Massachusetts Comprehensive Cancer Control Plan

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Table of Contents

I. Background

The overall goal of the Massachusetts Comprehensive Cancer Control Plan is to reduce cancer incidence, morbidity, and mortality. This entails public awareness, outreach, prevention, timely and appropriate screening, detection, diagnosis, treatment, and rehabilitation initiatives, and support for patients and their families. To achieve this, programs, agencies, and organizations must work in partnership and establish collaborative efforts at the state, regional, and community level. There is a need to access and understand a variety of data and behavioral and scientific information in order to plan effective programs.

To assure its effectiveness, the Plan, or sections of the Plan, will be updated regularly to reflect the most current information and data available.

The Burden of Cancer in Massachusetts

Cancer is the leading cause of death for Massachusetts residents age 25 to 64, second only to heart disease in persons 65 years of age and older. Cancer accounts for more than one quarter of all deaths in the state, which has a slightly older population than the national average. Following national trends, recent statistics indicate Massachusetts is experiencing a slight decrease in rates of both newly diagnosed cancers and cancer deaths. Nonetheless, the rates of cancer attributable to preventable factors such as tobacco and alcohol use, sun and other potential environmental exposures, poor nutrition, occupational exposures and lack of physical activity indicate a tremendous opportunity to further reduce the burden of this disease.

Incidence

Approximately 31,500 of Massachusetts' 6 million residents will be diagnosed with cancer in 1998, according to estimates by the American Cancer Society (ACS); 191 out of every 100,000 people in Massachusetts will be diagnosed with cancer, or approximately the same number of people as live in the cities of Marlborough, Falmouth, Lexington or West Springfield. During the period between 1990 and 1995, there were 175,391 new cases of cancer reported to the Massachusetts Cancer Registry[1], 86,917 in women, and 88,466 in men.

Between 1990 and 1995, the four most commonly diagnosed malignancies (excluding skin cancer) were breast, prostate, lung, and colorectal cancers. These four cancers accounted for nearly 60% of all cancers reported during this period. For men, one of the most dramatic trend relates to prostate cancer incidence. Between 1982 and 1992, the number of new cases of prostate cancer diagnosed increased by 141.9%, from 73.3 to 178.0 cases per 100,000 males. By 1995, however, this rate had declined to 142.8 cases per 100,000, consistent with national trends. This decrease is believed to be the result of increased awareness and screening. Another increase among males was in melanoma, the most deadly form of skin cancer. In 1982, 8.4 males per 100,000 were

[1] The Cancer Registry data for this period include only cancers reported by acute care hospitals, and therefore under represented cancers such as cervical or skin cancers which are more likely to be treated outside of a hospital setting.

reported as being diagnosed with melanoma. By 1995, this number had increased by 60.7% to 13.5 cases per 100,000. Trends also indicate increasingly high rates for non-beach communities such as Needham, Greenfield, and Woburn.

For women, the most significant increase was the 52.5% increase (30.5 to 46.5 cases per 100,000) in the incidence of lung cancer between 1987 and 1995. Breast cancer incidence has also increased over time. In 1982, 90 out of every 100,000 women were diagnosed with breast cancer. By 1995, this rate increased to 117.5 out of every 100,000, an increase of 30.6%.

Mortality

An estimated 14,500 Massachusetts residents will die this year as a result of cancer, according to the American Cancer Society. Although the number of new cases of cancer in Massachusetts has declined in recent years, there is some indication that the age-adjusted mortality rates in Massachusetts are slightly higher than national rates. During the period between 1990 and 1996, the cancer death rate was 177.6 per 100,000 people (149.5 for women / 223.8 for men.) This rate may be contrasted to the national rate (SEER rate for the period 1991 – 1995) of 171.4 cancer deaths per 100,000 people (141.5 for women / 215.7 for men).

Lung cancer is the overall leading cause of cancer death in Massachusetts. According to 1996 statistics, mortality from lung cancer was 45% higher than breast cancer mortality in Massachusetts' women. When 1990 – 1996 age-adjusted lung cancer mortality rates are compared with national rates, Massachusetts' women appear to have higher mortality than the national average (35.2 versus 33.3 per 100,000). The age-adjusted lung cancer mortality rate for Massachusetts' men during this period was lower than the national average (67.2 versus 72.0 per 100,000).

Colorectal cancer, which is the third most commonly diagnosed cancer, is the second leading cause of cancer death in Massachusetts. In 1996, 1,597 people, or 18.5 per 100,000 people, died from colorectal cancer in Massachusetts. The age-adjusted cancer mortality rates for this cancer is higher among men than among women (26.1 versus 16.8 per 100,000, based on statistics from the period 1990 - 1996). Colorectal cancer mortality can be decreased through screening, early detection, and adoption of healthy lifestyle behaviors.

Cancer mortality rates vary significantly by race. The age-adjusted cancer mortality rate for the period 1992-1994 was 23.5% higher among African Americans than for whites (165.0 versus 133.6 per 100,000 population), according to the Massachusetts Bureau of Health Statistics, Research and Evaluation. This difference is less than national statistics, which indicate that African Americans are 30% more likely to die of cancer than whites. Disparities in mortality rates nationally have been attributed to later stage at diagnosis for African Americans, an indication of inadequate access to prevention, screening, and treatment services. Hispanic and Asian residents appear to have significantly lower age-adjusted cancer mortality rates (96.2 and 63.2 per 100,000). In the Hispanic population, this may be partly attributable to the fact that this population is younger in Massachusetts and may change over time as the population ages.

Stage at Diagnosis

The stage at diagnosis has a tremendous impact on cancer survival. It is essential that cancer be diagnosed and treated early, before the disease has an opportunity to spread. Data on stage at diagnosis from the Massachusetts Cancer Registry confirm the need for educating the public about screening. Although approximately 70% of breast and prostate cancers and over 90% of cervical cancers are detected at early (*in situ* and localized) stages, fewer than one third of colorectal cancers are detected before the cancer has spread beyond the localized area. Inadequate rates of early detection contribute to colorectal cancer's status as the second leading cause of cancer mortality in Massachusetts.

Access to Services

Although all segments of the population of Massachusetts are at risk for cancer, certain racial, linguistic and ethnic populations have higher rates of cancer and elevated risk factors, as well as inadequate access to screening, treatment, and support services. Differences in cancer incidence and mortality rates between racial and ethnic groups have been linked to later stages of diagnosis, indicating a disparity in access to high quality prevention education, screening, and treatment services. Massachusetts' immigrant populations may also experience limitations in access to these services because of linguistic and cultural barriers. Similarly, regional differences in access indicate a need to expand cancer programs and services beyond urban centers. Knowledge regarding who lacks access to information and services is currently limited but extremely important to Massachusetts' efforts to reduce cancer morbidity and mortality.

Lack of health care coverage is another factor leading to late stage diagnosis. According to US Bureau of Census data, between 1994 and 1996, an average of 12% of Massachusetts' 6 million residents lacked insurance coverage. A recent report by the Massachusetts Division of Health Care Finance and Policy reported that 79% of uninsured have lacked coverage for more than one year. Although employment is the leading source of health insurance coverage, a large proportion of those who are employed lack coverage. In 1995, 64% of the state's uninsured population were employed. Despite an extensive health care system and tradition of strong public sector support of health care for low-income populations, Massachusetts faces significant challenges regarding health care accessibility and cost.

Community Partnerships

One of the most important strategies the Massachusetts Department of Public Health (MDPH) uses to reduce disparities in access to high quality cancer education and services is to work in partnership with community-based groups, programs, organizations, and agencies. Programs at the local level are more likely to be sensitive to the barriers encountered by underserved populations, including lack of health insurance, insensitivity to linguistic and cultural diversity, and

inadequate information about health risks, screening procedures, treatment options, and support services.

MDPH has a history of successful collaboration with local health departments on cancer related programs such as skin, breast and prostate cancer awareness, nutrition and alcohol education, environmental concerns, and tobacco control programs. In addition, the 10 regional Massachusetts Prevention Centers, which are supported by MDPH, provide a variety of services to support community-based cancer prevention and control activities. These services include: support for coalition and partnership building, assessment of community needs and resources, cross-cultural competency training, assistance with development of strategies that change attitudes and behaviors, provision of models for youth and adult collaboration, media support and public information programs.

In addition to targeted projects that involve organizations and individuals working with local communities, Massachusetts has established a framework for prevention called the Community Health Network Area (CHNA) Initiative. The CHNA Initiative is designed to forge partnerships between service providers, community-based organizations, local and state agencies, schools, hospitals, businesses, consumers, communities of faith, and the general public. The goal of the Initiative is continuous improvement of health, which is achieved through collaboration of all community members in responding to health needs and disparities. The Initiative is designed to enhance access to care, provide an opportunity for more collaboration among agencies, and create a client-centered, outcome-oriented health service delivery system in each community. Each of the 27 CHNAs work with its communities to track area health status indicators, eliminate identified disparities, and design programs reflective of the racial, ethnic, gender, sexual orientation, and linguistic diversity of the area. CHNAs have led public awareness campaigns about tobacco and alcohol control and breast cancer awareness. They support professional and public education by conducting seminars and by producing brochures, press releases, and other materials. Each CHNA promotes efficiency in service delivery by working to reduce duplication and overlaps and by identifying service gaps and by increasing prevention efforts that will reduce the demand for health care services.

