

**Vermont State Health Plan
2005**

Part 3: Key Policy Areas

Prevention as a Priority

"Since both in importance and in time, health precedes disease, we ought to consider first how health may be preserved, and then how one may best cure disease."

Galen, circa 130-200 AD

Outcome desired: Services to prevent the onset of disease or injury and minimize its effects will be given highest priority in development of policies and plans and for funding in Vermont.

Action needed:

- Enact policies to ensure that all Vermonters receive evidence-based clinical preventive services as recommended by the U.S. Clinical Preventive Services Task Force and other authorities.
- Link community-based prevention and support services with services offered by health providers and others.
- Promote the use of prevention services and the adoption of healthy behaviors by Vermonters through information, skills development, incentives and other support services.
- Implement effective population-based public health prevention efforts, including promotion of healthy behaviors and risk reduction, environmental protection, and development of community-based programs.

Background

Promoting and preserving good health and preventing disease is so obviously important that few would disagree that they should be the focus of any health care system. Yet the demands of treating illness and disability have consistently crowded out prevention, and Vermont's investment in prevention continues to be relatively low. In 2000 Vermont was ranked 23rd among all states in percent of dollars spent on public health and also 23rd on per capita spending on public health.¹

The goals of prevention are to forestall illness, to decrease the incidence of disease and premature death, to reduce suffering, and to save money. The success of prevention has been well documented in the areas of immunization, sanitation, workplace safety and dental disease, among others. We have been far less successful in preventing chronic disease or the consequences of chronic disease, mental health problems, alcohol and drug dependency, or poor pregnancy outcomes.

There is a strong economic argument for investing in prevention: good health costs less. A report of the Joint Fiscal Office of the Vermont Legislature issued in 2000 illustrates the rising of

¹ United Health Foundation. *America's Health: State Health Rankings—2004 Edition*.
[Hhttp://www.unitedhealthfoundation.org/shr2004/states/Vermont.html](http://www.unitedhealthfoundation.org/shr2004/states/Vermont.html)H

health care costs with increasing severity of illness. Seventy percent of the population uses barely 10 percent of health care resources, while the sickest 10 percent of the population account for more than 75 percent of total costs.² Data from nine physician organizations confirm this. Mean medical costs for individuals without disease are about \$1100 per year; with one chronic disease, costs rise to \$4100 per year; and with three chronic diseases, costs are \$7200 per year.³ Prevention strategies that lead to reductions in the number of people with a chronic disease and the number with complications of chronic diseases can mitigate the increase in costs that can be anticipated with the aging of the baby boomers.

Risk Factors

The key to prevention of disease and disability is the identification of, and the avoidance, elimination or mitigation of, risk factors, the specific precursors that are associated with certain illnesses and injuries. The causal relationship between a risk factor (or a series of risk factors) and a negative health outcome is sometimes easily demonstrated. Obesity, for example, is associated with a higher risk of diabetes, and the use of seat belts and lower speed with reduced motor vehicle crash fatalities. In other cases, the relationship may be too complex to accurately describe in terms of cause and effect, especially when more than one condition is present. Stress, for example, simultaneously can be both a contributing cause and an effect of disease. In all cases, however, a risk factor is identified by its statistical association with a negative outcome.

Some risk factors can be modified, while others, such as gender, age and genetics, cannot be changed. In cases where one or more non-modifiable factors increase risk, however, the diminishment of other risk factors increases in importance.

At the individual level, the identification of risk factors helps one choose the best course of action under the circumstances. At the population level, knowledge of risk factors helps public health officials develop responsive policies and programs, target specific high-risk groups or behaviors, and to better allocate resources to reduce or eliminate the risk. Chronic diseases, for instance, are more common as people age, HIV/AIDS is more prevalent among men who have male sex partners, and Hepatitis C is disproportionately high among intravenous drug users.

Personal Attributes and Social Environment

The concept of resiliency refers to the ability to bounce back from an adverse experience and to avoid long-term negative effects. It refers to an individual's ability to recover and grow and succeed in the midst of the stressors encountered in life. This concept can also be applied to families and communities. Researchers and community leaders are now focusing efforts to defining and measuring assets to more effectively incorporate resiliency in programs.

Historically, population behavior has been measured by defining risk and measuring risk-taking behavior among subgroups (e.g. teen pregnancy rates or rates of incarcerated youth). Once

² Vermont State Legislature, Joint Fiscal Office. Montpelier, VT 2000.

³ Rundall TG, Shortell SM, Wang MC, Casalino L, Bodenheimer T, Gillies RR, Schmittdiel JA, Oswald N, Robinson JC. *As good as it gets? Chronic care management in nine leading US physician organizations.* *BMJ* 2002; 325:598-61.

defined, community and institutional programs were developed to reduce the risks. A resiliency approach starts from an opposite view whereby strengths or assets are identified and used to develop interventions that promote and support strengths and the wherewithal for individuals and communities to be healthy.

In Vermont, the Search Institute's 40 Developmental Assets are being developed into specific questions for the Youth Risk Behavior Survey (YRBS).^{4,5} In the most recent YRBS, students were asked about the nature of positive influences in their lives: grades in school, talking with parents about school, representation in school decision-making, participation in youth programs, volunteering in the community, and feeling valued by the community. Analysis indicated an inverse relationship between the number of reported risk-taking behaviors and the health promoting assets. For example, the more assets a student reported, the less likely he or she was to report certain risk taking behaviors such as poor nutrition, sexual activity, or drug use. Research such as this begins to point the way for policy makers and community organizations to design programs for increasing support for teen assets rather than strictly focusing on reducing risk-taking behavior. A list of the 40 Assets is included in Appendix D.

