VERMONT

RURAL HEALTH AND PRIMARY CARE PLAN

STATE OF VERMONT DEPARTMENT OF HEALTH

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

I

VISION: ***The system of rural health and primary care services is a leader in promoting safety and health among all Vermont residents.***

MISSION: ***The mission of the Vermont Office of Rural Health and Primary Care is to improve the health status of Vermonters by improving and sustaining their access to appropriate medical, oral and behavioral health services of high quality.***

Advancements in strengthening the safety-net system and services for the underserved have been strong in Vermont. While Vermont experiences low uninsured rates, high Medicaid participation by primary care physicians, dentists and behavioral health professionals and a strong rural hospital, free clinic, RHC and FQHC community, we are still working to reach the access and health outcome goals outlined in Healthy Vermonters 2010.[1] Health planning to expand the safety-net and support underserved Vermonters, workforce development to reduce the disparities in primary care distribution and program development to assure that our most vulnerable populations have access to programming that will improve health status will be a significant focus of the state for some years to come.

At both the state and national levels, the demographic characteristics of the population are changing. The increasing aging population coupled with the continued increase of chronic disease is straining the diminishing supply of health care professionals. It is estimated that as the age and health care needs of our population grows over the next thirty years, the health care workforce will be proportionately less than it is today. Workforce development is significantly more challenging for safety-net providers who serve populations in areas that are often culturally and geographically isolated. This issue will continue to create disparities in the distribution of primary care, dental and behavioral health providers.

At a time when state and federal deficits will hinder increases in Medicaid and Medicare rates, putting states at risk of cutting the scope of services or populations covered under Medicaid, the work of the State Office of Rural Health and Primary Care to support these

[1] *http://healthvermont.gov/pubs/hv2010/hv2010.pdf*

constituents is imperative. Ongoing collaboration between key community and health care leaders to assure that they can access programs that will improve their ability to serve the health needs of Vermonters must continue over the next several decades. In response to these issues, the Vermont State Office of Rural Health and Primary Care began the process to identify strategic activities in partnership with stakeholders. This document sets forth the resulting goals, objectives and activities for the State Office of Rural Health and Primary Care to achieve over the next three years. This document does not outline all of the activities that need to be addressed to improve the rural health and primary care infrastructure and landscape, rather it provides a list of recommended activities that are based upon data, qualitative input from stakeholders and an analysis of present opportunities. The plan is address health holistically with attention to physical health, mental health and oral health services. Below is a summary:

A. Healthcare Workforce

GOAL: ***The rural and primary healthcare workforce will be adequate to sustain access to high quality healthcare in Vermont for medical, behavioral and oral health needs.***

Objective 1: ***The ratio of population to provider ratios for two identified high need health professions will be improved in rural areas by 2010.***

Objective 2: ***Implement at least one evidence-based strategy to improve the volume, distribution and quality of the healthcare workforce by 2010.***

Objective 3: ***Healthcare workforce data collection is timely, accurate and provides current workforce status for two additional professions by 2010.***

B. Quality

GOAL: ***A strong quality improvement support structure to assist Critical Access Hospitals, rural health and primary care systems and professionals improve the quality of medical, behavioral and oral healthcare.***

Objective 1: ***To measure and improve the quality of personal and population health care programs in rural areas.***

Objective 2: ***Integration of primary health and behavioral health services will be improved, as demonstrated by telemedicine activity and/or changes in primary care practices.***

C. Technology

GOAL: **Health information technology supports primary and rural healthcare practitioners and organizations.**

Objective 1: Increase the percent of primary care and rural practices indicating EHR currently used, or planned to be implemented within next 12 months, from 38% to 45% by 2010.

Objective 2: Increase the adoption of telemedicine services in rural health settings by 10% per year through 2010.

D. Rural Health and Primary Care Infrastructure

GOAL: **Vermont rural and primary care providers have adequate administrative, personnel and financial resources to support the delivery of health care to their communities.**

Objective 1: Critical Access Hospital and rural primary care performance will be improved for selected measures by activities and programs sponsored by the state.

Objective 2: Personnel development for quality and performance improvement utilizing peer learning between rural health care providers will result in measurable improvements.

Objective 3: Development and/or financial sustainability of local health providers will be improved by community needs analyses, planning and resource development with progress measured by selected indicators.

E. Network Development

GOAL: **Networks sustain, strengthen and improve the delivery of physical, oral and behavioral health services in rural communities.**

Objective 1: The number, membership and activities of rural networks in Vermont or regionally will increase.

Objective 2: The quality, efficiency, financial viability and integration of local emergency medical services with Critical Access Hospitals will be improved.

F. Health Disparities

GOAL: ***All Vermonters experience optimal health outcomes through equal access to appropriate health information, education and treatment services.***

Objective 1: ***Access to public health and health care services for minority, rural and health disparate populations in Vermont will be improved as measured by the number of communities that have enhanced or expanded access.***

G. Evaluation

GOAL: ***Vermont State Office of Rural Health and Primary Care maintains high caliber programming through ongoing evaluation efforts that serve to inform and improve public health initiatives.***

Objective 1: ***Incorporate an ongoing evaluation infrastructure into programs of the Office of Rural Health and Primary Care by 2010 that will include tracking activities, outcomes and changes in health quality, sustainability or access.***

GOAL: *The rural and primary healthcare workforce will be adequate to sustain access to high quality care in Vermont for medical, behavioral and oral health needs.*

> ***" Due to greater longevity as a result of better nutrition, safety, and medical care, the numbers of people who are age 85 and older will grow even more dramatically. The population of the "oldest old" is expected to grow by 377% by the year 2050. These people use significantly more health care services than younger people."***
>
> — **From:** Center for Health Workforce Studies School of Public Health, University at Albany; The Impact of the Aging Population on the Health Workforce in the United States December 2005

Greater consumer demand for health care services, increases in chronic diseases, and Vermont's growing aging population are significant factors contributing to the state's healthcare workforce needs. Meeting the healthcare workforce short-term needs and the projections for the coming decade is a significant national challenge. The long-term care sector alone will see an increase of 5.7 to 6.6 million direct-care workers by the year 2050. Even the most optimistic hopes for increased technological solutions or improvements in the health of Vermonters will not prevent this increased need for direct care workers.

The major settings for health care employment are:

- Private hospitals (39.3% of health services employees. *NOTE: When government hospitals are included, hospitals employ 45% of industry workers.)*
- Nursing/personal care facilities and home health care services (24.2% of all employees)
- Physician offices (19.7% of employees)

Health care workforce shortages are widespread and positions are available across the nation making this a very portable profession. Healthcare professions can be additionally attractive because they provide a professional work environment. The health care industry needs greater diversity among its workforce, and therefore may be attractive to new labor pools. There is an increased building of career ladders and lattices that are available to workers so they can advance in their profession.

Significant workforce supply and demand gaps currently exist across the U.S. that affect acute care, long-term care and primary care health care provider sectors as well as behavioral and oral health. These gaps are even more significant across all three sectors in rural America. While shortages may be more prominent in rural settings, common themes exist across rural and urban settings as well as across many healthcare professions. Health care workforce shortages are due to several reasons including[2] :

- Aging workforce population
- High retirement eligibility
- Difficulty in retention of workers
- Difficulty in recruitment of workers
- Lack of educational training opportunities
- High vacancy rates
- High turnover rates
- Lack of opportunities for career advancement
- Financial concerns including lower pay and lack of benefits
- Increase work load demand
- Limited information technology.

State and Federal Efforts

Numerous state and federal efforts have been developed to address health care workforce shortages. On a national level, many efforts have been aimed at providing financial incentives to specific professions. Most prominent have been the scholarship and loan repayment programs developed by the National Health Service Corp for allopathic and

[2] www.raconline.org

osteopathic physicians, dentists, nurse practitioners, physician assistants and nurse midwives as well as psychiatric nurse specialists, health services psychologists, clinical social workers, marriage and family therapists and licensed professional counselors. Additional federal programs have been developed for a variety of other professions.

State responses to address healthcare workforce needs have been widely variable. While mostly all of the State Offices of Rural Health and Primary Care have some health care workforce development activities, they may work closely with Area Health Education Center programs, recruitment centers, healthcare workforce development centers and universities to fulfill these activities.

Making Healthcare Workforce Planning Successful

While the roles of State Offices of Rural Health and Primary Care vary in relation to healthcare workforce development, a number of unifying themes emerge as we examine healthcare workforce initiatives. Among the elements needed to make workforce planning successful are: 1) active profession member or employer participation, 2) accurate and relevant data on current workforce levels, 3) evidence-based or best practice interventions, and 4) workforce projection models to describe need in the future. In the absence of these elements it is difficult to project the extent to which healthcare workforce planning will be successful. As a result, in considering priority objectives for healthcare workforce development, the following State Office of Rural Health and Primary Care activities are organized according to these elements.

Objective 1: The ratio of population to provider ratios for two identified high need health professions will be improved in rural areas by 2010.

Activity 1.1: *Meet with professional organizations and/or other groups concerned with healthcare workforce needs to discuss the current workforce status, their current activities to promote an adequate workforce and identify leaders in the profession.*

Activity 1.2: *Develop profession-specific position papers describing the current status of select professions and disseminate to employer and profession leadership.*

Activity 1.3: *Engage two professional organizations to participate in the statewide Healthcare Workforce Partnership.*

Objective 2: Implement at least one evidence-based strategy to improve the volume, distribution and quality of the healthcare workforce by 2010.

Activity 2.1: *Identify Nationally-funded Healthcare Workforce Development Centers and other relevant resources on the Vermont Department of Health State Office of Rural Health and Primary Care website. To the extent possible, provide links to programming which are profession specific or which address unifying workforce issues such as pipeline development.*

Activity 2.2: *Promote, continue and enhance activities for workforce recruitment and retention including.*

- *Information dissemination and support such as for National Health Service Corp and J-1Visas*
- *Educational Loan Repayment and Scholarship Programs*
- *Administrative processing capacity such as processing J-1 Visas*
- *Student and second career awareness activities such as Health Career Awareness Month*

Activity 2.3: *Support workforce quality improvement such as those provided through the University of Vermont Area Health Education Centers Program.*

Activity 2.4: *Improve recruitment and retention skills for primary care and rural health provider systems.*

Activity 2.5: *Explore changes in health professional scope of practice to extend the capacity of key health professionals.*

Objective 3: Healthcare workforce data collection is timely, accurate and provides current workforce status for two additional professions by 2010.

