STEPS TO A HEALTHIER US:
A PROGRAM AND POLICY PERSPECTIVE

Prevention Strategies That Work

Steps to a HealthierUS

2003

U.S. Department of Health and Human Services

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

FOREWORD

As managers of government programs, we often wish for guidance on the best ways to help fellow citizens improve their health. This volume is a how-to guide—detailing the most effective methods for prevention. It shares the lessons others have learned as they developed innovative strategies to reduce the burden of chronic disease.

In support of the President's *HealthierUS* initiative, I am leading a new department-wide effort—*Steps to a HealthierUS.* The heart of this program is personal responsibility for the choices Americans make and social responsibility to ensure that policy makers support prevention programs that foster healthy behaviors.

Steps envisions a healthy, strong United States—where diseases are prevented when possible, controlled when necessary, and treated when appropriate. *Steps* is a bold shift in our approach to the health of our citizens, moving us from a *disease* care system to a *health* care system. As public managers you know that we can no longer sustain the skyrocketing health care costs that over-reliance on treatment has created, nor can Americans sustain the suffering that preventable diseases cause.

We have initially focused the *Steps* initiative on reducing the major health burden created by diabetes, heart disease and stroke, and cancer. *Steps* will also address the related lifestyle choices of poor nutrition, physical inactivity, tobacco use, and risky youth behavior. This document focuses on promising prevention strategies for these diseases and the risk factors that cause them.

It is always important to do what works, not just what has always been done. I hope this volume helps you to envision the path and make real the steps to a healthier US.

Tommy G. Thompson
Secretary of Health and Human Services
U.S. Department of Health and Human Services

TABLE OF CONTENTS

Reducing the Burden of Disease

Diabetes Prevention and Control: A Public Health Imperative

Table of Contents

1

Diabetes Prevention and Control: A Public Health Imperative

The Burden of Diabetes Among Americans Continues to Grow

Type 2 diabetes, which affects 17 million Americans and their families,[1] often causes severe complications that can ultimately damage every organ in the body and lead to premature death. These complications include heart disease, blindness, lower extremity arterial disease, kidney failure, dental disease, and increased susceptibility to infections. In many states, half of all people with diabetes do not receive recommended preventive care services that are known to reduce the risk of diabetes complications.[2] The direct economic cost of diabetes in the United States is estimated to be nearly $132 billion per year.[3] This figure does not take into account the indirect economic costs attributable to potential work time lost to diabetes-related illness or premature death.

The prevalence of diagnosed type 2 diabetes increased sixfold in the latter half of the last century.[4] Diabetes risk factors such as obesity and physical inactivity have played a major role in the dramatic increase in rates of type 2 diabetes in recent years. Age, race, and ethnicity are also important risk factors. The prevalence of diabetes increases with age in all racial and ethnic groups. Whereas 8.6% of Americans over age 20 have diabetes, 20.1% of Americans over age 65 have diabetes. Far fewer Americans younger than age 20 have diabetes, but the prevalence of diabetes in this age group appears to be rising considerably. The rising prevalence of diabetes in this age group, as in other age groups, is attributed to increases in physical inactivity and obesity.

American Indians, black Americans, Latino Americans, and some Asian Americans and Pacific Islanders are disproportionately affected by diabetes.[1] For example, black and Hispanic Americans are almost twice as likely to have diabetes as non-Hispanic white Americans of similar age, and American Indians are almost three times as likely to have diabetes as non-Hispanic whites of similar age. As the prevalence of obesity and sedentary lifestyles increases and the U.S. population becomes older and more ethnically diverse, the prevalence of diabetes is expected to continue to rise.[5]

Socioeconomic and environmental factors may also play a role in a person's risk of developing diabetes and in the course of diabetes once it has developed.[5] People with type 2 diabetes are more likely to have less education and lower incomes than people without diabetes.[6] Elderly minority women, who are more likely to live alone and to have lower socioeconomic status, are also more likely to have diabetes and to lack resources to adequately manage their disease.[7]

Progress to Date

The last two decades have provided great advances in clinical care for people with diabetes. For example, in 1981, photocoagulation treatment was proven effective in preventing diabetes-related blindness.[8] Twelve years later, the results of the landmark Diabetes Control and Complications Trial (DCCT) established that intensive control of blood sugar greatly reduced microvascular complications among people with diabetes.[9] In 2002, findings from the Diabetes Prevention Program (DPP) demonstrated

that lifestyle changes and medications can help prevent diabetes in people with impaired glucose tolerance.[10]

Although diabetes cannot be "cured," these findings prove that the devastation of diabetes can be dramatically reduced. However, for many reasons, large segments of the population have not benefited from these findings. Without broader public health interventions and additional resources, the prevalence of diabetes is expected to continue to increase. This chapter discusses a model for public health action to improve the lives of people, communities, and populations affected by diabetes. This model is based on existing and emerging science and public health experience.

Healthy People 2010 Objectives

Healthy People 2010 is the third version of the *Healthy People* series published by the U.S. Department of Health and Human Services in which it lays out 10-year health objectives for the nation. This document serves as a blueprint for identifying reasonable, science-based goals that can be modified as desired by state and federal agencies, local entities, and communities. *Healthy People 2010* includes 467 objectives in 28 focus areas.

In recognition of the significance of the burden of diabetes and its impact on multiple systems within the body, the nation's *Healthy People 2010* objectives include several related to diabetes.[11] Most of these involve secondary prevention (preventing complications of diabetes) or tertiary prevention (preventing the progression of complications). A few involve primary prevention (preventing diabetes itself).

Healthy People 2010 Focus Area 5 contains 17 objectives directly related to diabetes prevention and control. Many other focus areas also contain objectives that relate to diabetes. For more information on the diabetes-related objectives in *Healthy People 2010,* visit www.healthypeople.gov.

Prevention Opportunities

There is a strong scientific basis for the primary, secondary, and tertiary prevention of diabetes. However, translating the science into effective interventions to lessen the burden of diabetes requires considerable resources and effort.

Levels of Prevention

Diabetes programs should address all three levels of diabetes prevention: primary, secondary, and tertiary.

Primary prevention interventions seek to delay or halt the development of diabetes. The most compelling evidence for the effectiveness of primary prevention is for interventions targeting people with impaired glucose tolerance,[10] who are at highest risk of developing diabetes. Both drugs and lifestyle changes have proven effective in helping these people delay or prevent the development of diabetes, although lifestyle changes related to losing weight and increasing physical activity have been most effective.[10] Primary prevention efforts in state diabetes programs cover a wide spectrum. At a minimum, diabetes programs should partner with other programs that assume responsibility for reducing risk factors in the population at large, such as those that provide broad nutrition and physical activity interventions. (See Chapter 4.) In such partnerships, diabetes programs play a supportive rather than a leadership role. For example, diabetes programs could participate in coalitions that seek broad environmental changes to support walking. These coalitions would typically be developed, sponsored, and led by state nutrition and physical activity programs. On the other hand, diabetes programs should play a leadership role in primary prevention interventions focused on ensuring that people at highest risk for diabetes have access to interventions that will delay or avert the development of the disease. The leadership role may entail aggressively soliciting partnerships with cardiovascular health, nutrition, and physical activity programs to develop lifestyle change interventions.

Secondary and tertiary prevention interventions focus on people with diabetes and seek to prevent (secondary) or control (tertiary) the devastating complications of this disease. More proven intervention models are available for both secondary and tertiary prevention than for primary prevention. For example, maintaining near normal glucose, blood pressure, and cholesterol levels has been shown repeatedly to reduce diabetes complications.[10, 12] Additionally, routine preventive care practices such as foot exams, eye exams, and frequent A1C testing are well-established components of quality diabetes care.[13] To ensure that these benefits reach the people who need them, programs should develop, implement, and coordinate multilevel interventions targeting people with diabetes, their families, their health care systems, and their communities.

All three types of prevention interventions rely on active stakeholder involvement and support. Stakeholders include people with diabetes, voluntary organizations that have an interest in diabetes or serve populations disproportionately affected by diabetes, health care providers (e.g., primary care providers, endocrinologists, diabetes educators, eye care specialists), and academic institutions. However, program planners are encouraged to explore partnerships with organizations (e.g., urban planning groups, restaurant associations) that may not traditionally work with the diabetes community but can assist in implementing interventions.

Achieving population-level impact in the primary, secondary, and tertiary prevention of diabetes is a complex task that requires resources, competent leadership, and a diverse staffing mix at the national, state, and provider levels. Diabetes programs should collaborate with a wide variety of partners to ensure an appropriate balance between efforts to prevent diabetes complications and efforts to prevent the onset of diabetes. The ability to capitalize on prevention opportunities requires a strong infrastructure to plan and support interventions, nurture partnerships, and monitor and evaluate progress.

Types of Strategies

Diabetes programs should pursue three major types of strategies: health systems change, community intervention, and health communications. These three strategies should be implemented at multiple levels and in tandem with each other.

Health Systems Change

The U.S. Task Force for Community Preventive Services strongly recommends disease and case management to improve diabetes clinical outcomes.[14] Programs should not only seek to improve preventive health care practices by providers and people with diabetes, but also seek to redesign health care processes related to diabetes care.

Strategies to improve health care systems and access to quality care can address either the primary, secondary, or tertiary prevention of diabetes. Such strategies addressing primary prevention might aim to identify more people with impaired glucose tolerance by increasing screening among populations at high risk, including obese people, people over age 45, and members of certain racial or ethnic groups. Health system change strategies addressing secondary and tertiary prevention might demonstrate the benefit of policy interventions that support self-management of diabetes (e.g., adding lay health workers to the staff of some medical practices, using information technology to communicate with people with diabetes outside of the provider's office,[15] expanding support for patients with diabetes as the source of control of diabetes care[16]).

Community Intervention

Community intervention strategies can combine aspects of primary, secondary, and tertiary prevention. Community intervention strategies aimed at the primary prevention of diabetes might include community-based exercise and healthy nutrition programs targeting people at high risk for diabetes. Community intervention strategies aimed at secondary and tertiary prevention might seek to increase the availability of influenza vaccinations or

to provide diabetes education for people with diabetes in gathering places for adults.[14] Initiatives can also mobilize community members to improve access to care for people with diabetes, such as by establishing community diabetes support groups or by holding routine diabetes question-and-answer sessions at local pharmacies.[14] Other community intervention strategies might address broader issues that affect individuals with diabetes and their families and communities, such as the need for social support and stress reduction. For example, efforts could include advocacy for increasing the availability of diabetes education programs outside of normal working hours so that entire families are able to participate together.

Health Communications

Diabetes health communications interventions are based on consumer research and often involve raising awareness of diabetes and its complications by disseminating health information to targeted audiences. Health communications should be viewed as a complementary strategy tied to health systems change or community interventions. Health communications strategies are rarely effective as stand-alone activities.

Diabetes health communications strategies are appropriate for primary, secondary, and tertiary interventions. Possible primary prevention interventions include awareness campaigns targeting people with impaired glucose tolerance, as well as their health care providers and their employers. Secondary interventions include developing and disseminating targeted messages to address misconceptions about flu and pneumococcal immunizations. Tertiary interventions include developing and disseminating targeted messages to increase rates of foot examinations for special populations.

CDCynergy, a CDC-developed CD-ROM to help organizations plan health communications activities,[17] suggests that the development of health communications initiatives include the following steps:

- Defining and describing the problem.
- Analyzing the problem.
- Identifying and profiling audiences.
- Developing a communication strategy and tactics.
- Developing an evaluation plan.
- Launching the initiative and gathering feedback from participants.

Program planners are encouraged to review the experience of programs in other states or communities. However, these programs should be viewed as guides and not templates, since interventions usually need to be tailored to a particular population.

Basic Infrastructure for Diabetes Control

Several components are necessary to ensure a complete program in diabetes. The impact of programs is maximized when all of these components have been put into action.

Surveillance and Evaluation

A complete program must have information available to 1) define the nature and extent of the diabetes burden (surveillance), 2) focus intervention efforts, and 3) determine if interventions are having an impact (evaluation).

Surveillance

In June 2000, the Council for State and Territorial Epidemiologists published a list of indicators for diabetes surveillance (Table 1). These indicators cover a wide range of issues important for monitoring diabetes trends and for planning and evaluating diabetes program efforts. Other important indicators to follow include levels of physical activity and obesity, diabetes education, and self-monitoring of blood glucose. Programs should also monitor environmental changes that affect the course of diabetes, including state and federal health policy changes. In general, surveillance data are critical for monitoring state and national progress, including progress toward meeting *Healthy People 2010* objectives.

Table 1. Diabetes Surveillance Indicators

1. Mortality from or with diabetes mellitus.
2. Mortality from or with diabetic ketoacidosis.
3. Diabetes mellitus prevalence.
4. Influenza vaccinations among adults with diabetes mellitus.
5. Pneumococcal vaccinations among adults with diabetes mellitus.
6. Foot exams among people with diabetes mellitus.
7. Dilated eye exams among people with diabetes mellitus.
8. Hospitalizations among people with diabetes mellitus.
9. Amputations of lower extremities attributable to diabetes mellitus.

Source: *Indicators for Chronic Disease Surveillance: Data Volume,* Council for State and Territorial Epidemiologists, 2000.

The following are the best-developed and most widely used sources of diabetes-specific state surveillance data:

Behavioral Risk Factor Surveillance System (BRFSS), including the diabetes module. BRFSS is a state-based, random-digit-dialed telephone survey designed to yield representative population samples for each state. Each state should administer the BRFSS annually (including the special diabetes module) to monitor the extent of and trends in the diabetes burden, behavioral risk factors, and preventive care practices.

Hospital discharge data. These data are available in most states, sometimes for a fee, and are important for monitoring diabetes-related illness. However, hospital discharge data should be viewed as complementary to BRFSS and other data rather than as a sole source of information.

