, p. 20.
[98] Ibid, p. 19.
[99] Ibid, p. 14.

Table 28: Non-Fluoridated Vermont Communities

Community	Population	Community	Population
Barre Town	700	Hartford	7,000
Bennington	18,800	Johnson	1,350
Brattleboro	12,200	Lyndonville	3,200
Bridport	3,200	North Hero	1,530
Brighton	2,200	Richford	1,700
Chester	2,800	Rochester	660
Derby	1,100	Royalton	1,500
Fair Haven	2,817	South Hero	550
Grand Isle	2,265	Stowe	1,000
	Total = 46,802		

Data Source: Draft Vermont Oral Health Plan, 2005, Vermont Department of Health

3. Assessment of Needs and Priorities

A. Certificate of Need

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

Per 18 V.S.A. § 9435, most offices of physicians, dentists or other practitioners of the healing arts are generally exempted from the CON process except in certain circumstances as stated in 9435(c).

B. Vermont State Health Plan

The Vermont State Health Plan includes oral health as one of 12 focus areas. The State Health Plan states that the overall outcome desired in oral health is that "Vermonters have access to oral health services that are fully integrated with health care, public health, and community services."[100]

The State Health Plan also details three actions that are needed in order to achieve this outcome. They include the following:

- "Acceptance of the Vermont Oral Health Plan and adoption of recommended strategies by providers, individuals, and communities.

- A recognition that the Oral Health Plan is a significant step in what must be a concerted and ongoing effort to forestall a decline in access to dental services.

[100] State of Vermont, Agency of Human Services, Department of Health. *2005 Vermont State Health Plan,* Focus Area: Oral Health (draft dated February 2005).

- Commitment by consumers and medical, dental, and public health providers to work together to craft new approaches and solutions to the problems of access to dental care."[101]

- Please see Priorities and Special Considerations for more information about the 2005 Vermont Oral Health Plan in this sub-chapter.

C. Hospital Community Needs Assessments

Oral health was addressed in nearly every one of the hospital Community Needs Assessments. Twelve of the fourteen acute care hospital Community Needs Assessments indicated a greater need for dental access, particularly for low-income individuals and children. Three hospital communities (Mt. Ascutney, Northwestern, and Porter) also identified dental providers as a difficult position for recruitment and retention in their community settings.

D. The Six Institute of Medicine (IOM) Aims

All six IOM Aims (timely, effective, efficient, safe, patient-centered, and equitable) are applicable to oral health. Because access to dental care and a shortage of dentists have been identified as concerns by many Vermont communities, the IOMs "timely" "equitable," and "efficient" were identified by the HRAP Advisory Committee as the IOMs that need additional investment in Vermont. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Oral health issues affect all Vermonters, but specific problems tend to vary by age group. For example, early childhood caries are a clinical condition experienced by some infants and toddlers. Dental caries in permanent teeth and lack of sealant applications are concerns for many children and adolescents. Dental caries and periodontal diseases are the two most prevalent conditions in the adult population, but these two diseases also affect adolescents as well. Many elderly persons face problems regarding denture use and prostheses quality.

Many oral health status measures indicate that Vermont is doing better than the nation as a whole in addressing oral health and dental access. For example, 60% of Vermont children surveyed in grades 1-3 were caries-free in school year 2002-2003, which exceeds the U.S. Healthy People 2010 goal of 58% for the nation.[102] This same survey reported that 64% of eight-year-old children had sealants on at least one of their

[101] Ibid.
[102] State of Vermont, Agency of Human Services, Department of Health. *The 2002-2003 Keep Smiling Vermont Oral Health Survey,* 4.

permanent molars, which exceeded the Healthy People 2010 goal of 50%.[103] In 2002, 74.6% of Vermonters age 18 and over reported visiting a dentist or dental clinic with the past year. This compared to 69.2% for the nation.[104] In 2002, 56.2% of Vermonters reported having no permanent teeth extracted, which was above the national average of 52.2%.[105]

Despite how well Vermont compares nationally, the discussion of oral health found that it is important for Vermonters to develop a greater understanding of the importance that oral health has for one's own overall health. Promotion of education activities will help to improve and emphasize this point so that more Vermonters appreciate the need to access oral health services.

4. Priorities and Special Considerations

Enhancing preventive oral health care, improving access to dental services by Medicaid patients, and reducing inefficient emergency department treatment for dental care, are among the priorities for improving oral health for Vermonters. Additionally, addressing the declining population and mal-distribution of dental professionals is essential.

The Surgeon General's Report *Oral Health in America* identified the need for a national oral health plan and the need for individual state oral health plans. With funding assistance from a federal grant, the Vermont Department of Health facilitated the development of the 2005 Vermont Oral Health Plan. A multidisciplinary steering committee of more than 30 members provided input and guidance into the development of the Plan. The Plan directs attention to the issue of oral health and focuses on four major areas: 1) Public Health Infrastructure; 2) Prevention and Health Promotion; 3) Workforce; and 4) Financing and Delivery Systems.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for oral health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 3. Support enhancement of the oral health workforce in Vermont to meet the needs of all Vermonters.

Recommendation 6. Support the ability to evaluate the effectiveness, accessibility, and quality of oral health services.

Recommendation 4. Support proven models for alternative dental delivery systems.

[103] Ibid.
[104] U.S. Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System. Available at: http://apps.nccd.cdc.gov/brfss/Trends/TrendData.asp.
[105] State of Vermont, Agency of Human Services, Department of Health. Behavioral Risk Factor Surveillance System. Available at: http://www.healthyvermonters.info/hs/brfssobjective.htm.

All recommendations:

Prevention and Health Promotion

Recommendation 1. Support additional education about the relationship between oral health and general health.

> **Implementation Option 1.1.** Provide additional education regarding the prevention of early childhood caries ("baby bottle" tooth decay). Integrate this education with prenatal health care provided to pregnant women.
>
> **Implementation Option 1.2.** Provide education about the link between oral health and poor nutrition, particularly excessive sugar consumption.

Recommendation 2. Support an increase in the percentage of Vermont residents served by public water systems that have optimally fluoridated water.

> **Implementation Option 2.1.** Promote public awareness of the benefits of community water fluoridation.

Workforce

Recommendation 3. Support enhancement of the oral health workforce in Vermont to meet the needs of all Vermonters.

> **Implementation Option 3.1.** Provide increased scholarship support for students who attend dental professions schools and return to practice in Vermont.
>
> **Implementation Option 3.2**. Work with dental schools to implement a reciprocity program whereby Vermont students can qualify for in-state tuition at dental schools in other states.
>
> **Implementation Option 3.3**. Expand the dental residency program at Fletcher Allen Health Care and University of Vermont's College of Medicine. Explore the option of placing additional dental residents in underserved areas in Vermont.
>
> **Implementation Option 3.4**. Support a centralized or coordinated effort to recruit dentists to Vermont through establishing relationships with dental schools and residency programs.

Delivery System

Recommendation 4. Support proven models for alternative dental delivery systems.

Implementation Option 4.1. Explore opportunities for increased collaboration between Federally Qualified Health Centers, Rural Health Clinics and private dentists.

Implementation Option 4.2. Explore expansion of scope of practice for dental hygienists and certified dental assistants.

Implementation Option 4.3. Implement pilot programs for the purposes of identifying the most effective strategies for improving access to dental services.

Recommendation 5. Support ways to prevent the inappropriate use of emergency room for dental problems.

Implementation Option 5.1. Maintain access to both preventive and restorative services.

Implementation Option 5.2. Explore ways to enhance and expand the Tooth Tutor Program.

Implementation Option 5.3. Increase the number of Vermont residents with a dental home. A dental home is a place where a person goes to receive preventive, comprehensive and continuous care, as well as a place to turn with dental questions or in cases of emergency.[106]

Implementation Option 5.4. Evaluate the need for a dental program for the elderly.

Data Needs

Recommendation 6. Support the ability to evaluate the effectiveness, accessibility, and quality of oral health services.

Implementation Option 6.1. Develop and measure dental access standards (e.g., patient travel time, waiting time for appointment, etc) for emergent, urgent, and routine care.

Implementation Option 6.2. Measure the percentage of Vermont residents with a dental home.

[106] State of Vermont, Agency of Human Services, Department of Health. Dental Health Services web site. Available at: http://www.healthyvermonters.info/hi/dentalhealth/dentalservices.shtml#Anchor-Th-18476. Accessed March 2005.

Implementation Option 6.3. Improve analytical methods and tools for projecting population-based need for oral health services.

6. State Policy Implications: Challenges and Opportunities

Prevention and Health Promotion Initiatives

Tooth decay continues to be the single most common chronic disease among U.S. children and is more prevalent in children who reside in low-income households. Through the Dental Services Unit at the Vermont Department of Health, the State manages a number of programs directed at underserved children, including community water fluoridation activities, school fluoride mouth rinse programs, the Baby Bottle Tooth Decay Initiative, and the Tooth Tutor Dental Access Program. The Baby Bottle Tooth Decay Program aims to provide prevention and intervention of early childhood caries by raising awareness and education on oral health issues, promoting preventive care (such as fluoride supplement), and facilitating referrals for early visits to the dentist. The Tooth Tutor Program assists school children in finding a dental home. Over 120 Vermont schools participate in the Tooth Tutor Program. Each school with the Tooth Tutor Program employs a dental hygienist who routinely screens children and then refers them to a dentist for follow-up.

Workforce Initiatives

The State of Vermont has implemented a number of initiatives to address workforce resource issues in oral health. For example, in 2004, the Vermont State Legislature created the Vermont State Dental Hygiene Incentive Scholarship, a program administered by the Vermont Student Assistance Corporation that is designed to recruit and retain hygienists who are committed to working in Vermont upon graduation.[107] In 2004, four scholarships totaling $5,000 for each recipient were awarded.

An educational loan repayment program for dentists, which is also funded by the State and managed through the Vermont Department of Health through the University of Vermont's College of Medicine, was implemented in 1999.[108] The program is designed to recruit and retain dentists in Vermont and increase access to dental care for Medicaid recipients. In 2005, 18 awards were granted totaling $100,000.

The State also manages a competitive grant program that makes awards to private dental offices and clinics that increase their Medicaid patient load for at least two consecutive years. Since the program was implemented in 1999, twenty-five grantees have received awards.[109]

[107] American Dental Association. *State Innovations to Improve Dental Access for Low-Income Children: A Compendium Update, Vermont Medicaid/SCHIP Dental Care for Children: Overview*, p. 5.
[108] Ibid, p. 6
[109] Ibid, p. 6.

IV. Ambulatory Mental Health and Substance Abuse Services

Quick Facts

- Mental health outpatient providers include psychiatrists, psychologists, licensed clinical social workers, licensed mental health counselors, psychiatric nurse practitioners, licensed alcohol and drug counselors and school-based counselors.

- Primary care physicians are an integral part of the ambulatory mental health care network. Medicaid claims data indicate that primary care physicians write more prescriptions for psychotropic medications than any other group in Vermont.

- Data for 2003 indicate 5.71%-8.37% of patients in Vermont's four largest managed care plans received outpatient mental health treatment, better than the national average of 5.29% but well below the 20% of Americans estimated to have a diagnosable mental illness. For substance abuse treatment, 0.51% to 0.85% of members of Vermont's four largest managed care plans received outpatient treatment covered by their health plan, which is higher than the national average of 0.32%, but below the estimated substance abuse disorder prevalence rate of 10%.

- On a geographic basis or 30-minute travel standard, residents of three Vermont counties (Caledonia, Essex and Orleans) have insufficient access to a variety of mental health and substance abuse providers.

- Several reports note a lack of access to and shortage of opiate addiction treatment statewide (methadone and buprenorphine clinics).

1. Service/Facility/Resource Description

Ambulatory care services include:

- Services provided by outpatient treatment providers (including psychiatrists, psychologists, licensed alcohol and drug counselors, psychiatric nurse practitioners, social workers and mental health counselors);
- Outpatient treatment centers, such as community mental health centers;
- Outpatient detoxification services;
- Methadone clinics;
- Buprenorphine hubs and physicians prescribing buprenorphine;
- Intensive outpatient services;
- Partial hospitalization programs;
- Child and family mental health services in collaboration with schools and social services agencies;

2. Current Supply and Distribution

Determining the current supply and distribution of services is an extremely challenging undertaking. The multi-faceted nature of mental health and substance abuse care results in a very complex Service/Facility/Resource Description. Adding to the complexity is the fact that there are distinct public and private systems of care for mental health and substance abuse treatment in Vermont.[110] Separate discussions of Inpatient and Community-Based mental health and substance abuse services are included in chapters 2 and 3, respectively.

Services provided by outpatient treatment providers: Outpatient treatment providers include psychiatrists, psychologists (masters and doctoral levels), licensed clinical social workers, licensed mental health counselors, psychiatric nurse practitioners, licensed alcohol and drug counselors, school-based counselors, and other mental health and substance abuse professionals. Chapter 5, Healthcare Workforce, shows the distribution of various outpatient providers by hospital service area, as well as rates of providers per 1000 population.

In addition, primary care physicians often provide screening, medication management and treatment for mental health and substance abuse disorders. According to the Vermont State Hospital Futures Plan, "Medicaid claims data indicate that primary care physicians write more prescriptions for psychotropic medications than any other group in Vermont."[111] There is increasing recognition of the value in fully integrating mental health, substance abuse and primary care services, and in some cases, in augmenting that integration with co-location of mental health/substance abuse providers and primary care providers. There are several Vermont initiatives supporting this concept, including three projects in the Agency of Human Services: the Depression in Primary Care project; the Co-Occurring Disorders project; and the Medical Home project, which integrates physical health care for adults with severe and persistent mental illness; as well as co-location pilots at some rural health clinics.

[110] The following reports, along with interviews of program staff members and the web sites of various organizations, contributed greatly to this description, and to the subsequent assessment of need and recommendations:

- *Vermont State Hospital Futures Plan*, 2005
- *Act 129 Substance Abuse Subcommittee Treatment Inventory*, 2005
- *Act 129 Mental Health and Substance Abuse Task Force Report to the General Assembly*, 2004
- *BISHCA Health Resource Inventory*, 2004
- *HRAP Draft Workforce Chapter*, 2005
- *Draft State Health Plan*, 2005
- *Vermont's Designated Agency System for Mental Health, Substance Abuse and Developmental Services: System Evaluation and Five-Year Projections of Service Demand and Cost Analysis*, 2004 (referred to as the Sustainability Study)
- *Inpatient Behavioral Health Care Services Provided to Vermont Residents During 1990-2002*, 2004
- *Division of Mental Health FY 2004 Statistical Report*, 2004
- *Department of Corrections Comprehensive Mental Health Services Plan*, 2005
- *Substance Abuse: A Public Health Problem Requiring Appropriate Intervention, 2005*

[111] Vermont State Hospital Futures Plan, p. 12

Outpatient treatment centers, such as community mental health centers: Vermont has ten community mental health centers (also known as designated agencies because they are Commissioner-designated providers of services to populations the State is statutorily mandated to serve) dispersed throughout the State. These agencies offer several core mandated services: community rehabilitation and treatment programs (CRT) for severely mentally ill adults, emergency and crisis services, services for people of all ages with developmental disabilities, and services for children and adolescents with severe emotional disturbances. The services for children and adolescents include family support (respite, skills training, peer advocacy, peer support); outreach (service planning and coordination, community supports, intensive family-based services, supportive employment); and clinical interventions and treatment (assessment, therapy, medication services, substance abuse counseling).[112]

The agencies also provide outpatient services for adults and children with less severe disorders, although this service is not mandated. Some agencies provide additional services, such as substance abuse treatment services.

[112] ***Pathways: A Resource Guide Connecting Families with Services and Supports for Children and Adolescents who Experience a Serious Emotional Disturbance***, Vermont Agency of Human Services, Department of Developmental and Mental Health Services, July 2002

Table 29: Outpatient Treatment Centers

Agency	HSA	Child services	Adult MH Outpt	CRT	Substance Abuse Programs	Emergency Services	Develop-mental Services
Counseling Service of Addison County	Middlebury	**X**	**X**	**X**	**X**	**X**	**X**
Northwestern Counseling and Support Services	St. Albans	**X**	**X**	**X**	**X**	**X**	**X**
Howard Center for Community Services	Burlington	**X**	**X**	**X**	**X**	**X**	**X**
Lamoille County Mental Health	Morrisville	**X**	**X**	**X**	**X**	**X**	**X**
Health Care & Rehabilitation Services of Southern VT	Brattleboro Springfield White River	**X**	**X**	**X**	**X**	**X**	**X**
Northeast Kingdom Human Svcs	St. Johnsbury Newport	**X**	**X**	**X**	**X**	**X**	**X**
Clara Martin Center	Randolph	**X**	**X**	**X**	**X**	**X**	1
Rutland Mental Health Services	Rutland	**X**	**X**	**X**	**X**	**X**	**X**
United Counseling Services	Bennington	**X**	**X**	**X**	**X**	**X**	**X**
Washington County Mental Health	Barre	**X**	**X**	**X**	2	**X**	**X**

Source: FY 2004 Statistical Report, Vermont Agency of Human Services, Department of Health, Division of Mental Health, 10-30-04

1 Upper Valley Services provides developmental services in the Clara Martin Center's service area.

2 Substance abuse services in the Washington County area are provided by Central Vermont Substance Abuse Services. Washington County Mental Health is a partner in Central Vermont Substance Abuse Services.

Appendix 2.A in Section Five of this HRAP contains detailed quantitative information on clinical interventions and average lengths of stay by designated agency and by service type.

Outpatient detoxification services: Consumers participating in outpatient detoxification should not have a history of seizures and should not experience delirium tremens or other acute withdrawal symptoms. The following centers provide outpatient substance abuse detoxification programs:

Table 30: Outpatient detoxification programs

Agency	HSA	Outpatient Detoxification	Designated Agency
Counseling Service of Addision County	Middlebury	X	X
United Counseling Service	Bennington	X	X
Howard Center for Human Services	Burlington	X	X
Clara Martin Center	Randolph	X	X
Tri-County Substance Abuse Services (NKHS)	Newport	X	X
Rutland Mental Health (Evergreen Services)	Rutland	X	X
HCRS	Brattleboro Springfield White River	X	X
Champlain Drug and Alcohol Services	Burlington	X	
Center Point	Burlington	X	
Lund Family Services	Burlington	X	
Spectrum Youth and Family Services	Burlington	X	
Adolescent Family Services		X	
UVM Treatment Research Center	Burlington	X	
Copley Hospital Behavioral Medicine	Morrisville	X	
Central Vermont Substance Abuse Services	Barre	X	
Washington County Youth Services	Barre	X	
Phoenix House	Brattleboro	X	
Youth Services of Windham County	Brattleboro	X	
VA Hospital	White River	X	

Source: Act 129 Substance Abuse Subcommittee Treatment Inventory

There are no reliable data on the extent of outpatient detoxification services delivered by individual providers. Qualified primary care physicians, psychiatrists and addictionologists can provide these services.

Methadone clinics, buprenorphine hubs, and physicians prescribing buprenorphine:
Methadone and buprenorphine are pharmacological treatments for opiate addiction. There is one methadone clinic in the State, the Chittenden Center, which is operated by the Howard Center in Burlington. That program is currently authorized for 170 slots. There are several clinics in bordering states, in Lebanon, NH; Greenfield, MA; Hudson, NH; Manchester, NH; and Chicopee, MA. The Vermont Department of Health is proposing a mobile methadone program; a potential contractor has been selected and the program recently received Certificate of Need approval from BISHCA to serve consumers in the St. Johnsbury and Newport areas.

Buprenorphine can also be an effective treatment for opiate addiction. Currently there is one buprenorphine clinic (or "hub") in the State, located in Barre, with 30 slots. There are a number of Vermont physicians who have been granted an exemption from the Center for Substance Abuse Treatment (CSAT) to prescribe buprenorphine. The following table shows the count by county of physicians able to prescribe buprenorphine, as of December 21, 2004:

Table 31: Physicians Granted CSAT Exemption to Prescribe Buprenorphine

County	Number of Physicians
Bennington	6
Caledonia	2
Chittenden	13
Lamoille	3
Orange	1
Orleans	2
Rutland	10
Washington	18
Windham	14
Windsor	9

Source: Vermont Department of Health, Office of Alcohol and Drug Abuse Programs

Intensive outpatient programs: Intensive outpatient programs are defined as programs providing from nine to 19 hours per week of outpatient therapy.

Table 32: Mental Health Intensive Outpatient Programs

County	HSA	Town or City	Program Name
Chittenden	Burlington	Burlington Essex Winooski South Burlington Burlington Hinesburg Colchester	Seneca Center Crossroads Northeast Family Institute Northeast Family Institute Howard Center Howard Center Howard Center
Washington	Barre	Plainfield	Spruce Mountain
Windham	Springfield Brattleboro	Bellows Falls Bellows Falls Springfield Brattleboro Brattleboro	Windham Center HCRS HCRS HCRS Retreat Healthcare
Windsor	White River	White River Junction	HCRS

Source: BISHCA Health Resources Inventory; interviews with mental health managed care organization staff.

For substance abuse, intensive outpatient programs include:

Table 33: Substance Abuse Intensive Outpatient Programs

County	HSA	Town or City	Program Name
Caledonia	St. Johnsbury	St. Johnsbury	Tri-County Substance Abuse Services
Chittenden	Burlington	South Burlington Burlington Colchester	Center Point Day One Howard Center Howard Center
Orleans	Newport	Newport	Tri-County Substance Abuse Services
Rutland	Rutland	Rutland	Rutland Mental Health/ Evergreen Services
Washington	Barre	Berlin	Central Vermont Substance Abuse Services
Windham	Springfield Brattleboro	Bellows Falls Brattleboro	HCRS HCRS Retreat Healthcare Starting Now
Windsor	White River	Wilder	Quitting Time VA Hospital
	Other	Glens Falls, NY Liverpool, NY	Conifer Park Conifer Park

Source: Act 129 Substance Abuse Subcommittee Treatment Inventory, BISHCA Health Resources Inventory

Partial hospitalization programs: Partial hospitalization programs are defined as programs providing more than 19 hours of outpatient therapy per week. Mental health partial hospitalization programs include:

Table 34: Mental Health Partial Hospitalization Programs

County	HSA	Town or City	Program Name
Chittenden	Burlington	Burlington Essex Burlington	Seneca Center Crossroads Howard Center
Rutland	Rutland	Rutland	Rutland Mental Health Services
Washington	Barre	Plainfield	Spruce Mountain
Windham	Springfield	Bellows Falls Brattleboro	Windham Center Retreat Healthcare
Windsor	Other	Hanover, NH	Dartmouth-Hitchcock Medical Center

Source: BISHCA Health Resources Inventory, interviews with mental health managed care organization staff

Substance abuse partial hospitalization programs include:

Table 35: Substance Abuse Partial Hospitalization Programs

County	HSA	Town or City	Program Name
Chittenden	Burlington	Burlington South Burlington	Seneca Center Center Point
Rutland	Rutland	Rutland	Rutland Mental Health Services
Windham	Springfield Brattleboro	Bellows Falls Brattleboro	Windham Center Retreat Healthcare

Source: Act 129 Substance Abuse Subcommittee Treatment Inventory, BISHCA Health Resources Inventory

Corrections Services: The Corrections Department provides services to inmates that could be considered ambulatory. Outpatient treatment (therapy, medication management, and crisis services) is available. There is also "intermediate-level mental health treatment" for inmates with serious mental illness.[113]

[113] Department of Corrections Mental Health Plan

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.
- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[114]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;

[114] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Under pre-HRAP CON laws and guidelines, the provision of mental health services by individual mental health practitioners is generally excluded from CON review (18 V.S.A. § 9435(a)). Commissioner-designated agencies in the community and inpatient psychiatric units that receive public-sector oversight are generally reviewed under CON or similar review procedures when new services are introduced. Current CON Guidelines focus on developing a coordinated system that encourages access to the appropriate level of care. CON Guidelines state that organizations providing mental health services should have linkage agreements with other appropriate providers in the community to assure a coordinated system of care that allows access to the appropriate level of care. Additionally, according to CON Guidelines, CON decisions should reflect the desirability of retaining the designated local provider network for the treatment of individuals with long-term and severe psychiatric needs.

B. Vermont State Health Plan

Please see Staff Research, below.

C. Hospital Community Needs Assessment

Please see Staff Research, below.

D. The Six Institute of Medicine (IOM) Aims

All six IOM Aims (Safety, Timeliness, Effectiveness, Efficiency, Equity, and Patient-Centered) apply to mental health and substance abuse services. There is particular focus in Vermont on achieving patient-centered (and family-centered) mental health and substance abuse care (see Vermont State Hospital Futures Plan and the Vermont State Health Plan). Safety is also currently a key focus for the most seriously mentally ill Vermont residents, given the recent decertifications of the Vermont State Hospital due to safety concerns. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Utilization Gaps: Each year, the largest managed care organizations (MCOs) in Vermont provide Health Employer Information Data Set (HEDIS®) data on outpatient mental health and substance abuse treatment for their members, as part of the filing requirements for Rule 10 (Vermont's Managed Care Quality Assurance and Consumer Protection Regulation) and the Act 129 Mental Health and Substance Abuse Task Force. While this information is only available statewide by MCO, it does provide insight on the extent of services. In 2003, the percent of members receiving outpatient mental health treatment that was covered by their MCO ranged from 5.71% to 8.37%, depending on the MCO. The national average was 5.29% and the Northeast regional average was 7.65%. Assuming that the MCO membership was reflective of the State, regional and national populations as a whole, and knowing that the rate of diagnosable mental illness is somewhere around 20% in any given year, this data reflects the possibility that there is a gap between need and treatment rates.

Table 36: Percent of Managed Care Patients Receiving Outpatient MH Services

	BCBSVT	Cigna	MVP	TVHP	National	NE Regional
% Insureds Receiving Outpatient Mental Health Service	8.33%	5.71%	8.37%	7.65%	5.29%	7.65%

The same data are filed for substance abuse treatment. HEDIS® rates for outpatient substance abuse treatment ranged from 0.51% to 0.85%, compared to a national average of 0.32% and the regional average was 0.39%. Again, assuming that the MCO membership was reflective of the broader population, and knowing that Vermont's rate of dependence on and abuse of illicit drugs and alcohol is nearly 10%, it appears that there might be a gap between service needed and services provided. This suggestion is reinforced by Substance Abuse and Mental Health Service Administration (SAMHSA) data from the 2002-2003 National Surveys of Drug Use and Health that show that Vermont has the second-highest rate in the country of residents ages 12 and older who needed treatment for illicit drug use in the past year but did not receive it.

Table 37: Percent of Managed Care Patients Receiving Outpatient MH Services

	BCBSVT	Cigna	MVP	TVHP	National	NE Regional
% Insureds Receiving Outpatient Substance Abuse Service	0.56%	0.58%	0.85%	0.51%	0.32%	0.39%

Additional information on how Vermont compares to other states can be found in a 2003 SAMHSA study of mental health service delivery in 16 states that was summarized in the designated agency "Sustainability Study." Based on data from federal fiscal year 2000, Vermont had "the highest community mental health service utilization rates of the 16 states, both for adults and children…On the inpatient side, Vermont was found to have the lowest utilization rate for children and a relatively low rate for adults."[115]

Workforce Shortages: One challenge in determining need for outpatient providers is that there is very little or no information about providers' work hours, capacity to accept additional patients, and expertise in treating special populations (children, adolescents or elders, for example). Some information on geographic access to particular provider types is found in data collected annually from managed care organizations under Rule 10. It is important to note that these data reflect MCO member access to providers within the MCO's network. To the extent that MCOs contract with all available providers in certain areas, the data might be reflective of shortages. The most recent Rule 10 data, submitted in July 2004, indicated that members of some or all of the MCOs lack geographic access as follows:

- Psychiatrists in Essex and Caledonia Counties (30 minute travel time standard),
- Chemical dependency (substance abuse) day providers in Essex County (30 minute travel time standard),
- Psychologists in Orleans County (30 minute travel time standard),
- Masters-level social workers and other masters level providers in Essex County (30 minute travel time standard), and
- Community mental health centers and clinics in Orleans County (30 minute travel time standard).

The Vermont Department of Health has constructed Map 2.A-1, found in Appendix 2.A, which shows that there are mental health professional shortage areas in Caledonia, Essex, Franklin, Grand Isle, and Orleans Counties. Core mental health professionals are defined as Psychiatrists, Clinical Psychologists, Clinical Social Workers, Psychiatric Nurse Specialists, and Marriage and Family Therapists, and the definition of a shortage area is found in the Appendix.

There are some national comparative data on the supply of outpatient providers. The workforce data indicate that the rate of psychiatrists per 1000 population is more than double the U.S. benchmark. And according to the federal Health Resources and Services Administration's *State Health Workforce Profiles Highlights: Vermont*: "There were 153

[115] Designated Agency "Sustainability Study" pp. 5-12 and 5-13

psychiatrists, 260 psychologists, and 1,280 social workers in Vermont in 2000. This was equal to 25.9 psychiatrists, 42.6 psychologists, and 209.9 social workers per 100,000 population. Vermont ranked third among states in psychiatrists per capita, fourteenth among states in psychologists per capita, and twelfth among states in social workers per capita." Nonetheless, the qualitative information from a variety of studies, surveys and reports cited earlier in this chapter seems to clearly state that there are shortages among certain providers.

The Vermont State Health Plan notes a number of professions where there are critical shortages or potential shortages; among them are psychiatric nurse practitioners, adult psychiatrists, child psychiatrists, and social workers. These professions are characterized by high vacancy rates, turnover rates and/or national demand forecast to exceed supply in the future.

Designated Agency Service Gaps: The Sustainability Study of the State's publicly-funded designated agencies noted that the number of clients served by the adult outpatient programs declined from 7,847 in 1998 to 7,120 in 2004, the agencies have lost more than $5 million since 1998 in providing these services, and "the current level of funding is not adequate to provide outpatient mental health treatment to all who need it."[116] There are also pressures in the designated agencies' children's services, substance abuse services, developmental services and CRT programs.

Opiate Addiction Treatment Gaps: Regarding access to buprenorphine treatment, federal law limits physicians or physician group practices to prescribing buprenorphine for opiate addiction to a maximum of 30 patients at one time, so some physicians may be unable to take new patients. In addition, if there is a lack of ancillary outpatient services, physicians might be hesitant to prescribe buprenorphine. Several reports note that there is a lack of access to and a shortage in opiate addiction treatment (specifically, methadone and buprenorphine).

Other General Themes: There are themes relating to mental health and substance abuse ambulatory care needs that carry through several of the earlier-cited reports, have been discussed by the HRAP Advisory Committee, or have been noted by experts in the field, including:

- There is a shortage of psychiatrists in Vermont (particularly for children), which may lead to excess burdens on primary care physicians;
- There is a lack of on-call psychiatrists for hospital emergency rooms;
- There is a lack of psychiatry consultation for nursing home residents;
- There is a shortage of mental health, psychiatric and substance abuse services for children and adolescents;
- There is a lack of access to intensive outpatient programs;
- There is a lack of access to partial hospitalization programs;
- There is a need for better treatment for suicidal patients;

[116] Designated Agency "Sustainability Study" p. 1-7

- There is a need for better education and support for primary care providers, and better integration of primary care and mental health;
- There is a need to improve care for people with co-occurring disorders;
- There is a need to develop substance abuse treatment that is gender specific, culturally specific, appropriate for adolescents, and appropriate for older adults;
- There may be problems in accessing affordable psychiatric medications.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Primary Care Services sub-chapter on page 119.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for ambulatory mental health and substance abuse health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 2. Improve "integration of mental health services into primary care focusing on prevention, screening, early intervention and referral when indicated…[and] integrate substance abuse services into primary care, with particular attention to pregnant women, focusing on prevention, screening, early intervention and referral when indicated." (Vermont State Health Plan 2005)

Recommendation 1. Develop strategies for addressing known workforce shortages, and obtain and analyze data to identify additional workforce issues.

Recommendation 4. Focus efforts and resources on several special populations: children; opiate-dependent people (particularly males, pregnant women, and women without young children who do not currently have access to services); people experiencing co-occurring mental health and substance abuse disorders; and frail, homebound elders with mental health diagnoses.

Recommendation 7. "Develop and maintain a full continuum of geographically accessible [substance abuse] treatment services including outpatient, inpatient and pharmacological treatment units. Expand the capacity for pharmacological treatment capacity for opioid addiction as follows:

- mobile or stationary methadone clinics
- office-based buprenorphine treatment.

Increase aftercare and recovery services, including treatment modalities that include a strong focus on recovery management and relapse prevention." (Vermont State Health Plan 2005)

All recommendations:

Recommendation 1. Develop strategies for addressing known workforce shortages, and obtain and analyze data to identify additional workforce issues.

Implementation Option 1.1."Encourage hospitals and other facilities, health plans and providers to work together to recruit providers in areas and in specialties where there are provider shortages." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Implementation Option 1.2. There should be particular efforts to recruit psychiatrists, psychiatric nurse practitioners and social workers, which were identified as provider shortage areas in the Vermont State Health Plan.

Implementation Option 1.3. A geographic focus should be Essex, Caledonia and Orleans Counties, which were identified as geographic shortage areas in health insurer Rule 10 data filings.

Implementation Option 1.4. "Encourage community collaboration to help primary care providers, consumers and insurers identify mental health and substance abuse specialists in their communities. The Vermont Youth Health Improvement Initiative is one example of such collaboration; it has helped to identify substance abuse treatment providers for adolescents in some areas of the state." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Implementation Option 1.5. Evaluate and address identified mental health and substance abuse workforce shortages. Qualitative evidence indicates workforce shortages of psychiatrists (especially child psychiatrists) and advance practice nurses (psychiatric nurse practitioners). A number of factors should be considered in evaluating and addressing these identified shortages:

- The geographic concentration of psychiatrists in the Burlington, Brattleboro and Washington County areas.
- The lack of on-call psychiatrists for emergency room evaluation and treatment.
- The predominant model of psychiatric treatment, which might be one-on-one sessions as opposed to group or team approaches.
- The lack of reimbursement for:
  - Outpatient consultations between psychiatrists and primary care physicians (when the consultations do not involve face-to-face meetings between the patient and the psychiatrist)
  - Inpatient psychiatrist or psychiatric nurse practitioner consultations for medical/surgical patients.

- The low volume of patients, particularly in the most rural parts of the State, which makes it difficult to support a psychiatric practice.

- The need for strategies to retain Vermont-trained clinicians. (HRAP Advisory Committee, 3-16-05)

Implementation Option 1.6. Obtain additional information in a number of areas:

- Private sector provider and program inventories and capacity,
- Supply, capacity and reported shortages of outpatient, intensive outpatient, and partial hospitalization services,
- "Identify gaps in different levels of service for substance abuse and mental health treatment (e.g. – outpatient, intensive outpatient, partial hospitalization, inpatient, aftercare and community supports). Encourage development of treatment capacity that will allow for increased access into appropriate levels of care." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Implementation Option 1.7. "Encourage insurers and provider groups to work together to determine whether insurer networks have gaps in expertise that would preclude consumers from getting needed care from network providers. This information would also allow insurers and providers to ensure that consumers obtain referrals to providers with the most expertise in treating their particular condition." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Recommendation 2. Improve "integration of mental health services into primary care focusing on prevention, screening, early intervention and referral when indicated…[and] integrate substance abuse services into primary care, with particular attention to pregnant women, focusing on prevention, screening, early intervention and referral when indicated." (Vermont State Health Plan 2005)

Implementation Option 2.1. Ensure that primary care providers have adequate training and referral resources for appropriate diagnosis and treatment.

Implementation Option 2.2. Support additional co-location of mental health professionals and primary care providers, and expansion and integration of the primary care depression collaborative. (Vermont State Hospital Futures Plan, Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital, 2-4-05) Co-location requires integration in order to be successful. (HRAP Advisory Committee, 3-16-05 meeting)

Recommendation 3. Increase resources for designated agency adult outpatient and substance abuse programs. (Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital, 2-4-05) This will help to ensure that Vermonters are treated in the most appropriate and least restrictive setting possible.

Recommendation 4. Focus efforts and resources on several special populations: children; opiate-dependent people (particularly males, pregnant women, and women without young children who do not currently have access to services); people experiencing co-occurring mental health and substance abuse disorders; and frail, homebound elders with mental health diagnoses. (HRAP Advisory Committee, 3-16-05)

Implementation Option 4.1. Prioritize the evaluation and support of needed high-quality opiate addiction treatment programs, whether mobile or fixed.

Implementation Option 4.2. Develop school-based services for children.

Implementation Option 4.3. Evaluate models for providing services to frail, homebound elders for replication, such as the partnerships between area agencies on aging and home health agencies.

Implementation Option 4.4. Expand the Agency of Human Service's Co-Occurring Disorders Project to Rutland and Barre. (Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital)

Recommendation 5. Review and consider the recommendations in the Department of Corrections Comprehensive Mental Health Services Plan. (Corrections Mental Health Plan)

Implementation Option 5.1. Develop "capacity for the community mental health agencies and / or private providers to serve the mental health and substance abuse needs of selected offenders who are returning to the community following incarceration." (Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital and Corrections Mental Health Plan)

Implementation Option 5.2. For prison-based services, increase contracted mental health services to provide screening and treatment for inmates and increase corrections staffing to include additional mental health service coordinators and mental health aides. (Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital and Corrections Mental Health Plan)

Implementation Option 5.3. Measure prevalence of mental illness among inmates in custody (Corrections Mental Health Plan).

Recommendation 6. "Coordinate efforts with statewide work on the Chronic Care Initiative. The Chronic Care Initiative is focused on ensuring that providers and consumers have the information they need to identify people at risk for chronic illness; guidelines, incentives and self-management techniques to provide the best possible care; and outcome measures to determine effectiveness." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Implementation Option 6.1. "Fully integrate the treatment of severe and persistent mental illness with the Vermont Blueprint for Health. This integration must include:

- Informed decision making systems for individuals and families that explain choices about programs and providers, so that they may fully participate in planning and evaluating treatment and support services in the light of their own preferences.
- Enhanced self-management and peer support services as a further step toward a more recovery-oriented system of mental health care in Vermont.
- Commitment to and development of community-based care, supporting the most integrated community settings and least restrictive alternatives for care through a full range of community-based treatment and support options." (Vermont State Health Plan 2005)

Implementation Option 6.2. "Identify a small number of best practice guidelines that are validated and well accepted by providers; consider a multi-plan and multi-provider effort to pilot those guidelines." (Act 129 Task Force Report to the General Assembly, 1-15-04)

Implementation Option 6.3. Identify and adopt existing measures of treatment outcomes, and consider new measures. Existing and potential measures include length of stay, readmissions, expenditures, utilization, suicide rates, and rates of emergency/crisis episodes. (HRAP Advisory Committee, 3-16-05)

Implementation Option 6.4. Assess information technology advances, such as personalized electronic health care records, to determine if they are of value in mental health and substance abuse treatment. (HRAP Advisory Committee, 3-16-05)

Recommendation 7. "Develop and maintain a full continuum of geographically accessible [substance abuse] treatment services including outpatient, inpatient and pharmacological treatment units. Expand the capacity for pharmacological treatment capacity for opioid addiction as follows:

- mobile or stationary methadone clinics
- office-based buprenorphine treatment.

Increase aftercare and recovery services, including treatment modalities that include a strong focus on recovery management and relapse prevention." (Vermont State Health Plan 2005)

Recommendation 8. "Continue to increase locally provided outpatient treatment and case management [substance abuse] services that are coordinated and integrated with other community services (e.g.: vocational counseling, criminal justice, and primary medical care), and that include safe and sober housing for people transitioning back from residential care and from incarceration." (Vermont State Health Plan 2005).

Recommendation 9. Integrate the State's private and public systems for mental health and substance abuse treatment to improve coordination of care and achieve a comprehensive continuum of care.

Implementation Option 9.1. To better understand this two-tiered public and private system, evaluate financing and utilization information. (HRAP Advisory Committee, 3-16-05)

6. State Policy Implications: Challenges and Opportunities

Vermont faces many challenges in the mental health and substance abuse arenas. Obvious challenges include:

- the decertification of and calls to close the Vermont State Hospital;
- the loss of federal funding for freestanding Institutes of Mental Disease;
- concerns about access to high-quality mental health and substance abuse treatment for offenders in the State's Corrections System;
- calls to improve care for involuntary and forensic patients;
- funding concerns in the designated agency system;
- the need to shore up outpatient, community-based and preventive services; and
- troubling statistics about the prevalence of substance abuse and dependence and serious mental illness, particularly among the State's youth.

Statistics on prevalence indicate that there might be unmet need for services; funding concerns, along with potential uncertainty about the most effective treatments, may be obstacles to designing the ideal treatment system.

These same pressures create opportunities to improve mental health and substance abuse treatment in Vermont. The challenges surrounding inpatient care, corrections mental health, and the designated agency system present an opportunity to engage in intentional redesign of the treatment system. The studies that have been done in response to these issues contain valuable information on how to begin to accomplish the redesign. Vermont can also build on existing strengths in mental health and substance abuse treatment. The State has been a national leader in community-based services, peer support and other initiatives; this expertise can serve as a building block for strengthening outpatient and community-based care. In addition, the cohesive, active and effective peer, family and advocacy organizations can help move Vermont toward the goal of a more patient-centered, consumer- and family-driven, and community-based system of care.

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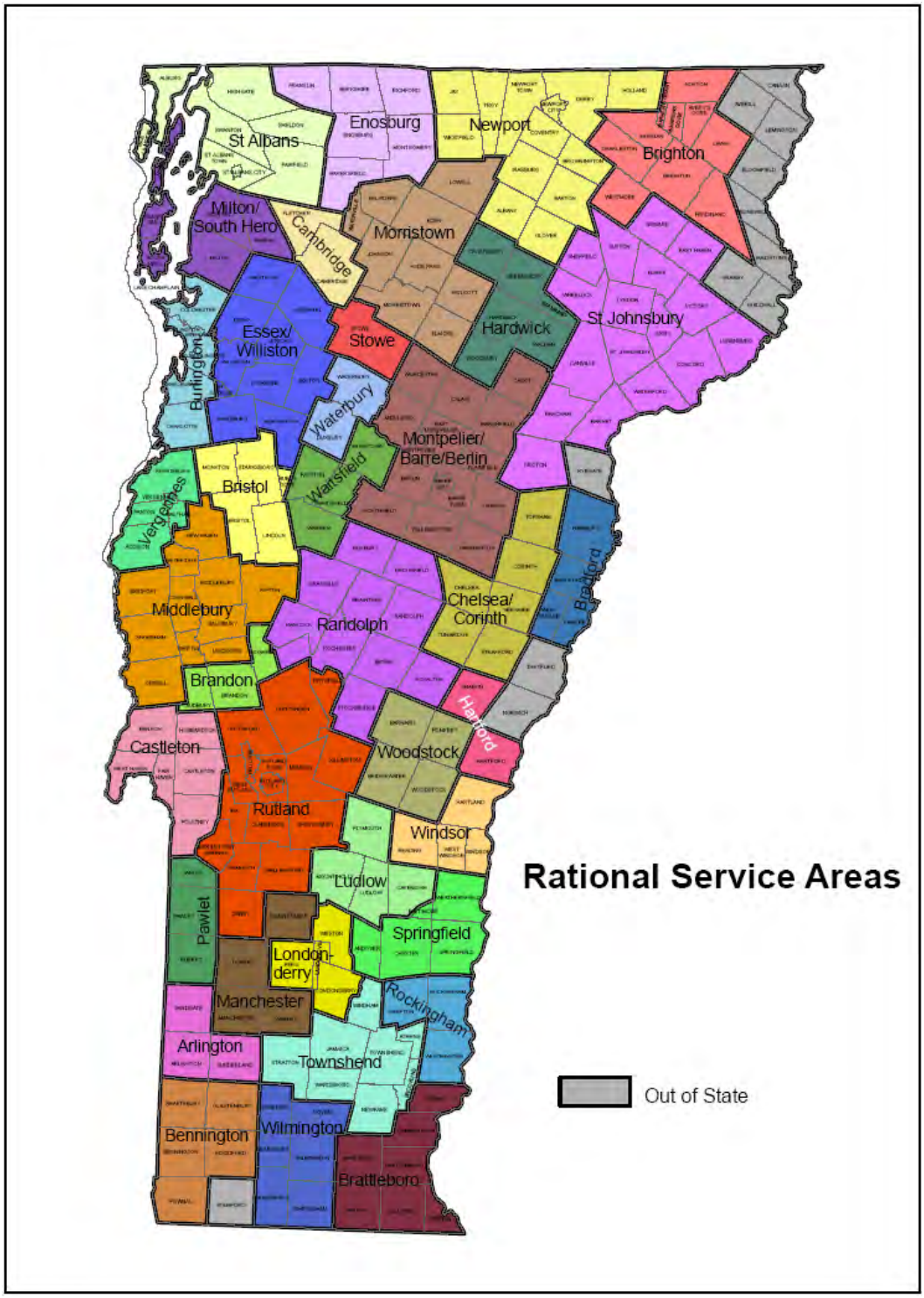
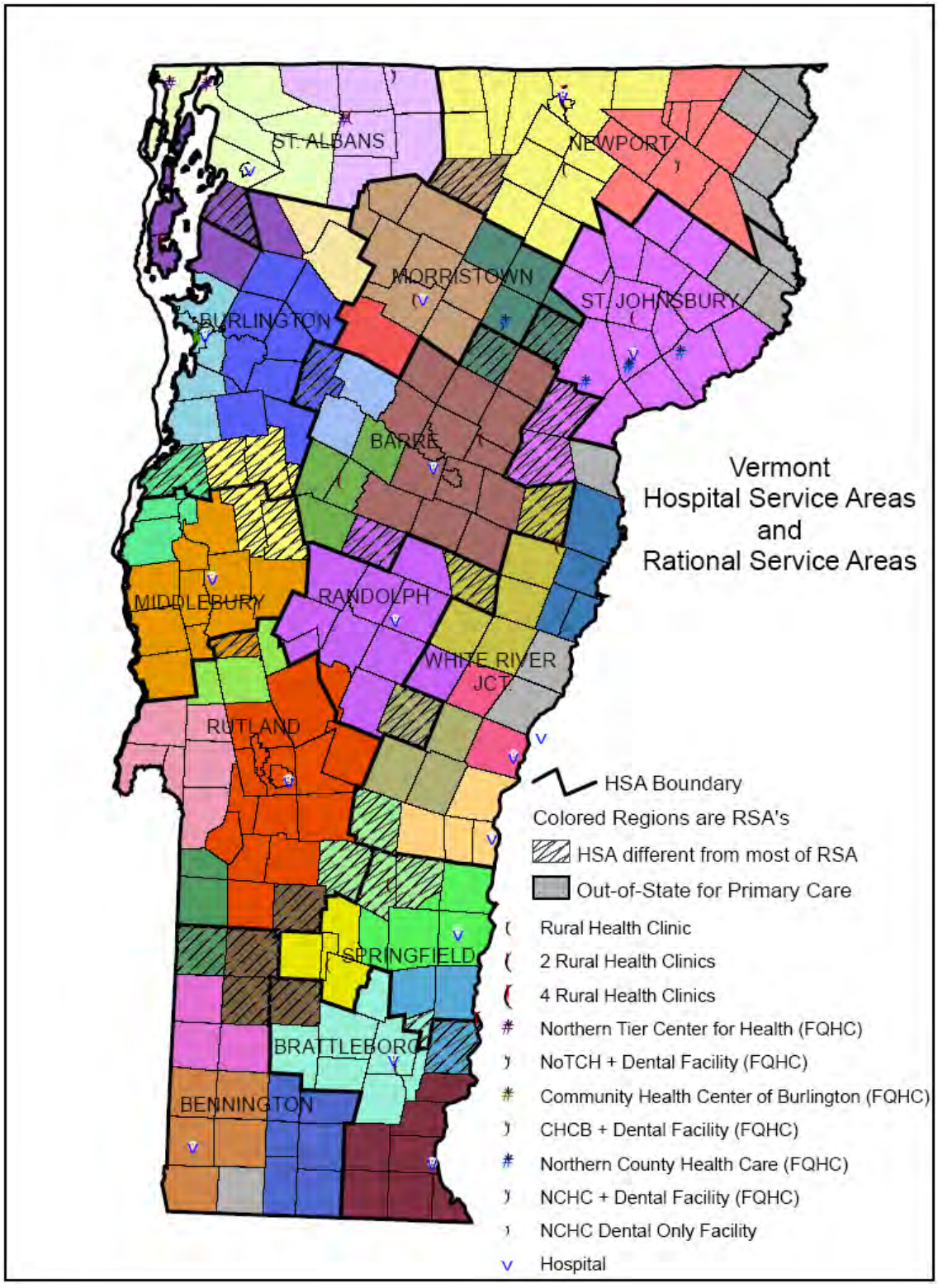
V: Maps for Primary Care and Underserved Areas

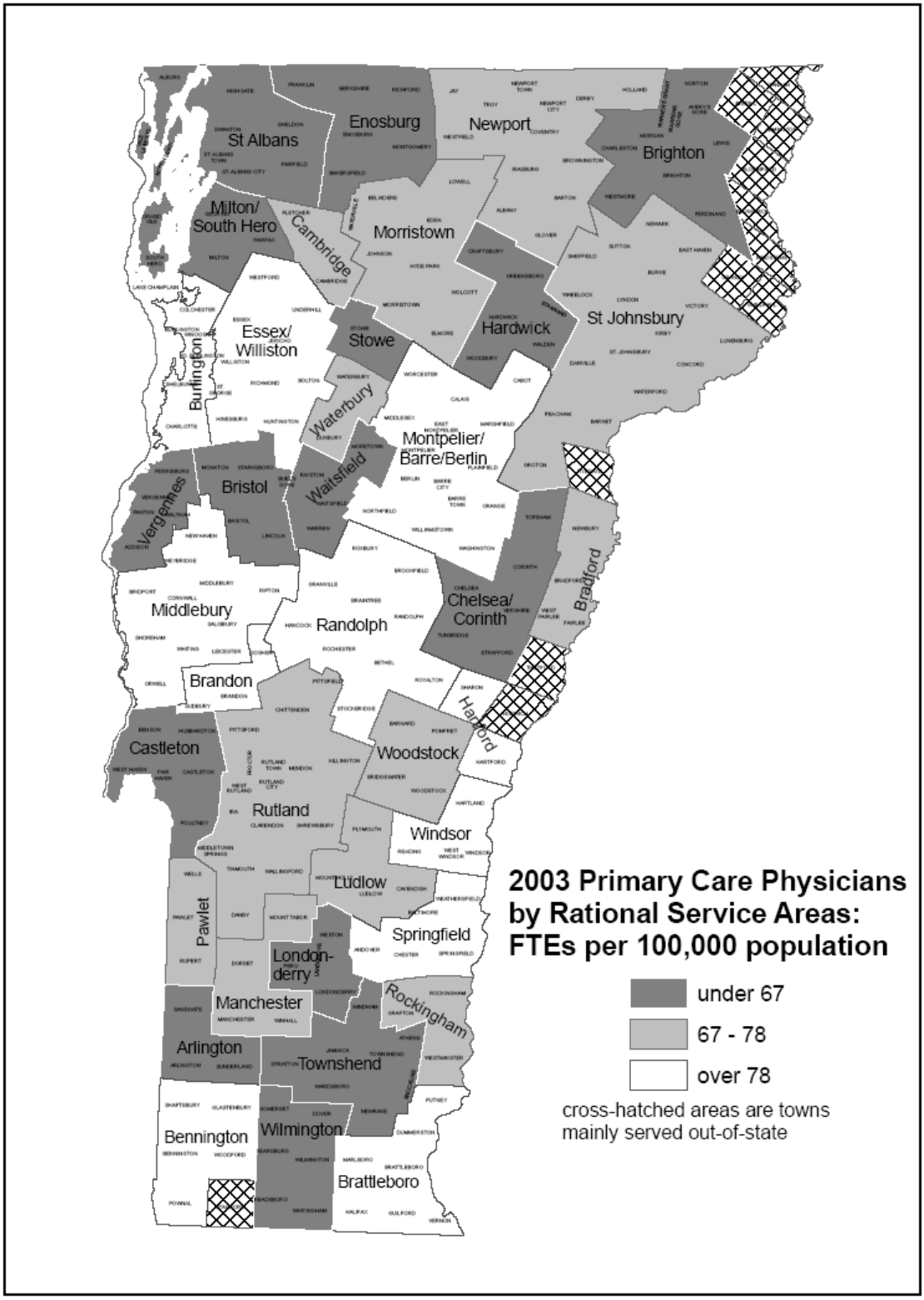
Map 1: Vermont Ambulatory Care Rational Service Areas



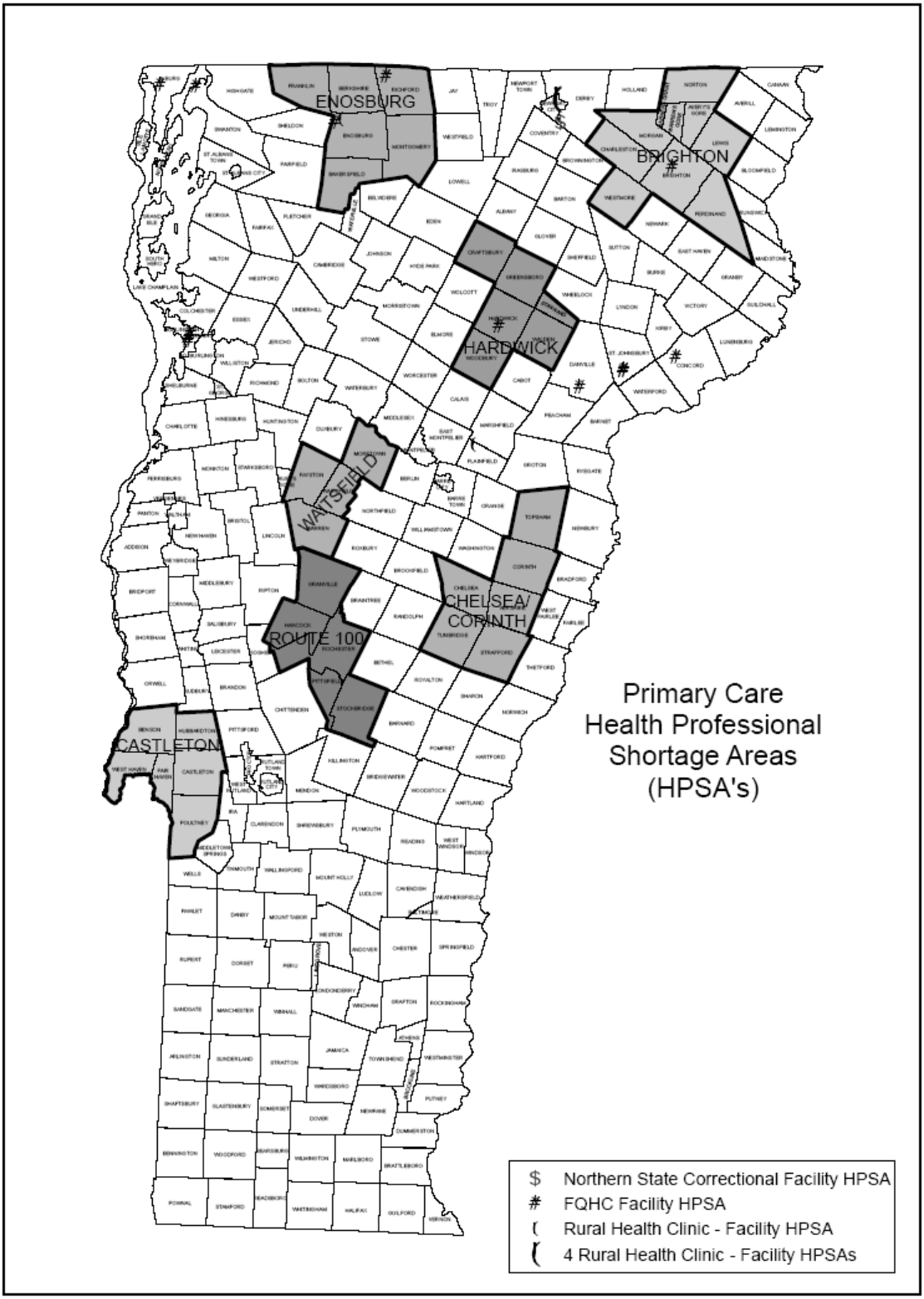
Map 2: RSAs and HSAs for Ambulatory Care



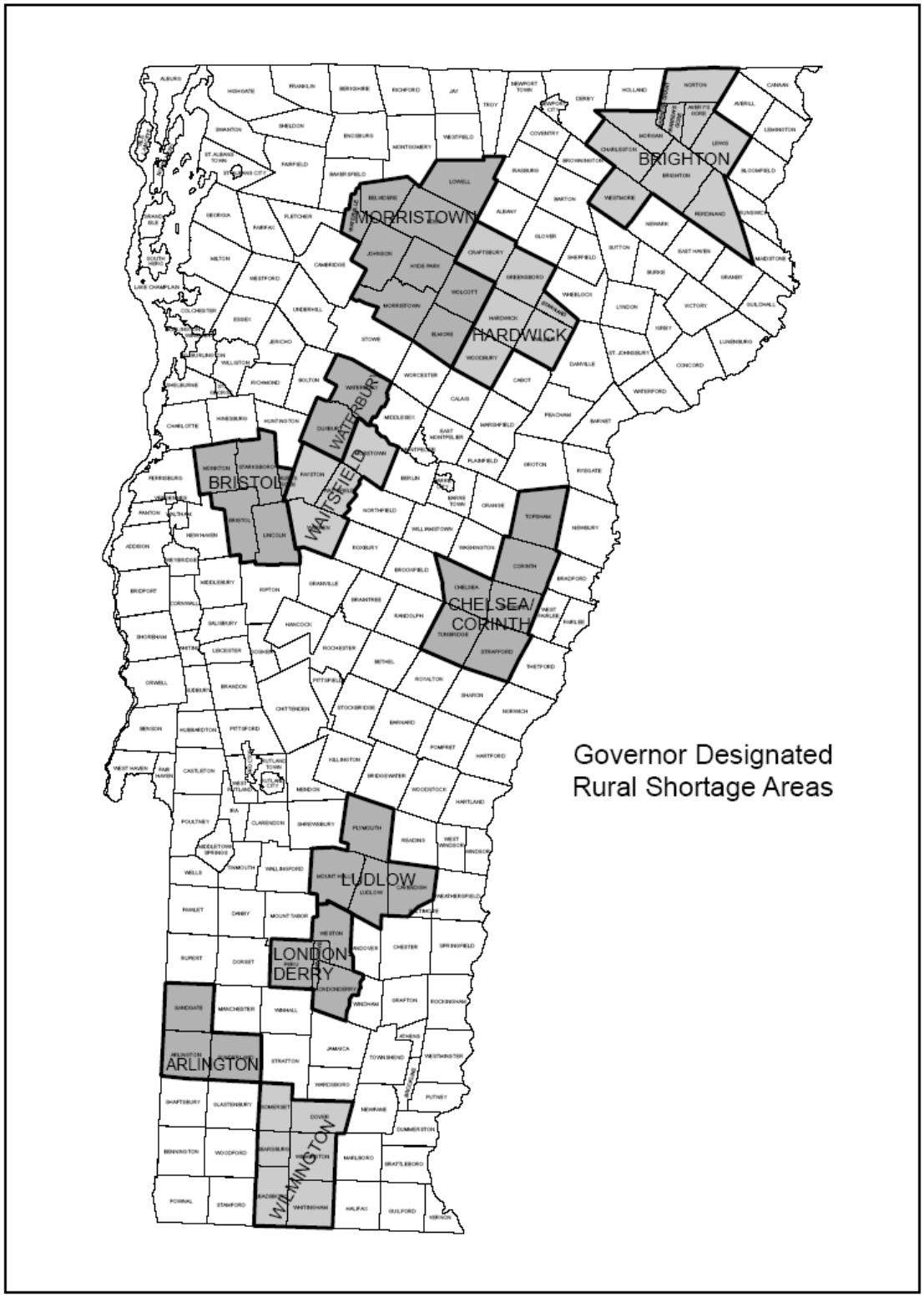
Map 3: Primary Care Physicians by RSA, 2003