Activity 3.1: *Continue current healthcare workforce data collection activities linked to licensing processes.*

Activity 3.2: *Provide resources to profile two additional professions including both qualitative and quantitative data to describe workforce distribution, volume and quality.*

Activity 3.3: *Engage in special assessment activities which concentrate on high priority initiatives such as the Blueprint for Health*

QUALITY III

GOAL: *A strong quality improvement support structure to assist Critical Access Hospitals, rural health and primary care systems and professionals improve the quality of medical, behavioral and oral healthcare.*

"Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge"[3]. A 2006 report to Congress titled "Improving the Medicare Quality Improvement Organization Program – Response to the Institute of Medicine Study" noted several areas in which dramatic change has occurred in the "quality improvement landscape of healthcare over the past decade, including:

1. Gaps in healthcare quality are more widely recognized by policymakers, consumers, and provider organizations;
2. The need for more fundamental changes in health care processes and systems to deliver consistent high-quality care; and,
3. The momentum that has now developed toward consumer choice in healthcare, through public reporting of provider performance and, more recently, performance-based provider payment."

" A system-wide approach to improving quality will require a reduction in undesired variability of care and increased consistency through evidenced-based practices, as well as an investment in information regarding effectiveness and cost-effectiveness, and the linkage of payments for care to measures of quality."

— Vermont State Health Plan

The importance of quality spans the entire field of health and over the past several decades the role of evidence-based practice has helped quality improvement initiatives navigate what would otherwise be very complex waters. The challenge however lies in the dissemination of these practices as well as training opportunities that will support adaptation and integration of best practices ongoing. Network development and collaborative partnerships between relevant organizations to facilitate dissemination of best practices, standardize care and institute common monitoring activities to ensure continuity of high quality care are some of the strategies that will join diverse professions at varying skill levels, spread across a large geography.

[3] *http://www.iom.edu/CMS/8089.aspx*

Many professions in Vermont struggle with the issue of ensuring high quality care as the young workforce slowly diminishes because of out-migration yet the demands for care increase as our population ages and the prevalence of chronic diseases become more pronounced. The 2003 IOM report *Health Professions Education: A Bridge to Quality* identifies five core competencies that all health care professionals should master to provide high-quality care:

1. Provide patient-centered care
2. Work in interdisciplinary teams
3. Employ evidence-based practice
4. Apply quality improvement
5. Utilize informatics

As rural communities and small primary care and hospital providers as a major source of care for many Vermonters we have to recognize that much of the current research and standards for quality are based upon urban, large-scale studies and models. As a result, core components of a quality initiative, including the application of evidence based practices and utilization of safety and quality measures must be redefined for application to comparatively low volume providers. Similarly, given the relative size and diversity (in skill) of rural providers we cannot expect that the resources and infrastructure available to support a quality initiative exist at the extent of larger urban counterparts.

Objective 1: Establish a Rural Health and Primary Care Quality initiative to coordinate and accelerate efforts to measure and improve the quality of health care programs in rural areas.

The Collaborative would work closely with the Blueprint for Health in order to assure appropriate coordination of quality-related activities and would help with overcoming common challenges including:

- geographic isolation
- lack of opportunity to participate in a larger system
- economic challenges
- limited educational opportunities
- smaller patient census

Activity 1.1: *Work with the Vermont Program for Quality in Health Care and other relevant partners to define scientific, objective quality measures and benchmarks or common rural metrics of quality that cut across horizontal stakeholders (hospitals, EMS, primary care practices etc.)*

While metrics need to be modified for rural providers, there should be consistent minimal standards of quality and common measures which communicate uniform expectations across rural providers of the same type.

Activity 1.2: *Develop programs which review organizational adherence to Critical Access Hospital conditions of participation requirements.*

Accreditation is a status granted to a health care provider or program that has been found to meet or exceed stated criteria of clinical quality and have two fundamental purposes: to assure the quality of, and to assist in the improvement of the provider or program. Accreditation, which may apply to providers or programs, is to be distinguished from certification and licensure which apply to individuals. It is not effective or efficient to develop another parallel or overlapping accreditation program, rather this recommendation should focus upon monitoring progress and supporting existing accreditation and credentialing processes.

Activity 1.3: *Work with stakeholders and their respective communities to define quality measures for the purpose of developing a local quality improvement program. This work can be coordinated with existing assessment initiatives including Act 53 Community Report Assessments.*

While the development of common metrics underscores the need for consistent measures to assure quality across geographically dispersed health care providers this activity recognizes the fact that there are certain measures of quality that are local in nature. Local culture, resources, social issues and demographics influence the value systems and priorities of remote and rural communities. This presents health care providers with an opportunity to bring together community members and disparate health and human service organizations to participate in identifying quality improvement initiatives that address the unique characteristics of their communities.

Activity 1.4: *Develop shared staffing resources for the implementation of a Rural Quality Initiative that are available across Vermont.*

As previously mentioned, small providers often lack the depth of staffing resources and breadth of expertise as compared to larger providers. As a result, there needs to be special attention to building an infrastructure to support the critical functions of 1) assisting

in providing technical support to local quality assessment and improvement process and 2) assisting providers in making sense of state quality initiatives and activities against the backdrop of their existing quality improvement systems. Based upon the nature of small providers, developing a shared staffing resource to fulfill this function may address the disparities in resources and difficulties in economies of scale.

Objective 2: Integration of primary health and behavioral health services will be improved, as demonstrated by telemedicine activity and/or changes in primary care practices

Activity 2.1: *Support telemedicine opportunities that improve linkages between primary care and behavioral health practitioners.*

Telemedicine provides a unique opportunity for rural areas to enhance access to behavioral health services. Improving health information technology capacity and communication integration between rural health providers and behavioral practitioners can improve clinical effectiveness and efficiency. There are state and national resources available to support this activity.

Activity 2.2: *Participate in the planning, support and promotion of standard and models of care that integrate primary and behavioral health services for adults and children.*

Effective models of care, such as co-location, that promote the integration of care for behavioral and primary care services have been demonstrated at the state and national level. These models should be disseminated and promoted for adoption in rural healthcare settings.

TECHNOLOGY IV

Goal: *Health information technology supports primary and rural healthcare practitioners and organizations.*

> ***" I propose that by 2010, Vermont be the nation's first true "e-state"– the first state to provide universal cellular and broadband coverage everywhere and anywhere within its borders. When you turn on your laptop, you're connected. When you hit the send button on your cell phone, the call goes through… This goal is within our grasp if we move quickly and decisively during this legislative session."***
>
> —(Governor Jim Douglas, Inaugural Address, January 4, 2007)

It has been widely accepted that digitalization of clinical information and physician practice adoption of electronic health record technology (EHR) will improve health outcomes and quality of care. The implications for the rural practices of states such as Vermont are significant. Approximately 76% of the population of the state resides outside the Metropolitan Statistical Area or in a rural area of the state.[4] It is generally accepted that rural providers have unique barriers and needs related to health information technology, such as financial resources, high speed internet access, and skilled IT staff resources. A recent survey by BiState Primary Care Association queried primary care practices in rural and urban settings regarding their health information technology status to better understand the scope of the problem. They report:

"Nationally, there is strong support for an HIT "movement;" however, most indicators do not show an overwhelming migration into the electronic world. The survey findings of this report validate the need for further HIT expansion."

As Table 2 indicates, there are similarities in national and Vermont data; however, important distinctions provide insight to the approaches to EHR adoption in Vermont.

[4] *www.census.gov*

TABLE 2

	National Data	Vermont Data[5]
Percent primary care practices where EHR currently used or anticipated in next 12 months.	38.4%[6]	38%
Percent practices indicating medical staff acceptance as a barrier.	29.7% - 35.4%[7]	14%
Primary care practices indicate cost as number 1 barrier.	Yes[8-9]	Yes
Other barriers identified.	Inability to evaluate, compare and select appropriate EHR.[10] Difficulty migrating to new system.[11] Difficulty integrating systems.[12]	Rural practices lack capacity to implement on their own. Internet access and speed. Significant variation in software products (internal and external integration barrier).

5 BiState Primary Care Association, Health Information Technology & Primary Care in Rural Vermont: An Assessment and Resource Inventory December 2005

6 MGMA; Assessing Adoption of Health Information Technology Health Affairs.2005; 24: 1323-1333

7 Brailer, D., Terasawa, E.,; Use and Adoption of Computer-based Patient Records. October 2003

8 Brailer, op. cit.

9 MGMA, op. cit.

10 Brailer, op. cit.

11 Ibid

12 Ibid

Similar to national data, Vermont data indicates that barriers of cost exist and are paramount to EHR adoption. While on national and state levels medical staff acceptance ranks approximately second as most outstanding barrier to adoption, data shows that it is a much less prominent barrier in Vermont than it is on a national level, indicating that this may not be a priority area for which the state needs to develop solutions. Other significant barriers that are listed in national and state documents underscore that the key to successful adoption is supporting practices and staff at each stage of EHR adoption including: selection, implementation, integration and interorganizational maximization of EHR utility.

In collaboration with other state partnerships including Vermont Information Technology Leaders(VITL), the State Office of Rural Health and Primary Care can participate in or facilitate the following activities to support EHR adoption in rural and primary care practices:

Objective 1: Increase the percent of primary care and rural practices indicating EHR currently used, or planned to be implemented within next 12 months, from 38% to 45% by 2010.

Activity 1.1: *Develop purchasing strategies to lower costs such as supporting purchase pools and networks of practices interested in purchasing and adopting EHRs.*

Activity 1.2: *Develop mechanisms and materials to support the selection and implementation of appropriate EHR products including decision support manuals and expert technical support.*

Activity 1.3: *Develop comprehensive and multifaceted support services to increase practice EHR capacity and utility including workshops, expert technical support, written updates and other methods.*

Activity 1.4: *Support stakeholder efforts to improve the interface of EHRs between systems within the practice or Critical Access Hospital (such as scheduling and billing) as well as the interface of EHRs between practices and Critical Access Hospitals (for the purpose of exchange).*

Telehealth is defined as the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration. Telemedicine is the use of electronic communication and information technologies to provide or support clinical care at a distance. [13]

[13] Tracy, J., Telemedicine Technical Assistance Documents. 2004

Telehealth and telemedicine are growing tools in the provision of services to underserved and rural populations.[14] Vermont has benefited from a well-organized system of regional hospitals, physician practices and safety-net providers. The challenges to assuring that comprehensive access to necessary services for all Vermonters will require the state to look beyond the traditional methods of improving access and service delivery. Remote or isolated populations, healthcare workforce shortages and maldistribution, and limited penetration of telemedicine programming all continue to challenge the capacity of our rural health and primary care systems.

While the Medicare program specifically defines and supports telemedicine reimbursement, the Medicaid program gives each state the option of providing reimbursement for telemedicine services. Because of the great potentials attached to telemedicine, such as improving access to health care for rural communities and reducing transportation costs, Medicaid reimbursement for telemedicine services is available in a number of states.[15] Given the budgetary constraints in health care and government it is not surprising; however, that building an argument for development of or continued investment in telemedicine is difficult. While these services are becoming more and more prominent in the delivery of clinical and administrative services, a widespread body of evidence to support the clinical application's effect on quality, accessibility and cost of health care still lags somewhat behind.[16] As a result, advocates of telemedicine are increasingly attentive to documenting the feasibility of implementing this technology.