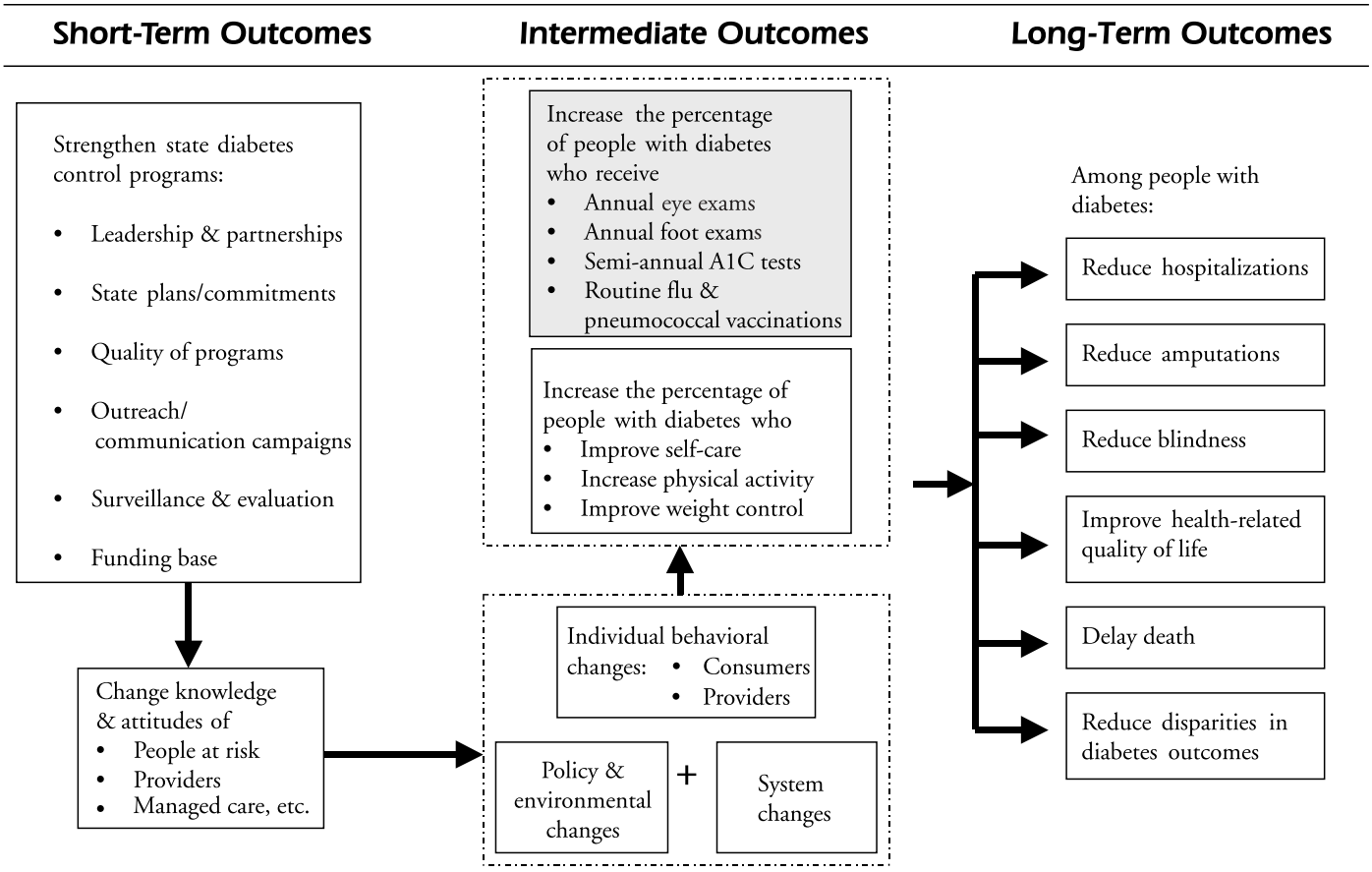
State vital records data. Data from death certificates and birth certificates are used for monitoring diabetes-related death rates and pregnancy outcomes. However, only about 40% of people who die with diabetes have diabetes listed on their death certificate. As a result, death certificate data cannot be used to monitor death rates, causes of death, and relative risk for death among people with diabetes unless the death certificate has been modified to collect data on decedents' diabetes status. The new standard birth certificate scheduled to be implemented in 2003 will collect data on whether the mother had either preexisting or gestational diabetes (diabetes diagnosed during pregnancy). This new information will help to determine the effects of diabetes on pregnancy and trends in diabetes-related birth defects.

Partnering health organizations such as provider groups, managed care organizations, and community health centers can be important sources of diabetes surveillance data. Programs are encouraged to supplement existing data with data from specialized surveillance efforts, such as special surveys of minority and other populations not adequately represented in available data sources.

Evaluation

Diabetes programs need to conduct evaluations to determine how effective their activities are in producing desired short-term and long-term effects. Logic modeling is a recommended tool for this purpose (Figure 1).[18] Because diabetes and its complications can take many years to develop and diabetes mortality data tend to be inaccurate, programs need to use intermediate measures of success as part of their evaluations.[19] Good process evaluation is also essential to understanding why a program is or is not achieving results and how to

Figure 1. Diabetes Prevention and Control Program



adjust the program accordingly.[20] Ultimately, however, the success of a program is determined by its long-term success in reducing diabetes incidence, illness, complications, and deaths. Evaluation of progress toward more intermediate objectives should always be conducted with those long-term objectives in mind.

Strategic Plans

The development of a strategic plan is critical to the success of diabetes programs. Stake-holders should be actively involved in developing, reviewing, and evaluating the plan. Once developed, plans should be reviewed and updated as progress is made or circumstances change. Ideally, the plan's goals and objectives should be tailored to national, state, and local needs, and strategies for achieving these goals and objectives should be based on proven and evaluated experiences whenever possible.

The diabetes objectives in *Healthy People 2010* (Chapter 5) [21] provide a template for national, state, and local efforts to prevent and control diabetes.

Plans should address the primary, secondary, and tertiary prevention of diabetes and should describe the roles and responsibilities of the various partners. At a minimum, these roles should be described as supportive or leadership. For diabetes programs, this distinction is especially useful in primary prevention activities, because leadership for some interventions to reduce obesity in the general population is more suitable for other public programs.

Partnerships

State diabetes programs should collaborate with partners to facilitate and coordinate various efforts to prevent and control diabetes. Programs can bring together partners through special initiatives, topical meetings, and issue-specific planning. Partners can include professional organizations, voluntary diabetes organizations, community health centers, employers and other health care purchasers, community organizations, businesses, schools, and faith-based organizations.

If possible, diabetes programs should also establish an advisory board consisting of representatives of partnership groups and other key members of the diabetes community. The activities and membership of these boards should be strategically planned to strengthen and help guide program efforts. Population-level changes invariably require action by particular groups. Therefore, engaging these groups in strategy and planning is key to selecting appropriate and effective interventions and securing commitments of resources. In addition, advisory boards can help coordinate diabetes control efforts with similar efforts of other private- and public-sector partners across the state.

Policy

Another important role of diabetes programs is to help private organizations and federal, state, and local agencies design policies that optimize the health of people with and at risk for diabetes. Most commonly, these programs provide guidance about a population's need for diabetes care services and resources. They also should provide information, on request, to state legislators and governors as they develop regulations concerning insurance benefits for people with diabetes (e.g., for diabetes supplies and self-management education) or expanded coverage for people at risk for diabetes (e.g., for nutrition counseling for people with impaired glucose tolerance). By tracking changes in laws and regulations over the years, monitoring their health impact, and offering technical assistance to public- and private-sector policy makers, state diabetes programs can substantially influence the development of new policies. To be effective in this role, however, state programs must be able to provide accurate assessments of science and public health initiatives related to diabetes.

The role of diabetes programs in policy change efforts varies from case to case. When the policy in question relates exclusivly to diabetes, diabetes programs should take the lead. However, when the policy in question involves broader public health concerns, including diabetes, it may be more appropriate for the program to play a supporting role in larger partnership efforts.

Examples of policy initiatives include those that

- Promote work environments conducive to healthy eating and exercise for people with or at risk for diabetes.
- Provide more support and flexibility for people with diabetes to administer insulin injections or monitor blood glucose levels at school or at work.
- Increase the accessibility of safe places to exercise (e.g., expanded availability of community and school resources for physical activity).

Professional Development and Training

Professional development for staff involved in diabetes prevention and control is essential to program success. Because of the rapid pace of scientific change in the field of diabetes, state programs are encouraged to establish minimal requirements for staff training and development. Staff should receive ongoing training in the latest developments in health systems change strategies, community interventions, health communications, the pathophysiology of diabetes, team building, and diabetes surveillance and evaluation. The following is a list of just some of the organizations that offer multidisciplinary diabetes professional training:

> The *American Diabetes Association* sponsors numerous courses for health professionals throughout the year.
>
> Web site: www.diabetes.org

CDC's *Division of Diabetes Translation* sponsors an annual conference and provides numerous professional development resources.

Web site: www.cdc.gov./diabetes

Wichita State University's Division of Continuing Education, Wichita, KS, offers Diabetes Education Update, a didactic workshop addressing clinical, educational, and psychosocial issues.

Web site: webs.wichita.edu/continuinged/deu_form.htm for course curriculum and registration information

The *International Diabetes Center, Minneapolis, MN,* offers concise diabetes update courses for health professionals.

Web site: www.parknicollet.com/diabetes/professionals/index.html

The *National Diabetes Education Program (NDEP)* offers electronic professional educational materials through a portion of its Web site.

Web site: www.ndep.nih.gov

NIH's *National Institute of Diabetes, Digestive, and Kidney Diseases,* offers professional education materials through the NIH Information Clearinghouse.

Web site: www.niddk.nih.gov

The *American Association of Diabetes Educators* offers certification for diabetes educators and sponsors courses for diabetes educators and health professionals.

Web site: www.aadenet.org/index2.html

Diabetes Program Examples

These examples of state program strategies, collaborations, and methods have been collected from state diabetes programs across the country. These examples represent specific aspects of a single program and are not a description of the state program's total effort. In each example, the type of strategy and contact information are provided.

National Diabetes Education Program

The National Diabetes Education Program is a federally sponsored initiative whose goal is to reduce the illness and deaths associated with diabetes and its complications. The program's objectives are

- To increase awareness of the seriousness of diabetes and its risk factors and to increase awareness of strategies for preventing diabetes and its complications among groups at high risk.
- To improve understanding of diabetes and its control and promote better self-management behaviors among people with diabetes.
- To improve health care providers' understanding of diabetes and its control and to promote an integrated approach to care.
- To promote health care policies that improve the quality of and access to diabetes care.
- To reduce health disparities among racial and ethnic populations disproportionately affected by diabetes.

The National Diabetes Education Program is jointly sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health and the Division of Diabetes Translation of the Centers for Disease Control and Prevention and supported by the participation of over 200 public and private partner organizations.

Type of Strategy: Health systems change/partnerships

Contact Information:

National Diabetes Information Clearinghouse
1 Information Way
Bethesda, MD 20892-3560
Phone: 1-800-860-8747 or 301-654-3327
Fax: 301-907-8906
Email: ndic@info.niddk.nih.gov
Web site: www.ndep.nih.gov

National Center for Chronic Disease Prevention and Health Promotion

Division of Diabetes Translation
4770 Buford Highway, NE, Mail Stop K-10
Atlanta, GA 30341-3717
Phone: 1-877-CDC-DIAB
Fax: 301-562-1050
Email: diabetes@cdc.gov
Web site: www.cdc.gov/diabetes

Diabetes Today

Diabetes Today (DT) is a course that is offered around the country and in the Pacific Basin to train public health professionals and members of the community in approaches to mobilizing communities to address diabetes. Using community participation and leadership to identify and address community-level diabetes issues is a goal of this "train the trainer" course, which is offered in English, Spanish, and other languages. The DT course offers tools, processes, and methods for developing community-focused programs that are geographically appropriate and culturally relevant. Additionally, DT training promotes collaboration among community residents, health professionals, and health systems. As a result of DT training, participants from many communities whose residents are at high risk for diabetes have identified the need for more community support groups and diabetes education classes. In Laredo, Texas, for example, the Lado A Lado (Laredoans Against Diabetes and Overweight) community program now offers support groups for adults with diabetes. Several counties in Virginia are working to establish diabetes education programs in accessible settings, such as local schools, hospitals, community health clinics, and churches. A DT program in Guadalupe, Arizona, trains lay health workers ("promotoras") to conduct health promotion programs for people with diabetes and those at high risk of developing diabetes.

Type of Strategy: Community intervention

Contact Information:
Division of Diabetes Translation
National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention
4770 Buford Highway NE, Mail Stop K-10
Atlanta, GA 30341-3717
Phone: 770-488-5000
Fax: 770-488-5966
Web site: www.diabetestodayntc.org

Project DIRECT

Project DIRECT is a comprehensive, community-based intervention carried out in a predominantly black and low-income community in North Carolina. This project began in 1992 with the formation of a partnership among local community stakeholders, who became key decision makers in all that followed. The project established a multilevel, community-based model that includes diabetes care (providing clinical services), outreach (improving community capacity to identify and treat patients with diabetes), and health promotion (reducing risk factors associated with diabetes through information sharing and environmental and policy changes). This project promotes the primary, secondary, and tertiary prevention of diabetes. Because Project DIRECT is a pioneer program of its type, its leaders now share the challenges they encountered and the lessons they learned with local, state, and national leaders interested in pursuing this community empowerment approach to diabetes prevention and control elsewhere.[22]

Type of Strategy: Community intervention

Contact Information:
Diabetes Control Program Director
NC Department of Health and Human Services
Diabetes Prevention and Control Unit
1915 Mail Service Center
Raleigh, North Carolina 27699-1915
Phone: 919-715-3131
Fax: 919-733-0488

New York Centers of Excellence

The New York Diabetes Program collaborates with 14 regional community coalitions and 3 university-based Centers of Excellence (State University of New York/Upstate Medical University in Syracuse, Mount Sinai Medical Center/East Harlem in New York City,

and Columbia–Presbyterian Hospital/Naomi Berrie in New York City) to improve diabetes care. The Centers of Excellence work with peer-review organizations, health centers, hospitals, and community organizations to develop educational initiatives and promote collaboration among health care providers to improve diabetes services and access to care. The centers also develop methods to overcome socioeconomic, cultural, and language barriers to services. In 2 years, the community- and provider-focused interventions sponsored by the Centers of Excellence have reduced hospitalization rates by 35% and decreased lower-extremity amputation rates by 39%.