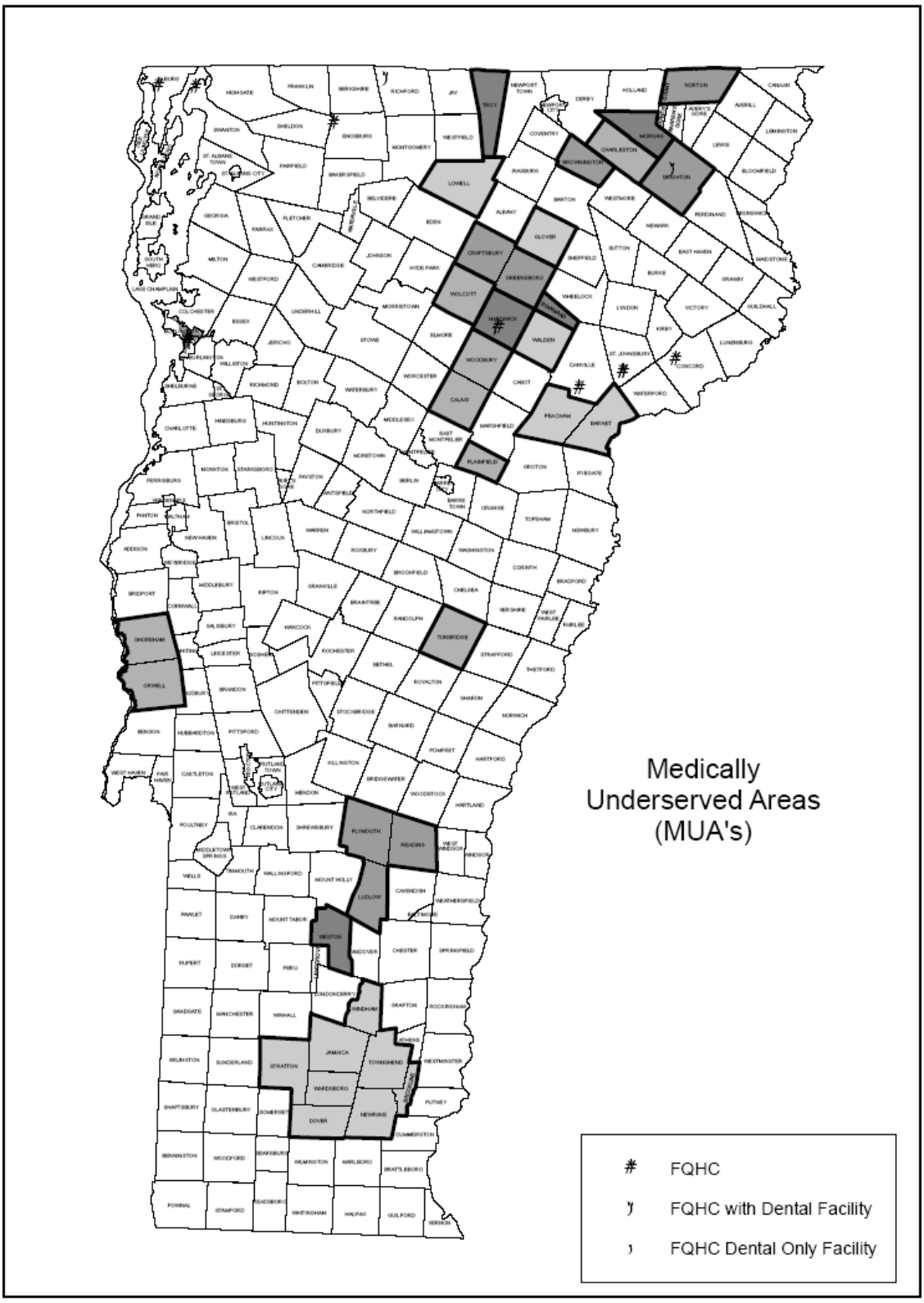
Map 4: Health Professional Shortage Areas



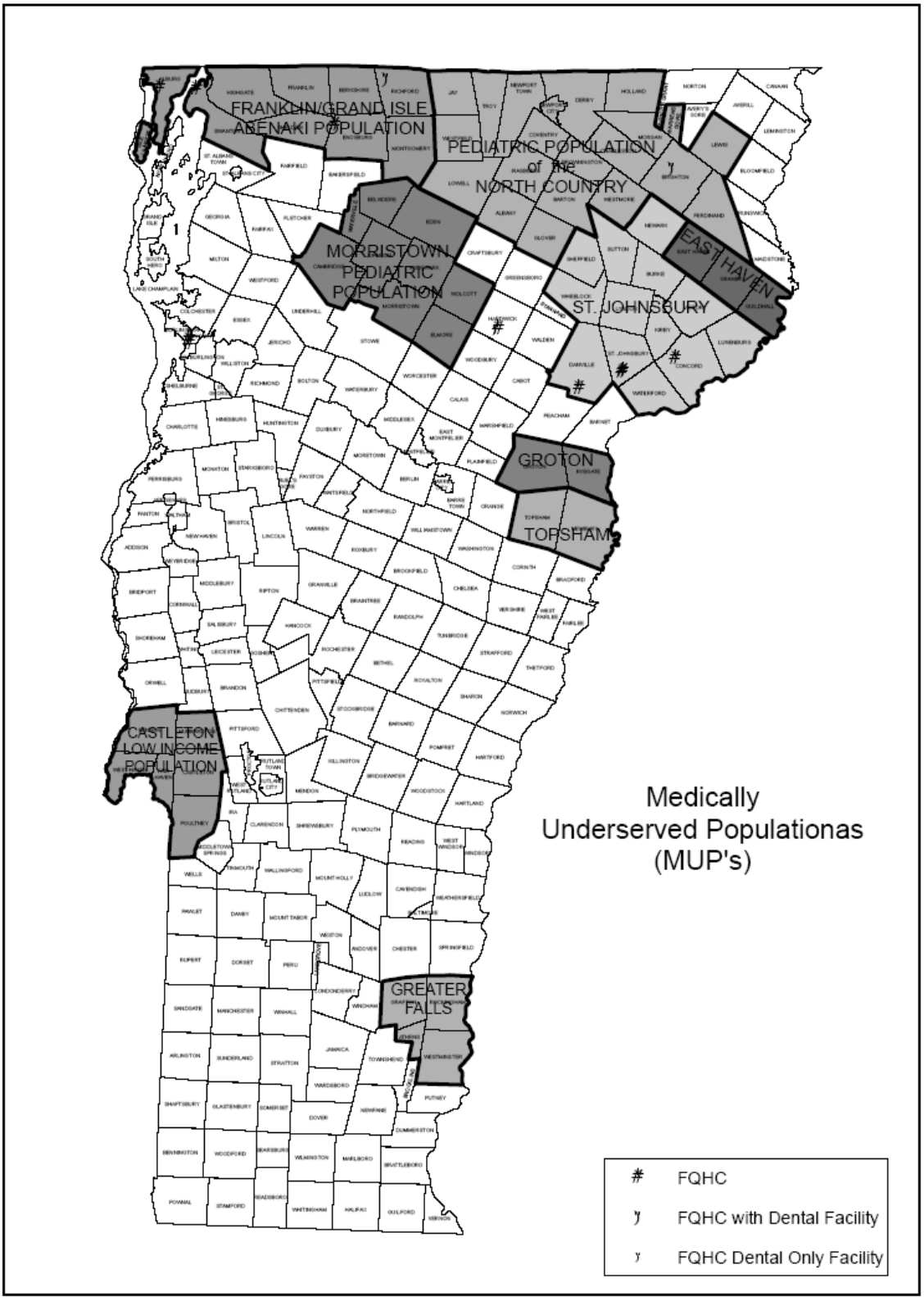
Map 5: Governor-Designated Rural Shortage Areas



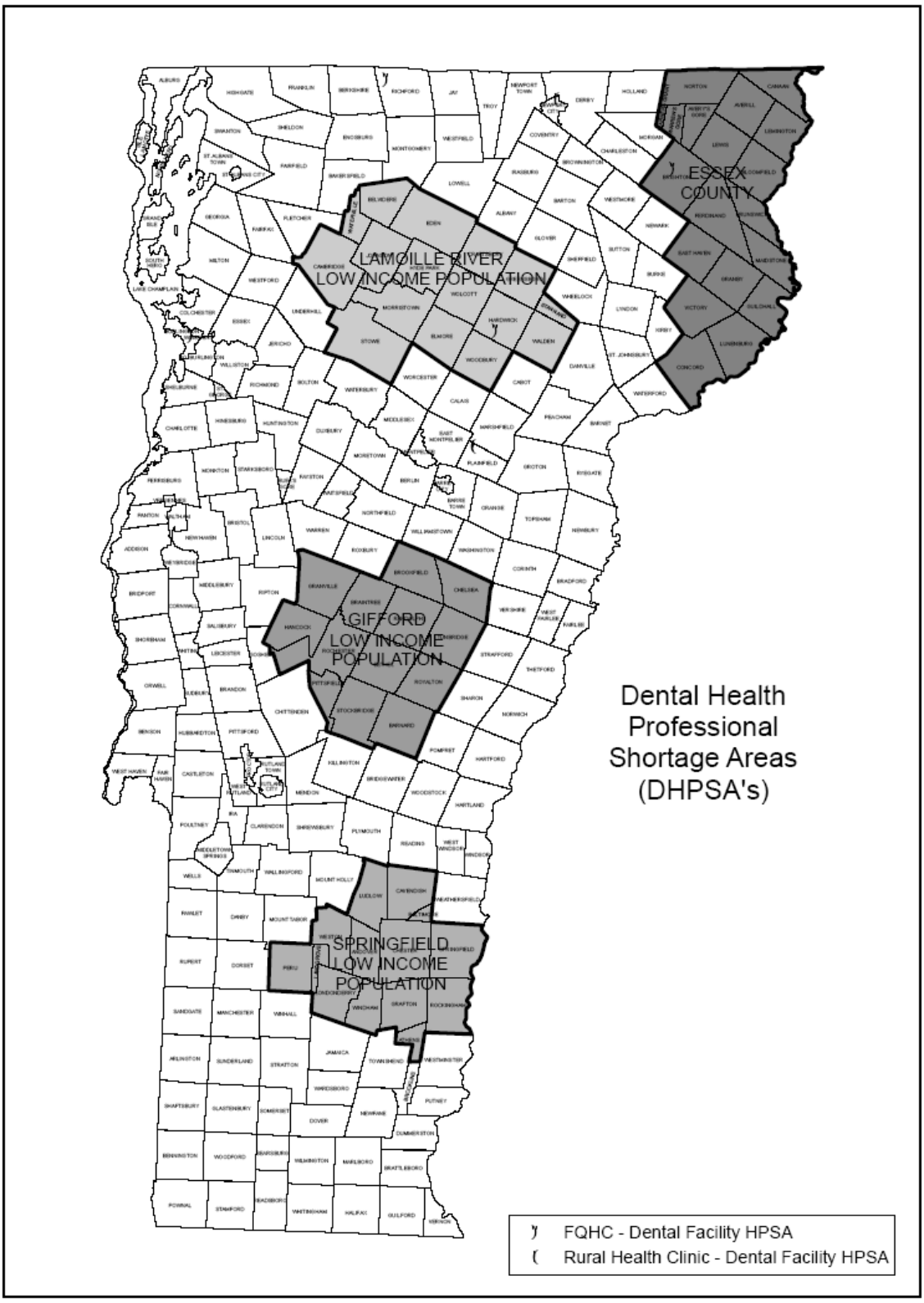
Map 6: Medically Underserved Areas



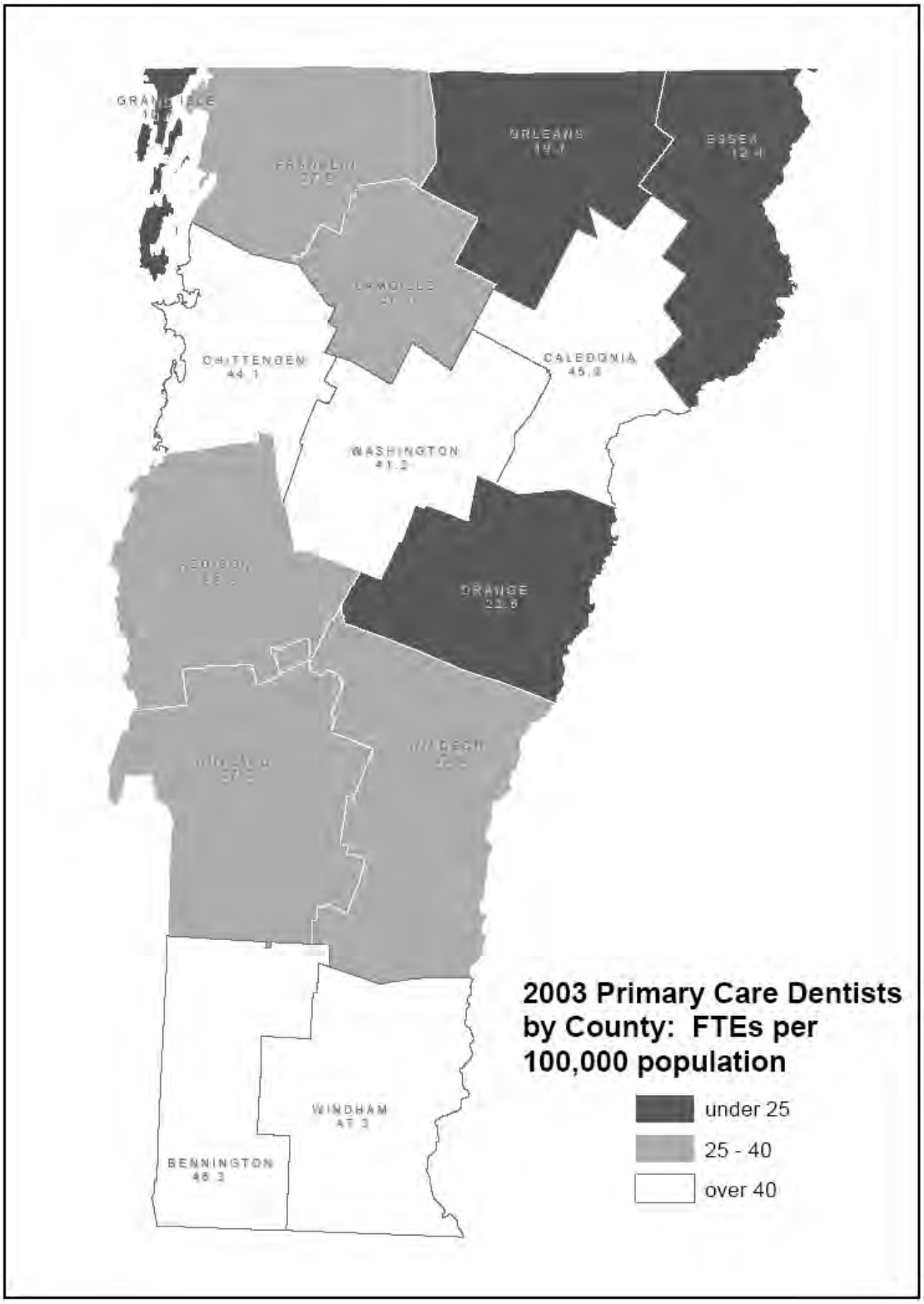
Map 7: Medically Underserved Populations



Map 8: Dental Health Professional Service Areas



Map 9: Dentist FTES per Thousand, 2003



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Chapter 3: Community-Based Services

SUMMARY

Community-based services include long-term care services and mental health and substance abuse services. Long-term care services are provided in nursing home, assisted living, enhanced residential care, home health care and adult day service settings. Since the 1996 passage of Act 160, Vermont has shifted some of its publicly funded long-term care spending from nursing homes to community-based settings, with a goal of achieving a Medicaid funded 60/40 balance (60 Medicaid funded nursing facility beds for every 40 Home and Community-Based Medicaid Waiver slots. Presently, many of the State's home health and enhanced residential care programs are operating at or near capacity; there is demand for increased assisted living capacity in many counties; and utilization of adult day, attendant services and homemaker programs, many of which already have long waiting lists, is projected to rise steadily. Recommendations call for Vermont to continue to develop and support a continuum of long-term care options for residents requiring assistance with activities of daily living through a variety of different models tailored to individual community needs.

Community based mental health and substance abuse services include home health services, community outreach and prevention programs, employee and student assistance programs, peer-support programs, drop-in recovery centers, other recovery programs and residential care and housing programs. The report, "Shaping the Future of Long-term care and Independent Living, 2004-2014" published by the Department of Aging and Independent Living in May 2005, addresses the implications of an aging population and the impact this trend has on the need for expanded services during that ten year period.

I. Long-term Care Services

Long-Term Care Quick Facts

- Statewide nursing home bed occupancy stood at 93% in December 2004, down from 96% in 1996.

- Bennington, Caledonia, Lamoille, Orleans, Rutland, Washington and Windsor counties would need to reduce Medicaid nursing facility beds and increase Medicaid funded home- and community-based services to reach a 60/40 ratio.

- Currently, Vermont has 12 Medicare home health agencies, which serve geographically designated regions to collectively provide coverage of Medicare-deemed medically necessary services across the State.

- Vermont Medicare home health services are delivered to more Medicare-eligible patients at lower cost than national averages: 108 patients per thousand covered in Vermont versus 61 nationally, at an average cost per visit of $76 versus $102 nationally.

1. Service/Facility/Resource Description

The long-term care continuum encompasses services available to assist people whose independence has been compromised due to illness or disability. Included in the continuum are care provided in nursing facilities, assisted living, enhanced residential care homes; care delivered at home through home health care entities, adult day services; and other programs such as case management, home delivered meals and transportation services. Initially, with the advent of Medicaid, nursing facilities comprised the long-term care system in Vermont. Since the 1980s, Medicaid home- and community-based services have expanded offering alternatives to nursing facility care. In 1996, Act 160 was passed in Vermont. This legislation focused on "shifting the balance" of long-term care options for persons requiring assistance with activities of daily living (ADLs) from nursing facilities to home and community based services.

Current State policy continues to encourage the shift from institutional long-term care settings toward options on a continuum of care that will assist Vermonters in remaining in the most independent, least restrictive environment of their choice. Vermont's continuum of care includes nursing facilities, a range of medical and non-medical services delivered in one's home, assistive devices and home modifications, enhanced residential care, assisted living, adult day services, companion services and respite services.

Nursing Facilities: provide 24-hour nursing and personal care, supervision, hospice care and rehabilitative care. Medicare pays for short-term nursing facility stays. Most nursing facility care, however, is paid for with an individual's own money or by Medicaid. To participate in the Medicaid program, people must be clinically eligible for nursing facility level of care and financially eligible for Medicaid long-term care coverage. In 2003, the average cost of nursing facility care in Vermont was approximately $60,430.[117]

Enhanced Residential Care: allows certain licensed Residential Care Homes to provide 24-hour care and supervision to people who would otherwise need nursing facility care. Medicaid pays for those services. These homes must also meet additional requirements for care and services. To participate, people must be clinically eligible for nursing facility level of care and financially eligible for Medicaid long-term care coverage.

Assisted Living: is licensed, private-occupancy housing combined with health and supportive services that promote resident independence and aging in place . Assisted

[117] *Internal data from the Agency of Human Services, Division of Rate Setting, March 2005, ($165.56*/day including all payment sources) .

Living Residences are required to retain residents into a light level of care traditionally provided by nursing facilities. Assisted living residences are eligible to apply to the Medicaid State Plan ACCS Program and Medicaid Waivers to become participating providers.

Home Health Services: Twelve Medicare certified Home Health Agencies provide home health services in individuals' homes. Medicare, Medicaid, private health insurance, long-term care insurance, and private funds are all used to pay for these services. Services include nursing, home health aide, personal care, physical, occupational and speech therapies, homemaker services, hospice care and social work services (most also offer psychiatric nursing). Several other privately owned home care agencies also provide nursing care and other non-medical services to persons requiring assistance with activities of daily living. These agencies are not certified to provide or to be reimbursed for Medicare covered services.

1915(c) Home and Community Based Medicaid Waiver: provides long-term care services to elders and adults with physical disabilities who live at home or in the community. Services include personal care, adult day care services, respite care, companion services, personal emergency response systems, home modification, assistive devices and case management. Priority is given to persons who, without these services, would most likely enter a nursing home. To participate in this program, one must need nursing home level of care and meet Medicaid long-term care financial eligibility requirements.

Homemaker Program: provides assistance with shopping, cleaning and housework, personal care, respite care and one-time purchases or services. Homemaker services are provided by the 12 Medicare-certified home health agencies.

Attendant Services Program: provides assistance with personal care for adults with disabilities. Program funds pay attendants, allowing people with disabilities to live independently. Most participants manage their own care and hire, train and supervise their attendants.

Adult Day Services: provide programs during the daytime hours for adults with disabilities. Programs include activities, social interaction, nutritious meals, health screening and monitoring, personal care and transportation. Adult day services also provide valuable respite for family caregivers.

2. Current Supply and Distribution

(a) Nursing Facilities[118]

[118] 2004 data except where noted otherwise.

Since the passage of Act 160 in 1996 there have been dramatic changes in Vermont's nursing facility bed supply. Nursing facilities such as Gifford, Copley, Helen Porter, Mt. Ascutney and Eden Park-Brattleboro have downsized, while Clarks, Linden Lodge, Sager, Brookside and Stratton House have ceased operations. Nearly 370 beds have closed while approximately 300 remain empty.

The total number of licensed nursing home beds is 3,475, with overall occupancy at 93% in December 2004. At that point in time, a few facilities had occupancy levels below 85%. Prior to the passage of Act 160 in 1996, there were approximately 3,800 licensed beds, with overall occupancy at 96%.[119]

Vermont's average daily Medicaid reimbursement rate for nursing home care was $153.70 in State fiscal year 2005. [120] In 2004, public expenditures for the nursing facility sector totaled $101,379,680.[121] In FY 2004 public expenditures for community-based programs were $43,158,882.[122]

Table 1: Number of Licensed Beds by County as of December 2004

County	**# Licensed Beds**	**% Occupancy**
Addison	105	96%
Bennington	545	90%
Caledonia	170	95%
Chittenden	593 (Arbors = 12)	92%
Essex	0	0%
Franklin	214	94%
Grand Isle	0	0%
Lamoille	130	98%
Orange	20	95%
Orleans	272	90%
Rutland	418	93%
Washington	459	92%
Windham	213	98%
Windsor	336 (Merton's = 14)	93%
	Total = 3475	**Average** = 93%

Source: Department of Aging and Independent Living, DAIL table titled, Nursing (NH) Beds By County Ranked By Beds Per 100 18-plus Disabled Population, December 2004.

[119] Department of Aging and Independent Living, *Shaping the Future of Long-term care and Independent Living 2003-2013*, p. 15
[120] Department of Aging and Independent Living, *Shaping the Future of Long-term care and Independent Living 2003-2013*, p. 15
[121] Department of Aging and Independent Living, DAIL Table titled, *Comparison of Public Expenditures for Nursing Homes and Home and Community-Based Programs FY 1996-FY 2005 estimated*
[122] Department of Aging and Independent Living, DAIL Table titled, *Comparison of Public Expenditures for Nursing Homes and Home and Community-Based Programs FY 1996-FY 2005 estimated*

(b) Home Health Services

Many individuals are homebound for various reasons and require a wide variety of health services in the home. Home health care services can be divided broadly in to two categories: those that are deemed "medically necessary" and those that, perhaps not necessarily from a purely medical perspective, enable the individual to live a better, more comfortable or productive life. Insurance companies, Medicare and Medicaid will generally only pay for "medically necessary" home health services, while individuals who wish a greater range of services, or access to services beyond those approved by their providers, most often must pay for those services out of their own funds.

Vermont's 12 Medicare-certified home health agencies offer a comprehensive range of health services including skilled nursing, home health aide, medical social work and physical, occupational and speech therapies in the home pursuant to a care plan overseen by the patient's health care provider. Professional Nurses Service (PNS) also provides skilled nursing and other non-medical home care services statewide. In addition, other registries offer private duty nursing at a person's request, regardless of need. There are also a myriad of for-profit entities that offer non-medical home care, respite and companion services.

The 12 Medicare certified home health agencies provide services to geographically designated regions of the State, collectively providing coverage to the entire State for a full range of medically necessary home health care services. In terms of demographics, in 2002, 63.9% of patients served were female and 36.1% were male. In 2002, 13.8% of the patients were 85 years old or older, 24.9% were age 75-84, 14.9% were age 65-74, 32.1% were age 20-64, 4% were age 5-19, 4.5% were age 1-4 and 5.8% were less than 1 year old.[123]

The number of Vermonters served by home health agencies in FY 2002 was nearly identical to the number served in FY 2001. In 2002, the 12 Medicare-certified home health agencies made home visits to 21,449 people, compared to 21,754 in FY 2001. The total number of home care visits rose from 860,013 visits made in 2001 to 879,145 in 2002, a 19,132 visit, or 2.2%, increase.[124]

Although total visits were only modestly higher, revenue increased by 10.9%, from $73,520,327 to $81,528,249, an increase of $8,007,922. The primary reason for the increase was the new Medicare payment system (Prospective Payment System). Medicare now pays agencies a set amount per-person, per 60 days of care, based on the estimated needs (case mix) of the client. This rate is set by the Centers for Medicare and Medicaid Services (CMS) and is based on several factors including wages paid compared to the national average and average costs to provide Medicare services.[125]

[123] Vermont Assembly of Home Health Agencies (VAHHA), *VAHHA Annual Statistical Report Fiscal Year 2002*, published August 2004, p. 21
[124] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002*, published August 2004, p. 7
[125] VAHHA, VAHHA *Annual Statistical Report Fiscal Year 2002*, published August 2004, p. 7

In 2002, home health visits by payer source were as follows: 47.3% Medicare; 36.3% Medicaid; 8.9% private insurance; 5.7% other; and 1.8% self-pay.[126]

The ratio of Medicare patients served per thousand Medicare eligible persons is higher in Vermont than for U.S. and New England. In 2002 the total number of Medicare patients served per thousand Medicare eligible persons was 108 in Vermont, compared to 61 for the U.S. and 86 for New England.[127] In addition, the average cost per home health visit for all services for calendar year 2002 was $76 for Vermont compared to $85 in New Hampshire, $98 in Maine and $102 for the U.S. average.[128] The Medicare payment per episode for 60 days of service was $1,829 for Vermont, $2,236 for New Hampshire, and $2,017 for Maine.[129]

In FY 2002, the revenue from all sources for the 12 Medicare certified Home Health Agencies collectively was $81,528,249, up from $73,520,327 in FY 2001.[130]

Table 2: Visits Made By Medicare Certified Home Health Agencies

Service	Visits 2001	Visits 2002
Nursing (skilled)	255,324	264,902
Home Health Aide	289,287	296,860
Physical Therapy	57,242	61,161
Occupational Therapy	10,849	10,851
Speech Therapy	7,632	6,317
Medical Social Work	7064	9,915
Homemaker	37,001	37,724
Medicaid Waiver Program	146,879	159,571
Other	48,735	31,844
Total	860,013	879,145

Source: VAHHA, VAHHA Annual Statistical Report Fiscal Year 2002, published in 2004, p. 7

(c) 1915(c) Home and Community Based Waiver Program: (HCBWP)

The HCBWP experienced a significant increase – 8.6% – in the number of home health visits made from 146,879 in 2001 to 159,571 in 2002.[131]

[126] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p. 9*
[127] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p. 12*
[128] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p. 13*
[129] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p. 13*
[130] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p .26*
[131] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p. 7*

As of February 2005 there were 1092 "slots" (or participant spaces) statewide for the HCBWP program. As of that time, the age of Medicaid Waiver participants was as follows: 25.4% under age 65, 20.2% age 65-74, 33.4% age 75-85, and 21% age 85-plus. Of the participants in the Medicaid Waiver program, 71.6% were female and 28.4% are male.[132]

The 12 Medicare certified home health agencies provide personal care for the 1915(c) Waiver. However, it should be noted that nearly 60% of the personal care provided under this 1915(c) Waiver is through the consumer- and surrogate-directed options, in which participants or their surrogates hire and supervise their own caregivers. These care providers are not employees of any home health agency.[133]

Table 3: Number of Waiver Slots/Wait List

County	# of Waiver Slots	Wait List
Addison	79	1
Bennington	46	5
Caledonia	73	9
Chittenden	234	23
Franklin	111	17
Grand Isle	20	0
Lamoille	44	1
Orange	66	6
Orleans*	50	7
Rutland	110	22
Washington	90	6
Windham	82	0
Windsor	98	3
Total	1103	100

** includes Essex County*
Source: Department of Aging and Independent Living, internal data as of February 2005.

(d) 1915(c) Enhanced Residential Care Medicaid Waiver Program

The Enhanced Residential Care (ERC) Medicaid Waiver is an alternative to receiving nursing facility care. ERC services are provided in approved Residential Care Homes and Assisted Living Residences. Vermonters age 65 or older, or age 18 and older who have a disability that meets clinical nursing facility level of care and Medicaid financial long-term-care criteria, are eligible for this program. Individuals must also meet program priority criteria. Individuals pay the residence for their room and board at a capped rate ($579 per month in 2005).[134] Individuals receive personal care, nursing oversight, case

[132] VAHHA, *VAHHA Annual Statistical Report Fiscal Year 2002, published August 2004, p. 25*
[133] Department of Aging and Independent Living statistics for State fiscal year 2005.
[134] Department of Aging and Independent Living, internal data, 3/24/05.

management, medication administration and/or assistance, recreational and social activities, 24-hour on-site supervision, laundry services, household services and meal preparation.

As of February 2005, 52 Residential Care Homes and Assisted Living Residences throughout the State were approved to provide ERC services. The 52 homes and residences collectively had a total approved maximum ERC capacity of 264.[135]

Table 4: ERC Slot Use by County[136]

County	# of Slots Utilized	Wait List
Addison	13	0
Bennington	2	1
Caledonia	0	0
Chittenden	33	4
Essex	0	0
Franklin	28	4
Grand Isle	0	0
Lamoille	1	0
Orange	12	5
Orleans	9	0
Rutland	26	2
Washington	20	2
Windham	9	4
Windsor	17	4
Total	170	26

Source: Data from the Department of Aging and Independent Living, as of the end of February 2005.

(e) Assisted Living

Vermont's first licensed affordable assisted living residence, Cathedral Square Senior Living, opened its 28 private, fully accessible apartments in August 2003. Within three months, the facility had a wait list more than double the capacity of the residence. Four other assisted living residences are in operation and a second affordable assisted living residence, Vernon Hall Retirement Residence, opened in 2005. To date, one assisted living residence includes a dementia special care unit. This experience highlights the potential demand for affordable assisted living in other parts of the State. Several other entities are interested in developing affordable assisted living residences.

Of Vermont's 168 assisted living units, only 16.7% are available to persons who may need to use Medicaid to pay for care and services.[137]

[135] Department of Aging and Independent Living, internal data, 3/24/05.
[136] ERC providers are not always able to use all their allotted capacity.
[137] Department of Aging and Independent Living, *Annual Report 2004*, p. 35

DAIL is studying the feasibility of local affordable assisted living in four different sizes and scales. This study will help determine the market size needed to support affordable assisted living residences and will identify partnerships and resources critical to the success of future projects.

Table 5: Number of Assisted Living Units by County

County	# Units	Maximum # Persons
Chittenden	28	35
Rutland	58	65
Windsor	112	138
Total	198	238

Source: Department of Aging and Independent Living, internal program data, February 2005.

Anecdotal evidence suggests most assisted living facilities in Vermont keep some record of demand in excess of capacity, although few maintain formal waiting lists. For that reason, waiting list data are not included here.

(f) Adult Day Services

As demand has grown to enable nursing-facility-eligible people to remain at home, adult day centers have come to play a crucial role in Vermont's long-term care system. Centers offer a full day of care and supervision to participants while also furnishing needed respite to family members. Adult day centers provide personal care, professional nursing services, therapeutic activities, supervision, socialization opportunities and meals. Many centers also provide professional social work, physical therapy, occupational therapy and/or speech therapy. Often used in combination with other home-based services or informal services, adult day centers offer an alternative to care in a nursing facility.

Vermont's adult day centers have continued to experience steady growth. Between fiscal year 2000 and fiscal year 2003, the annual number of hours of care grew 29%, from 348,962 to 449,100. The hours of service provided by the adult day centers reached a high of 462,111 hours in State fiscal year (SFY) 2004. The number of Vermonters served increased from 931 in SFY03 to 950 in SFY04, an increase of 6%.[138]

There are currently 17 certified adult day care centers. Sixteen of the 17 centers have a registered nurse on-site daily. New standards make this requirement mandatory for all centers. One adult day center is certified to provide only Medicaid funded services.[139] The charge for basic adult day services averages $12.00 per hour. Adult day centers are

[138] Department of Aging and Independent Living, *Annual Report 2004, p. 10*
[139] Department of Aging and Independent Living, *Annual Report 2004*, p. 9

open a minimum of five days a week, nine hours a day. Some centers have expanded their hours of service to include evenings and weekends, yet waiting lists remain.

The Department of Aging and Independent Living estimates that by 2013, Vermont's adult day care centers will need to serve 353 more clients per year in order to maintain their 2003 rate of use, while keeping pace with demographic changes and the expected decline in nursing facility use.

Table 6: Number of Adult Day Participants by County

County	FY05 YTD Unduplicated Count	FY04 YTD Unduplicated Participant Count
Addison	143	172
Bennington	57	58
Caledonia	31	45
Chittenden	108	148
Essex	0	0
Franklin	67	71
Grand Isle	0	0
Lamoille	53	69
Orange	26	31
Rutland	65	57
Washington	59	70
Windham	69	65
Windsor	57	85
Orleans	98	120
Total	833	991

Source: Department of Aging and Independent Living internal data, FY04 and FY05.

(g) Attendant Services Program

The Attendant Services Program (ASP) provides personal care services for adults with disabilities. Participants hire, train and supervise their own caregivers. The program is available statewide. An Eligibility Committee of program participants determines the number of hours of service provided to each program participant, based on individual need.

In FY 2004, the ASP served approximately 300 people. The average participant was awarded approximately five hours of personal care each day. The average age of participants is 59 and the age range of participants is 19-100 years. The waiting list now includes about 101 persons who will each wait about 18 months to receive services.[140]

[140] Department of Aging and Independent Living, *Annual Report 2004*, p. 9

Table 7: Unduplicated Persons Served/Wait List

County	Unduplicated Persons Served	Wait List
Addison	9	1
Bennington	9	10
Caledonia	11	8
Chittenden	40	22
Essex	1	1
Franklin	21	3
Grand Isle	4	2
Lamoille	14	2
Orange	10	3
Orleans	9	1
Rutland	63	27
Washington	28	10
Windham	22	6
Windsor	20	11
Total	261	107

Source: Department of Aging and Independent Living internal data as of 2/25/05.

(h) Homemaker Program

The Homemaker Program provides services such as shopping, cleaning and laundry services to elderly and/or disabled adults, helping them to maintain their independence.[141] During 2004, 850 people were served and it is estimated that the same number will be served in 2005.[142] To be eligible for the Homemaker Program, a person must be a Vermont resident, aged 18 or older, need assistance with at least one personal care activity such as dressing or bathing; and/or help with at least two household tasks like housekeeping or shopping, and/or need help due to a cognitive impairment. The 12 Medicare certified Home Health Agencies provide all services to participants in the Homemaker Program.

The number of visits increased slightly from 37,724 visits in 2002 compared to 37,001 visits in 2001.[143]

[141] Department of Aging and Independent Living, Annual Report 2004, p. 11
[142] Department of Aging and Independent Living, *Annual Report 2004*, p. 11
[143] VAHHA, *VAHHAA Annual Statistical Report Fiscal Year 2002*, published August 2004, p. 7

Table 8: Homemaker Program Number of People Served/Estimated Wait List

Home Health Agency	Unduplicated # Served	Wait List
Addison Home Health	65	0
Bennington Home Health	37	10
Caledonia Home Health	42	5
Central Vermont Home Health	152	4
VNA of Chittenden and Grand Isle Counties	86	35
Dorset Nursing	3	0
Franklin County Home Health	25	70
Lamoille Home Health	46	2
Manchester Health Services	13	0
Orleans/Essex VNA	118	3
Rutland Visiting Nurses Assn.	105	8
VNA of VT/NH	166	0
Total	858	137

Source: Department of Aging and Independent Living internal data, as of end of FY 04.

This program is funded with 100% General Fund dollars. When the money is exhausted, potential participants are placed on a wait list. Wait list data is reported but may be reported inconsistently.

3. Assessment of Needs and Priorities

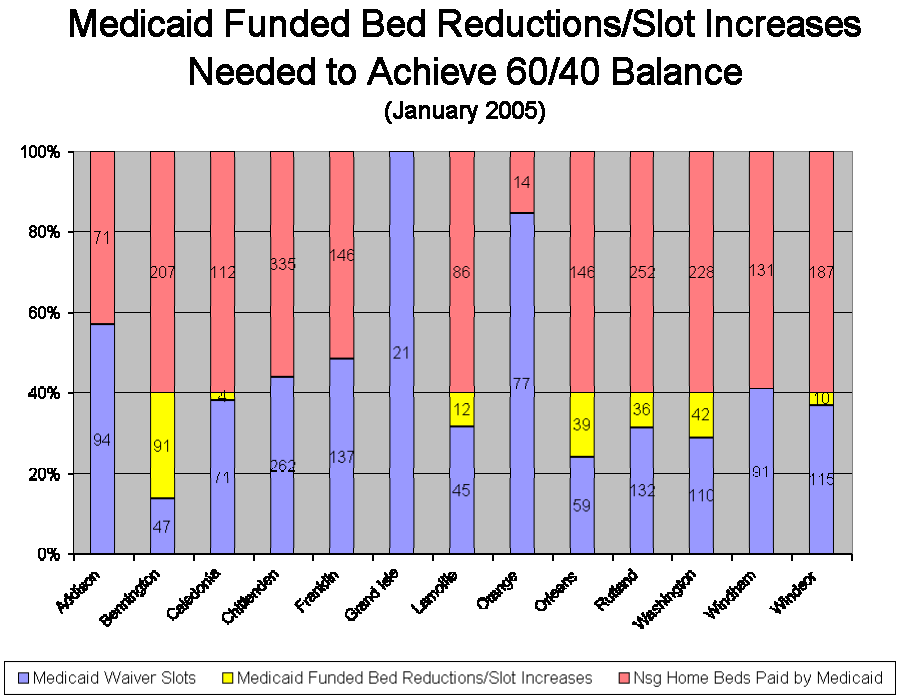
For more than 30 years, the states have relied on nursing facilities to provide the majority of the long-term care delivered to consumers. While that remains true for much of the country, states such as Vermont have made significant progress in changing to a system that favors a mix of expanded home and community based services and nursing facility care.

The question is often asked, "What is the right number of nursing facility beds for Vermont?" Although it is difficult to provide a definitive answer to that question during this transition period, the Department of Aging and Independent Living (DAIL) ultimately hopes to answer that question. In response to consumer demand, some of Vermont's counties have undergone a dramatic shift from institutional care to home and community-based services. The experience of these counties will help guide the rest of the State.

To accomplish these changes, Vermont has chosen the systematic approach of setting a "60/40" target for each county, i.e. for every 100 people whose long-term care needs are

covered by Medicaid, no more than 60 persons would receive care in a nursing facility and no less than 40 persons would receive care in a home or community based setting. The State will propose a target for the number of Medicaid funded nursing facility beds in each county and a process for right-sizing when indicated. The following chart shows the number of Medicaid funded nursing facility beds needed to achieve a 60/40 ratio in each county. (Note: Essex County does not have any nursing facilities.) Addison, Chittenden, Franklin, Orange and Windham Counties have already achieved a 60/40 balance and Caledonia is close to achieving the 60/40 ratio.

Table 9: Medicaid Funded Bed Adjustments for 60/40 Balance



In order to reach the 60/40 ratio, the following counties will need fewer nursing facility beds for Medicaid recipients as indicated below:

Table 10: Nursing Facility Medicaid Bed Overages by County

County	Nursing Facility Bed Reductions to Reach 60/40 Ratio
Bennington	91
Caledonia	4
Lamoille	12
Orleans	39
Rutland	36
Washington	42
Windsor	10

Some additional home and community-based resources should be targeted to these counties until they achieve the 60/40 ratio. This needs to be done without unduly disadvantaging individuals in other counties.

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.
- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[144]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;

[144] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

HRAP Advisory Committee recommendations:

Each of the following guidelines must be met before any new service is approved within a community service area: The community services include: nursing home care, home health care, area agency on aging services, primary care physician services, hospital acute care and ambulatory care services, community mental health services, adult day care, respite, assisted residential services, homemaker and attendant services and transportation.

- Applicants for new community services must identify the specific community service area(s) it proposes to serve. Applicant must demonstrate how they will provide access to all residents of each community within the identified service area(s) without regard to individual's payer type, insurance status or ability to pay for needed services.

- The impact of proposed new services on continued access to the existing continuum of services within each service area should be considered. Adverse impact on the continued accessibility of the full continuum of services should be avoided.

B. Vermont State Health Plan

Nursing Facilities:

- Develop and use informed decision-making processes to assist people in making long-term care decisions that best support their needs, values and preferences.

Home Health:

- Ensure the availability of community-based services that support care in the most integrated, least restrictive community settings possible;
- Identify and fund strategies that lead to a well trained, stable workforce in home and community settings;
- Support workforce partnerships to promote education in the health professions and manage recruitment and retention services.

Enhanced Residential Care:

- Identify and fund strategies that lead to a well-trained, stable work force in residential care homes and community settings;
- Develop and use informed decision-making processes to assist people in making long-term care decisions that best support their needs, values and preferences.

Assisted Living:

- Develop and use informed decision-making processes to assist people in making long-term care decisions that best support their needs, values and preferences.

Adult Day:

- Communities should ensure that adequate support services are in place for family caregivers including adult day services, respite and support groups;
- Develop and use informed decision-making processes to assist people in making long-term care decisions that best support their needs, values and preferences.

C. Hospital Community Needs Assessments

- Improve access to and increase funding for elder services including nursing facilities, home health care, assisted living, adult day centers, respite care, case management, end-of-life care, elder care counseling and assisted living;

- Support and preserve the not-for profit system of home care to ensure continued access to home health care services regardless of a patient's ability to pay.

D. The Six Institute of Medicine (IOM) Principles

All six IOM aims (timely, effective, efficient, safe, patient-centered, and equitable) are applicable to community-based long-term care. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Please see section above, Vermont State Health Plan.

4. Priorities and Special Considerations

The priorities for community-based services relate to demographics; the need for additional personal caregivers; the goals of supporting independent living and patient-centered care; and the need for mental health and substance abuse prevention, screening and support services.

It is a certainty that demand for community-based health care, related social services and long-term care services will increase in the future due to the aging of the population. The challenge for Vermont's health care system will be to determine how to expand the full continuum of services for elders and younger persons with disabilities in order to keep pace with the changing demographics. There will be a corresponding increase in demand for personal caregivers. The challenge in meeting this workforce issue is to identify and implement strategies to increase the supply of qualified personal caregivers.

Successful community-based care requires that health care and related social services are coordinated in a way that supports opportunities for independent living and patient-centered case management and care.

In the area of mental health, the Act 53 Hospital Community Needs Assessments highlighted a need for more mental health and substance abuse prevention, screening and aftercare services. Suicide was the ninth leading cause of death in Vermont in 2002; there is a need for a comprehensive suicide prevention effort, which is being spearheaded by the Vermont Department of Health. Peer recovery programs initiated in Vermont, such as the Recovery Education Project, have been successful and should continue to be expanded. Supportive, affordable housing is highlighted as a need in several reports.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for long-term health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 4. To the extent possible based on financial resources and the availability of appropriately trained health care personnel, assure access to a comprehensive continuum of community based health care and related social services within each community service area. The following services, tailored to community needs, should be accessible within each area: nursing home care, home health care, area agency on aging services, primary care physician services, hospital acute care and ambulatory care services, community mental health services, adult day care, respite, assisted residential services, residential care homes, homemaker and attendant services and transportation.

Recommendation 3. Identify consistently defined geographic community service areas based on patient's established travel patterns for primary care physician services, in concert with Vermont agencies that provide planning and oversight for health care and related social services. Ensure one acute care hospital in each identified service area.

Recommendation 5. Coordinate roles and services for all health care and related social services within each community service area to support opportunities for independent living and to assure comprehensive, patient-centered case management for each patient or client.

Recommendation 1. Continue to develop and support a continuum of long-term care options for persons requiring assistance with activities of daily living from nursing facilities to home and community based services. Models should be tailored to community need.

All recommendations:

Recommendation 1. Continue to develop and support a continuum of long-term care options for persons requiring assistance with activities of daily living from nursing facilities to home and community based services. Models should be tailored to community need.

Nursing Homes:

Implementation Option 1.1. Continue to pursue equal access to nursing homes and community based care for individuals needing long-term care services.

Implementation Option 1.2. In accordance with consumer preference, continue to decrease reliance on nursing home care; develop alternatives so that at least 40% of the people needing Medicaid funded nursing home level of care receive that care at home or other community settings.

Home and Community-based Care:

Implementation Option 1.3. Continue to increase home and community-based Medicaid Waiver slots by 100 each year and continue to allocate them to people in the greatest need. (Note: A 1115 waiver is pending that may end the use of "slots" for this program.)

Implementation Option 1.4. Continue to improve wages and benefits for personal caregivers in all settings.

Implementation Option 1.5. Continue to expand the capacity of community service agencies to provide case management to more elders not participating in the Medicaid Waiver program.

Implementation Option 1.6. Develop a program to provide case management assistance to adults with physical disabilities between the ages of 18 and 60 who do not qualify for such assistance from any other program.

Implementation Option 1.7. Continue to expand community-based health promotion and disease prevention programs for elders and adults with physical disabilities beyond the Governor's Commission on Healthy Aging Initiative.

Implementation Option 1.8. Continue to expand and improve the dissemination of public information and decision support so that all elders and adults with physical disabilities know how to access the services they need through web sites, publications, the media, and information and assistance lines.

Implementation Option 1.10. Continue to develop additional appropriate and supportive housing such as Enhanced Residential Care, Assisted Living, group-directed congregate housing and adult day and family care, increase funding for home modification and continue to promote universal design in all new housing construction. Models should be tailored to community need.

Adult Day:

Implementation Option 1.11. Continue to increase the capacity of adult day care centers.

Attendant Service Program:

Implementation Option 1.12. Continue to increase the capacity for the Attendant Services Program to serve additional people.

Homemaker Program:

Implementation Option 1.13. Continue to expand the capacity for the Homemaker Program.

Recommendation 2. Continue to identify unmet transportation needs of elders and adults with disabilities to improve access to long-term care services and enhance the coordination of transportation services.

Recommendation 3. Identify consistently defined geographic community service areas based on patient's established travel patterns for primary care physician services, in concert with Vermont agencies that provide planning and oversight for health care and related social services. Ensure one acute care hospital in each identified service area.

Recommendation 4. To the extent possible based on financial resources and the availability of appropriately trained health care personnel, assure access to a comprehensive continuum of community based health care and related social services within each community service area. The following services, tailored to community needs, should be accessible within each area: nursing home care, home health care, area agency on aging services, primary care physician services, hospital acute care and ambulatory care services, community mental health services, adult day care, respite, assisted residential services, residential care homes, homemaker and attendant services and transportation.

Recommendation 5. Coordinate roles and services for all health care and related social services within each community service area to support opportunities for independent living and to assure comprehensive, patient-centered case management for each patient or client.

Recommendation 6. Establish and monitor appropriate quality and performance measures for each category of community health care and related social services.

Recommendation 7. Provide clear information to individuals regarding how to report concerns or problems related to the quality and performance of community services.

6. State Policy Implications: Challenges and Opportunities

No additional information at this time.

II. Community-Based Mental Health and Substance Abuse Services

Quick Facts

- Most community outreach and prevention programs focus on substance abuse, including alcohol counseling and treatment and smoking cessation programs.

- Vermont CNAs highlight a need for increased mental health and substance abuse prevention, screening and aftercare services; greater access to residential care; and greater access to peer recovery services.

- Community-based suicide prevention programs are needed throughout the State.

1. Service/Facility/Resource Description

Community- and home-based mental health and substance abuse services include:

- Home health and hospice psychiatric nurses, social workers and bereavement counselors and community-based traumatic brain injury programs;
- Community outreach and prevention programs (including tobacco cessation);
- Educational-based programs for children;
- Employee and student assistance programs;
- Peer support programs;
- Drop-in recovery centers;
- Other recovery programs; and
- Residential care, transitional housing and halfway houses.

Home health and hospice psychiatric nurses, social workers and bereavement counselors, and community-based traumatic brain injury programs: Vermont's home care agencies provide some or all of the following services to consumers in home or community settings: psychiatric nursing, social work, services for people with traumatic brain injuries (TBI) and bereavement services. Other organizations also provide TBI services. The following tables show these services by provider:

Table 11: Home Care Agency Programs

Agency	Social Work	Bereavement Counseling/ Support Groups	Psychiatric Nursing	TBI Program
Addison Co. Home Health and Hospice	X	X		X
Bennington Area Home Health	X	X		X
Caledonia Home Health	X	X		X
Central Vermont Home Health	X	X	X	X
Dorset Nursing Association	X			
Franklin County Home Health	X	X		X
Lamoille Home Health	X	X		X
Manchester Health Services	X	X		X
Orleans-Essex Visiting Nurses	X	X		X
Professional Nurses Service		X		X
Rutland Area Visiting Nurses	X	X	X	X
Visiting Nurses of Vermont and NH	X	X	X	X
Visiting Nurse Association of Chittenden and Grand Isle Cos.	X	X	X	X

Sources: VNA Health Systems of Vermont web site, Professional Nurses Service web site

Table 12: Additional Providers of TBI Services

Organization	HSA	County
Northwestern Counseling & Support Services	St. Albans	Franklin
PRIDE Supports and Services	Barre	Washington
Lenny Burke's Farm, Inc./Stroke and Head Injury Independence Project	Rutland	Rutland
Riverview Life Skills Center	Burlington	Lamoille
Step-Up Community, Counseling, Educational Support Services (SUCCESS)	Barre	Washington
The Williams House	Burlington	Chittenden
Rutland Mental Health Services	Rutland	Rutland
Eagle Eye Farm	St. Johnsbury	Caledonia
Heaton Woods	Barre	Washington

Source: BISHCA Health Resources Inventory

Community outreach and prevention programs (including tobacco cessation): Much of the outreach and prevention work is in the area of substance abuse. Strategies include public information, education, substance-free social and recreational opportunities, early intervention, community-based programs, and environmental approaches. These programs include:

- Regional Substance Abuse Prevention Consultants (10 consultants)
- New Directions Coalitions (23 coalitions)
- Regional Community Grants
- Statewide Community Grants
- Veterans Administration Hospital Programs
- Project Rockinghorse for pregnant women (Rutland Mental Health Services, United Counseling Service, Northeast Kingdom Human Services)
- Streetworker Program (Howard Center for Human Services)
- Safe Recovery and Education Program (Howard Center for Human Services)

Project CRASH is a program for drinking drivers who have had their drivers' licenses suspended. Project CRASH Intake Evaluations are held at the locations listed in the following table.

Table 13: Project CRASH Locations

Region	Agency
Bellows Falls	Parks Place
Bennington	United Counseling Service
Brattleboro	Phoenix House, Inc.
Burlington	Champlain Drug and Alcohol
Middlebury	Counseling Service of Addison County
Montpelier	Central Vermont Substance Abuse
Morrisville	Behavioral Medicine
Newport	Tri-County Substance Abuse Service
Rutland	Rutland Mental Health
St. Albans	Champlain Drug and Alcohol
St. Johnsbury	Tri-County Substance Abuse Service
Springfield	Health Care and Rehabilitation Services
White River Junction	Health Care and Rehabilitation Services

Source: Vermont Department of Health web site

A significant amount of effort is being expended by the State in the area of tobacco cessation. According to the Vermont Department of Health State Health Plan "…the Vermont Tobacco Control Program includes community-based coalitions, school prevention curricula and policies, quit-smoking services, mass media and public education, and the enforcement of youth access laws."[145] There are 21 community-based coalitions, 56 sites for students in grades five through eight, and 16 sites for high-school- aged-youth. The goals of the Vermont effort are to reduce smoking among youth and adults by 50% from 2000 to 2010, and to reduce exposure to secondhand smoke.[146]

Suicide prevention programming is a key recommendation in various reports, including the *Department of Corrections Comprehensive Mental Health Services Plan* and the *Vermont State Health Plan*. Suicide was the ninth leading cause of death in Vermont in 2002[147], and the State Intentional Self-Harm (Suicide) Age-Adjusted Death Rate from 1998 to 2002 was 12.5 per 100,000 population. Rates for individual hospital service areas ranged from 8.3 to 16.0.[148] There is a work group called "Vermonters for Suicide Prevention," which consists of State legislators and Department of Health staff. The

[145] Vermont Department of Health Draft State Health Plan, Health Promotion focus area section; no page numbers. The Centers for Disease Control and Prevention have highlighted these six components as being key to successful tobacco control programs.
[146] Vermont Department of Health Draft State Health Plan
[147] 2002 Vital Statistics
[148] Hospital Community Needs Assessments, based on 1998-2002 Vital Records data

Department of Health is developing a broader prevention, early detection and intervention plan for mental illness as part of the suicide prevention effort. [149]

Vermont received a federal demonstration grant, Children's UPstream Services (CUPS), which has provided resources for screening, early intervention and consultation for children ages birth to 6 who are at risk of developing mental health problems.[150]

Educational-based services for children: Pre-school and school-aged children with mental health problems can potentially receive services from a number of educational programs. Vermont's Family, Infant and Toddler Project (based in 12 community agencies and supported by the Departments of Health and Education) uses a team approach and service coordinator to meet the needs of children up to age 3 and develop individual family service plans. The State's 16 Parent Child Centers provide prevention and support services, and seven regional Head Start Programs involve parents in their child's (through age 5) educational, social and physical development. Once children enter school, they have access to special education services, supports and accommodations under the auspices of Essential Early Education, Early Education Initiative, and Transition Services programs.[151]

Employee and student assistance programs: Employee and student assistance programs (EAPs and SAPs) seek to assist people with mental health and substance abuse disorders in the settings where they spend much of their time: work and school. EAP and SAP counselors and teams identify and screen people with mental health and substance use problems, provide interventions, and refer students and employees who need additional services to providers in the community. Education, increasing community awareness, support and referral are all key components of EAP and SAP programs.[152] The following tables show the geographic locations of SAP and EAP programs.

[149] Vermont State Hospital Futures Plan
[150] ***Pathways: A Resource Guide Connecting Families with Services and Supports for Children and Adolescents who Experience a Serious Emotional Disturbance***, Vermont Agency of Human Services, Department of Developmental and Mental Health Services, July 2002
[151] Ibid.
[152] Vermont Student Assistance Professionals web site

Table 14: Student Assistance Programs by Hospital Service Area

HSA	Number of Student Assistance Programs	HSA Population (10-17 age cohort)	Rate/100,000
Barre	11	7,359	149.48
Bennington	5	4,631	107.97
Brattleboro	4	3,546	112.80
Burlington	19	18,297	103.84
Middlebury	4	3,273	122.21
Morrisville	8	3,049	262.38
Newport	12	3,367	356.40
Randolph	3	1,648	182.04
Rutland	14	7,189	194.74
Springfield	4	3,084	129.70
St. Albans	9	5,502	163.58
St. Johnsbury	7	3,174	220.54
White River Junction	8	5,921	135.11
Statewide	**108**	**70,040**	**154.20**

Source: BISHCA Health Resources Inventory

Table 15: Employee Assistance Programs by Hospital Service Area and County

Organization	City	HSA	County
INVEST EAP	Burlington	Burlington	Chittenden
Consultants for Workplace and Family Health	Brattleboro	Brattleboro	Windham
Casey and Associates	St. Johnsbury	St. Johnsbury	Caledonia
Casey and Associates	Newport	Newport	Orleans
Resource Management Consultants	Concord	Other	Other
The Human Factor	Brattleboro	Brattleboro	Windham
The Trellis	Lebanon, NH	Other	Other
Howard Center for Human Services	Burlington	Burlington	Chittenden
Counseling Service of Addison County	Middlebury	Middlebury	Addison
United Counseling Service	Bennington	Bennington	Bennington

Source: BISHCA Health Resources Inventory

Peer support programs: There are several peer support programs in Vermont for people seeking support and recovery for both mental health and substance abuse disorders. For people with mental illness, Vermont Psychiatric Survivors is an independent peer-managed organization that offers support for local self-help groups, maintains a toll-free telephone hotline, provides assistance and advocacy through outreach workers, publishes the quarterly *Counterpoint* newspaper, and runs the Recovery Education Project. These activities are funded through grants and a contract with the State Division of Mental Health. The Vermont chapter of the National Alliance for the Mentally Ill (NAMI—VT)

runs the Family-to-Family educational program, a provider education program for community mental health center staff members, and a number of family member support groups. There are also at least two independently run mood disorder groups that received training from NAMI—VT: one in St. Johnsbury and the other in Montpelier. Community Links is a new pilot peer services program specifically for people who have experienced significant involuntary treatment. According to the February 2005 Vermont State Hospital Futures Plan, this program "matches trained peers to individuals at VSH and provides them with support using Recovery Education approaches and materials. This is the first peer initiative using an evidence-based psycho-educational approach targeted to individuals who have been repeatedly hospitalized at VSH. Preliminary findings of the pilot are encouraging."[153]

People with substance abuse disorders have an array of well-established peer support programs, such as Alcoholics Anonymous and Narcotics Anonymous. The following table shows the locations of Alcoholics Anonymous, Alateen, and Narcotics Anonymous meetings by hospital service area, as well as the rate per 100,000 population.

Table 16: Peer Support Services by HSA

	Alcoholics Anonymous		Alateen		Narcotics Anonymous	
HSA	**Location Count**	**Rate/100,000**	**Location Count**	**Rate/100,000**	**Location Count**	**Rate/100,000**
Barre	18	27.12	3	4.52	1	1.51
Bennington	19	46.54	7	17.14	4	9.80
Brattleboro	17	52.83	3	9.32	3	9.32
Burlington	21	12.52	7	4.17	6	3.58
Middlebury	5	17.63	2	7.05	1	3.53
Morrisville	7	26.51	4	15.15	0	0.00
Newport	7	24.71	2	7.06	1	3.53
Randolph	5	34.14	0	0.00	0	0.00
Rutland	23	35.75	1	1.55	4	6.22
Springfield	13	44.89	6	20.72	1	3.45
St. Albans	11	24.70	1	2.25	0	0.00
St. Johnsbury	9	33.07	1	3.67	0	0.00
White River Junction	20	40.63	3	6.09	3	6.09
Statewide	**175**	**28.27**	**40**	**6.46**	**24**	**3.88**

Source: BISHCA Health Resources Inventory

Drop-in recovery centers: Another Way in Montpelier is the only peer-run drop-in program for people with mental health disorders.[154] The Committee on Temporary

[153] Vermont State Hospital Futures Plan, 2-4-05, discussion with NAMI staff member 2-16-05
[154] Vermont State Hospital Futures Plan, 2-4-05; BISHCA Health Resources Inventory

Shelter in Burlington, and Morningside in Brattleboro also offer drop-in services for people facing homelessness, mental health issues, and substance abuse disorders.[155]

There are several drop-in recovery centers for people with substance abuse disorders (often called "Turning Point Clubs"), including centers in White River Junction, the VA Hospital, Rutland, Barre, Bennington and St. Johnsbury. Similar centers are proposed for Springfield and Burlington (the latter to replace a recently-closed facility in Colchester).[156]

Other recovery programs: The Recovery Education Project, mentioned above, is a highly respected program developed by Vermont resident Mary Ellen Copeland and others, and implemented statewide with the assistance of Vermont Psychiatric Survivors and the Division of Mental Health. The program seeks to teach people "how to reduce or eliminate psychiatric symptoms safely, simply, and effectively on a daily basis, and how to get well and stay well." The program also assists peers in becoming Recovery Educators. The mechanisms for accomplishing these objectives include recovery education cycles, recovery education events and training of recovery educators, using an established curriculum. Hundreds of peers, family members and providers have participated in the program since the mid-1990s. Sources: Vermont State Hospital Futures Plan, 2-4-05 and Recovery Education Project website

Transitional housing and halfway houses: There are various supportive housing arrangements for people with mental health and substance abuse disorders. For mental health, housing includes 135 community rehabilitation and treatment group home beds, 123 subsidized beds with supportive services, and rental assistance. In addition, there are two Safe Haven programs in Vermont for homeless people with mental illness, partially funded by the U.S. Department of Housing and Urban Development. These programs are in Randolph (unique nationally because it is run by peers and professionals with a strong recovery component) and Burlington. Residents can stay in these programs for up to two years.[157]

In the area of substance abuse, transitional housing is defined as short-term safe and sober housing, usually after residential rehabilitation programs. Residents have substance abuse diagnoses and must be involved in treatment. The following facilities offer transitional housing:[158]

- Act One/ Bridge (Burlington) – Crisis program; residents can stay for up to six days
- Spectrum (Burlington)
- Aerie Program (St. Johnsbury) – Provides services for women
- Morningside (Brattleboro) – Also provides case management and treatment services

[155] Conversation with staff at the Vermont Department of Health, 2-15-05
[156] Act 129 Task Force Substance Abuse Treatment Access Subcommittee Inventory, BISHCA Health Resources Inventory, conversation with staff at the Vermont Department of Health, 2-15-05
[157] Vermont State Hospital Futures Report
[158] Act 129 Substance Abuse Subcommittee Treatment Inventory

- Committee on Temporary Shelter (Burlington) – Also provides case management and treatment services
- Willow Grove (Upper Valley Foundation, White River Junction) – Provides services for women
- Dodge House (Rutland) – Provides services for veterans
- Oxford Houses (Burlington and Barre) – Provides services for men in Barre and at three locations in Burlington, and services for women in Burlington. These houses are affiliated with a national organization, have no professional staff and are self-run.

Halfway housing provides services to people with substance abuse disorders. These are professionally structured facilities, usually associated with treatment programs. Residents can stay for six months to one year. They are expected to work and participate in treatment programs. They cannot stay if relapse occurs (but they can return after treatment and if substance free). Halfway houses in Vermont include:

- Grace House (Rutland, associated with Serenity House)
- Rise (Brattleboro, associated with Phoenix House and HCRS)
- Tapestry (Brattleboro, associated with Department of Corrections and Retreat Healthcare)
- Middle House (Bellows Falls, the least affiliated, but most clients from HCRS) [159]

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

- Not all CON Standards will be applicable for a particular CON application.

- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

[159] Act 129 Substance Abuse Subcommittee Treatment Inventory

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[160]

- **I.** **Safety**: avoiding injuries to patients from the care that is intended to help them;
- **II.** **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
- **III.** **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
- **IV.** **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
- **V.** **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
- **VI.** **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Under pre-HRAP Certificate of Need (CON) laws and guidelines, the provision of mental health services by individual mental health practitioners is generally excluded from CON review (18 V.S.A. § 9435(a)). Commissioner-designated agencies in the community and inpatient psychiatric units that receive public-sector oversight are generally reviewed under CON or similar review procedures when new services are introduced. Current

[160] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

CON Guidelines focus on developing a coordinated system that encourages access to the appropriate level of care. CON Guidelines state that organizations providing mental health services should have linkage agreements with other appropriate providers in the community to assure a coordinated system of care that allows access to the appropriate level of care. Additionally, according to CON Guidelines, CON decisions should reflect the desirability of retaining the designated local provider network for the treatment of individuals with long-term and severe psychiatric needs.

B. Vermont State Health Plan

Please see Staff Research, below.

C. Hospital Community Needs Assessment

Please see Staff Research, below.

D. The Six Institute of Medicine (IOM) Aims

All six IOM Aims (Safety, Timeliness, Effectiveness, Efficiency, Equity, and Patient-Centered) apply to mental health and substance abuse services. There is particular focus in Vermont on achieving patient-centered (and family-centered) mental health and substance abuse care (see Vermont State Hospital Futures Plan and the Vermont State Health Plan). Safety is also currently a key focus for the most seriously mentally ill Vermont residents, given the recent decertifications of the Vermont State Hospital due to safety concerns. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

Vermont has a stated goal of providing mental health and substance abuse care in the least restrictive setting possible. As noted elsewhere in the HRAP, access to outpatient and community services is likely to reduce the need for inpatient and emergency services.

The Act 53 Hospital Community Needs Assessments highlighted the following needs related to community health services:

- There is a need for more mental health and substance abuse prevention, screening and aftercare services;
- There is a lack of access to residential care; and
- There is a need for more peer recovery services.

The Vermont State Health Plan also recognized the need for suicide prevention programs, access to a full range of community-based treatment and support, affordable housing options, substance abuse primary prevention efforts, safe and sober housing for people in recovery, and increased peer-operated programs for mental health recovery.

The Sustainability Study contains a survey of designated agencies indicating that there are waiting lists for supportive housing among community rehabilitation and treatment clients. The waits can range from several months to more than two years.[161]

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Long-term Care Services sub-chapter on page 201.

- Hospital Community Needs Assessments highlighted a need for more mental health and substance abuse prevention, screening and aftercare services.

- Suicide was the ninth leading cause of death in Vermont in 2002; there is a need for a comprehensive suicide prevention effort, which is being spearheaded by the Vermont Department of Health.

- Peer recovery programs initiated in Vermont, such as the Recovery Education Project, have been successful and should continue to be expanded.

- Supportive, affordable housing is highlighted as a need in several reports.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for community-based mental health and substance abuse health care services. The boxed recommendations are considered the highest priority for these services.

Recommendation 1. Enhance mental health community outreach and prevention programs to ensure timely treatment and reduce mortality.

All recommendations:

Recommendation 1. Enhance mental health community outreach and prevention programs to ensure timely treatment and reduce mortality.

> **Implementation Option 1.1.** "Develop community based suicide prevention programs based on the National Strategy for Suicide Prevention." (Vermont State Health Plan 2005, 2-14-05)

[161] Sustainability Study

Implementation Option 1.2. Develop public health prevention and education strategies for mental health.

Implementation Option 1.3. "Develop community outreach programs to identify individuals at high risk for mental illness or associated problems, and assist them in obtaining needed services from the most appropriate community resource." (Vermont State Health Plan 2005)

Recommendation 2. Ensure that people experiencing mental health and substance abuse disorders have access to a full range of recovery and support services.

Implementation Option 2.1. Expand peer support programming.

Implementation Option 2.2. Expand recovery housing.

Implementation Option 2.3. Expand ancillary legal services.

Implementation Option 2.4. Expand trauma-informed transportation services. (Secretary Charles Smith's Recommendations for the Future of Services Provided at the Vermont State Hospital, 2-4-05)

Implementation Option 2.5. Evaluate supply, capacity and reported shortages of residential treatment.

Recommendation 3. In the area of substance abuse prevention, "develop, support and maintain primary prevention coalitions, programs and activities…" (Vermont State Health Plan 2005)

Implementation Option 3.1. Support "community coalitions now funded through the Department of Health's New Directions and Tobacco-free Community Grant programs." (Vermont State Health Plan 2005)

6. State Policy Implications: Challenges and Opportunities

Vermont faces many challenges in the mental health and substance abuse arenas including:

- the decertification of and calls to close the Vermont State Hospital;
- the loss of federal funding for freestanding Institutes of Mental Disease;
- concerns about access to high-quality mental health and substance abuse treatment for offenders in the State's Corrections System;
- calls to improve care for involuntary and forensic patients;
- funding concerns in the designated agency system;
- the need to shore up outpatient, community-based and preventive services; and

- troubling statistics about the prevalence of substance abuse and dependence and serious mental illness, particularly among the State's youth.

Statistics on prevalence indicate that there might be unmet need for services; funding concerns, along with potential uncertainty about the most effective treatments, may be obstacles to designing the ideal treatment system.

These same pressures create opportunities to improve mental health and substance abuse treatment in Vermont. The challenges surrounding inpatient care, corrections mental health, and the designated agency system present an opportunity to engage in intentional redesign of the treatment system. The studies that have been done in response to these issues contain valuable information on how to begin to accomplish the redesign. Vermont can also build on existing strengths in mental health and substance abuse treatment. The State has been a national leader in community-based services, peer support and other initiatives; this expertise can serve as a building block for strengthening outpatient and community-based care. In addition, the cohesive, active and effective peer, family and advocacy organizations can help move Vermont toward the goal of a more patient-centered, consumer- and family-driven, and community-based system of care.

Chapter 4: Other Medical Services

SUMMARY

The term 'other medical services' refers specifically to providers who deliver services within conventional medical care, and also who complement or offer alternatives to conventional medical care. These providers include chiropractors, acupuncturists, naturopathic physicians, massage therapists, physical, occupational and respiratory therapists, pharmacists and pharmacy technicians, as well as other providers. (Beyond the services outlined in this chapter, there are additional Vermont health care service providers who provide a valuable benefit to the State's population. Their exclusion here does not diminish their contribution in complementing the rest of the health care system.) Because the services other medical services providers offer are diverse, often independently delivered and sometimes not subject to the full regulations of conventional medicine, it is sometimes difficult to define standards for utilization, quality and access. The case for complementary and alternative medicine as a meaningful part of the overall medical system has been made at the national level, however. To better quantify the need for other medical services in Vermont, recommendations call for improved data collection around workforce and statewide access to and utilization of providers.

Quick Facts

- Alternative medical providers offer services that substitute for conventional medical care. Complementary providers deliver therapies meant to be used in conjunction with conventional medical treatment.

- National data indicate 36% of adult Americans used some form of complementary or alternative medicine in 2002; including prayer and the use of megavitamins raises the percentage to 62%.

- The Vermont Healthcare Workforce Development Partnership identifies problems with recruitment and retention of occupational therapists, respiratory therapists, pharmacists, and pharmacy technicians.

- Community Needs Assessments for Brattleboro Hospital/Retreat Healthcare, North Country, Porter and Springfield broadly indicate a greater need for complementary and alternative care. Several additional CNAs specifically identify greater needs for pharmacists, physical therapists, occupational therapists and/or respiratory therapists.

- Vermont employs 88.8 pharmacists per 100,000 population, compared to a national average of 71.3.

1. Service/Facility/Resource Description

Complementary and Alternative Medicine

Complementary and alternative medicine (CAM) is a group of diverse medical and health care systems, therapies and products that are not presently considered to be part of conventional medicine.[162] There is a distinction between complementary and alternative medicine. According to the U.S. National Center for Complementary and Alternative Medicine, "*complementary* medicine is used *together with* conventional medicine, and *alternative* medicine is used *in place of* conventional medicine."[163] CAM therapies include provider-based therapies such as acupuncture and chiropractor, as well as other therapies that do not require a provider, such as natural products, special diets, and megavitamins.[164] The CAM providers highlighted in this report include:

Chiropractic is a CAM alternative medical system. It focuses on the relationship between bodily structure (primarily that of the spine) and function, and how that relationship affects the preservation and restoration of health. Chiropractors use manipulative therapy as an integral treatment tool. (http://nccam.nih.gov/health/whatiscam/#6)

Naturopathic medicine, or naturopathy, is a CAM alternative medical system. Naturopathic medicine proposes that there is a healing power in the body that establishes, maintains, and restores health. Practitioners work with the patient with a goal of supporting this power, through treatments such as nutrition and lifestyle counseling, dietary supplements, medicinal plants, exercise, homeopathy, and treatments from traditional Chinese medicine. (http://nccam.nih.gov/health/whatiscam/#6)

Acupuncturists practice a procedure used in or adapted from Chinese medical practice in which specific body areas are pierced with fine needles for therapeutic purposes, to relieve pain, or produce regional anesthesia. Other non-invasive methods can be used as well to stimulate particular body locations. There are a number of different approaches to diagnosis and treatment in American acupuncture that incorporate medical traditions from China, Japan, Korea, and other countries.[165] Acupuncturists in Vermont must graduate from a three-year acupuncture school or complete a training program of self-directed study, apprenticeship, and/or academic work, and pass a comprehensive examination to be licensed.[166]

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[162] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. *Complementary and Alternative Medicine Use Among Adults: United States, 2002*. Number 343: May 27, 2004, p.1.
[163] U.S. Department of Health and Human Services, National Center for Complementary and Alternative Medicine. *The Use of Complimentary and Alternative Medicine in the United States, p. 1*.
[164] Ibid, p. 2.
[165] http://nccam.nih.gov/health/whatiscam/; www.answers.com
[166] http://www.leg.state.vt.us/statutes/fullchapter.cfm?Title=26&Chapter=075

Massage therapists apply pressure and manipulate the soft tissues of the body, including muscles, connective tissue, tendons, ligaments, and joints, to heal injury, manage pain, improve circulation, and relieve tension. There are more than 100 different types of massage therapy, and massage can be applied to specific parts of the body or successively to the whole body.[167] Although there is a national licensing agency for massage therapists, Vermont currently does not require a license or certification to practice in the State.

Licensed Therapists

Physical therapists treat disorders of the muscles, bones, and joints with physical agents such as heat, light, water, manual and electronic massage, and with exercise. Stroke, arthritis, fractures, nerve damage, and inflammation are common conditions treated. The type of treatment needed is prescribed by physicians and carried out by trained physical therapists who attempt to prevent pain or further damage, and may also train different muscles to compensate for those that have been damaged.[168] Physical therapists are required to be licensed by the Secretary of State's office in Vermont.

Occupational therapists work with the disabled, the elderly, newborns, school-aged children, and with anyone who has a permanent or temporary impairment in their physical or mental functioning. The aim of occupational therapy is to help individuals perform daily tasks in their living and working environments and to assist them to develop the skills to live independent, satisfying, and productive lives. Interventions used by occupational therapists include rehabilitation of neuropsychological deficits (memory, attention, complex reasoning), motor function, sensory function (vision, perception of touch), and interpersonal skills (e.g., social skills).[169] Occupational therapists must have a bachelor's degree and are required to be licensed by the State of Vermont.

Respiratory therapists help people experiencing breathing problems. They test patients for breathing capacity and analyze oxygen and carbon dioxide concentrations. To improve breathing, respiratory therapists treat patients with exercises and physiotherapy, by administering inhaled medications and, if necessary, by hooking up ventilators for patients who cannot breathe for themselves. They are also educators, making sure patients and their families know about maintaining cardiopulmonary function and health. To practice in Vermont, respiratory therapists must have an associate's or advanced degree and are required to be licensed by the State.[170]

[167] http://nccam.nih.gov/health/whatiscam/; www.answers.com
[168] http://www.apta.org/pt_magazine/oct99/closer.html; www.answers.com
[169] http://www.aota.org/featured/area6/index.asp; www.answers.com
[170] Vermont Healthcare Workforce Partnership – Human Resource Investment Council. *Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry* (Draft), 2004

Pharmacy Workforce

Pharmacists work closely with physicians and other health practitioners in hospitals and pharmacies to ensure that patients are treated with the safest and most effective medications. They routinely review medication orders, prescriptions, and medication profiles to help ensure appropriate drug selection, dose and dosing schedule. Pharmacists look for drug-drug and drug-food interactions that may be harmful. If a pharmacist identifies a drug related problem or detects a potentially dangerous situation, she or he is responsible for notifying the doctor, patient, or both, and for recommending potential alternatives.[171] Pharmacists must have a Doctor of Pharmacy degree and are required to be licensed by the State.

Pharmacy technicians are people who work with a licensed Pharmacist to provide medication and other health care products to patients. Technicians often do the routine tasks associated with preparing prescribed medication and with delivering medications to patients.[172]

2. Current Supply and Distribution

There are limited data on many of these other medical services, particularly utilization data. However, because many of these practitioners must be licensed by the State, the number and location of these Vermont practitioners are known. The following tables present this information (by county, if available). Note that in the column of "Count of Practice Locations" in some of the tables, one practitioner may operate in multiple locations. Analyses or counts of full time equivalents by these professions were not available. Comparative state information (rates per 100,000) was also unavailable for most of these occupations.

Complementary and Alternative Medicine

- Essex, Franklin, Grand Isle, and Orange counties appear underserved by chiropractors compared to the rest of the State. There are approximately 24 chiropractors per 100,000 population nationally.[173]

- There are no naturopathic physicians in Essex, Franklin, Grand Isle, Orleans, and Rutland counties

- There are no active acupuncturists in Bennington, Essex, or Franklin counties. Caledonia, Orange, and Orleans counties also appear somewhat underserved compared to the rest of the State.

[171] ibid.
[172] ibid.
[173] 2001 data, HRSA web site

- Note that since there is no licensing requirement for massage therapists in the State of Vermont, the number of practitioners and number of practice locations may not be complete. According to the table below, Essex, Franklin, and Orleans counties could be considered somewhat underserved by massage therapists.

Table 1: Vermont Complementary and Alternative Providers

Complementary and Alternative Medicine (CAM)

	Chiropractors[1]		Naturopathic Physicians[2]		Acupuncturists[2]		Massage Therapists[3]	
County	Count of Practice Locations	Rate per 100,000	Count of Practice Locations	Rate per 100,000	Count of Practice Locations	Rate per 100,000	Count of Practice Locations	Rate per 100,000
Addison	10	27.15	2	5.4	4	10.9	26	70.6
Bennington	13	34.97	1	2.7	0	0.0	24	64.6
Caledonia	11	36.74	2	6.7	1	3.3	13	43.4
Chittenden	65	43.63	9	6.0	28	18.8	87	58.4
Essex	0	0.00	0	0.0	0	0.0	1	15.2
Franklin	7	14.89	0	0.0	0	0.0	12	25.5
Grand Isle	1	13.35	0	0.0	2	26.7	3	40.1
Lamoille	8	32.94	1	4.1	4	16.5	28	115.3
Orange	2	6.88	1	3.4	2	6.9	15	51.6
Orleans	10	36.90	0	0.0	1	3.7	8	29.5
Rutland	14	22.05	0	0.0	7	11.0	55	86.6
Washington	18	30.59	4	6.8	13	22.1	66	112.2
Windham	14	31.55	5	11.3	12	27.0	56	126.2
Windsor	23	39.73	5	8.6	13	22.5	65	112.3
Total	**196**	**31.66**	**30**	**4.8**	**87**	**14.1**	**459**	**74.1**

Total # Practitioners	**186**	**36**	**90**	**455**
# Practitioners/100,000	**30.0**	**5.8**	**14.5**	**73.5**

FTE information is not available

Population estimate from U.S. Census Bureau, July 1, 2003

n.a. Not avaliable

Practitioner count is a count of individuals who are active and licensed (except for massage therapists) in the state of Vermont

VT practice location is unknown for some practitioners

[1] *Data Source: HRI Database, Navigant cites Secretary of State Office of Professional Regulation, Blue Cross Blue Shield Provider Directory, and MVP Provider Directory*

[2] *Data Source: HRI Database, Navigant cites Secretary of State Office of Professional Regulation*

[3] *Data Source: HRI Database, Navigant cites National Certification Board for Therapeutic Massage and Bodywork website, American Organization for Bodywork Therapies of Asia website, American Massage Therapy Association website, Phonebooks*

Physical, Occupational and Respiratory Therapy

- Essex, Orange, and Orleans counties could be considered somewhat underserved by physical therapists, and Addison, Franklin, Grand Isle, Orange, and Orleans counties could be considered somewhat underserved by occupational therapists. There are limited data on respiratory therapists.

- According to a survey conducted by the UVM Office of Nursing Workforce Research, Planning and Development in 2003, the turnover rate for occupational therapists was 38% in a hospital, 31% in a home health setting, and 17% in a long-term-care setting.[174] Vacancy rates, however, were much lower, at 2%, 0%, and 1%, respectively.[175] The high turnover rates caused this profession to be identified as a workforce priority by the Vermont Healthcare Workforce Development Partnership.

[174] Vermont Healthcare Workforce Partnership – Human Resource Investment Council. *Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry* (Draft), 2004, p. 41.
[175] Ibid, p. 41.

Table 2: Complementary Providers

Other Medical Services - Licensed Therapists

	Physical Therapists[1]		Occupational Therapists[1]		Respiratory Therapists[2]	
County	Count of Practice Locations	Rate per 100,000	Count of Practice Locations	Rate per 100,000	Count of Practice Locations	Rate per 100,000
Addison	38	103.2	5	13.6	n.a.	n.a.
Bennington	37	99.5	8	21.5	n.a.	n.a.
Caledonia	22	73.5	8	26.7	n.a.	n.a.
Chittenden	303	203.4	71	47.7	n.a.	n.a.
Essex	2	30.4	3	45.7	n.a.	n.a.
Franklin	45	95.7	7	14.9	n.a.	n.a.
Grand Isle	15	200.3	1	13.4	n.a.	n.a.
Lamoille	28	115.3	12	49.4	n.a.	n.a.
Orange	16	55.0	3	10.3	n.a.	n.a.
Orleans	13	48.0	3	11.1	n.a.	n.a.
Rutland	72	113.4	34	53.5	n.a.	n.a.
Washington	78	132.6	16	27.2	n.a.	n.a.
Windham	65	146.5	14	31.5	n.a.	n.a.
Windsor	58	100.2	26	44.9	n.a.	n.a.
Total	**792**	**127.9**	**211**	**34.1**	**n.a.**	**n.a.**

Total # Practitioners	**756**	**239**	**148**
# Practitioners/100,000	**122.1**	**38.6**	**23.9**

FTE information is not available

Population estimate from U.S. Census Bureau, July 1, 2003

n.a. Not avaliable

Practitioner count is a count of individuals who are active and licensed in the state of Vermont

VT practice location was unknown for some practitioners

[1] *Data Source: HRI Database, Navigant cites Secretary of State Office of Professional Regulation, Blue Cross Blue Shield Provider Directory, and MVP Provider Directory*

[2] *Data Source: Secretary of State Office of Professional Regulation*

Like occupational therapists, recruitment and retention of respiratory therapists is also a problem in Vermont. With an 18% vacancy rate and 23% turnover rate in hospitals (ranking third-highest vacancy rate in the hospital setting), respiratory therapy also has been identified as a workforce priority by the Vermont Healthcare Workforce Development Partnership.[176]

[176] Ibid, p. 58.

Pharmacy

- At 88.8, Vermont has more pharmacists per 100,000 population than the U.S. average of 71.3. As in the nation, recruitment and retention of pharmacists appears to be a problem in Vermont. According to a survey conducted in 2003 by the UVM Office of Nursing Workforce Research, Planning, and Development, there was a 23% vacancy rate for pharmacists and a 23% turnover rate in hospital settings.[177] This same survey also reported a 35% vacancy rate for pharmacy technicians and a 14% turnover rate in hospital settings. Pharmacy technicians had the highest vacancy rate reported by hospitals.[178]

- There are 158 pharmacies distributed throughout Vermont.

Table 3: Pharmacy Workforce

Other Medical Services - Pharmacy Workforce

	Pharmacists[1]	Pharmacy Technicians[2]
Total # Practitioners	**550**	**738**
# Practitioners/100,000	**88.8**	**119.2**

US Pharmacists/100,000[3]	**71.3**	**n.a.**

FTE information is not available

Population estimate from U.S. Census Bureau, July 1, 2003

n.a. Not avaliable

Practitioner count is a count of individuals who are active and licensed in the state of Vermont

[1] *Data Source: HRI Database, Navigant cites Secretary of State Office of Professional Regulation*

[2] *Data Source: Secretary of State Office of Professional Regulation*

[3] *Data Source: HRSA, National Center for Health Workforce Analysis: U.S. Health Workforce Personnel Factbook Table 503. Available at: http://bhpr.hrsa.gov/healthworkforce/reports/factbook.htm*

3. Assessment of Needs and Priorities

A. Certificate of Need (CON) Standards

Vermont law requires public review and the receipt of a Certificate of Need prior to the development of certain health care projects (see 18 V.S.A. section 9431 et. seq). Such projects must also be consistent with the HRAP in order to receive a CON. Please refer to the CON Standards contained in Section Four of this HRAP.

[177] Ibid, p. 45.
[178] Ibid, p. 48.

- Not all CON Standards will be applicable for a particular CON application.

- After filing a letter of intent, but before filing an application, applicants will be invited to meet with the Department CON staff at a pre-application meeting to obtain guidance, including a discussion of which CON Standards the Department will waive as not relevant to the particular application.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

CON STANDARDS – THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[179]

I. **Safety**: avoiding injuries to patients from the care that is intended to help them;
II. **Timeliness**: reducing waits and sometimes harmful delays for both those who receive and those who give care;
III. **Effectiveness**: providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit;
IV. **Efficiency:** avoiding waste, including waste of equipment, supplies, ideas, and energy;
V. **Patient-centeredness**: providing care that is respective of and responsive to individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions;
VI. **Equity**: providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

[179] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century*, 2003.

CON history and recommendations:

During the development of this HRAP, advisory committee members made the following recommendations regarding CON issues. Advisory committee members and staff also referenced CON guidelines, which were applicable at the time of the development of the HRAP. The guidelines may or may not have been re-adopted as the HRAP CON Standards. See Section Four for the CON Standards.

Per 18 V.S.A. § 9435, most offices of physicians, dentists or other practitioners of the healing arts are generally exempted from the CON process except in certain circumstances as stated in 9435(c).

B. Vermont State Health Plan

The Vermont State Health Plan does not specifically address all of the other medical services providers listed in this chapter. However, the State Health Plan does identify four action steps in relation to the health care workforce in general (see below).[180] These calls for action are applicable to the providers highlighted in this chapter.

Action needed:

- Develop a comprehensive provider database to monitor supply of health care providers, predict needs, develop priorities and target specific actions.
- Investigate the feasibility of a coordinated workforce partnership to promote education in the health professions and manage recruitment and retention services.
- Ensure continued competency of providers in their chosen profession, including assistance to better provide patient-centered, collaborative care.
- Ensure that all health professions training in Vermont incorporate the concepts of the Vermont Model for Care, collaborative learning opportunities and exposure to models of good care.

In addition, the State Health Plan references the increasing use of CAM and cites research that "suggests that use of CAM is not due primarily to dissatisfaction with conventional medicine and that better understanding of its use and collaboration with CAM providers, offers the provider of traditional care insight and opportunity to better serve his or her patient."[181] Please see the Vermont State Health Plan for more information.

[180] State of Vermont, Agency of Human Services, Department of Health. *2005 Vermont State Health Plan*, Planning Area: Providers (draft dated January 2005).
[181] Ibid.

C. Hospital Community Needs Assessments

Four of the hospital CNAs, those for Brattleboro Hospital/Retreat Healthcare, North Country, Porter, and Springfield) indicated a greater need for complementary and alternative care. The Brattleboro community specifically identified a need to improve insurance coverage for complimentary care.

Four hospitals (Brattleboro Hospital/Retreat Healthcare, Copley, North Country, and Springfield) identified pharmacists as very difficult positions for recruitment within their communities. Additionally, the Gifford CNA reported difficulty filling pharmacy technician positions.

Several hospital CNAs also identified difficulty recruiting and filling therapist positions: Copley and North Country both reported trouble with finding physical therapists; Central Vermont Medical Center indicated difficulty hiring occupational therapists; and Gifford identified difficulty with recruiting respiratory therapists.

D. The Six Institute of Medicine (IOM) Principles

All six IOMs (timely, effective, efficient, safe, patient-centered, and equitable) are applicable to other medical service providers. Because this list is quite varied in terms of services provided, it is difficult to identify one or two IOMs that have more applicability for this group as a whole. Please see Section Four, Certificate of Need Standards, for more information about the IOM Aims and their relationship to HRAP CON Standards.

E. Staff Research

There are limited data and benchmarks with which to compare to these other medical service providers in Vermont. The independent nature of these practitioners and the particular individual treatment of each client (or patient) make it difficult to collect and standardize data.

Complementary and Alternative Medicine

Although Vermont-specific data for CAM therapies are unavailable, there are some informative national data about this type of care. Based on a 2002 federal survey, which surveyed more than 31,000 individuals aged 18 and over nationwide, 36% of adult Americans reported using some form of CAM within the past 12 months.[182] If megavitamin therapy and prayer specifically for health reasons were also included, then

[182] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. *Complementary and Alternative Medicine Use Among Adults: United States, 2002*. Number 343: May 27, 2004, p.6.

the percentage rose to 62%. [183] According to this survey, CAM was most often used for treatment of back pain or back problems, head or chest colds, neck pain or neck problem, joint paint or stiffness, and anxiety or depression. Certain demographic groups were also reported to be more likely to use CAM therapies. Greater use was reported by women than men; people who lived in urban areas; people with higher educational levels; people who had been hospitalized in the past year; and former smokers, compared with current smokers or those who have never smoked.

The 10 most commonly used CAM therapies during the past 12 months were:

- use of prayer for one's own health (24.4%);
- natural products (18.9%);
- deep breathing exercises (11.6%);
- participation in prayer group for one's own health (9.6%);
- meditation (7.6%);
- chiropractic care (7.5%);
- yoga (5.1%);
- massage (5.0%); and
- diet-based therapies (3.5%).[184]

Many employers, recognizing the benefits of some CAM and/or responding to employee demand for these services, have integrated some of these therapies into their existing insurance plans. For example, according to an employer benefits survey conducted by the Kaiser Family Foundation and Health Research and Educational Trust, 87% of all employers surveyed offered chiropractic as a covered health benefit in 2004, up from 80% in 2002.[185] This same survey also reported that 47% of employers covered acupuncture services in 2004. This compared to 32% in 2002.[186] Most CAM therapies, however, are not included as covered benefits in employer insurance plans.

Pharmacies

Although there are 158 pharmacies in the State, awareness of alternative sources of prescription drugs is increasing. Use of mail order has increased, especially with the growing use of the Internet, and some people are choosing to cross the border into Canada to buy prescription drugs at less expensive prices than offered in the United States.

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[183] For a full list of CAM therapies, please see report above. A partial listing of CAM therapies included acupuncture, biofeedback, chiropractic care, diet based therapies, folk medicine, meditation, yoga, and massage.
[184] U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. *Complementary and Alternative Medicine Use Among Adults: United States, 2002*. Number 343: May 27, 2004, p.1.
[185] Henry J. Kaiser Family Foundation and Health Research and Educational Trust. *Employer Benefits Survey 2004 Annual Survey*, p. 106. 2002 data is from *2002 Annual Survey*, p. 108.
[186] Ibid.

4. Priorities and Special Considerations

The priority for the provision of other medical services is to provide high quality, evidence-based care. This includes defining roles for alternative care providers and improving access to other provider services, including, but not limited to, services provided by pharmacists and pharmacy technicians; opticians and optometrists; physical, occupational, respiratory and speech therapists; chiropractors; dieticians; and alternative care providers.

Besides the services outlined in this chapter, there are other health care service providers in Vermont who provide a valuable benefit to the State's population. That they may not be included here or may not require a license by the State does not diminish their contribution in complementing the rest of the health care system. Data are difficult to obtain on these providers.

5. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for other medical services. The boxed recommendations are considered the highest priority for these services.

Recommendation 2. Explore the need to identify quality measures and evidence-based practices for other medical services (including but not limited to physical therapists, occupational therapists, respiratory therapists, speech therapists, pharmacists, pharmacy technicians, dieticians, podiatrists, opticians, optometrists, chiropractors, and other alternative care providers).

Recommendation 1. Assess the workforce needs for other medical services (including but not limited to physical therapists, occupational therapists, respiratory therapists, speech therapists, pharmacists, pharmacy technicians, dieticians, podiatrists, opticians, optometrists, chiropractors, and other alternative care providers) and explore options for better serving underserved areas.

All recommendations:

Recommendation 1. Assess the workforce needs for other medical services (including but not limited to physical therapists, occupational therapists, respiratory therapists, speech therapists, pharmacists, pharmacy technicians, dieticians, podiatrists, opticians, optometrists, chiropractors, and other alternative care providers) and explore options for better serving underserved areas.

> **Implementation Option 1.1.** Expand and refine the Health Resource Allocation Plan database maintained by the Department of Banking, Insurance, Securities and Health Care Administration to improve the understanding of supply and demand of other medical services professionals.

Implementation Option 1.2. Develop new data collection methods in partnership with regulatory and professional organizations.

Recommendation 2. Explore the need to identify quality measures and evidence-based practices for other medical services (including but not limited to physical therapists, occupational therapists, respiratory therapists, speech therapists, pharmacists, pharmacy technicians, dieticians, podiatrists, opticians, optometrists, chiropractors, and other alternative care providers).

Implementation Option 2.1. Research evidence-based practices and clinical effectiveness of other medical services.

Implementation Option 2.2. Survey the licensure and certification requirements of other medical services professions in other states**.**

6. State Policy Implications: Challenges and Opportunities

The independent nature of many of Vermont's other medical service providers, as well as the different and wide-ranging levels of service they offer, present a challenge in determining appropriate standards that would serve as benchmarks against which to measure utilization, quality, and access. Opportunities exist here, however, to set up a system of data tracking that would enable analysis at the local, regional, and statewide level, and also enable comparisons to other state and national data.

Although many CAM therapies have not been evaluated in terms of their clinical or cost effectiveness, some literature supports CAM's use, such as the U.S. National Institutes of Health (NIH) consensus statement on acupuncture.[187] Currently, the NIH supports more than 200 studies involving CAM. Additional resources from both the public and private sectors are needed to promote additional research in this area. Additionally, while the regulation of CAM clinicians can vary by state, most disciplines have a national regulatory body or association to which many of these practitioners subscribe. Overall, the number of disciplines that are licensed or registered has increased in Vermont, but the role of the State in credentialing and tracking of CAM providers needs further discussion.

Recruitment and retention of licensed occupational and respiratory therapists, pharmacists, and pharmacy technologists continues to be a issue as turnover and vacancy rates are well into the double digits for most of these professions in Vermont. Coordinating efforts to recruit and train for these jobs by communities, hospitals, and other providers may provide a more stable and consistent workforce in the future.

[187] http://consensus.nih.gov/cons/107/107_intro.htm

Chapter 5: Healthcare Workforce

SUMMARY

Vermont's healthcare workforce is a diverse network of practitioners delivering services in different disciplines and at varying levels of expertise to provide comprehensive care for all State residents. In view of an aging population with growing demands for health care services and an aging health care workforce prone to shortages and mal-distribution, maintaining an adequate and well distributed health care work force is growing in importance. While this health resource allocation plan (HRAP) was being developed, the Healthcare Workforce Development Partnership (the partnership) was formed as a subcommittee of the Human Resources Investment Council (HRIC), a public-private partnership that serves as the statewide oversight body for monitoring employment and training programs. The partnership was formed in response to growing health care workforce shortages and pressures in Vermont to determine how to address the most important issues related to developing a viable and stable health care work force. The partnership applied criteria related to vacancy, turnover, projected demand, and other relevant factors and identified a list of twenty priority professions. Within the HRAP, BISHCA acknowledges the important contribution of this group and the findings and recommendations contained in the Vermont Report of the Healthcare Workforce Partnership published in mid-2005.

While the HRAP addresses the majority of the workforce categories discussed in the partnership's report, the HRAP does not address all categories. These may be appropriate for future inclusion in the HRAP. The partnership also acknowledged the importance of health professionals in mental health and substance abuse settings and educational settings but lack of data prohibited addressing these categories in the partnership report. The HRAP addresses some additional workforce categories not included in the partnership's report. Decisions regarding what workforce categories to include in the HRAP were primarily driven by the statutory requirements of Act 53 and input from the HRAP Advisory Committee. Table 1 compares the categories addressed in the HRAP with those addressed in the Report of the Health Workforce Partnership.

Table 1: Comparison of HRAP and Healthcare Workforce Partnership Report

Healthcare Workforce Partnership Report: 20 Priority Professions	Addressed in HRAP Chapter(s)
Adult and child psychiatrist	Ambulatory Care, Workforce
Dental assistant	Ambulatory Care
Dental hygienist	Ambulatory Care
Dentist	Ambulatory Care, Workforce
Dietetic technician	No
Licensed practical nurse	Workforce
Registered nurse	Workforce
Psychiatric nurse practitioner	Ambulatory Care, Workforce
Medical laboratory technician	No
Medical laboratory technologist	No
Occupational therapist	Other Medical Services
Personal care attendant	Workforce
Pharmacist	Other Medical Services
Pharmacy technician	Other Medical Services
Primary care physicians	Ambulatory Care, Workforce
Specialty care physicians	Ambulatory Care, Workforce
Radiologic technologist	No
Respiratory therapist	Other Medical Services
Social worker	Ambulatory Care, Workforce
Speech language pathologist	No

Included in HRAP/Not included in Workforce Partnership Report	Addressed in HRAP Chapter(s)
Overview of All Physicians	Ambulatory Care, Workforce
APRN Overview	Ambulatory Care, Workforce
APRN/ Primary Care Detail	Ambulatory Care, Workforce
APRN/ Specialty Care Detail	Ambulatory Care, Workforce
Certified Registered Nurse Anesthesist	Workforce
PA Overview	Ambulatory Care, Workforce
PA/ Primary Care Detail	Ambulatory Care, Workforce
PA/ Specialty Care Detail	Ambulatory Care, Workforce
MH/SA Psychologist	Ambulatory Care, Workforce
MH/SA LICSW	Ambulatory Care, Workforce
MH/SA Counselors	Ambulatory Care, Workforce
Chiropractor	Medical Services
Podiatrist	Workforce
Physical Therapists	Other Medical Services
Licensed Nursing Assistant	Workforce
Naturopathic Physician	Other Medical Services
Acupuncturist	Other Medical Services
Massage Therapist	Other Medical Services
Medically Underserved Areas	Ambulatory Care

Not Included in the Workforce Partnership Report Due to Data Limitations	Addressed in HRAP Chapter(s)
Health professionals in MH/SA settings	Ambulatory Care, Workforce
Health professionals in educational settings	No

The Healthcare Workforce Partnership identified six overarching themes in the report:

- ***There are inadequate links between youth in school and healthcare education programs. As a result, students who may otherwise have chosen a career in healthcare may be unaware that there is a profession well suited to their skills and professional aspirations.***

- ***Staff who were educated as non-traditional students were often cited as employees who were the most likely to be retained in their positions as well as more well rounded and prepared to manage the environment in which they worked.***

- ***Throughout the process of developing the report, from collection of existing data to discussions with professionals and member organizations, people noted a lack of good information on supply and demand.***

- ***Human resource departments, long-term care organizations and home health agencies lack adequate resources to develop and maintain comprehensive recruitment activities. This keeps organizations from being proactive with upcoming or emerging workforce needs and shortages.***

- ***Demands on the health care environment are changing more rapidly than the health care environment can adapt. Monitoring the growth of chronic disease to assist in predicting healthcare workforce needs is an example of the types of additional influences that should be monitored.***

- ***While reimbursement for services was a significant theme in interviews with key stakeholders, the way reimbursement effects recruitment and retention or***

supply and demand varies by setting. It will be important to understand the barriers and enabling factors related to reimbursement issues.

I. Physicians

Quick Facts

- In 2002, there were 1,565 physicians licensed in Vermont with 937 (60%) practicing in specialty care and 628 (40%) practicing in primary care.
- Vermont experienced a net increase of 85 physicians (43 primary care physicians and 42 specialists) between 2000 and 2002.
- More than one-fourth of the 1,565 physicians licensed to practice medicine in Vermont provide less than 30 patient-care hours per week. Therefore, physician resources are more accurately measured as full time equivalencies (FTEs).
- Four out of the thirteen Vermont hospital service areas (HSAs), including Morrisville, Newport, St. Albans and White River Junction, have a serious shortage of primary care physicians according to the General Medical Education National Advisory Committee standard (67 or fewer primary care FTEs per 100,000 persons).
- Statewide, there has been a decline in the number of primary care practices accepting new patients and Medicaid recipients.
- Psychiatry is recognized statewide as a specialty in short supply, particularly in child and adolescent disciplines and in rural areas.
- Employers indicate that general surgeons, orthopedic surgeons, urologists, neurologists, dermatologists, gastroenterologists and hospitalists are difficult specialists to recruit.

1. Resource Description

According to the Report of the Healthcare Workforce Partnership, physicians (MDs and DOs), also known as doctors of medicine, use a combination of extensive education and training, work experience, and ongoing research to better serve their patients. Once a diagnosis and a treatment strategy has been determined, the physician works with the rest of the health care team to put that strategy into action. While all physicians are trained and licensed to diagnose and treat illnesses and to prescribe medications, most choose to specialize in a particular area.

The AMA believes that primary care consists of the provision of a broad range of personal medical care (preventive, diagnostic, palliative, therapeutic, curative, counseling and rehabilitative) in a manner that is accessible, comprehensive and coordinated by a licensed MD/DO physician over time. Care may be provided to an age-specific or gender-specific group of patients, as long as the care of the individual patient meets the above criteria.

Specialty care physicians typically undergo more education than primary care physicians in order to concentrate in one area of medicine. Specialists work in concert with primary care physicians on a collaborative and consultative manner to better serve their patients.

2. Current Supply and Distribution of Physicians

Note: Assignment of HSAs and counties for physicians is based on the town where the provider's practice is located. Physicians with multiple practice locations are assigned to multiple HSAs and counties (and their FTE proportions are assigned to these multiple HSAs and counties as well).

Another factor to consider is that physician data is only available for physicians licensed in Vermont. Physicians licensed in New Hampshire and not in Vermont may be serving Vermont residents who live along Vermont's eastern border. Therefore, population-based physician counts and ratios for these areas may be lower than the actual counts and ratios that would include physicians licensed outside of Vermont if the data were available.

There were 1,565 physicians licensed to practice medicine in the State of Vermont in 2002, the most recent year for which data are available. Of these, 40% worked mainly in primary care (defined by the Vermont Department of Health as internal medicine, general/family practice, obstetrics/gynecology and pediatrics) and 60% were classified as specialists. The majority of primary care physicians provide care in group practices. The practice setting of specialty care physicians varies by specialty.[188] The Morrisville HSA has the lowest number of physician FTEs per1, 000 (1.27) while the Burlington HSA has the greatest number of physician FTEs per 1,000 (2.87). The State average ratio for physician FTEs is 1.99 per 1,000.[189] Vermont saw a net increase of 43 primary care physicians (20.7 FTEs) and 42 specialties care physicians (44.6 FTEs) between 2000 and 2002.

Table 2 presents the distribution of physician FTEs in Vermont by HSA and county with the statewide average being 1.99 physician FTEs per 1,000. A large proportion of physician FTEs in Vermont (nearly 40%) are located in the Burlington HSA, where Fletcher Allen Health Care is located. The ratio for physician FTEs per 1,000 was also greater (2.87 per 1000) in this HSA than in any other HSA in the State. The largest

[188] State of Vermont, Agency of Human Services, Department of Health. Physicians 2002 Survey Statistical Report.
[189] BISHCA Health Resource Inventory; data derived from the 2002 Department of Health Physician Re-Licensure Survey.

concentrations of physician FTEs outside of Burlington were in the Barre, Bennington and Rutland HSAs. The lowest ratio of physician FTEs per 1,000 was in the Morrisville HSA (1.27 per 1000). The distribution of physicians across counties is closely aligned with the HSA distribution. A large proportion of physician FTEs (38.7%) are located in Chittenden County with 3.19 physician FTEs per 1,000, the highest county ratio.

Table 2: Distribution of Vermont Physician FTEs, 2002

HSA Name	Total FTE	FTE Per 1000	FTE % of Total
Burlington	483.08	2.87	39.3%
Brattleboro	76.60	2.37	6.2%
Bennington	95.63	2.33	7.8%
Randolph	29.29	2.02	2.4%
Rutland	112.30	1.74	9.1%
Middlebury	47.67	1.68	3.9%
Barre	109.88	1.66	8.9%
Springfield	43.38	1.50	3.5%
St. Johnsbury	38.55	1.41	3.1%
Newport	38.70	1.39	3.1%
St. Albans	58.21	1.31	4.7%
White River Junction	63.06	1.28	5.1%
Morrisville	33.28	1.27	2.7%
Total	1229.63	1.99	

County Name	Total FTE	FTE Per 1000	FTE % of Total
Addison	47.67	1.29	3.9%
Bennington	93.33	2.50	7.6%
Caledonia	39.21	1.30	3.2%
Chittenden	476.37	3.19	38.7%
Essex	2.88	0.45	0.2%
Franklin	60.75	1.29	4.9%
Grand Isle	0.94	0.13	0.1%
Lamoille	33.92	1.40	2.8%
Orange	34.74	1.22	2.8%
Orleans	37.75	1.41	3.1%
Rutland	112.30	1.77	9.1%
Washington	109.88	1.87	8.9%
Windham	88.39	1.97	7.2%
Windsor	91.50	1.57	7.4%
Total	1229.63	1.99	

Total Number of Physicians in Vermont in 2002 = 1,565
Number of Physicians per 1,000 = 2.52

Source: 2002 Physician Survey Statistical Report. Vermont Department of Health

As shown below in Table 3, Vermont has 2.53 physicians per 1,000 persons and 1.99 physician FTEs per 1,000 persons, an average that is below Connecticut, Massachusetts, and New York, but above Rhode Island, Maine, New Hampshire and the United States averages.

Table 3: National Comparison of Physician Ratios

State	Physicians per 1,000 pop.	Estimated FTE per 1,000 population
Massachusetts	2.76	2.24
New York	2.59	2.10
Connecticut	2.57	2.08
Vermont	**2.53**	**1.99**
Rhode Island	2.40	1.94
Maine	2.25	1.82
New Hampshire	1.98	1.60
US	*1.98*	*1.60*
U.S. and Other States Year 2000		
Vermont Year 2002		
Average Ratio of FTEs per Physician= 0.81		

Source: 2002 Physician Survey Statistical Report. Vermont Department of Health
Health Resources and Services Administration: "State Health Workforce Profiles"
http://bhpr.hrsa.gov/healthworkforce/reports/profiles/

Vermont's physicians were concentrated in a few HSAs and counties, particularly in the Burlington HSA and Chittenden County. Three of the13 HSAs had an average number of physician FTEs per 1,000 that were above the statewide average of 1.99 per 1,000 including the Burlington, Brattleboro and Bennington HSAs. (See Table 2) At the county level, Chittenden and Bennington had ratios that exceeded the statewide average. Six of the 13 HSAs were below the U.S. average including Morrisville (lowest at 1.27 per 1,000), White River Junction, St. Albans, Newport, St. Johnsbury and Springfield HSAs. Nine of 14 Vermont counties are below the U.S. average.

Analysis of the supply and distribution of physicians is more meaningful if viewed from the perspectives of primary care and specialty care and also from the perspective of specialty categories within primary care and specialty care. See the Ambulatory Care Chapter in this report for more detailed analyses of physician supply and distribution subdivided into primary care and specialty care. The Ambulatory Care Chapter also addresses federal and State programs for designating health professional shortage areas for primary care and the safety net programs designed to remedy shortages. The main findings regarding supply and distribution identified in the HRAP Ambulatory Care Chapter include the following:

- **Primary Care Physicians**

  Using the ratio recommended by the Graduate Medical Education National Advisory Committee (GMENAC) of at least 67 primary care physicians per 100,000, 4 out of 13 Vermont HSAs are categorized as having serious shortages including the Morrisville, Newport, St. Albans and White River Junction HSAs.

  From the perspective of the more localized rational service areas (RSA) for primary care, 14 out of 38 Vermont RSAs do not meet the GMENAC standard for at least 67 primary care physicians per 100,000 persons. The Chelsea/Corinth, Arlington and Waitsfield RSAs had the lowest rates.

  In 2004, the Northeastern Vermont Area Health Education Center reported that 56% of internists serving Orleans, Essex, Caledonia, Lamoille, Orange and Washington county patients in primary care were not accepting new patients compared to 32% of all primary care physicians. In 2002, the Physician Survey indicated that on a statewide basis 73% of primary care internists were accepting new patients and only 61% were accepting new Medicaid patients. From a county perspective, the lowest rates of availability to accept new patients in primary care – especially Medicaid enrollees- were in Washington, Chittenden and Bennington counties.

  According to the Healthcare Workforce Partnership, internal medicine is a key profession in serving the needs of an older population and with a rapidly aging population, the demand on primary care internal medicine will continue to grow. A population-based analysis of the distribution of primary care internal medicine physicians by two older age patient cohorts of 45+ and 65+ revealed that the HSAs with the lowest ratios were Middlebury, Morrisville, Rutland, St. Albans, and St. Johnsbury.

- **Specialty Care Physicians**

  In 2002, the physician specialty categories with the highest number of clinicians and FTEs were psychiatry and internal medicine. Although psychiatry has the highest number of clinicians (146, 115.7 FTEs), the geographic distribution was heavily concentrated in the Brattleboro, Burlington and White River Junction HSAs or Windham, Washington and Chittenden counties. This pattern indicated concentration closely aligned with Retreat Healthcare in Brattleboro, the academic medical centers, and the Vermont State Hospital in Waterbury. Seven out of 13 HSAs have FTE ratios for psychiatrists at least 25% below the statewide FTE ratio of 18.81 per 100,000 with the lowest ratios in the Morrisville (6.17), St. Johnsbury (6.62), and St. Albans (6.87) HSAs.

  Specialty internal medicine (practices such as cardiology, endocrinology, gastroenterology) had the second highest number of clinicians (128) and FTEs (96.8) with 58.6% of internists FTEs practicing in the Burlington HSA. The

geographic distribution of specialty internists is highly concentrated in the Burlington and Bennington HSAs.

3. Assessment of Needs and Priorities

The State Health Plan, Hospital Community Needs Assessments, and analyses of data sources and reports addressing physician workforce resources indicate shortages and mal-distribution particularly in primary care and selected specialties, particularly in remote rural areas and for Medicaid enrollees.

4. Priorities and Special Considerations

The priorities for the healthcare workforce relate to identifying and addressing shortages or mal-distributions of providers. Workforce shortages are crucial, as we recognize an increase in the average age of certain professions, an increase in resource demand related to changing demographics and challenges for effective workforce recruitment, retention, and education.

Provider shortages and/or mal-distributions that have been identified in Vermont include: primary care physicians, psychiatrists, nurses, mid-level practitioners, oral health providers, certain medical specialists, hospitalists, and substance abuse professionals.

In the 1980s, the Council on Graduate Medical Education (COGME) forecasted a nationwide surplus of physicians. Recently however, the COGME forecasted a shortage of physicians. Other professional organizations, as well as state and federal agencies, are now realizing that physicians may be in short supply in the future. The Center for Health Workforce Studies at SUNY-Albany, predicts a shortage of 85,000 physicians by 2020.[190]

Healthcare Workforce Development Partnership

As noted in the Report of the Healthcare Workforce Partnership, Vermont faces challenges related to the distribution of physicians across the State. While Vermont has been successful in attracting and retaining primary care physicians in the State, there has been a geographic mal-distribution of primary care physicians particularly in rural areas. Primary care practices report a declining acceptance rate for new patients and Medicaid enrollees.

Furthermore, certain primary care specialties such as primary care internal medicine are reporting a decrease in availability and access for all patients, regardless of payment source. Internal Medicine is a key profession in serving the needs of an older population

[190] Croasdale, M. "Federal advisory group predicts physician shortage looming." American Medical Association. Nov. 3, 2003.

and with an increasingly aging population, the demand on primary care internal medicine will continue to grow.

The Workforce Partnership also acknowledges that remote rural areas also face challenges in the recruitment and retention of specialty physicians. Lower population density and professional isolation contribute to difficulties with recruitment and financial sustainability of specialists.

Because of the predicted long-term shortages in psychiatry, there is a need to examine the relationship of psychiatrists to other professions in the health care system in order to maximize their utilization. There are different models of collaboration between mental health professionals (including psychiatrists, Master level Social Workers and Bachelors prepared professionals) and primary care professionals (such as nurses, nurse practitioners and physicians) that should be explored in order to maximize patient coordination, outcomes and efficient utilization.

Employers cite General Surgeons, Urologists, Neurologists, Hospitalists, Dermatologists and Gastroenterologists as the most difficult to recruit.

HRAP Ambulatory Care Chapter (Chapter 2)

There is a lack of national consensus on standards for measuring and evaluating the combined contribution of physicians and mid-level practitioners (APRN, PA) in the provision of primary and specialty care services. Basing strategies and recommendations on the evaluation of single categories of clinicians and primary care specialties does not lead to a comprehensive approach for evaluating and remedying shortages.

Primary care for elderly populations can be delivered by primary care physicians with specialties in family medicine and internal medicine, advance practice registered nurses certified in adult and family medicine and gerontology, and physician's assistants with specialization in family or internal medicine. Obstetric, pediatric and psychiatric populations are examples of other populations served by the combined contribution of physicians and mid-level practitioners.

5. Recommendations

The following recommendations addressing primary and specialty care physicians are derived from the Report of the Healthcare Workforce Partnership and are endorsed by the HRAP:

Primary Care Physicians

Recommendation 1. Work with existing programs in the State (such as the UVM Area Health Education Center Program, Educational Loan Repayment and Freeman Scholarship programs) to target the mal-distribution of primary care specialties and

current and future high need primary care specialties, such as internal medicine, through the recruitment of physicians into the State and the education of physicians at Vermont's academic institution.

Recommendation 2. Provide better monitoring of the physician workforce in collaboration with the Department of Health, in order to more adequately predict physician workforce needs, taking into account influences such as education in primary care specialties, patient demand, technological changes and policy related factors.

Recommendation 3. Consider increasing the capacity of entry level and graduate medical education in Vermont.

Specialty Care Physicians

Recommendation 4. Work with existing programs in the State (such as the UVM Area Health Education Center Program, Educational Loan Repayment and Freeman Scholarship programs) to target the mal-distribution specialty care physicians such as general surgeons, urologists, neurologists, hospitalists, dermatologists and gastroenterologists.

Recommendation 5. Consider increasing the capacity of entry level and graduate medical education in Vermont.

Recommendation 6. Provide better oversight and monitoring of the physician workforce, in collaboration with the Department of Health, in order to more adequately predict physician workforce needs, taking into account influences such as those associated with rural remote practice.

Recommendation 7. Explore models and best practices addressing the issues of patient volume, professional isolation and financial sustainability of physician specialists.

Recommendation 8. Assist employers in anticipating need, based on retirement or loss of physicians, and engaging in in-state and out-of-state recruitment activities.

II. Mid-level Practitioners

Quick Facts

- Mal-distributions exist for the supply of both nurse practitioner and physician assistant mid-level practitioners on both FTE and population-based measures. Mid-level practitioners are concentrated in Chittenden County.

- Measurement and evaluation of the supply and distribution of mid-level practitioners is hampered by national consensus on guidelines for measuring the combined contribution of APRNs and PAs in the delivery of comprehensive primary care and specialty care to specific populations such as the elderly and children.

- There is evidence that there is a growing need for psychiatric nurse practitioners in view of the limited supply and mal-distribution of psychiatrists and growth in population-based need for mental health services.

- Advance practice registered nurses (APRN) include those with specialty certifications such as psychiatric nurse practitioners, nurse anesthetists and other special certifications.

1. Resource Description

Advanced practice registered nurses (APRNs) and physician's assistants (PAs) provide comprehensive primary and specialty care services in collaboration with, or under the supervision of, physicians according to the scope of practice permitted by each type of licensure under State laws and regulations. (See Glossary of Terms for definitions of APRN and PA).

According the Department of Health, thirty-two percent of APRNs work with other APRNs and physicians in private office settings, 30% have hospital-based practices, and 20% work in community health centers. About 14% have hospital admitting privileges and 93% have the authority to prescribe medications. Physician's assistants work primarily in office or clinic settings (66%). Twenty-four percent of PAs reported having admitting privileges at one or more Vermont hospitals.

2. Current Supply and Distribution of Mid-level Practitioners in Vermont

Note: Assignment of counties for mid-level practitioners is based on the town where the provider's practice is located. Providers with multiple practice locations are assigned to multiple counties (and their FTE proportions are assigned to these multiple counties as well). Since the 2002 mid-level practitioner surveys used hospital service areas that predate those used throughout the HRAP, the following analysis is limited to the county level.

See the Ambulatory Care Chapter in this report for more detailed analyses of mid-level practitioner supply and distribution subdivided into primary care and specialty care. The Ambulatory Care Chapter also addresses federal and State programs for designating health professional shortage areas for primary care and the safety net programs designed to remedy shortages.

In 2002, a total of 484 APRNs and PAs were licensed in Vermont: 354 advanced practice nurses and 130 physician's assistants. Out of the total 359.9 FTEs attributed to these 484 practitioners, 205.1 FTEs or 57% were attributed to primary care. APRNs and PAs play an important role in safety net programs for delivery of comprehensive primary care for medically underserved populations through the federally qualified health centers (FQHCs) and the rural health clinics (RHCs). In addition to the federal requirement that RHCs use APRNs and PAs for 50% of the time that clinics are operating, these practitioners accounted for 14.88 or 45% of the total of 33.14 FTEs dedicated to direct medical services provided at the Vermont FQHCs in 2003.

In 2002, out of a total of 250.8 FTEs attributed to 354 APRNs, 150.8 FTEs (223 224 APRNs) or 60.1% of APRN FTEs were categorized as primary care(Table 4). Out of the total APRN FTEs, 33.9% were attributed to adult and family medicine in primary care (56.3 FTEs) followed by obstetrics and gynecology with 29.7 FTEs. In view of the aging population, it is interesting to note that out of 224 APRNs categorized as working "mainly" in primary care, only four had a specialization in gerontology in 2002. Out of a total of 99.9 APRN FTEs in specialty care, over half of the FTEs were attributed to anesthesiology (27.3 FTEs) and mental health (25 FTEs).

Table 4: Advanced Practice Registered Nurses by Specialty
Vermont 2002

PRIMARY CARE	# of APRNs	APRN FTEs	% of Primary Care FTEs	% of Total APRN FTEs
Adult	58	33.5	22.2%	13.4%
Family	83	51.5	34.1%	20.5%
Gerontology	7	2.8	1.9%	1.1%
Midwife	30	20.2	13.4%	8.1%
Obstetrics/Gynecology	63	29.7	19.7%	11.8%
Pediatric	25	13.2	8.7%	5.3%
Statewide Total Primary Care	234	150.9	100.0%	60.2%

SPECIALTY CARE	# of APRNs	APRN FTEs	% of Specialty Care FTEs	% of Total APRN FTEs
Emergency Care	14	8.0	8.0%	3.2%
Anesthesiology	34	27.3	27.3%	10.9%
Medical/Surgical	4	3.0	3.0%	1.2%
Mental Health	39	25.0	25.0%	10.0%
School	7	3.1	3.1%	1.2%
Other	50	33.5	33.5%	13.4%
Statewide Total Specialty Care	146	99.9	100.0%	39.8%
Statewide Total All APRNs	354	250.8		

Source: Advanced Practice Registered Nurses 2002 Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Some APRNs work in multiple specialties so FTEs are a better measure.

In 2002, out of a total of 109.1 FTEs attributed to 130 PAs, 54.4 FTEs or 49.95% of PA FTEs were categorized as primary care, compared to 60.1% for APRNs. In addition to a lower proportion of PAs working in primary care than APRNs, 49% of PAs are males, compared to 9% of APRNs. Out of total PA FTEs, 40% (43.6 FTEs) were attributed to Family Medicine in primary care and 26.9 % (29.4 FTEs) to Emergency Medicine in specialty care. (Table 5)

Table 5: Physician Assistants by Specialty, Vermont 2002

PRIMARY CARE	# of PAs	PA FTEs	% of Primary Care FTEs	% of Total PA FTEs
Family	58	43.6	80.1%	40.0%
Internal Medicine	9	5.3	9.7%	4.9%
Obstetrics/Gynecology	9	4.5	8.3%	4.1%
Pediatric	2	1	1.8%	0.9%
Statewide Total Primary Care	73	54.4	100.0%	49.9%

SPECIALTY CARE	# of PAs	PA FTEs	% of Specialty Care FTEs	% of Total PA FTEs
Emergency Medicine	40	29.4	53.6%	26.9%
Internal Medicine	1	1.0	1.8%	0.9%
Orthopedic Surgery	8	7.5	13.7%	6.9%
Other Surgery	6	4.1	7.5%	3.8%
Anesthesiology	3	2.9	5.3%	2.7%
Psychiatric	1	0.6	1.1%	0.5%
Other	17	9.4	17.1%	8.6%
Statewide Total Specialty Care	66	54.9	100.0%	50.3%
Statewide Total All PAs	130	109.1		

Source: Physician Assistants 2002 Survey Statistical Report, VT Department of Health

Full Time Equivalency (FTE) = Working 40 (or more) hours/week, 48 weeks/year.

Some PAs work in multiple specialties so FTEs are a better measure.

The supply and distribution of PAs and APRNs can be evaluated from two perspectives. One perspective is to measure the supply and distribution by practitioner type: APRN or PA separately. Another is to measure the supply and distribution of both types of practitioners jointly. Since there are differences between the two practitioner types in terms of scope of practice and specialization within primary care, either perspective yields high-level information with limited precision.

The combined distribution of Vermont's mid-level practitioners (APRN and PA) presented in Table 6 suggests mal-distribution with a high concentration in Chittenden followed by Bennington and Windham counties. In 2002, 36.8% of all mid-level practitioner FTEs were located in Chittenden County, which also had the highest ratio of 0.87 FTEs per 1,000, followed closely by Windham (0.71) County.

Table 6: Distribution of Midlevel Practitioner FTEs, 2002

	Advance Practice Registered Nurse			Physician Assistant			APRN and PA Combined		
County	Total FTE	FTE Per 1000	FTE % of Total	Total FTE	FTE Per 1000	FTE % of Total	Total FTE	FTE Per 1000	FTE % of Total
Addison	8.94	0.24	3.6%	2.76	0.07	2.6%	11.70	0.32	3.3%
Bennington	15.09	0.40	6.1%	7.99	0.21	7.4%	23.08	0.62	6.5%
Caledonia	15.41	0.51	6.2%	1.68	0.06	1.6%	17.09	0.57	4.8%
Chittenden	91.32	0.61	36.8%	38.13	0.26	35.4%	129.45	0.87	36.4%
Essex	0.90	0.14	0.4%	0.96	0.15	0.9%	1.86	0.29	0.5%
Franklin	6.07	0.13	2.4%	4.69	0.10	4.4%	10.76	0.23	3.0%
Grand Isle	0.63	0.09	0.3%	0.00	0.00	0.0%	0.63	0.09	0.2%
Lamoille	9.85	0.41	4.0%	0.64	0.03	0.6%	10.49	0.43	2.9%
Orange	7.41	0.26	3.0%	2.01	0.07	1.9%	9.42	0.33	2.6%
Orleans	5.89	0.22	2.4%	1.98	0.07	1.8%	7.87	0.29	2.2%
Rutland	23.48	0.37	9.5%	11.27	0.18	10.5%	34.75	0.55	9.8%
Washington	16.76	0.29	6.8%	15.35	0.26	14.3%	32.11	0.55	9.0%
Windham	26.32	0.59	10.6%	5.27	0.12	4.9%	31.59	0.71	8.9%
Windsor	20.10	0.35	8.1%	14.91	0.26	13.9%	35.01	0.60	9.8%
Total	248.17	0.40	100.0%	107.64	0.17	100.0%	355.81	0.57	100.0%

Source: 2002 Advance Practice Registered Nurse and Physician Assistant Surveys. Vermont Department of Health

Note: Per updated information from David Reynolds, Northern Counties Health Care, Inc., there are 0.5 APRN FTEs or 1 APRN and 1.9 PA FTEs or 2 PAs in Essex County.