The social and economic environment is also associated with risks to health and greatly complicates interventions to prevent disease. Poverty is a risk factor for many physical and emotional problems, and hunger among children can have many negative outcomes on health and learning. However, even those with adequate incomes are subjected to many pressures to make unhealthy choices.

The news and entertainment media may exert the strongest influence on health through advertising and programming that promotes, or at least supports, the idea of risky behaviors without consequence. Fast cars, unprotected sex, smoking, substance use, unhealthy food, and sedentary lifestyles are depicted as glamorous and desirable, or at least normal and safe.

Economic considerations tend to take precedence over health decisions throughout our culture. For a variety of reasons including packaging costs, for example, larger food portion sizes are a better business decision than smaller ones. Recreational vehicles are seen as contributing to the economy while walking paths are viewed as costs. The built environment accommodates the people's need for cars, but not for adequate exercise. Prevention strategies are more typically viewed as costs rather than investments. At the same time, society's support for healthy behaviors can have a large impact on the health of the population: where non-smoking is supported, fewer people smoke; in communities that focus on supporting youth, more choose to avoid alcohol, drugs and other unhealthy behaviors.

Physical Environment

Of those risk factors that can be changed, some, such as regional air and water pollution, require public policy solutions and typically cannot be changed by a single individual, acting alone, although social solutions often depend upon collective power of individual actions. Site-specific

⁴ Search Institute. *Developmental Assets*. [Hhttp://www.search-institute.org/assets/H](http://www.search-institute.org/assets/H)

⁵ Murphey, et al. Relationship of a Brief Measure of Youth Assets to Health Promotion and Risk Behaviors. *Journal of Adolescent Health*. 2004;34;184-191.

air and water quality problems are usually addressed on an individual basis, however, and many simple steps can be taken to lessen the environmental health risks within a home.

Drinking water contaminants are a common and easily addressed risk factor for gastrointestinal illness caused by bacteria and for systemic disease or cancer caused by chemicals. Most drinking water, even when contaminants are found in elevated levels, is treatable. However, the water must be tested appropriately to find potential contaminants of concern. In Vermont, better surveillance is needed to target geographic areas and sensitive sub-populations in connection with water quality concerns. There currently is no official mapping of test results that would reveal a community or neighborhood problem over the course of time. The use of geographic mapping tools to identify areas of the state that have elevated levels of contaminants would allow better outreach in these areas to notify the public of hazards.

Childhood lead poisoning, a healthy homes issue, is almost entirely the result of avoidable risk factors. Old lead-based paint still is common in Vermont, which has the second oldest housing stock in the country. Many older houses are the source of lead dust due to deteriorating paint or to the sanding and sawing associated with renovation projects. Lead dust may be picked up from surfaces that children touch, may cling to their hands and toys, and eventually may be inhaled or ingested. Exposure to even small amounts of lead can adversely affect a child's growth and development and directly damage the kidneys and central nervous system. Small children are particularly susceptible to exposure risks, which makes lead screening of young children especially important. Despite the age of Vermont's housing stock, in 2003, only 68 percent of Vermont 1 year olds and 19 percent of 2 year olds were tested for lead. Of those tested, 3.9 percent of 1 year olds and 6.2 percent of 2 year olds had elevated blood lead levels. The U.S. Centers for Disease Control and Prevention has recommended that all children be tested at one and two years of age.

For those who work with disruptive clients, with machinery, and with biological and similar hazards, occupational risks can include assault and accidental injury. Some categories of workplace safety, such as those related to factories, mines and the construction trades, are under government safety regulations, while others, such as farming, have few such regulations. Farming is a particularly hazardous occupation, with risks that include machinery and animal-related injuries as well as respiratory risks associated with air-borne particles such as hay chaff and with oxygen-depleted silos.

Occupational exposure to both lead and asbestos can occur by breathing contaminated air, usually in workplaces that make or use the substances or on construction jobs involving the renovation or demolition of old buildings. Improper practices with these materials increase exposure risks. Asbestos exposure can cause serious lung problems and cancer; lead exposure can cause numerous health problems, including those noted above.

The causes of asthma are not fully known, but New England has higher prevalence rates than other parts of the country, for both children and adults. Studies linking air quality and hospitalization and emergency department visits for asthma and other respiratory conditions suggest that geographic locale and prevailing wind patterns that bring mid-western industrial emissions may be responsible. Evidence suggests that environmental factors such as air pollution

and exposure to tobacco smoke, chemicals, irritants, fungi and molds, indoors and out, can exacerbate existing asthma and may cause it to develop. Surveillance data suggest that the very young and the very old are especially at risk for poorly controlled asthma. Asthma-related hospitalization rates tend to be higher and length of stay longer for people at the end stages of the life cycle. See Appendix B, Vermont Asthma Prevention Plan.

Community Preventive Services

There are a wide range of services that have been identified as effective strategies to prevent disease at the population and community levels. The guide to Community Preventative Services⁶ provides a systematic review of evidence-based interventions for preventive services. Following a thorough review of the literature, the guide makes specific recommendations for interventions based on the effectiveness and feasibility of population-based interventions.

The Community Preventive Services guidelines for tobacco control, physical activity, cancer, diabetes management, and others provide evidence-based strategies for effective community interventions. For example, for physical activity there is strong evidence for community-wide campaigns using signs and other cues to remind people of the benefit of exercise; behavioral change programs tailored to a person's readiness to change; programs that strengthen social networks such as walking groups; and environmental changes that increase access to places conducive to physical activity.