Focus on Prevention

Much of the burden of cancer may be eliminated by reducing exposure to cancer-causing agents, such as tobacco, and by promoting healthier nutrition and physical activity practices. The *Harvard Report on Cancer Prevention*[2] estimates that cancer mortality in the US may be reduced by one third through such primary prevention activities. The following table from this report illustrates the estimated percentage of total cancer deaths attributable to established causes of cancer:

[2] *The Harvard Report on Cancer Prevention, Volume 1: The Causes of Human Cancer,* Cancer Causes and Control, Vol. 7, Suppl. 1. November 1996. p.S55

Risk Factor	Percentage
Tobacco	30%
Adult diet/obesity	30%
Sedentary lifestyle	5%
Occupational factors	5%
Family history of cancer	5%
Viruses and other biologic agents	5%
Perinatal factors / growth	5%
Reproductive factors	3%
Alcohol	3%
Socioeconomic status	3%
Environmental pollution	2%
Ionizing radiation	2%
Prescription drugs	1%
Salt / food additives	1%

The most important area of primary prevention activities is tobacco control. The Harvard report indicates that up to 30% of cancer is attributable to exposure to tobacco. Massachusetts has taken an aggressive approach to tobacco control, which has resulted in a 31% decrease in cigarette consumption since 1992. Nonetheless, with 21.1% of Massachusetts adults and 30.7% (1996) of students in grades 7-12 smoking, there is a great need to further reduce the negative health impact of tobacco.

Another important area of cancer prevention is the promotion of good nutrition and physical activity. The Harvard report says that 30% of cancers are attributable to poor adult nutrition and obesity, and another 5% to sedentary lifestyles. Approximately 60 million Americans (22% of the total US population) are overweight, a factor associated with increased risk for cancers of the colon, prostate, breast (among postmenopausal women), endometrium, and kidney. Massachusetts is no exception to the national trend of poor nutrition and sedentary living. The Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) reveals that in 1996, 26% of Massachusetts' adults met the recommended daily allowance guideline of five fruits and vegetables. The Massachusetts BRFSS also reveals that in 1996, 29% of adult men and 24% of adult women reported themselves as being overweight.[3] The proportion of Massachusetts' residents who are overweight has increased from 19% in 1990 to 26% in 1996. BRFSS data also show that only 30% of Massachusetts' adults report themselves as being sufficiently active, a factor linked to some cancers, including colorectal cancer.

Skin cancer, which is the most common form of cancer in the United States, is also the most preventable. The Massachusetts Department of Public Health is helping communities implement local programs aimed at promoting sun protection awareness.

The Department is working to decrease both incidence and mortality of most forms of cancer through strategies such as promotion of good nutrition and increased physical activity, and

[3] Body Mass Index ≥27.8 for men and ≥27.3 for women.

reduction in exposure to tobacco, alcohol, ultraviolet radiation, sexually transmitted diseases, and occupational and environmental hazards. Focusing upon these and other strategies, Massachusetts Department of Public Health, working in collaboration with state and local organizations, has designed a cancer control program emphasizing primary prevention of disease.

Reducing the Burden

Massachusetts is working to reduce the risk, incidence, morbidity, and mortality of cancer through comprehensive strategies aimed at risk reduction, screening, early detection, and treatment and rehabilitation. By engaging families, schools, community groups, local governments, and other local resources, people at all stages of the life cycle can be well informed about risk factors and healthy lifestyle behaviors. Massachusetts strives to ensure that its residents understand the benefits of screening and have access to high quality screening services. It seeks to ensure that those with cancer are aware of treatment options and have access to optimal treatment, support and rehabilitation services to ensure high quality of life. Massachusetts also aims to lessen the burden of cancer among its residents by addressing ethnic, educational, economic and regional disparities in access to information and services. It seeks to ensure optimal training for health care providers in cancer prevention, screening and detection, treatment, and rehabilitation. The following plan describes the strategies of the Commonwealth to decrease the impact of cancer.

II. Risk Reduction

Alcohol

Alcohol is a group 1 carcinogen (carcinogenic to humans). It is estimated that alcohol abuse accounts for 3% of all cancer deaths. There is convincing evidence that alcohol increases the risk of cancers of the mouth, pharynx, larynx, and esophagus in addition to primary cancer of the liver. Alcohol is also linked to increased risk of breast and colorectal cancer. Alcohol consumption is not recommended at any levels and excessive consumption is discouraged.

Goal - Reduce the incidence of cancer related to alcohol abuse in Massachusetts.

Public Objectives

1. Decrease the level of individual alcohol consumption.

Public Strategies

1. Develop and implement mass media campaigns discouraging alcohol abuse targeting the general public and specific high-risk groups such as pregnant women, children and adolescents.

2. Enhance community and school-based programs to educate adolescents about the risks of alcohol consumption and abuse including the incorporation of scientifically validated and effective curriculums.

3. Support and encourage individuals and organizations to mobilize around programs to discourage excessive consumption.

Professional Objectives

1. Health professionals incorporate issues related to alcohol consumption and abuse into their interventions with patients.

Professional Strategies

1. Provide information to primary care providers on the harmful effects of alcohol such as increased cancer risk including the identification of the signs and symptoms of alcohol abuse.

2. Encourage the inclusion of an in-depth history of alcohol and other drug use in all complete health examinations using a scientifically validated screening tool.

3. Develop standard mechanisms for identification, initial counseling and referral at primary care sites for patients who abuse alcohol, and encourage them to seek treatment.

Environmental and Occupational Health

Estimates of cancer deaths due to environmental exposures to carcinogens range from 2% to 15%. In this context, "environmental" refers to specific sources (non-workplace and workplace) of carcinogens, including air, water, and soil contaminants. It can take as long as 20 to 30 years for the health effects of these exposures to become clinically apparent, and this long latency period makes it difficult to identify causal factors. The cancer risk that environmental carcinogens pose is difficult to determine because of the lack of information on numbers of people exposed, levels of exposure, and possible interactions with other carcinogens in the environment. Reduction or elimination of known exposures is the most effective means of preventing cancers associated with environmental hazards.

The MDPH Bureau of Environmental Health Assessment (BEHA) is responsible for evaluating opportunities for exposures to environmental toxins, including carcinogens. BEHA works with other MDPH bureaus to evaluate health outcome data and collaborate on follow-up activities designed to control or prevent cancer occurrence in Massachusetts communities. These evaluations often include follow-up recommendations designed to reduce opportunities for exposures that may lead to elevated cancer incidence. In addition, BEHA works with the American Cancer Society, health care providers, unions, local health departments, and the media to educate the public about environmental health risks.

Goal - Prevent cancer from environmental and occupational exposures and promote health activities in areas with elevated cancer incidence.

Public Objectives

1. Cancer from environmental and occupational exposures will be prevented.

2. Exposure to hazardous substances that cause potential adverse health effects will be reduced.

3. Worker exposure to carcinogenic substances will be reduced to ensure a safe work environment and toxic use reduction.

Public Strategies

1. Conduct community- and workplace-based educational activities (e.g., programs, forums, and presentations at public meetings) on health concerns related to opportunities for exposure to environmental carcinogens.

2. Develop appropriate public education materials designed to identify, assess, and reduce opportunities for exposure to environmental carcinogens and to improve understanding of known and suspected risk factors.

3. Conduct public availability sessions (e.g. information booths) for environmental health investigations on cancer incidence in areas of opportunity, providing resource materials for the public on cancer prevention and control.

4. Respond to individual inquiries related to cancer concerns and known or suspected environmental risk factors via telephone or in writing.

5. Educate the media, Community Health Network Areas (CHNAs), prevention centers, and local boards of health concerning environmental risk factors.

6. Support worker health and safety education programs.

Professional Objectives

1. Health professionals will recognize and discuss environmental and occupational health concerns with patients.

2. Environmental and occupational exposure to carcinogens will be reduced.

Professional Strategies

1. Conduct education sessions for health care providers on recognizing the effects of exposure to environmental carcinogens.

2. Prepare appropriate printed materials for health professionals designed to identify, assess, and reduce opportunities for exposure to environmental carcinogens and to improve understanding of known and suspected risk factors.

3. Conduct Grand Rounds at selected Massachusetts hospitals. Sites and specific topics will be selected based on known or suspected environmental hazards in that area.

4. Work with local health departments and agencies (e.g., American Cancer Society) to promote screenings for early detection.

5. Assess worker risk by using the information gathered by the Right-to-Know program and the Occupational Health Surveillance System.

6. Reduce toxic substance use through education, regulation, and strong support of regulatory enforcement.

Research Objectives

1. Knowledge about environmental and occupational factors related to cancer in Massachusetts will be enhanced.

2. Cancer Registry data will be used to identify geographic areas or occupational sites or types that may warrant additional public health activities.

Research Strategies

1. Identify geographic areas that warrant additional research or follow-up.

2. Identify needs that require intervention (e.g., cancer screening programs in certain communities with elevated or reduced cancer incidence rates.)

3. Use cancer incidence data and occupational health surveillance data to target and plan programs.

Nutrition

Nutrition plays a major role in the prevention and progression of cancer. It is estimated that 30% of all cancers can be attributed to diet. Numerous studies have shown that a healthy diet with appropriate caloric intake, reduced animal fat, reduced alcohol consumption, and increased vegetable and fruit consumption can reduce the risks of certain kinds of cancers such as breast, colon, lung, and prostate cancer. Low folic acid intake is associated with cervical, colorectal, and other cancers.

