# Vermont State Health Plan
# 2005

## Part 4: Focus Areas - A

## *Chronic Conditions*

*Outcome desired*: A comprehensive, proactive system of care that improves the quality of life for people with or at risk for chronic conditions and that is more financially sustainable.

*Action needed:*

- Ensure adequate support, including funding, to guide and manage the redesign of the system of care for people with chronic conditions.
- Ensure full integration of the screening for and diagnosis and treatment of substance abuse and mental illnesses into the new system.
- Ensure commitment of key entities in health care, community and public health as well as providers and consumers to the new system of care.

*Background:*
Chronic conditions last a year or longer and limit what one can do and/or require ongoing medical care.[1] They are the leading cause of illness, disability and death, touching the lives of most Vermonters. They include diseases such as hypertension, arthritis and diabetes, mental conditions, disabilities and other conditions. Seven of the 10 leading causes of death in Vermont are chronic illnesses: heart disease, cancer, stroke, lung disease, diabetes, Alzheimer's disease, and liver disease.

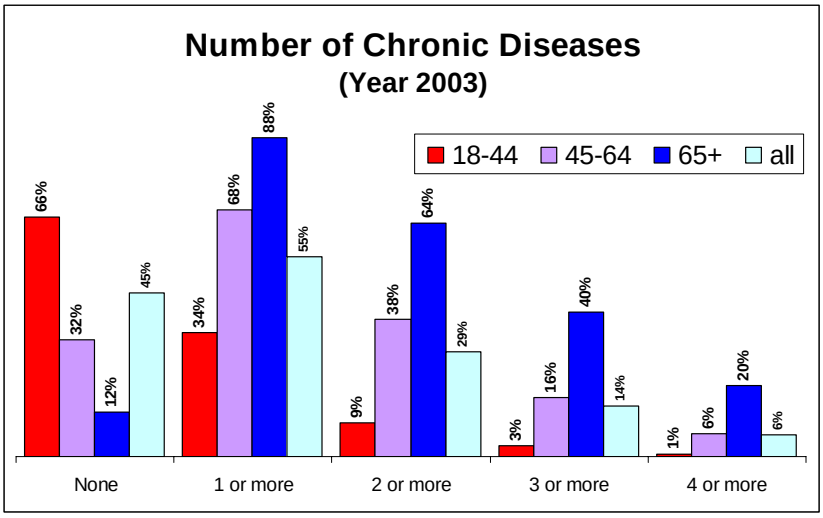
The needs of people with chronic conditions will be the primary driver of demand for health care and the resulting costs for the foreseeable future. Indeed, with the aging of the baby boomers, the impact of chronic conditions will grow and, with it, the imperative to improve people's lives and contain costs.

More than half of all Vermont adults have one or more health care problems that can be expected to last a year or longer, limit what they can do, and require ongoing medical care. The number of Vermont adults reporting chronic conditions increases with age: in a recent survey, 88 percent of those aged65 and older reported having one or more chronic conditions and 20 percent reported having four or more. [2] Even among the 45-year-old to 64-year-old age group, 68 percent reported having at least one chronic disease (Figure 11).

Care for people with chronic conditions currently represents 83 percent of health care spending, 81 percent of hospital admissions, 76 percent of all physician visits, and 91 percent of prescriptions written.[3] It is estimated that in excess of $2.3 billion of the $2.8 billion in spending for Vermont residents in 2002 was spent on caring for chronic conditions. The Medicaid portion of this expenditure is 17.5 percent or approximately $407 million.[4]

[1] Partnership for Solutions. *Chronic Conditions*
[2] Vermont Department of Health. *Behavioral Risk Factor Surveillance Survey*. 2003.
[3] Partnership for Solutions. *Chronic Conditions*
[4] Dept of Banking [ ] Health Care Administration. *2002 Expenditure Analysis.*

Figure 11
**Chronic Conditions by Age of Vermonters**




## The Vermont Blueprint for Health

Vermont's response to the challenge of chronic conditions is embodied in the Vermont Blueprint for Health, a collaborative project begun in the fall of 2003 and led by a public-private partnership that includes state government, health insurance plans, business and community leaders, health care providers, and consumers. The Vermont State Health Plan—2005 follows and extends the Blueprint approach to health care generally and fully incorporates the Vermont Blueprint for Health.

The Vermont Blueprint is based in large part on a chronic care model that has been developed by an organization called Improving Chronic Illness Care (ICIC).[5] Based on an analysis of available literature about promising strategies for chronic illness management, the ICIC model envisions an informed, activated patient interacting with a prepared, proactive practice team, resulting in high quality encounters and improved health outcomes. It includes roles for the community, the health care system and the health care practice team, and it addresses the issues of self-management support, delivery system design, and clinical information and decision support systems. The ICIC premise is that the evidence-based change concepts that are associated with each of these elements will, in combination, foster productive interactions between informed patients who take an active part in their care and providers who have the benefit of appropriate resources and expertise.

The Vermont Blueprint is actively pursuing change in four broad areas: patient self-management, provider practice change, community development and information system development.

Effective chronic disease management is best achieved when the patient actively manages his or her own care in collaboration with the primary care physician and other members of a health care

[5] Institute for Chronic Illness Care. *Chronic Care Model*

team. Patients then have a central role in determining their care, one that fosters a sense of responsibility for their own health. The Blueprint self-management team is exploring evidence-based strategies to improve patient skills in self care and is currently piloting a chronic disease self-management course.[6]

The Blueprint provider practice team is addressing the three areas of the ICIC Chronic Care Model that are central to ensuring that providers are proactive and prepared to deliver needed chronic care services. These areas are delivery system design, decision support and the use of a patient registry (clinical information system).

In a well-designed delivery system, clinicians plan visits well in advance, based on the patient's needs and self-management goals. All of the clinicians who take care of a patient have centralized, up-to-date information about the patient's status, and follow-up is a part of standard procedure. Treatment decisions need to be based on evidence-based practices, and evidence-based guidelines are integrated into the day-to-day practice of the primary care providers in an accessible and easy-to-use manner. A key laboratory for testing ways to improve this design is the Vermont Community Diabetes Collaborative, run by the Vermont Program for Quality in Health Care and funded by the Department of Health and other state resources.

Community participation in the management of chronic conditions is a new concept, yet there are numerous existing community services that can and do support people with chronic conditions. Because physical activity is a key management strategy that is easily understood and implemented by communities, the Blueprint community team is focusing on expanding physical activity services.