Vermont's largest program for providing telemedicine services, Fletcher Allen Health Care, has an affiliated telemedicine program with six of Vermont hospitals and provides an array of services including Rural Trauma Care, Surgery, Dermatology, Telepsychiatry and Renal Services, however the penetration of telemedicine within the state can be improved. Historically telemental health and telepsychiatry have been the most highly used services among all telehealth applications.[17] Reimbursement structures and clinical benefits have been most clearly identified for telemental health and telepsychiatry services, and the need for these services among primary care practices and rural residents can provide Vermont with a template for analyzing the benefits and costs of expanding its telemedicine network.

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[13] Tracy, J., Telemedicine Technical Assistance Documents. 2004

[14] Ibid

[15] http://www.aafp.org/online/en/home/aboutus/specialty/rural/telemed/telehealth.html

[16] Telemedicine: A Guide to Assessing Telecommunications for Health Care (1996) Institute of Medicine

[17] Tracy, op. cit.

With the potential beneficial impact of telemedicine on rural health and primary care, the State Office of Rural Health, in collaboration with other state partners is in a position to facilitate the following activities:

Objective 2: Increase the adoption of telemedicine services in rural health settings by 10% per year through 2010.

Activity 2.1: *Meet with technology partners including Vermont Information Technology Leaders and the Department of Information and Innovation to improve broadband access and other infrastructure needs to support telehealth activities.*

Activity 2.2: *Provide small grants to support feasibility studies using industry-developed assessment processes.*

Activity 2.3: *Catalog telemedicine and telehealth funding sources and provide support and financing for grant writing activities.*

Activity 2.4: *Feasibility studies should explore the use of telehealth activities to support the Blueprint for Health.*

Activity 2.5: *Convene small rural hospitals, Critical Access Hospitals and regional or statewide stakeholders in to discuss needs and plan applications of telemedicine.*

IV Technology

Goal:* *Vermont rural and primary care providers have adequate administrative, personnel and financial resources to support the delivery of health care to their communities.

> ***" Rural health care delivery systems must be sufficiently stable financially to underwrite investments in human resources and information and communications technology and to implement pay-for-performance initiatives."***
>
> — From: Quality Through Collaboration: The Future of Rural Health, Institutes of Medicine.

Approximately one in three rural residents have inadequate access to health care services and nearly half of rural Americans have at least one major chronic illness (those with underlying or predisposing factors to chronic illnesses would raise that number). On an annual basis, rural residents average fewer physician contacts than their urban counterparts.[18] Rural communities confront a different mix of health and health care needs than do their urban counterparts. Their populations tend to be older than urban populations and experience higher rates of limitations in daily activities as a result of chronic conditions. Although levels of education and socioeconomic status can create variability among rural communities, rural populations do exhibit risk behaviors (i.e. higher rates of smoking and obesity and lower rates of exercise). Populations residing in rural and isolated areas often face unique challenges in receiving adequate healthcare. Unless action is taken now, the future burden of chronic disease in many rural communities will be very significant.

For health care entities, serving these populations and providing quality health care in a rural infrastructure can strain available resources.[19] As a generalization, the smaller, poorer, and more isolated a rural community is, the more difficult it is to ensure the availability of high-quality health services. Compared with urban communities, rural communities tend to have fewer health care organizations and professionals of all types.[20] An important consideration for communities is what

" The result is that the safety net in rural areas generally includes almost all providers in the community; that is, the health care infrastructure in a rural community is the | safety net, and to maintain one is to maintain the other."

—Urban Institute

[18] Quality Through Collaboration: The Future of Rural Health, *www.iom.edu/?id=29734*, downloaded January 12, 2007

[19] HHS Press announcement Jan 13, 2006 *www.hhs.gov*

[20] Ibid

constitutes necessary services. Small hospitals are often responding to community needs by expanding, rather than narrowing, the types of services they provide. Narrowing services may cause communities to perceive reduced accessibility or quality in the diminution of the hospitals functions.[21]

For health care access, local availability is most critical for vulnerable populations, such as the elderly and the poor, who would be least able to travel to obtain services that were not available locally. For the local economy, local availability and control of services ensures that expenditures made on health care are retained by the community. These expenditures, estimated nationally at more than $3,000 per capita per year, including local resources as well as state and federal funds that come into the community in the form of reimbursement for services and direct support for local health care institutions. Finally, without a local health care system, communities may find it difficult to bring in new residents or to attract and retain new businesses and the jobs they represent.[22] A financially stable hospital is crucial to a community's health as well as its economy—especially in rural areas. Hospitals not only provide residents with essential health care services, they are also a major employer and help fuel the local economy. Recognizing that the health system is experiencing a period of fundamental change, careful attention should also be paid to ensuring the financial stability of rural health care delivery systems.[23]

Each rural community must set priorities for addressing personal and population health needs, and develop and implement an action plan. The Institutes of Medicine endorses this "bottom-up" approach to health system reform, and believes that rural communities, because of their smaller scale and other unique characteristics, offer an excellent setting for undertaking rapid-cycle experimentation.[24] .

Strong leadership will be needed to achieve significant improvements in health and health care in rural communities. Comprehensive community-based efforts will require extensive collaboration, both between stakeholders within the health care sector (including local public health), and between health care and other sectors, such as housing, transportation, and social services. It will be necessary to mobilize all types of institutions (e.g. health care, educational, social, and faith-based) to both augment and support the contributions of health professionals.[25] Local public heath resources, especially the Department of Health District Offices could provide leadership and support for this process.

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[21] Supporting the Rural Health Care Safety Net, *www.urban.org*, downloaded January 12, 2007

[22] Ibid

[23] Quality Through Collaboration: The Future of Rural Health, *www.iom.edu/?id=29734*, downloaded January 12, 2007

[24] Ibid

[25] Ibid

Given the challenges of rural populations; defining critical community services; developing strong administrative functions and cultivating leadership small rural providers must maintain an established and secure core infrastructure which supports the provision of quality clinical services. Rural providers, however, often lack the personnel or financial resources to evaluate and improve this core infrastructure.

Objective 1: Critical Access Hospitals and rural primary care performance will be improved for selected measures by activities and programs sponsored by the state.

Activity 1.1: *Develop training opportunities to help rural health and primary care organizations deal effectively with regulatory compliance (e.g. hiring practices, EMTALA, HIPAA), changes in policies and procedures and human resource policies etc.*

Activity 1.2: *Apply electronic communication systems in support of rural and primary care providers such as Web-based staff education and finding information resources (e.g., treating particular diseases, drug information, white papers and assessments of new technology).*

Activity 1.3: *Provide two small grants directly to organizations for:*

- *assessments of existing business operations,*
- *financial benchmarking including CAH impact on financial health of small rural hospitals, FQHC conversions and other financial models,*
- *training sessions to improve billing and reimbursement operations,*
- *networking opportunities for administrators and financial staff,*
- *continuing existing performance improvement activities at the state and regional level.*

Activity 1.4: *Support the implementation of the balanced scorecard methodology in one Critical Access Hospital annually*

Activity 1.5: *Support the utilization of quality and performance improvement benchmarks by Critical Access Hospitals*

Objective 2: Personnel development for quality and performance improvement utilizing peer learning between rural health care providers will result in measurable improvements

Activity 2.1: *Promote statewide networks of peers that learn from each other (ie CEOs and directors of nursing "DONs") re: financial information, changes in public policies (e.g., regulation, payment policies), job descriptions, forms used in surgery, EMTALA policies and procedures, CAH conditions of participation and HIPAA compliance.*

Objective 3: Development and/or financial sustainability of local health providers will be improved by community needs analyses, planning and resource development with progress measured by selected indicators

Activity 3.1: *Support the renewal and development of new federal designations of medical shortage and high need areas (MUP, HPSA, eMUP etc) as well as other designations which enhance the reimbursement and stability of providers (such as Provider-based Entities).*

Activity 3.2: *Support inclusion of small rural and primary care providers in state premier initiatives such as the Blueprint for Health.*

Activity 3.3: *Support local activities which build or obtain capital for program expansion or sustaining existing services (such as capital costs for physical plant).*

Activity 3.4: *Collaborate with Vermont Council on Rural Development to support capital investment in health care resources.*

Activity 3.5: *Promote the development of Rural Health Clinics and Federally Qualified Health Centers in underserved areas.*

Activity 3.6: *Local Public Health District Offices will participate in the assessment and planning for local healthcare needs*

NETWORK DEVELOPMENT VI

Goal: *Networks sustain, strengthen and improve the delivery of physical, oral and behavioral health services in rural communities.*

> ***" There is hope that State Offices of Rural Health can become a driving force behind developing networks and collaborations of relevant organizations to improve services and increase patient access."***
>
> —From: Sawyer, D., Gale, J., Lambert, D.; Rural and Frontier Mental and Behavioral Health Care: Barriers, Effective Policy Strategies, Best Practices. 2006

Health care services have traditionally been the responsibility of many different entities that often have limited or no communication with each other. Through health networks, members may take collective responsibility for allocating resources, measuring outcomes and quality, and assuring access. Health network development strengthens the health system infrastructure by focusing on strategies to improve the operational efficiency of health organizations and their staff, and as a result, patient needs can be addressed and system resources can be managed to ensure quality care in the most appropriate manner. While networks can be convened for a variety of topical issues, there are several common characteristics which can be attributed to them including:

1. Multiple independent organizations, whether they are horizontal (all Critical Access Hospitals) or vertical (hospital, nursing home, schools, etc.) in their makeup;
2. Meaningful participation by each network member;
3. Definition of the roles and responsibilities of network members;
4. Clear short- and long-term benefits of network participation; and
5. Availability of resources to meet network goals. [26]

Given that health networks may provide many financial and non-financial returns and are seemingly beneficial by nature, community organizations and individuals often underestimate the professional challenges inherent in network development. A difficult aspect of network participation is to reconcile conflicts between individual member goals and

[26] Bonk, G.; Principles of Rural Health Network Development and Management. 2000

shared goals of the network. A successful network includes members who can recognize these differences and still see the benefit of joint activities. The strength of a rural network is no greater than the professionals and organizations that comprise the network. Thus, the network must continue to strengthen the service and operational components of individual members in order to maintain appropriate access to health care services as well as member participation. It is no surprise then that many health networks take significant time to develop before members begin to have a clearer vision and sense of cohesion as a group.

Vermont health professionals feel that they have close working relationships among medical professionals, human service agencies and public health, yet there are still many opportunities for developing local and statewide health networks.