Despite the well documented relationship between a healthy diet and reduced risk of cancer, Massachusetts appears to be following the national trend toward poor nutritional habits and increased prevalence of overweight individuals. Data on diet and weight status from the Massachusetts BRFSS show that in 1996, only 26% of Massachusetts adults ate a minimum of five servings of fruits and vegetables per day. In addition, 29% of adult men and 24% of adult women reported themselves as being overweight. Overall, the proportion of Massachusetts residents who reported themselves as overweight was 26% in 1996, an increase from 19% in the BRFSS in 1990.

MDPH and the American Cancer Society work in partnership on a variety of nutrition initiatives, including the 5-A-Day Program and the Folic Acid Awareness Campaign. Nutrition resources related to healthy eating and cancer prevention are disseminated through MDPH education and outreach programs, primary care programs, the Nutrition Program for Women, Infants and Children (WIC), family planning programs, chronic disease prevention programs, food assistance programs and ACS's Changing the Course.

Goal - Increase awareness of all Massachusetts residents about the links between diet and cancer, including: the importance of maintaining a diet rich in plant-based foods, reducing animal fat, and attaining and then maintaining healthy body weight.

Public Objectives

1. Individuals will improve the content of their diet, focusing particularly on adequate fruit and vegetable consumption and limited consumption of red meat, fatty foods, and alcohol.

2. Individuals will attain and maintain a diet containing adequate folic acid.

3. The percentage of Massachusetts population with appropriate body mass index will increase.

Public Strategies

1. Implement a statewide information and educational campaign to increase awareness of all Massachusetts residents about the links between diet and cancer, including the importance of maintaining a diet rich in plant-based foods and reduced animal fat and attaining and maintaining

healthy body weight. Disseminate healthy recipes which are ethnically and culturally appropriate.

2. Promote increased consumption of plant-based foods in child nutrition programs (childcare feeding programs, school breakfast and school lunch).

3. Promote increased consumption of fresh fruits and vegetables through utilization of farmers' markets.

Professional Objectives

1. Health care providers will counsel all clients of all ages on the importance of maintaining a healthy diet, including the benefits of increased fruit and vegetable consumption, reduced fat and red meat intake, and the importance of folic acid.

2. Health care providers will measure and record height and weight of patients and counsel them on the importance of attaining and maintaining healthy weight.

Professional Strategies

1. Provide trainings and resources for professionals to increase their capacity to effectively counsel clients about nutrition.

2. Launch communication campaign directed at health care providers promoting the 5-A-Day program (promoting increased consumption of fruits and vegetables to a minimum of 5 servings per day) through professional newsletters, status reports and meetings.

3. Disseminate to health care providers patient educational materials on the harmful effects of alcohol.

4. Present state of the art information on cancer and nutrition at professional meetings for health care providers.

Research Objectives

1. Identify barriers to healthy eating, such as limited access to fruits and vegetables.

Research Strategies

1. Utilize data sources such as the BRFSS to determine barriers to healthy eating and to plan effective strategies to overcome these barriers.

Physical Activity

Regular physical activity has been shown to have a beneficial impact on numerous chronic diseases including cancer. Colon, breast, and prostate cancer are all associated with low levels of physical activity. A sedentary lifestyle is believed to be associated with 5% of all cancers. Therefore, regular physical activity, as part of a healthy lifestyle, may reduce cancer risk. A number of meta-analyses have shown the positive effects of physical activity on reduced risk of developing cancer. However, the optimum time period, duration, frequency or intensity, or what exactly the mechanisms are have not been established. Physical activity may exert its influence through changes in the menstrual cycle, reduced body size or changes in immune function.

More than 70% of Massachusetts adults are not regularly physically active, and 25% of adults are sedentary, with minimal or no physical activity. The Massachusetts Department of Public Health has developed *MassMoves*, an initiative to increase physical activity awareness and participation throughout the Commonwealth of Massachusetts, with particular emphasis on the segments of the population who are most sedentary.

Goal - Increase awareness of the benefits of physical activity and promote accumulation of a minimum of 30 minutes of moderately intense physical activity on most, if not all, days of the week.

Public Objectives

1. Individuals will maintain an active lifestyle throughout life with opportunities for moderately intense physical activity for a minimum of 30 minutes on most, if not all, days of the week.

2. Individuals will understand the benefits of physical activity and the simple, inexpensive ways in which to engage in physical activity.

3. Schools will include opportunities for regular physical activity in their curricula.

4. Physical activity recommendations will be integrated into existing cancer prevention programs.

Public Strategies

1. Communicate in culturally appropriate ways and at a literacy level accessible to as many people as possible, the necessity for physical activity.

2. Design and distribute posters promoting regular physical activity as a means of lowering risk of cancer.

3. Promote increased use of the MDPH-sponsored physical activity information hotline.

4. Provide training for MDPH staff on physical activity and cancer.

5. Promote the benefits of inclusion of physical education as a segment of the core curriculum in Massachusetts' schools as defined under the Education Reform Law.

6. Encourage modification of school and workplace policy to create environments that encourage physical activity, (e.g., through health club membership discounts, workout rooms, athletic fields, flex-time, walking groups, on-site fitness classes, and accessible stairways).

7. Encourage safe areas for physical activity including child playgrounds, sidewalks, or designated areas for walking, areas for basketball, baseball, and similar activities.

8. Encourage the use of school gyms for community recreation on evenings and weekends.

9. Encourage development of walking clubs for older adults.

10. Encourage physical activity programs developed and targeted to cultural and ethnic minorities.

Professional Objectives

1. Health care providers will promote the benefits of physical activity to all patients.

2. Health care insurers, including HMOs, will provide incentives for their program participants to participate in physical activity.

Professional Strategies

1. Develop specific strategies for communicating the benefits of physical activity to patients.

2. Provide information and resources on physical activity to health care professionals.

3. Create a status report for health care workers focusing on physical activity-promoting messages for patients.

4. Develop and disseminate physical activity materials, including model physical activity prescription forms, for use by health professionals.

5. Sponsor conferences and other educational sessions for health care professionals in conjunction with the Governor's Committee on Physical Fitness and Sports, the American Cancer Society, and other organizations which include presentations on how physical activity can be related to a lowered risk of cancer.

6. Encourage employers, health insurers, and HMOs to develop benefit packages that include reimbursement for health club fees and other recreational activities that increase opportunities for regular physical activity.

Tobacco

Tobacco use is the leading cause of preventable death in Massachusetts and the United States. More than 10,000 Massachusetts residents die each year from tobacco-related causes. It is estimated that thirty percent of all cancer is caused by tobacco use. Smoking is the major cause of cancer of the lung and bronchus, and is a risk factors for bladder, cervical, colorectal, esophageal, oral, pancreatic, and laryngeal cancers. Use of smokeless tobacco is the major cause of oral cancer and possibly cancers of the larynx and esophagus. Pipe and cigar smokers experience elevated rates of cancer of the oral cavity, larynx, pharynx, esophagus and lung.

The Massachusetts Attorney General estimated in 1997 that Massachusetts tax-payers pay more than $200 million annually just for the state's Medicaid share of treating tobacco-related illnesses. The MDPH Massachusetts Tobacco Control Program is designed to change attitudes and behaviors around tobacco use and curtail health risks by reducing tobacco use and exposure to ETS. The central goal is to reduce the number of people who smoke and the amount of tobacco smoked, as well as reduce usage of other tobacco products such as smokeless "spit" tobacco and cigars. In 1992, the American Cancer Society led a campaign to raise the Massachusetts tax on tobacco that supports the Massachusetts Tobacco Control Program.

(Also see: Lung Cancer.)

Goal - Change community norms that support tobacco use, prevent first use, and help smokers quit.

Public Objectives

1. Tobacco use in Massachusetts will be reduced.
2. Capacity for tobacco control within Massachusetts will expand.
3. Adult smokers will stop using tobacco.
4. Young people will not start to use tobacco.
5. Youth access to tobacco will be reduced.

Public Strategies

1. Continue media campaign designed to provide information and influence public attitudes towards tobacco use.

2. Fund local agencies throughout Massachusetts, ranging from boards of health to school departments to youth service agencies to provide direct services such as cessation counseling and community education on tobacco issues.

3. Compile a manual of cessation models that are effective with various age groups, ethnic populations, cultures, and regions.

4. Provide technical assistance to communities encouraging the adoption of local tobacco control by-laws, regulations, or ordinances limiting youth access to tobacco and public exposure to ETS.

5. Provide training and technical assistance to persons working with community-based programs to reduce tobacco use.

6. Reduce youth access to tobacco by enforcing the law prohibiting sale of tobacco products to persons under age 18.

7. Expand the statewide Tobacco Community Advocacy Team (TCAT), a grassroots organization promoting local involvement in tobacco control.

8. Create statewide initiatives that offer direct services, technical assistance, training, and materials to local programs.

9. Publish regional lists of and promote smoking cessation programs.

10. Link smoking cessation with ETS exposure and prevention.

11. Support tobacco control programs specifically targeted at ethnic and cultural minorities.

12. Promote and support the American Cancer Society's Great American Smoke Out each November to initiate new program efforts, highlight the problem of tobacco in our society and celebrate the successes achieved.