Clinical Preventive Services

Clinical preventive services are services known to prevent disease, reduce risk, or identify conditions early. These services are the "second line of defense," after health behavior and environmental protection, to prevent disease and the consequences of disease. The U.S. Preventive Services Task Force (the Task Force) has made recommendations regarding more than 55 screening tests.⁷ These screenings, including newborn metabolic screening, cholesterol screening, mammograms, colorectal cancer screening and many others, have been demonstrated to be effective in reducing morbidity, mortality and the cost of later treatment. Most insurance companies have added many of these tests to their list of covered services. Any remaining barriers to obtaining these services need to be identified and eliminated. Public education and provider counseling must reinforce the importance of having the tests and strategies implemented to ensure that people without insurance benefit from these important services.

Immunization is a critical preventive service for both children and adults. Vermont leads the nation with almost 90 percent of all children fully immunized when they enter school, although this falls short of our goal to fully immunize 98 percent. The Department of Health's new immunization registry system will make it easier to identify under-immunized children, and to reach out to families and reduce barriers. Vermont does less well in ensuring that high risk adults and children are immunized against flu and pneumonia. Only 65.3 percent of people over

⁶ U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. *The Community Guide*. [Hhttp://www.thecommunityguide.org/default.htm](http://www.thecommunityguide.org/default.htm)H

⁷ U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services*. 3rd Edition. [Hhttp://www.ahrq.gov/clinic/cps3dix.htm](http://www.ahrq.gov/clinic/cps3dix.htm)H

age 65, one of the high risk groups, have ever been immunized for pneumonia, and only 73.7 percent report they have had a flu shot in the last year. In 2004, yet another barrier to adequate flu immunization has been identified: an extremely precarious manufacture and supply system. Vermont cannot control the U.S. Food and Drug Administration approval process, but a more coordinated approach to flu immunization, as was necessary in 2004, may be needed to assure that those most at risk are immunized each year.

The Task Force reviewed 15 areas where counseling has been suggested as an intervention strategy and found sufficient evidence to recommend it in six. In the others, they found insufficient evidence to make a recommendation one way or another. Counseling about tobacco use, HIV prevention, household and motor vehicle injury prevention, alcohol use and prevention of unintended pregnancy are all recommended counseling services.

Chemoprevention, the use of a specific nutrient or medication to prevent disorders, has been demonstrated to be effective in reducing the incidence of many diseases. With nutrients, this is most often accomplished by fortifying the food or water supply to ensure an adequate dose for the population. Prominent examples include Vitamin D in milk to prevent rickets, iodine in salt to prevent goiter, fluoride in water to prevent tooth decay, and folate in flour to prevent certain birth defects. When access to these population-based public health measures is inadequate, as when people use a private well or drink milk from their own farms, a supplement may be needed. Aspirin to reduce the risk for cardiovascular events in people at high risk of disease is recommended by the Task Force.

Preventing Adverse Consequences

Preventing disease before it begins is the best investment, but there also is ample evidence that improving care of people who already have illness can improve health outcomes, prevent or slow the progression of disease, and reduce costs. The standards of care that will accomplish these aims are generally well known, but the systems to ensure that providers and patients know and use them are rudimentary at best; on average, the standards are met only about half of the time. In all cases, the best results are achieved when there is a significant effort to help patients develop self-management skills to modify their own behavior. Intensive treatment of people with diabetes, for example, has been shown to reduce vascular complications affecting eyes, kidneys and nerves, typically seen in people with diabetes whose blood glucose levels are not well controlled.⁸ For people with mild or stage 1 high blood pressure and additional cardiovascular risk factors, it is estimated that achieving a sustained 12 mmHg reduction of systolic blood pressure over 10 years will prevent one death for every 11 patients treated.⁹

⁸ The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med.* 1993; 329:977-986.

⁹ Ogden LG, He J, Lydick E, Welton PK. Long-term absolute benefit of lowering blood pressure in hypertensive patients according to the JNC VI risk stratification. *Hypertension* 2000; 35:539-43.

Access to Care

Outcome desired: All Vermonters have the opportunity to participate in the full range of prevention, treatment and care services.

Action needed:

- Provide a strong safety net for the uninsured and underinsured, including physical, mental and oral health services.
- Ensure culturally appropriate health care to minorities, immigrants, low-income and other high risk populations.
- Develop a sustainable, comprehensive strategy to ensure adequate health insurance coverage for the uninsured and those currently insured through the programs of the Vermont Office of Health Access.

Background:

In 2002, 84 percent of Vermonters said that a high priority for government should be to ensure that people get the health care they need.¹⁰ Addressing that value requires that the problem of availability of adequate insurance coverage be addressed, but also requires attention to other contributing factors such as poverty, adequacy of the supply of health service providers, cultural competency, community support for transportation and the location of essential services within communities. It is also critical to address the quality, effectiveness and efficiency of the health system as a whole in preventing and treating disease and disability. Such efforts can free up resources that can then be used to expand health services to others.

Vermont is one of the most rural states in the nation with nearly three-quarters of residents living in rural communities. Adults living in rural areas in America are more likely than urban residents to be in fair or poor health; they are older, average fewer physician visits per year, are more likely to suffer traumatic injuries, are more likely to commit suicide and have higher rates of alcoholism as compared to their urban counterparts.¹¹

Health Insurance

Participation in a health insurance plan is commonly accepted as the most important measure of access to health care. In Vermont in 2002, 10 percent of residents were without health insurance, up from 8.1 percent in 1999.¹² The proportion of people with private insurance fell during this period from 62.3 percent to 58.6 percent. In addition, reports indicate that the cost of insurance premiums and deductibles are rising and/or coverage is being limited for those who continue to be insured.