Many examples of network development exist within Vermont, regionally and nationally. Below are examples of current network development activities and opportunities:

Rural Hospitals

Small rural hospitals have been engaged in quality improvement activities as a result of work done by the Rural Hospital Flexibility (Flex) Program and resources made available by the Small Hospital Improvement Program (SHIP). With funding from the State Office of Rural Health and Primary Care, the Vermont Program for Quality in Healthcare developed Learning Collaboratives for Vermont's small rural hospitals, which ultimately became a direct precursor to the collaborative work being done across the state as part of the Blueprint for Health. Given this work, there are still tensions regarding hospital quality, these include medical provider concerns about objectivity and confidentiality, lack of infrastructure to collect and analyze data, a limited research base for rural quality improvement, an urban bias and data problems related to quality measurement (selecting quality measures that occur frequently enough). Hospital networks have been convened to address many of these issues.[27]

Safety-net Programs

Primary Care – BiState Primary Care Association has been working with the Federally Qualified Health Centers to formalize their network for the purposes of developing and supporting 340b (federal discounted medication) programs among its members for their patients.

[27] Kemp, K., Campion, C., Moscovice, I.;Quality Improvement in Rural Hospitals: How Networking Can Help. August 2002

Mental Health - Behavioral Health Network (BHN) is reinvigorating itself as a member-based network of Designated Mental Health Agencies in order to address statewide issues including quality, dissemination of best practices (Medical Home Project) and working with special populations (corrections).

Mental Health

Practitioner to Practitioner (PTOP)
Referral source of mental health practitioners in VT (http://www.ptophelp.org/)

PTOP HELP (Practitioner to Practitioner Help) offers an online database linking primary care practitioners with the mental health practitioner best suited to meet their patients' treatment needs. It also allows consumers to search the database directly to research their own mental healthcare needs. Database users can match a practitioner to location, discipline, specialty, service and accepted insurance. A limited listing for Vermont mental health and substance abuse support meetings and educational resource articles is provided. This is a good example of virtual networks that can benefit consumers as well as health care professionals.

Emergency Medical Services

Vermont has approximately 90 ground ambulance services throughout the state or one ambulance service for every 2.8 towns or one service for every 7,000 Vermonters. Numerous networking opportunities are possible for EMS services. In particular, development of networks to promote networks and alliances to support regionalization of EMS services as a way to improve quality, decrease costs and stabilize the EMS system is occurring in other states.

Objective 1: The number, membership and activities of rural networks in Vermont or regionally will increase

Activity 1.1: *The State Office of Rural Health refines their current definitions of networking activities and functional qualities of networks.*

Activity 1.2: *Support an undergoing network assessment process utilizing recognized network-specific tools and processes such as those referenced at the Rural Assistance Center.*

Activity 1.3: *Promote local networks which are appropriately coordinated with state or regional activities through District Health Office participation and linking to state premier initiatives such as the Blueprint for Health.*

Activity 1.4: *Promote local networks which are appropriately coordinated with and include Critical Access Hospitals.*

Activity 1.5: *Expand membership or statewide scope of existing rural health networks*

Objective 2: The quality, efficiency, financial viability and integration of local emergency medical services with Critical Access Hospitals will be improved

Activity 2.1: *Integration projects between CAHs and local EMS will be supported with Office of Rural Health resources*

Activity 2.2: *Analysis and technical assistance services for communities and local EMS services will be provided with the support of the state Office of Rural Health and EMS programs*

Activity 2.3: *Management training and other services to improve the quality and efficiency of EMS will be supported by the state Office of Rural Heath and EMS programs.*

HEALTH DISPARITIES VII

Goal: ***All Vermonters experience optimal health outcomes through equal access to appropriate health information, education and services.***

> ***" The demographic changes that are anticipated over the next decade magnify the importance of addressing disparities in health status. Groups currently experiencing poorer health status are expected to grow as a proportion of the total U.S. population; therefore, the future health of America as a whole will be influenced substantially by our success in improving the health of these groups."***
>
> — Office of Minority Health www.cdc.gov

Health disparities are differences in the incidence, prevalence, mortality, and burden of diseases and other adverse health conditions that exist among specific population groups in the United States." [Addressing Health Disparities: The NIH Program of Action. 2001] Leaders in public health have noted that the roots of many health disparities often stem from the social, economic and ecological factors at play, frequently referred to as the determinants of health. How these determinants of health cause inequities in health status and how public health in turn mitigates them, coalesces in sound surveillance, assessment, and evidence based health promotion and intervention strategies.

Similar to many parts of the United States, Vermont is experiencing a demographic change as well that is, more so than ever before, calling attention to the need to address this public health issue of health disparities. Our racial and ethnic minority communities have increased steadily over the past decade, our aging population (aged 65 and older) is projected to increase 60 percent and our rural communities continue to be challenged by inadequate transportation, poverty and high unemployment compared to our largest urban center. The health of our agricultural community is taxed by inadequate or no health insurance, arduous physical labor and unpredictable economic times. We gain insights to these populations by the data that we monitor on a state and national level. The Centers for Disease and Prevention identified several health areas in which ethnic and racial minorities experience significant disparities including infant mortality, cancer screening and management, diabetes, cardiovascular disease and immunizations.

A number of Vermont reports underscore the health disparate populations and issues in our state. A 2006 survey of Vermont farmers noted many health problems experienced, among them significant arthritis and chronic joint problems. This same population experienced higher rates of obesity and overweight than the general population.[28] Another report regarding migrant farm labor reported:

> *"Health status of the migrant workers in Vermont appears to be similar to that found in national studies such as the Migrant Clinician's Network report. Workers typically report a lack of consistent primary care during childhood and adolescence, questions about whether or not their vaccinations are up to date, doubt that tetanus boosters were received, lack of screening for TB, and very limited access to dental care. However, most workers reported that it was far easier to access care in Mexico than here in the states."*[29]

Finally, analysis of data collected through the Behavioral Risk Factor Surveillance System and from professional licensing surveys indicates urban rural disparities in a variety of areas. Differences between urban and rural areas (Chittenden County vs all other counties) can be significant such as:

- The percent of persons 65 years and over is 31.7% higher (10% urban, 14.6% rural)
- The percent of persons under 100% of the Federal Poverty Level is 42.6% higher (8.8% urban, 15.3% rural)
- The percent of persons with less than a high school diploma is 36.4% higher (9.4% urban, 14.8% rural)
- The percent of persons with health insurance is 5.3% lower (90% urban, 85.5% rural)
- The prevalence of diabetes is 17% higher (4.6% urban, 5.6% rural)
- The percent of persons 65 years and over with an influenza immunization is 7.5% lower (75% urban, 69.8% rural)
- The percent of persons obese is 22% higher (16% urban, 20.5% rural)
- The percent of persons with all natural teeth extracted is 23.8% higher (18% urban, 23.6% rural)

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[28] Vermont Department of Health, University of Vermont Extension. Vermont Farm Health Survey: Summary Report, 2007

[29] Assessing the Health Status, Health Care Needs, and Barriers to Care For Migrant Farm Labor in Franklin, Addison, and Grand Isle Counties 2006

- The percent of persons with no leisure time physical activity is 20.6% higher (16% urban, 20.1% rural)
- The percent of persons smoking cigarettes is 22.5% higher (17% urban, 21.9% rural)
- The physician Full Time Equivalency (FTE) to population ratio is 27.3% lower (92 FTE per 100,000 persons urban, 72 FTE per 100,000 rural)
- The dentist FTE to population ratio is 32% lower (42.5 FTE per 100,000 urban, 32.2 FTE per 100,000 rural)

Additional measures to understand the extent of Vermont's health disparities will greatly improve the ability to target interventions. Researchers have recommended that public health agencies begin to develop surveillance measures of the social, economic and environmental determinants of health through a multidisciplinary approach. "With expanded surveillance measures, we in public health can determine how social factors influence prevention and management of chronic diseases." As with all public health data, these surveillance measures will inform our ongoing work, the strategic planning efforts that we undertake whose overall goal is to improve the public's health through information and education, community partnerships, policies and plans, and a skilled, competent workforce.

In collaboration with the Vermont Office of Minority Health and Health Disparities:

Objective 1: Access to public health and health care services for minority, rural and health disparate populations in Vermont will be improved as measured by the number of communities that have enhanced or expanded access.

Activity 1.1: *Seek new ways to collaborate with existing Vermont partners and inform them regarding ongoing minority and health disparate health initiatives.*

Activity 1.2: *Seek new avenues to educate the public on minority and disparate health issues.*

Activity 1.3 *Seek avenues for initiating special projects at the university, state, and federal levels focused on minority health and disparity.*

Activity 1.4: *Continue to build upon collaborative projects addressing the needs of health disparate populations including the Migrant Farm Labor and Farm Health Initiative.*

VII Health Disparities

EVALUATION VIII

Goal:* *Vermont State Office of Rural Health and Primary Care maintains high caliber programming through ongoing evaluation efforts that serve to inform and improve public health initiatives.

"Effective program evaluation is a systematic way to improve and account for public health actions that involves procedures that are useful, feasible, ethical, and accurate."

In 1999, the Centers for Disease Control and Prevention (CDC) published a document titled "Framework for Program Evaluation" outlining the scope, utility and applicability of evaluation in terms of a number of areas including:

- Direct service interventions
- Community mobilization efforts
- Research initiatives
- Surveillance systems
- Policy development activities
- Outbreak investigations
- Laboratory diagnostics
- Communication campaigns
- Infrastructure building projects
- Training and education services
- Administrative systems

The initiatives undertaken by the Office of Rural Health and Primary Care are broad and all encompassing, its constituents many and diverse. Yet in order to assure its effectiveness in the present and future, establishing a system that allows for a cyclical assessment of its efforts and the impact of these efforts at timed intervals is essential. The established system needs to be transparent and participatory. It should reflect a process that allows for the Office of Rural and Primary Care and its funded programs to consider in greater depth if the intended goal is being achieved and what the impact may be. It should also facilitate a process in which programs are encouraged to review their own actions and consider ways

in which the activities could be done differently or better. Lastly, evaluation presents an opportunity to utilize a systematic approach that is designed to inform decision making, program planning and development and/or policy.

A previous evaluation of the State Office of Rural Health and Primary Care Rural Hospital Flexibility (Flex) Program indicate that it is important to monitor both the process indicators to determine the extent to which programs are accomplishing what they proposed as well as outcome indicators to demonstrate the impact of the program. That previous evaluation also indicated that while it is important to review national measures for Flex Program performance, it may be necessary to work with stakeholders to understand perceptions and definitions of success that may not be the same as national measures.

Objective 1: Incorporate an ongoing evaluation infrastructure into programs of the Office of Rural Health and Primary Care by 2010 that will include tracking activities, outcomes and changes in health quality, sustainability or access.