13. Encourage the establishment of tobacco control programs in all schools.

14. Increase youth participation in tobacco control policy and planning.

15. Devise strategies to counteract unhealthy media images of tobacco use.

16. Find and publicize non-smokers as positive role models.

17. Create non-smoking messages appealing to women and girls.

18. Target out-of-school youth with smoking cessation and prevention messages.

19. Fund and promote the Smoker's Quitline telephone service.

Professional Objective

1. Health care providers will stress the importance of not using tobacco products to all patients.

Professional Strategies

1. Train health care providers to advise all tobacco users to stop tobacco use and to avoid smoking in enclosed spaces which could endanger others.

2. Train health care providers to counsel youths on the risks of tobacco use.

3. Update providers with the most recent information available on the predictors of initiation of tobacco use so that they can target young people who are particularly vulnerable.

4. Train health care providers on tobacco cessation techniques such as nicotine replacement therapy and cessation groups. Provide opportunities for cessation service providers to plan and work together.

5. Train health care providers on how to counsel alcohol use reduction, which is linked to smoking behavior, including referrals to the Smoker's Quitline.

6. Work with local health providers to support ETS policies.

Research Objectives

1. Effective strategies to reduce tobacco use will be identified.

2. Social influences affecting the use of tobacco will be known.

3. State tobacco control knowledge will expand.

Research Strategies

1. Conduct surveys of the general public concerning tobacco use.

2. Measure changes in ETS, youth, cessation, policy, and media.

3. Follow and publicize research on prevention models that are effective with youth.

4. Increase linkage between and among tobacco data collection and evaluation projects and program resources.

Ultraviolet Radiation

Ultraviolet radiation is the primary cause of skin cancer, the most common form of cancer in the United States today. Damage to the skin occurs as a result of intermittent exposure to ultraviolet radiation, such as during a vacation, as well as from chronic exposure. This damage to the skin results in mutations in cellular DNA, which can lead to formation of skin cancer. As nearly all skin cancers are the result of exposure to ultraviolet radiation, they are highly preventable.

The Massachusetts Department of Public Health has created a resource guide and training video to help hospital maternity units create sun protection education programs for new mothers before they leave the hospital. A community resource guide has also been developed to help towns develop community sun protection education programs. The program encompasses school, childcare centers, hospitals, recreation departments, and other organizations focusing on children. MDPH provides childcare training on sun protection to childcare centers. The American Cancer Society promotes skin cancer education in schools, childcare settings, camps, primary care offices, and hospitals.

(See also: Skin Cancer.)

Goal - Promote public awareness of the hazards of exposure to ultraviolet radiation and the need for sun protection.

Public Objectives

1. Individuals will know the hazards of exposure to ultraviolet light.

2. Skin cancer prevention measures will begin during childhood.

3. Community leaders, children, and parents will be knowledgeable about sun protection behaviors including:
   - using broad spectrum sunscreen and sunblocks with an SPF of 15 or higher.
   - using protective clothing including sunglasses to block ultraviolet light.
   - reducing time spent in direct sunlight by increasing time in the shade.

4. The number of childhood sunburns will be reduced.

Public Strategies

1. Distribute tip sheets on the dangers of exposure to ultraviolet radiation through local health departments, libraries, childcare providers, and other community based organizations.

2. Work with community boards of health to develop local regulations and to establish sun protection education programs for children and adults.

3. Encourage community recreation departments to include sun protection in their programs.

4. Encourage youth sports leagues to incorporate sun protection in their programs.

5. Encourage childcare centers to include sun protection policies and activities in their programs and provide shade in play areas.

6. Encourage schools to schedule outdoor activities when the sun is not at its peak.

7. Encourage the planting of shade trees.

8. Disseminate handbooks to towns and cities focusing on the development of community-based sun protection education programs.

9. Provide technical assistance to cities and towns concerning sun protection program implementation.

10. Distribute radio and television public service announcements.

11. Distribute press releases encouraging the use of sun-safe practices.

12. Encourage schools to educate children on sun safety by distributing curricula, such as those developed by the American Cancer Society, Environmental Protection Agency, and the American Academy of Dermatologists. Train teachers as needed.

Professional Objectives

1. Hospital maternity units will include sun protection lessons for mothers of newborns.

2. Health care providers will counsel patients about safe sun practices.

3. Childcare providers will be trained on dangers of ultraviolet exposure and educated on sun protection practices.

Professional Strategies

1. Distribute training guides and videos to hospital maternity units to implement sun protection programs for mothers of newborns.

2. Conduct training sessions for childcare workers to provide information on the hazards of exposure to ultraviolet light.

III. Genetics

Genetics

Clinical genetics has been one of the most rapidly developing fields in health care. Current trends in molecular biology research and development, the commercial interests of science, and the launching of the Human Genome Project are stimulating novel research protocols, screening, and diagnostic technologies, and therapeutic agents. By the early 21st century, health care is likely to be very different from what it is today. Greater understanding of the genetic and environmental influences on health and disease may make it possible to know to which conditions individuals and family members are predisposed. In addition, new genetically engineered pharmaceuticals and therapies, such as gene therapy, are likely to replace earlier generations of treatment.

Molecular medicine has tremendous ramifications for the public health sector, particularly in the area of cancer screening and prevention. Many primary care providers are already expected to interpret medical developments, identify and counsel patients and offer referrals for specialized care. Consumers are requesting more information about genetic technologies (what they can and cannot reveal, their accuracy, and potential benefits and risks), as well as the personal and social implications, in order to make informed decisions about cancer gene testing.

As improvements in early detection and cancer treatment increase, so too does the need to re-examine traditional public health educational programs and services. New public health policies and guidelines may be necessary to ensure public health and safety.

The MDPH Genetics Program monitors developments in cancer genetics.

Goal - Improve public and professional awareness about developments in cancer genetics.

Public Objectives

1. Promote public awareness of new developments in cancer genetic research, predictive genetic testing, and the need for proper counseling prior to participating in genetic studies or screening.

2. Increase public awareness of the availability of genetic services.

3. Include genetic education and outreach in appropriate cancer-specific programs to improve understanding about issues related to inherited susceptibility to cancer risk.

Public Strategies

1. Include cancer genetics in appropriate cancer-related fact sheets.

2. Develop a statewide resource list of cancer genetics specialists, research, and treatment centers to facilitate networking.

3. Educate consumers about possible benefits and limitations of predictive genetic testing.

4. Work with community-based health organizations and consumer groups to develop effective communication and education strategies.

5. Assess issues impacting access to cancer genetic risk assessment and testing for underserved populations.

Professional Objectives

1. Medical and public health professionals will be educated about developments in cancer genetics, and social, legal, and ethical issues.

2. Primary care professionals will be able to assess cancer risk and make appropriate referrals.

3. Familiarity with clinical practice guidelines for cancer screening will be increased.

4. Awareness of the role of cancer registries and their role in public health and genetic epidemiology will increase.

Professional Strategies

1. Assist hospitals and health centers in developing informational briefings for staff on cancer genetics issues.

2. Educate primary care providers about new developments in cancer genetic screening, diagnosis, and treatment, in addition to the associated ethical, legal, and social issues.

3. Assist professionals in obtaining information on how to take a comprehensive family/genetic/environmental health history to assess cancer risks and to make appropriate specialized referrals.

4. Publish updates on cancer genetics in MDPH newsletters, bulletins, and/or *The Genetic Resource*.

IV. Specific Cancers

Bladder Cancer

The incidence of bladder cancer increases with age and is three times more common in men than women. Carcinogens such as tobacco and industrial chemicals have been implicated in the development of bladder cancer. Dye workers and painters working with textiles, metal, rubber, and leather are at high occupational risk. Tobacco use increases the risk two-fold. Between 1987 and 1994, 8,384 cases of bladder cancer were diagnosed, accounting for 3.7% of all cancers diagnosed in Massachusetts.

(See also: Environmental and Occupational Health and Tobacco)

Goal - Increase public awareness of bladder cancer while decreasing opportunities for exposure to carcinogens causing bladder cancer.

Public Objectives

1. The public will be informed about the link between bladder cancer and smoking.

2. Workers exposed to carcinogens that may lead to bladder cancer will be informed, protected, and monitored.

3. Residents who live in areas contaminated by carcinogens known to cause bladder cancer, including dye stuffs, will be informed about risks related to exposure and synergistic effects of exposure and smoking.

Public Strategies

1. Maintain resource files with current information.

2. Encourage tobacco cessation.

3. Inform organizations that work with high-risk occupations, such as unions and Massachusetts Coalition on Occupational Safety and Health (MassCOSH), when information becomes available.

Professional Objectives

1. Health care providers will recognize the symptoms of bladder cancer.

2. Health care providers will be aware of their high-risk patients.

Professional Strategies

1. Encourage health care providers to ask all patients questions regarding tobacco use and occupation.

2. Train health care providers in tobacco cessation techniques.

3. Educate health care providers about the symptoms of bladder cancer.

Breast Cancer

Breast cancer is the most common cancer in women in Massachusetts and throughout the United States, except for skin cancers. Between 1982 and 1994, 55,320 new cases were reported in Massachusetts, and breast cancer accounted for 31% of newly diagnosed cancers reported in women. The incidence rate increased nearly 35% between 1982 and 1991, from 90.0 to 127.7 per 100,000 women. This rate decreased to 115.3 per 100,000 in 1994, when 4,600 women were diagnosed. During the period 1990 to 1994, Massachusetts' breast cancer mortality rate of 29.6 per 100,000 was 12% higher than the national average rate of 26.4 per 100,000 and was the 4th highest in the nation. Even though more cases of breast cancer are being diagnosed than in past years, mortality rates have decreased slightly, due in part to more cases being diagnosed at earlier stages. Between 1992 and 1994, approximately 70% of breast cancers were detected in early (in situ and localized) stages.