Type of Strategy: Health systems change/ partnerships

Contact Information:
Diabetes Control Program Coordinator
Bureau of Chronic Disease Services
New York State Department of Health
Empire State Plaza Tower, Room 780
Albany, New York 12237-0678
Phone: 518-474-1222
Fax: 518-473-0642

Improving Diabetes Care through Empowerment, Active Collaboration, and Leadership (Project IDEAL)

Project IDEAL is an initiative developed by the Minnesota Diabetes Control Program and Health Partners, a large managed care organization. IDEAL is a systematic, population-based intervention that facilitates diabetes care improvements by identifying the need for changes within primary care clinics and then making these changes happen. During the pilot stage of IDEAL, the frequency of eye exams, foot exams, and microalbumin testing increased substantially, and these results were replicated in the intervention phase. In 2 years, participants' average A1C values decreased from 9.2% at baseline to 7.7%. Other effects of this intervention include a higher priority for diabetes in managed care and the application of the IDEAL methodology to address asthma, heart disease, hypertension, and other chronic conditions.

Type of Strategy: Health systems change/ partnerships

Contact Information:
Minnesota Diabetes Control Coordinator
Minnesota Department of Health
P.O. Box 64882
St. Paul, Minnesota 55164-0882
Phone: 651-281-9842
Fax: 651-215-8959

The Diabetes Collaborative

The Diabetes Collaborative is an interagency, public-private partnership aimed at improving the quality of health care for secondary and tertiary diabetes prevention in federally funded community health centers. This partnership involves federal, state, and local entities. National partners include the Health Resources and Services Administration, the Centers for Disease Control and Prevention, and the Institute for Health Care Improvement. State and local partners include community health centers and state diabetes programs. To date, 40 state programs are participating formally in the collaborative, along with approximately 300 community health centers. Improvement methods include applying the MacColl Institute for Healthcare Innovation's Chronic Care Model[23] and the Institute of Health Improvement's Quality Improvement Model.[24] Common objectives include measuring patients' A1C levels twice per year, at least 90 days apart, and establishing patient self-management goals. Results of the collaborative's efforts to date include a threefold increase (from 20% to 60%) in the percentage of patients who receive A1C testing at the recommended interval.

Type of Strategy: Health systems change/ partnerships

Contact Information:
Health Resources and Services Administration
Bureau of Primary Health Care
Health Disparities Collaborative
4350 East West Highway
Bethesda, MD 20814
Phone: 301-594-4292

Fax: 301-443-4983
Web site: bphc.hrsa.gov/programs/HDCProgramInfo.htm

Division of Diabetes Translation
National Center for Chronic Disease Prevention and Health Promotion
Centers for Disease Control and Prevention
4770 Buford Highway NE MS K-10
Atlanta, GA 30341-3717
Phone: 770-488-5000
Fax: 770-488-5966
Email address: diabetes@cdc.gov
Web site: www.cdc.gov/diabetes

Wisconsin Collaborative Diabetes Quality Improvement Project

The Wisconsin Diabetes Control Program developed the Collaborative Diabetes Quality Improvement Project in partnership with the University of Wisconsin Department of Preventive Medicine. The objectives of this project are to facilitate standardized baseline data collection and to identify and address gaps between current practice and the Wisconsin Essential Care Guidelines. Twenty organizations and 18 HMOs from across the state reported on six indicators of diabetes care for approximately 25,000 people with diabetes in Wisconsin. The indicators were number of A1C tests performed, percentage of people with poorly controlled A1C levels, number of lipid profile tests performed, percentage of people with lipids controlled, number of dilated eye exams performed, and number of people screened for kidney disease. In 2000, all participating HMOs had improved in the six selected indicators since 1999: the proportion of people receiving lipid profiles increased by 10%, the proportion receiving dilated eye exams increased by 8%, and the proportion receiving one or more A1C tests increased by 2%. In addition, control of A1C improved by 4%, control of lipid levels improved by 16%, and screening for kidney disease increased 13%. Two factors critical to the success of this project were that all of the participants, including participating HMOs, were involved in developing the guidelines, and that information was shared with all participants, many of whom were market competitors. These factors facilitated better coordination of diabetes care, which helped to improve the clinical indicators listed above.

Type of Strategy: Health systems change/partnerships

Contact Information:
Diabetes Control Program Coordinator
Wisconsin Department of Health
1 West Wilson Street
Room 218
Madison, Wisconsin 53701-2659
Phone: 608-261-6871
Fax: 608-266-8925

The Michigan Diabetes Outreach Network (DON)

The Michigan DON consists of a series of regional networks designed to facilitate comprehensive diabetes assessment, education, referral, and follow-up care through innovative partnerships. Through the coordinated efforts of health departments, private home-care agencies, hospitals, clinics, physicians, and Native American health agencies, people who have diabetes are identified and provided individualized care. As a result of these efforts, most people enrolled in this system have been referred to and have seen all of the recommended health care providers. Furthermore, many of the participants have improved their self-care practices and are now able to self-manage their diabetes. The effectiveness of the DON model was established in 1991, when a published analysis showed that, in just 5 years, the DON serving the Upper Peninsula had reduced the diabetes-related death rate by 27%, the diabetes-related hospitalization rate by 45%, and the diabetes-related lower-extremity amputation rate by 31%. The DON model is the cornerstone of the Michigan Diabetes Control Program and an integral part of quality diabetes care efforts throughout the state.

Type of Strategy: Health systems change/partnerships

Contact Information:
Diabetes Control Program Coordinator

Diabetes, Dementia, Kidney Section
Michigan Department of Community Health
P.O. Box 30195
Lansing, Michigan 48909
Phone: 517-335-8445
Fax: 517-335-9461
MDON Web site: www.diabetes-midon.org

Utah Statewide Communication Campaign

The goals of this campaign are to improve awareness of diabetes risk factors and screening methods, especially among groups at high risk, and to improve awareness of the most effective ways to control diabetes. The process for developing the campaign included the following:

- Updating the social marketing plan.
- Gathering and analyzing market research on media habits and appropriate messages for target population groups, including Hispanics, Polynesians, and seniors.
- Developing messages and choosing media channels and vehicles appropriate for the target population with diabetes. Decisions were based on market research and a review of materials previously developed by the Utah Diabetes Control Program (UDCP) and the National Diabetes Education Program (NDEP).
- Testing all messages and materials and distributing them.
- Airing NDEP/UDCP television and radio public service announcements, distributing news releases, and developing news stories.
- Developing other promotional items that list the UDCP Web page address and health resource line toll-free number and sending these materials to community partners to distribute to the public.
- Collaborating with local health departments and other community partners to implement public awareness and education activities in their districts.
- Providing materials and training to help health resource line telephone operators respond proficiently to diabetes-related calls and make appropriate referrals.
- Updating and distributing the *Diabetes Resource Manual* (for professionals) and the *Diabetes Directory* (for consumers).
- Maintaining the program's Web page and adding frequently asked questions and questions for patients to ask their doctor.

Evaluation efforts to date have been limited to process evaluation. Utah will conduct an overall diabetes awareness campaign evaluation as well as the Utahns with Diabetes Follow-Up Survey. This communications campaign is only one component of Utah's Diabetes Control Program. Together, the health communications, health systems, and community interventions should help reduce the burden of diabetes in the state.

Type of Strategy: Health communications

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West Virginia Statewide Diabetes Media Campaign

The West Virginia Diabetes Program implemented a media campaign from September 1999 through July 2002 to improve the preventive health care practices of Medicare beneficiaries with diabetes. The campaign featured rotating messages about A1C testing, eye examinations, influenza immunizations, and other diabetes prevention and diabetes care topics. Evaluation of this effort focused on determining whether Medicare beneficiaries with diabetes saw or heard mass media messages about diabetes and whether hearing messages was associated with a self-reported response. The telephone survey was of a random sample of 1,500 beneficiaries in the West Virginia Diabetes Database from two groups of

counties: those with high and those with low exposure to the media campaign as determined from broadcast logs and station coverage maps. The survey asked whether the beneficiary had heard and responded to messages on specified topics.

Beneficiaries who had had high exposure to the messages were about 1.2 times more likely to recall hearing messages on A1C, foot examinations, and influenza immunizations than were beneficiaries with low exposure, and this difference was statistically significant ($p<0.05$). Furthermore, for all four message topics, having heard the messages was significantly associated with the likelihood of self-reported action (e.g., talking to a doctor about A1C testing).

Type of Strategy: Health communications

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Challenges Ahead

Diabetes is an enormous public health problem. However, by continuing to learn more about diabetes and by doing all that is possible to prevent and control this disease, Americans may ultimately succeed in reducing the great burden it creates. Although a greater proportion of public health resources will likely be devoted to primary prevention in the years to come, secondary and tertiary prevention will remain important public health opportunities for reducing the incidence and severity of diabetes complications among people who already have the disease. Moreover, while exercise and physical activity can reduce people's risk for type 2 diabetes, particularly among those with elevated fasting glucose levels and impaired glucose tolerance, translating this knowledge into effective public health actions will not be easy. To provide tangible evidence of the impact of specific interventions, public health diabetes programs must have a strong evaluation component, and to establish priorities in accordance with scientific evidence, they must be able to respond rapidly to lessons learned.

Technical Resources

The following Web sites provide valuable technical resources for state and local diabetes control programs.

Federal

Health Resources and Services Administration.
www.hrsa.gov. Provides information on programs, resources, and funding.

Centers for Disease Control and Prevention.
www.cdc.gov/diabetes. Provides diabetes statistics, programs, and publications information.
www.cdc.gov/cdcynergy. Provides information about CDCynergy.

CDC link to Web sites of state diabetes control programs.
www.cdc.gov/diabetes/states/index.htm.

National Diabetes Education Program (NDEP).
www.ndep.nih.gov. Provides information on diabetes resources and tools and on NDEP campaigns.

National Institutes of Health.
www.niddk.nih.gov. Provides information on diabetes research and clinical trial.
http://hstat.nlm.nih.gov/hq/Hquest/db/local.gcps.cps/screen/Browse/s/36462/cmd/HF/action/GetText?IHR=CH19. The diabetes chapter of the *Guide to Clinical Preventive Services.*

U.S. Department of Health and Human Services (HHS) Office of Minority Health.

www.omhrc.gov. Provides information on HHS efforts to address racial and ethnic health disparities.

Healthy People 2010.

www.healthypeople.gov. Provides information about *Healthy People 2010.* See chapter 5 for information on diabetes.

Agency for Health Care Research and Quality (AHRQ)

http://www.ahrq.gov/research/tripdiab.htm. Provides information on AHRQ-funded research on diabetes care.

http://www.ahrq.gov/research/diabdisp.htm#Reducing%20Disparities. The AHCR publication *Reducing Diabetes Disparities Among Ethnic and Racial Minorities* includes information on the Chronic Disease Self-Management Program, research regarding the prevention of type 2 diabetes in Mexican American populations, and research on family support.

Food and Drug Administration (FDA)

http://www.fda.gov/womens/taketimetocare/diabetes/default.htm. Provides information on the Take Time To Care …About Diabetes campaign from the FDA's Office of Women's Health.

Centers for Medicare and Medicaid Services

http://www.cms.hhs.gov/partnerships/outreach/initiatives/diabetes.asp. Provides information on the Diabetes Practitioners Kit and the Community Kit.

Indian Health Service (IHS)

http://www.ihs.gov/medicalprograms/diabetes/kids%26diab.pdf. IHS's Best Practice Model: Type 2 Diabetes in Youth.

Nongovernmental Organizations

American Association of Diabetes Educators. www.aadenet.org.

American Diabetes Association. www.diabetes.org.

Juvenile Diabetes Research Foundation International.

www.jdrf.org.

References

1. Centers for Disease Control and Prevention. *National Diabetes Fact Sheet: National Estimates and General Information on Diabetes in the United States, Revised edition*. Atlanta, GA: U.S. Department of Health and Human Services, 2002.
2. Centers for Disease Control and Prevention. Levels of diabetes-related preventive-care practices—United States, 1997–1999. *MMWR Morb Mortal Wkly Rep* 2000;49(42):954-8.
3. Hogan P, Dall T, Nikolov P. Economic consequences of diabetes mellitus in the U.S. in 1997. *Diabetes Care* 2003;26(3):917-32.
4. Centers for Disease Control and Prevention. *Diabetes: A Serious Public Health Problem.* Atlanta: U.S. Department of Health and Human Services, 2001.
5. Boyle JP, Narayan V, Thompson TJ, Geiss LS. Projection of diabetes burden and cost through 2050: impact of changing demography and disease prevalence in the U.S. *Diabetes* 2001;50(S2):A206.
6. Engelgau MM, Geiss LS. The burden of diabetes mellitus. In: Leahy JL, Clark NG, Cefalu WT, editors. *Medical Management of Diabetes Mellitus.* New York: Marcel Dekker, 2000.
7. Centers for Disease Control and Prevention. Socioeconomic status of women with diabetes—United States, 2000. *MMWR Morb Mortal Wkly Rep* 2002;51(7):147-8.