Activity 1.1: *Develop evaluation measures in collaboration with local stakeholders that are both qualitative and quantitative in nature.*

Activity 1.2: *Assure evaluation results are incorporated into a Continuous Quality Improvement system.*

ACKNOWLEDGEMENTS

BiState Primary Care Association

Critical Access Hospitals

Dental Hygiene Association

Department of Disabilities, Aging and Independent Living

Department of Health, Division of Health Surveillance

Department of Labor

Division of Mental Health

Early Periodic Screening Diagnosis and Treatment Program

EMS – State and University representation

Federally Qualified Health Centers

Local Health Offices

New England Rural Health Round Table

Office of Vermont Health Access

Small Rural Hospitals

State Premier Initiatives such as the Blueprint for Health

University of Vermont Office on Nursing Workforce

UVM Area Health Education Centers Program

Vermont Association of Hospitals and Health Systems

Vermont Coalition of Clinics for the Uninsured

Vermont Information Technology Leaders

Vermont Medical Society

Vermont Program for Quality in Healthcare

METHODOLOGY FOR DEVELOPING THE PLAN

A. Convene Advisory Committee to Define Strategic Plan Parameters

Meetings with both the Flex Advisory Committee and the Primary Care Collaborative were held to:

- Discuss advantages and disadvantages of various approaches to the plan development;
- Evaluate the availability of key data sources;
- Identify challenges and opportunities within the process; and
- Build consensus and support for the study.

B. Conduct Literature Search and Secondary Source Review

The second task was to conduct a literature search and review of secondary source materials. The literature search was used to identify best practices in the field that offer advice for program implementation and possible benchmarks for Vermont's services. The secondary source review included a review and annotation of existing data sources which was used to describe and quantify the rural health and primary care landscape.

C. Inventory of Vermont Activities to Improve Primary Care Access and Rural Health Status

As part of the planning process an inventory of current Vermont SORHPC activities and other activities to improve primary care access and rural health status was be conducted to augment the information collected in the literature search and secondary source review. In addition to reviewing materials, the inventory process included information collected through key informant interviews.

D. Qualitative Assessment: Key Informant Interviews

Key informant interviews were used to understand the perspective of stakeholder groups associated with the SORHPC. These in-depth interviews provided a window to learn about key perspectives on the programs which may be outside of the main program structure. In addition, key informants contributed to the identification of plan priorities. Stakeholders included a broad group of people who have an interest in the program or who are directly affected by its services. The objective of including these parties in the evaluation was to incorporate a range of perspectives on how well the program works, how effective it has been and how important it is to the improvements of health outcomes and health systems infrastructure.

Vermont's Healthcare Landscape

In 2000, nearly one-quarter (24.1% or 146,571) of Vermont's population lived in Chittenden County which is the only county entirely in the Metropolitan Statistical Area (MSA). The remaining 765% of the population lived in rural areas, and similar to many rural areas throughout the United States, persons 65 and over are disproportionately located here. As the demographics of Vermont change, the uneven distribution of older Vermonters outside of Chittenden County will greatly impact the need for a strong rural healthcare infrastructure.

Assumptions about the utilization of the healthcare system, particularly as they relate to those who may be dependent upon its safety net, frequently comes from quickly drawn conclusions about urban centers and their respective "crowded emergency rooms at public urban hospitals.[32]" Conversely, however, literature has documented a more accurate understanding of rural populations, being:

- they may have significant health care needs and encounter access barriers that are "no less substantial" than their urban counterparts;
- typically they are older, poorer, and have lower levels of education;
- hospitals and physicians are fewer in number in rural communities; and,
- travel times to healthcare providers are longer; complicated by the lack of public transportation.

The predominant characteristics of Vermont's rural populations are captured by the aforementioned observations. 91.6 percent of the state's population 65 years of age and older reside in a rural community, projected to grow by 60% over the next two decades; 26.7% of the population could be considered low income, 200% of the FPL; and, the majority of the state's rural population lacks access to public transportation. As with the shift in Vermont's demographics, a parallel shift in geographic distribution of the population may very well follow suit.

The following is an overview of Vermont's landscape in terms of demographic characteristics, health status of the population and health care infrastructure. This overview is intended to inform planning decisions, priorities and strategies of the State Office of Rural Health and Primary Care over the course of the next three years. The overview draws heavily on census

[32] Osmond BA, Zuckerman S, Lhila A. Rural/Urban Differences in Health Care Are Not Uniform Across States Posted to Web: May 01, 2000, *www.urban.org*

projections as a primary source to better understand population trends among age cohorts that may ultimately place demands upon Vermont's current health care infrastructure. Key health status reports produced by the Department of Health are referenced to provide insight to the overall health of the population and areas where healthcare resources may need to be directed. Findings from several statewide initiatives that have researched the current trends in Vermont's health care workforce are examined to identify strengths and deficits. Lastly, the overview draws upon the literature to challenge this plans interpretations and conclusions, ensuring accuracy and elucidating the state of Vermont's rural health and primary care systems in the context of national trends and state and regional comparisons.

A. Demographic Profile

1. Age & Geographic Distribution

Vermont's age distribution is similar to the distribution of the United States population, with the exception that Vermont has smaller proportions of children (0 to 12) and larger proportions of middle aged (45 to 64) and older (65+) adults. In 2000, 18.5% of the population in the U.S. was 0-12, compared to 16.8% in Vermont. Only 21.9% of the U.S. population were in the 45-64 age bracket in 2000, whereas 24.7% of people living in Vermont fell into this same age bracket with 12.7% of the population being 65+ years of age. Teens and young adults (20 to 24) represent virtually the same proportion of the population as teens do nationwide. In 2000, teens represented 10.4% and 10.0% of the state's and nation's total population, respectively, and young adults, 20 to 24 years of age, representing 6.3% and 6.8 of the state and nation's population respectively.

Given the slowing growth of the State's population due to fewer new births and the out-migration of young Vermonters, a significant change in demographics is expected. By the year 2020 Vermont's population is projected to grow to 690,686 accounting for an approximate 13% increase from the 2000 census population counts. As a result of this population growth there will be a dramatic shift in the distribution of Vermonters in specific age cohorts. Most noteworthy, the change in the under 20 population which is projected to decrease by 20%, and the 65 and over population, projected to increase by 60% within two decades. It could be expected that age distribution by rural/urban population will experience a similar shift.

TABLE 1.
Demographic projection by age cohort

Age	2000 Population	2020 Projection
<20 years	27%	22%
20-44	35%	30%
45-64	25%	27%
65+	13%	21%

*Source: Vermont State Health Plan 2005, page 107

TABLE 2.
Age distribution by rural/urban

Age	Percent of total population	
	Urban 2000	Rural 2000
<18 years	23.5	76.5
18-24	13.1	86.9
25-44	32.0	68
45-64	21.9	78.1
65+	9.4	91.6

*Urban–Chittenden County; Rural–All other Vermont Counties

*Source: U.S. Census Bureau

2. Minority, Refugee and Migrant Populations

Vermont's population is predominantly White, non-Hispanic. In 2000, 96.1% of Vermont's population was White compared to 69.1% for the nation overall. Hispanics made up 0.9% of the state's population, Asians 0.8%, and African American's 0.5%. 1.7 percent of the state's population fell in other (non-Hispanic) categories. The distribution of the population by race/ethnicity was nearly identical across all of Vermont's counties. Only 3.8% of Vermont's population is foreign born compared to 11.1% for the nation overall.

Between 1980 and 2004, Vermont received 4,770 refugees. In 2004, 270 refugees arrived in Vermont. As part of public health direct services, health evaluations take place within 30 days of arrival and are conducted by a community health center located in the state's MSA and private health care providers. In order to build health care infrastructure, the Department of Health recruits and orients primary care providers for assessment, treatment, and ongoing management of refugee health needs. The Refugee Health Coordinator, the State Coordinator, and the District Office staff work closely with the Vermont Refugee Resettlement Program, the Office of Minority Health, and private providers to assure that care is available, accessible, and culturally appropriate. Interpreter services are arranged through contacts with the local resettlement agency, as well as with the LLE (Language Learning Enterprises).

According to a recent study by the Vermont Department of Health:

> *"Migrant farm workers are one of the fastest growing populations in Vermont. The current estimate from the Department of Agriculture is that about 2,500 are working on dairy farms throughout the state, with the greatest concentration being in Franklin, Grand Isle, and Addison Counties.[33]"*

3. Poverty

By and large, Vermont has smaller proportions of people living in poverty than the nation. In 2000, 9.4% of Vermont's population lived at or below the federal poverty level (FPL) compared to 12.4% for the nation overall; 26.7% of the population could be considered low income, 200% of the FPL, compared to 29.6% of the national population. Estimates from 2003 indicate a poverty rate of 9.7% exists in rural Vermont, compared to 8.0% in urban areas of the state. Data from the US Census Bureau indicate an increase in the number of families and individuals living below 100% of the federal poverty level (FPL). Although Vermont currently ranks better than the United States average, a corresponding upward trend of increasing poverty across family types and age cohorts is expected.

[33] Assessing the Health Status, Health Care Needs, and Barriers to Care For Migrant Farm Labor in Franklin, Addison, and Grand Isle Counties 2006

TABLE 3.