Along with simply growing older, one of the major factors placing a woman at higher risk may be a family history of the disease. Having a sister, mother, or daughter with breast cancer is associated with a greater chance of developing breast cancer. If the relative's breast cancer occurred before she entered menopause, the chance of developing the disease is even greater. Other risk factors include late age at first birth or never having had a child; prior personal history of breast cancer; radiation therapy to the chest area, especially if this treatment occurred between the ages of 11 and 30; early menstruation or late menopause, and inheriting a genetic mutation. Consuming three or more alcoholic drinks per day, eating a high fat diet, not getting enough physical activity, and exposure to pesticides and PCBs may also be risk factors. There is a possible link between taking estrogen and breast cancer.

In 1992, the MDPH, with funding from the state legislature and the US Centers for Disease Control, launched a major program, the Breast and Cervical Cancer Initiative (BCCI), to promote screening for breast and cervical cancer, in order to detect these illnesses when they are most treatable. The American Cancer Society collaborates with the BCCI program by focusing on outreach to tell uninsured and underinsured women about BCCI health services and support. In addition, in 1992, the state legislature allocated moneys for an environmental and breast cancer research program. Funding for research has increased in subsequent years, and funds specifically for research related to environmental risk factors have been added since 1994.

Goal - Reduce mortality and morbidity from breast cancer through early detection and successful treatment.

Public Objectives

1. All women, starting between the age of 40 and 50 years, will have an annual mammogram and clinical breast examination.

2. All women will know how to do monthly breast self-examination.

3. All women will have a better understanding of the risk factors associated with the development of breast cancer, including lifestyle behaviors and environmental exposure.

Public Strategies

1. Reinforce, through public education and outreach, the importance of primary care in order to increase screening rates.

2. Increase awareness of breast cancer risk factors and screening.

3. Encourage cancer prevention by educating women about the potential harm of more than one alcoholic drink per day.

4. Tailor education, awareness, and outreach initiatives to reach underserved women with low incomes and from minority populations.

5. Increase specialized outreach to underserved populations.

6. Develop and disseminate materials aimed at low-literacy, culturally diverse, and non-English speaking women.

7. Create a statewide media campaign to increase awareness of breast cancer and motivate women to go for screening.

8. Create partnerships among corporate, community, and government agencies to increase awareness and improve screening behaviors.

9. Hold worksite and culturally appropriate educational and screening programs.

10. Create fact sheets and informational materials regarding the results of various programs.

11. Develop linkages with agencies serving the elderly to facilitate access to education and screening services.

12. Sponsor conferences and educational sessions that include breast cancer.

13. Promote Breast Cancer Awareness Month and the American Cancer Society's Making Strides Against Breast Cancer event each October.

Professional Objectives

1. The number of women screened at recommended intervals will increase.

2. The quality of screening procedure, techniques, treatments, and follow-up care will improve and be available to all women.

Professional Strategies

1. Enhance coordination between MDPH Breast and Cervical Cancer Initiative outreach and medical service providers.

2. Enhance professional training and continuing education related to clinical and diagnostic skills and screening knowledge and practice.

3. Promote hands-on professional education for clinical breast examination.

4. Develop quality assurance plans that monitor clinician performance.

5. Promote screening recall and reminder systems.

6. Promote clear and uniform reporting formats for screening and diagnostic tests.

7. Promote appropriate resources for treatment, pain control, and rehabilitation.

8. Conduct Grand Rounds on breast cancer and environmental research in areas of Massachusetts that are affected.

Screening Objective

1. Access to high quality screening services for underinsured and uninsured women as well as women with Medicare, Medicaid, or National Health Service coverage will be available in all parts of the state.

Screening Strategies

1. Implement performance standards, technical assistance, and professional education for BCCI providers.

2. Explore alternative BCCI program models in order to reach larger numbers of eligible women and women from all target populations.

3. Collaborate with the Massachusetts Department of Medical Security, MassPRO, the Massachusetts Division of Medical Assistance, and other agencies to increase utilization of mammography for Medicare and Medicaid recipients.

4. Link BCCI data to the Cancer Registry to determine specificity and sensitivity of BCCI screening services.

Mammography Quality Assurance Objectives

1. The consistent production and reporting of high resolution, low-dose mammograms will be ensured, as well as their accurate interpretation to increase appropriate follow-up treatment.

2. All women will be screened according to recommended guidelines.

Mammography Quality Assurance Strategies

1. Provide technical assistance and continuing education for mammography professionals in order to improve compliance with regulatory requirements.

2. Promote clear, complete, and uniform reporting terminology and formats.

3. Conduct an annual survey and analysis of mammography facilities related to access and utilization of mammography screening.

4. Promote increased mammography utilization in underserved areas.

5. Encourage implementation of reminder and recall systems.

Research Objectives

1. The capacity for breast cancer research within Massachusetts will be enhanced to attract federal and foundation funds for continuing research within Massachusetts.

2. Knowledge about environmental causes of breast cancer will be enhanced.

Research Strategies

1. Support research at leading hospitals, medical schools, and universities within Massachusetts through the Massachusetts Breast Cancer Research Grant Program.

2. Encourage researchers in the formative stages of their careers to turn their talents toward an examination of fundamental questions about breast cancer and to continue breast cancer research throughout their career.

3. Encourage researchers to undertake innovative research that might not yet be attracting the attention of large research studies.

4. Support a Distinguished Scientists Lecture Series to encourage collaboration among researchers and provide the opportunity for networking among new breast cancer research scholars from diverse fields of expertise.

5. Support research projects investigating environmental causes of breast cancer.

Evaluation Objective

1. Data collected from existing programs will be used in designing, managing, and setting priorities for programs.

Evaluation Strategies

1. Develop an evaluation plan/program based on current knowledge and methods.

2. Monitor breast cancer education and outreach activities, screening, incidence, and mortality, and assess changes in trends over time.

3. Conduct descriptive epidemiological evaluations of breast cancer surveillance data to determine areas where intervention may be warranted (e.g. areas of reports of low incidence may indicate inadequate access to screening).

This portion of the Comprehensive Cancer Control Plan is based, in part, on a detailed Breast and Cervical Cancer Initiative Plan. It is scheduled for updating in 1999.

Cervical Cancer

Cervical cancer incidence and mortality in the United States have declined approximately 75% in the last 40 years, largely due to the effectiveness of early detection and treatment. Yet, in Massachusetts, 3,910 new cases of invasive cervical cancer were reported between 1982 and 1994, or approximately 300 cases a year. During this period, invasive cervical cancer accounted for 2.2% of all newly diagnosed cancers in females. Invasive cervical cancer incidence in Massachusetts is slightly lower than the national incidence rate and has decreased since 1991. Environmental tobacco smoke (ETS), human papilloma virus (HPV), and early sexual activity with multiple partners increase the risk of developing cervical cancer.

The Massachusetts Department of Public Health includes cervical cancer education, awareness, and screening in the Breast and Cervical Cancer Initiative (BCCI), with funding from the US Centers for Disease Control, and in the Family Planning Program, which is funded by state funds and federal Title X.

Goal - Reduce the risk of cervical cancer by increasing the use of barrier contraception and reduce the morbidity and mortality from cervical cancer through early detection and effective treatment of abnormal Pap findings.

Public Objectives

1. All women will have a Pap test at appropriate regular intervals.

2. Women will know prevention techniques.

Public Strategies

1. Disseminate educational materials and programs about cervical cancer.

2. Identify and provide educational and promotional materials regarding the Pap test.

3. Tailor education, awareness, and outreach initiatives to reach underserved women with low incomes and from minority populations.

4. Develop and disseminate materials aimed at low-literacy, culturally diverse and non-English speaking women.

5. Identify geographic areas with elevated cervical cancer rates and work with community and medical agencies to increase awareness and screening.

6. Encourage the delayed onset of sexual activity by young women.

7. Encourage barrier methods of contraception (latex condoms) to protect against transmission of HPV.

8. Encourage women to reduce their exposure to ETS.

9. Support conferences and educational sessions that include cervical cancer.

Professional Objectives

1. The accuracy and quality of Pap smear interpretation will increase through appropriate classification.

2. The quality of Pap smears will improve.

3. Quality of follow-up care will increase by improving timeliness, accuracy, and clarity of cytology reports.

4. Health care providers will counsel patients on prevention techniques.

Professional Strategies

1. Educate health care professionals about how to do Pap smears.

2. Monitor the supply of qualified cytotechnicians and provide continuing education, technical assistance, and testing for lab personnel.

3. Promote proficiency testing for laboratory personnel.

4. Educate health care providers about how to counsel patients to avoid ETS, HPV, and other sexually transmitted diseases through the MDPH Challenge Fund and Family Planning programs that serve younger women.

Evaluation Objectives

1. Changes in cervical cancer incidence, mortality, screening, and stage of diagnosis will be monitored and analyzed to assess and modify cancer control activities according to patterns of disease and populations at risk.

2. The Breast and Cervical Cancer Initiative program will meet evaluation objectives and overall objectives.

Evaluation Strategies

1. Maximize the availability of laboratory inspectional data for analysis and program assessment.

2. Research the potential to collect and analyze data from annual statistical reports.

3. Analyze and link multiple data sets to assess changes in incidence, mortality, screening, and stage of diagnosis and the effectiveness of BCCI program objectives.