¹⁰ Commission on the Public's Health Care Values and Priorities. *Hard Choices in Health Care 2002: What Vermonters are thinking*. [Hhttp://www.bishca.state.vt.us/HcaDiv/second_rep_comm_on_PHCVP%20.pdf](http://www.bishca.state.vt.us/HcaDiv/second_rep_comm_on_PHCVP%20.pdf)H

¹¹ Agency for Healthcare Research and Quality, Rockville (MD). *Focus on Research: Rural Health Care*. AHRQ Publication No. 02-M015, March 2002..

¹² Dept of Banking [] Health Care Administration. *2002 Expenditure Analysis*.

Health insurance as a benefit of employment presents special problems in Vermont where more than 66 percent of employers have fewer than 10 workers. Smaller companies are less likely to offer health insurance than larger firms. In 2000, 84 percent of those who were uninsured were either wage earners or the dependents of wage earners.¹³

Vermont can be proud of the relatively low proportion of people who are uninsured. By expanding the Medicaid program, we have covered most children with family incomes of less than 300 percent of the poverty level and pregnant women up to 225 percent of the poverty level. Coverage has been expanded to include many more low-income residents of all ages. However, the cost of these improvements, coupled with changes in federal Medicaid reimbursement policies, is that Vermont now faces an unsustainable level of State spending, increased cost shift to private pay residents, more restriction on acceptance of Medicaid as a payment source by physicians and dentists. Reaching the last 10 percent of uninsured, slowing the rise in uninsured, and stabilizing funding for the Medicaid program are all essential and present enormous challenges that are beyond the scope of this plan. The Vermont Legislature and Coalition 21 (a Vermont stakeholder organization working to identify solutions to Vermont's health systems problems) are examining the possibilities and will be making recommendations.

Cultural Competency

For minority and immigrant Vermonters, access to health services is both an issue of payment and an issue of finding a practitioner who understands their language, culture and special needs. Access for this population further depends on the willingness of health care and providers to adapt services to meet those needs. While the prevalence of health problems vary within minority groups and between them, in general minorities in the U.S. are more likely to report being in fair or poor health, and not seeing a doctor because of cost; they have higher rates of chronic disease; and are more likely to report risky behaviors such as use of cigarettes, and low levels of physical activity and fruit and vegetable consumption.¹⁴

Helping minority Vermonters improve their health requires all of the service, quality and access changes noted in this plan. It also requires attention to their special cultural needs. Cultural competence in health care is defined as the ability to provide care in ways that consider and support the culture of the individual without being unduly biased by one's own attitudes, behavior and culture. Cultural competence requires awareness of one's own cultural experience, demonstrating understanding of another's culture, accepting and respecting cultural differences and adapting care to be congruent with the client's culture. It is a conscious process and integral to patient care.

¹³ Dept of Banking [] Health Care Administration. Employment Based Health Insurance in Vermont—Summing it up. 2002.

[Hhttp://www.bishca.state.vt.us/HcaDiv/Data_Reports/SurveyVTFamilyHealth2000/EmployInsur012202.pdf](http://www.bishca.state.vt.us/HcaDiv/Data_Reports/SurveyVTFamilyHealth2000/EmployInsur012202.pdf)H

¹⁴ Centers for Disease Control and Prevention. *REACH 2010 Surveillance for Health Status in Minority Communities --- United States, 2001--2002* H<http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5306a1.htm>H

Poverty

Poverty is more than just being without financial resources; it affects all aspects of life; living in poverty means developing the strength to withstand difficult and uncomfortable emotional and physical situations. Generational poverty has a culture of its own that creates a way of life and a value system that is distinct from middle and upper class cultures. Leaving poverty requires more than financial resources, it also requires emotional, mental, spiritual and physical resources; and an understanding of the “Hidden rules of Class”.¹⁵

These “hidden rules” can be used to describe differences between the culture of the middle class and the cultures of poverty and wealth. Most health and community services, designed to serve, poor reflect middle class values and culture. Key differences that will need to be addressed if the objectives of Healthy Vermonters and this plan are to be accomplished are illustrated in Figure 9.

It is incumbent on providers and community based services be aware of this culture, and to work with it if people affected by generational poverty are to benefit from the model for lifelong prevention and care called for by this plan.

Figure 9
Hidden Rules Among Classes

	Poverty	Middle Class
Social emphasis	Social inclusion of people he/she likes	Emphasis on self-governance and self-sufficiency
Food	Quantity important	Quality important
Time	Present most important. Decisions made for the moment based on feelings or survival	Future most important. Decisions made against future ramifications.
Destiny	Believes in fate. Cannot do much to mitigate chance.	Believes in choice. Can change future with good choices now.
Driving force	Survival, relationships, entertainment	Work, achievement

Safety Net Services

Safety net services are those that are available to all, regardless of insurance status or ability to pay. Most offer care under a sliding fee scale and/or provide free care. They include federally qualified health centers, rural health clinics, clinics for the uninsured (free clinics), family planning clinics and community mental health agencies. The private physicians, dentists and mental health professionals who accept Medicare and Medicaid payment for services are critical participants in Vermont’s safety net as are the hospitals and providers that write off unpaid bills, negotiate lower payment rates and provide charity care.

Vermont has ensured statewide coverage for family planning, mental health and substance abuse services through a process of designations and grants. Placement of clinics for the uninsured is determined at the local level and they are developed and operated by community volunteers; a small state grant supports a part-time paid staff position at each. Federally Qualified Health Centers and Rural Health Clinics are designated by federal agencies using criteria of medical and economic need and a formal application and approval process.

¹⁵ Payne RK, DeVol, P, Smith TD. *Bridges Out of Poverty: Strategies for Professionals and Communities*. aha! Process, Inc. Highland (TX); 2001.