Effective chronic illness care is virtually impossible without information systems that assure ready access to key data on individual patients as well as on patient populations. A patient registry is the cornerstone of a comprehensive clinical information system that can enhance the care of individual patients by providing timely reminders about needed services and summarized data to track and plan care. At the practice population level, it is used to identify groups of patients needing additional care, as well as to facilitate performance monitoring and quality improvement efforts. Although the Blueprint health information system team has experienced initial difficulty in finding a suitable application, deployment of a practice registry that would interface with a growing comprehensive health information system is the team's priority project.

## Health Care and Public Health

The participation of a broad group of public and private organizations in the Blueprint project testifies to the recognition of chronic disease as a serious issue and also testifies to a serious commitment by all parties to address it in a collaborative way. Each of the participating organizations has committed resources to implementation and has identified specific projects to enhance implementation.

[6] Stanford University. Chronic Disease Self-Management Program. http://patienteducation.stanford.edu/programs/cdsmp.html

The fields of public health and of health care have developed separate interventions over the years to address the growing concerns about chronic conditions. Public health strategies have focused largely on primary prevention services (tobacco, nutrition) or screening and early detection (breast and cervical cancer). In recent years, funding from the federal Centers for Disease Control and Prevention has increasingly been directed to reducing the "burden" of disease (diabetes, asthma, arthritis), which has led to programs targeting people with existing disease and increasing the interface with the health care sector, with varying levels of success.

The Chronic Care Model represents a recent evolution of strategies within health care make care more proactive. Originally developed as a tool for improving care within a managed care organization and focusing on individual care and outcomes, it adapted public health's population-based strategies to the health care sector. The diabetes control programs in state health departments were among the first public health programs to recognize that this represented an important new tool to accomplish public health as well as health care goals.

Through the Blueprint, Vermont is the first state to try to revise both public health and health care approaches to chronic conditions in a comprehensive, collaborative redesign of the health system.

## *Emergency Medical Services*

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

*Action needed*:

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

*Background:*
Emergency Medical Services (EMS) in Vermont represent in a small way the best of an integrated health system with strong community support for local ambulance services; health care support via payment and other resources for EMS; and commitment of public health to quality service through information systems, workforce development and regulation. It is also representative of a system in which many groups share responsibilities for individual components, where no one is fully responsible, and, where unresolved problems in one part of the system can negatively affect the overall delivery of care to patients. As is too often the case with the rest of health care, the problems faced by EMS are generally addressed in isolation from other health care issues and systems.

The delivery of EMS to ill and injured citizens requires a coordinated, systematic response of resources. In Vermont, more than 75,000 responses occur annually for emergency medical care or transportation. Ninety ground ambulance services (operating 200 ambulances), 92 first responder services, one air ambulance, more than 3,000 certified personnel and 15 hospitals operating emergency departments all combine their efforts to handle a range of incidents from minor injuries or illnesses to cardiac arrests and major trauma.

Emergencies are self-defining and begin with incident recognition. Most commonly, people access the EMS system by calling 9-1-1. Calls are received, forwarded to a dispatcher, and instructions are provided until EMS arrives. EMS first response is on-site EMS care (but not transportation) provided by persons with emergency medical training and equipment. Ambulance services provide emergency basic and advanced life support medical care. The majority of emergency medical calls require only basic emergency care. All of Vermont is covered by ambulances service licensed to provide some advanced care; however, not all services are able to

provide advanced care on every call. EMS has the responsibility to deliver patients to the nearest hospital capable of handling the patient's emergency problem. In most cases, this is the nearest hospital.

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

The National Highway Traffic Safety Administration (NHTSA) has supported the development of statewide EMS systems since the late 1960s. One approach that NHTSA has taken is to develop a set of "gold standards" for state EMS systems. See Appendix E. Areas of particular concern in Vermont at this time are adequate resources, trauma systems and standards of practice.

## Resources

Geography and demographics in Vermont necessitate a distribution of more ambulances statewide than would be required to provide service in a more densely populated urban environment. We need EMS everywhere, but we don't need it anywhere very often. This leads to an inherently inefficient system. The Vermont EMS system has historically placed a high value on local development and operation of services. EMS is therefore viewed much more as a community service than a health care service. This core value leads to a large number of communities operating individual (or in come cases multiple) EMS organizations. Communities also determine how the cost of operations will be covered, the level of clinical capability, response time and other attributes within a statewide framework. The advantages of local ownership are clear; the cost however, is further inefficiency and a number of challenges in providing adequate EMS coverage.

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

The challenges faced by small ambulance services include poor economies of scale with associated limitations in financial stability and increasing difficulty attracting and maintaining a qualified workforce. While there is significant variation in the organizational structure of Vermont's ambulance services, the most common staffing configuration is a combination career-volunteer model. Volunteer labor does not reduce that cost, but merely redistributes who pays the cost (i.e. the volunteers pay through their contribution of labor).

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

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

## Standards of Performance (Quality)

The Department of Health ensures competence for individual practice at various levels including Emergency Care Attendants, Emergency Medical Technicians at the Basic and Intermediate levels and Paramedic. The services themselves are licensed at the level they have the staff/equipment and medical backup to provide, and while they aren't required to have this level on all shifts, this approach allows level of care to increase over time. This use of minimum quality standards for state licensing is important, but is inadequate as a tool to "raise the bar" to promote higher quality service and to establish standards of accountability to patients and the communities that use the services.

Unlike much of the rest of health care delivery, there has been little research regarding the standards of performance for emergency response or the level of skill required for various types of emergencies. What little evidence exists is often related to care in urban rather than rural settings, though there has been increasing national attention to this gap in recent years.

Vermont has very limited data on the use of procedures and patient outcomes associated with pre-hospital care. Further, there is no easy resource to determine the capacity of each hospital to care for specific cases on all shifts. There is information suggesting that patients with trauma, stroke, cardiac and certain other types of problems do better at a larger regional resource center with specialty capability. Today in the Vermont system most patients go to the nearest hospital, which probably works well for the vast majority of cases, but may not be appropriate for those who need very specialized care.

It is important that Emergency Medical Services are accountable to their communities. Service delivery targets (response times and clinical levels) should be established for different types of communities (rural, urban, large, and small) and specific quality measures developed. Essential to this effort is a comprehensive data system to track services and outcomes and a reporting framework that provides essential information to communities and the public.

## Trauma Care

In many jurisdictions in the United States, an organized system of trauma care, intended to deliver the right patient to the right hospital in the right amount of time, has been shown to

reduce mortality. Vermont is one of 15 states in the United States that currently does not have such a system.