This portion of the Comprehensive Cancer Control Plan is based in part on a detailed Breast and Cervical Cancer Initiative Plan. It is scheduled for updating in 1999.

Colorectal Cancer

Colorectal cancer is the third most commonly diagnosed cancer and the second leading cause of cancer death in Massachusetts. Between 1987 and 1994, 31,966 cases of colorectal cancer were diagnosed in Massachusetts, accounting for 14.2% of all new cancers. During the same period, 13,876 Massachusetts residents died from colorectal cancer. During the same period, colorectal cancer incidence and mortality rates for both men and women were higher in Massachusetts than national rates. Colorectal cancer can be prevented through lifestyle changes including a healthy diet, increased physical activity, and tobacco cessation. Mortality from colorectal cancer can be decreased through screening and early detection.

The Massachusetts Department of Public Health, in partnership with the American Cancer Society, the Massachusetts Medical Society, Dana Farber Cancer Institute, Harvard School of Public Health, Boston University Medical School, and other organizations and individuals has developed a working group to address colorectal cancer in Massachusetts.

Goal - Reduce colorectal cancer incidence, morbidity, and mortality by increasing public and professional awareness of risk factors, prevention strategies, and the need for timely and appropriate screening.

Public Objectives

1. The public will know about lifestyle risk factors.

2. Linguistic and cultural barriers to screening and prevention services will be eliminated.

3. Individuals age 50 and older will be screened for colorectal cancer.

Public Strategies

1. Encourage colorectal cancer screening.

2. Locate existing and/or develop culturally and linguistically sensitive patient education materials that are accurate, interesting, and available at appropriate reading levels.

3. Identify existing groups to be advocates, such as unions, churches, elder groups, and teachers.

4. Enlist corporate groups such as pharmacies to assist in promotion of colorectal cancer education.

5. Develop peer leadership programs and workshops and encourage formation of support groups for persons with colorectal cancer.

6. Develop patient support services including programs where volunteers accompany patients to medical appointments and community-based support groups for survivors.

7. Promote access to nutritious food and physical activity in schools and neighborhoods. Coordinate with MDPH School Health Unit and the American Cancer Society Comprehensive School Health Team to develop effective lifestyle change programs, including nutrition and physical education.

8. Promote safe street programs, walking trails, and bicycle paths.

9. Promote tobacco cessation.

10. Sponsor conferences and educational sessions on colorectal cancer.

11. Research currently available patient education materials, including "best-practices" educational tools for patients.

12. Develop user-friendly instructional materials describing screening, diagnostic procedures, and options for treatment. Investigate the use of video modules to inform patients on procedures and to familiarize them with equipment to be used. Look into alternative formats for patient education materials.

13. Develop a media plan. Identify a public person with personal experience with CRC to act as a spokesperson.

14. Work with the MDPH Diabetes Control program to promote awareness of the link between diabetes and colorectal cancer.

Professional Objectives

1. Health care professionals will be educated about colorectal cancer prevention, screening, detection, treatment, pain control, and rehabilitation.

2. Manpower and institutional capacity for prevention and screening activities will be available.

3. Health care providers will stress the importance of screening for colorectal cancer and counsel lifestyle changes to prevent it.

4. Policies improving access to prevention and screening services will be in place.

5. Payer/managed care guidelines will be in place.

Professional Strategies

1. Develop reference materials on colorectal cancer care, such as pocket-sized laminated cards and fact sheets, to be distributed to health care professionals.

2. Develop a computer-based office-setting training module. Develop training modules for use in community health centers and hospital grand rounds.

3. Investigate the use of train-the-trainer programs.

4. Promote hands-on professional education in sigmoidoscopy and other screening procedures to enhance current skill level. Offer incentives for professional education such as Risk Management Continuing Medical Education Credits.

6. Promote screening recall and reminder systems.

7. Promote quality standard measures for colorectal cancer screening, education and follow-up.

8. Support inclusion in residency/preceptorship curricula of colorectal cancer (including detection, treatment, health behavior and genetic counseling).

9. Promote development of payer/managed care guidelines.

10. Develop a white paper describing the colorectal cancer problem in Massachusetts.

Research Objective

1. Knowledge about colorectal barriers to screening and access to care will increase.

Research Strategies

1. Conduct research on needs and issues around colorectal cancer including: behavioral changes; cost/benefit analyses; and barriers to colorectal cancer education, personal screening, discussion, and access.

2. Promote and evaluate pilot screening programs for uninsured or underinsured, at-risk groups, and ethnic populations.

This portion of the Comprehensive Cancer Control Plan is based on a colorectal cancer plan developed by the Colorectal Cancer Working Group in 1998.

Leukemias

Leukemias strike both adults and children. Adults account for almost 90% of new cases, despite the common belief that leukemia is primarily a childhood disease. Leukemias are the major type of childhood cancer. The many different types of leukemia are either acute or chronic and then further classified according to the cell type involved. Although the incidence of leukemias has not changed dramatically over the past 50 years, survival rates have increased for some forms of the disease. Men are more at risk than women and white persons are more likely to develop leukemia than black persons. People who have been exposed to radiation and certain toxic organic chemicals are at higher risk. Five-year survival rates have increased from 4% to 50% since 1960. Between 1987 to 1994, 4,050 new cases of leukemia were diagnosed in Massachusetts, accounting for 1.8% of cancers diagnosed.

Goal - Increase public awareness of risk factors associated with leukemia and support services available to people with leukemia and their families.

Public Objectives

1. Services will be available for children with leukemia.

2. Support will be provided to families of leukemia patients.

3. Awareness regarding environmental/occupational and other risks associated with leukemia will increase.

4. Exposure to radiation and toxic chemicals associated with leukemia will be reduced.

Public Strategies

1. Train school health nurses and other staff to appropriately care for students with leukemia.

2. Develop support programs for families of leukemia patients.

3. Provide risk factor information via telephone, fact sheets, and through participation at community meetings, fairs, and other events.

Liver Cancer

Primary liver cancer is one of the most deadly forms of cancer. It tends to affect men more often than women. In Massachusetts, both incidence and mortality from liver cancer appear to be lower than national rates. Between 1987 and 1994, Massachusetts' incidence was 2.3 per 100,000 (3.7 for men and 1.2 for women). In contrast, national incidence rates (SEER, 1990) were 3.3 per 100,000 (5.0 for men and 1.9 for women). Nationally, the number of new cases has increased dramatically in recent years. Between 1973 and 1991, the incidence of liver cancer increased 45%. In 1996, 274 deaths from liver cancer were reported in Massachusetts, or 3.5 people per 100,000. The five-year relative survival rate for persons with this form of cancer is among the lowest. For the period between 1983 and 1990, this rate was 6% nationally. One of the major causes of liver cancer is infection with hepatitis B, a highly contagious viral disease. In 1995, 1,277 cases of hepatitis B (chronic and acute) were reported in Massachusetts.

(See also: Alcohol and School Health)

Goal - Increase public awareness and reduce risk factors for liver cancer, including Hepatitis B and C, cirrhosis caused by alcohol abuse and other factors, exposure to chemicals and toxins, and anabolic steroid use.

Public Objectives

1. Increase public awareness of the risk factors associated with liver cancer, including hepatitis B and C, cirrhosis caused by alcohol abuse and other factors, exposure to chemicals and toxins, and anabolic steroid use.

2. Increase the number of Massachusetts' residents that have been immunized with the hepatitis B vaccine.

Public Strategies

1. Encourage hepatitis B immunization.

2. Make available culturally and linguistically appropriate education materials for all age groups about the importance of hepatitis B immunization.

Professional Objectives

1. Increase capacity of schools and local health departments to implement hepatitis B awareness and immunization programs.

2. Encourage health care providers to counsel patients on liver cancer risk factors and prevention strategies, including immunization for the hepatitis B virus.

3. Identify geographic areas and subpopulations with increased risk of liver cancer.

Professional Strategies

1. Train school and health department nurses to implement a school-based hepatitis B program.

2. Conduct epidemiological surveillance by geographic region and subpopulation of incidence of Hepatitis B and C.

Lung Cancer

Lung cancer is the leading cause of cancer death for both men and women. It is the second most commonly diagnosed cancer among Massachusetts men, and the third among women. Between 1990 and 1996, 25,031 people in Massachusetts died of lung cancer. The age-adjusted annual mortality rate for this period was 48.1 deaths per 100,000. Despite these high incidence and mortality rates and the lack of screening tests, lung cancer is a largely preventable disease. Since 85% of lung cancer can be attributed to cigarette smoke, including exposure to environmental tobacco smoke (ETS), the most effective strategy for preventing lung cancer is through tobacco control. Several prospective studies show that a smoker's risk of lung cancer is reduced by half within five years of quitting. The risk of lung cancer from smoking may be augmented by other factors including occupational exposure to carcinogenic agents. Without proper protection, dusts, mists, and gases that are produced in industrial settings may easily be inhaled. Exposure to many carcinogenic agents such as asbestos, a major cause of occupation-related lung cancer, may not result in disease until many decades after exposure. Recent studies indicate that up to 10% of lung cancers may be attributable to exposure to indoor radon.

(See also: Tobacco Control and Environmental Health)

Goal - Reduce lung cancer morbidity and mortality by reducing exposure to risk factors such as tobacco smoke, indoor radon, and occupational carcinogens.