Quality of Care

Outcome desired: Vermonters receive health services that are based on the best available scientific knowledge regardless of who provides the service or of the setting in which the services are delivered.

Action needed:

- Integrate evidence-based practices into clinical routines, verified by performance monitoring and supported by health care and public health. Depending on the setting, priority will be given to prevention and chronic disease services, infection control, patient safety and pain management.
- Establish a framework for monitoring, tracking and correcting undesirable variation in practice to reduce misuse, overuse and under use of services for which standards of care are known.
- Adopt policies for the delivery and payment of care that support quality improvement as a key strategy for achieving better health outcomes and reducing the overall costs of care.
- Incorporate practice guidelines and other tools in all new information systems to assist providers to deliver quality care and monitor health care practices.

Background:

Quality of care is defined as the “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”¹⁶ Good quality means providing people with appropriate services in a technically competent manner with good communication, shared decision making and cultural sensitivity. Good care avoids overuse, under use and inappropriate use of services; good care is care that is safe, efficient, effective, timely, patient-centered and equitable.¹⁷ It’s an irrefutable fact that high quality care, like preventive care, is cost-effective care. Yet we as a society have been slow to invest in the means to improve quality, just as we have been slow to invest in prevention. 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.

Patient Safety

The area of quality assurance that has received the most attention is patient safety. It is estimated that tens of thousands of errors occur every day in the health system in the United States including medication errors, wrong-site surgeries, hospital and nursing home acquired infections, falls, and other untoward events. While many errors do not cause harm, an estimated 44,000 to 98,000 patients die every year as a result of errors that occur in hospitals; there are

¹⁶ Institute of Medicine. *Quality Chasm*. Page 232.

¹⁷ Institute of Medicine. *Quality Chasm*. Page 41.

approximately 50 adverse drug events per 1,000 person years; and more than half of all patients fail to receive needed care¹⁸. There are no specific data for Vermont. Research has identified several mechanisms to improve patient safety, including improved tracking of problems, and development and enforcement of specific policies and procedures, with built-in checking and systematic “root cause analysis” and correction when problems occur.

Practice Variation

Among Medicare beneficiaries, the likelihood of receiving a service is more often a function of where the person lives than what they need. Variation is thought to be more related to practitioner preference, “traditional” practices in the service area and other factors than to differences in illness. Identifying and monitoring differences in care can therefore be important in indicating changes that could lead to improved quality and lower cost.

This variation is illustrated in Figure 90.¹⁹ The two measures of diabetes care shown in the table are services that all people with diabetes should

receive and illustrates an area where services are being underused, with probable high cost consequences. Hospitalization, particularly intensive care, offers little benefit to the majority of elders in the last six months of life and illustrates high utilization of this very expensive and often unwarranted and undesired service. The two cardiac procedures are also expensive, but can confer significant benefit if appropriately targeted. Careful study of the variation here might identify both under or overuse of these services.

<i>Measure</i>	<i>Low</i>	<i>High</i>
Diabetes eye exams	57.7 %	81.9 %
Diabetes HgbA1c test	55%	80.8%
Coronary angiography (per 1000 beneficiaries)	12.4	24.1
Invasive cardiac procedures (per 1000 beneficiaries)	9.5	18.2
Days spent in hospital in last 6 months of life	7.2	14.7
Admitted to intensive care in last 6 months of life	18.7 %	30.9%

Evidence-based Care

Unlike the legal system, where evidence is used to determine the cause of an event after it has happened, the health care profession uses evidence to help determine the likelihood that a future event, such as a screening procedure, the application of medication, or the execution of a surgical procedure, will be beneficial to a patient.

Using evidence-based medicine is not a simple matter. No two medical circumstances are identical, no two practitioners have exactly the same clinical expertise, and no two patients have quite the same values, beliefs or needs. Nevertheless, evidence-based practice is the key to a

¹⁸ Institute of Medicine. *Patient Safety: Achieving a new standard for care*. National Academies Press, Washington, DC. 2004. page 31.

¹⁹ Wennberg, J. *Practice Variation in Vermont: An Update*. Presentation. Montpelier, VT. April 7, 2004.

better health care system, for the lack of adherence to evidence-based clinical guidelines is demonstrably wasting money and jeopardizing health in clinical practice across the country.

A medical records review of 100,000 patients being treated for high blood pressure in 2001, for example, suggests that \$1.2 billion a year in prescription costs could be saved if clinicians treating hypertension in the United States adhered to evidence-based guidelines in their prescribing of maintenance medication.²⁰

More recently, a medical records review of 6,700 adults in a dozen metropolitan areas assessed the frequency with which patients actually got the care recommended for their various conditions. The results, published in “The First National Report Card on Quality of Health Care in America.”²¹ demonstrate the urgent need to change our health care system. The survey evaluated performance on 439 clinical indicators of quality for 30 acute and chronic conditions such as diabetes mellitus, asthma, hypertension, and heart disease, and for related preventive care. The results showed that these 6,700 individuals received the recommended care only about half the time and that this level of performance was about the same for chronic, acute and preventive care. The results were similar in each of the metropolitan areas studied.

While numbers are not readily available for Vermont and there is some evidence that Vermont performance may be better than the national average,²² it is clear that our health care system is failing to provide the best care as routine care, and that this is contributing to higher costs, poorer health and less favorable medical outcomes.

As used in this document, “evidence-based practices” means clinical practices that have been proven to consistently produce specific, intended results. The development of these guidelines emphasizes the use of clear evidence from existing literature, rather than expert opinion alone, as the basis for advisory materials.²³ They may be distinguished from

- Practices that are based on theory, belief and widespread acceptance, but which have not, or not yet, been scientifically proven. Such practices include many that are labeled “alternative” or “complementary” by practitioners of Western medicine, as well as many of the traditional practices of Western medicine itself.
- “Promising practices,” for which there is considerable evidence or expert consensus, but which are “not yet proven by the highest or strongest evidence.”²⁴
- “Emerging practices,” which are clinical innovations that address critical needs but do not yet have scientific evidence or broad consensus support.