Although the education, training, scopes of practice, and mix of primary care specialties differ among the physicians, APRNs and PAs, each type of clinician plays a role in coordinating and delivering medical primary care services. Therefore, it may be instructive to take a combined look at all three disciplines, with the caveat that they are not completely interchangeable. (Table 7)

In 2002, the statewide average ratio of primary care clinician FTEs, including physicians, APRNs, and PAs, was 114 per 100,000 persons. From a county perspective, the top three counties were Chittenden (138.43), Windham (134.28), and Bennington (126.45). The counties with the lowest ratios included Grand Isle (19.56), Franklin (69.49) and Essex (73.18). As noted earlier in this report, there is a lack of national consensus on guidelines for the combined contributions of types of clinicians related to overall primary care as well as care for specific populations such as the elderly and children. There are also different standards and criteria applied to defining geographic areas for identification of population-based need, supply, and utilization.

Table 7: Distribution of Prmary Care Workforce by County, Vermont 2002

Note: Data for the three categories of health professionals are not available at the Hospital Service Area level.
The HSAs used in the APRN and PA surveys pre-date the HSAs used in the physician survey.

Full Time Equivalencies	MD/DO	APRN	PA	Mid-level Total	Primary Care Total (MD/DO plus Mid-level)	Percent Physician	Percent Mid-level
Addison	32.2	5.5	2.6	8.05	40.25	80.0%	20.0%
Bennington	35.6	8.2	3.3	11.5	47.13	75.5%	24.5%
Caledonia	21.6	9.8	0.8	10.6	32.18	67.1%	32.9%
Chittenden	144.1	43.9	17.2	61.1	205.21	70.2%	29.8%
Essex	2.9	0.9	1.0	1.9	4.80	60.4%	39.6%
Franklin	27.0	3.2	2.0	5.2	32.18	83.9%	16.1%
Grand Isle	0.9	0.5	0.0	0.5	1.37	65.7%	34.3%
Lamoille	17.7	8.5	0.2	8.7	26.41	67.0%	33.0%
Orange	16.2	6.9	1.4	8.3	24.50	66.1%	33.9%
Orleans	17.3	4.9	2.0	6.9	24.21	71.5%	28.5%
Rutland	44.4	13.5	6.0	19.5	63.90	69.5%	30.5%
Washington	46.0	11.7	8.0	19.7	65.65	70.1%	29.9%
Windham	37.8	18.9	3.2	22.1	59.87	63.1%	36.9%
Windsor	49.1	14.6	6.6	21.2	70.25	69.9%	30.1%
Statewide FTE Total	492.8	150.8	54.3	205.1	697.9	70.6%	29.4%
FTE Ratio (Per 100,000 population)							
Addison	88.19	14.90	7.18	22.08	110.27	80.0%	20.02%
Bennington	95.56	22.09	8.80	30.89	126.45	75.6%	24.43%
Caledonia	72.13	32.64	2.70	35.34	107.47	67.1%	32.88%
Chittenden	97.19	29.61	11.63	41.24	138.43	70.2%	29.79%
Essex	44.52	13.88	14.78	28.66	73.18	60.8%	39.16%
Franklin	58.32	6.87	4.30	11.17	69.49	83.9%	16.07%
Grand Isle	13.05	6.51	--	6.51	19.56	66.7%	33.28%
Lamoille	74.33	35.71	--	35.71	110.04	67.5%	32.45%
Orange	56.76	24.15	5.05	29.20	85.96	66.0%	33.97%
Orleans	64.81	18.42	7.43	25.85	90.66	71.5%	28.51%
Rutland	69.94	21.26	9.44	30.70	100.64	69.5%	30.50%
Washington	78.86	19.97	13.80	33.77	112.63	70.0%	29.98%
Windham	84.78	42.36	7.14	49.50	134.28	63.1%	36.86%
Windsor	84.53	25.04	11.32	36.36	120.89	69.9%	30.08%
Statewide Ratio	80.70	24.50	8.82	33.32	114.020	70.8%	29.22%

Source: 2002 Statistical Reports for Physicians, Advanced Practice Registered Nurses, Physician Assistants.
Vermont Department of Health

Per updated information from David Reynolds, Northern Counties Health Care, Inc., there are 0.5 APRN FTEs or 1 APRN and 1.9 PA FTEs or 2 PAs in Essex County.

3. Assessment of Needs and Priorities

The State Health Plan, the Hospital Community Needs Assessments, and data sources and reports indicate shortages and mal-distribution of healthcare workforce resources, including mid-level practitioners, in the delivery of preventive care, primary care, and mental health. The Report of the Healthcare Workforce Partnership included psychiatric nurse practitioners in the list of the top 20 healthcare workforce categories based on vacancy, turnover rates and projection of future need.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Physicians section of this chapter on page 240.

APRN

Among comparison states, New Hampshire had the highest number of nurse practitioners per 1,000 (0.87 or 0.61 FTEs per 1,000). Massachusetts also had a relatively high number at 0.81 per 1,000. Vermont has 0.41 nurse practitioners per 1,000, which is above the U.S. average of 0.24 but is relatively low compared to other Region 1 states. Again, future evaluations of adequacy of supply and distribution may include consideration of the combined contribution of APRNs and PAs.

Table 8: National Comparison of APRN Ratios

State	Nurse Practitioners per 1,000 pop.	Estimated FTE per 1,000 population
New Hampshire	0.87	0.61
Massachusetts	0.81	0.57
Connecticut	0.64	0.45
Maine	0.54	0.38
New York	0.52	0.36
Vermont	**0.41**	**0.27**
Rhode Island	0.38	0.27
US	*0.34*	*0.24*
U.S. and Other States Year 2000		
Vermont Year 2002		
Average Ratio of FTEs per Nurse Practitioner= 0.70		

Source: 2002 APRN Survey. Vermont Department of Health

Health Resources and Services Administration: "State Health Workforce Profiles"
http://bhpr.hrsa.gov/healthworkforce/reports/profiles/

If the U.S. average of 0.24 FTEs per 1,000 is used as the benchmark, the following counties could be considered potential shortfall areas for nurse practitioners:

- Grand Isle (0.09)
- Franklin (0.13)
- Essex (0.14)

APRN: Psychiatric Nurse Practitioners

In the Report of the Healthcare Workforce Partnership, psychiatric nurse practitioner is included in the list of the top 20 priority health professions and is the only category of advanced practice nursing included in the list. According to the report, APRN's assess, diagnose, and treat individuals or families with psychiatric problems/disorders or the potential for such disorders. They provide a full range of primary mental health care services to individuals, families, groups and communities, and function as psychotherapists, educators, consultants, advanced case managers, and administrators. In 2002 in Vermont, there were 37 Advanced Practice Nurses specializing in mental health; this number is down from 38 in 2000. The median age of all Advance Practice Nurses was 48. In a 2003 survey conducted by the UVM Office of Nursing Workforce, Research, Planning and Development, hospitals cited psychiatric nursing as the 6th most needed specialty, averaging 19 weeks to fill a position. The demand for psychiatric nurse practitioners will continue to be effected by a number of factors including the ongoing shortage of adult and child psychiatrists and the increasing diagnosis and early recognition of mental health issues in adults, children and seniors.

The Workforce report notes that as with psychiatrists, if psychiatric nurse practitioners were expected to see each adult and child for an assessment, the need would never be met. As a result, until the workforce increases, it will be important for other health care professionals to provide select services, such as mental health assessment, in order to most effectively and efficiently use the resources of the psychiatric nurse practitioners. A balance of effective utilization of psychiatric nurse practitioners as specialists with realistic expectations will need to be developed.

APRN: Certified Registered Nurse Anesthetists (CRNA)

Vermont has approximately 27 nurse anesthetist FTEs in the State and has the lowest number relative to the population (0.044 FTEs) compared to other northeastern states, except New York. It also ranks lower than the U.S. average of 0.05 FTEs and higher only than New York (0.02). Rhode Island has the highest number of FTEs relative to the population.

Table 9: Certified Registered Nurse Anesthetist Comparisons

State	Certified Nurse Anesthetists per 1,000 pop.	Estimated FTE per 1,000 population
Rhode Island	0.12	0.07
Maine	0.12	0.06
New Hampshire	0.11	0.06
Connecticut	0.10	0.05
US	*0.09*	*0.05*
Massachusetts	0.07	0.04
Vermont	**0.05**	**0.04**
New York	0.04	0.02
Benchmark Year 2000		
Vermont Year 2002		
Ratio of FTE per Nurse Anesthetist= 0.53		

Source: 2002 APRN Survey. Vermont Department of Health
Health Resources and Services Administration: "State Health Workforce Profiles"
http://bhpr.hrsa.gov/healthworkforce/reports/profiles/

Almost 80% of Vermont's nurse anesthetist FTEs are located in three counties Bennington, Chittenden and Rutland, where the three largest hospitals in Vermont are located.

The Board of Medical Practice at the Vermont Department of Health also licenses Anesthesiologist Assistants (AA) who work under the direct supervision of anesthesiologists, have a Masters Degree with a Certificate of Anesthesiologist Assistant Education from Emory University or Case Western Reserve, and have obtained national certification from the National Commission on the Certification of Anesthesiologist Assistants. Measurement and evaluation of the supply and distribution of health professionals related to anesthesiology should take both CRNAs and AAs into consideration despite differences in certification and scope of practice.

Physician Assistant

Connecticut, Maine, and New York have higher numbers of physician's assistants per 1,000 than Vermont (0.21), which ranks in the middle. Maine's rate is substantially higher than that for other comparison states and is twice as high as Vermont's ratio. Vermont's rate is above the U.S. average of 0.14. Again, consideration should given to the combined contribution of APRNs and PAs despite differences in educational preparation, licensure and scope of practice.

Table 10: Physician Assistant Comparisons

State	Physician Assistants per 1,000 pop.	Estimated FTE per 1,000 population
Maine	0.44	0.36
Connecticut	0.25	0.20
New York	0.23	0.19
Vermont	**0.21**	**0.17**
New Hampshire	0.21	0.17
Massachusetts	0.17	0.14
US	*0.14*	0.11
Rhode Island	0.10	0.08
Benchmark Year 2000		
Vermont Year 2002		
Ratio of FTE per Physician Assistant= 0.81		

Source: 2002 Physician Assistant Survey. Vermont Department of Health
Health Resources and Services Administration: "State Health Workforce Profiles"
http://bhpr.hrsa.gov/healthworkforce/reports/profiles/

Over 80% of PA FTEs are also concentrated in five counties (Washington, Windsor, Chittenden, Bennington and Rutland). There are no PA practice locations in Grand Isle County and only two in Essex, Orleans and Lamoille Counties.

5. Recommendations

Recommendations for workforce adequacy are addressed in the HRAP Ambulatory Care Chapter. Many of the recommendations address the lack of national standards for the measurement and evaluation of the combined contribution of physicians, APRNs and PAs in the delivery of primary and specialty care to specific populations including but not limited to the elderly, children, pregnant women, and those with chronic mental health conditions. The following recommendations are derived from the National Association of Pediatric Nurse Practitioners, the American College of Nurse-Midwives, and the Report of the Healthcare Workforce Partnership and are endorsed by the HRAP.

The National Association of Pediatric Nurse Practitioners (NAPNP) has identified a shortage of advanced nursing professionals working in non-hospital environments. Nurse practitioners often practice in rural or underserved areas to supplement, or in some cases, replace physician care, when there are no physicians available. The NAPNP has identified ten solutions to the nursing workforce shortage, including advanced practice nurses:

Recommendation 1. Increase nursing education funding.

Recommendation 2. Develop nursing specialty and advanced practice internship programs supported by federal grants.

Recommendation 3. Increase funding for recruitment, retention, and graduation of minority students.

Recommendation 4. Develop career progression initiatives.

Recommendation 5. Develop qualified faculty and relevant curriculum to support increasingly independent practice role expectations and opportunities.

Recommendation 6. Increase efforts to educate NPs in or near their home communities.

Recommendation 7. Develop consistent regulations regarding licensure and certification.

Recommendation 8. Support legislation to remove barriers to practice, such as equitable reimbursement.

Recommendation 9. Develop innovative partnerships and faculty-practice models with local communities.

Recommendation 10. Develop a federal nursing workforce commission to expand data capacity for ongoing analysis.[191]

On January 26, 2005, the American College of Nurse-Midwives recommended the following to the Department of Labor:

Recommendation 11. To begin accurately collecting the subsets of Advanced Practice Nurses defined as CRNA, CNM, and NP.[192] This will allow for better projection of workforce shortages in the future.

The Report of the Healthcare Workforce Partnership includes the following recommendations related to psychiatric nurse practitioners:

Recommendation 12. Provide better monitoring of the workforce, in collaboration with the Department of Health, in order to more adequately predict psychiatric nurse practitioner workforce needs, taking into account influences such as rate of education of specialties, patient demand, technological changes and policy related factors.

[191] "NAPNP Position Statement." National Association of Pediatric Nurse Practitioners. July 2001.
[192] "Counting CNMs Critical to Accurate Healthcare Workforce Projections." American College of Nurse-Midwives. January 2005.

Recommendation 13. Explore models of collaboration among other health professions in order to promote physical and mental health integration.

Recommendation 14. Develop educational opportunities to assist non-mental health specialists in addressing mental health issues more extensively within the scope of their practice, in order to utilize psychiatric nurse practitioners more effectively.

Recommendation 15. Assess the feasibility of collaborating with regional educational programs to offer certificate programs in mental health for existing advanced practice nurses and the provision of an APRN educational program.

Recommendation 16. Continue to use resources such as the State Educational Loan Repayment Program administered by the UVM AHEC Program to target the recruitment and retention of psychiatric nurse practitioners.

Recommendation 17. Develop other incentives such as scholarships and expanded financial assistance.

III. Nursing Professionals

Quick Facts

- Reflecting national nursing shortages, forecasts indicate the supply of nursing professionals will not meet Vermonters' needs after 2011.
- Across the board, nursing professions experience high vacancy and turnover rates, particularly in home and long-term care.
- There were 6,900 registered nurses in Vermont in 2000, comparable to the other New England states' average of 9.56 per 1000 population and above the U.S. average of 7.8.
- The mean age for nurses in Vermont is 47, and 76% of the nursing workforce is over the age of 40.

1. Resource Description

According to the Report of the Healthcare Workforce Partnership, registered nurses administer medications, perform life-saving procedures, promote health, prevent disease, and help people cope with illness, life changes and death. Nurses are advocates and educators for patients, families and communities. Nurses practice in a variety of settings where they can provide care to patients 24 hours a day or on an as needed basis. They develop and manage nursing care plans for patients that combine the treatment prescribed

by the physician with the nursing needs that have been identified. Nurses also teach patients and their families about their conditions, particularly how to care for themselves, how to prevent complications, and when to seek further advice from a health care professional. Nurses coordinate the activities of other members of the health care team, often supervising licensed practical nurses and licensed nursing assistants.

Some registered nurses work for local, State or international public health agencies, where they monitor communicable diseases, assist with evaluating air and water quality efforts, and teach people in the community about healthy choices and disease prevention.

Licensed practical nurses provide basic bedside care to patients whose common recurring conditions are generally stable. After licensure, licensed practical nurses typically find employment in a hospital, long-term care facility or another health care organization. They work under the supervision of physicians, dentists, or registered nurses, who might ask a licensed practical nurse to administer medications orally or by injection, and provide a wide range of physical treatment and care. A licensed practical nurse will also provide the patient and family with information about medical conditions, treatment and care. In the hospital setting, for example, a licensed practical nurse will take patients' vital signs, monitor patients' responses to medication and other treatments, or help patients with personal hygiene. They will also help registered nurses develop or change a patient's plan of care.

The following sections present data for nursing professionals, including registered nurses (RNs), licensed practical nurses (LPNs) and nursing assistants. Data on individual nursing professionals were not collected in the Health Resource Inventory. The discussion includes aggregate data from other sources as well as state and national benchmarks.

2. Current Supply and Distribution of Nursing Professionals in Vermont

Registered Nurses

The Health Resources and Services Administration (HRSA) estimates that there were 6,900 registered nurses in Vermont in 2000 which translates to 9.56 per 1000 population, as shown in Table 11. This rate is generally comparable to other New England states, although Maine, Rhode Island and Massachusetts have a higher number of registered nurses per 1000 people than Vermont. Massachusetts has 2.34 more registered nurses per 1000 people than Vermont, although Vermont's average of 9.56 per 1000 is well above the U.S. average of 7.8 per 1000.

Table 11: Registered Nurse (RN) Comparisons

State	Number	Registered Nurses per 1,000 pop.
Massachusetts	91,600	11.90
Rhode Island	13,700	10.98
Maine	15,800	10.23
Vermont	**6,900**	**9.56**
Connecticut	41,700	9.40
New Hampshire	13,300	9.13
New York	198,000	8.72
US		*7.80*
Benchmark Year 2000		
Vermont Year 2000		

Source: Health Resources and Services Administration. "State Workforce Profiles."

The Vermont Office of Professional Regulation estimated that there were 7,748 registered nurses in Vermont in 2003 or 12.5 per 1000 people. This is a significantly higher number than what is reported by HRSA. HRSA's Bureau of Health Professions conducts a survey of RNs known as the National Sample Survey of Registered Nurses. The survey collects national data regarding nurse education, employment settings, and earnings.

The Vermont Board of Nursing and the Office of Nursing Workforce was created in 2001 to address Vermont's nursing shortage and have collaborated to conduct re-licensure surveys of RNs, LPNs, and CNAs for 2001 through 2005. These surveys have received high response rates (70-80%), and therefore give the most accurate in-state assessment of the nursing workforce. These surveys have consistently shown a significant percentage (27%) of RNs who are licensed in Vermont but do not currently work here. The Vermont Board of Nursing explains that many foreign nurses apply for licensure in Vermont but never work in the State. Some nurses travel to work in Vermont only on a three-month assignment then leave; some summer camp nurses are also out-of-state for the majority of the year, and there are a number of Vermont nurses currently working in bordering states. Therefore, use of the number 7,748 to estimate RN per population must be questioned.

Licensed Practical Nurses

According to the Health Resources and Services Administration, Vermont had 1,290 LPNs in 2000 or 2.12 LPNs per 1000 population. This is slightly above Rhode Island, Maine and New Hampshire but below New York, Massachusetts and Connecticut. It is also below the U.S. average of 2.41 per 1000 as shown in Table 12. The 2004 Board of Nursing LPN re-licensure survey showed that 82% of LPNs who responded to the survey, reported working in Vermont.

Table 12: Licensed Practical Nurse Comparisons

State	Number	Licensed Practical Nurses per 1,000 pop.
New York	47,370	2.49
Massachusetts	15,690	2.47
US		*2.41*
Connecticut	7,280	2.13
Vermont	**1,290**	**2.12**
Rhode Island	2,080	1.98
Maine	2,430	1.90
New Hampshire	2,200	1.77
Benchmark Year 2000		
Vermont Year 2000		

Source: Health Resources and Services Administration. "State Workforce Profiles."

According to the Vermont Office of Professional Regulation, there were 2,033 licensed practical nurses in 2003 or 3.28 LPNs per 1000 population. Again, this is a much higher number than reported by HRSA. HRSA's data is based on data from the National League for Nursing, which compiles statistics on LPNs, including education information, enrollment in education programs, and the number of education programs in each state.

3. Assessment of Needs and Priorities

The Report of the Healthcare Workforce Partnership, the Blue Ribbon Nursing Commission, and data and reporting released by the Office of Nursing Workforce Research, Planning, and Development at the University of Vermont indicate a continuing shortage of professional nurses that will be complicated by an aging population with growing health care needs for acute and long-term care, an aging nursing workforce, and a lag in the supply of new nurses due to multiple factors in the education system and work place.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Physicians section of this chapter on page 240.

The Report of the Healthcare Workforce Partnership cites the finding and recommendations of the Blue Ribbon Nursing Commission's 2001 report titled: "A Call to Action: Addressing Vermont's Nursing Shortage." The report outlined a number of supply, demand, recruitment and retention issues facing the Vermont healthcare environment including the impact of the aging workforce, increased utilization of nurses and a shift to nurses spending more time performing administrative duties and less time

caring for patients. Commonly, other issues relevant for nurses are the unhappiness with many aspects of the work environment including staffing levels, heavy workloads, increased use of overtime, lack of sufficient support staff, inadequate wages, inflexibility of their schedules and feeling a lack of professional respect. Finally, licensed practical nursing programs traditionally have a larger proportion of non-traditional students.

Other Vermont studies have identified the following issues:

- There is a shortage of qualified nursing professionals across the State of Vermont and the number of registered nurses is declining. It is projected that the supply of nurses will not meet Vermonters' needs after 2011.[193] An aging society and a decade of declining nursing school enrollment have contributed to these shortages.

- There appears to be a potential aging workforce problem among nursing professionals, which could exacerbate current shortages. Among all nurses (RNs and LPNs), a re-licensure survey conducted by UVM's Office of Nursing Workforce Research, Planning, and Development, the mean age of nurses was 47 years with 76% over the age of 40.

- There are high vacancy and turnover rates among nursing professions, particularly in home care and long-term care. In a 2003 survey conducted by the Office of Nursing Workforce Research, Planning, and Development at UVM, the highest vacancy rates and turnover rates among registered nurses occurred in long-term care facilities. Among licensed practical nurses, the highest vacancy rates and turnover rates occurred in home health care. This survey also reported that 22% of all nurses were 'somewhat likely' or 'very likely' to leave their current position in the next 12 months.[194]

5. Recommendations

The following recommendations are derived from the Report of the Healthcare Workforce Partnership and the Office of Nursing Workforce Research, Planning, and Development at the University of Vermont and are endorsed by the HRAP.

The Report of the Healthcare Workforce Partnership recommends continuing support for the recommendations made by the 2001 Blue Ribbon Nursing Commission in Vermont that have been implemented to date:

[193] Palumbo, M.V. Presentation: "Vermont's Nursing and Allied Health Workforce Summary for HRAP." June 2004.
[194] Office of Nursing Workforce, University of Vermont "Vermont Health Workforce Assessment Pilot Study 2003" Retrieved April 14, 2005 from http://choosenursingvermont.org/stats/Summaries/HWATreportfinal.pdf

Recommendation 1. Create a Center for Nursing located at the University of Vermont in collaboration with the Vermont State Colleges to address ongoing supply, education, practice and research.

Recommendation 2. Form a State-funded Vermont Nursing Education Loan Forgiveness Program. The UVM AHEC Program is currently administering Educational Loan Repayment for nurses while VSAC is administering a Loan Forgiveness Program for nurses in the form of scholarships.

Recommendation 3. Develop an aggressive fundraising effort to raise scholarship support for nursing students from private sources. (e.g. Freeman Scholarship)

The Healthcare Workforce Partnership recognizes that continued efforts in the following areas are needed:

Recommendation 4. Establish a partnership between the State of Vermont, health care providers, educators, and other health care partners to fund a comprehensive program to promote the nursing profession.

Recommendation 5. Increase State funding to expand nursing education programs so they can prepare more students.

Recommendation 6. Increase nurse salaries to retain current nurses and attract new nurses into the profession.[195]

Additionally, in the time since the Blue Ribbon Commission on Nursing in 2001, the following recommendations have been made by the Office of Nursing Workforce Research, Planning, and Development at UVM:

Recommendation 7. Support creation of joint clinical appointments between health care facilities and schools of nursing to ease the nursing faculty shortage.

Recommendation 8. Develop an aggressive fundraising effort to raise scholarship support for advancement in nursing to prepare future nursing faculty. (i.e. Freeman and Light the Lamp Scholarships and other loan repayment options)

Recommendation 9. Develop incentives to attract and retain RNs in the nursing home setting.

Recommendation 10. Encourage job redesign to enable older nurses to stay on the job until or beyond the traditional retirement age.

[195] Vermont Healthcare Workforce Partnership - Human Resources Investment Council. "Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry." 2004.

IV. Dentists

Quick Facts

- According to the Office of Professional Regulation, there were 547 dentists *licensed* in Vermont in 2003, of which approximately 80% were reported as generalists or primary care dentists.

- The Vermont Department of Health Survey of Dentists found that there were 367 dentists *working* in Vermont in 2003. Of these, 80% work in primary care dentistry while 20% reported that they provide specialty care (including orthodontists, oral surgeons, periodontists, endodontists and prosthodontists).[196]

- Brattleboro, Burlington and Bennington have the largest number of dentist FTEs per 1000 population, while Randolph, Morrisville and Newport have the lowest.

1. Resource Description

According to the report of the Healthcare Workforce Partnership, dentistry is defined as the evaluation, diagnosis, prevention and/or treatment (nonsurgical, surgical, or related procedures) of diseases, disorders and/or conditions of the oral cavity, maxillofacial area and/or the adjacent and associated structures and their impact on the human body, provided by a dentist, within the scope of his/her education, training and experience, in accordance with the ethics of the profession and applicable law. Dentists also screen patients for cancers and disorders of the jaw and bones around the face, use preventive procedures, and teach their patients how to take good care of their gums and teeth to avoid problems between check-ups. Dentistry makes use of high-tech equipment to help people keep or restore proper oral health. Most dentists are general practitioners; however, some dentists choose to practice in an area of specialty.

In the report of the Healthcare Workforce Partnership, Dental Assistant and Dental Hygienist are included in the list of top 20 priority health professions. See the Oral Health section of the Ambulatory Care Chapter in the HRAP, for details about these professions.

2. Current Supply and Distribution of Dentists in Vermont

Note: Assignment of HSAs and counties for dentists is based on the town where the provider's practice is located. Dentists with multiple practice locations are assigned to multiple HSAs and counties (and their FTE proportions are assigned to these multiple HSAs and counties as well).

See the Oral Health section in the Ambulatory Care Chapter for detailed overview of oral health resources.

[196] State of Vermont, Agency of Human Services, Department of Health, Dentists 2003 Survey Statistical Report.

The Vermont Department of Health Survey of Dentists found that there were 367 (279.77 FTEs) dentists *working* in Vermont in 2003. Of these, 80% work in primary care dentistry while 20% reported that they provide specialty care (this includes orthodontists, oral surgeons, periodontists, endodontists and prosthodontists).[197] The distribution of dentist FTEs by HSA is shown in Table 13. Brattleboro, Burlington and Rutland have the largest number of dentist FTEs per 1000 population, while Randolph, Morrisville and Newport have the lowest. The State average is 0.45 dentist FTEs per 1000 population.

Table 13: Distribution of Dentists by HSA

Dentists									
HSA Name	# Practice Locations	Total FTE	FTE Per 1000	FTE % of Total	County Name	# Practice Locations	Total FTE	FTE Per 1000	FTE % of Total
Brattleboro	33	20.64	0.64	7.4%	Chittenden	154	88.51	0.59	31.6%
Burlington	156	90.11	0.54	32.2%	Windham	39	25.49	0.57	9.1%
Bennington	32	21.93	0.53	7.8%	Bennington	30	20.18	0.54	7.2%
St. Johnsbury	18	13.46	0.49	4.8%	Caledonia	20	15.13	0.50	5.4%
Rutland	44	31.52	0.49	11.3%	Rutland	44	31.52	0.50	11.3%
Barre	47	29.02	0.44	10.4%	Washington	47	29.02	0.49	10.4%
Middlebury	17	10.83	0.38	3.9%	Windsor	44	23.23	0.40	8.3%
White River Junction	34	18.26	0.37	6.5%	Franklin	28	14.82	0.32	5.3%
Springfield	17	10.23	0.35	3.7%	Addison	17	10.83	0.29	3.9%
St. Albans	28	14.82	0.33	5.3%	Lamoille	12	6.95	0.29	2.5%
Randolph	5	4.38	0.30	1.6%	Orange	8	6.54	0.23	2.3%
Morrisville	13	7.82	0.30	2.8%	Orleans	12	5.94	0.22	2.1%
Newport	13	6.75	0.24	2.4%	Essex	1	0.81	0.13	0.3%
					Grand Isle	1	0.80	0.11	0.3%
Total	457	279.77	0.45		Total	457	279.77	0.45	

Total Number of Dentists in Vermont	**367**
Dentists Per 1000	**0.59**

Source: Vermont Health Resource Inventory 2004 (Data from VDH Dentist Re-licensure Survey 2003)

[197] State of Vermont, Agency of Human Services, Department of Health, Dentists 2003 Survey Statistical Report.

Table 14 identifies the distribution of dentist practice locations by specialty. Seventy-three percent of practice locations provide general dentistry services (including pediatric dentistry). There are very few specialty dentists in Vermont and most are located in Burlington. Between 50% and 60% of practice locations for all specialties except oral/maxillofacial surgery are in the Burlington HSA. Nearly 42% of oral/maxillofacial surgery practices are located in Burlington. There are only 16 pediatric dentist locations in the State, and 10 of them are in Burlington.

Table 14: Dentist Practice Locations by Specialty

Dentist Practice Locations by Specialty	
Specialty	Number of Practice Locations
General Dentistry	318
Pediatric Dentistry	16
Endodontics	10
Orthodontics	58
Oral/Maxillofacial	39
Periodontics	13
Prosthodontics	3
Total	457

Source: Vermont Health Resource Inventory 2004 (Data from VDH Dentist Re-licensure Survey 2003)
**Dentists could only report one type of specialty. Two dentists did not report a specialty.*

As shown in Table 15, just over half (53%) of dentist practice locations in Vermont are accepting new Medicaid patients. *This finding is based on 242 dentist practice locations that reported this information.* The percentages vary considerably across Hospital Service Areas. While 82% of dentists in the St. Albans HSA are accepting new Medicaid patients, only 25% in White River Junction and 28% in Brattleboro are accepting new Medicaid patients.

Table 15: Percent of Dentists Accepting New Medicaid Patients by HSA

HSA Name	Number	% of Total
Barre	36	51.4%
Bennington	9	31.0%
Brattleboro	9	28.1%
Burlington	96	58.2%
Middlebury	7	50.0%
Morrisville	7	63.6%
Newport	7	77.8%
Randolph	3	75.0%
Rutland	24	57.1%
Springfield	9	56.3%
St. Albans	14	82.4%
St. Johnsbury	13	81.3%
White River Junction	8	25.0%
Total	242	53.0%

Source: Vermont Health Resource Inventory 2004 (Data from VDH Dentist Re-licensure Survey 2003)

3. Assessment of Needs and Priorities

The State Health Plan, the 2005 Oral Health Plan, the Hospital Community Needs Assessments, and the Report of the Healthcare Workforce Partnership indicate a shortage of dental professionals in the area of preventive and primary care, particularly for Medicaid enrollees, and a mal-distribution of specialty dentists.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Physicians section of this chapter on page 240.

The Report of the Healthcare Workforce Partnership observed the following:

- New England sends fewer students to dental schools and is much more dependent on the importation of dentists from outside the region. Vermont does not have a dental school and in 2004, four Vermonters were attending dental school.
- Certain specialties are in high need or will be in a higher demand in the future; these include: general dentists, pediatric dentists, oral surgeons and endodontists.
- The adequacy of the dentistry workforce needs to be looked at, given a number of factors, including public policy for funding of oral health services, future population growth, demographic shifts of the workforce (aging, retirement etc.), economic growth (challenges to recruitment or more disposable income for

consumers choosing elective or cosmetic treatments), and growth and changes in productivity.

- The mix of specialist and generalist dentists is important in recruiting dentists into the State. In particular, general dentists will be sensitive to relocating to an area where there are adequate specialists to whom to refer their patients.

Other considerations include:

- There appears to be an aging dentist workforce and a possible shortage of younger dentists to replace retiring dentists. According to the Vermont Department of Health Dentists survey conducted in 2003, one-fifth (20%) of dentists reported that they are likely to retire within the next six to ten years and many have been unsuccessful in recruiting new dentists to their practice.[198]

- There appears to be a shortage of specialist dentists, particularly in certain specialties such as pediatric dentistry, periodontics and endodontics. Out of 463 dentist practice locations in the State, only 16 are pediatric dentist locations, and 10 of these are located in Burlington. In addition, there are only thirteen periodontist practice locations, ten endodontist practice locations, and three prosthodontist practice locations in the State.[199]

- There appears to be a shortage of dentists who are willing to accept new Medicaid patients. According to the 2003 survey, 53% of dentists are currently accepting new Medicaid patients among over 400 office settings for all practice types.[200] At the same time, the demand for dental services among Medicaid recipients in Vermont is high. The VDH found that approximately 26% of adults and 47% of children enrolled in either Medicaid or Dr. Dynasaur (Vermont's Children's Health Insurance Program) in State fiscal year 2002 saw a dentist in the previous twelve months.[201] The national average is approximately 20-25%.[202] Vermont Medicaid covers basic diagnostic, limited preventive/restorative services, dentures and limited endodontia and oral surgeries for both children and adults.

Other considerations for improving the supply and distribution of dental professionals have been identified:

- Further research is also needed to compare the number of dentists accepting Medicaid patients with the numbers of Medicaid eligibles in specific regions. It would be useful to identify regions where access to dentists for Medicaid recipients is more problematic.

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[198] Ibid.
[199] Vermont Health Resource Inventory; data derived from the 2003 Department of Health Dentist Re-Licensure Survey.
[200] Ibid.
[201] Vermont Healthcare Workforce Partnership - Human Resources Investment Council. "Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry." 2004.
[202] Ibid.

- The shortage of dentists and dental professionals throughout the United States has led to some unique solutions. The Academy of General Dentistry published an editorial that described the proposal by the American Dental Association to create an "advanced dental hygiene practitioner." The benefit of creating a new type of hygienist who is more advanced would be increased access to dental care, since a general dentist would no longer serve as a gatekeeper to oral care.[203] In a presentation from the Center for Health Professions at the University of California, San Francisco, entitled "Innovative Solutions to Health Workforce Shortages: Communities in Crisis," it was recommended that the oral health workforce be redefined and that the roles of all practitioners be expanded as appropriate in order to solve the crisis facing dental care.[204]

- States have taken a more conventional approach to addressing the educational needs of dentists. State and federal programs have been established to aid in loan repayment, but some states have chosen to focus on the location of dental schools throughout the country. As of 2003, there were 56 dental schools in 34 states including the District of Columbia and Puerto Rico.[205] In Arizona, Nevada, and Virginia, the solution to a dwindling supply of dentists has been to open dental schools. [206]

5. Recommendations

The following recommendation are derived from the Report of the Healthcare Workforce Partnership and are endorsed by the HRAP:

Recommendation 1. Provide more support and continue existing efforts for recruitment of dentists into the State, particularly to replace those dentists approaching retirement.

Recommendation 2. Enhance the recruitment of Vermonters to study dentistry and return to Vermont to practice.

Recommendation 3. Evaluate existing workforce initiatives, policies, programs and funding for their viability and direct resources to the most successful and effective areas.

Recommendation 4. Develop additional tools to inform and persuade dentists to begin practice in Vermont.

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[203] Garvin, J. "Dental Workforce: What's the Solution?" *AGD Impact.* Volume 33, Number 9.
[204] Mertz, B. "Innovative Solutions to Health Workforce Shortage: Communities in Crisis." Center for Health Professions.
[205] American Dental Education Association. "Dental Education At-A-Glance: 2003."
[206] Garvin. (http://www.agd.org/library/2004/oct/garvin.asp).

Recommendation 5. Continue programs such as the Educational Loan Repayment Program administered by the UVM AHEC Program.

V. Mental Health and Substance Abuse Professions

Quick Facts

- Mental health and substance abuse providers include psychiatrists, masters- and doctoral-level psychologists, licensed social workers and licensed alcohol and drug counselors.

- Statewide shortages exist across all provider types, particularly for child- and adolescent-practitioners, and particularly in rural areas.

- Vermont has 0.24 psychiatrists per 1000 population statewide, a ratio comparable to peer states, but 71% of those providers are concentrated in four hospital service areas: Barre, Brattleboro, Burlington and White River Junction.

- There are 284 doctoral level and 178 masters-level psychologists in the State, distributed similarly to the psychiatrist workforce.

The following sections present areas of concern regarding the mental health and substance abuse (MH/SA) professions, the distribution of MH/SA practitioners, as well as benchmarks and recommendations. Benchmark data are only available for psychiatrists and psychologists. Although HRSA collects data on social workers, these social workers do not have a specific mental health/substance abuse designation and are thus not comparable to the mental health/substance abuse social workers contained in the Vermont Health Resource Inventory.

1. Service/Facility/Resource Description

The report of the Healthcare Workforce Partnership describes the work of those professions quite well. Excerpted from the report is the following: *Mental health and substance abuse professionals provide care within a complex, changing and challenging environment. While some of this care is provided within traditional medical practice models, most mental and behavioral health care is provided in systems that are parallel but quite separate from those for physical health care. Based on general workforce data, the growth in demand for mental health and substance abuse professionals may be significant. However, estimates may be inexact since they do not consider factors such as shifts in the market, creation of new work settings, expanded scopes of practice or other factors.*

Adult & Child Psychiatrists

- Bachelor's degree followed by four years of medical school plus residency education required.
- Education programs are available at UVM
- Residency Programs are available at Fletcher Allen Health Care for adult psychiatry only

Psychiatrists are physicians who specialize in the diagnosis, treatment and prevention of mental illnesses and substance abuse disorders. With a medical background and a focus on mental health, psychiatrists are uniquely qualified to understand how emotional illness is related to the growing understanding of the workings of the mind, brain and body. Psychiatrists may prescribe medications, order laboratory and other tests, and coordinate with other physicians as part of their patients' treatment. Psychiatrists also engage in research to gain further information about the origins of mental illness and to advance treatment.[207]

Psychiatric Nurse Practitioners

Psychiatric Advanced Practice Registered Nurses (APRNs) have a Master's degree in psychiatric-mental health nursing. Psychiatric-Mental Health Nursing (PMHN) is considered a "Specialty" in nursing. Specialty practice is part of the course work in a master's degree program. In working with psychiatric clients or patients, bachelor's level nurses assist them with self-care, medication prescription and medication administration, teach about health and mental health individually or in groups, including psycho-education. Basic level nurses are also prepared to assist with crisis intervention, counseling and work as case managers. In addition to the functions performed at the basic level, APRN's assess, diagnose, and treat individuals or families with psychiatric problems/disorders or the potential for such disorders. They provide a full range of primary mental health care services to individuals, families, groups and communities, function as psychotherapists, educators, consultants, advanced case managers, and administrators. In many states, APRN's have the authority to prescribe medications. There are no education programs for Psychiatric Nurse Practitioners in Vermont.[208]

Social Workers

- Bachelors or Masters degree required
- Programs at Castleton State College, Springfield College, and University of Vermont

Working from a strengths perspective, social workers are guided by the values of social justice and human rights. Social workers often reach out to people who may be described as oppressed and underserved. Social workers most commonly work in non-profit

[207] Report of the Healthcare Workforce Partnership, page 16
[208] Ibid., page 34

agencies and/or government agencies. Some social workers choose to work in for-profit businesses or join private practice groups. Fields of social work practice include, but are not limited to, mental health, child welfare, family work, substance abuse, adult and juvenile justice, school social work, medical social work, geriatric social work, homelessness and housing, domestic violence, and community organizing/development.[209]

2. (a) Distribution of Psychiatrists in Vermont

Note: Assignment of HSAs and counties for psychiatrists is based on the town where the provider's practice is located. Psychiatrists with multiple practice locations are assigned to multiple HSAs and counties (and their FTE proportions are assigned to these multiple HSAs and counties as well).

There are 146 psychiatrists in the State of Vermont. Table 16 shows the distribution of these physician FTEs by Hospital Service Area. A large majority (71%) of psychiatrist FTEs are concentrated in four HSAs (Brattleboro, Burlington, White River Junction and Barre). Retreat Healthcare, a psychiatric facility, is located in Brattleboro, Fletcher Allen Health Care, a large academic medical center, is located in Burlington, the Veterans Affairs Medical Center is located in White River Junction and the Vermont State Hospital, a psychiatric facility, is located in the Barre hospital service area. Remaining psychiatrist FTEs (29%) are spread out over nine HSAs. The State average number of psychiatrist FTEs per 1000 population is 0.18. Brattleboro HSA has the highest number of FTEs per 1000 (0.36) and Morrisville HSA has the lowest (0.06). County distributions of psychiatrists follow similar patterns and align closely with their respective HSAs. Grand Isle and Essex Counties have no psychiatrist FTEs.

[209] Ibid., page 60

Table 16: Distribution of Psychiatrists in Vermont, 2002

Hospital Service Area	FTEs	FTEs per 100,000	FTE % Total
Barre	15.1	22.93	13.0%
Bennington	7.9	19.29	6.8%
Brattleboro	12.8	39.71*	11.1%
Burlington	43.7	26.19*	37.7%
Middlebury	2.5	8.86**	2.2%
Morrisville	1.6	6.17**	1.4%
Newport	2.1	7.56**	1.8%
Randolph	1.5	10.33**	1.3%
Rutland	7.1	11.04**	6.1%
Springfield	4.3	14.84	3.7%
St. Albans	3.0	6.87**	2.6%
St. Johnsbury	1.8	6.62**	1.6%
White River Junction	12.4	25.22*	10.7%
Counties			
Addison	2.5	6.84**	2.2%
Bennington	7.9	21.21	6.8%
Caledonia	1.8	6.00**	1.6%
Chittenden	43.7	29.47*	37.7%
Essex	0.0	0.00**	0.0%
Franklin	3.0	6.47**	2.6%
Grand Isle	0.0	0.00**	0.0%
Lamoille	1.6	6.71**	1.4%
Orange	2.2	7.70**	1.9%
Orleans	2.1	7.88**	1.8%
Rutland	7.1	11.18**	6.1%
Washington	15.1	25.89*	13.0%
Windham	16.1	36.15*	13.9%
Windsor	12.7	21.86	11.0%
Total	115.8	18.81	100.0%

Source: 2002 Physician Survey, Vermont Department of Health

** FTEs per 100,000 are at least 25% below the statewide ratio

* FTEs per 100,000 are at least 25% above the statewide ratio

Vermont has 0.24 psychiatrists per 1000 population, which is second only to Massachusetts among comparison states. All comparison states have a higher number of psychiatrists than the U.S. average of 0.11 per 1000 population.

Table 17: Psychiatrist Comparisons

State	Mental Health Psychiatrists per 1,000 pop.	Estimated FTE per 1,000 population
Massachusetts	0.28	0.21
New York	0.27	0.20
Vermont	**0.24**	**0.18**
Connecticut	0.23	0.17
Rhode Island	0.19	0.14
New Hampshire	0.15	0.11
Maine	0.15	0.11
US	*0.11*	*0.08*
State Benchmark Year 2000		
US Benchmark Year 1998		
Vermont Year 2002		
Ratio of FTE per Psychiatrist= 0.74		

Sources: Secretary of State Office of Professional Regulation, MVP Provider Directory, telephone books

If the U.S. average of 0.08 FTEs per 1000 is used as the benchmark, the follow areas could be considered potential shortfall areas.

HSAs	**Counties**
St. Albans (0.07)	Franklin (0.07)
St. Johnsbury (0.07)	Addison (0.07)
Morrisville (0.06)	Lamoille (0.06)
	Caledonia (0.06)
	Essex (0)
	Grand Isle (0)

As was described above, psychiatrists tend to be concentrated in areas that are in close proximity to inpatient psychiatric facilities. Further investigation may be warranted to determine whether this distribution is having an impact on access to outpatient psychiatric services in areas where there are fewer practitioners and whether residents of potential shortfall HSAs and counties have relatively higher inpatient psychiatric utilization as a result.

Nearly three-quarters (71%) of Vermont's psychiatrist FTEs are located in four HSAs (Barre, Brattleboro, Burlington and White River Junction). Psychologists and other mental health/substance abuse professionals tend to be concentrated in these areas as well.[210]

[210] Vermont Health Resource Inventory; data derived from the 2002 Department of Health Physicians Re-Licensure Survey.

2. (b) Distribution of Psychologists in Vermont

Note: These individuals have been assigned to one or more HSAs and counties in the Vermont Health Resource Inventory based on the town provided on their license application, as well as other data (such as phone books and provider directories). FTE data are not available; therefore, analysis is based on the number of practice locations in each HSA and county.

According to the Office of Professional Regulation, there are 284 doctoral-level and 178 master's-level psychologists licensed in Vermont. The doctoral-level psychologist practice locations tend to follow a distribution pattern that is similar to psychiatrists. Many of these practice locations (68%) are concentrated in three HSAs where there is either an inpatient psychiatric facility (Barre), the VA Medical Center (White River Junction) or Fletcher Allen Health Care (Burlington). However, master's-level psychologist practice locations are more concentrated in other areas as well (Middlebury). The average number of doctoral-level psychologist practice locations per 1000 is 0.46 across the State and the average number of master's level psychologist practice locations per 1000 is 0.32. There are a high number of psychologist practice locations relative to population in Brattleboro (0.52 per 1000). There are fewer master's-level psychologist practice locations overall, but they are more concentrated in Middlebury, Barre and Burlington. Middlebury has by far the highest number of master's-level psychologist practice locations per 1000 population (0.70).

Table 18: Distribution of Psychologists by HSA

Psychologists - MA				Psychologists- PhD			
HSA Name	# of Practice Locations	Per 1000	% of Total	HSA Name	# of Practice Locations	Per 1000	% of Total
Middlebury	20	0.70	10.2%	Burlington	129	0.77	45.3%
Barre	32	0.48	16.3%	White River Junction	30	0.61	10.5%
Burlington	68	0.40	34.7%	Brattleboro	17	0.52	6.0%
Morrisville	10	0.38	5.1%	Barre	34	0.51	11.9%
Brattleboro	12	0.37	6.1%	Middlebury	13	0.46	4.6%
Bennington	11	0.27	5.6%	Bennington	17	0.41	6.0%
St. Johnsbury	7	0.26	3.6%	Randolph	4	0.28	1.4%
Newport	7	0.25	3.6%	Rutland	17	0.26	6.0%
Springfield	6	0.21	3.1%	Springfield	7	0.24	2.5%
White River Junction	8	0.16	4.1%	St. Johnsbury	6	0.22	2.1%
Rutland	10	0.16	5.1%	Morrisville	5	0.19	1.8%
Randolph	2	0.14	1.0%	St. Albans	4	0.15	1.4%
St. Albans	3	0.11	1.5%	Newport	2	0.07	0.7%
Total	196	0.32		Total	285	0.46	
Total Number of Psych- MAs in VT			**178**	**Total Number of Psych- PhDs in VT**			**284**
Total Number of Psych- MAs per 1000			**0.29**	**Total Number of Psych- PhDs per 1000**			**0.46**

Source: Vermont Health Resource Inventory (Data from Secretary of State Office of Health Professions, MVP Provider Directory and phonebooks)

Distribution of doctoral-level psychologists is similar to that of psychiatrists, who are concentrated in areas in close proximity to inpatient psychiatric facilities. This may result in fewer practitioners who are accessible for outpatient treatment in other areas of the State. As shown below, doctoral-level psychologists are concentrated primarily in the Barre, White River Junction and Burlington HSAs.

2. (c) Distribution of Licensed Clinical Social Workers (LICSW) in Vermont

Note: These individuals have been assigned to one or more Hospital Service Areas and counties in the Vermont Health Resource Inventory based on the town provided on their license application, as well as other data (such as phone books and provider directories). FTE data is not available, and therefore, analysis is based on the number of practice locations in each HSA and county.

There are 255 mental health/substance abuse LICSWs in Vermont with an average of 0.41 per 1000 population, according to the Vermont Office of Professional Regulation. Like psychiatrists and psychologists, many LICSW practice locations are in the four HSAs where Fletcher Allen, the VA hospital and the two inpatient psychiatric facilities are located. However, in relation to the population, relatively high concentrations are

also found in Randolph, Bennington, Rutland and Middlebury. Although Barre has more LICSW practice locations than many other HSAs (29), the number of locations per 1000 is relatively low (0.44). The lowest numbers of LICSW practice locations relative to the population are found in Morrisville, St. Johnsbury, Springfield and Newport, as shown in Table 19.

Vermont's Medicaid program reimburses LICSWs independently only for case management services for targeted groups such as the chronically mentally ill and families with children that have suffered abuse or neglect.

Table 19: Distribution of MH/SA Licensed Clinical Social Workers by HSA

MH/SA Licensed Clinical Social Workers			
HSA Name	# of Practice Locations	Per 1000	% of Total
Brattleboro	38	1.17	12.0%
Randolph	11	0.76	3.5%
Bennington	30	0.73	9.5%
Rutland	44	0.68	13.9%
Middlebury	19	0.67	6.0%
Burlington	83	0.49	26.3%
White River Junction	24	0.49	7.6%
Barre	29	0.44	9.2%
St. Albans	10	0.37	3.2%
Morrisville	9	0.34	2.8%
St. Johnsbury	8	0.29	2.5%
Springfield	8	0.28	2.5%
Newport	3	0.11	0.9%
Total	316	0.51	
Total Number of Social Workers in VT			**255**
Total Number of Social Workers per 1000			**0.41**

Source: Vermont Health Resource Inventory 2004

The UVM Office of Nursing Workforce Research, Planning and Development conducted a survey of social worker vacancies and turnover rates in hospitals, home health agencies and long-term care providers in 2003. According to this survey, the highest vacancy rates were found in hospitals (7%) and the highest turnover rates were found in home health care settings (21%). These findings illustrate the vastly different recruitment and retention issues and challenges across health care settings for this particular type of health care worker.[211]

[211] Vermont Healthcare Workforce Partnership - Human Resources Investment Council. "Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry." 2004.

2. (d) Distribution of Mental Health and Licensed Alcohol and Drug Counselors in Vermont

Note: These individuals have been assigned to one or more Hospital Service Areas and counties in the Vermont Health Resource Inventory based on the town provided on their license application, as well as other data (such as phone books and provider directories). FTE data are not available, and therefore, analysis is based on the number of practice locations in each HSA and county.

Vermont has 460 licensed mental health counselors and 401 licensed alcohol and drug counselors. Some of these individuals have licenses in both mental health and substance abuse and are therefore counted in both groups. As shown in Table 20, the average number of mental health counselor practice locations per 1000 is 0.84 across the State. The Brattleboro HSA has nearly twice the State average at 1.67, which is also substantially higher than the second highest HSA (Morrisville – 1.18). Although Brattleboro also has the highest number of licensed alcohol and drug counselor practice locations among HSAs (1.14), the difference per 1000 between Brattleboro and other HSAs is not as great. The State average number of licensed alcohol and drug counselor practice locations per 1000 is 0.70. The Barre HSA has a relatively high number of mental health counselor practice locations (1.03 per 1000) but has a relatively low number of licensed alcohol and drug counselor practice locations (0.56 per 1000). On the other hand, St. Johnsbury has a relatively low number of mental health counselor practice locations (0.66 per 1000) and a relatively high number of licensed alcohol and drug counselor practice locations (1.10 per 1000). Although there are larger numbers of practice locations between both types of counselors in both Burlington and Brattleboro, practice locations are fairly evenly distributed throughout the remainder of HSAs.

Table 20: Distribution of MH and Licensed Alcohol and Drug Counselors by HSA

Mental Health Counselor				Licensed Alcohol and Drug Counselor			
HSA Name	# of Practice Locations	Per 1000	% of Total	HSA Name	# of Practice Locations	Per 1000	% of Total
Brattleboro	54	1.67	10.4%	Brattleboro	37	1.14	8.5%
Morrisville	31	1.18	6.0%	St. Johnsbury	30	1.10	6.9%
St. Albans	31	1.13	6.0%	Newport	26	0.94	6.0%
Burlington	173	1.03	33.3%	Morrisville	24	0.92	5.5%
Barre	68	1.03	13.1%	Burlington	134	0.80	30.8%
Springfield	24	0.83	4.6%	St. Albans	20	0.73	4.6%
Middlebury	23	0.81	4.4%	Middlebury	20	0.70	4.6%
St. Johnsbury	18	0.66	3.5%	Springfield	19	0.66	4.4%
Newport	18	0.65	3.5%	Rutland	41	0.64	9.4%
White River Junction	26	0.53	5.0%	Randolph	9	0.62	2.1%
Randolph	7	0.48	1.3%	Bennington	23	0.56	5.3%
Rutland	31	0.48	6.0%	Barre	37	0.56	8.5%
Bennington	15	0.37	2.9%	White River Junction	15	0.30	3.4%
Total	519	0.84		Total	435	0.70	
Total Number of MH Counselors in VT			**460**	**Total Number of LADC Counselors in VT**			**401**
Total Number of MH Counselors per 1000			**0.74**	**Total Number of LADC Counselors per 1000**			**0.65**

Source: Vermont Health Resource Inventory 2004 (Data from Secretary of State Office of Health Professions, MVP Provider Directory and phonebooks)

3. Assessment of Needs and Priorities

The Hospital Community Needs Assessments, the Report of the Healthcare Workforce Partnership, and survey data released from the UVM Office of Nursing Workforce Research, Planning and Development indicate a shortage and mal-distribution of psychiatrists and psychologists, especially those specializing in care of children and adolescents, a shortage of psychiatric nurse practitioners, and high vacancy and turnover rates for licensed clinical social workers in long-term care and home health settings. The number of mental health professionals willing to accept Medicaid enrollees is decreasing

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Physicians section of this chapter on page 240.

- ***There is a general shortage of providers of mental health and substance abuse services.***

According to the System Evaluation and Five-Year Projection of Service Demand and Cost Analysis report completed for the Designated Agency System for Mental Health, Substance Abuse and Developmental Disabilities, there is a general shortage of mental health and substance abuse providers in Vermont, especially providers of child and adolescent psychiatry services.[212]

- ***There are decreasing numbers of mental health and substance abuse providers who will accept Medicaid patients.***

According to the Designated Agency report, relatively low rates of reimbursement have resulted in decreasing numbers of psychiatrists and other mental health/substance abuse services providers who will accept Medicaid.[213]

- ***There appears to be an inadequacy of wages relative to other employment opportunities for mental health and substance abuse providers, which could result in shortages.***

Currently, in Vermont, case managers with a bachelor's degree earn an average of $14.05 per hour. Day treatment workers with a high school diploma earn an average $11.11 per hour, residential workers with a high school diploma earn $11.37 per hour, and contracted day/respite workers with a high school diploma earn an average of $12.28 per hour.[214]

- ***Psychiatrists and psychologists are concentrated in urban areas and in HSAs where an inpatient psychiatric facility is located.***

- ***There is variation in vacancy and turnover rates for licensed clinic social workers across practice settings***

Anecdotal information and Vermont data show that there is a great need in adult and child psychiatry. In addition, researchers have cited a need to examine the relationship of psychiatrists to other professions in the health care system in order to maximize their utilization.

[212] "System Evaluation and Five-Year Projection of Service Demand and Cost Analysis." State of Vermont , Agency of Human Services. Designated Agency System for Mental Health, Substance Abuse and Developmental Disabilities Report. Nov. 2004.
[213] Ibid.
[214] Ibid.

5. Recommendations

The following recommendations are derived from the Report of the Healthcare Workforce Partnership and the Council of Graduate Medical Education (COGME) and are endorsed by the HRAP.

Recommendations from the Report of the Healthcare Workforce Partnership include:

Psychiatrists

Recommendation 1. Work with existing programs in the State (such as the UVM Area Health Education Center Program, Educational Loan Repayment and Freeman Scholarship programs) to target mal-distribution through the recruitment of physicians into the State and the education of physicians at Vermont's academic programs.

Recommendation 2. Provide better monitoring of the physician workforce in collaboration with the Department of Health to more adequately predict physician workforce needs, taking into account influences such as rate of educating primary care specialties, patient demand, technological changes and policy related factors.

Recommendation 3. Explore models of collaboration among psychiatry and other health professions in order to promote physical and mental health integration.

Recommendation 4. Explore how to sustain a variety of delivery modalities for psychiatry services and employment options for psychiatrists such as in community mental health systems, public and private practice settings.

Recommendation 5. Create a pipeline which includes development of practice options and opportunities in Vermont communities for psychiatrists.[215]

Psychiatric Nurse Practitioners

Recommendation 6. Provide better monitoring of the workforce in collaboration with the Department of Health in order to more adequately predict psychiatric nurse practitioner workforce needs taking into account influences such as rate of education of specialties, patient demand, technological changes and policy related factors.

Recommendation 7. Explore models of collaboration among other health professions in order to promote physical and mental health integration.

Recommendation 8. Develop educational opportunities to assist non-mental health specialists in addressing mental health issues more extensively within the scope of their practice in order to utilize psychiatric nurse practitioners more effectively.

[215] Ibid.

Recommendation 9. Assess the feasibility of collaborating with regional education programs to offer certificate programs in mental health for existing advanced practice nurses and the provision of an APRN educational program.

Recommendation 10. Continue to use resources such as State Educational Loan Repayment Programs administered by the UVM AHEC Program to target the recruitment and retention of psychiatric nurse practitioners.

Recommendation 11. Develop other incentives such as scholarships and expanded financial assistance.

The Council of Graduate Medical Education (COGME) recommends the following:

Recommendation 12. Offer more training in the highest need physician specialties, mainly primary care and psychiatry.

Recommendation 13. Enhance efforts to recruit practitioners in the highest need physician specialties such as primary care and psychiatry into areas with highest need, in particular rural and remote areas.

VI. Other Professions

Quick Facts

- "Other professions" here includes podiatrists and direct care workers.
- The direct care worker category includes licensed and certified nurse assistants, home health aides, and home care assistants (through the Homemaker Program)
- Vermont has a low number of podiatrists per population, at 0.04 per 1000. The U.S. average is 0.05.
- There is a growing gap between demand for long-term care workers and workforce supply. The State is experiencing significant problems with retention, turnover, wages and benefits in this category.

Note: These individuals have been assigned to one or more HSAs and counties in the Vermont Health Resource Inventory based on the town provided on their license application, as well as other data (such as phone books and provider directories). FTE data are not available, and therefore, analysis is based on the number of practice locations in each HSA and county.

Podiatrists

1. Resource Description

Podiatrists are doctors who study, diagnose, treat, prescribe medicine, and perform surgery for disorders of the foot and ankle, and sometimes the leg. They treat arthritic, diabetic, and other medical problems associated with the feet and lower extremities, which can include removing corns or calluses or fitting orthotic devices in shoes.

2. Current Supply and Distribution

As shown in Table 21, there are 24 podiatrists practicing in 33 locations in Vermont. Almost 67% are located in four HSAs (Bennington, Brattleboro, Rutland and Burlington). As noted, three HSAs only have one podiatrist location (Springfield, St. Albans and White River Junction) and two have no podiatrists at all (Morrisville and Newport). The State average number of podiatrist practice locations per 1000 population is 0.05. Overall, there are very few podiatrists practicing in Vermont and most are concentrated in the more densely populated areas of the State.

Table 21: Distribution of Podiatrists by HSA

Distribution of Podiatrist Practice Locations			
HSA Name	# of Practice Locations	Per 1000	% of Total
Brattleboro	5	0.15	15.2%
Randolph	2	0.14	6.1%
Bennington	4	0.10	12.1%
Rutland	5	0.08	15.2%
St. Johnsbury	2	0.07	6.1%
Middlebury	2	0.07	6.1%
Burlington	8	0.05	24.2%
Springfield	1	0.03	3.0%
Barre	2	0.03	6.1%
St. Albans	1	0.02	3.0%
White River Junction	1	0.02	3.0%
Morrisville	0	0.00	0.0%
Newport	0	0.00	0.0%
Total	33	0.05	
Total Number of Podiatrists in Vermont			**24**
Total Number of PTs per 1000			**0.04**

Source: Vermont Health Resource Inventory 2004 (Data from Vermont Department of Health (Board of Medical Practice), MVP Provider Director and Blue Cross Blue Shield Provider Directory)

3. Assessment of Needs and Priorities

Vermont has a relatively low number of podiatrists per 1000 population compared to other northeastern states and the U.S. Connecticut has the highest number per 1000 with 0.09 while Maine, Vermont and Rhode Island all have 0.04 per 1000, which is below the U.S. average of 0.05 per 1000.

Table 22: Podiatrist Comparisons

State	Podiatrists per 1,000 pop.
Connecticut	0.09
Massachusetts	0.07
New York	0.06
New Hampshire	0.05
US	*0.05*
Maine	0.04
Vermont	**0.04**
Rhode Island	0.04
Benchmark Year 1995	
Vermont Year 2004	

Sources: Vermont Department of Health Board of Medical Practice, Blue Cross Blue Shield of VT Directory, MVP Provider Directory

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Physicians section of this chapter on page 240.

More people will turn to podiatrists for foot care as the number of injuries sustained by a more active and increasingly older population grows. Since foot and ankle problems are often the result of a lifetime of neglect, and the number of older Americans is increasing almost three times as fast as the population as a whole, they may account for a disproportionate share of the growing demand.[216]

5. Recommendations

Podiatrists

Recommendation 1. Monitor access and foot health indicators to identify potential shortages or mal-distribution of podiatric care providers.

[216] www.foothealthfdn.org

Direct Care Workers

1. Resource Description

Direct care workers in Vermont provide hands-on care to the elderly, chronically ill and individuals with physical or mental health disabilities who use long-term care supports. The direct care workforce includes licensed nursing assistants, home health workers, personal care attendants and direct support professionals. Long-term care organizations also include other job titles in the direct care workforce including geriatric aide, activity aide and resident aide.