Public Objectives

1. Exposure to tobacco smoke will be reduced in Massachusetts.

2. Environmental and occupational exposure to smoke, silica, dust, arsenic, diesel fumes, blasting smoke, asbestos, radon, and other lung irritants and carcinogens will be prevented.

Public Strategies

1. Support community-based cessation counseling and tobacco education programs.

2. Conduct community- and worksite-based outreach on prevention of exposure to substances known to cause lung cancer, such as second-hand smoke, radon and asbestos.

Professional Objectives

1. Health care providers will educate patients on the relationship between smoking and lung cancer.

2. Health professionals will recognize and discuss with patients environmental and occupational exposures that may increase their risk of lung cancer.

Professional Strategies

1. Train health care providers to advise all tobacco users to stop smoking and to avoid smoking in enclosed spaces which could endanger others.

2. Conduct educational programs for health care providers on recognizing the effects of exposures to environmental carcinogens.

Research Objective

1. The knowledge of environmental and occupational factors attributing to lung cancer in Massachusetts will be enhanced.

Research Strategies

1. Conduct surveys of the general public concerning tobacco use.

2. Measure changes in ETS, youth, cessation, policy, and media.

3. Use cancer incidence data and occupational health surveillance data to target and plan programs.

Oral Cancer

Although oral cancer represents approximately 3% of cancers diagnosed each year, the mortality and morbidity associated with oral cancer is among the highest of the major cancers. In Massachusetts, 3,745 cases were diagnosed between 1990 and 1994. Tobacco use and excessive alcohol use are the strongest risk factors for oral cancer. However, poor nutrition also plays a role. Early detection of oral cancer can significantly reduce morbidity and mortality.

(Also see: Alcohol, Nutrition and Tobacco)

Goal - Increase the knowledge base and awareness of risk factors, detection, and treatment for oral cancer among primary care providers and the public.

Public Objective

1. Oral cancer morbidity and mortality will decrease.

Public Strategies

1. Develop and distribute public education materials about oral cancer.
2. Promote tobacco use cessation.
3. Discourage the excessive use of alcohol.
4. Promote regular clinical and self-examinations.
5. Promote eating a healthy diet.

Professional Objectives

1. Dental care professionals and other primary care professionals will discuss oral cancer with all patients in the high risk categories.
2. Dental care professionals and other primary care professionals will routinely perform comprehensive oral examinations, including oral cancer screening, on all patients.

Professional Strategies

1. Promote development of health care curricula for dental and dental hygiene schools and continuing education that require competency in prevention, diagnosis, and multi-disciplinary management of oral and pharyngeal cancer including the importance of good nutrition and the prevention and cessation of tobacco and alcohol use.

2. Provide lectures to primary providers of populations with the highest risk of oral cancer.

3. Promote soft tissue examination for detection of oral cancer as a standard of a comprehensive patient examination by health care professionals.

4. Sponsor educational sessions for dental care professionals on preventing, diagnosing, and treating oral cancer.

Ovarian Cancer

Ovarian cancer is the fourth most frequent cause of cancer death in women in the United States. It is curable when detected early. However, because there is no general screening method and it has no symptoms in its early stages, ovarian cancer often goes undetected. National data indicates that the average woman has a 1.8% lifetime risk, or a one in 57 chance of developing ovarian cancer in her lifetime. Between 1987 and 1994, there were 4,390 cases of ovarian cancer in Massachusetts, which accounted for 3.9% of all diagnosed cancers in women. Ovarian cancer incidence and mortality rates in Massachusetts are similar to national rates. In 1996, 346 Massachusetts women died of ovarian cancer, and the age-adjusted incidence rate was 6.7 per 100,000. Breastfeeding and the use of oral contraceptives for five years prior to age 30 may reduce a woman's risk of ovarian cancer.

Goal - Increase awareness of ovarian cancer and reduce risk factors through education about lactation and oral contraception.

Public Objectives

1. Women will be educated about risk reduction related to ovarian cancer.

2. The most current information will be available to the public about ovarian cancer.

Public Strategies

1. Update resources with current information.

2. Distribute materials on ovarian cancer.

3. Create a fact sheet on risk factors.

4. When appropriate, provide counseling on the benefits of oral contraception use for five years prior to age 30.

5. Encourage breastfeeding.

Professional Objective

1. Health care providers will educate all young women about the benefits of breastfeeding, and, when appropriate, of oral contraception before age 30.

Professional Strategy

1. Encourage hospitals and health care providers to educate new mothers on proper lactation techniques and provide lactation support.

Research Objective

1. Genetic issues related to ovarian cancer will be understood.

Research Strategy

1. Encourage research on the genetics of ovarian cancer.

Prostate Cancer

In Massachusetts, 39,817 new cases of prostate cancer were reported in men between 1982 and 1994 -- an average of nearly 3,000 cases a year. The actual number of cases doubled from about 2,000 to 4,000 per year during this time. Prostate cancer is the most common type of cancer in males, accounting for 23% of all newly diagnosed cancers. In 1994, 4,227 men in the state were diagnosed and 823 men died from prostate cancer. The increase in incidence is largely attributable to increased screening, particularly the use of the PSA (Prostate Specific Antigen) test. Since 1992, incidence rates in Massachusetts and nationally have declined. Age-adjusted prostate cancer mortality rates appear slightly lower in Massachusetts than nationwide (26 versus 26.5 per 100,000, based on data from 1987 to 1994).

The Massachusetts Department of Public Health has created the Prostate Awareness Program. The MDPH works jointly with the American Cancer Society, the Dana Farber Cancer Institute, and other members of the Prostate Cancer Advisory Committee focusing on community education and outreach for men and their families, including referrals to screenings and linkages to medical care. The American Cancer Society focuses on prostate cancer education and detection, especially in the African American community.

Goal - Reduce mortality from prostate cancer by providing public education and resources for at-risk men and their families and by improving quality of life for survivors.

Public Objectives

1. The importance of primary care in early detection of prostate cancer will be widely known.

2. Community awareness of prostate cancer, especially among minorities, will be increased.

Public Strategies

1. Develop programs focusing on educating men and their families about prostate cancer and screening, and linking them with medical care.

2. Develop programs targeting minority men and their families.

3. Provide assistance to prostate cancer community projects, distribute prostate cancer materials, assist with media events, and help forge collaboration among funded agencies and programs in the region.

4. Develop culturally and linguistically appropriate public education modalities.

Survivor Support Objectives

1. Patients who wish to have the opportunity will be involved in support groups as part of their treatment.

2. Newly diagnosed men will have the opportunity to talk to previously diagnosed men through a survivors' program, specifically men with similar situations (age, staging, and length of time since diagnosis), before treatment decisions are made.

3. Support groups will be available statewide.

Survivor Support Strategies

1. Establish prostate cancer support groups across Massachusetts, designed to serve persons in similar situations.

2. Provide funding for the Prostate Cancer Survivors Network to increase the number of support groups available for men and their families across the state.

3. Establish a database of survivors who are trained and willing to speak with newly diagnosed men.

4. Establish and publicize a toll-free telephone number to link men to others from their own community who have been diagnosed with prostate cancer.

5. Increase communication around prostate cancer including public transportation advertisements, consumer booklets, and radio and television ads.

Professional Objectives

1. Health care providers will discuss screening and early detection with male patients.

2. Health care providers will have continuing education and technical assistance.

3. Health care providers will inform patients with prostate cancer about support groups.

Professional Strategies

1. Provide resources for conferences, materials, reports, and other methods for educating health care providers about the latest techniques for prostate cancer screening and treatment.

2. Provide resources to train staff in community agencies to provide prostate cancer education and screening to assure quality performance.

3. Educate physicians through peer education.

4. Educate physicians' staff regarding the purpose and uses of support groups.

5. Supply all clinics, hospitals, and health care providers with prostate cancer literature.

6. Encourage screening and detection at no cost for uninsured or underinsured men.

Research Objective

1. Prostate cancer research programs will be established.

Research Strategies

1. Support research that investigates causes, detection, and treatment of prostate cancer, including investigations of prostate cancer outcomes that address issues of epidemiology, basic science, psycho-social, and other areas.

2. Develop research relevant to Massachusetts, including epidemiology, tumor registry support, and support of young investigators in the state.

Evaluation Objectives

1. Data collected from existing programs will be used in designing, managing, and setting priorities of new programs.

Evaluation Strategies

1. Develop an evaluation plan of all MDPH-funded programs based on current knowledge and methods.

2. Monitor prostate cancer education and outreach activities, screening, incidence, and mortality, and assess changes in trends over time.

This section of the Plan is based on a plan developed in 1998 by the Prostate Cancer Advisory Committee.

Skin Cancer

Skin cancer is the most common form of cancer in the United States. Approximately 1,000,000 new cases of skin cancer are diagnosed each year. The American Cancer Society estimates 9,200 deaths in 1998 from skin cancer in the United States. Although skin cancer rates are higher in southern states, the incidence of melanoma, the deadliest form of skin cancer, has increased in Massachusetts over the past several years. Between 1982 and 1994, the incidence of melanoma increased by 46% among men and 20% among women in the Commonwealth. Almost all skin cancers are curable if detected and treated early, before they have spread to other tissues. The five-year survival rate for malignant melanoma is more than 90% when treated early. Monthly self-examination and reporting of irregular skin lesions to a primary care provider, when combined with thorough examination during comprehensive physicals, greatly improves the chances of successful treatment.