²⁰ Fischer MA, Avorn J. Economic implications of evidence-based prescribing for hypertension: Can better care cost less? *JAMA* 2004; 291:1850-1856

²¹ Rand Corporation. *Report Card*.

²² Jencks SF, Huff ED, Cuerdon T. Change in the quality of care delivered to Medicare Beneficiaries, 1998-1999 to 2000-2001. *JAMA*; 2003;289:305-312.

²³ Institute of Medicine *Patient Safety*. p. 330.

²⁴ Hyde, PS, et al. *Turning Knowledge Into Practice*. The American College of Mental Health Administration, Boston, MA. p. 31..

In identifying evidence-based practice as a principle by which our health care system should operate, the Vermont State Health Plan—2005 recognizes the difficulties and limitations inherent in the use of evidence-based guidelines.

- Evidence-based practices do not always result in improved outcomes, although most of them do most of the time.²⁵
- Practice variability does not always result in outcome variability.²⁶
- Conclusions about scientific evidence may be modified and even reversed over time, as further evidence is collected and analyzed. In health care, evidence usually suggests probabilities, rarely absolutes.

These limitations notwithstanding, the future of health care depends upon the development, dissemination, acceptance and use of evidence-based guidelines by individuals and providers. The competent practice of medicine requires that the practitioner have access to relevant guidelines at the time that diagnostic and treatment decisions are made, and requires that, whenever these guidelines are not followed, their rejection be the result of a considered, collaborative, informed decision by practitioner and patient.

In calling for adherence to evidence-based practice, the Vermont State Health Plan is not calling for cookbook remedies to be substituted for the practitioner's expert opinion. There are many important components to a collaborative screening or treatment decision, including the patient's needs, values, beliefs, desires and available resources. The decision to follow a course of treatment that differs from evidence-based guidelines may be valid and appropriate, but only if it is an informed and considered decision.

There are several aspects to reforming the health care delivery system to close the gap between what we know and what we do. Evidence-based practices must be 1) identified and approved, 2) disseminated and accepted, 3) integrated into day-to-day clinical practice, and 4) verified by performance monitoring. Far too many clinical guidelines are collecting dust on shelves because the systems and tools needed to integrate evidence-based medicine into routine practice are limited. Reforming the way care is provided without these tools will be impossible. Evidence-based approaches also must be integrated into the decision making process of insurance officials, hospital administrators, government regulators, and public policy makers at all levels.

Enabling practitioners to consider evidence-based practices at the time of patient interaction requires decision support technology that is largely missing from today's health care system in Vermont and elsewhere. It also requires appropriate training and educational support for patients and for health care workers at many levels. Implicit in adopting evidence-based practice as the standard for medical care in Vermont is the necessity of reforming regulatory and reimbursement policies to support and enhance clinical preventive services, including screening, immunization and counseling.

²⁵ Agency for Health Care Research and Quality (AHRQ). *Relying on clinical guidelines to treat young infants with fevers may not improve outcomes*. Research Activities; March, 2004.

²⁶AHRQ. *Cataract treatment in the United States, Canada, Denmark and Spain*. Research Activities; June, 2004.

Evidence-based practice also requires the mainstreaming of screening, diagnosis and treatment of HIV/AIDS, substance abuse and mental illness, and the equal treatment of often marginalized groups such as elders and members of racial and ethnic and sexual minorities. Science provides no support for stigma.

With respect to mental illness, of the hundreds of interventions and practices in use, few have been approved as evidence-based, and these only for people with major mental illness. Vermont is one of eight states participating in the New Hampshire-Dartmouth Psychiatric Research Center's Evidence-Based Practices Project, which began in 2000 with a goal of promoting the implementation of research-based interventions for the care of persons with severe mental illnesses (SMI) in routine, community-based mental health practice settings (e.g. community mental health centers). The project is divided into three phases, and at the time of publication, was in Phase II.

During Phase I, implementation resource kits were developed for each of six identified evidence-based practices. The six EBPs are 1) Medication Management Approaches in Psychiatry (MedMAP), 2) Illness Management and Recovery (IMR), 3) Assertive Community Treatment (ACT), 4) Family Psycho education (FPE). 5) Supported Employment (SE), and 6) Integrated Dual Disorders Treatment (IDDT). These kits contain educational and training materials for consumers, family members, clinicians, supervisors and administrators. The intent is that the material in the resource kits, in conjunction with expert consultation and support, could be used in routine mental health settings to assist programs in implementing evidence-based practices.

Phase II, is a three-year demonstration project involving the implementation resource kits for five of the six psychosocial practices (MedMAP is excluded from Phase II). It is being conducted in more than 50 mental health programs in eight states, including Vermont. Its primary goals are to refine the implementation resource kits themselves and to determine the level of supplementary consultation and support needed so that mental health centers can effectively implement evidence-based practices.

Phase III will be a national demonstration project, based on what was learned in Vermont and other test states.²⁷

²⁷Drake, RE. *Evidence-based Practices and Knowledge Dissemination*.
[Hhttp://www.dartmouth.edu/~psychrc/know.html](http://www.dartmouth.edu/~psychrc/know.html)H.

Accountability and Transparency

Outcome desired: Information regarding problems, progress and success in providing high quality coordinated health services to Vermonters is shared among organizations and with the public.