8. Diabetic Retinopathy Study Group. Photocoagulation treatment of proliferative diabetic retinopathy: clinical application of Diabetic Retinopathy Study (DRS) findings. DRS Report No.8. *Opthalmology* 1981;88: 5583-600.
9. The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329(14):977-86.
10. Knowler WC, Barrett-Connor E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med* 2002;346(6):393-403.
11. U.S. Department of Health and Human Services. *Healthy People 2010.* Washington, DC: U.S. Department of Health and Human Services, 2000.
12. UK Prospective Diabetes Study (UKPDS) Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. *BMJ* 1998;317(7160):703-13.
13. American Diabetes Association: Clinical practice recommendations, 2002. *Diabetes Care* 2002;25(Suppl 1):S1-147.
14. Task Force on Community Preventive Services. Strategies for reducing morbidity and mortality from diabetes through health-care system interventions and diabetes self-management education in community settings. A report on recommendations of the Task Force on Community Preventive Services. *MMWR Recomm Rep* 2001;50(RR16):1-15.
15. Committee on Quality Health Care in America, Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press, 2001.
16. Centers for Disease Control and Prevention. *A Diabetes Community Partnership Guide.* Atlanta: U.S. Department of Health and Human Services, 1999.
17. Centers for Disease Control and Prevention, Office of Communication and Division of Diabetes Translation. *CDCynergy 2001, Diabetes Version* (CD-ROM). Oak Ridge, TN: Oak Ridge Institute for Science and Education (ORISE), 2001.
18. Centers for Disease Control and Prevention. Framework for program evaluation in public health. *MMWR Recomm Rep* 1999;48(RR-11): 1-40.
19. Lindholm L, Rosen M. What is the "golden standard" for assessing population-based interventions?—problems of dilution bias. *J Epidemiol Community Health* 2000:54(8): 617-22.
20. Rossi P, Freeman H, Lipsey M. *Evaluation: A Systematic Approach, 6th Edition*. Thousand Oaks, CA: Sage Publications, 1999.
21. Vinicor F, Burton B, Foster B, Eastman R. *Healthy People 2010:* Diabetes. *Diabetes Care* 2000;23(6):853-5.
22. Goodman R, Liburd L, Green-Phillips A. The formation of a complex community program for diabetes control: lessons learned from a case study of Project DIRECT. *J Public Health Manag Pract* 2001;7(3):19-29.
23. Bodenheimer T, Wagner E, Grumbach K. Improving primary care for patients with chronic illness. *JAMA* 2002;288(14):1775-9.
24. Wagner EH, Austin BT, Von Korff M. Organizing care for patients with chronic illness. *Mibankl Q* 1996;74(4):511-44.

A Comprehensive Approach to Cancer Prevention and Control: A Vision for the Future

Table of Contents

2

A Comprehensive Approach to Cancer Prevention and Control: A Vision for the Future

Introduction

Comprehensive cancer control is an integrated and coordinated approach to reducing cancer incidence, morbidity, and mortality through prevention, early detection, treatment, rehabilitation, and palliation. This comprehensive approach is based on the premise that effective cancer control planning and programming should address a continuum of services, from primary prevention and early detection through effective treatment, quality care, and end-of-life services such as pain relief.

State, territorial, and tribal cancer control programs should be comprehensive in the functions they incorporate (e.g., basic and applied research, surveillance, clinical services, health communications). They should comprehensively address all major types of cancer and the needs of all population groups, while giving special emphasis to the needs of groups disproportionately affected by cancer. Finally, they should be comprehensive in recruiting a wide base of partners and in coordinating the efforts of these partners in developing and implementing a cancer prevention and control plan that all stakeholders can embrace.

Agencies can expect to face numerous issues as they work to develop comprehensive cancer control programs. These include

- Establishing an effective infrastructure (i.e., administrative and organizational systems).
- Obtaining adequate resources (e.g., staff, funding) for cancer control.
- Accessing sufficient cancer data (e.g., incidence data, treatment data) to make informed program decisions.
- Coordinating cancer control efforts.
- Reducing racial and ethnic disparities in cancer burden and in access to appropriate treatment.
- Conducting ongoing evaluations of program effectiveness.

Cancer Burden

The American Cancer Society (ACS) estimates that, in 2003, more than 556,500 Americans will die of cancer—more than 1,500 people every day—and that about 1,334,100 new cases of cancer will be diagnosed.[1] These estimates do not include carcinoma in situ (except urinary bladder) or basal and squamous cell skin cancers. Cancer is the second leading cause of death in the United States, accounting for one of four deaths. From 1950 to 1991, cancer death rates increased steadily. Rates began to decline in 1991, largely because of a decline in rates of lung cancer deaths.[2] However, the aging and increasing size of the U.S. population will cause the total number of cancer cases to double by 2050 if current incidence rates remain steady.[3]

The National Cancer Institute (NCI) of the National Institutes of Health (NIH) estimates that almost nine million Americans with a history of cancer were living in 1997; some were under treatment and some were considered cured.[4] The combined 5-year survival rate for Americans with any type of cancer is 62%.[1]

The ACS estimates that cancers that can be detected by screening account for about half of all new cancer cases. If all these cancers were detected at a localized stage through appropriate screening, the 5-year survival rate would approach 95%.[1] For these

Table 1. Statistics for Selected Cancers

Cancer Type (ICD-9*)	No. of New Cases (est. for 2003)	No. of Deaths (est. for 2003)	Five-Year Survival Rate (%)
All sites (140–239)	1,334,100	556,500	62
Breast (174)	212,600	40,200	97 (localized)
Prostate	220,900	28,900	97
Lung (162)	171,900	157,200	15
Colon (153) and rectum (154)	147,500	57,100	62

*ICD-9 = *International Classification of Disease,* 9th Revision.
Source: American Cancer Society, *Cancer Facts and Figures, 2003* (Ref. 1).

reasons, the bulk of cancer prevention and control research dollars are dedicated to the prevention and early detection of these cancers.

African Americans have higher rates of many cancers than other racial or ethnic groups. During 1992–1999, the overall cancer incidence rate per 100,000 persons was 526.6 among African Americans, 480.4 among whites, 329.6 among Hispanics, 348.6 among Asian/Pacific Islanders, and 244.6 among American Indians/Alaska Natives. Racial disparities in outcomes are often even more pronounced than disparities in incidence rates. For example, although breast cancer is diagnosed more often in white women, African American women are more likely to die of the disease. The overall cancer mortality rate is also about one-third higher among African Americans than among whites.[1]

Mortality rates also vary by gender. The most recent age-adjusted annual cancer death rates were 259.1 for U.S. men and 171.4 for U.S. women.[3]

Cancer's financial costs are significant. NCI estimates that cancers cost the nation more than $171.6 billion in 2002: $60.9 billion in direct medical costs (i.e., expenditures for medical procedures and services associated with treatment and care for cancer), $15.5 billion in indirect morbidity costs (such as the value of work disability and absenteeism associated with cancer), and $95.2 billion for indirect mortality costs (such as the cost of lost productivity due to premature death). More than half of all medical costs for cancer are estimated to be for the treatment of breast, lung, prostate, and colorectal cancers,[4] again underscoring the importance of directing prevention and early detection activities toward these cancers.

The nonmonetary costs of cancer are also substantial but cannot be adequately quantified. Cancer pain, though usually manageable, can be a significant problem, as can the discomfort of treatment and damage to the cancer patient's self-image. After treatment for cancer, many people can continue an active, vital life—but they must live with the fear and uncertainty that the cancer might return. As one cancer survivor commented, "the fear for me now, eight and a half years out from my diagnosis, is

generally background noise. Most of the time I am not aware of it, yet it waits ready to pounce at the slightest provocation."[5] Because between eight and nine million Americans have a history of cancer, the toll of the disease is enormous no matter how the burden is calculated.

Healthy People 2010 Cancer Objectives

Healthy People (HP) 2010,[6] which defines the nation's long-term health objectives, contains 15 health objectives in a chapter focusing on cancer and additional related objectives in chapters on nutrition, oral health, and tobacco. The overarching goal of these objectives is to reduce the overall burden of cancer and to eliminate racial and ethnic disparities in cancer morbidity and mortality rates.

All cancer prevention and control programs are encouraged to incorporate the goals of *HP 2010* into their program activities. The full text of *HP 2010* can be found at www.healthypeople.gov.

Opportunities in Cancer Control

Primary, Secondary, and Tertiary Prevention

Many factors that contribute to cancer deaths are preventable. It has been estimated that from 50% to 70% of cancer deaths are attributable to preventable risk behaviors;[7] 30% of cancer deaths can be attributed to tobacco use and more than 30% to poor nutrition.[8] Obviously, state and local programs need to focus on such preventable risk factors.

Cancer prevention can be divided into three stages: primary, secondary, and tertiary. *Primary prevention* refers to the complete prevention of disease, often through methods that inhibit exposure to risk factors. The four most important risk factors for cancer are tobacco use, lack of physical activity, exposure to ultraviolet light, and poor nutrition. Primary prevention is often used synonymously with prevention.

Secondary prevention activities detect disease early and limit disease effects after diagnosis. Outcomes for patients with breast cancer, for example, can be dramatically improved through early detection followed by appropriate treatment.

Tertiary prevention involves preventing further disability and restoring a higher level of functioning in someone with a disease. Like secondary prevention, tertiary prevention can involve treatment; however, it also includes rehabilitation and pain control. Even though cancer pain can be relieved through proper therapies, the National Cancer Institute suggests that the undertreatment of pain is a serious and neglected public health problem.[9] To help alleviate this problem, programs should work with medical partners to ensure that cancer patients receive effective pain relief.

Local programs that are adopting a comprehensive cancer approach need to work with partners to ensure that patients with cancer receive appropriate tertiary care. Prevention opportunities offered through a particular intervention will vary depending on the risk factor or stage of disease at which the intervention is directed and the type of cancer being addressed.

Essential Strategies and Interventions

Programmatic Interventions

Cancer prevention and control interventions can be directed at individuals, at health care providers or systems, or at organizations such as religious institutions or employers. Rates of cancer-related illness and death can be lowered by increasing public awareness about cancer and its risk factors, promoting behavior that decreases people's cancer risk, and providing people with better access to cancer-related health care services.

Environmental and policy actions affect communities, work places, homes, and schools, influencing lifestyle choices that people make. Environmental factors, defined broadly to include smoking, diet, and infectious disease, as well as some chemicals and radiation, are associated with perhaps three-quarters of all cancer deaths in the United States.[1] Strong regulatory controls and promotion of

safe occupational practices, in combination with healthier individual lifestyle choices, can be effective in reducing cancer incidence and mortality rates. Policy and environmental interventions specific to cancer risk factors, such as those that encourage physical activity, good nutritional choices, or tobacco use cessation, are especially useful in supporting behavioral change among individuals. (See Chapter 4 on physical activity and nutrition and Chapter 5 on tobacco use.)

Interventions important for the prevention and early detection of cancer include those designed to reduce the prevalence of smoking, reduce people's consumption of fat and increase their consumption of fiber, increase people's level of physical activity, increase the percentage of women who undergo regular breast cancer screening and Pap testing, increase the proportion of the population over 50 years of age who are screened for colorectal cancer, decrease people's level of ultraviolet radiation exposure, and encourage the use of appropriate state-of-the-art cancer treatment.

In *The Guide to Community Preventive Services* (also called *The Community Guide*; available at www.thecommunityguide.org), the Task Force on Community Preventive Services recommends specific evidence-based interventions for promoting breast, cervical, and colorectal cancer screening; preventing sun exposure and promoting skin protection; and helping people make informed decisions about screening for cancers. It also identifies areas for future prevention research and programming and includes chapters related to tobacco control and physical activity. When choosing or designing interventions, decision makers should consider these evidence-based recommendations as they examine their own needs, goals, resources, and constraints.

The North Carolina example below provides a clear model for how individual site-specific and risk-factor-specific interventions can be coordinated within a framework that integrates surveillance, communications, policy, and evaluation. Currently, interventions implemented through cancer prevention and control programs often overlap with those implemented through other programs. A comprehensive cancer control approach would foster collaboration among such overlapping programs and, as a result, potentially provide more effective interventions at a lower cost.

Comprehensive Cancer Control Programs in Action—North Carolina: North Carolina has expanded its planning and coordination efforts, developed and implemented the statewide "Nutrition Challenge" campaign, created professional education resources to promote colorectal cancer screening, developed a campaign to inform people about clinical trials for cancer prevention and control, enhanced its youth tobacco control efforts, and designed a comprehensive evaluation plan. These activities were selected as funding priorities by the North Carolina Advisory Committee on Cancer Coordination and Control. (www.nccancer.org/ccplan06.htm)

Using Data and Research Results to Design Interventions

Accurate and complete data and solid research form the underpinnings for comprehensive cancer control. They help planners to understand the extent of the cancer burden and the existing infrastructure to address that burden. Data and research help ensure that politically popular strategies are also sound.

Because a major goal of public health is to translate research into effective practice, partners should be encouraged to participate in the data review process, reviewing data that document the burden of cancer and its costs in human and monetary terms.

Information useful in assessing and addressing (through interventions) cancer burden include data derived from basic and applied research; data on the relevance, efficacy, and cost-effectiveness of possible intervention strategies; and data on the existing or developing capacity to implement effective

interventions. Such data should help programs select relevant and affordable intervention strategies that they can tailor to priority populations and implement successfully. When incorporated into an organization's comprehensive cancer control plan, these strategies will provide all stakeholders with a blueprint for action to address the cancer burden.

Comprehensive Cancer Control Programs in Action—West Virginia: In addition to using data from the Cancer Registry and the Behavioral Risk Factor Surveillance System, West Virginia's Comprehensive Cancer Control Coalition has used the nationwide oncology outcomes database of the American College of Surgeons to describe patient-care patterns and has used evaluation studies and marketing data (such as the NCI Consumer Health Profiles) to help plan intervention programs. (www.cdc.gov/cancer/ncccp/contacts/wv.htm)

Comprehensive Cancer Control Programs in Action—Illinois: To select priorities for its comprehensive cancer plan, the Illinois state health department and its cancer control partners created several work groups. These work groups submitted priorities for their respective areas to the partnership. These were collapsed into six overarching priorities for the state cancer plan. For each priority, one or more related strategies, each involving multiple recommended activities, were approved by the partnership. (www.cdc.gov/cancer/ncccp/contacts/il.htm)

Evaluation data, the means by which the effectiveness of programs are measured, provide feedback for ongoing refinement of the program planning and implementation process. Core evaluation activities include surveillance (i.e., identifying and monitoring cancer and risk factor trends in the general population and cancer-burden disparities among groups of people) and the collection of data measuring the process and outcomes of program activities.