US Census Bureau, Vermont Poverty Data

Indicators	1999	2005
Families		
Total below poverty level	6.3%	7.7%
With related children under 18 years	9.7%	13.1%
With related children under 5 years only	12.9%	13.1%
With female household leader no husband	24.1%	33.3%
Individuals Total 9.4%	**11.5%**	
18 years and older 8.8%	10.3%	
65 years and older 8.5%	9.5%	

4. Employment & Education

Vermont has the lowest unemployment rate in New England, yet wages continue to be below regional standards. In April 2005, Vermont had less unemployment (seasonally adjusted 3.3%) than the national average (seasonally adjusted 5.2%). For the same time period (April 2005), Grand Isle county had the highest unemployment rate (not seasonally adjusted 6.2%) while Chittenden County had the lowest (not seasonally adjusted 2.9%). Although the state has worked to preserve an above federal level minimum wage, "good paying" jobs (manufacturing and information) are few, challenging the state's ability to attract and retain a young workforce. In 2005, one in five of the state's workers was 55 years of age or older, with workers between the ages of 25 and 54 participating in the workforce dropping from 71 percent in 1999 to 65 percent in 2005. Vermont's median wage is the second lowest in the region and below national wage ($14.28) with a significant gap in wage growth between high-, middle- and low-wage workers of 32 percent.34

Sixty percent of Vermont's workforce is well educated with one-third of the state's workers having a four-year college degree in 2005.[34] In that same year, approximately 60 percent had some college education. However, in 2000, 14.5% and 11.5% of rural and urban populations respectively have not completed high school.[35]

[34] Public Assets Institute and Carsey Institute Publish Brief on State of Working. Vermont, Vermont Employment Rates High, But Wage Levels Low. September 14, 2006. *www.unh.edu*

[35] USDA-ERS, 2005 Vermont Department of Health, BRFSS

5. Health Status[36]
The Vermont Department of Health tracks risk behaviors with the Behavioral Risk Factor Surveillance Survey (BRFSS), an annual telephone survey of adults. As part of the survey, an adult (18 or older) from each household is asked a uniform set of questions. The results are weighted by age and gender to represent the adult population of the state. Data from the BRFSS suggests that Vermont, like many other states, has rural/urban health disparities on a number of indicators. Chittenden County, the state's only completely urban county, ranks at the top or second on many health status indicators as compared to the state's rural counties including. The differences in health status underscore the disparities between urban and rural areas, specific disparities include:

- The percent of persons 65 years and over is 31.7% higher (10% urban, 14.6% rural)
- The percent of persons under 100% of the Federal Poverty Level is 42.6% higher (8.8% urban, 15.3% rural)
- The percent of persons with less than a high school diploma is 36.4% higher (9.4% urban, 14.8% rural)
- The percent of persons with health insurance is 5.3% lower (90% urban, 85.5% rural)
- The prevalence of diabetes is 17% higher (4.6% urban, 5.6% rural)
- The percent of persons 65 years and over with an influenza immunization is 7.5% lower (75% urban, 69.8% rural)
- The percent of persons obese is 22% higher (16% urban, 20.5% rural)
- The percent of persons with all natural teeth extracted is 23.8% higher (18% urban, 23.6% rural)
- The percent of persons with no leisure time physical activity is 20.6% higher (16% urban, 20.1% rural)
- The percent of persons smoking cigarettes is 22.5% higher (17% urban, 21.9% rural)

B. Healthcare Infrastructure

1. Workforce
Almost 28,700 people were employed in a health care profession in 2000, representing approximately 9.7% of Vermont's total workforce. In that year, the state ranked 12th in the nation in per capita health services employment and saw a per capita growth rate of 35% in health services sector employment.

[36] Vermont Department of Health, BRFSS

The 2004 Vermont physician licensing survey, administered by the Department of Health, found that there were 1612 physicians providing patient care in the state, with 634 working mainly in primary care, and 978 working mainly in specialty care. Although Vermont ranks 7th in the nation for physicians per capita, there is uneven distribution within the state. The ratio of primary care physician to population ranges from a low of 11.8 Full Time Equivalent (FTE) physicians per 100,000 persons in Grand Isle County to a high of 95.1 FTEs per 100,000 persons in Bennington County. Chittenden County, Vermont's urban county ranks second at 92.0 FTE per 100,000 persons. Workforce disparities exist between rural and urban areas. According to this same survey the primary care physician FTE to population ratio is 27.3% lower in rural areas of the state (92 FTE per 100,000 persons urban, 72 FTE per 100,000 rural).

The nursing workforce issue in Vermont mirror that of the nation's, spurring statewide collaborations and initiatives informed by a similar survey to that of the physician's licensing survey. The University of Vermont, Office of Nursing Workforce Research, Planning and Development and the Vermont Board of Nursing collaborate to conduct a bi-annual re-licensing survey which is mailed to every registered nurse. Data obtained through this survey indicates that, while there are 9,784 registered nurses licensed in Vermont, 40% of these nurses do not currently work in the state.

There are approximately 5868 licensed registered nurses employed in a variety of settings in Vermont including:

- Hospitals - 50%
- Home health agencies - 10%
- Long term care facilities - 8%
- Ambulatory /outpatient and community health centers - 8%
- "Other" settings - 8%
- Schools - 7%
- Public health agencies - 3%
- Independent practice - 3%
- Nursing schools and mental health centers <2%
- Assisted Living - 1%
- Correctional facilities - <1%

While Vermont exceeds the national nurse per capita average of RNs by almost 20% (Bureau of Labor), in 2003 the Office of Nursing Workforce Research, Planning and Development reported vacancies that cut across urban and rural areas, including 12% vacancies in hospitals and home health as well as 19% vacancies in long term care. Given that the demand for registered nurses is expected to increase 34% by 2010, these vacancies will continue to persist[37].

Similar trends exist in many health care professions within Vermont. While mental health workforce shortages fall below desired levels, Vermont still exceeds the national averages of psychiatrists, psychologists and social workers per capita. Dentists, while exceed national averages are rapidly aging in rural remote Vermont communities and are maldistributed between rural and urban regions of the state (the primary care dentist FTE to population ratio is 32% lower in rural areas; 42.5 FTE per 100,000 urban, 32.2 FTE per 100,000 rural). Finally, per capita Licensed Practical Nurses, Nurses Aids and Pharmacists all fall well below national averages, ranking 32nd, 35th, and 47th in the nation respectively.

2. Vermont Hospitals and Outpatient Facilities[38]
There are a total of 1530 state licensed acute care hospital beds. Actual capacity however, is estimated to be no more than 1200 beds (these figures do not include Dartmouth Hitchcock Medical Center in Lebanon, NH which is a provider to Vermont residents). Thirteen hospitals operate emergency departments in Vermont and are relatively small community hospitals. Two (Fletcher Allen Healthcare and Dartmouth Hitchcock Medical Center) are academic medical centers that offer a broad array of tertiary services including American College of Surgeons verification as Level I trauma centers. Eight of the nine hospitals eligible for the Critical Access Hospital (CAH) Program have converted. Given that recent analysis indicates that the ninth and final hospital exceeds the standards for average length of stay, Vermont does not anticipate its conversion to a CAH in the foreseeable future.

All fifteen hospitals accept ambulance patients, and all are involved in the oversight of Emergency Medical Services (EMS) through both off-line and on-line medical direction. The hospitals in Vermont have well-established agreements for the purposes of patient transfers.

[37] *http://www.choosenursingvermont.org/reports/pdfs/rn2005.pdf*

[38] *http://www.bishca.state.vt.us/HcaDiv/HRAP_Act53/HRC_BISHCAcomparison_2005/Printable_BISHCA_Hosp-report_summary.pdf*

Select characteristics of Vermont hospitals (excluding DHMC and the VA Hospital) are listed below. Of the hospitals serving Vermont residents in 2006 those located within Vermont had the following characteristics:

- A combined total of 294,416 hospital days
- 5.9 days average patient length of stay
- Physical plant with average age of 10.5 years
- Bad debt represented 1.6% of their total revenues (approximately $37,535,335)
- Free care represented 1.2% of their total revenues (approximately $28,151,501)
- Average cost per adjusted admission of $9,059

Out-patient Facilities. Vermont has approximately 254 primary care practices statewide including seven that have been designated as Federally Qualified Health Centers and 21 designated as Rural Health Clinics (see descriptions below).

3. Designated Mental Health Agencies
State law specifies that Vermont's publicly-funded community services system for individuals of all ages with developmental disabilities and mental health disorders be provided through Vermont's Designated Agencies. The Designated Agencies are private nonprofit community provider agencies who are contracted by the Department of Mental Health for mental health services and the Department of Disabilities, Aging, and Independent Living for developmental services. The mental health programs within the Designated Agencies are more widely known as the Community Mental Health Centers (CMHCs).

Vermont has ten Designated Agencies and one Special Service Agency providing mental health services across all fourteen counties. While the mental health services offered can vary by agency, there are a set of core service functions including, but not limited to:

- outpatient services including psychiatry
- individual, group and family counseling
- outreach
- crisis, and support services including community skill development
- respite
- psycho-education for children and families

A number of the CMHCs are also the primary providers of substance abuse treatment services in their communities, and have contracts with both the Department of Health, Division of Alcohol and Drug Abuse Programs. Many of the CMHCs also hold contracts with the Department of Corrections, the Department for Children and Families (Family Services Division and Child Development Division), and the school districts in the form of school-based mental health services. Vermont has structured its program to ensure the highest level of federal financial participation through the State's Medicaid program.

In State Fiscal Year 2006 the CMHCs served 6,908 individuals in their adult mental health outpatient treatment services; 10,061 in their children's services programs; 4,208 individuals in their emergency services programs; 3,553 in their community rehabilitation and treatment programs and 5,535 in their substance abuse programs, providing a total of 227,059 total clinical interventions across all populations and service categories.

4. Local Health Offices

The Department of Health operates 12 Local Health Offices, each in a specific part of the state with a central office in Burlington. Unlike other state systems, this is not county-based because all work of the Local Health Offices are funded and coordinated through the Central Office. All residents of Vermont have a Local Department of Health office they can count on for health information, disease prevention, emergency response services and to promote and protect health through planned programs and activities.

All District Offices provide the following:

- Maternal Child Health Services - WIC, Immunizations, Lead Testing, Breastfeeding Information/Support
- Town (Municipal) Health Officers
- Breast and Cervical Cancer, Cardiovascular Disease Risk Screening Services through Ladies First
- Outreach for Medicaid and Dr. Dynasaur
- School Health
- Refugee Health
- Environmental Health
- Disease Investigations
- Emergency Preparedness

[39] Vermont State Health Plan, 2005, part 4, pages 60-62

5. Emergency Medical Systems[39]
Vermont has a statewide EMS system that includes 92 ambulance services, 79 first responder services, 15 hospitals that operate emergency departments, and about 3000 certified EMS personnel. The state has one helicopter air ambulance based at the Dartmouth Hitchcock Medical Center in New Hampshire that provides service throughout Vermont. For EMS administrative purposes, mutual aid, training, medical direction and similar functions, Vermont is divided into thirteen EMS districts. Each district is centered around one or two resource hospitals that represent the most likely transport destination for ambulances within the district.

Most ambulance services in Vermont are community-based organizations that are configured in one of the following ways: non-profit corporations, for-profit corporations, fire-affiliate, or municipal service. Many of the ambulance services rely heavily on volunteer personnel for staffing although there has been a trend in recent years to mixed career and volunteer staffing models. Most ambulance services operate only one or two ambulance vehicles. The overwhelming majority of ambulance services provide EMT-Intermediate level service and a minority provides EMT-Paramedic level service.

First responder services tend to be based in the state's smaller communities and are more heavily dependent upon volunteer staffing than ambulance services. These organizations respond to EMS calls to provide faster access to emergency medical care than a responding ambulance crew. Most first responder services operate at the EMT-Basic or EMT-Intermediate levels.