While the movement of trauma patients to local hospitals and on to trauma centers is generally orderly and predictable, there is little data to assess whether or not we are meeting the needs of seriously injured patients. A regionalized system of trauma care could potentially provide the necessary resources to improve the capabilities of our pre-hospital system.

Except for Fletcher Allen Health Care, there has been no independent verification of the capability of Vermont hospitals to provide trauma care. It is possible that some hospitals may lack the equipment or trained staff, on all shifts, that is needed to provide for the initial stabilization and resuscitation of the trauma patient. If a regionalized system of trauma care were to be adopted, it could mandate hospital compliance with such basic guidelines as Advanced Trauma Life Support certification, intubation skills, and other procedures. Compliance to these standards would then be enforced as a necessary qualification to remain part of the trauma system in Vermont.

Implementation of a trauma registry would provide the data needed to determine how well Vermonters are currently served and the nature of changes needed to improve care either statewide or in specific areas. It would serve to keep communities informed about the quality of care provided; allow the development of specific performance criteria; and, if appropriate, guide the development of regional and/or a statewide trauma system. To be useful, a trauma registry will require participation by all hospitals in Vermont as well as Dartmouth Hitchcock and Albany Medical Centers.

## *End of Life Care*

*Outcome desired*: Vermonters have the information and supports needed to make decisions at the end of life that reflect their personal values, beliefs and needs, and a system of care that will ensure that those choices are followed and supported by all components of the Vermont health system.

*Action needed:*

- Assist individuals or their designated surrogates to make the best personal decisions at the end of life by adopting shared (informed) decision-making techniques to develop informational materials, guide exploration of options and reach a decision.
- Remove barriers and promote informed decision making at the end of life by adopting legislation based on the guidance provided by the Office of Attorney General and the Department of Health.
- Redefine chronic pain as a chronic condition that is managed through a comprehensive program of provider services, self-management, and supportive communities should be developed and implemented.

*Background:*

It is estimated that 80 percent of people wish to die at home, surrounded by family and friends, free of pain and without unwanted medical intervention to prolong suffering; yet 80 percent of people die in hospitals or nursing homes receiving unwanted medical intervention.[7] Data on utilization of services indicate that, on average, Vermonters spend approximately nine days in the hospital during the last six months of life and that 20 percent are admitted to the intensive care unit during that time.[8]

In national evaluations, Vermont tends to rank poorly in its laws and policies regarding end-of-life care, but does somewhat better in assessments of how care is actually provided.[9,10] In the fall of 2003, the Vermont Attorney General convened a workgroup that met with consumers and professionals to identify and suggest ways to overcome the legal barriers to excellent end-of-life care. A report of that work includes pain and symptom management recommendations and recommendations for legislation regarding decision making related to end-of-life care. [11]

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[7] National Association of Attorneys General. *Improving End-of-Life Care: The Role of Attorneys General.* http://www.naag.org/publications/naag/end_of_life/pub-end_of_life.php

[8] Wennberg, J. *Practice Variation in Vermont.*

[9] Robert Wood Johnson Foundation. *Means to a Better End: A Report on Dying in America Today.* 2002

[10] Pain & Policy Studies Group. *Achieving Balance in Federal & State Pain Policy: A Progress Report Card*. University of Wisconsin, Comprehensive Cancer Center. 2004.

[11] Report to Vermont Attorney General William Sorrell from the Committees of the Attorney General's Initiative on End-of-Life Care. www.atg.state.vt.us/upload/1107181822_EOF_Report.pdf

The report recommends a number of measures to increase the level of public and professional awareness and education regarding pain and symptom management, especially end-of-life care issues, including:

- requiring professional training in hospitals, nursing facilities and home health agencies;
- establishing a program for licensed health care professionals to demonstrate proficiency in pain management;
- requiring data relating to pain management in the quality data reported by hospitals;
- issuing guidelines addressing the relationship between law enforcement and the aggressive medical treatment of pain using opiates and other narcotics; and
- training health care professionals on issues relating to drug abuse and diversion."

Several recommendations address legislative changes including amendment of the Bill of Rights for Hospital Patients to include the rights to pain assessment and management and information about hospice services; removal of barriers in insurance coverage for hospice, pain management and palliative care; and, modifications to the advance directives, do-not-resuscitate orders and guardianship laws.

While the legal issues of surrogacy, patient rights, prescription of opiates, potential diversion, advanced directives and other concerns must be addressed, there is much that can be done under existing law, using existing standards of care and support systems to ease the suffering of people and help them to fulfill their personal wishes about the manner of their death.

End-of-life care and management of associated pain needs to be addressed in the same manner as care for all chronic conditions. Applicable strategies include:

- Informed decision making, including information, counseling and skill development to determine the course of treatment most appropriate to one's own values and needs. See Chapter: Individuals, Consumers, and Patients.
- Recognition of patients as partners and managers of their own health. Closely related to informed decision making, empowerment of patients requires providers to keep patients informed about their condition and care options and to be guided by the patient's desires.
- Use of existing standards of care for pain management and other aspects of care. Clinical registries should be used to keep track of patients with pain, continually reassess the control of pain, and ensure compliance with the guidelines that do exist is consistent with the goals of the Vermont Blueprint for Health. See Chapter: Chronic Conditions.
- Community support systems including respite and home-based services. Increasing the role of community in end-of-life care can have enormous benefits in terms of meeting the wishes and maximizing the physical, emotional and spiritual comfort of individuals at the end of their lives. It is also of profound benefit to family and caretakers. Greater support for home and community-based programs, including respite and hospice services, could allow the system of care to deliver high quality end-of-life care that is less medically intensive, less costly, and more in keeping with the intentions and desires of the care recipients. See Chapters: Community and Long-term Care.