2. Current Supply and Distribution

The National Clearinghouse on the Direct Care Workforce (NCDCW) compiles data from the Bureau of Labor Statistics, which derives its data on all occupations from the Occupational Employment Statistics Survey. This semi-annual survey is distributed in May and November. The statistics reported represent a random sampling of approximately 1.2 million businesses over a period from 2000 to 2003. The State Employment Security Agencies throughout the U.S. serve the BLS to collect this information using the OMB standard occupational classification system. According to the NCDCW, direct care workers in Vermont provide 70-80% of hands-on care to populations who require long-term care, including the elderly, chronically ill and physically and mentally disabled.[217]

Licensed Nurse Assistants/Certified Nurse Assistants: Licensed Nurse Assistants (LNAs) and Certified Nurse Assistants (CNAs) provide similar services in a healthcare setting. Some data sources use the term LNA and others use CNA.

The Vermont Office of Professional Regulation has 3,875 active LNAs on file currently (2004) in the State or 6.26 per 1000. This rate is lower than Rhode Island, Connecticut, Maine and Massachusetts but higher than New York and New Hampshire, as shown in Table 23 below.

[217] National Clearinghouse on the Direct Care Workforce. September 2004. Paraprofessional Healthcare Institute.

Table 23: Licensed Nurse Assistant Comparisons

State	Number	Licensed Nurse Assistants per 1,000 pop.
Rhode Island	7,890	7.33
Connecticut	23,800	6.83
Maine	8,720	6.68
Massachusetts	40,900	6.36
Vermont	**3,875**	**6.26**
New York	93,610	4.88
New Hampshire	6,260	4.86
Benchmark Year 2003		
Vermont Year 2003		

Source: National Clearinghouse on the Direct Care Workforce. "Distribution of Direct Care Workers."

In 2003, the Office of Nursing Workforce Research, Planning, and Development at UVM conducted a survey of the 3,552 LNAs in Vermont. Responses were received from 2,591 LNAs (73%). The majority (95%) of LNAs are female and the median age is 40. Of the total LNA workforce, 56% are employed at long-term care facilities, 15% in home health agencies, and 10% in hospitals/inpatient care facilities. Approximately 16% work in Chittenden County. One-fourth of the respondents expressed an interest in leaving their current job within the next 12 months. Ten percent of the respondents indicated a desire to be employed at a higher level of nursing care.[218]

Home Health Aides: Data were not collected on home health aides (HHA) in the Health Resource Inventory (HRI) database because there is no available data source. The Vermont Office of Professional Regulation does not license this profession. However, according to the National Clearinghouse on the Direct Care Workforce (which uses data from the U.S. Bureau of Labor Statistics), there were approximately 1,440 HHAs in Vermont in 2003, down from 1,500 HHAs in 2002. Benchmark data on HHAs is shown in Table 24. As shown, Vermont has 2.33 HHAs per 1000. The number of HHAs across other northeastern states varies considerably, from a high of 5.66 in New York to 1.27 in New Hampshire.

[218] Office of Nursing Workforce. "Licensed Nurse Assistants in Vermont: Summary of Board of Nursing Re-Licensure Survey." 2002. Retrieved April 14, 2005 from http://choosenursingvermont.org/stats/rptLNA_2003.html

Table 24: Home Health Aide Comparisons

State	Number	Home Health Aides Per 1000 Population
New York	108,680	5.66
Maine	4,970	3.81
Rhode Island	3,430	3.19
Connecticut	10,050	2.89
Vermont	**1,440**	**2.33**
U.S.	*576,560*	*1.98*
Massachusetts	11,350	1.76
New Hampshire	1,630	1.27
Benchmark Year 2003		
Vermont Year 2003		

Personal Care Attendants/Home Care Assistants (Homemakers): Personal Care Attendants are defined as individuals who provide to an elderly or disabled individual in his or her home, the personal services the individual needs to receive to avoid institutionalization. The majority of services are provided to individuals who are Medicaid-eligible, although the Department of Aging and Independent Living's Attendant Services Program provides attendant care to individuals, based on functional need, to both Medicaid-eligible and non-Medicaid eligible individuals. Home care assistants or homemakers provide services to help maintain a safe, healthy environment for individuals in their homes. Homemaker services are also not limited to Medicaid-eligible individuals. Homemaker funds are General Funds and may be used for non-Medicaid eligible individuals. Home health agencies use a sliding fee scale and people are prioritized according to need.[219]

Some data were collected on personal care attendants (PCAs) and home care assistants (HCAs) in the HRI database. There is no reliable data source for these professionals because the Vermont Office of Professional Regulation does not license them. However, according to the National Clearinghouse on the Direct Care Workforce, there were approximately 1,230 personal care attendants and home care assistants (homemakers) in Vermont in 2003, up from 1,000 in 2002, which equates to 1.99 per 1000 population. This number is low, since it only reflects those employed by Medicare-certified home health agencies. In the following programs, individuals hire, train and supervise their attendants: Attendant Services Program; 1915(c) Home and Community Based Medicaid Waiver; Developmental Services Waiver; and Children's Personal Care Services. Participants in these programs employ a total of 2,733 attendants.[220] Table 25 compares Vermont to neighboring states (this only includes individuals employed by Medicare-certified home health agencies since the benchmark states and the U.S. only include individuals by Medicare-certified home health agencies).

[219] Vermont Statutes Online.

[220] Vermont Department of Aging and Independent Living (DAIL).

Table 25: Personal Care Attendant/Home Care Assistant Comparisons

State	Number	Personal Care Attendants Per 1000 Population
New York	67,140	3.50
Maine	4,080	3.12
Vermont	**1,230**	**1.99**
New Hampshire	2,410	1.87
U.S.	*507,410*	*1.74*
Rhode Island	1,680	1.56
Massachusetts	9,420	1.46
Connecticut	4,270	1.23
Benchmark Year 2003		
Vermont Year 2003		

Source: National Clearinghouse on the Direct Care Workforce
Bureau of Labor Statistics, 2003

Data on PCAs and HCAs in the HRI were collected from the Vermont Assembly of Home Health Agencies (VAHHA) for 2001 and from Professional Nurses Service (PNS) for 2003. Data include the reported number of HCAs (homemaker) FTEs (full-time equivalents) employed by Medicare-certified home health agencies and by PNS. This total does not, however, represent the total number of PCAs and HCAs working in Vermont. These data were reported as follows:

- Medicare-certified home health agencies and PNS reported a total of 47.64 HCAs (homemaker) FTEs (full-time equivalents). [221]
- There were 292.1 PCA (waiver attendant) FTEs employed at Medicare-certified home health agencies and PNS. [222]
- The Department of Aging and Independent Living reports that some PCAs are employed directly by elders and adults with disabilities through the 1915 © Home and Community Based Waiver or Attendant Services Program.

3. Assessment of Needs and Priorities

- ***There appears to be an increasing demand for long-term care services.***

Currently, thousands of "baby boomers" rely on direct-care workers to care for their parents and other loved ones so that they can work and raise their children. The demand for workers will increase as baby boomers reach retirement age. In December 2003,

[221] Vermont Health Resource Allocation Plan – Health Resource Inventory database.
[222] Ibid.

there were 3,256 Vermonters living in nursing homes and 3,835 known individuals who were receiving State funding and who required assistance with at least two activities of daily living (ADLs).[223] In addition, the Vermont Department of Aging and Independent Living (DAIL) projects that the number of people needing home and community-based long-term care services will increase by 42% from 2003 to 2013.[224]

- ***There is a growing gap between the number of individuals who need direct care and the number workers who can provide these services.***

Vermont's elderly population is projected to increase by 87% from 2000 to 2025, and the fastest growing age group is 85 years old and older. The State's total population is projected to grow by 4.5% during the period 2003-2013 while the number of Vermont's eldest is expected to increase by 27%.[225] At the same time, the traditional source of new caregivers (women aged 25 to 44) is expected to decrease by 9% during the same period.[226]

- ***Direct care jobs tend to be low wage and lack benefits.***

The average wage of all Vermont's Licensed Nurse Aides is $10.14 per hour and the average wage for personal and home care aides is $8.41 per hour. The average income of a Licensed Nurse Assistant (LNA) in Vermont is less than 200% of the federal poverty level. Approximately 28% of personal care workers lack health insurance and most often cite cost as the reason for the lack of coverage.[227]

- ***There appear to difficulties recruiting and retaining employees in the direct care workforce.***

The UVM Office of Nursing Workforce Research, Planning and Development conducted the Health Workforce Assessment Pilot Study 2003, which reported a zero-percent vacancy rate and 270% turnover rate for these personal care assistants, which is the highest turnover rate among all professionals working in home health. This is due in part to the practice of hiring family members to care for relatives and terminating that employment with the agency when the client no longer needs care. There is a 38% turnover rate for LNAs working at home health agencies and 56% turnover rate for LNAs in long-term care facilities. [228]

[223] Wasserman, J. "Shaping the Future of Long-term care 2003-2013." Vermont Department of Aging and Disabilities, Agency of Human Services.
[224] Ibid.
[225] Ibid.
[226] U.S. Bureau of the Census.
[227] Keller, J. "Health Insurance for Personal Care Workers." Vermont Department of Aging and Disabilities. May 2002.
[228] Vermont Healthcare Workforce Partnership - Human Resources Investment Council. "Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry". 2004.

In a 2002 re-licensure survey of LNAs, 21% reported that they were likely or very likely to leave their position in the next year, and salary dissatisfaction was most often cited as the reason given for wanting to leave.[229]

According to the Vermont Healthcare Workforce Partnership study, there will be a continued need for PCAs. Moreover, if the vacancy rate continues to remain low while the turnover rate remains high, there will be significant expenses associated with the recruitment and education of new staff. There has been significant attention paid to the PCA workforce by the Vermont Department of Aging and Disabilities (DAD), which is now the Department of Aging and Independent Living (DAIL), which continues to have a strong role in health professional assessment, planning and initiatives.[230]

The Community of Vermont Elders (COVE) is the lead agency for one of five state-based coalitions that have been awarded three-year grants by Better Jobs Better Care, a demonstration program, funded by the Robert Wood Johnson Foundation and The Atlantic Philanthropies, that seeks to improve the recruitment and retention of direct-care workers. In collaboration with key stakeholders, COVE proposes a statewide initiative to improve recruitment and retention in order to create a valued, adequately compensated and well-trained direct-care workforce. COVE will advocate for higher wages and benefits for direct-care workers, for funds to expand and improve training programs for direct-care workers, use mechanisms to broaden their reach in a highly rural state, and create stronger links between training and organizational culture change.[231]

COVE is also currently managing three workforce development initiatives aimed at addressing the care gap and improving quality of care. They are:

- Northern New England LEADS Institute;
- Better Jobs for Better Care (BJBC); and
- Vermont Association of Professional Care Providers.

4. Priorities and Special Considerations

Please see Priorities and Special Considerations in the Physicians section of this chapter on page 240.

Recruitment, retention, and education concerns are critical to address an adequate supply of direct care workers to meet the growing demands of an aging population in Vermont. High demand driven by seniors, for community-based and long-term care services will increase as life expectancy continues to increase.

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[229] Office of Nursing Workforce, " Licensed Nursing Assistants in Vermont 2002" Retrieved April 14, 2005 from http://choosenursingvermont.org/stats/rptLNA_2003.html

[230] Vermont Healthcare Workforce Partnership - Human Resources Investment Council. "Report of the Vermont Healthcare Workforce Partnership: A Study of the Human Resource Needs of the Healthcare Industry." 2004.

[231] National Clearinghouse on the Direct Care Workforce (http://www.directcareclearinghouse.org/r_state_det.jsp?action=view&res_id=45)

5. Recommendations

The following recommendations are derived from the Report of the Healthcare Workforce Partnership addressing collaborative work with DAIL to alleviate the PCA workforce issues and are endorsed by the HRAP.

Recommendation 1. Improve recruitment and retention strategies.

Recommendation 2. Develop targeted compensation strategies.

Recommendation 3. Improve working conditions.

Recommendation 4. Improve orientation and education programs.

Recommendation 5. Explore the role of the PCA in other career ladders.

Recommendation 6. Supporting management staff through provision of education concerning leadership and supervision.

Recommendation 7. Collaborating to develop ongoing monitoring of the PCA workforce supply and demand.

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Chapter 6: Healthcare Information Technology

SUMMARY

Healthcare information technology can be broadly separated into two categories: clinical information tools and interoperability platforms. Clinical information tools include systems such as electronic medical records and computer physician order entry that are patient-facing in nature. These tools are developed to increase patient safety, reduce medical errors, enhance quality and reduce overhead costs by standardizing, automating and making available to all caregivers within a given institution a range of patient data. Interoperability extends the availability of that data across medical settings and information systems to allow, for example, a physician in a private practice to access his patient's electronically stored radiology images from a tertiary center. Although there is significant demand for both types of healthcare information technology, and the benefits are many, significant barriers to implementation exist. New information technology is expensive to adopt, and practitioners realize only a small portion of the cost benefit relative to insurers and patients. Additionally, changing technologies often entails upgrading a range of information systems and necessitates an investment in retraining staff. In spite of these challenges, Vermont is committed to engaging in health care in the information age, and recommendations support new healthcare information technology initiatives in interoperabilitiy, the development of an electronic medical record and telemedicine.

Background

Federal and state governments have taken a great interest in healthcare information technology (HIT). At its January 2005 meeting, the Medicare Payment Advisory Commission (MedPAC) recommended to Congress that steps should be initiated to begin rewarding providers for information technology implementation. The Commission also recommended to Congress "that the Centers for Medicare and Medicaid Services (CMS) should be directed to include measures of functions supported by the use of IT in Medicare initiatives to financially reward providers on the basis of quality."[232] Some state governments have established task forces and initiatives to help ensure that a healthcare IT infrastructure is beneficial to their residents.

Private vendors, community organizations, health systems, insurance plans and private physicians also have shown increased interest in HIT since a successful infrastructure could result in increased quality of care and decreased costs. Many of these stakeholders have become involved in initiatives or joined advocacy groups to further the completion of a National Health Information Infrastructure (NHII). The NHII is a network of

[232] HIMSS and the Institute for Healthcare Improvement. "The House of Representatives 21st Century Health Care Caucus Electronic Newsletter."

interoperable systems of clinical, public health, and personal health information that would improve decision-making by making health information available when and where it is needed.

David Brailer, MD, director of the Office of the National Coordinator of Health Information Technology of the U.S. Department of Health and Human Services, believes "hospitals should implement information technology that helps clinicians make better treatment decisions. The National Health Information Infrastructure will not be fully leveraged unless health information technology gets implemented at the hospital and physician level so advantages can be reaped at the point of clinical decision."[233] Once hospitals have implemented their own HIT initiatives, programs, and solutions, Brailer believes that they can begin to support regional health information organizations (RHIOs), which "will provide the critical platforms needed for building the larger national health information infrastructure."[234] The federal government's role in implementation of initiatives, according to Brailer, is as a "promoter, educator, catalyst, and financier."

***Vermont Hospitals*:** Vermont organizations have received total funding of $1.7 million over three years from the Agency on Health Research and Quality Health (AHRQ). One grant has been awarded to Mt. Ascutney Hospital and Health Center to improve rural healthcare through technology. The project intends to use existing HIT standards to integrate the current stand-alone databases and information systems of a consortium of three rural healthcare systems as the basis for creating a comprehensive electronic health record. Another grant has been awarded to Southwestern Vermont Health Care to improve healthcare quality via information technology. The hospital plans to implement an integrated electronic patient medical record, electronic medication administration record, computerized physician order entry, and clinical decision support software that will be accessible at all participating facilities. The grant includes Southwestern Vermont Medical Center, Bennington Area Home Health Agency, ambulatory clinics, a rehabilitation facility, and patients.

[233] Brailer, David. "Interoperability and the National Health Information Infrastructure." HHN Most Wired. Jan 2005.
[234] Ibid.

I. Clinical Information Tools

Quick Facts

- Clinical information tools include electronic medical records, computer-based physician order entry, bar-coded technology for administration of medication, picture archiving and communications systems and clinical decision support software.

- Three of 17 Vermont hospitals participating in a September 2004 survey indicated use of fully operational electronic medical record systems (EMR). Four others have begun installing EMR hardware and software and an additional three have developed plans for future implementation of EMR.

- Bar-coded medicine administration systems have been demonstrated nationally to be among the easiest and most effective clinical information tools to adopt. The VA's use of a bar-coded system has yielded an 86% reduction rate in medication errors. Thirteen of 14 Vermont hospitals surveyed identified this application as a priority over the next two years.

- The benefits of EMRs include increased safety, reduced medical errors, improved quality and reduced overhead costs.

- In 2003, approximately 2,000 U.S. hospitals were using some form of picture archiving and communications system (PACS). Six Vermont hospitals currently utilize some type of PACS system: Brattlboro Memorial Hospital, Copley Hospital, Fletcher-Allen Health Care, Mt. Ascutney, Rutland Regional Medical Center, and Southwestern Vermont Medical Center.

1. Electronic Health Records

The health information technology industry does not have a commonly accepted set of definitions and terminology for clinical information tools. Many different terms are used to describe computer-based patient records (CPRs), including electronic medical records (EMRs) and electronic health records (EHRs).[235] According to David Brailer, MD, National Health Information Technology Coordinator at the U.S. Department of Health and Human Services, a central issue that underlies the confusion and ambiguity about the status and adoption of CPRs is that the components of these technologies have arisen more from arbitrary vendor marketing than from well-defined classifications.[236] The following are basic definitions of specific clinical information tools.

[235] Brailer, David J. and Emi Terasawa. "Use and Adoption of Computer-based Patient Records." California HealthCare Foundation. October 2003.
[236] Ibid.

Computer-based Patient Record (CPR)**:** Information tools used in a clinical setting.

Electronic Medical Record (EMR): Electronic record with full interoperability within an enterprise (hospital, clinic, practice).

Electronic Health Record (EHR): Generic term for all electronic patient care systems. The EHR is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports are included in this information. The EHR automates and streamlines the clinician's workflow and has the ability to generate a complete record of a clinical patient encounter, as well as support other care-related activities directly or indirectly via interface. These activities include evidence-based decision support, quality management, and outcomes reporting.[237]

These terms are used interchangeably among the HIT industry and in research and reference documents. In this section, the term “EHR" will be used with the understanding that it is similar to both the CPR and the EMR.

The Institute of Medicine (IOM) has identified the following eight core capabilities that EHRs should have:

- Health information and data;
- Results management;
- Order management;
- Decision support;
- Electronic communication and connectivity;
- Patient support;
- Administrative processes (e.g. scheduling); and
- Reporting (e.g. disease surveillance, patient safety).

Use of Electronic Health Records in Vermont

Fourteen out of 17 hospitals responded to a survey on information technology conducted in September 2004 by the Vermont Association of Hospitals and Health Systems (VAHHS). In this survey, three hospitals reported having fully operational EMR systems in place. Those hospitals include Dartmouth-Hitchcock Medical Center, Northeastern Vermont Regional Hospital and the VA Medical Center in White River Junction. Four hospitals have begun to install EMR hardware and software (Brattleboro Memorial Hospital, Mt. Ascutney Hospital, Porter Hospital and Southwestern Vermont Medical Center). Three hospitals (Fletcher Allen Health Care, Gifford Hospital and Rutland Regional Medical Center) have developed a plan to implement an EMR system.

[237] Healthcare Information and Management Systems Society. Electronic Health Record.

Electronic medical records were identified by 71% of hospitals as "the most important applications to be implemented over the next two years."[238]

A. Need for and Benefits of EHRs

The demand for timely, accurate health data continues to grow, and changing demographics of the population are placing more demands on the information capabilities of health care providers and systems. The increasing volume of data collected and the continued growth of medical knowledge have created a dramatic need for information technology to sort through information and bring it to practitioners at the point of care. Moreover, the evolution of integrated delivery systems has created a need to better managing services, quality and data. In addition, all purchasers of healthcare need better tools for assessing the performance of health care providers, and consumers in particular need better tools for managing their own health.[239]

The benefits of using EHR have been well documented, although specific benefits vary depending on many factors, including type of provider and size of facility. Some of the benefits include:

- Increased patient safety;
- Reduction of medical errors;
- Enhanced quality and increased efficiency; and
- Reduction of overhead costs, including physical and human resources.

In a recent study completed by the Medical Records Institute (MRI) in Newton, Massachusetts, it was found that one of the most important motivators for implementing EHRs was the improvement of workflow.[240]

B. Barriers and Challenges to Implementation of EHRs

Despite the benefits associated with EHRs, their use has not become as widespread as was originally projected by the IOM and other national organizations. One reason for limited EHR use is the lack of a national EHR standard. While some large hospitals and medical practices have implemented electronic health records, many other hospitals and doctors fear that electronic health record software they buy now might not be compatible with standards eventually adopted by the health care industry or government. Without widespread adoption, the cost of electronic health record technology remains high, and smaller hospitals and practices are hesitant to use the technology until costs decrease and interoperability standards have been established. Those who are early adopters of electronic health records may be at a disadvantage, and for some it may be better to wait. The healthcare information technology vendor market has also been volatile, causing potential purchasers to question whether specific vendors will be consistently involved

[238] Vermont Information Technology Leaders. "Current State of Health Information Technology in Vermont" presentation. November 18, 2004.
[239] Dick, Richard S., Elaine B. Steen and Don E. Detmer (*editors).* "The Computer-Based Patient Record: An Essential Technology for Health Care (Revised Edition)." Institute of Medicine. 1997. National Academies Press, Washington, D.C.
[240] Blair, Jeff. "EHR Trends and Challenges." *Healthcare Informatics.* November 2003.

throughout the implementation process and beyond.[241] In addition, some health care providers such as doctors and hospitals question the potential cost savings of EHRs, contending that laboratories, pharmacies and consumers are likely to benefit the most from an EHR conversion.[242]

The many separate systems with disparate data structures that must be integrated into a single system are a major barrier to the successful deployment of an EHR system. Examples of these systems include:

- Admission discharge/billing;
- Anesthesia systems;
- Cytology systems;
- ER systems;
- Home care systems;
- Laboratory systems;
- Nurse triage;
- Pharmacy systems; and
- Ventilator management[243]

Facilitating the integration of all data structures within a single EHR system is necessary to gain the maximum benefits of implementation. Interfaces used by various health care providers differ widely. To accelerate the implementation of EHR, many of these interfaces must be standardized. There currently are a variety of interface standards that have been developed. These standards are described in Section Three of this chapter.

The requirement that practitioners use a computer for direct input of information is another major hurdle to widespread EHR adoption. EHRs may require changing from handwritten notes and/or dictation to point-of-care computer input, which generally takes longer, at least at first. Some members of the medical informatics community are quick to blame physicians and other practitioners for their resistance to use computers at the point of care, but others have asserted that the process simply needs to be made easier and there needs to be better incentives to use it.[244]

A successful EHR requires interoperability so that, for example, a patient's demographics need only be captured once across all systems within a hospital or health care organization. Every authorized practitioner then should have full access to a patient's health information. Currently, there are six different approaches that are competing to be an interoperability platform.[245]

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[241] Schmitt, Karl and David Wofford. **"**Financial Analysis Projects Clear Returns From Electronic Medical Records: Demonstrating the Economic Benefits of an Electronic Medical Record is Possible with the Input of Staff Who Can Identify the Technology's Benefits." *Healthcare Financial Management.* January 2002.
[242] Gross, Grant**. "**Task Force Focuses on Missing Electronic Health Record Standards." Health-IT World News. January 18, 2005.
[243] McDonald, Clement J. "The Barriers to Electronic Medical Record Systems and How to Overcome Them." *Journal of the American Medical Informatics Association.* 4:216.1997.
[244] Waegeman, Peter C. "Status Report 2002: Electronic Health Records." Medical Records Institute.
[245] Ibid.

Privacy and Security Issues

Patient concerns surrounding the use of EHR most often include privacy, confidentiality and security because inadequate measures in these areas can potentially affect an individual's employment, as well as their ability to get and maintain health coverage and control over personal records.[246] Privacy advocates assert that individuals have a fundamental right to control the dissemination and use of information about themselves. As such, organizations that make claims on this information must respect the wishes of individuals and obtain explicit authorization for each instance of information collection, processing, or further disclosure. Privacy advocates are also concerned that information about an individual could be revealed to another party not willingly designated by the individual and be used in harmful ways, such as affecting economic or social interests.

Costs of EHR Implementation and Return on Investment (ROI)

It has been shown that hospitals that invest in successful EHR technology or computerized physician order entry (CPOE) recover much of their investment, although payers and purchasers of healthcare also benefit. For outpatient practices, it has been shown that approximately 90% of the financial benefit accrues to payers and purchasers, although physicians must make the initial investment. This limitation has become a significant barrier to widespread EHR implementation and is especially problematic in the outpatient sector.[247]

As health care facilities increase their use of EHRs, administrators must rely on financial modeling and analysis to calculate ROI, however, many of these ROI studies have been shown to have varying results and depend on many factors including practice setting, number of patients served, and size of organization, among others. The Hekman Group, a medical management consulting firm, found that implementation of an electronic medical record system produced a 73% ROI on average during the first year following implementation. The study included two family practice groups, two obstetrics/gynecology groups and a dermatology practice in Michigan, North Carolina and South Carolina who volunteered to participate and had implemented A^4 Health System's *HEALTHMATICS EMR* Electronic Medical Record.[248]

Findings of a cost-benefit analysis of electronic medical records in primary care were published in the April 2003 in the *American Journal of Medicine*. The analysis found that the estimated net benefit from using an electronic medical record for a five-year period was $86,400 per provider. Benefits accrue from savings in drug expenditures, improved utilization of radiology tests, better charge capture, and decreased billing errors. The analysis concluded that implementation of an electronic medical record system in primary care can result in positive financial return on investment to a health care organization.[249]

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[246] Bluml, Benjamin and Glenna Crooks. "Designing Solutions for Securing Patient Privacy – Meeting the Demands of Health Care in the 21st Century." *Journal of the American Pharmaceutical Association.* 39: 402.1999.
[247] Ash, Joan S. and David W. Bates. "Factors and Forces Affecting EHR System Adoption: Report of a 2004 ACMI Discussion." *Journal of the American Medical Informatics Association.* October 18,2004.
[248] A4 Health Systems**. "**The Hekman Group Announces Results Of Emr Return On Investment Study."
[249] Wang, Samuel et al. "A Cost-Benefit Analysis of Electronic Medical Records in Primary Care." *The American Journal of Medicine.* Vol.ume 114. Pages 397-403. April 1, 2003.

Another issue regarding return on investment relates to the types of health care providers that are willing and able to implement EHRs. EHRs are generally not perceived as being well adapted for use in rural, solo or small-group practices. Rather, EHRs are often thought of as being more appropriate for larger organizations with large capital budgets and well-established information technology support systems in place.[250] One study found that the costs associated with the installation and operation of an EHR system are much more than most family physicians are willing to pay.[251]

In addition to financial ROI, some providers have found that it has not been easy to show other measurable benefits of electronic health record systems such as reduction of medical errors, improved patient satisfaction, improved practitioner and/or employee satisfaction, or greater overall efficiency.[252]

C. Use of Electronic Health Records

Despite many studies demonstrating the benefits of using health information technology to improve the delivery of care, it has been shown that the EHR adoption rate in inpatient settings is less than 10%.[253] According to research from the Medical Group Management Association (MGMA), one in five group physician practices in the U.S. now has some sort of electronic health record with a database containing patient medical and demographic information, meaning that 69% of medical groups still rely exclusively on paper records.[254] Another study by the Healthcare Information and Management Systems Society (HIMSS) found that use of EMRs varies by medical practice specialties. While 30% of respondents overall indicated that an EMR was in place in their practice, 42% of respondents working in an internal medicine practice said they have an EMR while 33% of multispecialty practice respondents have EMRs.

Veterans Affairs (VA) hospitals have led the way in implementing EHRs. The IOM has noted that "VA's integrated health information system, including its framework for using performance measures to improve quality, is considered one of the best in the nation." In addition, a 2004 survey conducted by the American College of Physician Executives found that while many physician executives and doctors "loathe" clinical information systems, VA clinicians provided a "notable outlier from the nexus of negativity."[255] The VA model is more applicable to staff model health systems wherein physicians are employed within an infrastructure supporting high adoption rates for information technology initiatives planned and executed within these systems.

The VA's current system, called VistA, provides clinical, financial and management functionalities for the entire VA Health System. Although the VA had already

[250] Loomis, Glenn A., J. Scott Ries, Robert Saywell, Jr. and Nitesh Thakker. "If electronic medical records are so great, why aren't family physicians using them?" *The Journal of Family Practice*. July 2002. Vol. 51, No. 7.
[251] Ibid.
[252] Waegeman, Peter C. "Status Report 2002: Electronic Health Records." Medical Records Institute.
[253] American Medical Informatics Association. (http://www.amia.org/gotehr/index.html)
[254] Versel, Neil. "One in Five Group Practices Now Use EHRs." Health-IT World. January 25, 2005.
[255] U.S. Department of Health and Human Services, Office of Health Information Technology. "Health IT Strategic Framework, Attachment 2."

implemented order entry, VistA allows the VA to measure compliance across all hospitals and make this compliance measurement a performance indicator for each facility. Other forms of quality performance indicators are also in place throughout the VA and supported by VistA. CPRS is the medical record component used by the VA and is used in a variety of departments including outpatient, inpatient, mental health, intensive care unit (ICU), emergency department, homecare, nursing home and others. CPRS contains all components of the medical record and permits VA clinicians to access a patient's record from anywhere within the health system at the point-of-care.[256]

In contrast to the U.S., some other countries have widespread EHR use in certain areas. In Sweden, 90% of primary care physicians use an EHR while 62% in Denmark and 55% in Australia use an EHR. The primary uses of the EHR in these countries are to document clinical encounters and write prescriptions. Specialty care and inpatient use is not as widespread. In addition, EHRs tend to serve local practices and typically do not share information with other sites.

2. Computer-based Physician Order Entry

CPOE is a computer application that accepts physician orders electronically, replacing hand-written orders for tests, medications and lab results. The application can also provide decision support for physicians at the point of ordering. In most CPOE implementations, orders entered into the system are communicated electronically to the departments and personnel responsible for their execution, and frequently, the departments send back notification of the status of the order and/or results of order execution.[257]

Use of CPOE in Vermont

In the September 2004 VAHHS survey of information technology described previously, it was found that CPOE was identified by ten hospitals as one of "the most important applications to be implemented over the next two years."[258] Those hospitals included were Retreat Healthcare, Central Vermont Medical Center, Copley Hospital, Fletcher Allen Health Care, Mt. Ascutney Hospital, Northeastern Vermont Regional Hospital, Porter Hospital, Southwestern Vermont Health Care, Springfield Hospital and the VA Medical Center.

[256] U.S. Department of Health and Human Services, Office of Health Information Technology. "Health IT Strategic Framework, Attachment 2."
[257] First Consulting Group. "Computerized Physician Order Entry: Costs, Benefits and Challenges. A Case Study Approach." January 2003. Prepared for Advancing Health in America and the American Federation of Hospitals.
[258] Vermont Information Technology Leaders. "Current State of Health Information Technology in Vermont" presentation. November 18, 2004.

A. Need for and Benefits of CPOE

The benefits of CPOE are closely aligned with the benefits of EHR implementation. Because CPOE has the capability to provide decision support technology in ordering, it has the potential to address many quality problems [259] including reduced medication errors, adverse drug events, standardization of care, and improved efficiency of care delivery.[260] CPOE use has also been shown to decrease costs, shorten length of stay, facilitate patient transfers and improve compliance with several types of guidelines.[261] In addition, CPOE can potentially decrease the overuse, underuse and misuse of health care services.

B. Barriers and Challenges to Implementation of CPOE

The challenge of implementing a CPOE system can be significant because it requires altering physician practices and redesigning inpatient care processes for nurses, pharmacists, physicians and ancillary staff. Since CPOE often involves an increase in physician time spent on order entry, physician acceptance can be a significant barrier to full implementation.[262] CPOE also requires the adoption of standardized workflows, which can also present difficulties to a health care organization.

In a study published in *Health Affairs*, administrators interviewed at 26 hospitals said that CPOE could be made more affordable by improving system interoperability. Because CPOE systems have to interface with other existing information technology (IT) systems in hospitals, managers are forced to either purchase CPOE from their primary vendors, even if the products do not meet their needs, or to rebuild their entire IT infrastructures around new CPOE vendors. If CPOE vendors adopted standards, hospitals could build their systems over time, without fearing obsolescence.[263]

Product and vendor immaturity is another barrier cited by hospital administrators in the *Health Affairs* study. Many vendor products do not fit institutions' needs and thus require extensive software modifications in order to work effectively. Administrators also said they felt that some products were underdeveloped, others appeared to be bordering on obsolescence, and still others were produced by companies without CPOE expertise.[264]

Lack of alignment of financial incentives for organizations to adopt CPOE technology is another significant barrier to adoption. The cost savings associated with the use of CPOE

[259] Kuperman, Gilad and Richard Gibson. "Computer Physician Order Entry: Benefits, Costs, and Issues." *Annals of Internal Medicine.* 2003 Jul 1;139(1):31.
[260] First Consulting Group. "Computerized Physician Order Entry: Costs, Benefits and Challenges. A Case Study Approach." January 2003. Prepared for Advancing Health in America and the American Federation of Hospitals.
[261] Kuperman, Gilad and Richard Gibson. "Computer Physician Order Entry: Benefits, Costs, and Issues." *Annals of Internal Medicine.* 2003 Jul 1;139(1):31.
[262] First Consulting Group. "Computerized Physician Order Entry: Costs, Benefits and Challenges. A Case Study Approach." January 2003. Prepared for Advancing Health in America and the American Federation of Hospitals.
[263] Poon, Eric, David Blumenthal, Tonushree Jaggi, Melissa Honour, David Bates, and Rainu Kaushal. "Overcoming the Barriers to Adopting and Implementing Computerized Physician Order Entry Systems in U.S. Hospitals." Health Affairs. Pages 184-90. July/August 2004.
[264] Ibid.

systems may not accrue to physicians and hospitals under current reimbursement arrangements.[265] The Institute of Medicine's 2001 report "Crossing the Quality Chasm" highlighted financial incentives as a major issue in health care, citing the need to realign payment policies to promote quality improvement. The IOM report concluded that "current policies are complex and contradictory" and "financial barriers embodied in current methods can create significant obstacles to higher quality healthcare."[266]

Costs of CPOE Implementation and ROI

Implementation of a CPOE system can be costly, including initial capital plus ongoing operating costs. Typically, a large portion of the cost is dedicated to support and training activities.[267] Studies have estimated that the cost of CPOE ranges from $3 million to $10 million, depending on hospital size and level of existing IT infrastructure.[268] In a report on CPOE adoption at five hospitals prepared by the American Hospital Association (AHA), First Consulting Group and the Federation of American Hospitals (FAH), it was found that for an average 500-bed hospital, CPOE systems cost $7.9 million to install, including capital expenditures and operating costs. Annual CPOE costs to maintain systems in order to provide continuous updates of the clinical information in the system are approximately $1.35 million.[269]

Calculating ROI for any clinical system, including CPOE, can be imprecise. ROI calculations take into account both quantifiable financial benefits, but also less tangible benefits such as quality improvement, business transformation, safety, staff productivity and operating efficiency, patient satisfaction and cost avoidance. Specifically, these benefits may include improved charge capture, decreased medical errors, as well as improvements in decision support, clinical quality, productivity and workflows. Cost avoidance may involve risk management and legal liability issues, which can be significant. According to the IOM, the increased hospital cost of treating adverse drug events averaged $4,600 per incident, and, in 2000, the median compensation award for medication errors was $668,000.[270]

A study conducted by First Consulting Group for the Massachusetts Technology Collaborative and New England Healthcare Institute found that implementing CPOEs in all acute care Massachusetts hospitals has the potential to result in over $275 million net

[265] Doolan, David and David Bates. "Computerized Physician Order Entry Systems in Hospitals: Mandates and Incentives." Health Affairs. Volume 21, No. 4. Pages 180-88. July/August 2002.
[266] Rosenfeld, Sheera, Emily Zeitler, and Dan Mendelson. "Financial Incentives: Innovative Payment for Health Information Technology." The Health Strategies Consultancy. March 2004.
[267] First Consulting Group. "Computerized Physician Order Entry: Costs, Benefits and Challenges. A Case Study Approach." January 2003. Prepared for Advancing Health in America and the American Federation of Hospitals.
[268] Poon, Eric, David Blumenthal, Tonushree Jaggi, Melissa Honour, David Bates, and Rainu Kaushal. "Overcoming the Barriers to Adopting and Implementing Computerized Physician Order Entry Systems in U.S. Hospitals." *Health Affairs.* Pages 184-90. July/August 2004.
[269] First Consulting Group. "Computerized Physician Order Entry: Costs, Benefits and Challenges. A Case Study Approach." January 2003. Prepared for Advancing Health in America and the American Federation of Hospitals.
[270] Krohn, Rick. "In Search of ROI from CPOE." *Journal of Healthcare Information Management.* Volume 17, No. 4.

cost savings annually to the state's health care system. Full installation of CPOE could be completed for a capital expenditure of $210 million.[271]

C. Use of CPOE

Implementation of CPOE has been limited despite growing evidence of its benefits as well as public mandates. The Leapfrog Group, a consortium of companies from the Business Roundtable, has selected computer physician order entry as one of its safety standards and has endorsed CPOE in hospitals as one of three changes that would most improve patient safety in America. A Medicare Payment Advisory Commission (MedPAC) report suggested instituting financial incentives for CPOE implementation. In addition, California recently enacted legislation stipulating that acute care hospitals implement information technology such as CPOE to reduce medication-related errors.[272]

According to a recent Leapfrog Group survey, approximately 300 of the nation's 4,900 non-government hospitals (6%) have implemented CPOE systems. However, less than one percent of all hospitals have actually met Leapfrog's standards for CPOE implementation, a standard requiring that prescribing physicians enter at least 75% of all medication orders via a CPOE system.[273]

Another study estimated that five percent of hospitals currently use CPOE.[274] The 2004 Hospitals & Health Networks Most Wired Survey and Benchmarking Study shows that most hospitals are addressing the issue of CPOE or some other form of electronic prescribing. Only one "Most Wired" hospital said that manual ordering of medications was its primary method, compared with 19% of hospitals rated as least wired.[275]

3. Bar-Coded Technology at the Point of Care (BPOC) and Electronic Medication Administration Record Systems (EMAR)

Studies have shown that 38% of all medication errors are attributable to the actions of a nurse.[276] Bar-coded technology at the point of care (BPOC) helps to alert providers of drug interactions and drug allergies, and provides clinical decision support, which can ultimately reduce the number of medication errors. The technology assigns a special bar

[271] First Consulting Group. "Treatment Plan: CPOE in all Massachusetts Hospitals." Massachusetts Technology Collaborative and New England Healthcare Institute. Fall 2004.
[272] Kaushal, Rainu and David W. Bates. "Chapter 6: Computerized Physician Order Entry (CPOE) with Clinical Decision Support Systems (CDSSs)" in " Making Health Care Safer: A Critical Analysis of Patient Safety Practices." Prepared for the Agency for Healthcare Research and Quality by University of California at San Francisco (UCSF)-Stanford University Evidence-based Practice Center.
[273] First Consulting Group. "Treatment Plan: CPOE in all Massachusetts Hospitals." Massachusetts Technology Collaborative and New England Healthcare Institute. Fall 2004.
[274] Kaushal, Rainu and David W. Bates. "Chapter 6: Computerized Physician Order Entry (CPOE) with Clinical Decision Support Systems (CDSSs)" in " Making Health Care Safer: A Critical Analysis of Patient Safety Practices." Prepared for the Agency for Healthcare Research and Quality by University of California at San Francisco (UCSF)-Stanford University Evidence-based Practice Center.
[275] Health Forum - American Hospital Association. "The Holy Grail - Moving Toward Electronic Prescribing Systems." *HHN Most Wired Magazine*. December 2004.
[276] National Association of Healthcare Quality. "Using Bar-Code Point of Care Technology for Patient Safety." (www.nahc.org/journal)

coded armband to each patient, which is scanned every time a medication is administered. The bar code not only contains patient information such as medication history and allergies, it also must match a medication's bar code from the hospital's pharmacy. When any one of the factors does not match, an alert is sent to the nurse prior to medicine administration.

BPOC used in conjunction with CPOE is designed to address all areas of the medication administration process. CPOE targets the act of prescribing, ensuring there are no drug interactions and that the correct medication is ordered and conveyed to the pharmacist. BPOC's objective is to guarantee the patient's safety during administration by ensuring the correct medication is being delivered in the correct dosage. These two systems, taken together, satisfy the "five rights" of medication safety: the right patient, right drug, right dose, right route, at the right time.[277]

The capability of BPOC systems can also be enhanced with an electronic medication administration record system (EMAR). This system is considered legal documentation of the routes, dosage, timing, and patient information involved in medication administration. Unlike traditional pharmacy records, which provide a list of the medications dispensed to a certain patient, these EMARs provide a real time view of the patient's medication administration. Not only does the EMAR serve as legal documentation, it serves as documentation during nursing shift changes. When a patient's care is transferred from one nurse to another, often the new shift must decipher the notes left by the previous nursing staff. The EMAR provides a clear, consistent, and legible record of medication administration.

Use of BPOC in Vermont

In the information technology survey conducted by VAHHS in 2004, bar-coded medication management was identified by 13 of the 14 responding hospitals as one of "the most important applications to be implemented over the next two years."[278]

A. Benefits of BPOC and EMAR

The benefits of BPOC and EMAR have been documented by a relatively large number of hospitals and other organizations because the implementation of these systems is inexpensive and fairly quick compared to other technologies. Benefits at the point of care are immediate and tangible since many hospitals track medication mistakes. A study published in *Nursing Management* described the implementation of a BPOC system in five clinical units over eight months. Within the first year of operation, the hospital documented that 2,100 medication errors were prevented as a result of using the system.[279] Another study showed reductions in medication errors of 67 to 87%.[280]

[277] Institute of Safe Medicine Practices. (www.ismp.org)
[278] Vermont Information Technology Leaders. "Current State of Health Information Technology in Vermont" presentation. November 18, 2004.
[279] Douglas J, S Larrabee. "Bring barcoding to the bedside." *Nursing Management, 34*(5), 36–40.
[280] Kinninger T, J Kelly. "Prioritizing Capital Allocation for Patient Safety." *Bridgestreet Medical. 2003.*

In addition to reducing medication errors, many administrative tasks such as billing, tracking, inventory, and formulary management can be more effectively managed when EMAR and BPOC systems work together.[281] An industry study published by Bridgestreet Medical describes five benefits in addition to reduction of medication errors.

1. *Market Value of Patient Safety Leadership* – In a survey by the American Society of Health System Pharmacists, patients indicated that their greatest fear was suffering a medication error. Implementing a BPOC and EMAR is visible to all patients since they experience firsthand the scanning of bar codes on their wrist bands as well as medication.
2. *Nurse Recruiting and Retention* -- BPOC can create safeguards that allow nurses to perform their job more efficiently and effectively, and without fear of making a life-threatening mistake.
3. *Improved Charge Capture* – Coupling BPOC with an EMAR system allows charges to be immediately allocated to a patient's account upon administration of medication. This instant allocation also allows for more efficient inventory updating and ordering.
4. *Best Practices Compliance* – The BPOC and EMAR systems can collect large amounts of data that can be analyzed to determine best practices.
5. *JCAHO Regulatory Compliance* – Recent patient safety goals include the improved accuracy of positively identifying patients prior to drawing blood samples or administering blood products and medications. Identification is a core feature of BPOC.[282]

B. Barriers and Challenges to Implementation

Although recent research has documented barriers and challenges to the successful implementation of a BPOC/EMAR, many of them are related to internal design issues of specific facilities. General challenges that must be overcome for a successful implementation of BPOC and EMAR systems are the current level of manual intensity (users must perform numerous keystrokes or activities to use the tools), and the inability to enter tapered doses of specific drugs.

The Veterans Affairs implementation of Bar Coded Medication Administration has received considerable attention because it has outlasted other BPOC systems and because it has been used successfully in a large health system.

Privacy and Security Issues of BPOC

As with all technological advancements that improve access to patient information, the security and privacy of such information is paramount to a system's success. EMAR and BPOC systems have conventional safeguards to protect patient information. The system must also ensure interoperability with legacy pharmacy systems without compromising privacy.

[281] National Association of Healthcare Quality. "Using Bar-Code Point of Care Technology for Patient Safety." (www.nahc.org/journal)
[282] Kinninger T, J Kelly. "Prioritizing Capital Allocation for Patient Safety." *Bridgestreet Medical. 2003.*

Costs and ROI of BPOC

Unlike most other HIT infrastructure changes and solutions, BPOC has the ability to be quickly implemented and the returns on investment can be realized sooner than for other IT initiatives. A study published by Bridgestreet Medical compared the implementation of a CPOE and BPOC system in a 500 bed hospital. The costs and returns on investment are summarized in the table below.

Table 1: Cost and ROI Comparison of CPOE and BPOC

Comparison of CPOE to BPOC		
	CPOE	**BPOC**
Implementation Cost	$7.9 million	$1.9 million
Ongoing Annual Cost	$1.3 million	$180,000
Implementation Time	3+ years	6 months
Implementation Risk	high	low
Payback Period	10+ years	<2 years

Source: Kinninger T, J Kelly. "Prioritizing Capital Allocation for Patient Safety." Bridgestreet Medical. 2003.

To increase the implementation of these systems throughout health care facilities, the U.S. Food and Drug Administration requires bar codes on all drugs and biologicals used in hospital settings. Along with the publication of this rule, the FDA estimated that over a 20 year period over $93 billion will be saved by avoiding almost 500,000 adverse events and transfusion errors.[283]

C. Use of BPOC throughout United States

The Veterans Affairs Medical Centers is the largest health system to implement a BPOC. The system implemented throughout all VA hospitals was developed internally and is known as "Bar Coded Medication Administration." Its implementation has resulted in an 86% reduction in medication errors.[284]

The Hospital Corporation of America (HCA) implemented an EMAR and BPOC system in August of 2003. As a result of its implementation, HCA expects to see a significant reduction in medication mistakes, improved real-time documentation, and nursing that is more focused on patient care rather than paperwork.[285] HCA implemented the system in most of its 200 facilities over a three-year span with relative ease and on its first day of implementation, the new system was credited with averting 44 potential medication mistakes.[286]

[283] HCA: Retreat Hospital. "Retreat Hospital Ahead of Patient Safety Curve." (http://hcarichmond.com)
[284] Johnson CL, RA Carlson, CL Tucker, C Willette. "Using BCMA software to improve patient safety in Veterans Administration Medical Centers." Journal of Healthcare Information Management, 16(1), 46-51.
[285] HCA: Richmond Hospitals. (http://hcarichmond.com)
[286] Cisco Systems: Business Strategies. "Magazine Leaders 2003: Noel Williams, HCA."

4. Picture Archiving and Communications Systems (PACS)

According to the Food and Drug Administration (FDA), "[p]icture archiving and communications systems provide one or more capabilities relating to the acceptance, transfer, display, storage and digital processing of medical images. PACS hardware components may include workstations, digitizers, communications devices, computers, video monitors, magnetic, optical disk, or other digital storage devices and hardcopy devices. Software components may provide functions for performing operations related to image manipulation, enhancement, compression or quantification."[287]

The primary goal of PACS is to improve the speed and quality of clinical care by streamlining radiological service and consultation. There are several types of PACS, including:

- *Mini PACS*, which specialize in one type of image, such as ultrasound or CT;
- *ASP Model*, in which images are captured at the health facility, stored at an off-site service provider, and accessed through a Web browser;
- *Centralized*, where the images are stored in on-site servers;
- *Distributed*, in which images are stored in various networked on-site workstations; and
- *Hybrid*, which is a combination of centralized and distributed PACS.[288]

A. Need for and Benefit of PACS

Although PACS is technology that has existed for decades, it only has recently become commonly used by hospital systems. Proponents suggest that, over the long run, PACS are cost-effective and improve radiologist productivity. PACS has evolved and matured in its interoperability and standards. The adoption of an industry standard called DICOM (Digital Imaging and Communications in Medicine) for transmission of radiologic images and other medical information between computers, has been an essential component in the success of PACS.[289] DICOM is focused on integration of data from disparate sites using structured reports that allow the integration of text, notes, and measurements with images.[290] Section Three of this chapter describes DICOM in more detail.

Benefits of PACS include the following:

- Less exposure to radiation (for digital imaging versus film);
- Greater efficiency in maintaining the integrity of patient demographic information;

[287] Voluntary Health Association Center for Research and Innovation. "Picture Archiving and Communications Systems: Strategic Considerations." 2002.
[288] Ibid.
[289] Radiological Society of North America. (http://www.rsna.org/practice/dicom)
[290] Sarashon-Kahn, Jane. "PACS: The Next Generation."

- Optimization of workflow for scheduled patients and exception cases; and
- Improved capability to keep images consistent across different displays.[291]

With PACS, images can be examined as soon as they are captured and delivered to the point of care, enabling clinicians to make decisions more quickly. Older film studies can be digitized as needed and incorporated into the PACS archive to be compared side-by-side with new studies. Once PACS is established and begins to acquire a larger archive of images, prior examinations are automatically located and attached to the radiology work order, so the clinician receives the old study along with the new for comparison. Once PACS is integrated with a health care organization's health information system, the electronic radiology report can become part of the patient medical record.[292]

B. Barriers and Challenges to Implementation of PACS

PACS implementation requires extensive advance preparation and research, and implementation can have a significant impact on a variety of healthcare workers and processes along the care continuum. For example, radiologists must learn a different method of reading electronic images and change their approach to image interpretation in order to differentiate between abnormal and normal results. PACS can also eliminate some clerical positions within radiology departments while creating more technical positions at the same time.[293]

It is projected that PACS will actually replace no more than 80% of conventional film, requiring health care organizations to maintain facilities and technologists for processing and viewing film. Film production will need to be maintained largely because some patients will need to take film studies to other institutions and because most mammography units require film output.[294]

Costs of PACS Implementation and Return ROI

There is little data on the ROI of PACS versus film systems, although some costs and savings are quantifiable such as film and personnel. Researchers agree that ROI should also include time saved for physicians and increased productivity achieved by radiologists. Taken together, these may result in greater efficiencies in diagnosis and treatment and decreased hospital lengths of stay.[295][296]

[291] Sarashon-Kahn, Jane. "PACS: The Next Generation."
[292] Voluntary Health Association Center for Research and Innovation. "Picture Archiving and Communications Systems: Strategic Considerations." 2002.
[293] Voluntary Health Association Center for Research and Innovation. "Picture Archiving and Communications Systems: Strategic Considerations." 2002.
[294] The Health Technology Center. "The Future of Medical Imaging II: PACS." 2002.
[295] Voluntary Health Association Center for Research and Innovation. "Picture Archiving and Communications Systems: Strategic Considerations." 2002.
[296] Wiley, George. "Does an IDN-PACS have an ROI?" *Decisions in Imaging Economics.* November 2003.

C. Use of PACS in the U.S. and Vermont

In 2003, almost 2,000 hospitals had operational PACS and it is projected that by 2007, 65.2% of U.S. hospitals and 12.3% of U.S. imaging centers will install PACS.[297]

Currently, there are six hospitals in Vermont that use some form of a PACS:

- Brattleboro Memorial Hospital;
- Copley Hospital;
- Fletcher Allen Health Care;
- Mt. Ascutney Hospital;
- Rutland Regional Medical Center; and
- Southwestern Vermont Medical Center.

In the information technology survey conducted by VAHHS in 2004, digital PACS was identified by nine hospitals as one of "the most important applications to be implemented over the next two years."[298]

5 Clinical Decision Support Software

Clinical decision support software (CDSS), also referred to as point-of-care decision support, assists clinicians in applying new information to patient care by analyzing patient-specific clinical variables. CDSS software integrates patient characteristics with a computerized knowledge base to generate patient-specific assessments or recommendations. These recommendations are designed to aid clinicians or patients in making clinical decisions and can vary in complexity, function, and application.

A. Need for and Benefit of CDSS

Decision-support tools can assist physicians in several ways, including:

- Bringing accessible information and knowledge to the point of clinical-decision making;
- Bringing knowledge relevant to the particular clinical situation to the physician when needed;
- Combining clinical knowledge with patient information to help the physician stay abreast of the patient's health status;
- Identifying patients lost to follow-up or overdue for recommended interventions and;
- Alerting the physician to contraindications or potential problems by checking planned actions against other patient information and generally accepted clinical knowledge.[299]

[297] Frost & Sullivan. "The U.S. Teleradiology and PACS Market." 2001.
[298] Vermont Information Technology Leaders. "Current State of Health Information Technology in Vermont" presentation. November 18, 2004.
[299] Metzger, Jane and Keith MacDonald of First Consulting Group. "Clinical Decision Support for the Independent Practice Physician." California Healthcare Foundation. October 2002.

Point-of-care decision support devices can be mobile, stationary, or hand-held. They allow nurses to gather patient information (e.g., on allergies, intake restrictions) automatically from patient records or from data repositories that can be Internet-based or accessed from another source. For example, point-of-care decision support systems for medication administration can support nurses by providing information on drug actions, dosages, interactions, and side effects at the point of medication administration. When integrated with an automated medication administration record, they allow nurses to verify medication before it is given.[300]

Use of CDSS in Vermont

Point-of-care decision support was identified by two Vermont hospitals (Southwestern Vermont Medical Center and Mt. Ascutney Hospital) that responded to the VAHHS survey as one of "the most important applications to be implemented over the next two years."[301]

[300] Page, Ann. *Editor*. Committee on the Work Environment for Nurses and Patient Safety. "Keeping Patients Safe: Transforming the Work Environment of Nurses." 2004. National Academies Press.
[301] Vermont Information Technology Leaders. "Current State of Health Information Technology in Vermont" presentation. November 18, 2004.

II. Interoperability

Quick Facts

- A US Department of Health and Human Services initiative has identified creating National Health Information Network, which would rely on interoperability of medical systems, as a national healthcare priority over the next 10 years.
- Cost, operator know-how, technological issues and data privacy are the main concerns with implementation of interoperability systems.
- Interoperability would pave the way for a national public health information network for broad dissemination of public health concerns.

As healthcare continues to become more complex, multiple practitioners and institutions may be involved in providing care to a single patient. Improved methods to share patient information have the potential to produce cost savings and increase the quality of care delivered. The key, says David Brailer, MD, National Health Care Information Technology Coordinator for the Department of Health and Human Services, is "to link disparate health care information systems on a scale previously inconceivable."[302]

Often the concept of interoperability is misinterpreted as being a need for uniform information systems. However, for healthcare entities to correctly interface and communicate, they do not need to have identical information systems. Communication between healthcare providers, including laboratories, physician offices, and other health care institutions can occur if the systems used by all entities are designed based on certain standards relating to language and interoperability. These concepts are described below.

1. Definition and Basis for Interoperability

Interoperability is defined by the Health Information and Management Systems Society (HIMSS) as "the ability of two or more systems or their components to exchange information and to use the information that has been exchanged."[303] The technical dimensions of interoperability are the mission statement, which serves to inform, guide, and refine all activities involving interoperability. HIMSS lists six technical dimensions of interoperability as:

1. Uniform movement of health care data from one system to another such that the clinical and operational purpose and meaning of the data is preserved and altered.

[302] Brailer, David. "Interoperability and the National Health Information Infrastructure." *HHN Most Wired.* Jan 2005.
[303] HIMSS. "Interoperability Definition." (http://www.himss.org/Content/files/II_Interoperability_Definition_FINAL.pdf)

2. Uniform presentation of data, enabling disparate stakeholders to use different underlying systems to have consistent presentation of data when doing so is clinically or operationally important.
3. Uniform user controls, to the extent that a stakeholder is accessing a variety of underlying systems, and the contextual information and navigational controls are presented consistently and provide for consistent actions in all relevant systems.
4. Uniform safeguarding, data security and integrity as data moves from system to system such that only authorized people and programs may view, manipulate, create, or alter the data.
5. Uniform protection of patient confidentiality even as stakeholders in different organizations access data that has been exchanged across systems, particularly in order to prevent unauthorized access to sensitive information by people who should not, or do not, need to know.
6. Uniform assurance of a common degree of system service quality (e.g. reliability, performance, dependability, etc.) so that stakeholders who rely on a set of interoperable systems can count on the availability and responsiveness of the overall system as they perform their jobs.[304]

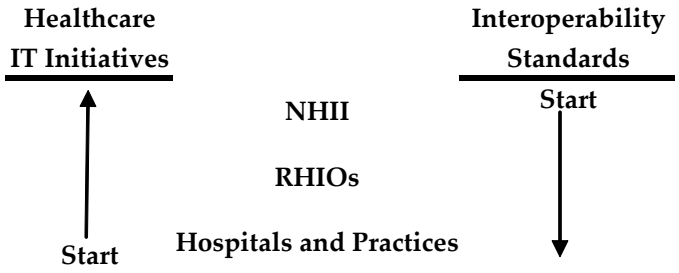
With a national focus placed on healthcare's information technology, interoperability can occur at many different levels. Individual health systems and practitioners can implement their own systems. State governments can implement systems, or the federal government can mandate and implement a national system. No matter the level at which systems are implemented, all systems should ideally be interoperable to allow for information to be shared across health care entities, including hospitals, physician practices and other health care organizations.

Brailer has asserted that the success of the proposed National Health Information Network (NHIN) depends on interoperability. In addition, HIMSS has said that interoperability can improve the effectiveness of the healthcare delivery system by enabling health information systems to work together within and across organizational boundaries ."[305] Other healthcare information technology initiatives such as EHRs, CPOE, and PACS also depend on successful interoperability in order to achieve an optimal return on investment.

2. Interoperability Standards

From a federal perspective, it would be ideal to establish guidelines of interoperability at an early stage on a national level. However, as described in the following illustration, there are a variety of organizations currently involved in establishing standards.

[304] Brailer, David. "Interoperability and the National Health Information Infrastructure." *HHN Most Wired.* Jan 2005.
[305] Ibid.



Organizations currently involved in developing standards are called "Standards Developing Organizations," which are often non-profit organizations whose members are industry leaders, governmental officials, and patient advocates. These organizations create and produce protocols to guide vendors and practitioners in the creation of an integrated health care infrastructure. Each Standards Developing Organization (SDO) operates within a specific realm of the health care arena. These organizations as well as various standards that have been developed are described below.

Health Level Seven (HL7)

Health Level Seven is a member of the American National Standards Institute (ANSI) and is creating standards for clinical and administrative healthcare data. This organization's mission is "to provide standards for the exchange, management, and integration of data that support clinical patient care and the management, delivery and evaluation of healthcare services. Specifically, the organization aims to create flexible, cost effective approaches, standards, guidelines, methodologies, and related services for interoperability between healthcare information systems."[306]

Digital Imaging and Communications in Medicine (DICOM)

DICOM is a set of standards created and endorsed by the American College of Radiology and the National Electric Manufacturer's Association for healthcare imaging and interoperability.[307]

Systemized Nomenclature of Medicine Clinical Terms (SNOMED CT)

SNOMED CT Core terminology provides a common language to capture, share and aggregate health data across specialties and sites of care. Among the applications for SNOMED CT are electronic medical records, ICU monitoring, clinical decision support, medical research studies, clinical trials, computerized physician order entry, disease surveillance, image indexing and consumer health information services. [308]

[306] Health Level Seven. "What is HL7?" (http://www.hl7.org)
[307] National Electrical Manufacturer's Association. "DICOM." (http://medical.nema.org)
[308] SNOMED CT. "Letter to Secretary Thompson." http://www.snomed.org/snomedct/index.html

Logical Observation Identifiers Names and Codes (LOINC)

The LOINC database primarily encompasses laboratory information, including chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology. The Federal Government's Health Information Exchange Standards have approved LOINC to standardize lab test orders, as well as drug label section headers.[309]

National Council for Prescription Drug Programs (NCPDP)

This ANSI-accredited SDO has three standards for pharmaceutical providers: the Telecommunication Standard, the SCRIPT Standard, and the Manufacturer Rebate Standard. The Telecommunication Standard relates to claims processing as well as other electronic processing that occurs between two pharmacy providers. The SCRIPT Standard refers to the transmission of prescribing information between providers and prescribers. The Manufacturer Rebate Standard is also known as the Manufacturer Rebate Utilization, Plan, Formulary, Market Basket, and Reconciliation Flat File Standard. This provides a format for the submission of pharmaceutical rebates to Pharmaceutical Industry Contracting Organizations.[310]

2. Implementation Initiatives

The largest national initiative to use SDO standards to guide the creation and implementation of healthcare information technology infrastructure (and thus create interoperability) is called Integrating the Healthcare Enterprise (IHE), which is led by HIMSS and the Radiological Society of North America. This multi year initiative, which began in 1998, is creating a framework for transmitting health information between applications, systems and organizations.

The goals of the IHE are to:

1. Speed up the rate and quality of integration in healthcare environments.
2. Foster communication among vendors and care providers.
3. Prove that integration is attainable based on standards.
4. Improve the efficiency and effectiveness of clinical practice.
5. Improve interoperability among care domains and build a foundation for EHR.
6. Provide integration solutions used within and across healthcare enterprises.

IHE Technical Frameworks and Integration Profiles

To date, IHE has created four *technical frameworks* for healthcare. Technical frameworks are general rules and details for the use of the standards, such as HL7, DICOM and others described above. IHE has created technical frameworks for cardiology, laboratory, radiology and the IT infrastructure. These four technical frameworks are designed to support an EHR. Within each technical framework are *integration profiles*, which are specific guidelines for implementing certain standards and

[309] Logical Observation Identifiers Names and Codes (LOINC). (http://www.loinc.org)
[310] National Council For Prescription Drug Programs. "Basic Guide to Standards." August 2004.

achieving interoperability within a specific technical framework. For example, rules on the retrieval of electrocardiograms (ECGs) for review and sharing are an integration profile within the cardiology technical framework.