6. Federally Qualified Health Care Centers and Rural Health Clinics[40]
Federally Qualified Health Centers (FQHC) and Rural Health Clinics (RHC) have been developed in response to the difficulty accessing primary care services for Medicaid, Medicare uninsured, underserved and marginalized communities. Each model provides primary care, is developed in an area designated by the federal government as underserved and each benefits from an enhanced reimbursement for Medicaid and Medicare services. Rural Health Clinics are only developed in rural areas and can specialize in primary care (Pediatrics, Internal Medicine, Family Practice, Obstetrics). Reimbursement for RHCs for Medicaid and Medicare is enhanced, but lower than an FQHC, can be for profit or not-for-profit and owned by an individual, group or organization. RHCs can only exist as a single site, not a network of RHCs.

[39] Vermont State Health Plan, 2005, part 4, pages 60-62

[40] Vermont Department of Health Title V MCH Needs Assessment

Federally Qualified Health Centers can be developed in rural or urban areas and must provide comprehensive primary care services across the life span. FQHCs must be 501c3 with a 51 percent consumer board. FQHCs can be part of a network of clinics or satellites with a central administration and can receive base grant funding to support their services. There are 14 Rural Health Clinics in Vermont; Six Federally Qualified Health Centers and one FQHC Look-Alike providing services at 45 sites in the state (Vermont Office of Rural Health & Primary Care, 2007).

7. Free Clinics[41]
The Vermont Coalition of Clinics for the Uninsured (VCCU) is an association of nine free medical clinics and one free dental clinic serving the needs of Vermonters without medical and dental insurance and without the means to pay for their health care. The clinics, governed by community-based boards of directors, are located throughout the state and are supported by the work of volunteers, community hospitals, local fund-raising and an annual grant from the State of Vermont. Each clinic offers free primary health care and/or referral services through two different program models: the Volunteer Model and the Integrated Model.

Volunteer Program Model. The majority of VCCU clinics are traditional free clinics. They operate as free-standing health care facilities, staffed by medical volunteers. Services are offered evenings, weekly to several times a week. Several volunteer-model programs are moving towards the integrated program model, and one clinic operates as both.

Integrated Program Model. Clinics using the integrated model work through local hospitals and medical care practices to integrate their clients into the mainstream provision of health care services. People are screened for eligibility in assistance programs including hospital affordable care programs and Medicaid extension programs. Clinics using the integrated model are staffed by a case manager who refers patients directly to participating primary care practices, which then become the patients' "medical home".

The free clinics have access to a broad range of services that range from specialized medical care to in-patient hospital care. Each program is able to refer people to its local hospital for care. The hospitals have expanded their free care policies to accommodate referrals from the free clinics.

[41] Vermont Department of Health Title V MCH Needs Assessment

8. Technology
Approximately 38% of primary care practices have an Electronic Health Record (EHR) or anticipate implementing one in the next 12 months. This figure is comparable to national data; however we would expect that solo and rural practices will have additional barriers to adopting such technology. While telehealth technology has existed for some time, the penetration throughout the state could be improved. This could be in part due to the fact that broadband access is not available in all parts of the state and is a necessary infrastructure for telehealth development.[42]

C. Financing

The Vermont Division of Banking, Insurance, Securities and Health Care Administration (BISHCA) implements the Vermont Household Health Insurance Survey which is based upon telephone interviews of randomly selected households in Vermont. This survey revealed that 61.5% of Vermont residents are covered by private insurance, 19.1% are covered by Medicaid, 14.9% are covered by Medicare and 9.8% are uninsured. Private insurance coverage was consistently lower in rural areas of the state (outside Chittenden County).

The proportion of residents who are uninsured had and increase of 1.4% from the 2000 survey with the highest rate of uninsured in the 18 to 34 year old category. Of the uninsured, approximately one third have been without insurance for less than a year and another third have lacked insurance for five or more years.

There are over 30,000 uninsured individuals who are eligible for coverage through the Medicaid program. Nearly 80% of all uninsured children (17 and under) meet current eligibility requirements and nearly 50% of uninsured adults (age 18 to 64) meet eligibility requirements.

Twelve percent of insured individuals reported concerns that they would lose their health insurance during the next 12 months, and those individuals covered by Medicaid expressed the most concern. Twenty-six percent of all those covered by Medicaid expressed concern due to seasonal variability in income, potential cost increases and fear the program would be cut.

Approximately 50% of all Vermont residents are covered by an insurance plan that pays for routine dental care with child coverage nearly 71%. A slightly lower percent of Vermont residents are covered by a plan that pays for vision care. About 82% or 508,063 Vermonters have some type of prescription drug benefit as part of their insurance coverage.[43]

[42] Health Information Technology & Primary Care in Rural Vermont: An Assessment and Resource Inventory BiState Primary Care Association, December 2005

[43] *http://www.bishca.state.vt.us/*

Catamount Health, established by the Legislature in 2006, will create a new state-subsidized health insurance plan for uninsured Vermonters. People who are eligible for insurance through their employer may be able to receive assistance with the cost of premiums and other out-of–pocket costs (deductibles and copays) if the insurance offered by the employer meets certain coverage standards. People who do not have insurance and are not eligible for adequate insurance through employment will be eligible to purchase insurance at reasonable rates, and those who meet certain income guidelines will be eligible for help paying the premium.

D. Programs of the Office of Rural Health and Primary Care

The health of Vermonters depends, in part, upon access to basic health care—especially in the more rural areas of our state. The Office of Rural Health and Primary Care provides planning, technical assistance and resources to improve access to health services throughout Vermont.

OFFICE ENGAGES IN FOUR MAJOR ACTIVITIES:

Healthcare workforce development

This includes statewide healthcare workforce assessments, as well as recruitment and retention programs for loans, scholarships and other placement programs. These activities include administration of Vermont's health professional loan repayment and loan forgiveness programs, Conrad J1 Waiver applications, National Health Service Corps placements, and state resources allocated to the Area Health Education Centers.

Health care access assessment, designation and resource development

The Office gathers appropriate regional data and recommends shortage and rural area designations to HRSA. These designations enable eligibility for Federally Qualified Community Health Centers (FQHCs), Rural Health Clinics, Critical Access Hospitals and other resources available to sustain and improve access to health care in Vermont. The Office further provides technical assistance for communities and health care providers to develop improved access to primary, behavioral, emergency and oral health services.

Improvement of rural healthcare provider access, service quality, performance and sustainability

Utilizing state and federal resources, the Office administers a variety of resources to expand, improve or sustain health care coverage and access. Currently the Office administers state appropriations for a regional healthcare coverage planning grant, 340 B discount prescription expansion planning grants, FQHC Look Alike subsidies for program startup and

uninsured patients, community FQHC planning and development grants, Free Clinic support for Medicaid screening and patient services, and healthcare workforce recruitment, training and retention activities.

Additionally the Office administers federal funds that support: healthcare quality improvement and patient safety programs in small rural hospitals and primary care practices; network development for rural health service providers; emergency medical services support programs, hospital performance improvement implementation, behavioral health access and primary care integration programs, education programs for health care providers, and health information technology planning and resource development.

Information collection and dissemination

In cooperation with in state and out of state partners, the Office collects and disseminates information concerning rural health issues and resources to rural practitioners and others concerned with health care policy and planning. The Office also develops and shares information specific and unique to Vermont and New England in regards to rural health needs, health care delivery systems and trends.

Challenges for the Future

- *Maintaining an adequate healthcare workforce to meet the health care needs of Vermonters.* Beyond the well documented growing shortage of primary care practitioners, there is also considerable concern about the availability in Vermont of health professionals in the areas of pharmacy, mental health, substance abuse, oral health and laboratory services, to name a few.
- *Enabling participation of small rural healthcare providers in statewide quality and health information technology initiatives such as the Vermont Blueprint for Health.* These providers are challenged to find access to capital and other resources to invest in these critical activities.
- *Evaluating health access needs and planning to meet those needs requires a thorough, timely and comprehensive knowledge of the Vermont healthcare workforce.* Creation of a statewide healthcare workforce database that is accurate up to date and includes all heath professions will be critical to planning and resource allocation.
- *The emerging healthcare workforce shortage in Vermont and the stated intent of government to proved universal access to healthcare coverage.* This will require continued investment in recruitment and retention and support for the development and sustainability of primary care providers like FQHCs.

COUNTY BY COUNTY HEALTH AND ACCESS STATISTICS

SOURCES:
www.census.gov
2004 Physician Licensing Survey, Vermont Department of Health
2005 Dentist Licensing Survey, Vermont Department of Health
Healthy Vermonters 2010 Tracking, www.healthvermont.gov

COUNTY		COUNTY RANKING
Addison		
Total Population	35974	8
Percent Rural Population	100%	X
Percent Population under 18	23%	2
Percent Population 18-64	65%	2
Percent Population 65+	12%	7
Percent Under 100% Federal Poverty Level	8.6%	11
No High school Diploma – Population 25 and Over	13.6%	8
Physician to Population Ratio	79.03	4
Dentist to Population Ratio	24.66	10
Percent Population With Health Insurance	86%	4
Percent Population With Ongoing Source of Primary Care	90%	1
Percent Women 40+ With Mammogram in Past 2 Years	79%	2
Prevalence of Diabetes	5.6%	6
Percent 65+ With Influenza Immunization	74%	3
Percent Obese 21%	3	
Percent With All Natural Teeth Extracted	23%	5
Percent With No Leisure Time Physical Activity	19%	5
Percent Binge Drinking in Past Month	15%	5
Percent Smoking Cigarettes	20%	5

COUNTY		COUNTY RANKING
Bennington		
Total Population	36994	7
Percent Rural Population	100%	X
Percent Population under 18	21%	4
Percent Population 18-64	61%	6
Percent Population 65+	18%	1
Percent Under 100% Federal Poverty Level	10.0%	5
No High school Diploma – Population 25 and Over	15.1%	7
Physician to Population Ratio	95.11	1
Dentist to Population Ratio	41.71	3
Percent Population With Health Insurance	84%	6
Percent Population With Ongoing Source of Primary Care	89%	2
Percent Women 40+ With Mammogram in Past 2 Years	78%	3
Prevalence of Diabetes	5.9%	4
Percent 65+ With Influenza Immunization	77%	1
Percent Obese	20%	4
Percent With All Natural Teeth Extracted	18%	9
Percent With No Leisure Time Physical Activity	20%	4
Percent Binge Drinking in Past Month	15%	5
Percent Smoking Cigarettes	21%	4
Caledonia		
Total Population	29702	9
Percent Rural Population	100%	X
Percent Population under 18	23%	2
Percent Population 18-64	62%	5
Percent Population 65+	15%	4
Percent Under 100% Federal Poverty Level	12.3%	3
No High school Diploma – Population 25 and Over	17.4%	3
Physician to Population Ratio	65.43	9
Dentist to Population Ratio	38.05	4
Percent Population With Health Insurance	84%	6
Percent Population With Ongoing Source of Primary Care	85%	6