## *Environmental Health*

> *"Few would dispute that we should keep track of the hazards of pollutants in the environment, human exposures, and the resulting health outcomes — and that this information should be easily accessible to public health professionals, policy-makers and the public. Yet even today we remain surprisingly in the dark about our nation's environmental health."*
>
> America's Environmental Health Gap

*Outcome desired:* Reduce or eliminate risk factors in the environment that are associated with disease and other adverse health conditions

*Actions needed:*

- Connect regulatory information with public health and clinical data (e.g. environmental data, exposure data, health outcome data)
- Enhance understanding of the uses and limits of scientific tools for determining the relationships between environmental hazards, exposures and diseases.
- Increase coordination among environmental and health authorities and use of information technology to enhance data sharing and cooperation,

*Background:*
Many of our great achievements in improving health and quality of life in the past two centuries can be attributed to improvement in environmental conditions and the reduction of exposures to environmental hazards. This work continues, but, new challenges have emerged. There is much we do not know about the effect of environmental hazards on birth defects, asthma, cancers and other chronic conditions. Current prevention efforts suffer, in the words of one study report, from a "lack of basic information that could document possible links between environmental hazards and chronic disease [and a] lack of critical information that our communities and public health professionals need to reduce and prevent these health problems. While overt poisoning from environmental toxins has long been recognized, the environmental links to a broad array of chronic diseases of uncertain cause is unknown."[12]

"In its broadest sense, environmental public health comprises those aspects of human health, disease and injury that are determined or influenced by factors in the environment. This includes the study of both the direct pathological effects of various chemical, physical and biological agents as well as the effects on health of the broad physical and social environment, which includes housing, urban development, land use and transportation, industry and agriculture."[13]

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[12] Pew Environmental Health Commission. *America's Environmental Health Gap*. 2000. http://healthyamericans.org/reports/pew/
[13] Centers For Disease Control and Prevention. *Health People 2010: Environmental Health*. 2000.

The focus has broadened from cancer as the primary impact of toxic exposures to include potential neurological, endocrine, and reproductive impacts. There also is a growing effort to improve our understanding of the developmental and genetic susceptibilities of individuals to environmental exposures. For example, it is well documented that children, the elderly and persons with compromised immunological systems are more susceptible to the potential negative impacts of environmental exposures such as lead or mercury. Research through the environmental genome project is uncovering genetic susceptibilities as well. As a whole, however, our understanding of the relationship of environmental health hazards and chronic conditions remains limited.

## Prevention

Protection of the natural and built environment from sources of contamination is the safest, wisest and most economical course for preventing disease cause by exposure to hazardous substances. When that fails, people must avoid the sources of contamination or they must be removed, usually at great cost. Everyone has a role to play in protecting themselves and others.

- **Individuals and families** can take actions to prevent and/or limit environmental interactions and exposures by avoiding eating fish that may be contaminated, testing for radon, ensuring proper lead abatement).
- **Providers and the health care sector** need to recognize the potential contribution of environmental interactions and/or exposures to a disease or condition, and to provide incentives for reporting and appropriate treatment and referrals.
- **Communities** must recognize the health impacts of decisions related to changing our natural and built environment — including zoning, land use planning, economic development, agricultural and energy policy.

Preventing environmentally related disease is largely beyond the control of individuals acting alone. The coordinated actions and policies of the community and public health are therefore essential to protecting, changing or controlling the environmental conditions that pose threats to health (e.g. providing a safe drinking water supply). See Chapter: Prevention as a Priority.

## Information Systems

In order to effectively begin to answer questions about the relationship between environmental factors and human health and the effectiveness of interventions to minimize or prevent impact, we must first be able to identify environmental hazards, measure population exposures, and track health conditions that may be related to the environment. The coordinated collection, analysis and dissemination of data require:

- Development and implementation of a statewide comprehensive environmental health information system, integrated with the clinical health information systems.
- Inclusion of selected environmental exposure information in health service providers' clinical registries, with unidentifiable data made available for public health planning.
- Inclusion in plans for a new state health laboratory of an information system to track test results (e.g. drinking water contamination and other environmental hazards).

- Establishment of routine monitoring of and reporting to the public on environmental risks and test results, using data from the above information systems.

In combination, these actions would allow effective identification of individuals and populations at risk and effective targeting of prevention efforts. Information, gathered over time, would allow risk assessments that have not been available to date. This will lead to earlier recognition of environmental factors that often take years to cause damage and affect only a small proportion of the exposed population. Similarly, contamination test results taken from a large number of locations over a short span of time could be correlated to show patterns of pollution. The development of a capacity to track drinking water test results by the state health laboratory, for example, would allow analysis of risk by neighborhood and region over time and thus allow better public health surveillance of targeted geographical areas and sensitive populations. See Chapter: Integrated Health Information Systems.

## Professional and Public Education

Health care providers and public health professionals are often questioned regarding the safety or risks of drinking or swimming water, food, air quality and other environmental factors. Too few are trained and equipped to effectively answer these questions. The environmental components of professional education for medical and public health practitioner's needs to be enhanced, and practice-level computer systems that are designed to provide decision support must include necessary, relevant and up-to-date environmental health information. The public also needs better information about risks from environmental exposures to better assess risks within their homes and communities and to take appropriate action to reduce those risks.

## Organizational and Systems Capacity

Preventing, monitoring, reducing and eliminating disease related to interaction with the environment requires coordination among key agency and community sectors in providing oversight and management of environmental health policies, programs, responses and communication with the public.

Vermont faces the same fragmentation of environmental health authority, expertise, and responses that is found throughout the United States. The farm-based processing of agricultural products, for example, rests with the Agency of Agriculture, Food and Markets, but once the food enters a restaurant or causes an outbreak of illness, the jurisdiction shifts to the Department of Health. Public water supplies are regulated by the Department of Environmental Conservation, while private supplies and water-related illnesses are the Health Department's concern. The responsibility for air quality is different for indoor and outdoor air, and the state entity responding to complaints of environmental concerns in the schools might depend upon whether teachers or students became ill.

This distribution of authority is not necessarily, but it requires a greater degree of cooperation, coordination and information exchange than currently exists.

## *Health Promotion (Disease Prevention)*

*Outcome desired*: Vermonters of all ages are actively engaged in maintaining and improving their own health and the health of their families and community.

*Action needed:*

- Put knowledge into action by Vermonters adopting health behaviors that lead to decreased risk of disease and its complications and eventually to reduced costs of health care.
- Develop programs and policies within communities that actively promote access to health-promoting services, including non-smoking environments, healthy food choices and daily physical activity.
- Ensure provision of the clinical preventive services shown to improve healthy behaviors, including counseling on smoking cessation, improved diet, regular exercise, and safe sexual practices.
- Develop and promote common messages that convey the importance of healthy lifestyles and encourage culturally appropriate behavior changes that reduce risk and enhance health.

*Background:*
Health promotion includes an array of interventions aimed at encouraging people to choose healthier behaviors. It encompasses multiple strategies aimed at providing health education, skill development and support services. People seldom *decide* to adopt unhealthy lifestyles. Rather, unhealthy behaviors arise from the experience and social contexts to which people are exposed. Once habits are established, changing them and finding equal support for new norms is exceedingly difficult.