IHE has created nine integration profiles for the IT infrastructure framework. These integration profiles encompass security measures, user identification schemes, clinical document sharing, and human resources workflow management. The cardiology profiles relate to cardiac catheterization workflow, echocardiography workflow and retrieving ECGs for display[311]. Laboratory profiles outline the transmittal of laboratory results within an organization and between multiple organizations, as well as patient and sample identification[312]. Radiology profiles relate to scheduled workflow, patient information reconciliation, consistent presentation of images, presentation of grouped procedures, and other operations[313].

3. Costs of Implementation

There have been few studies of the costs of implementing interoperability standards. In addition, researchers have found that it is difficult to quantify the costs associated with implementation because interoperability involves numerous interfaces, operating systems, and levels of an organization. A recent article published in *Health Affairs* estimates the costs and savings of data exchange/interoperability at the organizational and national level. These levels of data exchange are the following:

- First level: Non-electronic data transfer (mail, telephone).
- Second level: Transmission of non-standardized data via information technology (fax, scanned documents).
- Third level: Machine-organizable data transfers, which are the transmission of structured messages (e-mail).
- Fourth level: Standardized messages allowing for seamless interpretation and translation if necessary (electronic medical records).[314]

To exchange data on level three or four requires interfaces that promote inter-system communication. An interface is the connector between two systems or organizations, which allows communication to easily flow without translation problems. The costs associated with the necessary interfaces for levels three and four are shown below.

[311] IHE Integration Profiles for Cardiology Frameworks.
[312] IHE Integration Profiles for Laboratory Frameworks.
[313] IHE Integration Profiles for Radiology.
[314] Walker J; E Pan; D Johnston; J Adler-Milstein; D Bates; B Middleton. "The Value of Health Care Information Exchange and Interoperability." *Health Affairs.* (Jan 2005) W5 10 - W5 18.

Table 2: Interface Costs for Specific Healthcare Provider Types

Cost Per Interface	
Group Practice Offices	**Hospitals, Labs, Radiology Ctrs, Pharmacies, Public Health**
$20,000	**$50,000**

Source: Walker J; E Pan; D Johnston; J Adler-Milstein; D Bates; B Middleton. "The Value of Health Care Information Exchange and Interoperability." Health Affairs. (Jan 2005) W5 10 - W5 18.

The number of interfaces needed to qualify as level three or four are shown in the next table.

Table 3: Interface Requirements by Level

Level	Number of Interfaces Needed
Both 3 & 4	Each external organization requires an interface to providers. For example, one per laboratory, radiology center, hospitals, office practices, and pharmacy. Two per local public health department,
3	Unique interface to each external organization and 8-20 interfaces per provider.
4	One interface to each type of external organization then provider specific interfaces. For example, one interface to all external laboratories, then five per provider.

Source: Walker J; E Pan; D Johnston; J Adler-Milstein; D Bates; B Middleton. "The Value of Health Care Information Exchange and Interoperability." Health Affairs. (Jan 2005) W5 10 - W5 18.

Researchers estimate a total implementation cost of $320 billion for level three interoperability with annual operating costs of $20 billion to implement full interoperability for all healthcare providers. For level four interoperability, there is an estimated additional $276 billion implementation cost and $16.5 billion in additional annual costs. These data are summarized in Table 4.

Table 4: National Ten-Year Roll Out and Annual Costs of Health Care Information Exchange and Interoperability (HIEI)

	Roll Out Cost ($ Billions)		Annual Cost ($ Billions)	
	Level 3	Level 4	Level 3	Level 4
Clinical Office System Cost	163.0	163.0	9.1	9.1
Hospital System Cost	27.1	27.1	1.6	1.6
Provider Interface Cost	124.0	76.2	9.0	5.4
Stakeholder Interface Cost	6.4	9.9	0.5	0.5
Total	320.0	276.0	20.2	16.5

Although the costs estimated to implement national interoperability across the health care system are significant, there are also significant estimated savings that would result from increased efficiency, avoidance of unnecessary lab and radiology tests, as well as improved connectivity with other providers, radiology centers, payers and laboratories. These overall savings generated by fully standardized health care information exchange and interoperability are estimated to be $77.8 billion per year. [315]

4. Barriers to Implementation

Ideally, standards for full interoperability would be adopted across all health care institutions in the United States. However, many barriers prevent widespread adoption. Five major barriers were cited in a letter to the editor of the *Journal of the American Medical Association* in November 2004. **[316]** They are:

Cost: This is the largest impediment due to a disproportionate ROI among different health care entities. Information technology systems often have large ROIs, but the majority of the ROI may not go to the entities paying for the systems. Research has shown that only 11% of ROI accrues to physicians and other practice organizations, who most often pay for investment in technology and the rest accrues to insurers, laboratories, and patients.

Technical Issues: Each practice and hospital has established workflows and processes. In order to succeed, a system must conform to, rather than impede, the workflow of a practice.

System interoperability: Achieving interoperability between large systems as well as smaller health plans and individual physicians is a significant barrier to national interoperability because there are few incentives for smaller entities and often small practices have little money to invest in information systems.

[315] Walker, Pan, et al. *Health Affairs.* (Jan 2005) W5 10 - W5 18.
[316] Hersh, William. "Health Care Information Technology." *JAMA.* 2004;292:2273-2274.

Concerns about privacy/safety/confidentiality: The Health Information Portability and Accountability Act (HIPAA) has created an emphasis on the privacy of personal health information. As a result, many entities have become more cautious and are hesitant to invest in new technologies until safeguards are shown to be effective.

Lack of well trained clinician informatics workforce: In order to achieve buy-in from the clinical workforce, it is helpful to have clinician "champions" who understand technology and can act as advocates for it.

In addition to the barriers that have been identified, early adopters tend to pay the majority of the cost of new information technology and may realize the smallest benefit. As a result, there tends to be a waiting game to see who is willing to take the first steps. Others follow behind in hopes of achieving a greater return on investment.

5. Public Health Informatics and Interoperability

Integration of the healthcare information technology infrastructure would not be complete without the nation's public health system. One important benefit of interoperability and integration of the public health system is identifying potential public health crises in their early stages. The Centers for Disease Control has created a Public Health Information Network (PHIN), which joins together different reporting systems already in place to report public health crises.[317] This network is collaborating with many different levels of government to create standards that will promote and enhance interoperability between systems. The PHIN also maintains a website with established protocols called "Interim Recommended Notification Procedures for Local and State Public Health Department Leaders in the Event of a Bioterrorist Incident." This website provides a detailed explanation of the steps officials should take to safeguard the public's health during a bioterrorism event.[318]

The current state of the PHIN was evaluated by the U.S. General Accounting Office (GAO) in July 2004. In its report, the GAO highlights the role taken by the Department of Health and Human Services (HHS) regarding public health information technology's growth, standardization, and use. There are 72 information technology systems relating to the nation's public health infrastructure. Thirty-four of them are surveillance systems, 18 are supporting technologies, 10 are communication systems, and 10 are detection systems.[319]

The Vermont Department of Health was the third State to use the National Electronic Disease Surveillance System (NEDSS), which was created by the CDC. This system's function is integral to the PHIN. By collecting and analyzing data on infectious diseases, Vermont has the ability to recognize threats to the public's health before they reach epidemic proportions. One of the most important functions of the NEDSS is its ability to

[317] Centers for Disease Control and Prevention. "Public Health Information Network."
[318] Centers for Disease Control and Prevention. "Emergency Preparedness and Response."
[319] U.S. General Accounting Office. *National Strategy Needed to Accelerate the Implementation of Information Technology.* GAO-04-947T (Washington, D.C.: July 30, 2004).

accept additional software to improve functionality and increase capability. The CDC has created several extensions to this system to monitor diseases like measles, rubella, pertussis, hepatitis, STDs, and HIV.

The Department of Health is building an electronic birth registration system (EBRS) to integrate with OBnet, which is currently used at Fletcher Allen and Dartmouth-Hitchcock. Vermont is currently the only state using the NEDSS base to develop an interoperable EBRS.

Vermont is also using the NEDSS' capability to create a child Immunization Registry, which will track the rate of immunizations in the State. This system will use the EBRS data as a base to build an immunization timeline, which can generate reminder notifications to parents. The DOH is currently evaluating options to streamline data entry into this system by possibly importing data from private insurers.

III. Health Information Technology Initiatives In and Around Vermont

1. Vermont Hospital Initiatives

Although Vermont hospitals are at different levels in terms of information technology, there are efforts underway to begin to develop new systems and create interoperability across the State. Larger health systems are working with smaller hospitals to share information and expertise in order to accomplish these initiatives. Several efforts to facilitate this process are described later in this section. Selected hospital-based initiatives are described below.

Fletcher Allen Health Care

The North-East Community Laboratory Alliance (NECLA) is a regional network of community-based clinical laboratories currently serving 13 of the 14 acute care hospitals in Vermont. The alliance has coordinated reference testing, developed an active test exchange program, implemented a common system for test ordering and reporting, created a business plan and developed disease management testing strategies.

The Vermont Diabetes Information System (VDIS) is a decision support and reminder system to be used by physicians caring for patients with diabetes. This information system is part of a randomized trial at ten hospitals, 39 practices, 96 primary care practices, and serving 3,582 patients in Vermont primary care practices. Information gathered through this system is transmitted daily via data feeds and analyzed by algorithms based on practice guidelines.

The Fletcher Allen Outreach Clinical Messaging System (OCMS) multi-year project will build the necessary infrastructure and applications to connect hospitals and their local physicians to each other. Using interfaces and document exchange, this system will allow the flow of clinical and patient information from hospitals to private practices The main purpose is to support laboratory results reporting.

Central Vermont Medical Center

Central Vermont Medical Center (CVMC) uses health information technology for a variety of operational functions. For the majority of organizational functions, CVMC uses a single hospital information system vendor but selected technology from other vendors is also employed. Data integration between most functions is intrinsic due to the single vendor solution and minimal interfaces exist for other vendor systems. Central Vermont Hospital implemented its own electronic medical record system in 1996.

Planned near-term improvements include a diagnostic imaging archive (PACS), paper document management system and archive, bedside medication verification, CPOE, and emergency department management.[320]

[320] Vermont Information Technology Leaders. "Final Research Plan for Vermont." June 2004.

CVMC is also a member of the eHealth Initiative. The organizations participating with CVMC include Central Vermont Home Health and Hospice and Washington County Mental Health Services. This collaboration hopes to implement an electronic office management system to be used at 25 physician primary care offices in order to create a seamless patient record integrated with CVH's EMR and to make it available immediately to all providers. Once beta site issues are resolved, the plan is to offer to all providers one seamless medical record (hospital and office based) for a given patient. All additions to the record would be made at the specific office the patient had visited, and it would be immediately accessible to all providers.[321]

Southwestern Vermont Medical Center

Southwestern Vermont Medical Center (SVMC) was recently named by H&HN Most Wired magazine to one of the "Top 25 Most Wired Hospitals" for small hospitals (100 beds or less). SVMC uses a single vendor's laboratory, financial, and nursing module systems as well as several other modules, including forms managements, pharmacy formulary and community-wide scheduling. It is estimated that the hospital spent $5 million to $7 million on its system, including FTE costs, by choosing an integrated system. This is compared to $10 million for hardware and software alone on a nonintegrated system.[322]

The hospital has completed the first phase of its information technology initiative and the hospital's physicians can now use personal digital assistants to review patients' records. Eventually, all SVHC physicians will be able to review patient records, lab tests and x-rays, and enter orders without paper. This fall, the health system will implement a digital radiology system and in the coming year, the hospital plans to expand the electronic records to include private physician practices and area nursing homes.[323]

Northwestern Medical Center

Clinical areas at NMC and physician practices currently use an on-line electronic clinical data repository. The repository provides clinicians with all transcriptions, radiology, and pathology reports, lab results, and patient demographic information. The organization is currently researching CPOE systems that would complement the existing clinical systems.[324]

[321] eHealth Initiative. (http://ccbh.ehealthinitiative.org)
[322] http://www.hhnmostwired.com.
[323] Southwestern Vermont Medical Center (http://www.svhealthcare.org).
[324] Vermont Information Technology Leaders. "Final Research Plan for Vermont." June 2004.

2. Other Area Hospital Initiatives

Dartmouth-Hitchcock Medical Alliance

Dartmouth-Hitchcock has established the Dartmouth-Hitchcock Data Repository System, which provides informational support for such tasks as utilization management, quality assurance, performance monitoring, market analysis, analytical projections, clinical program design and executive decision-making. Data is collected, stored, and summarized from several sources and is also exchanged with multiple governmental and non-governmental health entities. DHMC has also recently implemented a "Patient On Line" project, which provides patient-doctor communication, visit scheduling, prescription renewal, and other capabilities/services via the internet.[325]

Albany Medical Center

Northeast Health, the parent organization of Albany Memorial Hospital and Samaritan Hospital, has invested $10 million in systems for computerized order entry as well as an electronic medical record. Northeast Health also plans to digitize radiology records and services to allow physicians to view patient information from their homes, offices, or the hospital all in real-time.[326]

3. Other Health Information Technology Initiatives in Vermont[327]

The following are brief descriptions of current and planned regional healthcare information technology infrastructure systems throughout Vermont.

Vermont Chronic Care Collaborative (V3C) Disease Registries

The practices participating in this learning collaborative use various registry systems to organize proactive care. VPQHC has created the Vermont Health Record, a web based disease registry for practices with no other alternative. If expanded, this registry offers the potential to produce de-identified reports for analysis of the public's health. The Department of Health and VPQHC are presently exploring the possibility of interoperability between the Immunization Registry and the Vermont Health Record. VPQHC is also exploring other connectivities with public and private payers, hospital labs, and practice EMRs

[325] Vermont Information Technology Leaders. "Final Research Plan for Vermont." June 2004.
[326] Pinckney, Barbara. "Hospitals go full bore on IT upgrades." *The Business Review:* February 7, 2005.
[327] Vermont Information Technology Leaders. "Final Research Plan for Vermont." June 2004.

OBNet

Fletcher Allen and Dartmouth-Hitchcock joined forces to create a web based obstetric delivery registry application. The primary objective of this system is to improve both obstetric and early infant care. The system collects numerous measures both ante-partum and intra-partum, which can be organized into various reports for analysis of public health. At this point, the OBNet application does not have an interface to send data to other receiving systems or to receive data from other sending systems. Currently the Vermont Department of Health is working with FAHC to extract the Birth Certificate Data required by the U.S. government out of OBNet. Through this project it will be possible to print the Official Vermont Birth Certificate from OBNet. The Department, VAHHS and the obstetric services at other acute care hospitals in the State are discussing the expansion of the system to other facilities.

4. Progress in Health Information Technology in Vermont

Several organizations have been involved in activities to advance the state of health information technology in Vermont. These include the Vermont Program for Quality in Health Care (VPQHC), Vermont Association of Hospitals and Health Systems (VAHHS), the Vermont Blueprint for Health, Blue Cross and Blue Shield of Vermont, MVP Health Care and the Vermont Medical Society. The following initiatives have been implemented over the past year by these and other groups:[328]

- The Vermont Information Technology Leadership (VITL) is an existing multi-stakeholder committee (website: http://www.vitl.net) formed by the Vermont Association of Hospitals and Health Systems (VAHHS). The VITL Advisory Group has broad-based participation of providers, payers, employers, patients, health care purchasers, information technology vendors and other business leaders. The group has created a health information technology strategy for Vermont in collaboration with the federal Office of the National Coordinator for Health Information Technology (ONCHIT). The VITL organization is working to implement health information infrastructure for data sharing. VITL's efforts facilitate communication among Vermont's health information technology experts and lay the foundation for further HIT collaboration.
- An HIT Summit led by the Vermont Association of Hospitals and Health Systems (VAHHS) to educate key stakeholders about federal and state HIT efforts that laid the ground-work for additional hospital support and investment toward a statewide HIT strategy.
- Coordinated efforts led by Fletcher Allen Health Care to contact ONCHIT's director, David Brailer, MD, to raise awareness regarding Vermont's potential leadership in the development of a State and regional HIT strategy. This effort also resulted in a letter of support from Governor Douglas to Dr. Brailer and the submission of a request to Senator Leahy for $1 million in federal funds for each of the next three years to help support this effort.

[328] Vermont Information Technology Leaders. "Workplan Overview."

- Extensive collaboration with the Vermont Blueprint for Health, which has begun a focused HIT effort to develop a statewide patient registry for patients with diabetes. (The Blueprint has submitted a federal appropriations request to Senator Jeffords.)
- A unanimous resolution by the VAHHS Board (which includes all Vermont hospital CEOs plus four additional hospital trustees), to commit resources and expertise toward the development of an HIT implementation strategy by June 2005. This strategy will detail specific elements of a demonstration project, including data ownership, system ownership, governance, sustainable financing and clinical priorities of a Vermont-based health information exchange system.
- Outreach and education of key stakeholders including healthcare purchasers, practicing clinicians, consumers, State legislators and Vermont employers such as IDX, IBM and UVM.[329]

Potential HIT Demonstration Projects in Vermont

The following projects have been proposed by VITL as possible demonstration projects that will be used to inform a long-term strategy for developing a comprehensive electronic patient health record for all Vermonters.

Medication and Medical History Snapshots

This demonstration project will provide medication and medical history snapshots to Vermont providers as a first step towards a comprehensive health record system for the state of Vermont.[330] This initial pilot project will focus on satisfying legislation Sec. 277.18 V.S.A. 9417 within the current draft budget bill. The legislation requires VITL to deliver this information service to no less than two hospitals within Vermont by July 1, 2006. The specific implementation strategy is still under review, but it is anticipated that this information service will be provided based on pre-existing sources of electronic data from payers, clearinghouses, pharmacy benefit managers and other available data sources.

Clinical Objectives

- Provide physicians with the #1 stated need of the clinician survey - medication history

- Reduce adverse drug events by having more accurate medication information available at the time of care

- Supply additional clinical information such as a list of medical conditions (problems), recent admissions, procedures, tests, attending physicians, etc.

[329] Ibid.
[330] Vermont Information Technology Leaders. "Workplan Overview"

- Make available information on unconscious or incapacitated patients that are unable to provide it

- Deploy the information to all emergency departments within one year and offer the information to all interested physicians

Business Objectives

- Lower the cost of care in one of the highest acute care areas, the emergency department

- Improve "case/care management" for many people who often use the ED for primary care

- Include as many Vermonters as possible

IV. Priorities and Special Considerations

A coordinated healthcare information technology throughout Vermont's health care system is the overall priority for information technology. A collaborative implementation of appropriate healthcare information technology, especially models for electronic health/patient records, will be key to improving Vermont's health care system, especially in terms of making care more safe, efficient and effective.

V. Recommendations for Appropriate Supply and Distribution of Services

Following are recommendations and implementation options for healthcare information technology. The boxed recommendations are considered the highest priority for these services.

Recommendation 4. Support a collaborative model for development of a Vermont electronic health/electronic patient record (EHR, EPR) to ensure alignment with national standards for coding, security and privacy and feasibility for local implementation.

Recommendation 1. Support the development of an interoperable and secure comprehensive clinical information system to enhance individualized care, population-based tracking and planning, performance monitoring, and quality improvement efforts.

Recommendation 6. Support telemedicine, electronic exchange of information and clinical decision support systems to reduce provider and patient isolation and lack of access to specialty consults in rural areas of the State.

All recommendations:

Recommendation 1. Support the development of an interoperable and secure comprehensive clinical information system to enhance individualized care, population-based tracking and planning, performance monitoring, and quality improvement efforts.

> **Implementation Option 1.1.** Implement information technology in an incremental manner in alignment with the VITL Technology Plan, Governor's Blueprint for Health/Chronic Care Initiative, the National Health Information Initiative and any other health information technology plans that result from legislative initiatives and statutory mandates.
>
> **Implementation Option 1.2.** Support immediate development and deployment of a practice registry in Vermont to enhance care of individual patients by providing timely reminders about needed services pertaining to prevention, screening, monitoring and tests as required for management of certain chronic conditions as identified by the Chronic Care Initiative.
>
> **Implementation Option 1.3.** Recognize the VITL initiative convened by the Vermont Association of Hospitals and Health Systems (VAHHS) as the appropriate entity for disseminating standards and piloting key components of a clinical information system.

Recommendation 2. Support VITL and other organizations' immediate implementation of demonstration projects that closely align with the Six Aims of the IOM Quality Report, especially safety, efficiency, effectiveness and patient-centeredness.

> **Implementation Option 2.1**. To enhance safety and reduce medical errors, encourage demonstration projects focusing on electronic prescribing and medication management systems that cross providers and settings.
>
> **Implementation Option 2.2.** To enhance efficiency and effectiveness, encourage demonstration projects focusing on electronic exchange of laboratory data, imaging, prescription drug information and medical history snapshots.
>
> **Implementation Option 2.3.** To enhance patient-centeredness, encourage demonstration projects that enhance patient self-management and home-based monitoring and telecommunication with providers.

Recommendation 3. Give high priority to health information technology initiatives and projects that ensure continuity of care and patient safety, especially during transitions across patient care settings.

> **Implementation Option 3.1**. Support incentives for increased use of point-of-care information technology to support continuous availability of updated information to care providers.

Implementation Option 3.2. Support health information technology initiatives that facilitate timely exchange of clinical information- especially patient history, care record, medication record and laboratory values- among inpatient, subacute, outpatient and long-term care facilities.

Recommendation 4. Support a collaborative model for development of a Vermont electronic health/electronic patient record (EHR, EPR) to ensure alignment with national standards for coding, security and privacy and feasibility for local implementation.

Implementation Option 4.1. Build upon successful models for shared governance and financing, data-sharing access and security standards, and roll-out strategies already in place in regional health information networks throughout the U.S.

Implementation Option 4.2. Identify barriers and strategize solutions and incentives to facilitate solo and small practice adoption of health information technology tools supporting EHR/EPR, electronic order entry and prescribing and decision support tools for both clinicians and patients.

Implementation Option 4.3. Explore availability of federal waivers and safe harbor provisions that reduce prohibitions on joint investments among providers on health information technology that would support electronic health information exchange and interoperability.

Implementation Option 4.4. Explore reimbursement options, training opportunities and operational supports that would facilitate adoption of health information technology by solo and small group practices.

Recommendation 5. Ensure that proposed information technology investments by hospitals, health systems and other providers meets standards for extrinsic interoperability and other standards related to health care information and data exchange.

Implementation Option 5.1. Through the CON review process, require applicants to describe how proposed capital investments in health information technology meet accreditation standards being implemented by the Certification Commission for Healthcare Information Technology (CCHIT) formed by the U.S. DHHS to work with the private sector to develop minimal product standards for EHR functionality, interoperability, and security.

Implementation Option 5.2. Through the CON review process, require applicants to describe how proposed capital investments in health information technology are consistent with the statewide health information technology plan as recommended by the commissioner and approved by the general assembly as adopted to serve as the framework within which Certificate of Need applications for information technology are reviewed under section 9440b.

Recommendation 6. Support telemedicine, electronic exchange of information and clinical decision support systems to reduce provider and patient isolation and lack of access to specialty consults in rural areas of the State.

> **Implementation Option 6.1.** Consider reimbursement options and implications for the cost of care related to telemedicine and electronic consultation among providers.

Implementation Option 6.2. Support initiatives such as Telehealth that provides telecommunications technology to home health clients to enhance distance monitoring and patient/family self-management.

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SECTION FOUR: CERTIFICATE OF NEED STANDARDS

Certificate of Need Standards

The purpose of the Certificate of Need (CON) program is to implement the public policy of this State such that the general welfare and protection of the lives, health and property of the people of this State require that all new health care projects be offered or developed in a manner that avoids unnecessary duplication and contains or reduces increases in the cost of delivering services, while at the same time maintaining and improving the quality of and access to health care services, and promoting rational allocation of health care resources in the State; and that the need, cost, type, level, quality, and feasibility of providing any new health care project be subject to review and assessment prior to any offering or development. See 18 V.S.A. §§9401, 9405, 9431.

The legislative purpose of Act 53 of the 2003 Session of the General Assembly is to:

(1) strengthen the health planning process and to reflect concerns about health care access, quality, and costs;
(2) develop tools and resources to assist consumers and payers with making health care decisions by providing accessible, useful information comparing hospital costs and performance;
(3) require consistent and open dialogue between hospitals and their communities regarding health service needs, strategic planning, and health policy;
(4) increase opportunities for public involvement in health policy planning;
(5) develop a health resource allocation plan that can guide health facility planning, capital expenditures, and budget reviews; and
(6) create an efficient and effective regulatory system that is fair, predictable, enforceable, and capable of achieving Vermont's health care cost containment and other health care policy goals.

Standards for Demonstrating Consistency with the Health Resource Allocation Plan (18 V.S.A. §9437(1)):

In furtherance of the statutory Certificate of Need criteria in 18 V.S.A. §9437(1), applicants have the burden of demonstrating, by a preponderance of the evidence, that their proposed projects are consistent with the Health Resource Allocation Plan including, but not limited to, the relevant Principles, Recommendations, and CON Standards therein. The Commissioner may determine that one or more Principles, Recommendations, or CON Standards, although relevant, are not material to an applicant's burden of proving its proposed project is consistent with the Health Resource Allocation Plan.

Note that not all CON Standards will apply to every CON project. The Department will offer a pre-application meeting to every applicant, in part in order to help each applicant determine which CON Standards apply to its project.

The HRAP Principles and Recommendations that form the foundation of, and are most applicable to, each CON Standard are also referenced as each CON Standard is stated below.

THE GUIDING PRINCIPLE:
Applicants' proposals shall measurably, appropriately and reasonably foster implementation of the following values expressed in the Institute of Medicine's (IOM) aims.[331]

Principle 1. Safety – The Vermont health care system will be made ***safe*** by identifying strategies and implementing mechanisms to avoid injuries to patients from the care that is intended to help them and to provider staff from the environment that is intended to support them.

Sub-principle 1 (A). Health care providers should accept accountability for and public oversight of their services to ensure that they are appropriate, safe, effective and financially responsible.

Sub-principle 1 (B). Vermont should implement strategies to support use of information technology to improve quality and ensure safety by providing tools to providers, patients and their families to reduce medical errors, avoid unnecessary duplication of tests and other services, and improve coordination of patients' care.

Principle 2. Effectiveness – The Vermont health care system will be ***effective*** by identifying strategies and implementing mechanisms to provide services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit.

Sub-principle 2 (A). Vermonters should have access to health care services that support timely prevention, treatment and management of disease, with a particular emphasis on cost-effective services that are evidence-based or based on best practices.

Sub-principle 2 (B). Health care providers should maintain and measurably improve the quality of health care services offered to Vermonters.

Sub-principle 2 (C). High quality healthcare requires the collection and analysis of comprehensive and uniform utilization, health outcomes, price and cost data that are made available in a timely way to all providers, payers and purchasers to evaluate quality and quality improvement.

Sub-principle 2 (D). Best practices and benchmark measures, including population-based measures, should be utilized to assess and evaluate the efficiency and effectiveness of Vermont's health care system and individual services proposed in CON applications.

[331] Adapted from the Institute of Medicine, *Crossing the Quality Chasm, A New Health System for the 21st Century,* 2003.

Sub-principle 2 (E). Vermont should apply multiple strategies that consider equity, market, Certificate of Need, and others to achieve rationale allocation of health care resources.

Sub-principle 2 (F). The Vermont health care system should collaborate with the education system and employers to provide a continuum of workforce development and professional education programs to ensure the quality and availability of all types of health care workers required to meet the health care needs of Vermonters.

Principle 3. Patient-centeredness – The Vermont health care system will be ***patient-centered*** by identifying strategies and implementing mechanisms for provision of care that is respectful of and responsive to individual patient preferences, needs, and values and for ensuring that patient values guide all clinical decisions.

Sub-principle 3 (A). Vermont should support access to appropriate care and promote the provision of information necessary to enable patients to make a choice among providers that is consistent with safety, effectiveness, and efficiency.

Sub-principle 3 (B). In addition to providers, patients must be directly involved in determining quality standards and measures of outcomes.

Sub-principle 3 (C). Individuals and families should be primarily responsible, to the best of their ability and resources, for the maintenance of their health. State health policy should encourage providers and payers to provide incentives, education, and tools to encourage and assist individuals in taking responsibility for appropriate management of their health throughout the lifespan.

Sub-principle 3 (D). Vermont should promote education to help individuals make personal behavior choices that protect and foster good health including self-management of chronic diseases.

Sub-principle 3 (E). Vermont should support incentives to help payers, purchasers, providers and public health entities implement informed health care decision-making tools to help consumers make informed decisions about health plans, providers, medical treatments and costs.

Sub-principle 3 (F). Vermonters have the right to have the confidentiality of their personal, identifiable, healthcare-related data--protected in all systems, public and private.

Principle 4. Timeliness – The Vermont health care system will provide ***timely care*** by identifying strategies and implementing mechanisms to promote appropriate waits and avoid harmful delays for both those who receive and those who give care.

Sub-principle 4 (A). Vermont should implement strategies to encourage use of information technology by providers, patients and their families to identify and implement timely and appropriate care for prevention of disease and management of chronic diseases.

Sub-principle 4 (B). Vermont providers and payers should facilitate timely access to distant or out-of-state services that cannot be provided safely and efficiently in local settings.

Principle 5. Efficiency – The Vermont health care system will be ***efficient*** by identifying strategies and implementing mechanisms to avoid waste, in particular waste of equipment, supplies, ideas, energy and money.

Sub-principle 5 (A). Vermont's health care system should include consumer and provider incentives that encourage cost-effective health service utilization and best care management practices.

Sub-principle 5 (B). Vermont's healthcare resources should be integrated to offer an appropriate range of services in appropriate settings based on defined needs, and include primary, secondary, and tertiary interventions for all physical and mental conditions.

Sub-principle 5 (C). Stakeholders in Vermont's health care system should collaborate on planning, developing and operating programs, facilities and services to promote a high quality and cost-effective system.

Sub-principle 5 (D). Vermont should implement strategies to encourage use of information technology to decrease the occurrence of redundant medical tests and treatments.

Sub-principle 5. (E). Vermont should implement strategies to encourage use of information technology to increase provider productivity and to control costs in a manner that also ensures safety and quality of care.

Principle 6. Equity – The Vermont health care system will be ***equitable*** by identifying strategies and implementing mechanisms to provide care that does not vary in quality because of personal characteristics that are not in the control of individuals such as gender, ethnicity, geographic location, and socioeconomic status.

Sub-principle 6 (A). All Vermonters should have access throughout the lifespan to appropriate and quality health services at costs that are affordable.

Sub-principle 6 (B). Vermont should ensure that resource allocation decisions are based on the principles of population-based need in order to achieve cost-effective and high quality health facility operations. The decision making process should also include consideration of other factors including requirements for service-specific clinical skills and patient travel distance to facilities.

CON STANDARDS:

1. The project is needed to meet an identifiable, existing, or reasonably anticipated need and:

a. current resources are unable to meet the need,
b. the project will improve health outcomes,
c. utilization review procedures will be put in place to ensure appropriate utilization, and
d. in the absence of the proposed new service, patients would experience serious problems in terms of costs, availability, quality, or accessibility in obtaining care of the type proposed.

- *Principles: 1 (Safety), 1B, 2 (Effectiveness), 2A-2F, 3(Patient Centeredness), 3A, 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E, 6 (Equity), 6B*
- *Recommendations: 1-I-2, 1-II-4, 2-I-9, 2-II-3, 2-IV-4, 2-IV-7, 3-I-1, 3-II-1, 3-II-2*

2. That the proposed health care project will facilitate implementation of the HRAP concerning the resources, needs and appropriate system of delivery of health care services.

- *Principles: 2E, 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E, 6 (Equity), 6A, 6B*
- *Recommendations: all*

3. That the impact of the project on payers, including uninsured persons, insurers, employers, self-insureds, and State, federal and local governmental providers of health care benefits is necessary and reasonable.

- *Principles: 2E, 5 (Efficiency), 5A, 5C-5E*
- *Recommendations: 1-I-2, 1-I-6, 1-II-1, 1-III-1, 2-I-1, 2-I-2, 2-I-3, 2-I-9, 2-I-12, 2-I-11, 2-II-1, 2-II-3, 2-III-5, 2-IV-6, 3-I-1,*

4. That the project will help meet the needs of medically underserved groups and the goals of universal access to health services.

- *Principles: 2E, 5 (Efficiency), 6 (Equity), 6A, 6B*
- *Recommendations: 2-IV-4, 2-IV-7*

5. That the applicant has taken appropriate and reasonable steps, both prior to and in conjunction with development of the proposed project, to discover and implement collaborative approaches, in conformance with State and Federal laws, to meeting the needs identified in the proposal, including collaborating with other similar providers, dissimilar providers and other entities in its service area, in-state region, State, and appropriate regions beyond Vermont.

- *Principles: 2E, 4 (Timeliness), 4A, 5 (Efficiency), 5C*
- *Recommendations: 1-IV-4, 6-1 through 6*

6. That the proposal will foster implementation of the Vermont Blueprint for Health: Chronic Care Initiative,[332] including the following goals and values:

a. Goals:
   1. Vermonters with chronic conditions will be effective managers of their own health.
      - *Principles: 2E, 3D, 4A*
      - *Recommendations: 1-I-6, 2-IV-6,*
   2. The proportion of individuals receiving care consistent with evidence-based standards will increase.
      - *Principles: 1 (Safety), 2A, 2E*
      - *Recommendations: 1-I-6, 4-2*
   3. Vermonters will live in communities that support healthy lifestyles, and have the ability to prevent and manage chronic conditions.
      - *Principles: 2 (Effectiveness), 2A, 3D, 4A*
      - *Recommendations: 1-II-1, 2-I-1, 2-II-1, 3-II-3*
   4. A chronic care information system (registry functionality) will be available to providers, which will support chronic disease prevention, treatment and management for effective individual and population-based care.
      - *Principles: 1 (Safety), 1B, 4 (Timeliness), 4A, 5 (Efficiency), 5D, 5E*
      - *Recommendations: 2-I-2*
   5. Vermonters will be served by a health care system that invests in and rewards quality.
      - *Principles: 2A, 2D, 5 (Efficiency), 5C*
      - *Recommendations: all*

[332] See generally the Vermont State Health Plan and the Vermont Blueprint for Health Strategic Plan

b. Values:
    1. Self-care: empower and prepare patients to manage their health and health care; emphasize the patient's central role in managing their health; use effective self-management support strategies; organize internal and community resources to provide ongoing self-management support to patients.
        - *Principles: 3 (Patient Centeredness), 3A-3F, 4A*
        - *Recommendations: 2-I-3, 3-I-5*
    2. Community: mobilize community resources to meet needs of patients.
        - *Principles: 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E*
        - *Recommendations: 1-IV-4, 2-I-8, 2-IV-2, 3-I-1*
    3. Health Care System: create a culture, organization and mechanisms that promote safe, high quality care; visibly support improvement at all levels of the organization; encourage open and systemic handling of errors and quality problems; provide incentives based on quality of care; develop agreements that facilitate care coordination within and across organizations.
        - *Principles: 1 (Safety), 1A, 1B, 2 (Effectiveness), 2A-2E, 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E*
        - *Recommendations: all*
    4. Clinical Information System: organize patient and population data to facilitate efficient and effective care.
        - *Principles: 2C-2E, 4A, 5 (Efficiency), 5D, 5E*
        - *Recommendations: 1-II-5, 2-II-9, 6-1 through 6*
    5. Decision Support: promote clinical care that is consistent with scientific evidence and patient preferences: embed evidence-based guidelines into daily clinical practice.
        - *Principles: 2 (Effectiveness), 2A*
        - *Recommendations: 1-I-6, 3-I-5, 4-2*
    6. Delivery System Design: assure the delivery of effective, efficient clinical care and self- management support; define roles and distribute tasks among team members; use planned interactions to support evidence-based care; provide clinical case management services for complex patients; ensure regular follow up by the care team; give care that patients understand and that fits with their cultural background.
        - *Principles: 2 (Effectiveness), 2A-2F, 3A-3F, 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E, 6 (Equity)*
        - *Recommendations: 1-I-5, 1-I-6, 1-III-1, 2-IV-4, 3-I-5, 4-2*

7. If a project proposes to, or is likely to, expand geographic access to services, that:

a. the current travel-time exceeds reasonable access standards;
b. the cost to those who finance Vermont's health care system will not increase unreasonably;
c. improvements in clinical outcome or quality of care are demonstrated that outweigh or justify any added cost, and
d. increased costs can, and should be, reasonably absorbed, or funded, by the payers

- *Principles: 2 (Effectiveness), 2E, 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E*
- *Recommendations: 1-I-1, 1-I-2, 1-II-4, 1-V-1, 2-I-9, 2-II-3*

8. If a project proposes to retain access to one or more services, that:

a. maintaining the current level of access for each service is consistent with meeting the provisions in the Health Resource Allocation Plan;
b. the cost to those who finance Vermont's health care system will not increase unreasonably;
c. improvements in clinical outcome or quality of care are demonstrated that outweigh or justify any added cost, and
d. increased costs can, and should be, reasonably absorbed, or funded, by the payers;

- *Principles: 2 (Effectiveness), 2E, 4 (Timeliness), 4A, 5 (Efficiency), 5A-5E*
- *Recommendations: 1-I-1, 1-I-2, 1-II-4, 1-V-1, 2-I-9, 2-II-3*

9. Generally, that high-technology services new to Vermont are introduced first at tertiary care hospitals serving significant numbers of Vermonters, and that the scientific evidence from peer-reviewed journals or controlled studies will permit definitive conclusions concerning the effectiveness, safety and efficiency of the technology.

a. That protocols for each technology modality will be or have been developed to screen out inappropriate and inefficient use of the modality.
b. That acquisition of major medical equipment or services is included in the applicant's long-range plan, operating budget and capital budget where appropriate, and is consistent with the statewide targets or budgets adopted by the Department of Banking, Insurance, Securities, and Health Care Administration.

- *Principles: 1 (Safety), 1B, 2 (Effectiveness), 2A-2E, 5 (Efficiency), 5B, 5D, 5E*
- *Recommendations: 1-V-2*

10. That, with respect to straight replacement of major medical equipment, existing equipment is fully depreciated, or the cost of early replacement, including the cost of remaining depreciation on the existing equipment, is demonstrated to be less costly.

- *Principles: 5 (Efficiency), 5C-5E*
- *Recommendations: 1-V-1, 1-V-2*

11. That, with respect to radiation therapy:

a. For any radiation therapy service established outside of a tertiary center, formal linkages will be or have been established for on-going utilization review and quality assessment in collaboration with a tertiary center.
b. Any proposal for a new linear accelerator unit demonstrates that the accelerator will perform an adequate number of treatments per year, by the second year of operation, based on analyses of state regional and national benchmarks, to achieve sufficient utilization to ensure the additional unit is needed and will perform safely, effectively, and efficiently.

- *Principles: 1 (Safety), 2A, 2D, 2E, 5 (Efficiency)*
- *Recommendations: 1-V-1, 1-V-2*

12. That, with respect to dialysis for end-stage renal disease:

Kidney dialysis of non-acute patients will be provided only through academic medical centers or applicants providing a comparable quality and continuity of care and serving a significant number of Vermonters, either directly or through a satellite service, for both in-home and in-hospital dialysis, or at other locations providing a comparable quality and continuity of care.

- *Principles: 1 (Safety), 2A, 2D, 2E, 5 (Efficiency)*
- *Recommendations: 1-V-1, 1-V-2*

13. That, with respect to open-heart surgery and cardiac catheterization:

a. Open-heart surgery will be provided only at Fletcher Allen Health Care, Dartmouth-Hitchcock, and Albany Medical Centers, or other out-of-state facilities qualified and approved by their State authorities to do so.
b. Cardiac catheterization services will be provided in accordance with the most current recommendations found in the August 1998 Report of the Cardiac Catheterization Work Group to the Division of Health Care Administration prepared by the Vermont Program for Quality in Health Care, or from subsequent such groups.

- *Principles: 1 (Safety), 1A, 2A, 2D, 2D, 5 (Efficiency)*
- *Recommendations: 1-I-1-6*

14. That, with respect to magnetic resonance imaging (MRI):

a. Fixed MRI capacity will not be increased until current capacity is in excess of valid state, regional and national benchmarks for medically necessary exams per year and sufficient additional need is demonstrated, based on analyses of state, regional and national benchmarks, to demonstrate that another fixed unit will achieve sufficient utilization to ensure the additional unit is needed and will perform safely, effectively and efficiently, and that information on current use documents the effectiveness of internal programs to eliminate unnecessary exams.
b. Forecasting use of MRI service employs use rates that take into account MRI specific data on use by Vermonters, and that the forecasting method employed is based on best practice and incorporates conservative use assumptions.
c. The conversion of a mobile service to a site employing a fixed unit will be accomplished without any increase in the costs and charges for the service at the hospital, based on the most current volume of the mobile service.
d. Prior to approving additional capacity, information on current use is provided that documents the effectiveness of the internal program to eliminate unnecessary exams.

- *Principles: 1 (Safety), 2 (Effectiveness), 2A, 2D, 2E, 4 (Timeliness), 5 (Efficiency), 5B*
- *Recommendations: 1-V-1, 1-V-2*

15. That, with respect to computed (CT) tomographic scanning:

a. Forecasting use of CT service employs use rates and market share forecasts that take into account actual CT data on use by Vermonters.
b. The conversion of a mobile service to a site employing a fixed unit will be accomplished without any increase in the costs and charges for the service at the hospital, based on the most current volume of the mobile service.
c. Prior to approving additional capacity, information on current use and best practice will be provided documenting the effectiveness of the internal program to eliminate unnecessary exams.

- *Principles: 1 (Safety), 2 (Effectiveness), 2A, 2D, 2E, 4 (Timeliness), 5 (Efficiency), 5B*
- *Recommendations: 1-V-1, 1-V-2*

16. That, with respect to mental health and substance abuse services, the project will:

a. foster the State's focus on developing a coordinated system that encourages access to the appropriate and least restrictive level of care;
b. reflect the desirability of retaining the designated local provider network for the treatment of individuals with long-term and severe psychiatric needs;
c. meet or exceed appropriate access and quality standards, including the following:
    1. Short term psychiatric care (not necessarily in a dedicated unit) and psychiatric emergency care should be available to most Vermonters within the geographic areas served by the designated agency system for mental health, substance abuse and developmental services.
    2. Psychiatric services in dedicated units should be available to most Vermonters within the hospital service areas for the regional and tertiary hospitals.
    3. Services should meet the six IOM Aims, with particular focus on achieving patient-centered (and family-centered) and safe care.
    4. Services should address unmet need in Vermont for:
        i. mental health, psychiatric and substance abuse services, particularly for children and adolescents;
        ii. access to intensive outpatient programs;
        iii. access to partial hospitalization programs;
        iv. improved treatment for suicidal patients;
        v. improved education and support for primary care providers, and better integration of primary care and mental health;
        vi. improved care for people with co-occurring disorders;
        vii. access to opiate addiction treatment (methadone and buprenorphine).
        viii. availability of outpatient services in order to decrease the demand for more costly emergency and hospital-based care
        ix. sufficient mental health and substance abuse prevention, screening and aftercare services;
        x. access to residential care;
        xi. peer recovery services
        xii. suicide prevention programs,
        xiii. a full range of community-based treatment and support,
        xiv. affordable housing options,
        xv. substance abuse primary prevention efforts,
        xvi. safe and sober housing for people in recovery,
        xvii. increased peer-operated programs for mental health recovery.
        xviii. diversion programs such as use of the 72-hour emergency hold programs and other initiatives in psychiatric units in the State's local general hospitals as effective tools in

diverting admissions from the Vermont State Hospital or its successor facilities.

xix. adjustments to the available beds at VSH or its successors made in accordance with the capacity of community programs to provide effective services.

xx. maintaining current levels of local capacity and also supporting necessary increases in existing facilities.

xxi. additional beds in community hospitals, to be measured on a case-by-case basis.

xxii. capacity in therapeutic community residences to be kept at levels adequate to assure maintenance of the census at Vermont State Hospital and its successor institutions at appropriate levels.

xxiii. organizations providing mental-health services to have linkage agreements with other appropriate providers in the community to assure a coordinated system of care that allows access to the appropriate level of care.

- *Principles: 1 (Safety), 1A, 2 (Effectiveness), 2A, 2D-2F, 3 (Patient Centeredness), 3A-3F, 4 (Timeliness), 5 (Efficiency), 5B, 5C, 6 (Equity), 6A, 6B*
- *Recommendations: 1-III-1, 1-III-2, 2-IV-1 through 7, 3-II-1 through 3*

17. A proposal to establish an Ambulatory Surgical Center shall not be approved unless the applicant demonstrates that:

a. the procedures performed in the facility will be limited to those procedures that are not anticipated to require an overnight stay and that can be performed safely in such a center;
   - *Principles: 1 (Safety), 1A*
   - *Recommendations: 2-II-1 through 9*

b. in order to ensure safety for patients who experience complications requiring transfer to a general hospital, the facility must be located within appropriate travel time to one or more licensed general hospitals where there are three or more operating rooms;
   - *Principles: 1 (Safety), 1A*
   - *Recommendations: 2-II-1 through 9*

c. the facility will provide services for post-operative complications and inquiries by ambulatory surgical center patients on a 24-hour basis;
   - *Principles: 1 (Safety), 1A*
   - *Recommendations: 2-II-1 through 9*

d. Demonstrate how the applicant will provide access to all residents of each community within the identified service area(s) without regard to individuals' payer type, insurance status or ability to pay for needed services.
   - *Principles: 5 (Efficiency), 5A-5C, 6 (Equity), 6A, 6B*
   - *Recommendations: 3-I-1 through 5*

e. the proposed facility will make the following assurances that if the ASC is approved it will:
   1. secure and maintain Medicare certification, when appropriate (accreditation by other organizations is encouraged);
      - *Principles: 1 (Safety), 1A, 2 (Effectiveness), 2A*
      - *Recommendations: 2-II-1 through 9*
   2. comply with the access requirements of § 504 of the Rehabilitation Act and those of the Americans with Disabilities Act;
      - *Principles: 6 (Equity), 6B*
      - *Recommendations: 2-II-1 through 9*
   3. develop and maintain a transfer agreement with at least one nearby hospital, as well as a transport agreement with an EMS service for its emergency transport requirements;
      - *Principles: 1 (Safety), 1A*
      - *Recommendations: 2-II-1 through 9*
   4. ensure that all staff are well qualified, and that the clinical personnel are eligible for --- or have privileges for --- similar surgical procedures at a local hospital;
      - *Principles: 1 (Safety), 1A, 2 (Effectiveness), 2A*
      - *Recommendations: 2-II-1 through 9*
   5. report utilization data in a form consistent with the data provided by hospitals to the Division of Health Care Administration for similar ambulatory surgery cases; and,
      - *Principles: 2 (Effectiveness), 2C, 2D, 5 (Efficiency), 5B*
      - *Recommendations: 2-II-1 through 9*
   6. institute a quality review system, and cooperate with all public and private review organizations: and demonstrate that it will institute best practices protocols.
      - *Principles: 1 (Safety), 1A, 2 (Effectiveness), 2A, 2B*
      - *Recommendations: 2-II-1 through 9*

18. That, with respect to nursing home care:

a. the applicant provide a written recommendation from the Agency of Human Services regarding plans to increase, reduce, or reconfigure the supply of nursing home beds,
   - *Principles 3 (Patient Centeredness), 3A-3F, 5 (Efficiency), 5A-5C*
   - *Recommendations: 3-I-1 through 5*

b. the applicant provide the Department with the nursing home bed need determinations by the Department of Aging and Independent Living, which determinations will be regarded as persuasive and will be presumed as the best evidence available,
    - *Principles 5 (Efficiency), 5B*
    - *Recommendations: 3-I-1 through 5*

c. the applicant demonstrate the need for additional capacity to meet nursing home level of care, including documenting the options for developing additional community-based services including Medicaid waiver services, residential alternatives, and adult day programs,
    - *Principles 5 (Efficiency), 5B*
    - *Recommendations: 3-I-1 through 5*

d. the applicant demonstrate, in order to serve the State's goals of reducing expenditures for nursing home services and enhancing funding for non-institutional services, that its proposal complies with the Agency of Human Services' (AHS) initiatives with individual institutions to reallocate resources in an orderly manner while reducing the supply of nursing home beds.
    - *Principles 5 (Efficiency), 5B*
    - *Recommendations: 3-I-1 through 5*

19. That the applicant demonstrate, in a proposal to add swing beds, that:

a. The applicant has adequately explained why it is appropriate for a long-term patient requiring custodial services to be served in a swing bed despite the fact hospitals cannot normally afford to replicate the services commonly delivered in a nursing home, or other long-term care facility if appropriate, at a reasonable cost;
b. The size and the staffing of the swing bed unit and the diagnoses of the patients being served will not negatively and unreasonably affect the costs of the service and the types of patients that may be served appropriately;
c. Any further increases in the swing bed supply will take into account:
    1. Potential effects on the State Medicaid budget.
    2. Continuity of care for patients.
    3. Additional costs incurred in caring for patients.
    4. Appropriate environment for patients requiring short-term but clinically intensive oversight and/or treatment

- *Principles: 3 (Patient Centeredness), 3E, 5 (Efficiency), 5B*
- *Recommendations: 3-I-1 through 5*

20. That, with respect to applications for new home health agencies:

a. the applicant demonstrates that the addition of such agencies is necessary and reasonable, particularly in light of the data collected by the Department to monitor access to services provided through the currently-certified home health agencies and evidence provided by the applicant, interested parties, competing applicants, amicus curiae and members of the public;
b. the applicant demonstrates the financial impacts of the proposed project relevant to the provision of home health care and the State's goal of attaining universal access to such care are necessary and reasonable; and
c. the applicant demonstrates how it will provide access to all residents of each community within the identified service area(s) without regard to individuals' payer type, insurance status or ability to pay for needed services.
d. The impact of proposed new services on continued access to the existing continuum of services within each service area should be considered. Adverse impact on the continued accessibility of the full continuum of services should be avoided.

- *Principles: 5 (Efficiency), 5A-5C, 6 (Equity), 6A, 6B*
- *Recommendations: 3-I-1 through 5*

21. That, in the case of construction projects, both new and renovation:

a. the costs and methods of the proposed construction, including the costs and methods of energy provision and the probable impact of the construction project on the cost of providing health services are necessary and reasonable;
b. the project is cost-effective in terms of energy conservation measures;
c. the impact of construction on the cost of new services is necessary and reasonable;
d. in the case of new construction, that it is the best alternative; and
e. the construction project will comply with the Guidelines for Construction and Equipment of Hospital and Medical Facilities as issued by the American Institute of Architects (AIA), Committee on Architecture for Health that the applicant will comply with the terms of Section 504 of the Rehabilitation Act of 1973, related to handicapped access, and that the applicant will comply with the standards for commercial construction, assuring nondiscrimination on the basis of disability

- *Principles: 2E, 4 (Timeliness), 5 (Efficiency), 5A-5E*
- *Recommendations: 1-I-1, 1-I-2, 1-II-4, 1-IV-4*

22. For hospitals subject to budget review, that the proposed health care project's impact on the hospital's established budget(s) and the unified health care budget is necessary and reasonable.

- *Principles: 5 (Efficiency), 5A-5E*
- *Recommendations: 1-I-1 through 7, 1-II-1 through 6*

23. That, the following services, primarily found in hospitals, are considered appropriate services to be provided in the following categories of hospitals:

a. Critical Access, Community, Regional, or Tertiary Hospitals in Vermont:
   1. Low-risk maternity care (including nursery)
   2. General inpatient medical/surgical care
   3. General intensive care
   4. Pediatric care (not necessarily in a dedicated unit)
   5. Short-term psychiatric care (not necessarily in a dedicated unit)
   6. Routine imaging service (x-ray, radiographic, fluoroscopic, ultrasound, mammography, basic nuclear medicine and CT scanning)
   7. Therapies (physical, speech, occupational and nutritional) Emergency care, including stabilizing major trauma cases before transfer and including psychiatric emergencies
   8. Ambulatory surgery
   9. Psychiatric services in dedicated units
   10. Magnetic resonance imaging
   11. Medical rehabilitation services in dedicated units
   12. Renal dialysis

   - *Principles: 1 (Safety), 2 (Effectiveness), 2A, 2D, 2E, 3 (Patient Centeredness), 4 (Timeliness), 5 (Efficiency), 5B, 5C, 6 (Equity), 6A, 6B*
   - *Recommendations: 1-I-1, 1-I-2, 1-II-4, 1-V-1, 2-II-3*

b. Tertiary Hospitals in Vermont:
   1. Kidney transplantation
   2. Major trauma treatment (massive head and or chest trauma)
   3. Neonatal intensive care
   4. Open-heart surgery

   - *Principles: 1 (Safety), 2 (Effectiveness), 2A, 2D, 2E, 3 (Patient Centeredness), 4 (Timeliness), 5 (Efficiency), 5B, 5C, 6 (Equity), 6A, 6B*
   - *Recommendations: 1-I-1, 1-I-2, 1-II-4, 1-V-1, 2-II-3*

c. Hospitals outside Vermont providing specialized services:
    1. Experimental procedures (unless 100% supported by grant funds)
    2. Major burn care
    3. Organ transplantation (other than kidney or kidney/pancreas)
    4. Specialty pediatric care (e.g., open-heart surgery)

    - *Principles: 1 (Safety), 2 (Effectiveness), 2A, 2D, 2E, 4B, 5 (Efficiency), 5C*
    - *Recommendations: 1-I-1, 1-I-2, 1-II-4, 1-V-1, 2-II-3*

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SECTION FIVE: APPENDICES

Important note: *Organization and labeling of appendices reflect the sections and chapters to which the appendix materials relate. Because there are only appendices that expand on material discussed in Section One: Overview and Section Three: Chapters 1, 2, 5 and 6, the various tables and materials are labeled i.A, i.B, 1.A, 2.A, 5.A, etc. There are no appendices for Chapters 3 or 4, and therefore no exhibits labeled 3.A, 4.A, etc. An index is included at the end of the Appendices.*

Appendix i.A: Relationship Between HRAP, SHP and CNAs

HRAP, SHP and CNA Matrix for Inpatient Services
HRAP, SHP and CNA Matrix for Ambulatory Care Services
HRAP, SHP and CNA Matrix for Community-Based Care
HRAP, SHP and CNA Matrix for Other Medical Services
HRAP, SHP and CNA Matrix for Healthcare Workforce

Appendix i.A is a complex matrix that presents information from the Vermont State Health Plan, the Hospital Community Needs Assessments, and medical services and healthcare workforce inventories compiled for the Health Resource Allocation Plan. This appendix is available in electronic version upon request. Please contact BISHCA for further information and/or a copy of the document.

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Appendix i.B: Vermont State Health Plan

"Action Needed" steps that do not map to Health Resource Allocation Plan/Health Resource Inventory

1. Health Care Sector

Outcome desired: The multiple entities that constitute the Vermont health care sector collaborate in the redesign of service delivery to implement the Vermont Model for Health to ensure the efficient delivery of high quality services to all Vermonters.

Action needed:

- Ensure that internal policies, including the funding strategies, of organizations in the health care sector are aligned and supportive of improved quality.
- Realign payment for care and other incentives to promote high quality care consistent with evidence-based practices and good health outcomes. This effort must involve purchasers, health plans and others in the health care sector, and must include comprehensive prevention, screening and early intervention services for mental health, substance abuse, and oral health.
- Enhance coordination within the health care sector and with the public health and community sectors, including: improved integration of primary and specialty care; better linkage of care (disease) management services with health care providers and community programs; and improvements in the systems by which individuals are transferred and transitioned among hospitals, long-term care facilities, treatment centers and the community.
- Ensure that prevention, medical necessity, equitable access and quality improvement, as well as cost, are factors addressed in development and implementation of plans and policies of health sector organizations.

2. Community Sector

Outcome desired: Communities take an active role in ensuring an adequate infrastructure for health services and in supporting prevention and treatment services for their people.

Action needed:

- Continued support for and participation in the development of safe housing for people transitioning back from residential substance abuse or mental health care and from incarceration; adherence to policies that maximize housing opportunities for individuals with mental health and/or substance abuse issues and with mobility and other health-related limitations.

4. Public Health Sector

Outcome desired: Laws, rules, practices, policies and services of Vermont State and local government support the comprehensive, integrated system of care described in the Vermont Model for Health

Action needed:

- Ensure that laws, regulations, public programs and public financing support the objectives of this plan and the Vermont Model for Health.
- Agencies in the public health sector need to align policies and services with the Vermont Model for Health, including integration of emergency response and environmental protection.
- Ensure that prevention, medical necessity, equitable access and quality improvement, as well as cost, are factors addressed in development and implementation of policy for investment in all sectors of the Vermont Health system.
- All new information systems developed by health sector entities will include specifications for reporting data needed by public health to monitor health status, evaluate performance of the health sector, identify new and emerging issues and redirect resources to problem areas.

6. Prevention as a Priority

Outcome desired: Policies and resources enhance support for services aimed at the prevention of diseases and complications.

Action needed:

- Enact policies that support access to, provision of, and reimbursement for, evidence-based clinical preventive, services as recommended by the U.S. Clinical Preventive Services Task Force for all Vermonters, appropriate to their age, gender and other risk factors.

7. Access to Care

Outcome desired: All Vermonters have the opportunity to receive care and to participate in programs and services.

Action needed:

- Ensure that public health and the health care sector work together to provide a strong safety net for the uninsured and underinsured, including physical, mental and oral health services.
- Ensure that a special effort is made to provide culturally appropriate health care to minorities, immigrants and other high risk populations.

8. Quality of Care

Outcome desired: Vermonters receive health services that are based on the best available scientific knowledge regardless of who provides the service or of the setting in which the services are delivered.

Action needed:

- Develop, support and implement evidence-based practices throughout the health care system, integrated into clinical routines and verified by performance monitoring. Priority should be given to chronic disease services, infection control, patient safety and pain management.
- Establish a framework for monitoring, tracking and correcting undesirable variation in practice to reduce misuse, over use and under use of services for which standards of care are known and to identify and correct errors in care.
- Adopt polices for the delivery and payment of care that support quality improvement as a key strategy for achieving better health outcomes and reducing the overall costs of care.
- New information systems will incorporate practice guidelines and other tools to assist providers to deliver quality care and monitor health care practices.

9. Accountability and Transparency

Outcome desired: Information regarding problems, progress and success in providing high quality coordinated health services to Vermonters is shared among organizations and with the public.

Action needed:

- Select specific system-wide outcome indicators and the methods to track and measure progress. Outcomes should be established for all dimensions of the system illustrated by the Vermont Model for Care, and include professional competence, financial performance, adequacy of access, public health and community performance and evidence of collaboration.
- Select methods for measuring and collecting the selected data elements, interpreting the data and reporting the findings.
- Identify the organization or organizations that will assume responsibility for development and implementation of the comprehensive system for accountability.

10. Integrated Health Information System

Outcome desired: A comprehensive Vermont information infrastructure supports implementation of the Vermont Model for Health and facilitates practice-based decision making, consumer access, collaboration between providers and organizations, prevention, quality measurement and improvement, public accountability, clinical and health services research, and public health policy and planning.

Action needed:

- Develop and implement a single, statewide plan to guide purchase and deployment of information infrastructure; this effort should include standards, definitions, priorities, phase in, etc. as well as agreement by all partners to provide and share data within the limits imposed by the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) and other relevant State and federal law.

- Ensure that all information technology purchases made during the planning and start-up phases have the capacity for modification and integration with the future system.
- Purchase and deploy population-based clinical registries to health service providers to facilitate management of care for individuals and for the caseload as a whole. This initiative must proceed prior to full plan development.

Focus Area: Chronic Conditions (Vermont Blueprint for Health)

Outcome desired: Vermonters with chronic conditions lead healthier lives that before, and the social, physical and financial costs of living with chronic conditions are reduced.

Action needed:

- Ensure commitment of key entities in health care, community and public health as well as providers and consumers to the new system of care.

Focus Area: Health Promotion (Disease Prevention)

Outcome desired: An increasing number of Vermonters of all ages chose healthy behaviors.

Action needed:

- Individuals must put knowledge into action by adopting health behaviors that lead to decreased risk of disease and its complications and eventually reduced cost of health care.

Focus Area: Infectious Disease

Outcome desired: Rates of preventable infections in the community and in health care facilities are reduced.

Action needed:

- Ensure that a comprehensive, evidence-based system for controlling infectious diseases is fully implemented throughout each health care facility. The administrative policies of these facilities should be consistent with guidance prepared by the Vermont Program for Quality in Health Care and should support accountability to patients and the public.

Focus Area: Mental Health

Action needed

- Revision of the laws, regulations and practices regarding medical treatment for individuals who may lack competence to make an informed decision regarding their treatment, and revision of the criteria used to determine competency for such decisions; review of all relevant laws, regulations and practices to ensure that they reflect best medical practices; review of all issues involved in the question of whether appropriate due process for individual rights should be based on clinical status, the invasiveness of a given treatment, and/or the relative risks and benefits of a proposed treatment, in contrast to policies that set different standards based upon generic types of illness and for isolated types of treatment.