COUNTY		COUNTY RANKING
Caledonia		
Percent Women 40+ With Mammogram in Past 2 Years	73%	6
Prevalence of Diabetes	5.5%	7
Percent 65+ With Influenza Immunization	65%	9
Percent Obese	22%	2
Percent With All Natural Teeth Extracted	32%	3
Percent With No Leisure Time Physical Activity	21%	3
Percent Binge Drinking in Past Month	16%	4
Percent Smoking Cigarettes	23%	3
Chittenden		
Total Population	146571	1
Percent Rural Population	0	X
Percent Population under 18	22%	3
Percent Population 18-64	68%	1
Percent Population 65+	10%	9
Percent Under 100% Federal Poverty Level	8.8%	10
No High school Diploma – Population 25 and Over	9.4%	13
Physician to Population Ratio	92.03	2
Dentist to Population Ratio	42.52	2
Percent Population With Health Insurance	90%	1
Percent Population With Ongoing Source of Primary Care	87%	4
Percent Women 40+ With Mammogram in Past 2 Years	78%	3
Prevalence of Diabetes	4.6%	9
Percent 65+ With Influenza Immunization	75%	2
Percent Obese	16%	6
Percent With All Natural Teeth Extracted	18%	9
Percent With No Leisure Time Physical Activity	16%	8
Percent Binge Drinking in Past Month	17%	3
Percent Smoking Cigarettes	17%	6

COUNTY		COUNTY RANKING
Essex		
Total Population	6459	14
Percent Rural Population	100%	X
Percent Population under 18	23%	2
Percent Population 18-64	61%	6
Percent Population 65+	16%	3
Percent Under 100% Federal Poverty Level	13.7%	2
No High school Diploma – Population 25 and Over	25.0%	1
Physician to Population Ratio	21.65	13
Dentist to Population Ratio	12.07	13
Percent Population With Health Insurance	85%	5
Percent Population With Ongoing Source of Primary Care	78%	10
Percent Women 40+ With Mammogram in Past 2 Years	72%	7
Prevalence of Diabetes	6.3%	3
Percent 65+ With Influenza Immunization	58%	10
Percent Obese	22%	2
Percent With All Natural Teeth Extracted	35%	1
Percent With No Leisure Time Physical Activity	25%	1
Percent Binge Drinking in Past Month	14%	6
Percent Smoking Cigarettes	27%	1
Franklin		
Total Population	45417	5
Percent Rural Population	100%	X
Percent Population under 18	26%	1
Percent Population 18-64	63%	4
Percent Population 65+	11%	8
Percent Under 100% Federal Poverty Level	9.0%	9
No High school Diploma – Population 25 and Over	17.4%	3
Physician to Population Ratio	62.92	11
Dentist to Population Ratio	28.99	9
Percent Population With Health Insurance	87%	3
Percent Population With Ongoing Source of Primary Care	88%	3

COUNTY		COUNTY RANKING
Percent Women 40+ With Mammogram in Past 2 Years	76%	5
Prevalence of Diabetes	6.7%	1
Percent 65+ With Influenza Immunization	65%	9
Percent Obese	23%	1
Percent With All Natural Teeth Extracted	33%	2
Percent With No Leisure Time Physical Activity	25%	1
Percent Binge Drinking in Past Month	18%	2
Percent Smoking Cigarettes	24%	2
Grand Isle		
Total Population	6901	13
Percent Rural Population	100%	X
Percent Population under 18	22%	3
Percent Population 18-64	63%	4
Percent Population 65+	15%	4
Percent Under 100% Federal Poverty Level	7.6%	14
No High school Diploma – Population 25 and Over	15.8%	5
Physician to Population Ratio	11.78	14
Dentist to Population Ratio	11.36	14
Percent Population With Health Insurance	88%	2
Percent Population With Ongoing Source of Primary Care	84%	7
Percent Women 40+ With Mammogram in Past 2 Years	70%	8
Prevalence of Diabetes	3.9%	12
Percent 65+ With Influenza Immunization	67%	7
Percent Obese	23%	1
Percent With All Natural Teeth Extracted	17%	10
Percent With No Leisure Time Physical Activity	17%	7
Percent Binge Drinking in Past Month	19%	1
Percent Smoking Cigarettes	16%	7

COUNTY		COUNTY RANKING
Lamoille		
Total Population	23233	12
Percent Rural Population	100%	X
Percent Population under 18	22%	3
Percent Population 18-64	65%	2
Percent Population 65+	12%	7
Percent Under 100% Federal Poverty Level	9.6%	6
No High school Diploma – Population 25 and Over	13.0%	9
Physician to Population Ratio	75.32	6
Dentist to Population Ratio	33.10	6
Percent Population With Health Insurance	86%	4
Percent Population With Ongoing Source of Primary Care	87%	4
Percent Women 40+ With Mammogram in Past 2 Years	77%	4
Prevalence of Diabetes	5.7%	5
Percent 65+ With Influenza Immunization	67%	7
Percent Obese	20%	4
Percent With All Natural Teeth Extracted	28%	4
Percent With No Leisure Time Physical Activity	19%	5
Percent Binge Drinking in Past Month	19%	1
Percent Smoking Cigarettes	20%	5
Orange		
Total Population	2866	10
Percent Rural Population	100%	X
Percent Population under 18	23%	2
Percent Population 18-64	64%	3
Percent Population 65+	14%	5
Percent Under 100% Federal Poverty Level	9.1%	8
No High school Diploma – Population 25 and Over	15.9%	4
Physician to Population Ratio	61.52%	12
Dentist to Population Ratio	24.41%	11
Percent Population With Health Insurance	83%	7
Percent Population With Ongoing Source of Primary Care	83%	8

COUNTY		COUNTY RANKING
Orange		
Percent Women 40+ With Mammogram in Past 2 Years	79%	2
Prevalence of Diabetes	5.3%	8
Percent 65+ With Influenza Immunization	65%	9
Percent Obese 20%	4	
Percent With All Natural Teeth Extracted	21%	7
Percent With No Leisure Time Physical Activity	21%	3
Percent Binge Drinking in Past Month	19%	1
Percent Smoking Cigarettes	21%	4
Orleans		
Total Population	26277	11
Percent Rural Population	100%	X
Percent Population under 18	23%	2
Percent Population 18-64	61%	6
Percent Population 65+	16%	3
Percent Under 100% Federal Poverty Level	14.1%	1
No High school Diploma – Population 25 and Over	21.8%	2
Physician to Population Ratio	70.72	8
Dentist to Population Ratio	18.42	12
Percent Population With Health Insurance	80%	8
Percent Population With Ongoing Source of Primary Care	82%	9
Percent Women 40+ With Mammogram in Past 2 Years	78%	3
Prevalence of Diabetes	6.6%	2
Percent 65+ With Influenza Immunization	70%	5
Percent Obese	22%	2
Percent With All Natural Teeth Extracted	32%	3
Percent With No Leisure Time Physical Activity	24%	2
Percent Binge Drinking in Past Month	17%	3
Percent Smoking Cigarettes	24%	2

COUNTY		COUNTY RANKING
Rutland		
Total Population	**63400**	**2**
Percent Rural Population	100%	X
Percent Population under 18	21%	4
Percent Population 18-64	63%	4
Percent Population 65+	16%	3
Percent Under 100% Federal Poverty Level	10.9%	4
No High school Diploma – Population 25 and Over	15.7%	6
Physician to Population Ratio	63.28	10
Dentist to Population Ratio	32.53	7
Percent Population With Health Insurance	85%	5
Percent Population With Ongoing Source of Primary Care	86%	5
Percent Women 40+ With Mammogram in Past 2 Years	76%	5
Prevalence of Diabetes	5.9%	4
Percent 65+ With Influenza Immunization	66%	8
Percent Obese	21%	3
Percent With All Natural Teeth Extracted	20%	8
Percent With No Leisure Time Physical Activity	21%	3
Percent Binge Drinking in Past Month	18%	2
Percent Smoking Cigarettes	24%	2
Washington		
Total Population	**58039**	**3**
Percent Rural Population	100%	X
Percent Population under 18	22%	3
Percent Population 18-64	65%	2
Percent Population 65+	13%	6
Percent Under 100% Federal Poverty Level	8.0%	12
No High school Diploma – Population 25 and Over	11.6%	12
Physician to Population Ratio	73.78	7
Dentist to Population Ratio	36.65	5
Percent Population With Health Insurance	87%	3

COUNTY		COUNTY RANKING
Washington		
Percent Population With Ongoing Source of Primary Care	87%	4
Percent Women 40+ With Mammogram in Past 2 Years	82%	1
Prevalence of Diabetes	5.7%	5
Percent 65+ With Influenza Immunization	74%	3
Percent Obese	19%	5
Percent With All Natural Teeth Extracted	23%	5
Percent With No Leisure Time Physical Activity	18%	6
Percent Binge Drinking in Past Month	18%	2
Percent Smoking Cigarettes	21%	4
Windham		
Total Population	**44216**	**6**
Percent Rural Population	100%	X
Percent Population under 18	21%	4
Percent Population 18-64	64%	3
Percent Population 65+	15%	4
Percent Under 100% Federal Poverty Level	9.4%	7
No High school Diploma – Population 25 and Over	12.8%	10
Physician to Population Ratio	89.04	3
Dentist to Population Ratio	46.93	1
Percent Population With Health Insurance	84%	6
Percent Population With Ongoing Source of Primary Care	87%	4
Percent Women 40+ With Mammogram in Past 2 Years	70%	8
Prevalence of Diabetes	4.3%	11
Percent 65+ With Influenza Immunization	73%	4
Percent Obese	19%	5
Percent With All Natural Teeth Extracted	14%	11
Percent With No Leisure Time Physical Activity	18%	6
Percent Binge Drinking in Past Month	14%	6
Percent Smoking Cigarettes	21%	4

COUNTY		COUNTY RANKING
Windsor		
Total Population	**57418**	**4**
Percent Rural Population	100%	X
Percent Population under 18	21%	4
Percent Population 18-64	62%	5
Percent Population 65+	17%	2
Percent Under 100% Federal Poverty Level	7.7%	13
No High school Diploma – Population 25 and Over	11.8%	11
Physician to Population Ratio	78.99	5
Dentist to Population Ratio	29.52	8
Percent Population With Health Insurance	88%	2
Percent Population With Ongoing Source of Primary Care	84%	7
Percent Women 40+ With Mammogram in Past 2 Years	78%	3
Prevalence of Diabetes	4.4%	10
Percent 65+ With Influenza Immunization	69%	6
Percent Obese 19%	5	
Percent With All Natural Teeth Extracted	22%	6
Percent With No Leisure Time Physical Activity	18%	6
Percent Binge Drinking in Past Month	18%	2
Percent Smoking Cigarettes	21%	4