A comprehensive cancer control plan should be reviewed on a specified, routine basis to determine whether its objectives are being met and whether program activities should be redirected. Supervising officials should ensure that evaluation activities are useful, feasible, accurate, and ethical. A detailed discussion of how to conduct program evaluations can be found in "Framework for program evaluation in public health."[10] This document can be accessed at www.cdc.gov/eval/framework.htm.

Opportunities for the Prevention and Control of Selected Cancers

Five cancers have been chosen for discussion because of 1) their importance in new cancer cases and cancer deaths (breast, colorectal, and prostate), 2) the ability to detect them early through screening (breast, cervical, and colorectal), 3) their increasing prevalence (melanoma), and 4) their potential for 5-year survival with early diagnosis (cervical and prostate).

Breast Cancer Interventions

Breast cancer is the most common type of nondermatologic cancer among women in the United States. Because opportunities for the primary prevention of breast cancer are limited, we encourage public health practitioners to focus on secondary prevention (i.e., on early detection and appropriate treatment). Regular use of screening mammograms can help reduce the risk of dying of breast cancer. For women aged 50–69, strong evidence indicates that screening lowers this risk by 30%. For women in their 40s, the risk can be reduced by about 17%.[7] The 5-year survival rate for women with localized, early-stage breast cancer is excellent—97%.[1]

A number of states have state- and CDC-funded programs to encourage breast cancer screening. An example of a nationwide program is the CDC-funded National Breast and Cervical Cancer Early Detection Program (NBCCEDP; information is available at www.cdc.gov/cancer/nbccedp/index.htm). Through this program, CDC and its partners in state, tribal, and territorial health agencies provide low-income, uninsured, or underinsured women free or low-cost breast and

cervical cancer screening. The program operates in all 50 states, the District of Columbia, 6 U.S. territories, and 14 American Indian/Alaska Native tribal organizations.

Comprehensive Cancer Control Programs in Action—Nebraska: To help ensure diagnosis and treatment for women with breast or cervical cancer, Nebraska's Every Woman Matters program collaborates with the Junior League of Omaha and the Susan G. Komen Foundation to sponsor the annual Race for the Cure and associated activities, with the proceeds going to the program. The Breast and Cervical Cancer Advisory Committee also does fundraising, and providers throughout the state have donated their services to women who could not otherwise afford screening. (www.cdc.gov/cancer/ncccp/contacts/ne.htm)

Cancer support groups, such as the American Cancer Society's Reach to Recovery program, are often a valuable resource for women being treated for breast cancer, as well as for their families and friends.

Cervical Cancer Interventions

Cervical cancer is not common in the United States. Although the incidence rate has leveled off in the last few years, until then incidence and mortality rates had both decreased steadily for 50 years. A major reason for these decreases is the widespread use of screening for cervical cancer with the Pap test. As a result, preinvasive lesions of the cervix are detected more frequently than invasive cancer.[1]

The annual cervical cancer incidence rate among African American women is still substantially higher than that among white women (13.9 versus 8.8 per 100,000 in 1999).[11] Health officials should institute screening programs and, to reduce this disparity, behavioral change interventions that target underserved African American populations. Behaviors to be promoted include limiting one's number of sex partners, delaying sexual intercourse, using condoms, and avoiding tobacco products.

Cervical cancer screening is often offered through programs that provide both breast and cervical cancer education and screening services. The NBCCEDP, discussed in the previous section, is an example of a nationwide screening program that addresses cervical cancer. A goal of the NBCCEDP is to identify those women who have not had a Pap test in at least 5 years. Sixty percent of women diagnosed with cervical cancer are in this group, and many of them have a poor prognosis; however, women whose cervical cancer is diagnosed and treated early have a 5-year survival rate of 92%.[1]

Colorectal Cancer Interventions

Colorectal cancer is the second most common nondermatologic cancer in the United States. Definite risk factors for colorectal cancer include a personal or family history of colorectal cancer, colon polyps, or inflammatory bowel disease. Other potential risk factors include smoking, physical inactivity, a high-fat and/or low-fiber diet, alcohol consumption, and low intake of fruits and vegetables.

The number of deaths from colorectal cancer and the incidence of the disease can both be reduced by detecting and removing precancerous polyps and by detecting and treating the cancer in its early stages. Precancerous polyps can be present in the colon for years before invasive cancer develops. The 5-year survival rate for patients with colorectal cancer (all stages) is 62%.[1]

One way to promote colorectal cancer screening nationwide is by educating health care providers and the public about the benefits of screening, the availability of screening procedures, and current screening guidelines.

Prostate Cancer Interventions

Other than skin cancer, prostate cancer is the most commonly diagnosed form of cancer among men in

the United States and is second only to lung cancer as a cause of cancer-related death among men. Age, race, ethnicity, and family history are all significantly associated with risk for prostate cancer. The incidence of prostate cancer is substantially higher among African American men than among white men (229.3 versus 152.3 per 100,000 in 1999).[11]

Medical and public health experts agree that every man needs balanced information on the pros and cons of prostate cancer screening to help him make an informed decision. Balanced information is important because medical experts disagree about whether men should be screened regularly for prostate cancer.

Those who encourage regular screening believe current scientific evidence shows that finding and treating prostate cancer early, when treatment might be more effective, may save lives. They recommend that all men who have a life expectancy of at least 10 years should be offered the prostate-specific antigen blood test and digital rectal examination annually beginning at age 50. They also recommend offering screening tests earlier to men at higher risk for prostate cancer, specifically African American men and men who have a father or brother with prostate cancer. They do not recommend routine screening, but instead using a form of shared decision-making.

Those who do not recommend regular screening want convincing evidence that finding early-stage prostate cancer and treating it is beneficial. They believe that some of these cancers detected by screening may never affect a man's health and that treating them could cause temporary or long-lasting side effects such as impotence and incontinence. Because they believe it is unclear if the potential benefits of screening outweigh the known side effects of screening and treatment, they recommend that all men be given information on the pros and cons of screening before making their own screening decision.

Results from clinical trials that are currently underway are expected in 5 to 10 years, and these results will help to clarify guidance about prostate screening. Each man must make his own decision about prostate cancer screening in consultation with his physician. This decision should be based on an understanding of his own risk factors and the risks and benefits of screening and the alternatives.

Skin Cancer Interventions

Among Americans, more than 1 million cases of the highly curable basal cell or squamous cell cancers are diagnosed each year. The American Cancer Society estimates that melanoma, the most serious form of skin cancer, will be diagnosed in over 54,000 people in 2003.[1] However, even melanoma is treatable if detected early: the 5-year survival rate of patients with localized melanoma is 96%.[1]

Risk factors for skin cancer include excessive exposure to ultraviolet radiation, fair complexion, occupational exposure to certain chemicals, a family history of skin cancer, and multiple or atypical moles. Strategies to help prevent skin cancer include limiting or avoiding exposure to the sun during the midday hours, covering the skin when outdoors, and using a sunscreen with a sun protection factor (SPF) of 15 or greater. Because of the possible link between severe sunburns during childhood and risk for melanoma in later life, children, in particular, should be encouraged to avoid excessive sun exposure.

Infrastructure to Support Programs

Program Management and Administration

Building infrastructure is a critical activity in any comprehensive approach to cancer prevention and control. Such infrastructure, including staff, funding, and in-kind support from partners, must be adequate to support the implementation of program activities.

To build an effective infrastructure for a comprehensive cancer prevention and control program, the coordinating agency should provide at least a full-time coordinator and preferably several dedicated staff positions. Because of the importance of cancer data for identifying problems, evaluating programs, and making decisions, the core planning

team for any comprehensive cancer control program should include cancer registry personnel as well as people with expertise in evaluation and epidemiology both from within and outside the health department.

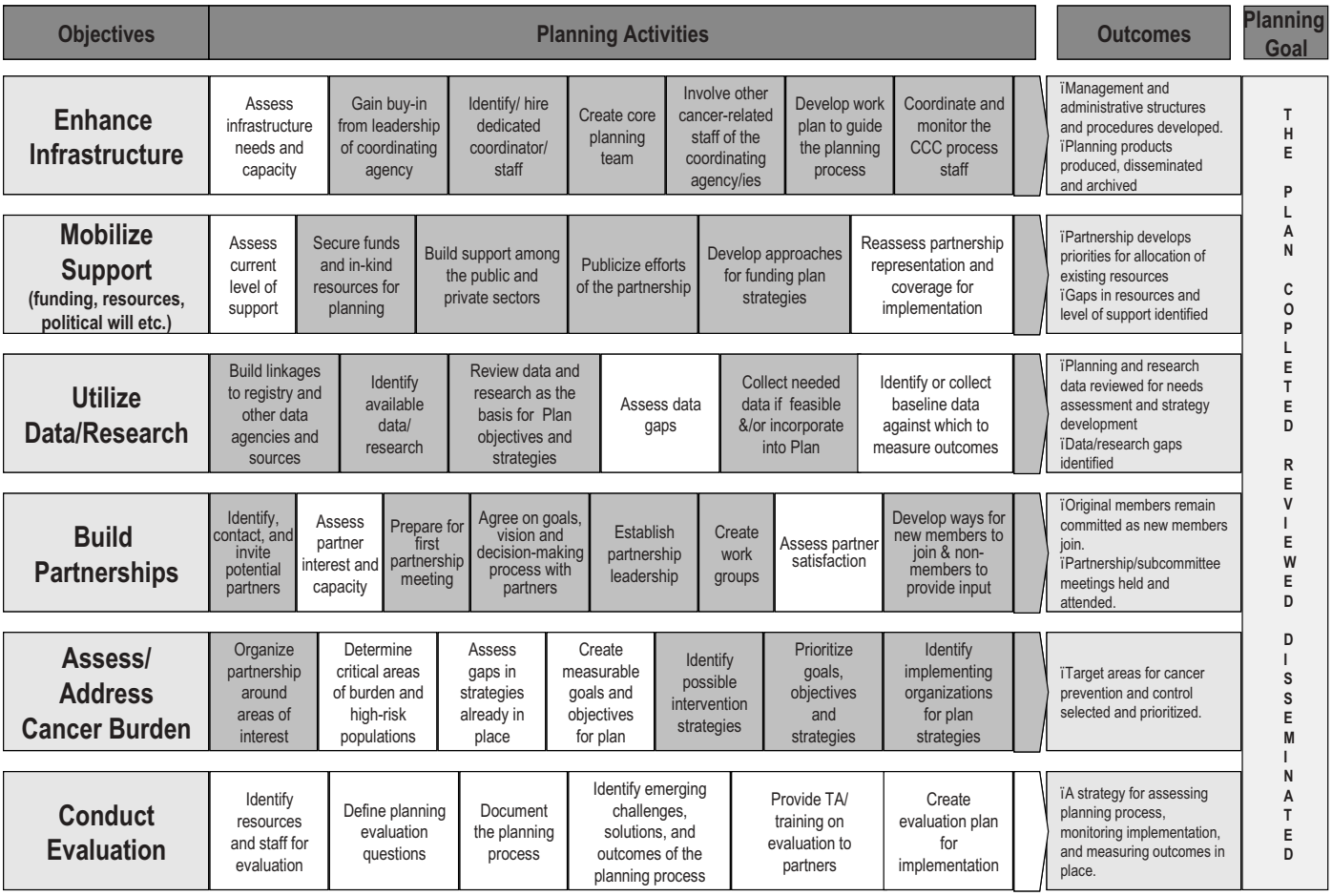
Comprehensive Cancer Control Plans

Essential Elements for Developing/Expanding Comprehensive Cancer Control Programs (www.cdc.gov/cancer/ncccp/elements/index.htm) uses case studies to illustrate barriers to fully implementing comprehensive approaches and provide examples of successful comprehensive programs. CDC's *Guidance for Cancer Control Planning* (www.cdc.gov/cancer/ncccp/index.htm) also suggests specific activities (called building blocks for comprehensive cancer control planning) to help public health agencies and their partners develop a comprehensive cancer control plan and establish a comprehensive cancer control program. These building blocks are presented graphically in Figure 1. Estimates of the time needed to complete the activities suggested in the building block model range up to 2 years.

A comprehensive cancer control plan that is thorough, integrated, and realistic will provide participating organizations with a detailed outline of what each is doing and allow for better coordination of activities. Comprehensive cancer control plans should

- Include a population-based assessment of the cancer burden in the jurisdiction.
- Include short-term and long-term goals, measurable objectives, proposed strategies for

Figure 1: Building Blocks of Comprehensive Cancer Control Planning



reducing the cancer burden, and a plan for evaluating the effectiveness of proposed interventions.
- Be created with diverse partners, inside and outside the health department, who are committed to achieving the goals and objectives of the plan.
- Address cancer-related issues across a continuum of care, including those associated with primary prevention, early detection, treatment, rehabilitation, pain relief, and survivorship.

Comprehensive Cancer Control Programs in Action—Kentucky: To define its priorities and select targets for intervention, the Kentucky Cancer Program administered a needs survey to cancer stakeholders throughout the state. It then used data from this survey and from a review of existing categorical plans and of *Healthy Kentuckians 2010* goals to develop a plan that contains 14 recommended actions and from one to four priority strategies for executing each of them. (www.cdc.gov/cancer/ncccp/contacts/ky.htm)

Surveillance and Evaluation

Using Data and Research

The commitment of participants in comprehensive cancer control planning will be substantially influenced by the quality of the data on which the planning is based.

To evaluate their effectiveness, comprehensive cancer control programs need an established mechanism with which to identify and track cancer case data, including the extent of disease, the kinds of treatment patients receive, and patient outcomes (death or survival). Such mechanisms also allow them to monitor overall changes in disease and risk-factor rates as well as changes within specified geographic areas and populations.