It is estimated that behavioral factors are associated with more than half of all deaths in the United States each year.[14] Figure 12

Figure 12
**Leading Causes of Death and Associated Behaviors**

| Number | Cause of Death | Health Behaviors |
|---|---|---|
| **1** | Heart disease | Smoking, diet, inactivity, obesity, stress, non-use of medications |
| **3** | Stroke | |
| **2** | Cancer | Tobacco, alcohol, diet, obesity, sun exposure, sexually transmitted disease, non-use of screening tests |
| **4** | Chronic obstructive pulmonary disease | Smoking, exposure to tobacco smoke and other airborne particles |
| **5** | Injury | Motor vehicle: alcohol, safety restraints, excess speed |
| | | Other: alcohol, smoking, home hazards, firearms, violence |
| **6** | Diabetes | Obesity, diet, inactivity, non-use of medications |
| **7** | Alzheimer's | None known |
| **8** | Pneumonia & influenza | Smoking, non-use of preventive immunizations |
| **9** | Suicide | Alcohol, firearms, drugs, mental health problems |
| **10** | Liver disease | Alcohol, intravenous drug use, exposure to chemical agents |

[14] Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual Causes of Death in the United States, 2000. *JAMA* 291; 1238. 2004.

illustrates the relationship between behaviors and the leading causes of death.

Health promotion services may be directed at individuals or at the entire population to prevent disease and disability from occurring, but also to help those who already have chronic conditions to prevent complications of those conditions.

The traditional strategy of health promotion has been health education aimed at expanding the knowledge base for making decisions about health behavior and health care. Although this remains a cornerstone of health promotion, there is growing recognition that knowledge alone is not adequate. Of the estimated 92,500 Vermont adults who smoke,[15] there are probably very few that do not know that it is a dangerous habit, and 63 percent of current smokers would like to quit in the next six months.[16]

As discussed elsewhere in this plan, the community and social environment must be changed to make it easier for individuals to make healthy choices than to make unhealthy ones. In the past decade, we have seen the powerful impact of a changed social tolerance that has led to lower rates of driving while impaired, smoke-free public places as the norm, and greater use of safety restraints and personal protective equipment in automobiles. Without the skills to make positive choices and to resist unhealthy choices, however, knowledge and social norms will not be enough.

## Tobacco

Tobacco use is responsible for more deaths in the United States each year than any other cause.[17] With ambitious goals of reducing smoking among youth and adults by 50 percent between 2000 and 2010 and of reducing exposure of all Vermonters to secondhand smoke, the Vermont Tobacco Control Program includes community-based coalitions, school prevention curricula and policies, quit-smoking services, mass media and public education, and the enforcement of youth access laws.

While each of these components is individually effective, the impact of any one intervention is greatly enhanced when several components are included and designed to reinforce each other. Vermont's program, which began in July 2000, is showing progress. Smoking rates among Vermont youth have steadily dropped from 31 percent in 1999 to 20 percent in 2003.[18] Adult smoking rates have decreased from 23 percent to 19.5 percent,[19] and there are approximately 10,000 fewer smokers today than in the first year of the program. Further, 57 percent of Vermont smokers with children reported prohibiting smoking in the home in 2003, up from 43 percent in 2001. And 74 percent of Vermont smokers with children reported prohibiting smoking in the car in 2003, up from 54 percent in 2001.[20]

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[15] Vermont Department of Health (VDH). *Behavioral Risk Factor Surveillance Survey*. 2003
[16] VDH. *Adult Tobacco Survey*. 2003.
[17] Mokdad AH, *Actual Causes of Death*.
[18] VDH. Vermont Youth Risk Behavior Survey. 1999 and 2003
[19] VDH. *Behavioral Risk Factor Surveillance Survey*.
[20] VDH. *Adult Tobacco Survey*. 2001 and 2003.

Despite these gains, much work is still to be done to achieve the Healthy Vermonters 2010 objectives for reducing tobacco use. Twenty-one coalitions, funded to make ***not smoking*** the norm in their community, are in place. Each of these coalitions serves as the hub for local tobacco control activities and each works with an average of 26 additional organizations to reduce tobacco use. Vermont Kids Against Tobacco (VKATS) involves more than 3,000 students in grades five through eight at 56 sites, and Our Voices Xposed (OVX) is in place in 16 sites to serve high school age youth. These coalitions demonstrate the type of community activity called for throughout this plan.

Work targeted at changing the environment to support *not smoking* includes media efforts and the enforcement of laws restricting access to tobacco products and limiting places where people may smoke. These programs have been successful, but face a continuing struggle to counteract the messages from mass media, including movies and print ads, that promote smoking as the norm.

## Nutrition and Physical Activity

A combination of poor diet and physical inactivity is the second leading cause of preventable death in Vermont, and recent surveys indicate that this combination may in time surpass tobacco as the leading cause of preventable death.[21] A good diet is one characterized by a wide variety of foods, to ensure an adequate intake of essential nutrients, and by moderation, to ensure that excesses don't lead to chronic disease and other health problems. The essentials of a good diet are summarized in Figure 13.

Figure 13
**Essentials of a good diet**
(from Dietary Guidelines for Americans-2005)

- Contains a variety of foods from all food groups.
- Moderate in calories, to achieve a healthy weight.
- Includes at least five servings of fruits and vegetables each day.
- Includes three servings of whole-grain products.
- Includes 3 cups of non-fat or low-fat milk or equivalent dairy products.
- Low in saturated fat, trans fat, and cholesterol, and moderate in total fat.
- Low in salt.

A lack of physical activity has a significant impact on the population's health status. Only 55 percent of Vermont adults report meeting the recommendations for physical activity.[22] The consequences of too little physical activity include reduced heart and lung function, increased risk of falls, particularly in the elderly, and weight gain.

Obesity is the most prevalent and serious result of the combination of too much food and too little exercise. Nearly one in five Vermont adults are obese.[23] Among youth, 11 percent of 8-12$^{th}$ grade students are overweight, and another 15 percent at high risk of becoming overweight. [24] Among preschool children in the Vermont WIC program, the prevalence of overweight has more

[21] Mokdad. *Actual Causes of Death.*
[22] VDH. *Behavioral Risk Factor Surveillance Survey.*
[23] VDH. Behavioral Risk Factor Surveillance Survey.
[24] VDH. *Youth Risk Behavior Survey*. 2003

than doubled from 6 percent to 13 percent in the past 20 years.[25] The consequences of obesity include a shorter life expectancy related to a variety of resulting chronic conditions such as heart disease, diabetes, stroke, and some types of cancer. In addition to physiological changes, obesity has a significant impact on mobility and quality of life. It is directly related to osteoarthritis, due to excess body weight putting stress on joints, which can further curtail physical activity. Obesity is also related to an increased risk for psychological disorders such as depression and difficulties due to social stigmatization.