Exposure to ultraviolet radiation, most frequently from the sun but also from tanning beds and booths, is the primary cause of skin cancer, making it highly preventable.

(See also: Ultraviolet Radiation)

Goal - Promote public awareness of sun protection and routine examination for skin cancer by individuals and primary care providers.

Public Objectives

1. Individuals will know the hazards of exposure to ultraviolet light and how to conduct self-examinations for skin cancer.

2. Skin cancer awareness will begin during childhood.

Public Strategies

1. Distribute tip sheets on the risks associated with exposure to ultraviolet radiation and on skin self-examination through local health departments, libraries, child care providers, and other community-based organizations.

2. Distribute press releases encouraging monthly self-examination.

Professional Objectives

1. Health care providers will counsel patients about safe sun practices and about how to conduct self-examination for skin cancer.

2. Health care providers will be encouraged to include total skin examinations as part of comprehensive physicals.

Professional Strategies

1. Conduct grand round programs on the importance of conducting skin examinations as part of a comprehensive physical, particularly in areas of the state where skin cancer rates are highest.

Testicular Cancer

Testicular cancer accounts for 1% of all cancers in males. In Massachusetts, testicular cancer is the most common cancer in men ages 20 to 44, with an annual age-specific incidence rate of 12.11 per 100,000. The overall age-adjusted incidence rate of testicular cancer is slightly higher in Massachusetts than nationally, according to data from the period 1987 to 1994 (5.0 versus 4.5 per 100,000). During this period, 1,463 new cases of testicular cancer were diagnosed. The age-adjusted mortality rate also appears slightly higher in Massachusetts (0.3 versus 0.2 per 100,000 nationally).

Goal - Increase public and professional awareness of testicular cancer and the need for self-examination.

Public Objectives

1. Testicular clinical and self-examination will be promoted for young male patients.

2. Public awareness of testicular cancer will be raised.

Public Strategies

1. Promote inclusion of information about testicular cancer in school health curriculum.

2. Promote testicular self-examination for all men in Massachusetts.

3. Create a fact sheet on testicular cancer.

Professional Objectives

1. Health care providers will be knowledgeable about testicular cancer.

2. Health care professionals will teach self-examination to patients.

Professional Strategies

1. Train health care providers to teach self-examination to patients.

2. Educate health care providers about testicular cancer to help prevent delays in diagnosis.

Uterine Cancer

Uterine cancer was the fourth most commonly diagnosed cancer among Massachusetts' females between 1987 and 1994. There is currently no screening test for uterine cancer. The Pap smear, which is used to detect cervical cancer, finds fewer than half of endometrial (uterine) cancers. There were 6,574 new cases of uterine cancer diagnosed between 1987 and 1994, accounting for 5.8% of all newly diagnosed cancers. Massachusetts age-adjusted incidence rates have been slightly higher than the national rates since 1991, although age-adjusted mortality rates appear slightly lower than national rates (3.3 versus 3.5 per 100,000, based on data from 1987 to 1994). In 1996, 167 Massachusetts women died from uterine cancer. Low levels of regular physical activity and diets high in fat can contribute to uterine cancer.

(Also see: Nutrition and Physical Activity)

Goal - Increase public awareness of risk factors and prevention strategies for uterine cancer, including nutrition and physical activity.

Public Objectives

1. The incidence of uterine cancer will be reduced.

2. Massachusetts women will have current information on risk factors for uterine cancer.

3. Postmenopausal women will participate in physical activity and nutrition programs.

Public Strategies

1. Support physical activity programs, including walking groups, for postmenopausal women.

2. Create and disseminate nutritional information on low fat diets reducing cancer risks.

3. Work with the cardiovascular program and the diabetes program to educate women about the link between uterine cancer and high fat diets, sedentary lifestyles, and diabetes.

5. Distribute information on uterine cancer.

5. Create a fact sheet on risk factors for uterine cancer.

V. Detection, Treatment and Rehabilitation

Detection, Treatment and Rehabilitation

Massachusetts is fortunate to be associated with one of the greatest medical communities in the world, containing a number of highly regarded teaching hospitals, several comprehensive cancer centers, community health centers, managed care systems, and nationally recognized cancer specialists. However, due to lack of adequate resources, social and cultural morays, linguistic barriers, and lack of geographic availability, some residents cannot or do not receive services.

Some changes are being made. As of January 1, 1999, all previously uninsured children and approximately 7,000 additional adults will be covered by Medicaid through a federal waiver. Despite this and the fact that Massachusetts spends more on health care than any other state, more than 1 million state residents have no health insurance or are underinsured. In 1995, approximately 12% of Massachusetts' residents were uninsured. In addition, the growing emphasis on health care cost containment may affect access to high quality cancer care even for those residents with insurance.

Even when health care is geographically accessible, people of lower socioeconomic status often have reduced access related to social and cultural morays or linguistic barriers, transportation problems, lack of child care, or inability to take time off work for primary health care appointments or to attend regular health screenings.

Residents typically lose or drop health insurance because they start their own businesses, work on a contract basis, lose their job, or develop a serious illness and find the cost of insurance prohibitive. A recent report by the Massachusetts Division of Health Care Finance and Policy reported that 79% of the uninsured have lacked coverage for more than one year. In 1995, 64% of Massachusetts' uninsured were employed. A growing segment of uninsured are early retirees (under age 65) who, because of their age, are at higher risk for developing cancer.

Late stage of diagnosis must be reduced for both insured and uninsured residents. The stage at which cancer is diagnosed has a tremendous impact on survival; thus, it is important that cancer be diagnosed before the disease spreads. Whereas some cancers such as breast cancer are increasingly being diagnosed at early stages, other cancers for which there is screening and successful treatment, such as colon cancer, have not seen a shift toward earlier stage at diagnosis.

Goal - Increase access for all Massachusetts residents to high quality primary health care and cancer services including prevention, screening, detection, treatment, rehabilitation, and support services.

Objectives

1. All residents will receive high quality primary health care including prevention and screening services.

2. Appropriate high quality treatment and follow-up services will be available to all cancer patients.

3. Cancer patients will receive prompt and direct access to medical specialists when needed.

4. Cancer patients will have access to rehabilitative services and will be encouraged to return to their fullest potential.

5. Cancer patients will have effective pain management.

6. Children and adolescents with cancer will have access to health care providers with appropriate skills and training in pediatric oncology.

7. A great majority of cancers will be diagnosed at an early stage so that they can be treated easily.

Strategies

1. Work to have all residents receive regular primary health care.

2. Educate the public about early symptoms of cancer.

3. Obtain or develop linguistically and culturally appropriate patient education materials including videos, print materials, and charlas.

4. Educate health care professionals to be able to recognize potential symptoms and diagnose cancer at early stages.

5. Work with providers and insurers, including Medicaid and Medicare, to ensure that patients diagnosed with cancer, regardless of their age, have access to appropriate interdisciplinary cancer care, including participation in clinical trials.

6. Work with managed care plans to promote access to out-of-network providers for medically appropriate care when necessary.

7. Promote policies that cancer patients have access to a second opinion from a cancer specialist when requested.

8. Educate health care providers and patients about complementary therapies such as acupressure and acupuncture, massage therapy, relaxation therapy, homeopathy, biofeedback, and herbal therapy.

9. Educate health care providers about strategies for pain assessment and pain management.

10. Encourage health care providers to discuss pain and its management with patients and their families.

11. Work with health care payers to develop resources for pain control.

12. Develop resources for home health care assistance including hospice.

13. Encourage support groups for cancer patients and their families.

14. Support the American Cancer Society Reach to Recovery Program.

15. Support the American Cancer Society "We Can Weekend" programs.

VI. School Health

School Health

An increasing recognition of the relationship between students' health status and their ability to learn has stimulated the development of comprehensive health education programs and a range of health and human services in a school setting. Such programs and services respond to the need for educating children and youth about the importance of prevention and early detection of chronic diseases including cancer. The American Cancer Society also works with Massachusetts' schools on school health education.

Goal - Provide children and adolescents with an understanding of known cancer-causing agents and the knowledge and skills to reduce the risk of cancer as they develop into adulthood.

Objectives

1. Students will know about healthy behavior through education and students will have ready access to health services.

2. Public awareness of health issues will be raised among students.

3. School health programs will include cancer prevention and detection.

4. School health personnel will be aware of possible environmental causes of cancer.

5. School health personnel will be trained to address tobacco use and education.

6. School health personnel will be trained to address alcohol use and education.

7. Students will be encouraged to participate in regular physical activity.

Strategies

1. Develop the capacity to teach students personal health habits that include exercise and nutrition as preventive health measures.

2. Train school health personnel to provide counseling on nutrition, physical activity, and cancer.

3. Include cancer risk factors, cancer prevention, and healthy lifestyle choices in school curriculum. Include education on sexually transmitted diseases and their link to specific cancers.

4. Provide support and care for students with cancer.

5. Train school health personnel to be aware of environmental hazards such as poor ventilation, asbestos, radon, and toxic laboratory or art supplies.

6. Develop conferences for school nurses, health educators, and physicians addressing current health issues through funding from the Massachusetts Tobacco Control Program and the University of Massachusetts Medical Center.

7. Create tobacco education programs through the Massachusetts Tobacco Control Program, American Cancer Society, and Department of Education.

8. Implement tobacco cessation programs for students.

9. Implement alcohol abuse prevention programs.