Sources of data on cancer-related deaths, cancer incidence, and cancer screening include vital records; cancer registries; the Behavioral Risk Factor Surveillance System (BRFSS, www.cdc.gov/brfss); state cancer registries supported by CDC's National Program of Cancer Registries (NPCR, www.cdc.gov/cancer/npcr/register.htm); cancer registries participating in NCI's Surveillance, Epidemiology, and End Results (SEER) program (www.seer.cancer.gov); and *United States Cancer Statistics: 1999 Incidence* (www.cdc.gov/cancer/npcr), a joint publication of CDC and NCI in collaboration with the North American Association of Central Cancer Registries, which contains the first set of official cancer incidence statistics from states that meet high-quality data standards, as well as statistics on more than 1 million invasive cancer cases diagnosed during 1999 in residents of 37 states, 6 metropolitan areas, and the District of Columbia—geographic areas in which approximately 78% of the U.S. population resides. Another data source is the National Breast and Cervical Cancer Early Detection Program (www.cdc.gov/cancer/nbccedp/index.htm), which maintains program records incorporating a set of standardized data elements, called minimum data elements; these records provide consistent and complete service and outcome information on women screened by the program. Cancer control programs should also

Comprehensive Cancer Control Programs in Action—Northwest Portland Area Indian Health Board: Although American Indians/Alaska Natives are generally thought to have disproportionately high cancer incidence and mortality rates, official rates tend to be underestimated because many health registries do not accurately code race. Using record linkages between the Northwest Tribal Registry and state health registries, the Northwest Tribal Registry showed that the true incidence of cancer among its tribal members was 267.5 per 100,000 population rather than 153.5 per 100,000 as previously reported. These more accurate data gave the board the factual support it needed in arguing for additional cancer control resources. (www.npaihb.org/cancer/ntccp.html)

incorporate data collection activities into their own plans.

Conducting Evaluations

Stakeholders should be involved in the entire evaluation process, including describing program processes and defining program activities and expected results. By collaborating to define specific activities and the results they should achieve, partners will have a common basis for understanding evaluation plans, activities, and results.

Evaluations should include both quantitative and qualitative measures and should address short-term, intermediate, and long-term outcomes. The planning group should build evaluation processes into the program itself rather than consider evaluation activities as separate from program activities and should identify resources necessary for evaluation early in the planning process. Some agencies have in-house evaluation staff, while others obtain help from partners or through contracts with local colleges or universities. The Community Toolbox (www.ctb.lsi.ukans.edu) is another resource that can help agencies monitor their comprehensive cancer prevention and control activities.

Comprehensive cancer control programs should monitor the cancer-related indicators defined in *Indicators for Chronic Disease Surveillance: Consensus of CSTE, ASTCDPD, and CDC,* which is available at www.cste.org. These indicators provide a common set of measures for chronic disease surveillance that program planners can use to establish priorities and implement surveillance activities consistent with those in other jurisdictions.

Contained in this consensus document are surveillance indicators specific to cancer. These indicators include the incidence and rate of death attributable to the following types of cancer: lung, colon/rectum, female breast, prostate, cervix, bladder (in situ included), melanoma, and oral cavity/pharynx, as well as overall rates for all types combined. The document also includes indicators related to screening for colorectal, cervical, and female breast cancers. These indicators closely mirror several of the *Healthy People 2010* objectives.

Comprehensive Cancer Control Programs in Action—Michigan: Comprehensive cancer control in Michigan is guided by the Michigan Cancer Consortium, an advisory body to the state health department and to all other cancer control players in the state. The consortium, which includes cancer experts and other representatives from more than 70 member organizations, provides leadership for decision-making and a forum to coordinate achievement of priority objectives in its comprehensive state plan. The representatives from these agencies are often in a position to influence cancer control policy within their own organization as well as within the consortium. (www.michigan.gov/documents/MCCIPlan_6718_7.pdf; www.michigan.gov/mdch/0,1607,7-132-2940_2955_2975-13561--,00.html#priorities)

Evaluation questions should be designed to identify those issues most pertinent to stakeholders. Care should be taken to select questions that can be readily answered with available evaluation resources. Examples of evaluation questions that can be asked at different stages in an evaluation process are shown in Table 2.

Partnerships

To create a fully comprehensive approach to cancer prevention and control, organizations must work synergistically with others involved with similar activities. Collaboration is key to a comprehensive effort.

In most of the examples presented in this section, health department staff serve as core members of comprehensive cancer control programs; however, the staffing pattern can vary, as can the "lead" responsibility for the program. Participating organizations can work semi-independently to implement plan activities as long as they keep the

Table 2. Sample Evaluation Questions for Comprehensive Cancer Control

Evaluation Level	Evaluation Questions
Process Evaluation of Program	• Is the comprehensive cancer control process working well? Are members satisfied with the process? Are planning tasks being accomplished and are planning products being produced in a timely manner?
Outcome Evaluation of Program	• Are the partnership's overarching goals and objectives being achieved? Is infrastructure for cancer control being enhanced? Is support for the initiative being mobilized? Are data and research being utilized? Are partnerships being built? Is the cancer burden being assessed? Addressed? Are the planning process and outcomes being evaluated?
Process Evaluation of Plan	• Are strategies proposed in the plan being implemented? Are knowledge gaps being addressed through surveillance and research? • Are interventions being delivered— To subpopulations with high risk and high burden? In a culturally appropriate manner? In a timely manner? In a cost effective manner? • Are implementation difficulties being successfully overcome?
Outcome Evaluation of Plan	• Are the outcomes anticipated by the partnership for each strategy being achieved? Has the baseline problem status identified by partners improved? Have intermediate measures of behavior such as cancer screening rates or rates of various risk behaviors changed? Over time, has cancer incidence, morbidity, and mortality from cancer decreased? Over time, have health disparities related to cancer among subpopulations decreased?

Source: Adapted from CDC's *Guidance for Comprehensive Cancer Control Planning.* (Avalable at www.cdc.gov/cancer/ncccp/index.htm.)

planning group (and thus other participating organizations) informed of what they are doing.

Early in the planning process, agencies should identify and solicit the help of partners able to support their efforts. Possible partners include

- Representatives of organizations likely to implement plan strategies.
- Legislators who can provide political and legislative support.
- Representatives of priority populations who can suggest health-promoting strategies and interventions appropriate for those populations.
- Representatives of organizations that may be able to fund activities or that will be doing similar activities under other sponsorship.

To reach specific priority populations, cancer control programs should also seek community partners who can help them create culturally sensitive messages and programs.

As comprehensive cancer control projects move from the planning stage to the implementation stage, what might have begun as a loose network of organizations and individuals should be forged into a fully functioning collaborative capable of significant advocacy, coordination, and action. To ensure the continued involvement of committed partners, project leaders should work to identify and recruit new partners, involve partners in decision-making processes and planning activities, and regularly assess the satisfaction and commitment of partners.

Samples of state-developed tools, including a planning meeting invitation letter and registration form, a partner interest survey and commitment form, a partner questionnaire, and a proposed process for creating a comprehensive cancer control plan can be found in *Guidance for Comprehensive Cancer Control Planning* (www.cdc.gov/cancer/ncccp/index.htm).

Comprehensive Cancer Control Programs in Action—West Virginia: As an initial step in the planning process to establish a comprehensive cancer control program in West Virginia, representatives of four founding organizations (the West Virginia Breast and Cervical Cancer Screening Program, the Office of Epidemiology and Health Promotion in the West Virginia Bureau of Public Health, The American Cancer Society's Mid-Atlantic Division, and the Mary Babb Randolph Cancer Center of West Virginia University) began efforts to promote the concept of comprehensive cancer control and to generate interest from a diverse group of potential coalition stakeholders. Now, more than 120 individuals and organizations make up the membership of Mountains of Hope, the state's comprehensive cancer control coalition. (www.cdc.gov/cancer/ncccp/contacts/wv.htm)

Comprehensive Cancer Control Programs in Action—Colorado: In June 2001, Colorado launched a public education campaign that included a special brochure, "Sun Smart Tips." The goal of this campaign was to educate visitors to Colorado's state and national parks about the need to protect themselves from the damaging rays of the sun. This campaign resulted from a unique partnership among national park officials and the state health department. Working together, Colorado's Comprehensive Cancer Prevention and Control Program, the Mesa Verde National Park, and park concessioners educated Colorado residents, as well as visitors from all over the world, about the easy steps they can take to prevent skin cancer. (www.cdphe.state.co.us/pp/ccpc/CancerPlan.pdf)

Communications

A solid health communications strategy is essential to successful interventions. For comprehensive cancer control, this strategy should entail an integrated and coordinated approach to educating the public, government leaders, health care providers, and others about cancer and its risk factors and how best to prevent, detect, and treat the disease. Health communications strategies should be coordinated as much as possible with other program initiatives such as improving health care service delivery and creating supportive public policies.

Because everyone is at risk for cancer, cancer messages are needed for all population groups. However, each message should be tailored for a specific, targeted audience (e.g., people with a certain form of cancer, members of a specific racial or ethnic group, members of professional and health organizations). Messages should be accurate, use consistent terminology, and describe what people can do to help reduce their risk for cancer, detect it in its early stages, and obtain appropriate treatment if cancer is diagnosed.

Health communications activities should be part of a larger plan to address factors affecting behavior (e.g., social norms, governmental policies). In developing their communication plan, states should

- Identify and define the health problem they want to address.
- Incorporate an evaluation component into the communications plan.
- Be culturally sensitive in developing strategies and messages, conducting research, and implementing and evaluating communications efforts.
- Ensure that the targeted audience receives a single, simple, specific, and consistent message.
- Conduct qualitative and quantitative audience research to help understand how the audience perceives concepts and to determine their willingness and ability to do what is being asked. In addition to conducting formative research and pretesting concepts and messages, health

Members of partner organizations often participate in important work groups. Following are three examples of how work groups have contributed to state cancer control efforts:

Comprehensive Cancer Control Programs in Action—Arkansas: In Arkansas, work groups were organized around the structure of the state cancer control plan. Three separate groups each developed a chapter for the plan: these chapters included an introduction on cancer in the state, a background section containing in-depth statistics, and a chapter on strategic options. Other work groups included an implementation team (which will become more active as the plan is finished), an evaluation team, and a communication team. (www.healthyarkansas.com/disease/cancerplan.pdf)

Comprehensive Cancer Control Programs in Action—Kansas: In Kansas, cancer site-specific work groups developed priorities for breast, cervical, skin, colorectal, prostate, and lung cancers. In addition, two crosscutting work groups developed priorities in the areas of cross-cultural competency and rehabilitation and pain. (www.cdc.gov/cancer/ncccp/contacts/ks.htm)

Comprehensive Cancer Control Programs in Action—Maine: Maine provided its work group members with both surveillance data and research literature to help them develop evidence-based goals, objectives, and strategies for the state's comprehensive cancer control plan. At least one member organization of the work group had to commit to a goal and its related objectives before the goal could become part of the plan. The Maine plan contains 18 goals and about 100 related objectives, each with multiple related strategies, and each with an organization accepting responsibility for its implementation. (www.cdc.gov/cancer/ncccp/contacts/me.htm)

communicators should monitor the effectiveness of the communications campaign itself.

- Examine the wide range of actual and perceived barriers to and incentives for healthy (and unhealthy) behaviors and address them. Social marketing provides a useful framework for thinking about how to make behavior change easier.
- Devise health communications messages capable of competing effectively against possibly conflicting "unhealthy" messages that people may receive from other sources, including advertisers, the music and entertainment industry, and family and friends.

National Leadership

In 2000, the National Dialogue on Cancer (www.ndoc.org) and partner organizations such as CDC (cdc.gov/nccdphp/dcpc), ACS (www.cancer.org), the Health Resources and Services Administration (www.hrsa.gov), NCI (www.nci.nih.gov), and the National Governor's Association (www.nga.org) began to accelerate the development and implementation of comprehensive cancer control plans at the state, tribal, and territory level. These plans are to be based on research data and stakeholder input and must establish clear lines of responsibility and accountability.

NCI provides cancer information through publications, reports, and its toll-free Cancer Information Service (CIS). CIS is a national resource for current, accurate cancer information for patients and their families, the general public, and health professionals. CIS is also a leader in translating cancer information into terms the public can easily understand. CIS reaches the medically underserved, including minority groups and people with limited access to health information and services, through partnerships with state and regional organizations that directly serve these audiences. For more information, call 800-422-6237 or visit the CIS Web site at http://cis.nci.nih.gov.

NCI also provides grant funds, supports training programs for health professionals, and partners with other academic and national organizations on projects related to cancer prevention and control.

The American Cancer Society is a nationwide community-based voluntary health organization dedicated to eliminating cancer as a major health problem by preventing cancer, saving lives, and diminishing suffering from cancer through research, education, advocacy, and service. It includes chartered divisions throughout the country and over 3,400 local units.

Technical Resources

Several national public health organizations offer training and technical assistance in cancer surveillance, research, and intervention. The Web sites of NCI (www.nci.nih.gov) and ACS (www.cancer.org) are particularly good sources of information and materials on various forms of cancer and related issues. Numerous cancer-related publications and materials can also be accessed at www.cdc.gov/cancer.

References

1. American Cancer Society. *Cancer Facts and Figures, 2003*. Atlanta: American Cancer Society, 2003.
2. Brownson RC, Reif JS, Alavanja MCR, Bal DG. Cancer. In: Brownson RC, Remington P, Davis JR, editors. *Chronic Disease Epidemiology and Control.* Washington, D.C.: American Public Health Association, 1998:335-73.
3. Edwards BK, Howe HL, Ries LAG, Thun MJ, Rosenberg HM, Yancik R, et al. Annual report to the nation on the status of cancer, 1973-1999, featuring implications of age and aging on U.S. cancer burden. *Cancer* 2002;94(10): 2767-92.
4. Brown ML, Lipscomb JL, Snyder C. The burden of illness of cancer: Economic cost and quality of life. *Annu Rev Public Health* 2001;22:91-113.