In the midst of all of this plenty, the problem of hunger and food insecurity is still very real. In 2003, almost 10 percent of Vermont adults reported not having enough food or money to buy food,[26] and the number of families that use community food assistance programs has continued to increase steadily. Hunger and malnourishment are prevalent among children and adults who are above a healthy weight. Families that cannot afford or do not have access to healthy foods may choose lower price foods that are higher in calories and less nutritious.

It is essential that Vermonters come to terms with the reality that their own choices about diet and exercise are in large part responsible for the rapidly increasing prevalence of chronic disease and the escalating costs of health care. There is strong evidence that lifestyle modifications can have a positive health benefit. As noted throughout this plan, changing behavior, whether to prevent or to treat a chronic condition, is not easy. It requires not only that people become educated about what constitutes a good diet and appropriate exercise, but also that they learn the skills to make and sustain change and that they have the guidance and support of their health care providers and communities.

One of the biggest barriers to behavior change in Vermont is the conflicting messages that people experience regarding diet and exercise. The social environment encourages more food, larger portions, and high-fat, high-calorie choices through the media and marketing strategies. This is often reinforced at the community level through benefit suppers, bake sales, candy sales and other activities without alternatives for healthy choices. Exercise is discouraged by placing homes and stores far apart, by the lack of sidewalks or bike paths for safe exercise, and by limited options for winter activity. Public health agencies and communities need to redouble their efforts to counter these messages and promote healthy food choices and exercise.

Improved diet, weight loss and more exercise have been demonstrated to be effective in preventing Type 2 diabetes, high blood pressure and heart disease, yet few health care providers offer or refer for nutrition or exercise services. Currently there is little insurance coverage for health promotion. Medicare covers three hours of nutrition education a year and only for individuals with diagnosed diabetes or renal disease. Medicaid provides coverage only for people with diabetes. Private insurers may offer limited coverage for nutrition services for diagnosed conditions, but the reimbursement and the number of covered visits varies widely. No Vermont insurer currently provides coverage for preventive nutrition services. Given the increasing burden of chronic disease on the health care system and the evidence that lifestyle changes can have an impact, healthy lifestyle changes should be encouraged for all Vermonters.

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[25] CDC. *Pediatric Nutrition Surveillance Report for Vermont.* 2003.
[26] VDH. *Behavioral Risk Factor Surveillance Survey.*

## Other Behaviors

Tobacco use and poor diet and physical inactivity are responsible for about one third of deaths in the United States. Other behaviors also contribute significantly to current death rates include:

- Alcohol consumption accounts for approximately 3.5 percent of deaths in the U.S. These include deaths from alcohol related motor vehicle crashes, cancers of the upper respiratory tract and breast cancer; stroke, hypertensive heart disease liver disease and cirrhosis. See Chapter: Substance Abuse.
- Motor vehicles crashes are responsible for nearly 3 percent of deaths in the U.S (where alcohol is not a factor). See Chapter: Injury.
- Firearms are associated with approximately one percent of deaths each year in the U.S. These deaths include suicide, homicide, unintentional discharge and legal interventions. See Chapter: Mental Health.
- Illicit use of drugs is associated with suicide, homicide, mother-vehicle injury, HIV infection, hepatitis and mental illness. It contributes to nearly one percent of all deaths in the U.S. each year. See Chapters: Infectious Disease and Substance Abuse.[27]

[27] Mokdad. Actual Causes of Death .

## *Infectious Disease*

Outcome desired: Rates of preventable infections in the community and in health care facilities are reduced.

*Action needed:*

- Identify and implement strategies to ensure that a comprehensive immunization program for all Vermont children and high risk adults is maintained.
- Improve access to and use of community-based services to reduce the occurrence of HIV, Hepatitis C and other infections among high risk populations.
- Ensure that a comprehensive, evidence-based system for controlling infectious diseases is fully implemented in every Vermont health care facility.

*Background:*
Infectious diseases are caused by the action of a microorganism. Microorganisms are classified in several groups: bacteria (e.g. tuberculosis), viruses (e.g. AIDS), fungi (e.g., histoplasmosis), and parasites (e.g., malaria). Though not well understood, it is believed that prions, a type of protein, may represent another group of microorganisms capable of causing disease (e.g., "mad cow disease"). A characteristic of all of these disease-causing microorganisms is their potential spread to many people through person-to-person contact, food, air, or water contamination, insect bites, animal exposure and other means.

Throughout the past century, through improvements in sanitation and hygiene, control of animals and disease-carrying vectors such as mosquitoes, and advancements in medical science such as vaccines and antibiotics, the impact that infectious diseases had in terms of contributing to illness and death lessened dramatically in the United States and other developed countries. In 1900, the top three causes of death in the United States were attributed to infectious diseases. Taken together, pneumonia, tuberculosis, and diarrheal illness accounted for one-third of all deaths, 40 percent of these deaths in children younger than 5 years of age. One century later, only pneumonia and influenza can be included among the top 10 causes of death, together contributing to the eighth leading cause of death.[28]

Despite these dramatic advancements, several challenges have emerged to halt what had been a growing belief that infectious diseases could be entirely eliminated. Among these challenges:

- The emergence of new infectious diseases (HIV/AIDS is but one of scores of examples).
- The ever-increasing number of people, whose immune systems are compromised, secondary to disease or medications, making these persons at greater risk for infection (e.g., people receiving chemotherapy for cancer or anti-rejection drugs after transplants).
- The growth in the numbers and types of microorganisms that are resistant to antimicrobial agents.

[28] National Center for Health Statistics: www.cdc.gov/nchs

There are other challenges to our ability to prevent and control infectious diseases. Some are specific to Vermont, while others are more general, but still have an impact here. Among them: the growth in hospital-acquired infections; the disproportionate affect that some infectious diseases have on certain groups; and continued challenges in ensuring that children and high-risk adults are protected against vaccine-preventable disease.

## Community-acquired Infections

Certain groups, often as a result of personal behaviors, are at great risk for acquiring certain infectious diseases. For example, persons who inject illicit drugs are at great risk for HIV, hepatitis B and hepatitis C. Compared to the population at large, those who inject illicit drugs are at greatest risk of acquiring hepatitis C and are at second-greatest risk for acquiring HIV. These groups are, unfortunately, less likely to have access to medical services for prevention and treatment, resulting in a continued risk for acquiring disease and an increased risk for a more severe outcome of their disease. Hepatitis C is the leading cause of chronic liver disease and the leading reason for liver transplantation in the United States.