Action needed:

- Select specific outcome indicators and the methods for measuring and collecting the selected data elements, interpreting the data and reporting the progress for each. Outcomes should be established for all components of the model (Figure 1) and address professional competence, financial performance, adequacy of access, public health and community performance and evidence of collaboration.
- Identify the organization or organizations that will assume responsibility for development and implementation of the comprehensive system for accountability.
- Make available to all Vermonters regular reports that provide clear and usable information on quality, cost and system outcomes.

Background:

All parties to the health care delivery system must be accountable for their activities, policies and practices, and should be called on, when appropriate, to justify or change the way they do things. At various times, this may include individuals, physicians, non-physician providers, hospitals and other facilities, payers, purchasers (employers), professional associations, government, policy makers, regulators, investors and lenders of capital, communities, lawyers and the courts. A 1996 article by Emanuel and Emanuel provides a guide to accountability and forms the basis for much of this chapter.²⁸

Accountability obligations in the health care and public health include professional competence, legal and ethical conduct, financial performance, adequacy of access, public health promotion, and community benefit, to name only a few. Communities and individuals must also be held accountable when appropriate.

Systems of Accountability

The traditional model of accountability in health care has been between physicians and their peers, and between physicians and their patients. Health care has been seen as a professional service rather than as a commodity, and the responsibility of the physician to the patient has been mediated by the profession's standards of practice and of ethical conduct.

In recent years, an economic model has come into use, in which the accountability of the marketplace has been applied. The patient is viewed as a consumer, health care as a commodity, and physicians and others as providers of an economic product. Accountability is mediated by marketplace forces, with consumers expected to choose the best care for their own needs.

²⁸ EJ Emanuel, LL Emanuel. What is Accountability in Health Care? *Ann Int Med.* 1996;124:229-239. :

Less common has been a political model, employed in Community Health Centers and other settings, in which both the recipients of services and providers are “citizen-members” through a governing board. In this model, accountability obligations are not fixed and change is dependent on board interpretation of patient well-being.

Each of these models has something to offer in determining accountability for health services and each has significant drawbacks when used as the sole model. Some combination may be the most effective way to develop a truly accountable system for Vermont.

Reporting

A system of accountability requires periodic evaluation of the accountable party’s adherence to agreed-upon criteria and/or measures for a specific content area, and the public dissemination of the evaluation and of the response by the evaluated party. Evidence indicates that only when reports are made public are changes sustained over time.

Critical to all models of accountability is agreement on the criteria by which each member of the health delivery system will be judged and will judge others. Currently, while the mechanisms for evaluation are limited, there is a growing body of research suggesting clear standards in professional care, hospital systems, financial accountability and other areas. These sources should form the basis for development of a reporting mechanism with the potential for expansion over time. See also the chapter: Quality of Care

Integrated Health Information System

Outcome desired: A comprehensive Vermont information infrastructure is in place to support implementation of all components of the model for lifelong prevention and care.

Action needed:

- Develop and implement a single, statewide plan to guide purchase and deployment of information infrastructure.
- Ensure that all information technology purchases made during the planning and start-up phases have the capacity for modification and integration with the future system.
- Purchase and deploy population-based clinical registries to health service providers to facilitate management of care at the individual and caseload levels. This initiative must proceed prior to full plan development.
- Ensure that all systems and data sharing agreements are within the limits imposed by the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA) and other relevant state and federal laws.

Background:

A major barrier to better health care in Vermont, as elsewhere in the United States, is the lack of a comprehensive information system. No other industry the size and complexity of the health care delivery system operates without state-of-the-art information support. There are significant gaps within and between existing information technology components. Health care providers do not currently have the tools available to provide the proactive planned care called for in this plan; consumers cannot access information about their own health; health plans must rely on chart audits to monitor quality; and public health has limited data with which to identify problems and monitor change. If we are to accomplish the goals of this Vermont State Health Plan, resources must be directed to improving the health information infrastructure.

In the context of evidence that, on average, adults in this country receive the recommended chronic, acute and preventive care only about half the time,²⁹ the potential effects of this system shortcoming are enormous. No other industry or economic sector tolerates a 50-percent failure rate.

The poor quality of the nation's health care information systems has numerous negative consequences, among them:

- Patient safety is put at risk. The likelihood of drug interactions or other medical errors is heightened.
- Information about evidence-based treatment options is not immediately available at the time decisions are made.

²⁹ Rand Corporation *Report Care on Quality*

- Costs are increased and provider productivity compromised when examinations, diagnostic tests such as labs and x-rays, and other services must be repeated and unneeded care is provided.
- Patient self-management is compromised and collaborative care options are limited in part because medical information is housed in multiple settings and is generally unavailable from any of them.
- Health outcomes are compromised by under use (patient does not get the necessary treatment or preventive care), overuse (patient gets too many procedures, or too many hospitalizations, or too many drugs, all of which tend to increase associated risks without compensating benefit), or other misuse (patient gets the wrong treatment).
- The reporting of public health information for early detection and response to disease outbreaks and potential bioterrorism is inefficient and incomplete.
- Time spent in dealing with inefficient paperwork systems is time taken away from direct patient-care tasks. Paperwork is consistently cited by nurses as a major barrier to better patient care.

Practice-based Systems

Very few health services providers in Vermont have adequate paper systems or make use of electronic technology to manage services. This lack of information makes it virtually impossible to integrate evidence-based practice into routine, day-to-day health services delivery. It hides systemic weaknesses in clinical practice, and it limits the use of reminder systems that facilitate adherence to treatment plans.