5. Bowes A, Gingras TS, Kaplowitt BA, Perkins A, editors. *Unbearable Uncertainty.* Northampton, MA: Pioneer Valley Breast Cancer Network, 2000.
6. Department of Health and Human Services. *Healthy People 2010. 2nd ed*. 2 vols. Washington, D.C.: U.S. Government Printing Office, 2000.
7. National Cancer Institute, National Institutes of Health. *Cancer Progress Report 2001.* Washington, D.C.: Department of Health and Human Services, 2001.
8. Doll R, Peto R. *The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today.* New York: Oxford University Press, 1981.
9. National Cancer Institute. NCI Workshop on Cancer Pain. September 14-15, 1990, Bethesda, MD. As quoted in Department of Health and Human Services. *Management of Cancer Pain: Clinical Practice Guideline.* Rockville, MD: Public Health Service, Agency for Health Care Policy and Research, 1994.
10. Centers for Disease Control and Prevention. Framework for program evaluation in public health. *MMWR Recomm Rep 1999*;48:(RR-11):1–40.
11. U.S. Cancer Statistics Working Group. *United States Cancer Statistics: 1999 Incidence.* Atlanta: Department of Health and Human Services, 2002.

Achieving a Heart-Healthy and Stroke-Free Nation

Table of Contents

3

Achieving a Heart-Healthy and Stroke-Free Nation

The Burden of Heart Disease and Stroke in the United States

Magnitude

Heart disease and stroke are the principal components of cardiovascular disease (CVD), the leading cause of death and disability among adults in the United States.[1] As the burden of heart disease and stroke continues to grow, CVD is projected to be the number one cause of death worldwide by the year 2020. In 1999, the overall worldwide death rate for CVD was 354.1 per 100,000 people: 303.2 per 100,000 women and 418.2 per 100,000 men.[2] In the United States, CVD affects 61.8 million Americans and claims nearly 1 million lives annually. More than one in five people has some form of CVD,[1] which affects people of all racial/ethnic groups and ages. Although CVD death rates decreased in the 1980s and 1990s, the actual numbers of CVD-related deaths increased because of increases in the number of older Americans. In addition, the rate of decline in deaths from heart disease and stroke has slowed significantly in recent years. Meanwhile, hospitalizations for heart failure have increased steadily since 1975.[3, 4]

In the United States, 1.1 million heart attacks occur each year, and coronary heart disease causes more than 515,000 deaths, or about one death every minute. Almost half (250,000) of those who die of coronary heart disease do not live to reach the hospital. Of those who have a heart attack, 25% of men and 38% of women will die within a year despite medical and surgical interventions. Those who survive longer are at high risk for a recurrent heart attack and death and may have significant discomfort and disability. Almost 150,000 of those who die of CVD each year are younger than age 65, and sudden or unexpected cardiac deaths among young adults have increased in recent years.[1] Heart failure is diagnosed for the first time in approximately 550,000 Americans each year, and more than 51,000 deaths annually are due to this condition.

In addition, the 700,000 strokes that occur each year cause more than 167,000 deaths, or approximately 1 death every 3 minutes. Among survivors, 15%–30% are permanently disabled.[1]

These CVD events and conditions are manifestations of atherosclerosis, a disease process that often begins in childhood and adolescence. The major risk factors for atherosclerosis and its complications are high total cholesterol and high blood pressure. Diabetes also increases a person's risk for CVD. These risks arise from dietary imbalance (such as excessive intake of animal fats and calories), physical inactivity, and use of tobacco products. These underlying behavioral risks and their health consequences are rooted in social and environmental conditions that foster unhealthy lifestyle choices. Therefore, population-based approaches addressing policy and environmental change must be a major focus of a successful national public health approach.

Disparities

In 2000, CVD was the leading cause of death among both women and men in the United States. CVD causes more deaths among women than among men, in part because of the greater number of older women in the population. African Americans are at substantially higher risk for death from CVD than are whites. This difference is attributable in part to a greater risk for strokes and a higher prevalence of high blood pressure among African Americans. For every

100,000 people, the rate of death from CVD was 509.6 for African American men, 397.6 for white men, 397.1 for African American women, and 285.8 for white women. The rate of death due to high blood pressure per 100,000 people was 46.3 for African American men, 13.2 for white men, 40.8 for African American women, and 13.1 for white women.[1]

Data indicate substantial disparities in risk factors for CVD among racial and ethnic groups in the United States (Table 1).[1] Risk behaviors and risk factors such as obesity and diabetes are more prevalent among African Americans and Mexican Americans than among non-Hispanic whites. For example, physical inactivity is higher among Mexican American women (57%) and non-Hispanic African American women (57%) than among non-Hispanic white women (39%). These disparities undoubtedly contribute to the substantially greater burden of CVD among these two population groups.

Costs

The estimated cost of CVD to the nation is expected to exceed $351 billion in 2003.[1] The direct costs for health care are projected to be $209.3 billion, while lost productivity accounts for an additional $142.5 billion. One-quarter of the lost productivity amount is due to disability that results in unemployment, and three-quarters is due to premature death (death before age 65).

These sobering figures can only be expected to increase unless effective programs and policies are implemented nationwide to reduce the burden of CVD. Future cost increases will be created in part by the aging of the population and by the growth of ethnic minority populations at high risk for CVD.[3] Advances in medical technology also can be expected to increase the cost of services for each CVD event. In addition to these financial costs, CVD creates social costs to families and communities that cannot be calculated.

If all major forms of CVD were eliminated, life expectancy would be extended by almost 7 years.[1] In addition, Americans' quality of life would be greatly improved, and health care costs and dependency would be substantially reduced.

Healthy People 2010: Heart Disease and Stroke

National health goals and objectives for the current decade are published in *Healthy People 2010* and include those for heart disease and stroke in Chapter 12.[5] The Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) are co-leads for goals for heart disease and stroke. The universal goals of *Healthy People 2010* are to improve the quality and increase the duration of people's lives and to eliminate disparities. The one goal specific to preventing heart disease and stroke has three components:

- Prevention, detection, and treatment of risk factors.
- Early identification and treatment of heart attacks and strokes.
- Prevention of recurrent cardiovascular events.

Focus area 12 of *Healthy People 2010* has 16 objectives that address heart disease, congestive heart failure, stroke, high blood pressure, and high total blood cholesterol levels. Fortunately, because most cardiovascular disease is preventable, much can be done to lessen the burden of heart disease and stroke and meet *Healthy People 2010* objectives.

Other objectives relevant to heart disease and stroke can be found in *Healthy People 2010* focus areas addressing chronic kidney disease, tobacco use, access to quality health services, nutrition and overweight, physical activity and fitness, and public health infrastructure. This broad spectrum of goals and objectives represents a wide range of opportunities for prevention programs.

Public Health Opportunities

Health Promotion and Primary and Secondary Prevention

Preventive strategies, the traditional focus of public health programs, should include overall *health promotion* as well as *primary* and *secondary prevention.*

Table 1. Prevalence of Risk Factors for CVD in the United States, by Race/Ethnicity and Sex, American Heart Association, 2003

Risk Factors and Conditions	Race/Ethnicity and Sex					
	Non-Hispanic Whites		African Americans		Mexican Americans	
	Males	Females	Males	Females	Males	Females
High blood pressure[a]	25.2	20.5	36.7	36.6	24.2	22.4
High LDL-cholesterol[b]	49.6	43.7	46.3	41.6	43.6	41.6
Smoking[c]	25.8	21.6	26.1	20.8	24.1	12.3
Physical Inactivity[d]	32.5	36.2	44.1	55.2	48.9	57.4
Obesity[e]	27.3	30.1	28.1	49.7	28.9	39.7
Diabetes[f]	5.4	4.7	7.6	9.5	8.1	11.4

[a] Systolic blood pressure ≥140 mm Hg, diastolic blood pressure ≥90 mm Hg, or on anti-hypertensive medication: age adjusted for people aged 20 and older.
[b] LDL-cholesterol ≥130 mg/dL: age adjusted for people aged 20 and older.
[c] Among people aged 18 years and older.
[d] No leisure time activity among people aged 18 years and older.
[e] Body mass index ≥30 kg/m^2 among people aged 20 and older.
[f] Physician-diagnosed diabetes: age adjusted for people aged 20 and older.
Source: *Heart and Stroke Statistics—2003 Update*.[1]

Health promotion targets the general population. This strategy enables people to gain control over the behaviors and conditions that affect their health status. Educational campaigns to increase public awareness of the signs and symptoms of heart attack and stroke, policy changes to ensure universal 9-1-1 coverage, and policy and environmental changes that support heart-healthy behaviors in the general population are examples of health promotion strategies.

Primary prevention targets people who are at increased risk for a first CVD event because they have one or more CVD risk factors. Guidelines from the American Heart Association (AHA) and other national organizations advocate for primary prevention of CVD by addressing the risk factors of high blood pressure, high cholesterol, tobacco use, poor nutrition, physical inactivity, overweight and obesity, and diabetes.

Secondary prevention targets populations with established CVD to prevent recurrent events. These strategies include ensuring compliance with guidelines on the use of aspirin, beta-blockers, ACE inhibitors, anticoagulants, and other antiplatelet agents. In addition, reducing risk factors through lifestyle changes such as losing weight and quitting smoking is an important strategy for secondary as well as primary prevention.

Although other classification systems may include tertiary prevention, our program groups this prevention level with secondary prevention.

Essential Strategies: The Socioecological Approach

Because of the complexity of the CVD burden, comprehensive programs are needed to reduce CVD rates, eliminate disparities, and achieve the long-term goals of *Healthy People 2010*. Key components of a state heart disease and stroke prevention program include the following:

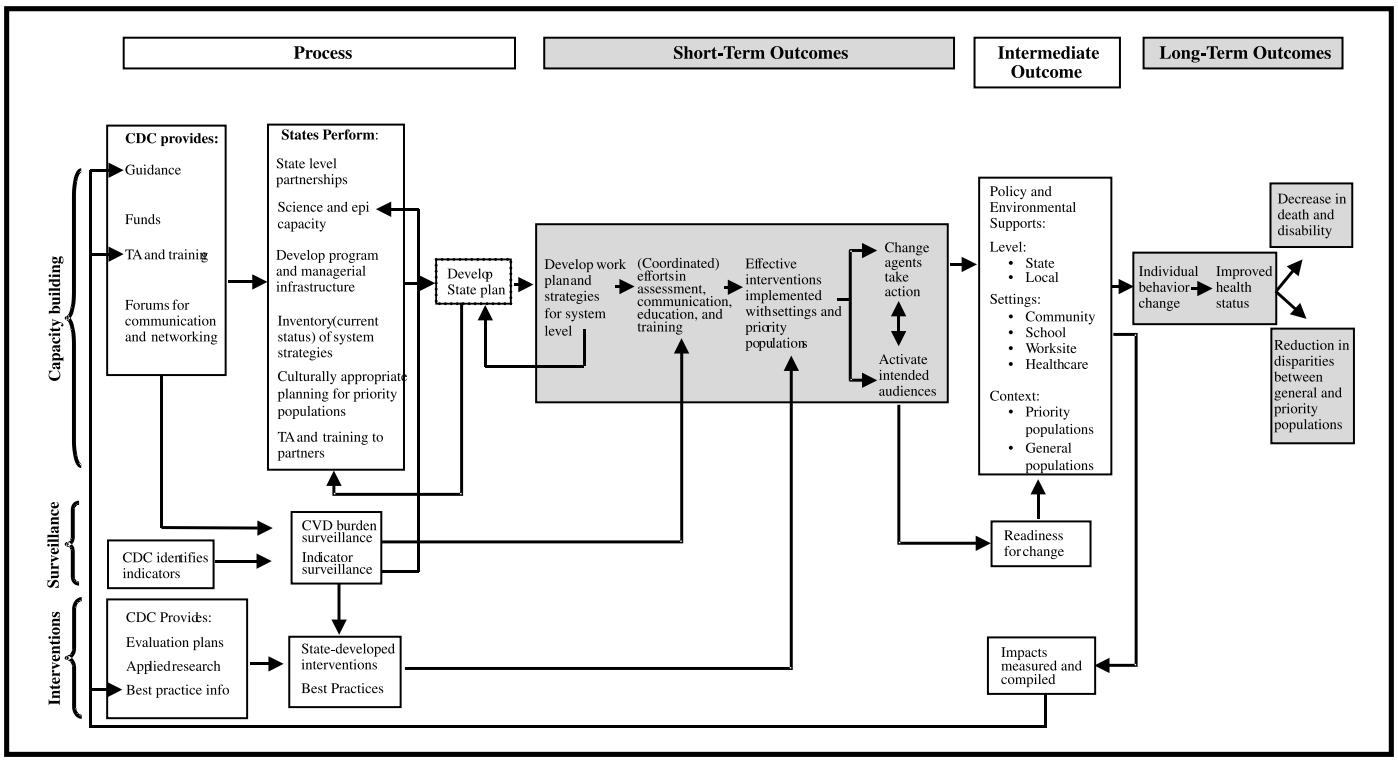
- Promotion of cardiovascular health (CVH) to prevent the development of risk factors (e.g., high blood pressure, high cholesterol, tobacco use, physical inactivity, and poor nutrition) and conditions (e.g., diabetes and obesity).
- Primary prevention of heart disease and stroke.
- Secondary prevention of heart disease and stroke.
- Elimination of health disparities for heart disease and stroke.
- Heart-healthy policies and supportive environmental changes.
- Programs in multiple settings: health care sites, work sites, schools, and communities.