Although much is known about these diseases and the behaviors that facilitate their spread, and although resources, programs and services are available to prevent and/or treat these infections, many challenges continue to exist and sustain the epidemics of HIV and hepatitis C among these affected groups. Unlike many other infectious diseases, there are no vaccines to prevent infection with HIV and hepatitis C. Additionally, all persons who become infected with HIV, and approximately three-quarters of those who become infected with hepatitis C never resolve their infections, leading to long-term complications as well as the continued threat for transmission of the infectious agent to others. And, although medications exist to treat those with these diseases, there is no cure for HIV, and the treatment for hepatitis C is costly, causes considerable side-effects, and offers no guarantee for a cure.

## Immunization Programs

Vermont is presently one of but a select number of states where all children (birth through 18 years of age) are provided, regardless of eligibility, with the recommended vaccinations free of charge. This so-called “universal” system for delivery of vaccinations is one of the most effective means by which to ensure that all children have access to and are provided with age-appropriate vaccinations. Indeed, as a result of this system, Vermont has consistently been among the top states in vaccination coverage levels.

- 84 percent of Vermont children 19 to 35 months of age are up to date on their immunizations, compared to a national average of 79 percent.[29]
- With 100 percent of public schools and 97.85 percent of all schools reporting, immunization rates[30] remain very high with requirements met for:
  - Polio vaccine, received by 98.6 percent.
  - Measles, mumps, rubella (MMR), received by 97.8 percent.
  - Tetanus containing vaccine, received by 96.7 percent.
  - Hepatitis B, received by 91.45 percent.

[29] National Immunization Survey: www.cdc.gov/nip/data/
[30] Vermont Department of Health. Unpublished annual school report data.

- Reports from licensed childcare facilities[31] demonstrate that, of 10,326 children over 19 months of age enrolled in licensed childcare, about 89 percent were up to date on required immunizations, but that only 63.5 percent were immunized against varicella which is not currently required. Within this group, 248 cases of varicella disease were reported.

Presently, this system is supported largely through the use of federal funds, with no or only limited state funds contributing to the purchase of vaccine. New strategies will be needed to ensure adequate funding in the future.

Influenza and pneumonia account for nearly 20 deaths per 100,000 Vermonters, placing them among the 10 leading causes of death in the State.[32] The majority of these deaths occur in people over the age of 65. Further, influenza and pneumonia exact a heavy toll in the use of hospital and physician services, as well as lost work days. For most people, recovery is relatively quick, but for people with chronic conditions, influenza is more likely to develop into pneumonia; these individuals are likely to be sicker and their recovery time longer. Vaccines are available that reduce the likelihood of contracting influenza and pneumonia, and lessen the ill effects if illness does occur.

Healthy Vermonters 2010 has set target objectives immunization levels for influenza and pneumonia. While Vermont does better than many states, there is much work to be done:

- In 2003, 74 percent of non-institutionalized adults over the age of 65 had been immunized against influenza within the past year. The Healthy Vermonters 2010 objective is 90 percent. The U.S. figure is 67 percent.
- 66 percent of non-institutionalized adults reported having ever had a pneumonia shot.[33] The Healthy Vermonters 2010 objective is 90 percent; only 62.5 percent of U.S. adults have had a pneumonia shot.

In the 2004-2005 influenza vaccine season, a severe vaccine shortage was experienced in Vermont, which resulted in a major effort to redistribute limited vaccine to individuals at highest risk — the very young, the elderly, and anyone with significant medical problems. The Vermont Department of Health has contingency plans in place, in the event this occurs again. Additional efforts are needed, however, to increase public understanding and acceptance of immunization. Health care sector and provider entities also need to develop the technical ability to keep track of those who have been and should be immunized, and to develop effective outreach strategies.

## Facility-Acquired Infections

The health and recovery of patients using our health care facilities is increasingly jeopardized by hospital-acquired infections, now the most common complication affecting hospitalized patients. Such infections also commonly occur among residents of long-term care facilities. Under regulations by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and/or Centers for Medicare and Medicaid Services (CMS) regulation, each Vermont hospital presently conducts surveillance on infections that occur within the facility. This process is

[31] Vermont Department of Health. Unpublished annual licensed child care data.
[32] VDH. *Vital Statistics.* 2002.
[33] VDH. *Behavioral Risk Factor Surveillance Survey*

determined by each hospital, so scope varies and there are no uniform standards for tracking and reporting infections. On the national level, an estimated 5 to 10 percent of patients admitted to acute care hospitals become infected with one or more microorganisms.[34] A growing number of these microorganisms are resistant to one or more antibiotics.

The very nature of hospitals, caring for sick people, performing invasive procedures and employing hundreds of people, makes it extremely difficult to reduce the rate of infections. As an example, appropriate hand-hygiene, considered one of the more simple and effective means of preventing infections, is not widely or consistently practiced, due in part to the behavior of individual care takers, but also due to staff shortages, staffing patterns, poor access to hand-washing stations and/or products, poor training, lack of monitoring and lack of enforcement of hand-washing recommendations.

Implementation of quality assurance programs directed at reducing infections have proven effective in most instances. Strategies that work include the use of standardized tools for detecting and monitoring the type, number and rate of infections; clearly stated standards for infection control; implementation of a surveillance system to monitor performance and intervene when indicated; comprehensive staff training programs; and unambiguous administrative support for the program. In Vermont, the Vermont Program for Quality in Health Care and Vermont hospitals are developing guidelines for hospital infection control. These guidelines will be used by hospitals and nursing homes to improve their own policies and procedures and can provide the basis for ensuring accountability to patients and the public.

[34] Burke, JP. "Infection control – a problem for patient safety." *N Engl J Med.* 2003; 348:651-656.

## *Injury*

*Outcome*: Injury in Vermont will cause less physical and emotional disability and will result in fewer deaths.

*Action needed:*

- Adopt the U.S. Preventive Health Services Task Force recommendations for screening to identify people at risk for injury in the primary care setting.
- Adopt community-based injury-reduction strategies that lead to broad-based acceptance of protective and less risky behaviors such as the use of motor vehicle restraints, further reduction in the frequency of vehicle operation while impaired by alcohol and drugs, and activities leading to enhanced physical fitness among elders.
- Develop comprehensive, state-coordinated, community-based intimate partner violence prevention and victim service programs.