Primary care physicians often have difficulty determining what specialty care their patients are receiving be it for medical, mental health or substance use problems. These specialists, in turn, may have difficulty discerning a patient's overall health picture. Neither may have access to a comprehensive list of drugs prescribed or prescriptions filled. Patients may have the same lab tests repeated because there is no centralized record that tests were done or of the results. These problems often are magnified when patients move or have seasonal residences, when surrogate decision makers are involved, or when decisions must be made quickly. An individual's concurrent use of complementary and alternative medicines may further complicate the picture, as may the widespread practice of self-medication. Existing information systems also typically do not allow practitioners to review care at the population level, to identify groups of patients needing additional care, to monitor practice performance, or to engage in quality improvement efforts.

A clinical information system with a registry function is needed in each provider office and institution, and it is essential that mental health and substance abuse service providers are included. Within practices, registries can enhance the care for the population served by identifying groups of patients needing additional care, as well as facilitating performance monitoring and quality improvement efforts. It allows practitioners to identify all of their patients who have a particular condition (e.g. diabetes, asthma, depression, alcohol addiction). This information system would be used to track patient progress, to remind patients and providers of needed services, to proactively reach out to individuals in need of care, to manage care to

scientifically established goals, and to track an individual's condition and care across time and care settings.

All practice-based data systems, equipped with appropriate privacy safeguards and access limited to specific individuals or purposes, should be linked to health insurance plans, peer review organizations, and the Vermont Department of Health, for planning, quality improvement, monitoring and evaluation purposes.

Practices will need help with initial costs for purchasing hardware, software and licenses, and data entry. Training, technical assistance and systems will be needed to allow sharing among peers, to help practices maximize the benefit of the clinical information systems. Other integrated support services that are necessary to enhance clinical practice, include technology for web-based video visits, e-mail communications, and electronic prescribing and patient orders.

Evidence-based standards of care must be embedded in the information systems used by practices and shared with patients to enable full patient participation in goal setting and decision making. Treatment protocols must be integrated into easy-to-access systems for guiding clinical practice and integrating specialist expertise with primary care.

These system development efforts must be compatible with and supportive of federal efforts to develop a National Health Information Infrastructure, a national system that would allow a doctor or other health-care provider to access an always-up-to-date electronic health record for a patient who has authorized it, regardless of when and where the patient receives care. This would not be a national database, but rather a set of standards and secure networks that would allow a doctor or hospital to immediately gather relevant information by computer network -- such as test results, x-rays and medical history, as well as clinical guidelines, drug labeling and current research findings -- to best treat an individual patient. Both the national system and the state system would be designed to help consumers and patients to manage their own health by giving them greater control of their health records.

Public Health Systems

Public health currently uses a variety of information systems to monitor health status over time. These systems include vital records (births, deaths), hospital discharges, surveys of health behavior among youth and adults, and condition specific registries. There is very little information available on wellness, use of health care services, the services provided or about the treatment or progress of disease. Properly designed, the clinical registries will be an important source of such data and facilitate better planning and policy decisions by public health providers.

A health data registry is an essential monitoring and planning tool for public health. With all individual identifying information removed, a registry is used to collect and maintain data on certain events or conditions for an entire population. At the state level, registries allow the health department to monitor trends in disease and risk behaviors, to identify high risk populations, to improve care management, and to support research, providing a source of data for testing current, ongoing or future hypotheses regarding the nature of disease and its associated factors.

The Vermont Cancer Registry, maintained by the Vermont Department of Health, is a central bank of information on all cancer cases diagnosed or treated in Vermont since January 1, 1994. The registry collects information on the diagnosis and first course of treatment on newly diagnosed cancers among Vermont residents. This allows researchers to monitor cancer trends over time, to determine cancer patterns in various populations, to guide the planning and evolution of cancer control programs, to help set priorities for allocating health resources, and to provide information for a national database of cancer incidence. This kind of surveillance is necessary if researchers are to better understand the causes of, and to develop more effective screening and treatments for, one of our more widespread diseases and our second most common cause of death. Health care facilities are required by law to report cases to the cancer registry within 120 days.³⁰

Vermont law also requires all health care providers to report child immunizations to the Vermont Department of Health.³¹ Pursuing a goal of universal immunization, the health department has developed a new computerized immunization registry. Staff hoped to have recruited 75 practices (out of the 159 practices in the state that serve children and/or adolescents) to feed information into the registry electronically by the end of 2004.

With privacy safeguards in place, the immunization registry manages vaccine records for children, provides guidance for the timing of vaccine administration, and maintains clinic inventories of vaccines, including lot numbers and expiration dates. Among other benefits, this immunization registry helps prevent over-immunization of children who do not have accessible health records, provides easier access to immunization records for parents and school nurses, and provides for easy tracking by lot number in case of vaccine recall.

Data entry for the new system can be a burden for practices, especially those that already have an automated system, but health department staff has attempted to lessen this burden by populating the system with its birth record information, and plans to add data from other sources such as Medicaid and private insurers. Although the law requires practices to participate, the department's approach has been to encourage use by pointing out the benefits, such as being able to print records in response to yearly school or parent requests for immunization histories.

Health Care Information Systems

An integrated data system will also provide significant benefit to organizations throughout health care. Practice-based registry data, in combination with pharmacy and claims data can assist health plans monitor the quality and utilization of members more effectively and at much lower total cost than the current system of chart audits. Hospitals and other employers can similarly monitor trends in adverse outcomes, and identify potential problems early to prevent more serious consequences. This integrated data system would allow comprehensive performance monitoring of key indicators for prevention and treatment of mental health problems and substance abuse across the public and private systems in the state.

³⁰ Chapter 4., Vermont Cancer Registry. 18 V.S.A. § 153

³¹ Chapter 21, Communicable Diseases. 18 V.S.A. § 1129