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Appendix i.C: Hospital Community Needs Assessments

Needs/Actions/Priorities that do not map to Health Resource Allocation Plan/Health Resource Inventory

Brattleboro Memorial Hospital (in conjunction with Retreat Healthcare)

- Increase collaboration between Brattleboro Memorial and Retreat Healthcare
- Increase access to spiritual counseling for hospital patients

Central Vermont Hospital

- Need for affordable housing.
- Need for strong, ongoing flow of staff.

Copley Hospital

- Maintain routine services (chaplaincy, home health, industrial medicine, lab, occupational therapy, palliative care, physical therapy, radiology and nuclear medicine, respiratory therapy, speech therapy, wellness & outreach)
- Expand and upgrade the Ambulatory Care Unit, Operating Room, and OB Suite
- Expand, update, and upgrade patient rooms
- Replace the current outdated heating and air conditioning system
- Build a new medical office building to replace existing building, which does not meet code
- Build an exercise facility for patients and staff
- Expand space to include family consultation and waiting areas.
- Add a chapel to hospital facilities
- Expand space to include a community education and conference center
- Educate the community about the availability of newborn transport from Copley Hospital to area NICUs.

Fletcher Allen Health Care

- Health care cost (lack of health care insurance and concerns about the cost of insurance and actual health care services) was the next major priority.
- Physical health (including obesity, poor nutrition and eating habits, and lack of exercise) was the third priority area.

Gifford Medical Center

- None

Grace Cottage

- Action: Work on developing a continuum of safe affordable housing with supportive services based in Townshend.
- Action: help provide greater access to home and community based services by working to improve medical-related transportation for the elderly and by obtaining public and private funding to help offset program costs

Mt. Ascutney

Mental Health and Substance Abuse

- Lack of mental health services matching community need and sustainability funding and resources

North Country

- Health care services that residents in this area have difficulty using because of cost.
- Another factor influencing accessibility is scheduling.

Northeastern Vermont Regional Hospital

- Economic issues- poverty, lack of transportation, cost of health care, cost of health insurance premiums and co-pays – also inhibit access to care, and were identified as the root cause for many of the physical health, mental health, and substance abuse problems in the community.

Northwestern Medical Center

- Reducing the abuse and neglect of children and adults.

Porter Hospital

Maternal and Child Health

- Advocate for more children services and early childcare support

Mental Health and Substance Abuse

- Return youth in SRS custody to Addison County where possible

Chronic Disease

- Advocate for a better system to qualify disabled individuals for services

Prevention

- Increase in community grants that invest in effective prevention programs
- Insurance coverage of preventive services
- Advocate for safe and affordable housing in Addison County
- Advocate for more affordable high quality childcare

Access

- Support the work of Community Health Services of Addison County to facilitate access to medical care for the uninsured/underinsured including the investigation of ways to facilitate greater access to all levels of medical care (including specialty care, support groups, wellness classes and pharmaceuticals)
- Complete the Porter Hospital "North Project" to modernize medical facilities and provide the appropriate level of quality care

Lifestyle and Behavior

- Increase opportunities for youth activities in a constructive/supervised environment (teen centers)
- Support schools in addressing violence/bullying issues
- Recruit women dentists to serve victims of abuse/sexual assault

Rutland Regional Medical Center

Health Resource Priorities

- Increase disease self-management programs
- Increase access of appropriate use of prescription meds
- Decrease binge drinking among adults
- Decrease alcohol use in youth
- Decrease heroin use

Springfield Hospital

Health Improvement Priorities

- Decrease obesity
- Decrease infectious disease rates
- Interface with the legislature to change the developmental disability eligibility criteria
- Increase access to health care for the uninsured and underinsured
- Increase access to prescription drugs
- Develop a 24-hour Nurse Hotline
- Decrease injury rates (falls, fires and motor vehicles)
- Conduct an elder care population needs assessment
- Implement Discharge Instruction Software
- Implement electronic medical records
- Implement patient friendly billing
- Increase parking
- Provide more “kid friendly” facilities, including inpatient rooms
- Build another OR (with anesthesia and staff)
- Build an education and wellness center
- Expand Ludlow Health Center
- Expand Windham Center
- There needs to be an increase in physical activity and exercise among area residents, through the following initiatives.
- Nutrition groups
- Physical activity and nutrition is applying for a grant to address nutrition education and physical activity

Southwestern Vermont Health Center

- Access to Health Care – Border states’ insurance and regulatory restrictions limiting access to care

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Appendix 1.A: Hospital Inpatient Services

Table 1.A-1: Hospital Services by Location

HRAP Analysis
Hospital Services
Updated 2/23/05

Sorted by Frequency of Service at Hospitals and Service Setting

TABLE 1.	Statewide			Regional													Community-wide												Major Med Eqpt									
Hospital	Cardiology Services - Open Heart Surgery	Level I Trauma Treatment	Organ Transplant	Cardiology Services	Orthopedic Services	HIV-AIDS Services	Neurological Services	Oncology Services Ded. Unit**	Sleep Center	Inpatient Psychiatric Services Ded. Unit**	Psychiatric Partial Hospitalization Program	Inpatient Pediatric Services Ded. Unit**	Radiation Therapy	Cardiology Services - Cardiac Catheterization	Renal Dialysis (Hospital based)*/**	Inpatient Rehabilitation Dedicated Unit**	Emergency Services	Outpatient Surgery	Rehabilitation	Laboratory Services**	General Medical Surgical Care	Intensive Care	Oncology Services	Obstetrics/Birthing	Pediatric Medical Surgical Care	Pulmonary/Inhalation Therapy**	Outpatient Mental Health/Substance Abuse**	Urgent Care Center	CT Scanner	Ultrasound	Magnetic Resonance Imagine (MRI)	Extracorporeal Shock Wave Lithotripter (ESWL)	Single Photon Emission Computerized Tomography (SPECT)	Positron Emission Tomography (PET)	Angiographic (Radiographic/Fluoroscopic System)**	Linear Accelerator**	Hospital Total
Fletcher Allen Health Care	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	36
Rutland Regional Medical Center				◆	◆	◆		◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆		◆	29
Central Vermont Hospital				◆	◆	◆	◆		◆	◆		◆			◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆				25
Brattleboro Memorial Hospital				◆	◆	◆	◆	◆									◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆				21
Southwestern Vermont Medical Center				◆	◆				◆		◆		◆				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆				21
Northeastern Vermont Regional Hospital				◆	◆	◆	◆	◆				◆					◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆						20
Springfield Hospital				◆	◆	◆				◆	◆						◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆						20
VA Medical Center				◆		◆	◆	◆	◆	◆	◆						◆	◆	◆	◆	◆		◆			◆	◆	◆	◆	◆	◆			◆			20
North Country Hospital				◆	◆		◆	◆	◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆						19
Copley Hospital				◆	◆		◆		◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆						18
Gifford Memorial Hospital				◆	◆		◆	◆									◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆						18
Mt. Ascutney Hospital				◆	◆	◆		◆								◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆							18
Northwestern Medical Center				◆	◆							◆					◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆						16
Porter Medical Center				◆	◆		◆										◆	◆	◆	◆	◆	◆		◆	◆	◆	◆		◆	◆	◆						16
Grace Cottage Hospital				◆													◆	◆	◆	◆	◆				◆		◆										8
Brattleboro Retreat										◆	◆									◆							◆										4
Vermont State Hospital										◆																											1
Albany Medical Center (NY)	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Dartmouth Hitchcock Medical Center (NH)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	35
Champlain Valley Physicians Hosp Med Ctr (NY)				na		◆		na	◆	na		na	◆	◆	◆		◆	◆	◆	na	na	◆	◆	◆	na	na	na	◆	◆	◆	◆	◆			na	na	16
Littleton Regional Hospital (NH)				na	◆			na		na		na					◆	◆	◆	na	na	◆	◆	◆	na	na	na		◆	◆		◆			na	na	10
Service Total	2	2	2	16	15	10	10	9	9	8	7	6	5	4	4	3	18	18	18	17	16	16	16	15	15	15	13	10	17	17	15	7	6	4	3	3	

Data Source: Most of this information was self-reported by hospitals either in the form of 2003 American Hospital Association (AHA) Annual Survey or Navigant Hospital survey (fielded Sept 04).
*Currently there are six dialysis facilities, all operated by FAHC, providing services within the state of VT: Bennington, Berlin, Rutland, S. Burlington, St. Albans, Burlington.
**Non AHA Survey Hospital Service. na = not available

Table 1.A-2: Services Across Hospital Care Settings

Services across hospital care settings

Diagnosis Group	Inpatient		Outpatient		Emergency Dept.		Total	
	Number	Col %	Number	Col %	Number	Col %	Number	Col %
Injury and poisoning	5,017	10.1	10,282	14.0	66,859	34.8	82,158	26.1
Symptoms, signs, and ill-defined conditions	2,250	4.6	5,880	8.0	21,676	11.3	29,806	9.5
Diseases of the respiratory system	5,004	10.1	2,404	3.3	22,019	11.4	29,427	9.3
Diseases of the digestive system	5,266	10.7	11,843	16.1	12,170	6.3	29,279	9.3
Diseases of the nervous system and sense organs	947	1.9	9,355	12.7	17,116	8.9	27,418	8.7
Musculoskeletal system and connective tissue	2,783	5.6	8,567	11.7	14,239	7.4	25,589	8.1
Diseases of the circulatory system	9,945	20.1	2,245	3.1	9,338	4.9	21,528	6.8
Diseases of the genitourinary system	2,271	4.6	5,696	7.7	8,638	4.5	16,605	5.3
Neoplasms	2,926	5.9	9,380	12.8	392	0.2	12,698	4.0
Contraception and complications of pregnancy and childbir	6,351	12.8	3,977	5.4	1,340	0.7	11,668	3.7
Mental disorders	3,067	6.2	348	0.5	6,202	3.2	9,617	3.1
Diseases of the skin and subcutaneous tissue	748	1.5	1,410	1.9	4,957	2.6	7,115	2.3
Infectious and parasitic diseases	649	1.3	341	0.5	3,566	1.9	4,556	1.4
Endocrine, nutritional, metabolic and immunity disorders	1,589	3.2	680	0.9	2,165	1.1	4,434	1.4
Residual codes, unclassified, all Ecodes	77	0.2	267	0.4	1,259	0.7	1,603	0.5
Diseases of the blood and blood-forming organs	384	0.8	337	0.5	237	0.1	958	0.3
Congenital anomalies	159	0.3	403	0.5	53	0.0	615	0.2
Conditions originating in the perinatal period	1	0.0	114	0.2	85	0.0	200	0.1
Total	49,434	100.0	73,529	100.0	192,311	100.0	315,274	100.0

Appendix 1.B: Inpatient Mental Health and Substance Abuse Tables

Tables 1.B-1 through 1.B-9 are from the report *Inpatient Behavioral Health Care Services Provided to Vermont Residents During 1990-2002* (published September 2004). Table 1.B-10 is from the *Fiscal Year 2004 Statistical Report* (published October 30, 2004).

The term "Community Service Providers" (in Table 1.B-10) refers to Vermont's designated agencies for mental health services. As a result, these tables refer to the publicly funded mental health and substance abuse treatment system only. (There does not appear to be corresponding data for private providers.)

The term "clinical interventions" used in Table 1.B-10 is defined in the *Fiscal Year 2004 Statistical Report* (published October 30, 2004) as including individual, family and group therapy; medication and medical support and consultation services; clinical assessments; and assessment bed (a new service category relating to children's services). The *Fiscal Year 2004 Statistical Report* contains additional tables describing individual services, including and in addition to the services listed under clinical interventions.

Table 1.B-1: Vermont Residents Receiving Inpatient Behavioral Health Care, 2002

Hospital	Episodes of Hospitalization	Patient Days	Average Length of Stay	Unduplicated Count of People Served	People Served in Other Facilities Number	People Served in Other Facilities Percent
Total	5,000	57,090	11	3,469 ± 24	--	
Vermont State Hospital	272	20,394	75	232	91 ± 7	39%
Brattleboro Retreat	997	9,708	10	819	138 ± 12	17%
VA - White River Junction	260	1,752	7	161 ± 2	18 ± 5	11%
Vermont General Hospitals	2,832	20,246	7	2,078 ± 16	242 ± 19	12%
Fletcher Allen	736	6,871	9	605 ± 5	117 ± 12	19%
Central Vermont Medical Center	557	3,977	7	429 ± 4	103 ± 11	24%
Rutland	758	4,571	6	559 ± 5	113 ± 12	20%
Southwest Vermont	57	205	4	51 ± 1	11 ± 0.4	22%
Springfield	589	4,100	7	450 ± 4	121 ± 10	27%
Northeast VT	18	84	5	18 ± 0	5 ± 0.2	28%
Northwestern	29	126	4	24 ± 1	6 ± 0.3	25%
North Country	22	54	2	21 ± 0	3 ± 1.0	13%
Mt. Ascutney	5	17	3	5 ± 0	0 ± 0.0	0%
Brattleboro Memorial	13	74	6	13 ± 0	5 ± 0.2	38%
Copley	19	70	4	17 ± 0	4 ± 0.2	24%
Porter	7	25	4	7 ± 0	1 ± 0.1	14%
Gifford	5	17	3	5 ± 0	3 ± 0.2	60%
Grace Cottage	17	55	3	15 ± 0	2 ± 0.2	13%
New Hampshire General Hospitals	458	3,294	7	359 ± 3	81 ± 8	23%
Mary Hitchcock	368	2,748	7	287 ± 3	71 ± 7	25%
Cheshire Hospital	52	287	6	46 ± 1	11 ± 2	23%
Valley Regional	15	109	7	14 ± 0	5 ± 1	35%
Weeks	2	3	2	2 ± 0	0 ± 0	0%
Monadnock Community	6	94	16	6 ± 0	4 ± 0.2	67%
Other New Hampshire Hospitals	15	53	4	11 ± 0	3 ± 0	27%
Massachusetts Hospitals	77	591	8		Unknown	
VA - Northhampton	6	159	27			
Franklin County Medical Center	2	16	8			
North Adams	35	246	7			
Baystate Medical Center	0	0	--			
Other Massachusetts Hospitals	34	170	5			
New York Hospitals	104	1,105	11		Unknown	

Table 1.B-2: Episodes of Hospitalization for Behavioral Health Services Vermont Children and Adolescents: 1990-2002

Table 4-1
Episodes of Hospitalization
for Behavioral Health Services
Vermont Children and Adolescents: 1990 - 2002

Episodes of Hospitalization by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	153	138	157	246	246	278	298	274	312	376	347	325	420
VT General Hospitals	59	58	46	46	35	37	29	27	14	17	16	21	9
Vermont State Hospital	2	0	2	1	3	0	3	3	5	5	3	4	4
Brattleboro Retreat	62	53	52	99	104	130	161	164	193	252	275	250	318
New Hampshire Hospitals	25	25	53	91	97	98	95	73	82	97	48	35	32
Other Out-of-State Hospitals	5	2	4	9	7	13	10	7	18	5	5	15	57

Episodes of Hospitalization by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	153	138	157	246	246	278	298	274	312	376	347	325	420
Addison	4	6	3	4	7	7	16	14	10	16	20	20	19
Bennington	14	14	13	18	18	28	24	21	29	28	28	29	34
Caledonia	8	6	7	20	8	15	15	17	16	19	20	11	18
Chittenden	29	18	16	37	36	38	34	33	38	54	55	35	96
Essex	2	4	6	0	2	1	1	1	2	1	1	1	2
Franklin/Grand Isle	4	11	11	19	8	9	17	11	13	17	17	14	17
Lamoille	5	2	1	7	8	10	2	4	10	15	5	8	11
Orange	5	1	12	12	10	15	21	9	7	20	14	16	22
Orleans	8	8	9	22	17	17	11	6	6	19	10	14	13
Rutland	9	7	13	13	21	27	32	35	38	66	50	57	64
Washington	16	12	14	13	26	19	29	22	23	14	22	17	35
Windham	26	30	28	40	51	54	65	57	64	62	45	50	43
Windsor	23	19	24	41	33	34	29	41	54	43	57	52	41
Unknown	0	0	0	0	1	4	2	3	2	2	3	1	5

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

Vermont children and adolescents include residents under the age of 18.

Table 1B-3: Episodes of Hospitalization for Behavioral Health Services Vermont Adults: 1990-2002

Table 5-1
Episodes of Hospilalization
for Behavioral Health Services
Vermont Adults: 1990 - 2002

Episodes of Hospitalization by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	3,370	3,412	3,358	3,600	3,833	3,886	4,230	4,190	4,070	4,083	4,324	4,316	4,580
VT General Hospitals	2,001	1,928	1,974	2,023	2,196	2,105	2,485	2,549	2,437	2,569	2,697	2,623	2,823
Vermont State Hospital	486	501	399	381	402	381	351	377	304	288	258	296	268
Brattleboro Retreat	164	189	204	247	273	389	478	514	568	460	575	687	679
VA Hospital - WRJ	193	199	182	150	163	156	141	236	236	255	260	228	260
New Hampshire Hospitals	489	551	500	653	696	717	669	409	418	406	444	439	426
Other Out-of-State Hospitals	37	44	99	146	103	138	106	105	107	105	90	43	124

Episodes of Hospitalization by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	3,370	3,412	3,358	3,600	3,833	3,886	4,230	4,190	4,070	4,083	4,324	4,316	4,580
Addison	109	108	121	144	149	146	183	182	158	238	206	211	185
Bennington	205	236	216	272	278	317	308	212	202	210	231	216	312
Caledonia	142	148	146	168	151	166	168	151	135	126	136	150	151
Chittenden	789	806	690	723	802	721	720	801	773	698	823	782	802
Essex	29	29	29	35	31	35	43	36	40	36	27	34	25
Franklin/Grand Isle	151	157	181	167	177	142	203	179	159	148	195	222	253
Lamoille	100	116	94	96	92	90	106	116	110	130	144	144	128
Orange	154	174	167	198	151	173	175	158	145	149	173	176	236
Orleans	157	154	137	164	179	148	147	158	136	173	143	137	132
Rutland	355	382	381	354	391	423	414	436	557	568	676	675	723
Washington	475	427	475	437	495	472	577	608	458	460	506	513	531
Windham	247	246	288	348	369	471	572	619	635	543	485	510	545
Windsor	440	419	430	481	552	561	595	513	536	535	561	507	528
Unknown	17	10	3	13	16	21	19	21	26	69	18	39	29

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

Vermont adults include residents age 18 and older.

Table 1.B-4: Episodes of Hospitalization Per 100,000 Population for Behavioral Health Services Vermont Children and Adolescents: 1990-2002

Episodes per 100,000 Population by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	107	96	109	169	168	189	202	186	213	256	235	213	301
VT General Hospitals	41	40	32	32	24	25	20	18	10	12	11	14	6
Vermont State Hospital	1	0	1	1	2	0	2	2	3	3	2	3	3
Brattleboro Retreat	43	37	36	68	71	88	109	112	131	171	186	164	228
New Hampshire Hospitals	17	17	37	63	66	67	64	50	56	66	33	23	23
Other Out-of-State Hospitals	3	1	3	6	5	9	7	5	12	3	3	10	41

Episodes per 100,000 Population by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	107	96	109	169	168	189	202	186	213	256	235	213	301
Addison	46	70	35	46	79	79	180	158	113	180	223	219	216
Bennington	155	156	145	201	201	312	268	237	329	319	320	314	423
Caledonia	104	78	92	261	104	195	196	224	212	253	266	137	256
Chittenden	94	57	51	115	110	115	101	98	112	158	159	102	278
Essex	118	237	357	0	118	59	59	60	120	60	60	62	133
Franklin/Grand Isle	30	82	82	139	58	64	120	78	91	118	117	95	125
Lamoille	98	39	19	132	149	184	36	73	180	268	89	135	201
Orange	69	14	166	165	137	205	287	124	97	277	194	209	329
Orleans	117	118	133	323	250	250	162	89	90	287	151	192	217
Rutland	60	47	87	87	140	180	213	235	257	448	339	376	471
Washington	114	86	101	93	187	136	208	160	168	103	161	118	273
Windham	244	283	264	376	479	507	612	542	612	595	432	453	450
Windsor	171	142	179	305	244	251	214	305	403	321	425	371	341
Unknown	0	0	0	0	1	3	1	2	1	1	2	1	4

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

Vermont children and adolescents include residents under the age of 18.

Population figures used to calculate rates were obtained from the 1990 through 2002 Vital Statistics Reports published by the Vermont Department of Health.

Table 1.B-5: Episodes of Hospitalization Per 100,000 Population for Behavioral Health Services Vermont Adults: 1990-2002

Episodes per 100,000 Population by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	804	806	786	830	872	874	941	930	898	893	937	938	960
VT General Hospitals	477	456	462	466	500	473	553	566	537	562	585	570	592
Vermont State Hospital	116	118	93	88	91	86	78	84	67	63	56	64	56
Brattleboro Retreat	39	45	48	57	62	87	106	114	125	101	125	149	142
VA Hospital - WRJ	46	47	43	35	37	35	31	52	52	56	56	50	55
New Hampshire Hospitals	117	130	117	150	158	161	149	91	92	89	96	95	89
Other Out-of-State Hospitals	9	10	23	34	23	31	24	23	24	23	20	9	26

Episodes per 100,000 Population by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	804	806	786	830	872	874	941	930	898	893	937	938	960
Addison	448	439	487	570	582	563	697	691	596	889	762	780	666
Bennington	764	876	798	993	1,007	1,139	1,100	759	722	748	818	776	1,072
Caledonia	705	728	711	805	715	776	777	696	619	573	613	688	656
Chittenden	783	791	670	691	756	671	662	734	703	629	734	689	701
Essex	616	616	615	736	648	728	892	751	835	752	562	702	497
Franklin/Grand Isle	471	481	545	492	511	402	565	493	433	397	515	583	626
Lamoille	683	776	617	615	577	553	638	691	646	751	819	819	694
Orange	815	911	866	1,009	759	858	858	772	704	717	824	848	1,073
Orleans	913	882	775	909	976	794	778	831	708	890	727	715	640
Rutland	754	810	805	741	813	875	852	901	1,151	1,172	1,389	1,396	1,456
Washington	1,160	1,035	1,142	1,036	1,161	1,095	1,326	1,396	1,046	1,044	1,140	1,169	1,153
Windham	799	789	916	1,090	1,142	1,440	1,732	1,871	1,909	1,620	1,435	1,529	1,572
Windsor	1,083	1,023	1,042	1,149	1,305	1,312	1,379	1,188	1,235	1,225	1,275	1,161	1,153
Unknown	4	2	1	3	4	5	4	5	6	15	4	8	6

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

Vermont adults include residents age 18 and older.

Population figures used to calculate rates were obtained from the 1990 through 2001 Vital Statistics Reports published by the Vermont Department of Health.

Table 1.B-6: Average Daily Census for Behavioral Health Services Vermont Children and Adolescents: 1990-2002

Average Daily Census by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	10	7	8	15	13	14	15	13	12	12	13	12	11
VT General Hospitals	1	1	1	1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Vermont State Hospital	< 1	0	1	1	< 1	0	< 1	1	< 1	< 1	< 1	< 1	< 1
Brattleboro Retreat	7	5	4	7	7	10	11	10	10	9	12	10	9
New Hampshire Hospitals	1	1	3	6	4	3	3	2	2	2	1	1	1
Other Out-of-State Hospitals	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	1	2

Average Daily Census by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	10	7	8	15	13	14	15	13	12	12	13	12	11
Addison	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	< 1	1	1	1
Bennington	< 1	< 1	< 1	1	1	1	1	1	1	1	1	1	1
Caledonia	1	< 1	< 1	1	1	< 1	1	1	< 1	< 1	1	< 1	< 1
Chittenden	2	1	1	2	1	2	2	2	3	1	2	1	2
Essex	< 1	< 1	< 1	0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Franklin/Grand Isle	< 1	1	1	1	< 1	1	1	< 1	1	1	1	< 1	< 1
Lamoille	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1
Orange	< 1	< 1	< 1	1	< 1	1	1	< 1	< 1	< 1	1	1	1
Orleans	< 1	< 1	< 1	1	1	1	1	< 1	< 1	< 1	< 1	1	0
Rutland	< 1	< 1	1	1	1	1	2	1	1	2	1	2	1
Washington	2	1	0	1	1	1	1	1	1	< 1	1	1	1
Windham	2	2	3	5	4	5	3	2	3	3	2	2	1
Windsor	2	1	1	2	1	2	2	2	1	1	2	2	1
Unknown	0	0	0	0	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

Vermont children and adolescents include residents under the age of 18.

Table 1.B-7: Average Daily Census for Behavioral Health Services Vermont Adults: 1990-2005

Average Daily Census by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	216	206	203	188	181	172	163	156	137	137	134	140	145
VT General Hospitals	61	59	60	57	57	53	54	54	50	55	52	54	55
Vermont State Hospital	113	102	95	86	76	74	64	65	54	54	49	52	56
Brattleboro Retreat	13	13	11	12	14	17	23	22	19	15	19	20	18
VA Hospital - WRJ	8	8	12	4	6	7	6	5	4	4	4	5	5
New Hampshire Hospitals	19	23	19	24	23	16	13	6	6	7	7	8	9
Other Out-of-State Hospitals	1	2	5	4	6	5	3	4	3	3	3	1	3

Average Daily Census by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	216	206	203	188	181	172	163	156	137	137	134	140	145
Addison	5	4	6	7	6	6	8	7	5	7	6	6	7
Bennington	10	11	10	11	11	12	10	9	7	6	7	7	9
Caledonia	7	8	7	5	5	5	5	5	4	4	3	4	4
Chittenden	49	54	49	48	45	44	35	39	37	38	38	40	34
Essex	1	1	1	1	2	1	1	1	2	2	1	1	1
Franklin/Grand Isle	10	10	15	9	11	8	10	9	7	8	8	11	13
Lamoille	8	7	5	6	5	3	4	4	4	5	3	3	4
Orange	7	8	9	7	6	6	6	5	6	5	5	5	8
Orleans	6	8	7	6	7	6	7	6	5	5	4	5	4
Rutland	17	15	15	13	13	18	13	11	12	10	12	14	15
Washington	51	41	39	34	34	30	26	24	16	16	14	16	18
Windham	17	15	19	18	15	17	20	19	18	14	14	14	14
Windsor	24	23	20	20	20	17	16	14	13	12	15	13	12
Unknown	3	1	< 1	1	2	2	1	3	3	6	2	2	3

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

Vermont adults include residents age 18 and older.

Table 1.B-8: Unduplicated Number of Children and Adolescents Served for Behavioral Health Services Vermont Children and Adolescents: 1990-2002

Unduplicated Number of People Served by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	135 ± 3	116 ± 3	122 ± 3	164 ± 4	186 ± 4	204 ± 5	237 ± 5	207 ± 3	220 ± 4	284 ± 5	289 ± 6	275 ± 5	354 ± 6.4
Addison	4 ± 0.2	6 ± 0.3	3 ± 0.2	4 ± 0.2	4 ± 0.2	7 ± 0.3	13 ± 0.4	9 ± 0.3	7 ± 0.3	12 ± 0.4	15 ± 1	16 ± 0.5	17 ± 0.5
Bennington	1 ± < .1	2 ± 0.2	3 ± 0.2	7 ± 0.3	11 ± 0.4	10 ± 0.4	13 ± 0.4	15 ± 0.4	19 ± 0.5	19 ± 0.6	23 ± 1	28 ± 1	27 ± 1
Caledonia	7 ± 0.3	6 ± 0.3	6 ± 0.3	10 ± 0.4	4 ± 0.2	10 ± 0.4	12 ± 0.4	10 ± 0.4	14 ± 0.4	16 ± 0.5	17 ± 1	10 ± 0.3	16 ± 0.5
Chittenden	24 ± 0.9	17 ± 0.6	14 ± 0.5	29 ± 0.9	28 ± 0.8	31 ± 0.8	22 ± 0.7	26 ± 1	25 ± 1	40 ± 1	49 ± 1	33 ± 1	83 ± 2
Essex	2 ± 0.2	3 ± 0.2	4 ± 0.2	0	1 ± < .1	1 ± < .1	1 ± < .1	1 ± 0.1	2 ± 0.1	1 ± 0.1	1 ± 0.0	1 ± 0.0	2 ± 0.2
Franklin/Grand Isle	3 ± 0.2	7 ± 0.3	9 ± 0.4	10 ± 0.4	6 ± 0.3	9 ± 0.3	16 ± 0.5	9 ± 0.3	11 ± 0.4	13 ± 0.4	15 ± 0.5	14 ± 0.4	16 ± 0.5
Lamoille	5 ± 0.3	1 ± < .1	1 ± < .1	5 ± 0.2	6 ± 0.3	10 ± 0.4	2 ± 0.2	3 ± 0.2	5 ± 0.2	9 ± 0.3	5 ± 0.2	8 ± 0.3	10 ± 0.3
Orange	4 ± 0.2	1 ± < .1	9 ± 0.3	6 ± 0.3	8 ± 0.3	9 ± 0.3	16 ± 0.6	8 ± 0.3	6 ± 0.2	12 ± 0.4	8 ± 0.3	11 ± 0.4	21 ± 0.6
Orleans	8 ± 0.3	6 ± 0.3	8 ± 0.3	9 ± 0.4	12 ± 0.4	13 ± 0.4	10 ± 0.4	6 ± 0.3	5 ± 0.2	16 ± 0.5	10 ± 0.4	12 ± 0.4	11 ± 0.5
Rutland	5 ± 0.3	7 ± 0.3	12 ± 0.4	11 ± 0.4	19 ± 0.6	20 ± 0.7	18 ± 0.6	27 ± 1	25 ± 1	49 ± 1	42 ± 1	48 ± 1	52 ± 1
Washington	13 ± 0.5	10 ± 0.4	10 ± 0.4	10 ± 0.3	20 ± 0.6	13 ± 0.4	23 ± 0.7	17 ± 0.5	17 ± 0.5	13 ± 0.4	17 ± 1	13 ± 0.4	28 ± 0.7
Windham	22 ± 0.6	28 ± 0.9	18 ± 0.6	28 ± 0.9	38 ± 0.9	38 ± 1	52 ± 1	43 ± 1	44 ± 1	50 ± 1	38 ± 1	39 ± 1	36 ± 1
Windsor	21 ± 0.7	15 ± 0.5	21 ± 0.7	32 ± 0.9	24 ± 0.7	28 ± 0.8	26 ± 0.8	32 ± 1	42 ± 1	37 ± 1	46 ± 1	38 ± 1	34 ± 1
Unknown	0	0	0	0	1 ± < .1	3 ± 0.2	2 ± 0.2	0	2 ± 0.1	2 ± 0.2	3 ± 0.2	1 ± 0.0	5 ± 0.2

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

The State of Vermont does not have unique client identifiers across service providers. For this reason, Probabalistic Population Estimation has been used to provide unduplicated counts of people served (with 95% confidence intervals). Estimates of the number of people served by Massachusetts and New York hospitals are not provided because the data is inadequate to provide probabilistic population estimates. Actual person counts are available for Brattleboro Retreat and the Vermont State Hospital.

Vermont children and adolescents include residents under the age of 18.

Table 1.B-9: Unduplicated Number of Adults Hospitalized for Behavioral Health Services Vermont Adults: 1990-2002

Unduplicated Number of People Served by Hospital Type

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	2,463 ± 18	2,455 ± 18	2,385 ± 17	2,456 ± 18	2,590 ± 19	2,539 ± 19	2,682 ± 20	2,669 ± 19	2,635 ± 20	2,627 ± 19	2,864 ± 21	2,920 ± 21	3,116 ± 23
VT General Hospitals	1,617 ± 12	1,546 ± 11	1,567 ± 11	1,554 ± 11	1,617 ± 12	1,538 ± 12	1,755 ± 13	1,748 ± 14	1,704 ± 12	1,799 ± 13	1,967 ± 15	1,910 ± 14	2,070 ± 16
Vermont State Hospital	411	428	348	322	342	330	286	311	265	261	226	263	229
Brattleboro Retreat	147	161	175	198	225	319	350	405	363	366	463	531	549
VA Hospital - WRJ	171 ± 2	174 ± 2	164 ± 2	187 ± 2	192 ± 3	200 ± 3	182 ± 3	146 ± 2	141 ± 2	147 ± 2	169 ± 2	157 ± 2	161 ± 2
New Hampshire Hospitals	350 ± 3	388 ± 3	341 ± 3	416 ± 4	467 ± 4	456 ± 4	396 ± 4	305 ± 3	324 ± 3	295 ± 3	299 ± 3	325 ± 3	330 ± 3
Out-of-State Hospitals	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Unduplicated Number of People Served by County of Residence

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total	2,463 ± 18	2,455 ± 18	2,385 ± 17	2,456 ± 18	2,590 ± 19	2,539 ± 19	2,682 ± 20	2,669 ± 19	2,635 ± 20	2,627 ± 19	2,864 ± 21	2,920 ± 21	3,116 ± 23
Addison	84 ± 1	82 ± 1	86 ± 1	110 ± 1	100 ± 1	105 ± 1	107 ± 1	121 ± 2	109 ± 1	123 ± 1	116 ± 1	129 ± 1	130 ± 1
Bennington	53 ± 0.8	55 ± 0.8	41 ± 0.7	44 ± 0.7	49 ± 0.8	67 ± 1	56 ± 0.9	146 ± 2	135 ± 2	131 ± 1	149 ± 2	153 ± 2	197 ± 2
Caledonia	121 ± 1	121 ± 1	117 ± 1	128 ± 1	121 ± 1	128 ± 1	111 ± 1	104 ± 1	97 ± 1	89 ± 1	100 ± 1	106 ± 1	107 ± 1
Chittenden	575 ± 5	608 ± 5	530 ± 4	518 ± 4	563 ± 5	502 ± 4	524 ± 4	557 ± 5	527 ± 4	504 ± 4	573 ± 5	565 ± 5	581 ± 5
Essex	21 ± 0.5	26 ± 0.5	25 ± 0.5	30 ± 0.6	24 ± 0.5	26 ± 0.6	33 ± 0.7	28 ± 1	30 ± 1	29 ± 1	21 ± 0.5	29 ± 1	22 ± 0.5
Franklin/Grand Isle	122 ± 1	127 ± 1	139 ± 2	130 ± 2	143 ± 2	113 ± 1	145 ± 2	139 ± 2	121 ± 2	118 ± 1	146 ± 2	166 ± 2	186 ± 2
Lamoille	81 ± 1	92 ± 1	75 ± 1	74 ± 1	66 ± 0.9	65 ± 0.9	67 ± 0.9	62 ± 1	76 ± 1	79 ± 1	107 ± 1	101 ± 1	94 ± 1
Orange	117 ± 1	127 ± 1	110 ± 1	111 ± 1	111 ± 1	121 ± 1	120 ± 1	112 ± 1	109 ± 1	109 ± 1	113 ± 1	125 ± 1	152 ± 2
Orleans	118 ± 1	110 ± 1	103 ± 1	123 ± 1	114 ± 1	105 ± 1	107 ± 1	114 ± 1	99 ± 1	127 ± 1	101 ± 1	104 ± 1	102 ± 1
Rutland	296 ± 3	284 ± 3	287 ± 3	258 ± 2	285 ± 3	296 ± 3	284 ± 3	298 ± 3	386 ± 3	393 ± 3	487 ± 4	463 ± 4	490 ± 4
Washington	346 ± 3	293 ± 3	324 ± 3	283 ± 3	298 ± 3	290 ± 3	321 ± 3	361 ± 4	312 ± 3	303 ± 3	312 ± 3	331 ± 3	349 ± 3
Windham	185 ± 2	183 ± 2	204 ± 2	222 ± 2	262 ± 2	280 ± 3	340 ± 3	368 ± 3	377 ± 4	332 ± 3	336 ± 3	344 ± 3	375 ± 3
Windsor	311 ± 3	299 ± 3	292 ± 3	345 ± 3	350 ± 3	360 ± 3	364 ± 3	313 ± 3	323 ± 3	328 ± 3	358 ± 3	366 ± 3	364 ± 3
Unknown	16 ± 0.4	9 ± 0.3	3 ± 0.2	12 ± 0.3	16 ± 0.4	18 ± 0.5	16 ± 0.4	13 ± 0.3	24 ± 0.5	67 ± 1	18 ± 0.4	33 ± 1	27 ± 0.6

Information is derived from the Hospital Discharge Data Set maintained by the Vermont Health Department, and database extracts provided by the Brattleboro Retreat and Vermont State Hospital.

The State of Vermont does not have unique client identifiers across service providers. For this reason, Probabalistic Population Estimation has been used to provide unduplicated counts of people served (with 95% confidence intervals). Estimates of the number of people served by Massachusetts and New York hospitals are not provided because the data is inadequate to provide probabilistic population estimates. Actual person counts are available for Brattleboro Retreat and the Vermont State Hospital.

Vermont adults include residents age 18 and older.

Table 1.B-10: MH/SA Emergency Services Clinical Interventions

TABLE 2E-1

Vermont Agency of Human Services
Department of Health, Division of Mental Health
EMERGENCY SERVICES

CLINICAL INTERVENTIONS
Community Service Providers
Fiscal Year 2004

	Total Clients Served	Clients Receiving Clinical Interventions		Number of Clinical Interventions	Services as Percent of all Emergency Non-Residential Services	Clinical Interventions Per Client
		Number	Percent			
OVERALL	6,690	118	2%	227	1%	2
Community Service Providers						
CSAC (Addison)	408	61	15%	104	7%	2
NCSS (Northwest)	1,767	22	1%	31	1%	1
HCHS (Chittenden)	1,304	-	-	-	-	-
LCMHS (Lamoille)	-	-	-	-	-	-
HCRSSVT (Southeast)	709	-	-	-	-	-
NKHS (Northeast)	558	-	-	-	-	-
CMC (Orange - MH)	331	2	1%	2	0%	1
RMHS (Rutland)	1,028	-	-	-	-	-
UCS (Bennington)	321	-	-	-	-	-
WCMHS (Washington)	264	33	12%	90	15%	3

See notes 2, 3 and 10.

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Appendix 2.A: Outpatient Mental Health and Substance Abuse Tables

The following tables were prepared by the Department of Health, Division of Mental Health. Tables 2.A-1 through 2.A-10 are from the *Fiscal Year 2004 Statistical Report* (published October 30, 2004).

The term "Community Service Providers" refers to Vermont's designated agencies for mental health services. As a result, these tables refer to the publicly funded mental health and substance abuse treatment system only. (There does not appear to be corresponding data for private providers.)

The term "clinical interventions" is defined in the *Fiscal Year 2004 Statistical Report* (published October 30, 2004) as including individual, family and group therapy; medication and medical support and consultation services; clinical assessments; and assessment bed (a new service category relating to children's services). The *Fiscal Year 2004 Statistical Report* contains additional tables describing individual services, including and in addition to the services listed under clinical interventions.

Table 2.A-1: MH/SA Length of Stay of Clients Served, Children's Services

TABLE 2A-4

Vermont Agency of Human Services
Department of Health, Division of Mental Health
CHILDREN'S SERVICES PROGRAMS

LENGTH OF STAY OF CLIENTS SERVED
Community Service Providers
Fiscal Year 2004

	Total Clients Served	No Data	Year of Admission: Current Fiscal Year 2004	Previous Fiscal 2003	3 - 5 Years Earlier	6 - 10 Years Earlier	11+ Years Earlier	Reported (N)
OVERALL	10,040	0%	43%	26%	25%	6%	0%	(10,021)
Community Service Providers								
CSAC (Addison)	861	0%	34%	26%	31%	9%	1%	(861)
NCSS (Northwest)	1,126	1%	49%	22%	24%	4%	0%	(1,116)
HCHS (Chittenden)	1,577	0%	42%	24%	26%	7%	0%	(1,577)
LCMHS (Lamoille)	546	0%	28%	20%	38%	11%	2%	(546)
HCRSSVT (Southeast)	1,704	0%	42%	29%	23%	6%	0%	(1,702)
NKHS (Northeast)	1,026	0%	47%	25%	23%	4%	0%	(1,022)
CMC (Orange - MH)	543	0%	38%	29%	26%	6%	1%	(543)
RMHS (Rutland)	933	0%	46%	27%	20%	5%	1%	(933)
UCS (Bennington)	553	0%	53%	25%	19%	3%	0%	(551)
WCMHS (Washington)	759	0%	33%	26%	31%	9%	1%	(758)
Northeastern Family Institute	412	0%	55%	28%	17%	1%	0%	(412)

see notes 2, 3 and 9.

Table 2.A-2: MH/SA Clinical Interventions, Children's Services

TABLE 2A-5

Vermont Agency of Human Services
Department of Health, Division of Mental Health
CHILDREN'S SERVICES PROGRAMS

CLINICAL INTERVENTIONS
Community Service Providers
Fiscal Year 2004

	Total Clients Served	Clients Receiving Clinical Interventions		Number of Clinical Interventions	Services as Percent of all Children's Non-Residential Services	Clinical Interventions Per Client
		Number	Percent			
OVERALL	10,217	6,480	63%	52,366	10%	8
Community Service Providers						
CSAC (Addison)	861	581	67%	4,566	10%	8
NCSS (Northwest)	1,144	932	81%	10,150	20%	11
HCHS (Chittenden)	1,597	961	60%	7,389	7%	8
LCMHS (Lamoille)	661	391	59%	3,425	17%	9
HCRSSVT (Southeast)	1,817	1,299	71%	8,718	11%	7
NKHS (Northeast)	1,068	552	52%	2,798	7%	5
CMC (Orange - MH)	579	389	67%	2,907	8%	7
RMHS (Rutland)	877	544	62%	4,131	12%	8
UCS (Bennington)	591	417	71%	3,645	19%	9
WCMHS (Washington)	784	317	40%	2,772	3%	9
Northeastern Family Institute	238	97	41%	1,865	9%	19

See notes 2, 3 and 10.

Table 2.A-3: MH/SA Length of Stay of Clients Served, Adult Programs

TABLE 2B-4

Vermont Agency of Human Services
Department of Health, Division of Mental Health
ADULT MENTAL HEALTH OUTPATIENT PROGRAMS

LENGTH OF STAY OF CLIENTS SERVED

Community Service Providers
Fiscal Year 2004

	Total Clients Served	No Data	Year of Admission: Current Fiscal Year 2004	Previous Fiscal 2003	3 - 5 Years Earlier	6 - 10 Years Earlier	11+ Years Earlier	Reported (N)
OVERALL	7,120	0%	54%	20%	16%	7%	3%	(7,097)
Community Service Providers								
CSAC (Addison)	632	0%	39%	25%	23%	8%	4%	(632)
NCSS (Northwest)	1,019	1%	57%	22%	16%	2%	3%	(1,009)
HCHS (Chittenden)	690	0%	51%	22%	15%	8%	4%	(690)
LCMHS (Lamoille)	208	0%	40%	16%	20%	13%	10%	(208)
HCRSSVT (Southeast)	962	0%	52%	20%	16%	10%	1%	(960)
NKHS (Northeast)	927	1%	64%	16%	16%	3%	1%	(921)
CMC (Orange - MH)	508	0%	56%	29%	11%	3%	1%	(508)
RMHS (Rutland)	694	0%	69%	12%	10%	6%	4%	(692)
UCS (Bennington)	883	0%	55%	19%	16%	7%	2%	(882)
WCMHS (Washington)	597	0%	46%	17%	23%	9%	5%	(595)

see notes 2, 3 and 9.

Table 2.A-4: MH/SA Clinical Interventions, Adult Outpatient

TABLE 2B-5

Vermont Agency of Human Services
Department of Health, Division of Mental Health
ADULT MENTAL HEALTH OUTPATIENT SERVICES

CLINICAL INTERVENTIONS
Community Service Providers
Fiscal Year 2004

	Total Clients Served	Clients Receiving Clinical Interventions		Number of Clinical Interventions	Services as Percent of all Adult Outpatient Non-Residential Svcs.	Clinical Interventions Per Client
		Number	Percent			
OVERALL	7,494	6,933	93%	50,764	72%	7
Community Service Providers						
CSAC (Addison)	656	617	94%	5,299	76%	9
NCSS (Northwest)	1,097	1,043	95%	7,878	72%	8
HCHS (Chittenden)	823	768	93%	5,797	81%	8
LCMHS (Lamoille)	282	265	94%	1,298	92%	5
HCRSSVT (Southeast)	1,313	1,248	95%	8,420	77%	7
NKHS (Northeast)	974	908	93%	5,221	73%	6
CMC (Orange - MH)	538	507	94%	4,745	77%	9
RMHS (Rutland)	331	210	63%	743	17%	4
UCS (Bennington)	838	759	91%	6,226	65%	8
WCMHS (Washington)	642	608	95%	5,137	82%	8

See notes 2, 3 and 10.

Table 2.A-5: MH/SA Length of Stay of Clients Served, CRT Programs

TABLE 2C-4

Vermont Agency of Human Services
Department of Health, Division of Mental Health
COMMUNITY REHABILITATION AND TREATMENT PROGRAMS

LENGTH OF STAY OF CLIENTS SERVED

Community Service Providers
Fiscal Year 2004

	Total Clients Served	No Data	Year of Admission: Current Fiscal Year 2004	Previous Fiscal 2003	3 - 5 Years Earlier	6 - 10 Years Earlier	11+ Years Earlier	Reported (N)
OVERALL	3,205	0%	8%	9%	22%	27%	34%	(3,205)
Community Service Providers								
CSAC (Addison)	173	0%	6%	9%	21%	28%	36%	(173)
NCSS (Northwest)	250	0%	10%	8%	28%	18%	36%	(250)
HCHS (Chittenden)	671	0%	10%	13%	19%	21%	37%	(671)
LCMHS (Lamoille)	138	0%	9%	1%	19%	18%	52%	(138)
HCRSSVT (Southeast)	429	0%	10%	11%	25%	53%	1%	(429)
NKHS (Northeast)	411	0%	5%	7%	27%	22%	39%	(411)
CMC (Orange - MH)	169	0%	14%	15%	30%	21%	20%	(169)
RMHS (Rutland)	310	0%	4%	7%	20%	29%	40%	(310)
UCS (Bennington)	192	0%	9%	8%	21%	26%	36%	(192)
WCMHS (Washington)	462	0%	6%	5%	18%	22%	50%	(462)

See notes 2, 3 and 9.

Table 2.A-6: MH/SA Clinical Interventions, CRT Programs

TABLE 2C-5

Vermont Agency of Human Services
Department of Health, Division of Mental Health
COMMUNITY REHABILITATION AND TREATMENT PROGRAMS

CLINICAL INTERVENTIONS
Community Service Providers
Fiscal Year 2004

	Total Clients Served	Clients Receiving Clinical Interventions		Number of Clinical Interventions	Services as Percent of all CRT Non-Residential Services	Clinical Interventions Per Client
		Number	Percent			
OVERALL	3,617	3,143	87%	58,866	14%	19
Community Service Providers						
CSAC (Addison)	212	183	86%	3,029	10%	17
NCSS (Northwest)	308	260	84%	5,767	14%	22
HCHS (Chittenden)	751	637	85%	5,439	8%	9
LCMHS (Lamoille)	141	101	72%	1,411	4%	14
HCRSSVT (Southeast)	482	429	89%	7,646	13%	18
NKHS (Northeast)	504	446	88%	7,993	25%	18
CMC (Orange - MH)	192	170	89%	5,837	21%	34
RMHS (Rutland)	352	309	88%	3,809	9%	12
UCS (Bennington)	199	181	91%	6,882	26%	38
WCMHS (Washington)	476	427	90%	11,053	18%	26

See notes 2, 3 and 10.

Table 2.A-7: Substance Abuse Length of Stay of Clients Served

TABLE 2D-4

Vermont Agency of Human Services
Department of Health, Division of Alcohol & Drug Abuse
SUBSTANCE ABUSE PROGRAMS

LENGTH OF STAY OF CLIENTS SERVED

Community Service Providers
Fiscal Year 2004

	Total Clients Served	No Data	Year of Admission: Current Fiscal Year 2004	Previous Fiscal 2003	3 - 5 Years Earlier	6 - 10 Years Earlier	11+ Years Earlier	Reported (N)
OVERALL	5,101	0%	68%	22%	9%	1%	1%	(5,100)
Community Service Providers								
CSAC (Addison)	176	0%	36%	32%	27%	4%	1%	(176)
NCSS (Northwest)	13	0%	8%	15%	38%	31%	8%	(13)
HCHS (Chittenden)	1,723	0%	70%	24%	6%	0%	0%	(1,723)
LCMHS (Lamoille)	3	0%	0%	0%	33%	67%	0%	(3)
HCRSSVT (Southeast)	521	0%	72%	21%	6%	1%	0%	(521)
NKHS (Northeast)	633	0%	61%	21%	16%	2%	0%	(633)
CMC (Orange - MH)	891	0%	75%	19%	6%	0%	0%	(891)
RMHS (Rutland)	685	0%	68%	18%	9%	4%	2%	(684)
UCS (Bennington)	456	0%	66%	24%	7%	2%	0%	(456)

see notes 2, 3 and 9.

Table 2.A-8: Substance Abuse Clinical Interventions

TABLE 2D-5

Vermont Agency of Human Services
Department of Health, Division of Alcohol & Drug Abuse
SUBSTANCE ABUSE PROGRAMS

CLINICAL INTERVENTIONS
Community Service Providers
Fiscal Year 2004

	Total Clients Served	Clients Receiving Clinical Interventions		Number of Clinical Interventions	Services as Percent of all Substance Abuse Non-Residential Svcs	Clinical Interventions Per Client
		Number	Percent			
OVERALL	6,077	5,553	91%	37,642	66%	7
Community Service Providers						
CSAC (Addison)	306	285	93%	2,251	67%	8
NCSS (Northwest)	4	2	50%	3	60%	1
HCHS (Chittenden)	1,854	1,507	81%	7,724	71%	5
HCRSSVT (Southeast)	816	804	99%	6,381	86%	8
NKHS (Northeast)	826	795	96%	6,007	62%	8
CMC (Orange - MH)	1,049	1,009	96%	7,635	73%	8
RMHS (Rutland)	775	711	92%	3,460	34%	5
UCS (Bennington)	447	440	98%	4,181	93%	10

See notes 2, 3 and 10.

Table 2.A-9: Developmental Services Programs Length of Stay of Clients Served

TABLE 2F-4

Vermont Agency of Human Services
Department of Aging & Independent Living, Division of Developmental Services
DEVELOPMENTAL SERVICES PROGRAMS

LENGTH OF STAY OF CLIENTS SERVED

Community Service Providers
Fiscal Year 2004

	Total Clients Served	No Data	Year of Admission: Current Fiscal Year 2004	Previous Fiscal 2003	3 - 5 Years Earlier	6 - 10 Years Earlier	11+ Years Earlier	Reported (N)
OVERALL	2,506	5%	7%	7%	21%	26%	38%	(2,373)
Community Service Providers								
CSAC (Addison)	137	0%	9%	4%	14%	28%	45%	(137)
NCSS (Northwest)	169	0%	4%	2%	20%	28%	47%	(169)
HCHS (Chittenden)	338	0%	3%	7%	14%	26%	50%	(338)
LCMHS (Lamoille)	51	0%	4%	6%	24%	29%	37%	(51)
HCRSSVT (Southeast)	250	0%	12%	14%	28%	46%	0%	(250)
NKHS (Northeast)	305	0%	10%	5%	22%	26%	37%	(305)
RMHS (Rutland)	367	0%	10%	7%	18%	20%	44%	(367)
UCS (Bennington)	149	0%	7%	6%	22%	23%	42%	(149)
WCMHS (Washington)	262	0%	6%	4%	16%	20%	54%	(262)
UVS (Orange - DS)	179	31%	3%	5%	9%	19%	33%	(124)
Champlain Vocational Services	42	76%	0%	10%	2%	10%	2%	(10)
Lincoln Street, Inc.	56	13%	9%	5%	9%	18%	46%	(49)
Specialized Community Care	35	0%	0%	9%	83%	6%	3%	(35)
Sterling Area Services	61	8%	16%	3%	34%	11%	26%	(56)
Vermont Supported Living	50	52%	2%	8%	6%	30%	2%	(24)
Families First	55	15%	4%	11%	71%	0%	0%	(47)

see notes 2, 3 and 5

Table 2.A-10: Developmental Services Programs Clinical Interventions

TABLE 2F-5

Vermont Agency of Human Services
Department of Aging & Independent Living, Division of Developmental Services
DEVELOPMENTAL SERVICES PROGRAMS

CLINICAL INTERVENTIONS
Community Service Providers
Fiscal Year 2004

	Total Clients Served	Clients Receiving Clinical Interventions		Number of Clinical Interventions	Services as Percent of all DS Non-Residential Services	Clinical Interventions Per Client
		Number	Percent			
OVERALL	2,645	1,039	39%	7,357	2%	7
Community Service Providers						
CSAC (Addison)	142	57	40%	392	2%	7
NCSS (Northwest)	220	116	53%	437	1%	4
HCHS (Chittenden)	344	113	33%	455	1%	4
LCMHS (Lamoille)	54	8	15%	55	1%	7
HCRSSVT (Southeast)	268	67	25%	1,212	3%	18
NKHS (Northeast)	331	134	40%	1,212	2%	9
RMHS (Rutland)	384	161	42%	475	1%	3
UCS (Bennington)	157	96	61%	990	4%	10
WCMHS (Washington)	275	137	50%	1,500	3%	11
UVS (Orange -DS)	179	103	58%	517	2%	5
Champlain Vocational Services	43	-	-	-	-	-
Lincoln Street, Inc.	56	1	2%	1	0%	1
Specialized Community Care	35	-	-	-	-	-
Sterling Area Services	60	46	77%	111	2%	2
Vermont Supported Living	50	-	-	-	-	-
Families First	47	-	-	-	-	-

See notes 2, 3 and 10.

Map 2.A-1: Mental Health Professional Shortage Areas

BACKGROUND INFORMATION

Source:
Vermont Department of Health, Division of Health Surveillance and Division of Health Improvement.

Counties with mental health professional shortage designations:
Caledonia, Essex, Orleans, Franklin and Grand Isle.

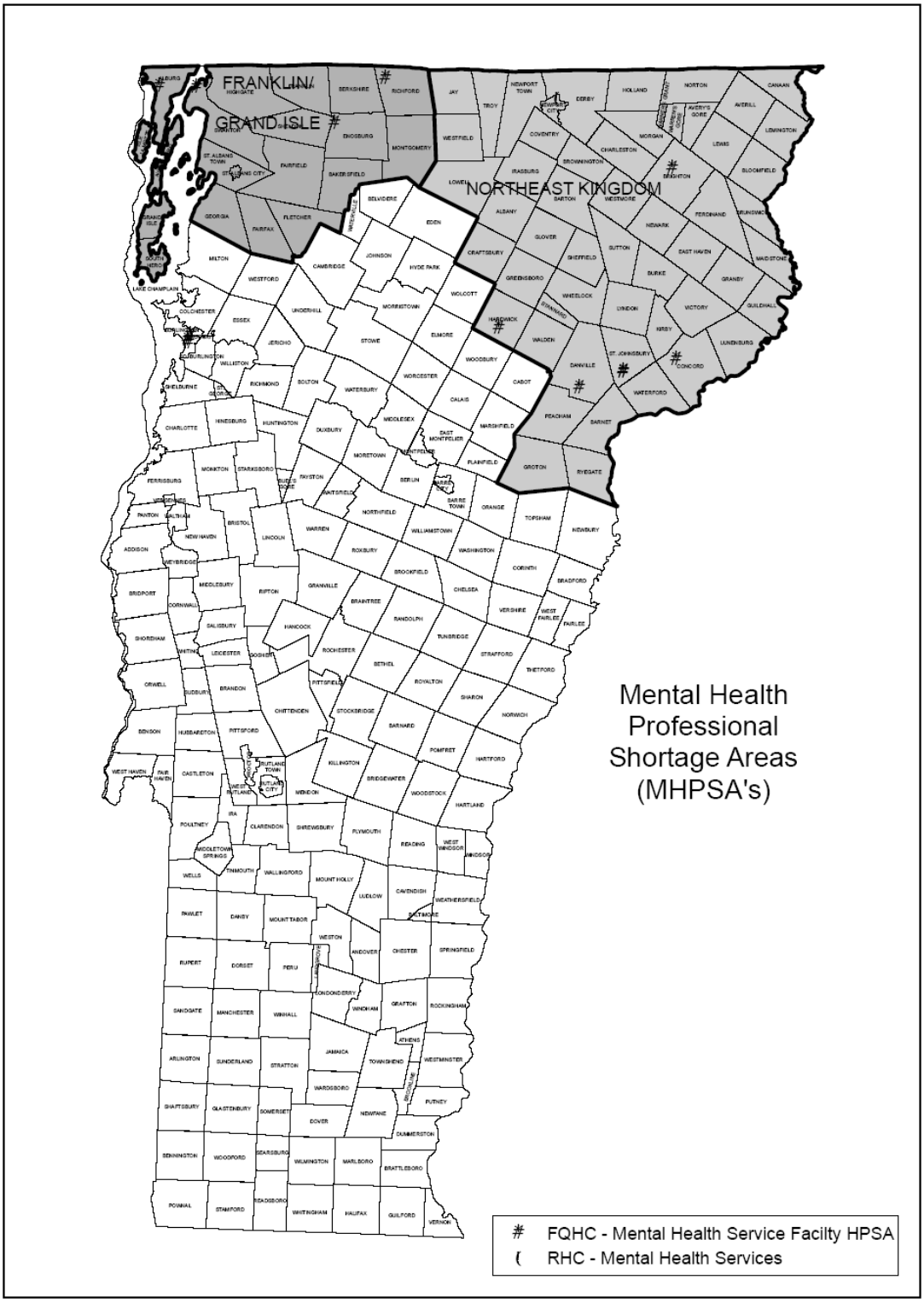
Date of information:
Designation was approved in May 2001 and is currently being updated per HRSA Shortage Designation Branch regulations.

Definition of mental health professional:
Core Mental Health Providers used in developing these designations include Psychiatrists, Clinical Psychologists, Clinical Social Workers, Psychiatric Nurse Specialists, and Marriage and Family Therapists.

Definition of a mental health professional shortage area:
A geographic mental health professional shortage area is "A rational service area- mental health catchment area, portion of a mental health catchment area, county, or sub-county meeting the following criteria regarding population to provider ratios:
1) 30,000:1 psychiatrists, or
2) 9,000:1 core mental health providers including psychiatrists, or
3) 6,000:1 core mental health providers and less than or equal to 20,000:1 psychiatrists, or
4) Geographic area with unusually high needs -- poverty level, youth ratio, elderly ratio, or alcohol/substance abuse prevalence data in worst quartile of nation, state, or region.

(SEE NEXT PAGE FOR MAP)

Mental Health Professional Shortage Areas



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Appendix 5.A: Overview of Workforce Benchmarks and Shortfall Identification

Statewide and regional shortfalls for specific practitioner types in Vermont are identified in each section. Benchmark data were obtained from the State Health Workforce Profiles, maintained by the National Center for Health Workforce Analysis at the Health Resources and Services Administration's (HRSA) Bureau of Health Professions. HRSA identifies numbers of practitioners per unit of population (per 1000 or 100,000) for individual states and the U.S. These data are compared on a statewide basis to the number of practitioners in Vermont per 1000 population. However, in order to compare these benchmarks to the numbers of practitioners in individual Vermont Hospital Service Areas and/or counties, it was necessary to convert the numbers of practitioners to numbers of FTEs for the comparison states and the U.S. The calculation was completed using the following steps:

- For each practitioner type in Vermont where FTEs were available, total FTEs across the State were divided by total individuals in the State to create a ratio of FTEs to individuals for each practitioner type.
- This statewide ratio of FTEs to individuals for each practitioner type was then applied to the numbers of practitioners for each comparison state and the U.S. in order to convert these numbers to an estimate of FTEs per 1000 population.
- This process was followed for practitioner types where FTE data was available for Vermont (physicians, APRNs, physician's assistants, dentists and psychiatrists).

For practitioner types where FTE data were not available for Vermont, only the statewide number of practitioners per 1000 was compared to other states. In these cases, the number of practice locations by HSA was collected but these numbers were not compared to other states or to U.S. averages.

Note: The State Health Workforce Profiles group states into regions. "Region 1" is comprised of Connecticut, New Hampshire, Maine, Massachusetts, Rhode Island and Vermont. These states are included in the benchmark analysis, as well as New York.

Benchmark Data Sources

HRSA uses several data sources for individual practitioner types to compile the data that comprise the State Health Workforce Profiles. For most practitioner types, the following sources are used:

- U.S. Health Workforce Personnel Factbook, published by the Bureau of Health Professions. This report presents workforce data on physicians, physician's assistants, podiatrists, dentists, nursing personnel, optometrists, pharmacists, veterinarians, chiropractors, public health personnel, and allied health

professionals. The tables contained in this report are compiled from many sources including professional associations, educational associations, and other federal agencies. Since the data are compiled from secondary sources, whose data collection methods vary in the frequency, amount and type of information collected, some occupations are covered in greater detail than others.

- Area Resource File published by the Bureau of Health Professions. This data set includes county level estimates for the entire United States on the number of physicians, (including specialties and limited demographic information), dentists, dental hygienists, optometrists, pharmacists, podiatrists, nurses, physician's assistants, and other health professions. A wide array of data sources are used to compile this information.