*Background:*
Traditionally, there has been a tendency to accept the notion that unintentional injuries are just accidents, random acts of fate or the result of individual carelessness rather than a phenomenon to be analyzed, understood and prevented. Research and experience show, however, that many injuries are completely preventable. Both intentional and unintentional injuries, the human suffering they cause and the great financial costs that come with them, should be recognized as a priority public health problem to be solved.

Unintentional injuries are the leading cause of death among Vermonters aged 1 to 44 and the fifth leading cause of death among Vermonters of all ages.[35] The top three causes of deaths in this category are motor vehicle crashes, accidental falls and unintentional poisonings respectively. Intentional injury includes suicide and homicide. Suicide is the 9th leading cause of death in Vermont. See Chapter: Mental Health.

There are several ways in which injury risk factors can be decreased. A change of risky behavior or a prohibition against creating dangerous environments can be mandated by law (e.g. speed limits, building codes, domestic partner restraining orders). Automatic protection can be provided by product or environmental design (e.g. blade guards on saws and railings of a proper height on porches and balconies). Efforts can be made to educate people at risk of injuring themselves or others to change their behavior (e.g. hunter safety courses or training for health care workers).

A fourth element that must be addressed to reduce risk factors for injury is the role of community, culture and subculture. Epidemiologic investigations have shown how cultural influences affect health in many ways. In the area of injury prevention, community acceptance of alcohol or substance abuse, attitudes toward aggression, and attitudes about firearm safety are

[35] National Center for Injury Prevention and Control'. Injury Statistics Query and Reporting System (WISQARS). www.cdc.gov/ncipc/wisqars/

examples of community/cultural norms that have a powerful influence on the overall risk of injury.

Based on morbidity and mortality data, the Vermont Department of Health has identified the following as priority injury prevention focus areas: motor vehicle occupant protection from crashes, accidental falls, unintentional poisoning, and violence prevention.

## Motor Vehicle Injury Prevention

Motor vehicle crashes are among the leading causes of death for Vermonters in all age groups. From 1997 through 2001, Vermont crash studies show that 435 people died on Vermont roadways, and 35,597 were injured.[36] According to an economic study, the total cost of all motor vehicle crashes in the state during the past five years was a staggering $1.2 billion. Just one fatality costs the economy an average of more than $825,000.[37]

Seat belts are the most effective safety devices in vehicles today, estimated to save 11,900 lives and prevent 325,000 injuries nationally each year.[38] In Vermont, 80.3 percent of adults aged 18 and up report always using a seat belt;[39] and 84 percent of youth (grades 8 through 12) report always or nearly always using a seat belt.[40] The Healthy Vermonters 2010 goal for both populations is 92 percent. Seat belt use rates are higher in states with standard seat belt laws (a motorist can be stopped and cited for failure to use a seatbelt) than in states with secondary enforcement laws like Vermont (a motorist can be cited for failure to use a seatbelt only if stopped for another reason).

The effort to get people to use child safety seats in motor vehicles provides an example of how multiple strategies can be implemented in one program to prevent injuries in children due to motor vehicle crashes: 1) Vermont law requires that all children up to the age of eight be properly restrained in a federally approved child restraining system; 2) child safety seats have been designed to be extremely effective, when used correctly, in preventing or reducing injuries sustained in a crash; 3) education is necessary to persuade parents to secure their children in car seats each time they ride in a motor vehicle.

## Prevention of Falls

Falls accounted for 72 Vermont deaths in 2002, including 61 deaths among people over the age of 65. More than one-third of adults aged 65 years and older fall each year,[41] and these falls are associated with injury, loss of mobility, long recuperation periods and, in many cases, an

[36] VDH. Vital Statistics Annual Reports, 1997-2001
[37] Vermont Department of Public Safety. Governors Highway Safety Program. http://www.dps.state.vt.us/cjs/ghsp/clickit.html
[38] Advocates for Highway and Auto Safety. 2005 Roadmap to State Highway Safety Laws. 2004. http://saferoads.org/Roadmap2005.pdf
[39] VDH. *Behavioral Risk Factor Surveillance Survey*
[40] VDH. *Youth Risk Behavior Survey*. 2003
[41] National Governors Association. *Healthy Aging and States: Making Wellness the Rule, not the Exception*. July 2004.

irreversible decline in health. Just the fear of falling can have the effect of curtailing activities, including healthy exercise, and of negatively affecting quality of life.

The prevention of falls requires an assessment of the underlying causes of falls, particularly for older adults, and the modification of the environment or other factors to eliminate or mitigate the risks and promote protective factors. Underlying causes of falls include the presence of loose items or uneven surfaces on the floor, as well as the side effects of medications that can cause dizziness and confusion. Alcohol use can be a factor, as can foot problems, general weakness, and arthritis. Falls are associated with bone fracture, especially hip fracture, and with loss of bone density and osteoporosis, especially among women.

Factors known to reduce risk of falls in the elderly include physical fitness and regular exercise; appropriate correction of vision problems; regular engagement in community and social activities; and careful attention to the side effects of medication.

## Intimate Partner Violence Prevention

Intimate partner violence (also referred to as domestic violence) is a pattern of assaultive and coercive behaviors that may include physical violence, psychological abuse, sexual abuse, progressive social isolation, stalking, deprivation, intimidation and threats. Intimate partner violence has a significant, negative impact on the physical and mental health of victims/survivors and their children. Short-term and long-term health consequences include injuries, chronic pain, gastro-intestinal problems, sexually transmitted infections, pregnancy complications, depression, anxiety, post-traumatic stress disorder, suicidal ideation and substance abuse. Children exposed to intimate partner violence are more likely to exhibit physical, mental and behavioral problems and engage in health injurious behaviors.

Health care professionals are often the first and sometimes the only outsiders that witness the impact of intimate partner violence and have an opportunity to reach out to victims/survivors. Careful screening, counseling and/or referral by primary care providers has been identified as an effective strategy for reducing injury related to intimate partner violence.[42] Collaborating with other systems as part of a coordinated community response, the health care sector can make significant contributions toward the health and safety of victims and their families. See Chapters: Communities and Prevention as a Priority.

An integrated approach to prevention of intimate partner violence can be informed by better awareness and timely assessments of the multiple factors that predispose some individuals to violent words and/or deeds in periods of frustration. This approach will also be effective in addressing other interpersonal violence issues including bullying, harassment, child abuse, and elder abuse.

General community (cultural), health and social system efforts can each contribute to healthy modification of expectations and roles in interpersonal relations and to timely identification of potential “fuse” issues and appropriate responses to pressing needs.

[42] AHRQ. Clinical Preventive Services: Injury and Violence. 2004. www.ahrq.gov/clinic/cps3dix.htm#injury