In addition, the following sources are also used for types of individual practitioners:

Physicians:

- "Medical Group Practices in the U.S." published by the American Medical Association. This report provides survey and census data for all medical group practices nationwide. It describes the current population of medical group practices and trends.
- "Physician Characteristics and Distribution in the U.S." published by the American Medical Association. This report provides a comprehensive reference on physician supply. Data in this report include doctors of medicine (MDs).
- AOA Physician Masterfile from the American Osteopathic Association. This serves as a comprehensive source of data on doctors of osteopathic medicine (DO) nationwide. This source is considered the best national source of data on DOs, but some self-reported data are missing.

Nurse Anesthetists:

- Membership data from the American Association of Nurse Anesthetists. These data are from a survey of all AANA members in the United States. The membership survey includes all AANA members and all Certified Registered Nurse Anesthetists.

Physician's assistants:

- "Physician Assistant: Statistics and Trends (1991-1998)" published by the American Academy of Physician's assistants. This contains national and state level data on physician's assistants (PAs).

Dentists:

- "Dental Practice Information" published by the American Dental Association. This survey is a series of annual reports on private dentistry in the United States. Data are based on a random sample of active private practitioners.

- "Dental Workforce Information" published by American Dental Association. These data are taken from the ADA Survey Center's self-reported census of all known dentists in the United States. Information regarding members and non-members are included as well as professionally active dentists and dentists who are retired or no longer in private practice.

Psychiatrists:

- "APA Directory Survey" published by the American Psychological Association. This is an ongoing survey collecting information on all APA members. Data are representative only of APA members, not all doctoral level psychologists. Masters' level psychologists are not well represented.

Physical Therapists:

- "APTA Physical Therapist Employment Survey" published by the American Physical Therapy Association. This survey is a stratified, random sample of 5,000 active members and 7,000 physical therapist nonmembers.

Table 5.A-1: Workforce Summary

Table 1.0 Workforce Summary

	Number	Number Per 1,000	Full Time Equivalents	FTEs Per 1,000	Source
Total Physicians (MDs and Osteopaths)	1,565	2.52	1255.67	2.03	*VDH Physician Re-licensure Survey 2002*
Primary Care Physicians	756	1.22	595.31	0.96	*VDH Physician Re-licensure Survey 2002*
Specialty Care Physicians	809	1.31	660	1.07	*VDH Physician Re-licensure Survey 2002*
Advanced Practice Registered Nurses	354	0.57	248.17	0.40	*VDH Advanced Practice Registered Nurse Re-licensure Survey*
Psychiatric Nurse Practitioners	39	0.06	25.94	0.04	*VDH Advanced Practice Registered Nurse Re-licensure Survey*
Physician Assistants	130	0.21	107.64	0.17	*VDH Physician Assistant Re-licensure Survey 2002*
Registered Nurses	7,748	9.56	N/A	N/A	*Vermont Office of Professional Regulation*
Certified Nurse Midwives	42	0.07	29.53	0.05	*VDH Advanced Practice Registered Nurse Re-licensure Survey*
Certified Nurse Anesthesists	34	0.05	26.84	0.04	*VDH Advanced Practice Registered Nurse Re-licensure Survey*
Licensed Practical Nurses	2,033	3.28	N/A	N/A	*Vermont Office of Professional Regulation*
Licensed Nursing Assistants	3,875	6.26	N/A	N/A	*Vermont Office of Professional Regulation*
Home Health Aides	1,440	2.33	N/A	N/A	*National Clearinghouse on the Direct Care Workforce - 2003*
Personal Care Attendants	1,230	1.99	N/A	N/A	*National Clearinghouse on the Direct Care Workforce - 2003*
Homemakers			N/A	N/A	
Psychiatrists	150	0.24	111.45	0.18	*VDH Physician Re-licensure Survey 2002*
Psychologists- Masters-prepared	178	0.29	N/A	N/A	*Vermont Office of Professional Regulation*
Psychologists- Doctoral-prepared	284	0.46	N/A	N/A	*Vermont Office of Professional Regulation*
Psychotherapists	14	0.02	N/A	N/A	*Vermont Office of Professional Regulation*
Emergency Care Attendants	N/A	N/A	N/A	N/A	
Emergency Medical Technicians- Basic	N/A	N/A	N/A	N/A	
Emergency Medical Technicians- Intermediate, Paramedic	N/A	N/A	N/A	N/A	
Licensed Clinical Social Workers (Mental Health & Substance Abuse only)	255	0.41	N/A	N/A	*Vermont Office of Professional Regulation*
Licensed Mental Health Counselors	460	0.74	N/A	N/A	*Vermont Office of Professional Regulation*
Licensed Alcohol and Drug Counselors (Substance Abuse Counselors)	401	0.65	N/A	N/A	*Vermont Office of Professional Regulation*
Dentists	339	0.55	261.71	0.42	*VDH Dentist Re-licensure Survey 2001*
Chiropracters	186	0.30	N/A	N/A	*Vermont Office of Professional Regulation*
Podiatrists	24	0.04	N/A	N/A	*Vermont Department of Health (Board of Medical Practice)*
Physical Therapists	756	1.22	N/A	N/A	*Vermont Office of Professional Regulation*
Occupational Therapists	203	0.33	N/A	N/A	*Vermont Office of Professional Regulation*
Licensed Pharmacists	550	0.89	N/A	N/A	*Vermont Office of Professional Regulation*
Licensed Optometrists	95	0.15	N/A	N/A	*Vermont Office of Professional Regulation*

Appendix 5.B: Non-Vermont-based Initiatives to Address Workforce Shortages

1. Federal Approaches

The federal government addresses healthcare workforce issues primarily through the Health Resources and Services Administration (HRSA) within the U.S. Department of Health and Human Services (DHHS). Within HRSA, the Bureau of Health Professions' mission is the development, distribution and retention of the healthcare workforce to facilitate delivery of quality healthcare and eliminate workforce shortages. The Bureau's approach to addressing workforce needs is primarily through the following activities:

- Data collection and analysis, primarily through the National Center for Health Workforce Analysis;
- The National Health Service Corps (NHSC), which recruits health professionals to deliver healthcare in underserved communities;
- Designation of Health Professional Shortage Areas (HPSA) and Medically Underserved Areas (MUA) across the U.S.;
- Support for training programs, including grant funding for physicians and other practitioners who provide primary care and deliver services in underserved communities;
- Scholarships, loans and loan repayment programs for health professionals;
- Area Health Education Centers (AHECs), which train healthcare providers to respond to the needs of local communities; and
- Public health grant programs, which provide funding for training in public health professions that are experiencing critical shortages.

The Bureau also administers the "Kids Into Health Careers" program, which provides educational presentations and materials to elementary through high school age children on jobs in the healthcare industry.[333]

There are also six regional Centers for Healthcare Workforce Studies supported by HRSA through cooperative agreements. These regional centers examine and analyze issues involving cross-disciplinary assessments of the health workforce at the state and regional levels. Specific projects vary by regional center. The six regional centers are:

- Northeast: State University of New York at Albany
- Southeast: University of North Carolina at Chapel Hill
- North Central: University of Illinois at Chicago
- South Central: University of Texas Health Science Center at San Antonio
- Northwest: University of Washington
- Southwest: University of California at San Francisco

[333] Health Resources and Services Administration, Bureau of Health Professions website: http://bhpr.hrsa.gov.

2. State Approaches

Many states have become involved in addressing healthcare workforce shortages in response to concerns about the impact of these shortages on access and quality. Most state strategies are designed to increase the supply of new workers through a variety of means such as scholarships, loan repayment, and marketing of health careers to school-age children. Most state strategies are generally not focused on addressing problems of retention or improving productivity. In addition, most states have not sought to change licensure or scope of practice regulations.[334]

In 2002, the Center for Health Workforce Studies at the State University of New York (SUNY) at Albany's School of Public Health conducted a study of states' responses to health workforce shortages. The study was supported by the National Center for Health Workforce Analysis within HRSA's Bureau of Health Professions. The study found that many state initiatives in response to workforce shortages fall into one or more of the following categories:

- Convening of task forces, panels or commissions to study workforce needs;
- Educational assistance such as scholarships and loan repayment programs;
- Career ladder development programs, such as workforce retraining and continuing education;
- Focused marketing of health careers, particularly in high schools;
- Improved data collection and analysis efforts in order to track trends, needs and shortages.

In addition to these initiatives, some states have developed or are exploring strategies related to job redesign to promote improved working conditions, increased retention and improved productivity. Several states have also passed legislation prohibiting or limiting mandatory overtime and one state has passed legislation mandating minimum nurse staff ratios in hospitals. [335] These categories of general approaches are described below and examples of each approach are provided.

3. General Approaches

The following are approaches that have been taken by numerous state and federal agencies throughout the U.S.

Task Force, Commission or Panel: A 2002 study of health worker shortages at the State University of New York (SUNY) at Albany found that 44 states had established, or were in the process of establishing one or more groups to study work force issues and make recommendations. Most were sponsored by state agencies, although some were sponsored by private organizations with state agency participation. More than half were

[334] "State Responses to Health Worker Shortages: Results of a 2002 Survey of States." Center for Health Workforce Studies, School of Public Health, SUNY-Albany. November 2002
[335] Ibid.

focused solely on nursing shortages.[336] Further research showed that many of these task forces were temporary, while others evolved into permanent commissions that review these issues on an annual basis.

- In 2000, the Georgia Department of Community Health convened the Health Care Workforce Technical Advisory Committee to study health care worker shortages in the state. On the recommendation of the Technical Advisory Committee, Georgia established a standing policy committee to address non-physician health workforce shortages.[337]

- Maine has authorized the creation of a Health Care Workforce Leadership Council to oversee implementation of workforce solutions. The Leadership Council will coordinate with other groups exploring this issue to minimize duplication of effort and maximize successful outcomes in areas of shared interest and will explore whether this group should be independent or can merge with an existing organization to pursue these objectives.[338]

Scholarships/Loan Repayment Programs: The most common approach taken to address healthcare workforce shortages is to offer scholarships and/or loan repayment. As of 2002, 38 states offered some type of scholarship or loan repayment program. Twenty-four states have programs targeted specifically to nurses, while 28 have programs targeted to other health professionals such as dentists and allied health professionals.[339] These programs provide an incentive for health care workers to work in rural and/or medically underserved areas, or to work in primary care or specific underrepresented professions in exchange for funding for their education.

- The Arizona Loan Repayment Program, administered by the Arizona Department of Health, offers loan repayment to primary health care providers, including physicians, dentists, nurse practitioners, certified nurse midwives, and physician's assistants, in return for a two year commitment to practice in a Health Professional Shortage Area or Medically Underserved Area in Arizona.[340]

- The Delaware State Loan Repayment Program provides awards to physicians and dentists to work in underserved communities throughout the state [341] and the Delaware Institute of Medical Education and Research (DIMER) Loan Program offers loan repayment to dental or medical students in training at Jefferson Medical College in exchange for practice in primary care in Delaware upon completion of training.[342]

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[336] Ibid.
[337] Ibid.
[338] "Maine's Health Care Skilled Worker Shortage: A Call to Action". October 2001. (http://www.mtcs.net/NewFiles/healthcare.html).
[339] 'State Responses to Health Worker Shortages: Results of 2002 Survey of States." Center for Health Workforce Studies, School of Public Health, University at Albany, SUNY. November 2002.
[340] Ibid.
[341] Delaware State Loan Repayment Program for Physicians and Dentists Fact Sheet. May 2003.
[342] The Delaware Institute of Medical Education and Research (http://www.state.de.us/dhcc/dimer.htm).

- The Michigan State Loan Repayment Program (SLRP) offers loan repayment to physicians, dentists, nurse practitioners, nurse midwives, and physician's assistants in return for working in underserved communities.[343]

- In New Mexico, the Health Professional Loan Repayment program provides repayment of outstanding student loans for practicing health professionals in return for a two-year service commitment to practice full-time in a designated medical shortage area. Eligible health professions include: physicians and physician's assistants; advanced practice nurses; osteopathic physicians and osteopathic physician's assistants; dentists; optometrists; and podiatrists.[344]

Career Ladder Development: According to SUNY-Albany's survey, 14 states have pursued career ladder development strategies. Most of these relate to nursing careers, and many are targeted to certified nursing assistants wishing to pursue associate and baccalaureate nursing degrees. Some strategies also encompass allied health professions. These strategies generally involve collaborative efforts among state agencies, employers and educational institutions to provide incentives and funding for enhanced training and certification.[345]

- The Arkansas Department of Health is developing a horizontal career pathway that allows health care professionals to increase their skills within their current positions and ultimately increase their rates of pay.[346]

- In Nebraska, the Concerned Partners in the Region for Health Related Training (CPR-HRT) is collaborative effort with the State Department of Labor to create employer-led partnerships in health related occupations and support career ladders in nursing and allied health occupations, with a strong focus on recruitment and training.[347]

- Maine is implementing a pilot career ladder program that synchronizes employers and educators. Employers provide entry-level jobs with scheduling flexibility to allow participants to attend higher level training. On completion of each step, employers move employees into jobs at the newly acquired skill level. The pilot program is being developed by an employer and a college system and will be expanded as appropriate.[348]

Marketing Health Careers: Another common approach among states has been to increase marketing efforts to improve awareness about health careers, particularly among high

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[343] Medical Opportunities in Michigan (http://www.mimom.org/page.cfm/42).
[344] New Mexico Commission on Higher Education (http://www.nmche.org/collegefinance/healthprof.asp).
[345] "State Responses to Health Worker Shortages: Results of 2002 Survey of States." Center for Health Workforce Studies, School of Public Health, University at Albany, SUNY. November 2002.
[346] Ibid.
[347] Ibid.
[348] "Maine's Health Care Skilled Worker Shortage: A Call to Action." October 2001.

school students. In many states, these marketing initiatives are administered by Area Health Education Centers (AHEC).[349]

- In Alaska, the "K-12/New Worker Team" is establishing links and partnerships with school districts and post-secondary institutions to provide teachers and students with information on healthcare career opportunities and education and training available in the state and nationally. The effort is sponsored by Alaska State Hospital and Nursing Home Association.[350]

- The Area Health Education Center in Arkansas offers a 2-week summer program for high school students to learn about health careers and Arkansas State University offers programs targeted to high school students who live in medically underserved areas to pursue advanced education in health professions.[351]

- Florida recently established the Sunshine Workforce Solutions Grant Program supporting exploratory programs in nursing at middle schools or at comprehensive career and technical education programs. The Florida AHEC Network targets some of its resources to programs in order to generate interest in health careers, with a particular emphasis on minority and disadvantaged youth.[352]

- The Area Health Education Center (AHEC) Network, which includes Florida's five university-based medical schools and ten AHEC centers, focuses on the recruitment of community-based students into health care professions, provision of medical training programs, such as residencies and internships in underserved communities, and retention of medical professionals in these communities through educational and resource support services.[353]

- The Minnesota Hospital and Healthcare Partnership offers a Summer Healthcare Internship program for high school students.

- Several organizations in Connecticut operate successful career fairs (Connecticut Pre-Engineering Program) and health career summer camps (Connecticut AHEC) and a number of hospitals in Connecticut offer "job shadowing" opportunities to local high school students. In addition, educators from the health professions are informing high school guidance counselors about what students need to succeed in health professions training programs. [354]

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[349] "State Responses to Health Worker Shortages: Results of 2002 Survey of States." Center for Health Workforce Studies, School of Public Health, University at Albany, SUNY. November 2002.
[350] Alaska State Hospital and Nursing Home Association.
[351] "State Responses," op.cit.
[352] Florida Department of Education (www.fldoe.org).
[353] Florida AHEC Network (www.flahec.org).
[354] "Toward Solving Connecticut's Health Care Workforce Shortages." Connecticut Department of Health , Office of Public Health Workforce Development. May 2002.

- The Hospital Association of Rhode Island is working with secondary and college students to increase their participation in internships and educational experiences at cooperating health care facilities. Another program is the "Virtual Job Shadow," a joint effort among medical and surgical teams from member hospitals who perform live, interactive surgical procedures for students and broadcast them into the classroom.[355]

Labor Department/Workforce Investment Board: Some state labor departments are involved in health workforce training and education through tapping specific funding streams such as Workforce Investment Act (WIA) funds, High Growth Industries Initiative or H-1B visa grants. The federal Workforce Investment Act of 1998 represented a national consensus to consolidate and coordinate all of the workforce preparation and development programs into a unified workforce investment system in each state. Some states created new Workforce Investment Boards (WIBs) in response to the WIA. Some state WIBs have taken responsibility for coordinating and implementing new recruiting and training initiatives for specific healthcare professionals. Some states have also used Temporary Assistance for Needy Families (TANF) funding for healthcare workforce training and education. [356].

- California established the Nursing Workforce Initiative, which is a three-year, $60 million WIA-funded effort to address the nursing shortage in California.[357]

- In Florida, WIA and TANF funds are available for training and upgrading in health occupations.[358]

- Lincoln and Greater Nebraska WIBs are supporting health care related H-1B Visa grants.[359]

- In Texas, the Workforce Training and Education Coordinating Board (Workforce Investment Board) established partnerships between industry, education and labor with grant funding.[360]

- The Wisconsin Department of Workforce Development and the Wisconsin Technical College System Board is overseeing a $2.6 million grant from the U.S. Department of Labor to address health worker shortages. The grant calls for funding the collaborative activities of partnerships of technical colleges and local workforce development boards.[361]

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[355] AHA Daily News, a publication of the American Hospital's Association.
[356] 'State Responses to Health Worker Shortages: Results of 2002 Survey of States." Center for Health Workforce Studies, School of Public Health, University at Albany, SUNY. November 2002.
[357] http://www.nurse.ca.gov/NWI-conpaper.html.
[358] Workforce Florida, Inc. Partners Report, June 2001.
[359] Nebraska Workforce Investment Board (http://www.dol.state.ne.us).
[360] Texas Workforce Commission (http://www.twc.state.tx.us).
[361] Wisconsin Department of Workforce Development (http://www.dwd.state.wi.us/healthcare).

Job Design: Five states have developed or are exploring strategies related to job design in order to improve working conditions, productivity and worker retention. These initiatives include support for demonstrations and evaluations.[362]

- In California, The Nursing Workforce Initiative provides $1 million to fund projects that design and test reform to improve nurse retention.

- The Iowa Hospital Association is seeking to reduce regulatory burdens by eliminating duplication in licensure/certification processing and standardizing documentation/claims processing.

- New Jersey has prohibited mandatory overtime for certain health care workers.

Workforce Data Collection**:** Some states have focused attention on gathering and analyzing workforce data.

- New Jersey's Center for Occupational Employment Information collects supply and demand data for selected health care occupations.[363]

- The Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill has collected healthcare workforce data from 1979 to the present. The Center provides annual workforce data books, longitudinal analyses, biannual fact sheets on medical and residency training, and special topic fact sheets.[364]

- The University of Iowa College of Medicine maintains the Iowa Health Professions Inventory (IHPI), which contains demographic, educational and professional information for every active Iowa health practitioner in selected professions, include physicians, dentists, pharmacists, physician's assistants and nurse practitioners.[365]

Other Initiatives: Some state agencies and other organizations have taken other approaches to addressing workforce shortages as well. These are described below.

- The Health Professions Initiative, a collaboration between the University System of Georgia and Georgia's health care providers, is designed to increase the number of licensed health professionals in the state by more than 500 over the next two years.[366]

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[362] Ibid.
[363] New Jersey Department of Labor and Workforce Development (http://www.nj.gov/labor/lra).
[364] Cecil G. Sheps Center for Health Services Research (http://www.shepscenter.unc.edu).
[365] University of Iowa, Office of Statewide Clinical Education Programs (www.medicine.uiowa.edu/oscep/infosysresearch).
[366] "State Responses to Health Worker Shortages: Results of 2002 Survey of States." Center for Health Workforce Studies, School of Public Health, University at Albany, SUNY. November 2002.

- New Mexico Health Resources, Inc. (NMHR) is a private, non-profit agency organized to support efforts to recruit and retain health personnel in New Mexico. Programs are targeted to physicians, nurses, nurse practitioners, physician's assistants, physical therapists and occupational therapists.[367]

- Maine has initiated legislation that directs the Maine Department of Human Services to include the costs incurred by providers, associated with programs and policies that can increase the pool of qualified health care workers in the definition of fixed cost or in other ways assures that providers' costs are reimbursed fully.[368]

4. Approaches in New England States[369]

Approaches for addressing workforce shortages have been implemented in other New England states. These approaches are discussed in this section.

Connecticut: In Connecticut, the Department of Public Health established the Office of Public Health Workforce Development. This office is responsible for:

- Enhancing public health workforce competencies through the development of a certification program;
- Developing marketing materials for recruitment and retention;
- Advising the Commissioner on health workforce issues;
- Establishing a "Health Track" within local schools in cooperation with the Department of Education; and
- Acting as a clearinghouse for information on health care careers.

In addition, Connecticut's Area Health Education Centers provide a variety of programs geared toward promoting health careers to school age children. The Nursing Career Center of Connecticut has developed a number of programs promoting nursing careers to school age children as well.

Maine: In 2002, the Health Care Workforce Leadership Council was established by the Maine legislature to ensure an adequate supply of skilled health care workers in the state. In addition, the following other organizations have been involved in addressing workforce issues:

- The Organization of Maine Nursing Executives (OMNE) established a task force on nursing and allied health workforce issues.
- The Maine Committee to Address the Health Care Skilled Worker Shortage, comprised of health care leaders, state legislators, and higher education officials, called for a series of actions to address worker shortages.

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[367] New Mexico Health Resources (http://www.nmhr.org).
[368] Maine's Health Care Skilled Worker Shortage: A Call to Action." October 2001.
[369] Health Resources and Services Administration, Bureau of Health Professions (www.bhp.hrsa.gov).

- OMNE/Nursing Leaders of Maine provides support for Maine nursing students attending nursing programs in the state.

In 1998, Maine State Labor Task Force combined existing aide jobs with new lower-level entry positions and new higher-level team leader positions to provide opportunities for advancement.

In addition, the Maine State Labor Task Force has been working to assure that entry-level education for unlicensed caregivers will include a 20-hour core curriculum that is transferable among the educational programs for personal care attendants (PCAs) and certified nurse assistants (CNAs). Dental scholarships and loan forgiveness are available to address dental shortages in Maine.

The Maine Hospital Association (MHA) has been involved in addressing workforce shortages by:

- Developing a multimedia program to increase interest in health care careers, as well as ensuring that students interested in health professions are adequately prepared;
- Collecting workforce data on nurses and allied health workers, mostly through membership surveys; and
- Along with the Maine Society for Healthcare Human Resources Administration and OMNE, administering ongoing initiatives that address recruitment, retention, and the work environment.

A variety of data collection initiatives are underway in Maine, including the following:

- In 2001, the Maine State Chamber of Commerce and the Maine Technical College System conducted a Maine Health Care Workforce Needs Survey; and
- Beginning September 1, 2002, Maine implemented voluntary reporting at the time of re-licensure for RNs in order to develop the Maine Minimum Nursing Data Set.

The Colleagues in Caring Nursing Workforce Initiative held a Nursing Summit in December 2001 to discuss the future of nursing, analyze the changes needed in nurse education while creating opportunities to enhance the integration of nurse education and practice, and the development of strategies for recruitment and retention.

Massachusetts: The Massachusetts Health Care Task Force was established in May 2000 to conduct a comprehensive analysis of the health industry, examining health care operation, administration, access, regulation, financing, revenues, cost, liabilities, reserves, financial viability, delivery, outcome and quality. In addition, the Massachusetts Nurses Association has gotten involved in addressing workforce shortages by offering scholarships for RNs seeking to advance and for student nurses. The Center for Health Professions at Worcester State College collects data on the health care workforce in Massachusetts and the Massachusetts Association of Registered Nurses

(MARN) held a conference in on the nursing shortage.

New Hampshire**:** The Direct Care Task Force established by the New Hampshire Department of Health and Human Services has been meeting quarterly to discuss workforce issues. In addition, New Hampshire relies on its AHECs to provide health education services. The North New Hampshire AHEC website offers health career information to middle and high school students and the South New Hampshire AHEC offers health career information for high school students through their Health Careers Catalog.

New York**:** In April 2001, the New York State Board of Regents appointed a Blue Ribbon Task Force on the Future of Nursing to evaluate the current nursing shortage, solutions to the problem, and the long-term future of nursing. The Task Force has released their findings and recommendations in their report, "Protecting the Public."

Several scholarship and other training assistance programs have been implemented in New York that are available to both individuals and healthcare institutions:

- The Regents Professional Opportunity Scholarship Program, administered by the State Education Department, makes awards of up to $5,000 per year for four years to New York State residents who are economically disadvantaged and/or a member of an underrepresented minority group and who are beginning or engaged in an approved program leading to a degree in a profession licensed by the Regents, including registered nursing. Scholarship recipients must agree to work in New York State in their chosen profession or field for one year for each annual award received.
- The Temporary Assistance for Needy Families (TANF) Health Worker Training Initiative, administered by the New York State Departments of Health and Labor, made available up to $20 million in 2002 for the provision of recruitment, job training, and support services for individuals eligible for TANF funded services for jobs in the hospital, nursing home, and home care service sectors.
- The Health Workforce Retraining Initiative, administered by the New York State Departments of Health and Labor, made available up to $90 million in 2002 for projects to train or retrain health industry workers in occupations with documented shortages and provide employment for health industry workers who need new skills due to changes in the health care system.
- The Supplemental General Hospital Recruitment and Retention Adjustment, administered by the New York State Department of Health, provides a total of $45 million over three years (2002-2004) in additional Medicaid rate increases to non-public hospitals for workforce recruitment and retention.
- The Nursing Home Quality Improvement Demonstration Program, administered by the New York State Department of Health, provides a total of $187.5 million over three years (2002-2004) for additional Medicaid rate increase to nursing homes to address recruitment and retention needs of the long-term care workforce.

In terms of marketing healthcare careers, the New York State Department of Labor maintains the Career Zone, an interactive career information system targeted to youth. Information is provided on health services jobs.

Several organizations in New York are involved in workforce data collection and analysis efforts:

- The State Education Department conducted a survey of RNs in 2002 to identify specific characteristics, attributes, and expectations of New York's nurses. Results were completed in June 2003.
- The New York Center for Health Workforce Studies conducts an annual survey of all RN education programs in the state to obtain up-to-date information on current trends in enrollment, graduations, and the job market for RNs.
- The New York State Education Department has begun a clearinghouse on nursing, i.e., collecting data and reports related to the nursing profession and organizing them based on source, purpose, and outcome.

Rhode Island: In Rhode Island, the Governor's Advisory Council on Health has developed the Health Professions Workforce Workgroup to examine the issue of health workforce shortages and to make recommendations to the full Council. Like many other states, Rhode Island has loan programs for healthcare practitioners working in underserved areas. The Rhode Island Loan Repayment Program offers awards to health care practitioners in return for service in underserved areas of Rhode Island. In addition, Rhode Island established a no interest loan program for nursing students. In order to promote particular healthcare careers, the state recently enacted legislation that supports training of pharmacy technicians at vocational high schools and allows retired nurses to volunteer their services.

State-Specific Recommendations/Initiatives to Address Physician Shortages

Wisconsin: The Wisconsin Hospital Association and the Wisconsin Medical Society created a task force to create recommendations that would ensure the supply and proper distribution of physicians throughout the state. In March 2004, the organization issued a report entitled "Who Will Care for Our Patients? Wisconsin Takes Action to Fight a Growing Physician Shortage."

The report presents five recommendations:

1. Recruit, enroll, and train in Wisconsin's medical schools individuals who are likely to practice in Wisconsin, with particular attention to underserved parts.
2. Develop care delivery models that will enhance and leverage physician resources.
3. Create policy and practice that encourages physicians to enter and remain in practice in Wisconsin. Create similar policies to encourage physicians to return to Wisconsin to practice.
4. Provide for adequate and targeted funding for medical education.

5. Develop an infrastructure to guide medical education policy in Wisconsin.[370]

Washington**:** Washington State's Office of Community and Rural Health initiated a program to match recruits with practices in underserved or rural areas seeking practitioners. This program increases the supply of physicians in needed areas by matching the supply with the demand.[371]

Colorado: The Colorado Rural Outreach Program (CROP) began as a medical education loan repayment program administered by the Colorado Medical Society for physicians, physician's assistants, and advanced practice nurses who agreed to practice in a rural area for a minimum of three years. The program later diversified services offered to communities and physicians in order to strengthen the ability of rural medically underserved, or potentially underserved, communities to recruit and retain physicians. While medical education loan repayment remains a significant piece of CROP, communities can also apply for assistance to meet their specific needs. The Colorado Rural Health Center currently administers the program.

Indiana: The Primary Care Scholarship Program was established in 1993 and uses a biennially appropriated amount to increase the number of Indiana University Medical School students who will practice primary care in Indiana medically underserved areas. The program provides funds for tuition and course-related fees for each year of medical school, and students are obligated to practice one year full-time in an Indiana-designated shortage area for each year of scholarship funding once they have completed residency training.

Rhode Island: Several options have been recommended to address physician workforce issues, including:

- Reform the current physician reimbursement structure to reduce future supply shortages while optimizing healthcare delivery and cost.
- Reform malpractice insurance to reduce cost to physicians and decrease defensive medicine practice.
- Change practice architecture by investing in better access to patient data.
- Align Rhode Island physician utilization with U.S. averages in order to reduce future physician shortages.
- Leverage primary care physicians to provide some of the care delivered by medical sub-specialties.
- Promote preventive care in order to decrease system utilization in the long-term.[372]

[370] "Who Will Care for Our Patients? Wisconsin Takes Action to Fight Growing Physician Shortage." (http://www.wha.org/physicianshortage3-04.pdf). March 2004.
[371] Washington State Department of Health. Office of Community and Rural Health. (http://www.doh.wa.gov/hsqa/ocrh/R&R/hcjobswa.htm).
[372] "Shape Phase II Physician Workforce Study." Shape Foundation. December 2004.

General Recommendations/Initiatives in Other States Regarding Physical Therapists, Podiatrists and Chiropractors

Although there appear to be shortages and distribution inequities among chiropractors, physical therapists, and podiatrists in certain areas of the U.S., these shortage and distribution issues have largely gone unaddressed by states or other organizations. Although some states provide loan repayment programs to for training in certain allied health professions such as physical therapy, there are no similar programs for chiropractors or podiatrists. There have been some efforts to market these professions as careers as well, but the level of resources and attention devoted to these areas have been minimal compared to other professions such as nursing.

A barrier to adequately recruiting students into the chiropractic profession is largely due to reimbursement issues and inconsistencies across payers. Recognition and reimbursement of chiropractors on a more widespread basis by payers could potentially increase interest in the chiropractic profession and increase the number of individuals who enroll in chiropractic programs.[373]

State-Specific Initiatives Regarding Physical Therapists, Podiatrists and Chiropractors

- Fairview Lakes Regional Health Care in Minnesota has created a partnership with area schools to help high school students become aware of "alternative" healthcare professions in addition to nurses and medical doctors. Promoting careers such as certified nurse assistants, chiropractors, occupational therapists and physical therapists is this health system's solution to a dwindling supply of health professionals.[374]

- In Maryland, state and local government employees who earn less than $40,000 per year may be eligible for a loan assistance/repayment program to study law, nursing, physical and occupational therapy, social work and education.[375]

- In North Carolina, the Physical Therapy Workforce Assessment Technical Panel was developed to assess the status of various allied health professions, in order to develop a consensus statement for the need and supply of allied health professionals.

[373] American Chiropractic Association. "Public Policy on Insurance." (http://www.amerchiro.org/insurance/policy/rudshift.shtml).
[374] Health Care Workforce. "Fairview Lakes Regional Health Care."
[375] FinAid (http://www.finaid.org/loans/forgiveness.phtml).

General Recommendations and Initiatives Relating to Mental Health and Substance Abuse Professions, Other States

As described, medical professionals who treat mental health and substance abuse illnesses come from a variety of backgrounds and hold a variety of educational degrees. These professionals include people with baccalaureate degrees, master's degrees, doctoral degrees and medical degrees.

President Bush's New Freedom Commission on Mental Health created 15 subcommittees to "assist in its review of the Nation's mental health delivery system."[376] The Subcommittee on Rural Issues published a background paper in June 2004, which proposes general policy options. "The Subcommittee encourages the Secretary of HHS to support an effort to articulate a rural mental health workforce strategy that includes a realistic use of and support of mid-level and alternative providers of mental health services." [377] This recommendation seeks to fill the gaps in services across rural settings. Often mental health practitioners are in short supply, forcing reliance instead on alternative or mid-level practitioners who can fill in.

The Subcommittee also highlights the need to have adequate education and training for mental health and substance abuse providers. With continually changing practice environments, which pose new challenges to practitioners, the Subcommittee cites the importance of equipping rural practitioners with suitable evidence-based guidelines. Providing such a system, according to the Subcommittee, encourages the workforce to practice in rural areas without fear of professional isolation. Both the American College of Mental Health and the Academic Behavioral Health Consortium also recognize education and training as major hurdles to fulfilling the need for mental health and substance abuse practitioners as well.

"The National Health Services Corps has been urged to include master's level psychologists, social workers and counselors in their loan repayment and scholarship programs, as these professionals are most likely to locate and be retained in rural underserved areas."[378] Creating incentives for students to practice in rural areas as well as to become under-represented practitioners has proven successful. HRSA, as well as many states, have loan repayment programs in place for a number of health professionals.

State-Specific Initiatives Regarding Mental Health and Substance Abuse Professions

North Carolina**:** North Carolina's Area Health Education Centers recently published an update of the state's mental health and substance abuse workforce. North Carolina states that it offers adequate educational support for mental health and substance abuse professionals through AHEC grants. North Carolina's report presents six strategies to overcome mental health and substance abuse workforce shortages:

[376] New Freedom Committee on Mental Health: Subcommittee on Rural Issues. "Background Paper." June 2004.
[377] Ibid.
[378] Ibid, Page 18.

1. Target clinical skill development, focusing on best practices for mental health and substance abuse professionals across the state, specifically targeting the tools clinicians will need as the system changes.
2. Statewide training coordinated with the NC Council of Community Programs bring together the clinical and administrative skills needed as delivering care changes.
3. NC primary care providers receive mental health training through AHEC-sponsored teleconferences and local continuing education programming.
4. Focus on training emergency personnel to manage mental health and substance abuse emergencies.
5. Develop a statewide initiative to improve capacity of school nurses and support personnel to address mental health needs of students.
6. Offer Spanish language and cultural training for mental health practitioners to address the barriers of care for the state's Latino population.[379]

Federal recommendations for addressing mental health and substance abuse workforce issues are similar to many state recommendations. These recommendations focus on educating the current and incoming workforce to adapt to a changing system as well as incorporating a care delivery system that spans multiple practitioners (mental health/ substance abuse as well as primary care practitioners and mid-level practitioners). Vermont, along with other state and federal agencies, recognizes the need for educational training and practice advancement to overcome shortages in the mental health and substance abuse workforce.

[379] North Carolina Area Health Education Centers. "AHEC Update." (http://www.ncahec.net/program/mentalhealthf.pdf).

Table 5.B-1: Summary of State Responses to Workforce Shortages

Table 9.1.2 Summary of State Responses to Workforce Shortages

	Task Force, Commission or Panel	Scholarships, Loan Repayment	Career Ladder Development	Health Career Marketing	Labor Department/ Workforce Investment Board	Job Design	Workforce Data Collection
Alabama	√	√		√			
Alaska	√	√	√				
Arizona	√	√					
Arkansas	√	√		√			
California	√	√	√	√	√	√	√
Colorado	√	√					√
Connecticut	√			√			
Delaware	√	√					
Florida	√	√	√	√	√		
Georgia	√	√		√		√	√
Hawaii		√		√			√
Idaho	√	√					√
Illinois		√		√			
Indiana	√			√			√
Iowa	√	√				√	√
Kansas	√	√					√
Kentucky	√	√					
Louisiana	√	√		√			
Maine	√	√	√				√
Maryland	√	√		√			
Massachusetts	√	√					√
Michigan		√		√			
Minnesota	√	√		√			√
Mississippi	√						√
Missouri	√	√		√			√
Montana	√						
Nebraska	√	√	√		√		√
Nevada	√						
New Hampshire	√			√			
New Jersey	√	√	√			√	√
New Mexico	√	√					√
New York	√	√	√	√			√
North Carolina	√			√			√
North Dakota	√	√	√	√			√
Ohio	√	√		√			
Oklahoma	√						
Oregon	√	√					
Pennsylvania	√	√					
Puerto Rico							√
Rhode Island	√	√					
South Carolina	√			√			
South Dakota							√
Tennessee	√	√					
Texas		√		√	√		√
Utah		√	√				√
Vermont	√	√	√	√	√	√	√
Virginia	√						
Washington	√	√	√	√	√		√
West Virginia	√	√	√	√			
Wisconsin	√	√	√		√		√
Wyoming	√		√	√			√

Appendix 6.A: National Initiatives in Healthcare Information Technology

1. National Initiatives

Health Record Network Foundation

This private non-profit organization is dedicated to building consumer understanding, acceptance and demand for personal electronic health records. As this demand develops, the Health Record Network (HRN) intends to provide an online service for consumers to create their own individual health records and to be the consumer portal to personal health records, including benefits information. The immediate focus of the HRN program is to conduct several pilot projects, including a statewide consumer/clinical project, a corporate project involving a large employee base and a chronic illness project targeting patients within a specific disease category. Advanced discussions are underway regarding all three pilot projects.

Kaiser Permanente

In February 2003, Kaiser Permanente, announced plans to spend $1.8 billion to automate patient files. Kaiser is the largest nonprofit health-maintenance organization (HMO) in the U.S. with 8.4 million members in nine states. The organization's goal is to have operational automated records in three years. With such a system, the HMO would make portions of each patient's records available online to members, who would be able to check recent medical-test results, see their complete immunization history and review their current medications, among other things.

2. Federal Government Initiatives

The Office of the National Coordinator for Health Information Technology (ONCHIT) was created within the U.S. Department of Health and Human Services on April 22, 2004 and received $100 million in funding. This office is charged with developing an industry and federal government-wide plan for the adoption of interoperable health records for the nation within 10 years. Specifically, the Office's role is to:

- Direct all HHS health information technology programs;
- Coordinate HHS health information technology programs with other relevant executive branch agencies (i.e. agriculture, commerce);
- Coordinate outreach and consultation by executive branch agencies and public and private parties, provide comments and advice regarding specific federal health information technology programs; and
- Develop, maintain and implement a strategic plan for widespread health information technology and adoption.

Included in the national plan is a private sector certification commission for health information technology products. This board of 13 commissioners, which has already

been formed, plans to release initial certification criteria by summer 2005, including a guide to be used by the industry for developing electronic health records (EHRs).

The federal government's vision is the operation of a highly secure National Health Information Network (NHIN) that can effectively and appropriately transmit patient data across various healthcare entities. In addition, the federal government plans to provide tools and services necessary to achieve interoperable EHRs.

The Department of Health and Human Services (HHS) is also encouraging the formation of regional health information organizations (RHIOs) through seed grants, in order to assure local control and contribution to NHIN development. Regional organizations must be accredited and federally qualified to be eligible for a variety of benefits from ONCHIT, including funding and incentives for physicians to use EHRs when Medicare is involved. RHIOs are described later in this chapter. In addition to RHIO seed grants, HHS is also providing $139 million in grants and contracts to promote the use of health information technology through the Agency for Healthcare Research and Quality (AHRQ). Selected grantees are described later in this chapter. Grant funding will be used in the following ways:

- *To promote access to HIT:* Over 100 grants have been awarded to communities, hospitals, providers, and health care systems to help in all phases of the development and use of health information technology. The grants are spread across 38 States, with a special focus on small and rural hospitals and communities.

- *To develop statewide and regional networks:* Five-year contracts have been awarded to five states (Colorado, Indiana, Rhode Island, Tennessee, and Utah) or their designees to help them develop secure statewide networks that facilitate information sharing among healthcare providers while ensuring patient privacy. Participants include major health care purchasers, public and private payers, hospitals, ambulatory care facilities, home health care providers, and long-term care providers.

- *To encourage adoption of HIT by sharing knowledge:* The National Health Information Technology Resource Center was created to aid grantees and other federal partners by providing technical assistance and other services. The contract to administer this Center was awarded to the National Organization for Research at the University of Chicago (NORC).

Communities have also received funding in part from the federal Health Resources and Services Administration (HRSA) through the Foundation for eHealth Initiatives and its partner, Connecting Communities for Better Health (CCBH). Community initiatives collectively are receiving funds totaling over $2 million to pursue local projects in electronic health information exchange. The eHealth Initiative and its Foundation are also funded by a combination of membership dues and private sector contributions. Nine communities throughout the United States have received CCBH awards and represent a

broad range of community project models. CCBH awardees will test and evaluate strategies that will help address important challenges related to the use of HIT and the implementation of health information exchange.[380] The awardees and the various initiatives they are pursuing are described later in this chapter.

3. State, Regional and Community Initiatives

There are over 100 regional, state and community-based organizations involved in HIT and/or health information exchange. Many of these organizations have been awarded federal grant funding to implement systems, networks and other means of information exchange to facilitate healthcare information sharing, data transmission and electronic health records. To date, however, very few projects are fully operational. Some examples of these organizations and their role in facilitating these efforts are described below.

Regional Health Information Organizations (RHIOs)

RHIOs promote development, implementation, and ongoing use of health information technologies and business systems to promote effective health data sharing and ultimately improve quality of care, increase patient safety and decrease costs. RHIOs provide guidance, solicit funding, develop standards, provide resources and organizational structure, as well as facilitate projects. The federal government, under the guidance of ONCHIT, regulates these organizations and provides funding for regional health information technology infrastructure through grants. Currently, there are no formal definitions or structures in place for RHIOs although there are estimated to be more than 150 RHIOs currently in existence. Some examples of RHIOs are described below.

The Massachusetts Health Data Consortium-MA SHARE: This RHIO acts primarily as an incubator, facilitator and funding organization for regional information technology projects. MA-SHARE operates on an interoperability model where no common platform is assumed or required.[381]

Santa Barbara County Care Data Exchange (SBCCDE): This is a brokered peer-to-peer data exchange platform. It operates as a public utility and allows patient-specific clinical information to be securely and readily accessible to any authorized person, including patients.[382]

Indiana Health Information Exchange **(IHIE):** This is a not-for-profit network with a central data repository model that provides separate storage components for each participating member or organization. Thirteen institutions representing hospitals, providers, researchers, public health organizations, and economic development groups form a collaborative organization to administer the IHIE. The infrastructure for this

[380] eHealth Initiative – Connecting Communities for Better Health (http://ccbh.ehealthinitiative.org/communities/funded.mspx).
[381] Massachusetts Health Data Consortium (http://www.mahealthdata.org/ma-share/mission.html).
[382] http://ccbh.ehealthinitiative.org/profiles/SBCCDE.mspx

system was modeled after a system created by the Regenstrief Institute, a recognized pioneer in the field of clinical informatics.[383]

Michigan Electronic Medical Record Initiative Implementation Plan

This project is being conducted in two phases. In the initial research and planning phase, the state is undertaking an exhaustive review of state, federal, and commercial activities in EMR planning and implementation to ensure that Michigan's EMR will be compatible with (if not a model for) an emerging national standard. This phase also involves assessing views and securing the commitment and support of stakeholders in visioning, goal/policy-setting, business planning and technical specification for the EMR, as well as fundraising and planning. In the second phase, execution and control, the state will implement the pilot standard EMR at four to five sites and then expand statewide. This effort will be accompanied by public awareness and provider education campaigns. Practical assistance to providers in EMR financial analysis and implementation, ultimately resulting in data aggregation, analysis and reporting will be a critical component of this phase.[384]

Minnesota e-Health Initiative

This initiative seeks to improve patient safety and the delivery of health care through increased use of information technology. In order to improve the health care system, this initiative is expanding collaboration among public and private entities, identifying barriers to implementing IT solutions, and working to develop strategies to overcome these barriers.[385]

North Carolina Emergency Department Database

This statewide initiative compiles data from emergency departments to assist in public health surveillance and research through an intricate system that was developed to collect and analyze data in a centralized database. The governing body of this initiative seeks innovative solutions to managing and quickly responding to public health crises.[386]

New England Healthcare EDI (Electronic Data Interchange) Network

NEHEN is a consortium comprised of over 20 regional payers and providers who have designed and implemented a secure and innovative electronic-commerce solution for reducing administrative costs in health care. NEHEN members have attained HIPAA compliance with a shared approach to realizing administrative simplification, especially as they extend the use of the network for claim submission. The NEHEN initiative demonstrates one way in which health information networks can be used for administrative purposes.[387]

[383] Indiana Health Information Exchange. (http://www.ihie.com/vision.htm)
[384] Michigan Electronic Medical Record Initiative. (http://www.memri.us/home.html)
[385] Minnesota e-Health Initiative. (http://www.health.state.mn.us/e-health/background.html)
[386] North Carolina Emergency Department Database. (http://www.ncedd.org/)
[387] New England Healthcare EDI Network. (http://www.nehen.net/)

4. Privately Funded Initiatives in HIT

Connecting Communities for Better Health

Connecting Communities for Better Health (CCBH) is a program administered by the Foundation for eHealth Initiative. The Foundation, in cooperation with the Health Resources and Services Administration (HRSA) Office for the Advancement of Telehealth (OAT) has implemented a $3.86 million grant program to improve healthcare information technology. The program, which is fully funded by HRSA/OAT, provides funding and support to collaboratives of community stakeholders (both geographic and non-geographic) who are using health information exchange and other information technology tools to improve quality, safety and efficiency in healthcare.

CCBH Funded Communities

In July 2004, the Foundation for eHealth Initiative announced the selection of nine communities that are being awarded funding totaling over $2 million. These collaboratives represent a broad range of community project models and will test and evaluate a variety of strategies. These individual community initiatives are described below.

Colorado Health Information Exchange (COHIE)

Location: Denver, Colorado

Purpose: To determine the feasibility of providing electronic continuity for clinical services to improve the quality, efficiency and cost-effectiveness of patient care.

Specific Activities:

- Establish a secure environment and the necessary legal framework for sharing clinical data;
- Develop a master patient index;
- Build an interface engine for clinical data acquisition from four data repositories;
- Create a secure web server application to display integrated clinical information; and
- Pilot-test the application in participating institutions.

In its second phase, COHIE plans to fully integrate the system across participating institutions and evaluate the program. The third phase involves expanding statewide.

Project Participants:

- Denver Health (integrated hospital and community clinic system);
- Children's Hospital;
- University of Colorado Hospital; and
- Kaiser Permanente of Colorado Health Plan.

These four institutions are affiliated with the University of Colorado Health Sciences Center (UCHSC).

Long-Term Project Goals:

- Reduce fragmentation by making patient problem lists, laboratory and radiology studies, care plans (including current medications and allergies), concerns about likely complications and advance directives easily accessible regardless of where a patient seeks care.
- Advance the continuity, quality, safety, and efficiency of clinical care.

Indiana Health Information Exchange (Central Indiana Healthcare Collaboration)

Location: Indianapolis, Indiana

Purpose: To use information technology and shared clinical information to:

  - Improve the quality, safety, and efficiency of healthcare in the state of Indiana.
  - Create unparalleled research capabilities for health researchers.
  - Exhibit a successful model of health information exchange for the rest of the country.

Specific Activities:

- Complete core connectivity in Central Indiana (create a common, secure, electronic infrastructure that expands communication and information-sharing among participating providers, hospitals, public health organizations, and other healthcare entities).
- Branch out to other parts of the state.
- Create tailored applications to best utilize the growing network.

Users will be required to pay for the products and services that they receive.

- Every provider in Central Indiana will have a single IHIE electronic mailbox through which they will access clinical results for their patients, regardless of which hospital or lab their patients visit.

Project Participants:

- BioCrossroads of the Central Indiana Corporate Partnership;
- City of Indianapolis;
- Clarian Health Partners;
- Community Health Network;

- Health and Hospital Corporation of Marion County;
- Indiana State Department of Health;
- Indiana State Medical Association;
- Indiana University School of Medicine;
- Indianapolis Medical Society;
- Marion County Health Department;
- Regenstrief Institute;
- St. Francis Hospital and Health Centers; and
- St. Vincent Health.

Long-Term Project Goals:

- To give providers better information for treatment purposes at the point of care;
- To give researchers a richer pool of data to guide more far-reaching treatment improvements over time.

MA-SHARE MedsInfo e-Prescribing Initiative

Location: Waltham, Massachusetts

Purpose: To demonstrate to clinicians the value of accessing prescription history for emergency department (ED) patients, as well as having e-prescribing technology available to them at the point of service. The value will be measured by reduced errors, improved outcomes and workflow, and lower total cost of care.

Specific Activities:

- Develop patient identification technology to link patients to data sources that house those patients' prescription histories and other relevant clinical information.
- Implement data aggregation services that capture, package and distribute patient-level clinical history to a comprehensive range of point of care locations.
- Implement privacy and security standards.

Project Participants:

- Massachusetts Health Data Consortium (MHDC)
- MA-SHARE (a regional collaboration launched in 2003 by MHDC's CIO Forum
- Alliance for Health Care Improvement (a collaboration of Medical Directors of five Massachusetts not-for-profit health plans).

Long-term Project Goals:

- Demonstrate and evaluate the effectiveness of allowing authorized clinicians, both in hospital emergency departments and through point of care e-Prescribing applications, to access in real-time, a complete and current view of a patient’s medication history.

- Accelerate the pace of clinical information sharing and reduce the cost of presenting data in a secure and confidential manner to various point of care settings.

MD/DC Collaborative for Healthcare Information Technology

Location: Baltimore/Washington Metropolitan Area

Purpose: To implement a secure, HIPAA-compliant, regional data exchange infrastructure.

Specific Activities:

- Link all components in the healthcare delivery chain (physician offices, hospitals, clinics, labs, imaging centers, nursing homes, payers and patients) to appropriate and protected health information.

Project Participants:

- Private practice physicians in the Baltimore-Washington region;
- Johns Hopkins Medicine;
- University of Maryland Medicine;
- MedStar Health; and
- Maryland Department of Health and Mental Hygiene (DHMH);

Long-Term Project Goals:

- Enhance communication of patient information, quality of care, patient safety, disease management capabilities, patient and provider satisfaction, clinical and administrative cost reductions, and bio-surveillance/early detection preparedness.

Santa Barbara County Care Data Exchange

Location: Santa Barbara, California

Purpose: To allow community physicians and other healthcare providers to securely share patient-specific information without the necessity of a central data repository.

Specific Activities:

- Implement CDE peer-to-peer technology (the same kind of technology that was developed by Napster to exchange music files).
- Make patient information available to providers regardless of where care is delivered. Physicians can securely obtain clinical patient information from multiple data holders, including participating hospitals, clinics, labs, radiology centers, and health plans (laboratory results, radiology images, transcription reports, clinical notes, audio files and medical, hospital and pharmacy information from claims).

Project Participants:

- Cottage Health System;
- Sansum-Santa Barbara Medical Foundation Clinic;
- Catholic Healthcare West - Marian Medical Center;
- Santa Barbara County Public Health Department;
- MidCoast Medical Care IPA;
- Santa Barbara Regional Health Authority;
- Lompoc Valley Community Healthcare Organization; and
- Unilab/Quest.

Long-Term Project Goals:

- To improve clinical quality and mitigate problems such as redundant treatment or prescribing errors.

Taconic Health Information Network and Community

Location: Fishkill, New York

Purpose: Complete the current community-wide data exchange in the Hudson Valley region of New York State by obtaining full participation from the remaining community hospitals and reference laboratories. Develop a financial model that supports sustainability of the initiative. Obtain participation of health insurers that will offer financial incentives (pay-for-performance) to community physicians for adoption of additional technology, leading to an Electronic Medical Record (EMR).

Specific Activities:

- The Taconic Health Information Network and Community (THINC) is a multi-stakeholder, community-wide data exchange among community physicians, hospitals, reference laboratories, pharmacies, payers, employers, and consumers.
- Clinical, insurance, administrative, and demographic information for more than 600,000 patients is available on a secured Internet infrastructure incorporating standards (HL-7, LOINC, ICD-9/10) for data exchange through THINC.
- Unique to THINC is the local, ongoing support provided by MedAllies, which provides training and support to community clinicians and their office staff to drive adoption.

Project Participants:

- Taconic IPA, a 2,300 independent practice association;
- Benedictine Hospital;
- Kingston Hospital;
- LabCorp;

- MVP Healthcare; and
- Vassar Brothers Medical Center.

Long-term Project Goals:

- Competing hospitals, reference laboratories and health insurers to exchange electronic information.
- Educate practicing physicians within the community about the capability of information systems, resulting in investment by physicians in systems that not only will benefit their practices, but will also benefit the community by enhancing safety, improving quality, and decreasing cost.

Tri-Cities TN-VA Care Data Exchange

Location: Kingsport, Tennessee

Purpose: To improve the health and quality of care in Appalachia through collaboration and the exchange of health information and create a health information exchange (HIE) that is reasonable in cost, comprehensive in scope, and effective in changing the quality of healthcare.

Specific Activities:

- Provide a foundation for effective health information exchange in a multi-jurisdictional rural area.
- Provide access to medical records in a clinically relevant time-frame at the point of care.
- Promote evidence-based treatments and management of selected chronic diseases.
- Reduce duplicative testing and fraud.
- Allow the collection of aggregated and region-specific data to identify key health problems from which targeted interventions can be administered and evaluated.
- Offer clinical providers an opportunity to access patient-centric, electronically stored medical records for a minimal up-front capital investment and an annual subscription fee to support the exchange.

Project Participants:

- Community Health Improvement Partnership (CHIP) -- comprised of leaders from the healthcare sector, business and industry, and community organizations.
- TCCDE – comprised of:
  - Mountain States Health Alliance;
  - Wellmont Health System;
  - James H. Quillen Veterans Affairs Medical Center;
  - Frontier Health;
  - Holston Medical Group;
  - Sullivan County Regional Health Department;

- East Tennessee State University Quillen College of Medicine;
- Wilson Pharmacy;
- BlueCross BlueShield of Tennessee;
- Ntara;
- Intellithought;
- John Deere; and
- Eastman Chemical Company.

Long-term Project Goals:

- Establish a system allowing multiple users with various electronic record systems to exchange information in a multi-jurisdictional environment.
- Connect clinical, behavioral health, laboratory, public health, payer, and possibly pharmacy systems.
- Improved clinical decision through access to complete medical information regardless of originating health institution, reducing drug interactions, abuse, and fraud by having prescription records available, and promoting better coordination of treatments through cooperation among primary and tertiary care providers.

Whatcom County e-Prescribing Project

Location: Bellingham, Washington

Project Purpose: To augment existing countywide electronic connectivity with electronic prescribing software for all prescribers in order to improve the exchange of prescription information between providers and pharmacies.

Specific Activities: The system will assist in checking for allergies, drug-drug conflicts, duplicate drugs, and drug-disease contraindications by:

- Identifying a prescribing system for providers with no electronic health record;
- Supporting electronic prescribing for those who have an electronic health record;
- Testing electronic prescribing at four pilot sites in Whatcom County, Washington with a product that provides formulary information at the point of prescription, and supports further development of a single accurate medication list for a patient across organizational boundaries.

Project Participants:

- Whatcom Health Information Network, LLC;
- St. Joseph Hospital;
- Madrona Medical Group;
- Family Care Network;
- Three specialty practices; and
- Hospital-based and retail pharmacists.

Long-Term Project Goals:

- To avoid medication errors due to incomplete information and illegible handwriting through use of an electronic prescribing system.
- To create a more efficient flow of prescription transactions among physicians, pharmacies and pharmacy benefit managers.
- To improve healthcare decisions and communication and enhance patient safety.

Wisconsin Health Information Exchange (WHIE)

Location: Milwaukee, Wisconsin

Project Purpose: To create a single easy-to-use portal for three existing networks: the EMSystem network for emergency care, the state Public Health Information Network, and the state Immunization Registry.

Specific Activities:

- Create a single, user-friendly system with enhanced functionality valuable to patients, clinicians, payers, and the public health community, serving emergency, public health, and routine clinical needs.
- Make the separate networks' multiple services accessible through WHIE using a single, secure log-on. This will provide one-stop look-up and entry of immunization, disease registry, case management, public health surveillance, situational alerts and advice (e.g., outbreaks, heat-waves) and health-care capacity (e.g., Emergency Department receiving status, bed-counts).
- Create a secure network and governance structure for exchange of more clinical information (e.g., lab results, prescriptions) between health professionals and patients in all settings.

Project Participants:

- SE Wisconsin Bioterrorism Preparedness Group;
- Milwaukee Health Department;
- Wisconsin Division of Public Health;
- Southeast Wisconsin Regional Trauma Advisory Council;
- Wisconsin Health and Hospital Association;
- Medical Society of Milwaukee County; and
- Greater Milwaukee Business Group on Health, Inc.

Long-Term Project Goals:

- To create a successful regional model that is scalable for expansion statewide.

5. Selected Initiatives Funded by the Federal Agency for Health Research and Quality (AHRQ)

In October 2004, the Agency for Healthcare Research and Quality (AHRQ) awarded $139 million in contracts and grants to promote the use of health information technology (HIT) through the development of networks for sharing clinical information as well as projects from planning, implementing, and demonstrating the value of HIT. The goals of this program are to:

- Improve patient safety by reducing medical errors;
- Increase health information sharing between providers, labs, pharmacies, and patients;
- Help patients transition between health care settings;
- Reduce duplicative and unnecessary testing and
- Increase knowledge and understanding of the clinical, safety, quality, financial, and organizational value and benefits of healthcare IT.

AHRQ awarded over 100 grants totaling $96 million in 38 States to help communities, hospitals, providers, and health care systems plan, implement and demonstrate the value of health IT. [388] Listed below are brief project descriptions from several grant recipients.

Crossing the Quality Chasm in Eastern Rural County
(Tehachapi Hospital, Tehachapi, CA)

Description: Develop a regional collaborative and business plan for implementing health IT in a rural region; also conduct a telemedicine demonstration project to assess the barriers and issues of broad health IT intervention including telemedicine/teleradiology, scan/store medical record, chronic disease registry and personal health record, and linking the region's partners.

Funding: $199,145 (Estimated total funding: $199,145).

Linking Rural Providers to Improve Patient Care and Health
(Katherine Shaw Bethea Hospital, Dixon, IL)

Description: Develop a central electronic health record system that will allow sharing of health information between a hospital, medical group, county health department, and behavioral health organization for rural economically disadvantaged, ethnic/racial minority residents, the elderly, and persons with special/complex health care needs.

Funding: Funding: $199,053 (Estimated total funding: $199,053).

[388] Agency for Healthcare Research and Quality. Health Information and Technology Programs. http://www.ahrq.gov/research/hitfact.htm

Health Information Technology Value in Rural Hospitals
(University of Iowa, Iowa City, IA)

Description: Document the patient safety and healthcare quality challenges in critical access to rural hospitals, and assess health IT capacity in these rural hospitals and how they would use health IT to improve safety and quality; develop a decision-making healthcare IT toolkits for other rural hospitals.

Funding: Funding: $478,751 (Estimated total funding: $1,304,478).

The Chronic Care Technology Planning Project
(Aroostook Medical Center, Presque Isle, ME)

Description: Plan for standard exchange of clinical information for patients with chronic disease when transitioning from acute to non-acute care settings between primary care physicians, outpatient specialists, home health providers, nursing homes, and hospitals; create an Institute for Healthcare Improvement Breakthrough Series Learning Collaborative to build on their work implementing the Chronic Care Model by enhancing the use of IT.

Funding: Funding: $188,739 (Estimated total funding: $188,739).

Improving Care in a Rural Region with Consolidated Imaging
(*Maine Medical Center, Portland, ME)*

Description: Implement and evaluate the results of the Consolidated Imaging—Picture Archiving and Communication System (a shared, standards-based, interoperable health information technology) that makes radiology images available for review within minutes of when they are acquired.

Funding: Funding: $496,839 (Estimated total funding: $1,382,861).

Detecting Medical Errors in Rural Hospitals Using Technology
(University of Mississippi, Jackson, MS)

Description: Implement and evaluate a voluntary system for reporting medical errors and adverse drug events in eight small rural hospitals; identify barriers to technology, describe the epidemiology and root causes of the errors, formulate quality-improvement interventions, and disseminate the results of the project.

Funding: Funding: $405,034 (Estimated total funding: $1,222,089).

Planning the Implementation of HIT in a Rural Setting
(Community Hospital of Anaconda, Inc., Anaconda, MT)

Description: Plan the development and implementation of a health IT infrastructure throughout three rural counties including high-speed Internet access, CPOE, CDSS, EHR, and continuity of care record templates.

Funding: Funding: $186,200 (Estimated total funding: $186,200).

Planning Implementation of an EMR in a Rural Area
(Adirondack Medical Center, Saranac Lake, NY)

Description: Research the implementation of an EMR in the medical community and the use of electronic ordering; identify a system that will allow for the seamless exchange of clinical information throughout the medical community.

Funding:
Funding: $96,100 (Estimated total funding: $96,100).

A Rural HIT Cooperative to Promote Clinical Improvement
(Rural Healthcare Quality Network, Davenport, WA)

Description: Demonstrate the value of health IT in improving quality of inpatient care for community-acquired pneumonia and emergency care of acute myocardial infarctions in rural hospitals.

Funding: Funding: $499,993 (Estimated total funding: $1,498,916).

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