Research and experience indicate that health is connected to both the physical and social environment. Individual behaviors are supported and reinforced in numerous ways by legislation, regulations, organizational policies, social norms, and environments. For this reason, a comprehensive and integrated approach to promoting CVH and addressing CVD requires not only education and increased awareness, but also a major emphasis on environmental and policy change at multiple levels of society. Changes in policy and the social and physical environment are necessary to foster and maintain individual-level behavior change; for example, restricting young people's access to tobacco products will reduce the likelihood that they will use tobacco.[6] Approaches should address policy and environmental change in multiple settings (e.g., health care sites, work sites, schools, communities) to reach people throughout their lives with a variety of messages and interventions. The primary roles of state heart disease and stroke prevention programs are to provide public and professional education and training and to facilitate policy and environmental changes. In addition,
state heart disease and stroke prevention programs should work with partners to ensure that they provide appropriate interventions for behavior change among individuals.

Policy and environmental approaches are part of three core functions of public health: assessment, policy development, and assurance. According to a 2001 Institute of Medicine report, "An understanding of the social factors influencing behavior is growing and should be considered in programs and policies for public health. Many social, economic, political, and cultural factors are associated with health and disease for which changes in individual health behaviors alone are not likely to result in improved health and quality of life...The law can change the informational, physical, social, or economic environment to facilitate healthier behavior."[7] The report states that "program planners and policy makers need to consider modifying social and societal conditions to enable healthy behavior. Use of population-based policy and environmental strategies shifts public health from a direct service role to one that focuses on guidance, agenda setting, and coordination of CVH improvement efforts."[7]

The socioecological approach is the basis for the logic model for heart disease and stroke prevention programs shown in Figure 1. The model depicts relationships between actions (e.g., links between environmental and policy changes and individual-level behavior change) that are necessary to reduce rates of CVD. Because logic models are often cyclical, an outcome from one activity can provide information that then feeds back into a previous activity. Activities involve building capacity, conducting surveillance, and developing/establishing interventions. These activities influence changes that lead to short-term outcomes such as the

Figure 1. Logic Model for Heart Disease and Stroke Prevention Programs



development of a CVH plan, new strategies for system-level changes, and more effective implementation of interventions. These activities and outcomes result in changes in policy and environmental supports, changes in people's behavior, and eventually improvements in their health.

The program logic model describes the program and is a tool to guide program evaluation. By identifying the steps necessary to reach intended outcomes, the logic model indicates where emphasis should be placed in evaluating the process and outcomes of the program.

Interventions

Heart disease and stroke prevention program interventions should address the population as a whole while giving special attention to priority populations (e.g., populations that the state determines to be priority for CVH interventions on the basis of such factors as rates of cardiovascular disease and related risk factors, lack of access to services, and socioeconomic levels). Interventions should

- Be culturally appropriate.
- Use population-based strategies such as environmental and policy changes.
- Increase education on and awareness of heart disease and stroke issues among the public, decision makers, and health care professionals.
- Monitor primary and secondary prevention services to ensure the provision of quality care.

Programs should emphasize interventions and in various settings (e.g., health care sites, work sites, schools, community) in which policy or environmental changes can produce substantial health benefits. However, they should focus their efforts at the highest level possible; for example, activities should focus on business coalitions and unions rather than individual work sites and on managed care organizations and state medical

associations rather than on individual health care settings or physicians.

Population-based approaches can be disseminated through various settings and groups. Policy and environmental changes and education should be used to make each setting more supportive of heart-healthy choices and ensure that it provides appropriate CVH promotion and CVD prevention and control services. Settings in which policy and environmental changes might be instituted include the following:

- State-level and government settings (e.g., creating smoke-free environments in state buildings, requiring health care coverage that reimburses for primary and secondary prevention services related to CVD, providing high blood pressure medication to people on limited incomes, establishing statewide 9-1-1 coverage, requiring training [e.g., protocols for working with stroke patients for emergency medical staff], and accrediting food services).
- Health care settings (e.g., implementing primary and secondary prevention guidelines for heart disease and stroke to ensure quality of care).
- Work sites (e.g., providing blood pressure screening and monitoring, having staff trained on use of CPR and AEDs, providing time for and access to physical activities, establishing clean indoor air policies, and offering heart-healthy food options in cafeterias and vending machines).
- Schools (e.g., educating students about healthy lifestyle choices, heart disease and stroke, and CPR; providing heart-healthy school food choices; and requiring schools to be tobacco-free).
- Communities (e.g., providing blood pressure screening at all fire stations, ensuring 9-1-1 coverage, building parks).

In addition, the media can be used to increase public awareness of the importance of CVH, the risk factors for CVD, and the need for policy and environmental changes. The media can also be instrumental in educating the public about the signs and symptoms of heart attack and stroke and when to call 9-1-1.

Key partners for implementing these activities should include the American Heart Association (AHA), state quality improvement organizations (QIOs), and private health care providers and hospitals. The state heart disease and stroke prevention program should partner with its QIO to monitor secondary prevention practices (e.g., aspirin and drug therapy, physical activity regimens, and hypertension and lipid management) and to help improve compliance with secondary prevention guidelines. In collaboration with partners, it should also promote professional education and policy changes that support efforts to implement the guidelines on primary and secondary prevention. Providing blood pressure and cholesterol screenings is not appropriate for the state heart disease and stroke prevention program itself. However, the state program should encourage partners to provide these services and ensure that health care staff are trained in accurately measuring blood pressure and in applying quality assurance standards.

Interventions should be coordinated with internal and external partners to ensure that health messages, policies, and environmental measures are consistent, effective, synergistic, and not redundant. Further research is needed on how to best implement intervention strategies in different settings and with different populations.

For further discussion of effective interventions to address heart disease and stroke, please refer to related chapters in this document, including those on tobacco, school health, nutrition, physical activity, and diabetes.

State Examples:

- The *Tri-State Stroke Network,* which includes representatives of the Georgia, South Carolina, and North Carolina CVH programs, works to increase public awareness of stroke symptoms and the need to treat stroke as a medical emergency. One of the main objectives of the network is to promote the development and implementation of stroke prevention and control programs in the Tri-State area.

Program contact: Tynetta Brown, Cardiovascular Health Program, North Carolina Division of Public Health/DHHS.

- The *Missouri CVH Program* has partnered with the state Diabetes Prevention and Control Program (DPCP) to establish a diabetes/CVD collaborative to improve the care that federally qualified health centers provide to people with these conditions. The collaborative focuses on system changes (e.g., in delivery system design, decision support, clinical information systems, and self-management support) in these health centers. In addition, the CVH Program and the DPCP have supported the statewide establishment of the American Diabetes Association's "ABC Campaign," which focuses on managing clinical factors related to diabetes and CVD, including blood pressure and cholesterol levels.
  Program contact: Diana Hawkins, Cardiovascular Health Program, Missouri Department of Health.
- The *New York Healthy Heart Program* assesses supports for CVH in work sites with a high need and high readiness for change and with a preponderance of low-income employees. Heart-healthy policies and environments are assessed using a tool (Heart Check) developed by the program. Following an initial 3-year intervention, a reassessment with Heart Check indicated that participating work sites had increased policy and environmental supports for heart health by 65%. Many of these work sites now are making blood pressure screening available, offering low-fat food choices in vending machines, instituting smoke-free policies, and providing physical activity breaks during the workday.[8]
  Program contact: Margaret Casey, Healthy Heart Program, New York Department of Health.
- The *North Carolina CVH Program* collaborates on the BASIC Preventive Benefits Initiative with North Carolina Prevention Partners, which includes a variety of health plans and employers, the state QIO, and various HHS programs. The initiative is working to ensure that benefits to prevent CVD are voluntarily purchased by employers, voluntarily covered by insurers, and offered by providers and health systems. The initiative aims to increase the quality of care received by consumers and to improve the health status of individuals and populations. From 1998 through 2002, the initiative has led to a 75% increase in the number of health plans offering tobacco, nutrition, and physical activity insurance products to employer groups.
  Program contact: Libby Puckett, Cardiovascular Health Program, North Carolina Division of Public Health/DHHS.
- The *Wisconsin CVH Program* is collaborating with its state QIO and DPCP to collect Health Plan Employer Data and Information Set (HEDIS) indicators for diabetes, cholesterol, and high blood pressure. These indicators will enable the program to work with participating health care providers to implement system enhancements to improve these CVD-related measures.
  Program contact: Mary Jo Brink, Cardiovascular Health Program, Wisconsin Division of Public Health.

Infrastructure To Support Heart Disease and Stroke Prevention Programs

Program Management and Administration

A strong system of management, staff, and support are necessary to effectively address CVH. A heart disease and stroke prevention program in a health department should have staff who are able to

- Provide leadership for overall program development, program coordination, and implementation.
- Use a variety of data to assess the burden of CVD, CVD-related disability, and risk factors, and interpret data for program planning.
- Frame public health issues for policy makers and apply policy and environmental strategies to improve CVH.
- Develop and maintain partnerships.
- Carry out health communications, health education, training, advocacy, and media activities.
- Provide appropriate support to community-based intervention programs in a variety of settings and work with diverse populations.

- Develop and analyze health policy.
- Provide policy and administrative support for CVH program activities.
- Ensure that programs are implemented with integrity and evaluated for effectiveness.

Qualified personnel at the state, regional, and local levels are critical to implementing and managing a comprehensive heart disease and stroke prevention program.

State agency management should encourage collaboration between the state heart disease and stroke prevention program and related programs such as coordinated school health, diabetes, tobacco control, physical activity, and nutrition.

Surveillance and Evaluation

The burden of CVD should be well defined. To assess that burden, the health department needs capacity in the areas of chronic disease epidemiology, statistics, surveillance, data analysis, and the application of data in program planning and priority setting. Staff should be able to use data to support allocating resources to CVH prevention.

Staff should have access to data systems such as vital statistics, the Behavioral Risk Factor Surveillance System (BRFSS), the Youth Risk Behavior Survey, hospital discharge data, HEDIS, Medicaid and Medicare data, and other data sources that are useful for defining the burden of CVD in the state. In addition, heart disease and stroke prevention program staff should be able to use data from geographic information systems to document the distribution of CVD, delineate disparities, and specify the needs of priority populations. (Geographical data by state and county are available on CDC's Heart Disease and Stroke Prevention Program Web site: www.cdc.gov/cvh.)

The BRFSS modules on hypertension awareness, cholesterol awareness, cardiovascular disease, and heart attack and stroke signs and symptoms should be part of the state BRFSS survey; optional modules and state-added questions should be used to help the state program track trends in CVD and related risk factors. The state BRFSS sample size should be large enough to gather statistically adequate responses for priority populations, including racial and ethnic groups. States should consider surveillance questions as a means for gathering community- and regional-level data for targeted interventions.

Communication strategies should be based on state and local data so that partners and the public understand CVD's relevance to, and impact on, both their personal health and the health of the people in their communities. A published document defining the burden of CVD in the state should communicate data in ways that are appropriate for different audiences, including community groups, state leaders, and decision makers. It should describe the burden of CVD (primarily heart disease and stroke) and related risk factors and conditions (e.g., high blood pressure, high cholesterol, tobacco use, physical inactivity, poor nutrition, diabetes). The document should describe the geographic and demographic distribution of CVD, highlighting disparities in CVD burden based on geography, sex, socioeconomic status, and race and ethnicity. It should also identify trends in CVD, including changes in numbers of deaths, average age at onset of disease, and average age at death.

This burden document should be used as a tool to increase public awareness of CVD as a public health priority, to mobilize partners to address CVD in a comprehensive manner, and to support the commitment of resources to promoting CVH. Data can be presented to staff, partners, community groups, policy makers, and decision makers to enhance their understanding of how to use data for program planning. The data should provide a basis for developing the CVH state plan and for identifying priority populations and strategies.

Program evaluation is essential for planning programs and building the scientific capacity of state health departments. Heart disease and stroke prevention program staff should have a good understanding of methodologies to evaluate process

and outcome and should develop and implement an evaluation plan. Heart disease and stroke prevention programs should be able to validate and demonstrate the existence of "core capacities," which include committed partnerships; surveillance, assessment, and evaluation functions; the ability to document the burden of CVD; the ability to develop a comprehensive CVH state plan; training and technical assistance capabilities; and the ability to identify or devise population-based intervention strategies that are culturally competent and address priority populations. Without this basic infrastructure in place, CVH activities may be scattered and lack focus and thus have a limited impact on the cardiovascular health of state residents.

State Examples:

- The *Mississippi CVH Program* collaborated with its AHA state affiliate to produce the *2000 Mississippi State of the Heart Report* and the *2000 Mississippi Stroke Report*. These documents contain data on CVD-related illness, death, and risk factors. Data include county-specific mortality rates depicted in county maps, which have a visual impact for local legislators. Strategies to reduce risk behaviors also are listed in the reports. The reports have been shared with members of the Mississippi Chronic Illness Coalition to increase their awareness of the burden of these diseases, provided to legislative study committees to enhance their understanding of the need for policy and environmental supports to reduce CVD, and used by public health staff to guide program planning.
  Program contact: Wanda Magers, Cardiovascular Health Program, Mississippi State Department of Health.
- The *West Virginia CVH Program* produced a burden report in 2001 that includes data on mortality rates, behavioral risk factors, cost, and access to medical care. The report also describes CVH program goals and activities to eliminate health disparities. In March 2002, this report was placed on the West Virginia Department of Health and Human Resources, Bureau of Public Health Web site, where West Virginia risk factor data could be compared with national risk factor data. The report was used to establish the CVH Program's priorities, track changes in data trends, and help the state coalitions implement strategies to achieve CVH goals.
  Program contact: Amy Carte, Cardiovascular Health Program, West Virginia Bureau for Public Health.
- The *Oregon CVH Program* compared the prevalence of major CVD risk factors, including hypertension and high cholesterol levels, among Medicaid-eligible residents with their prevalence among the general population and evaluated associations between these risk factors and Medicaid claims for CVD hospitalization. It found that CVD risk factors are more common among Oregon's Medicaid populations than among the general population and are associated with CVD hospitalizations among the former group. The CVH Program is using this information to identify priority populations and to help set program priorities.
  Program contact: Laura Chenet Leonard, Cardiovascular Health Program, Oregon Department of Human Services.
- The *New York Healthy Heart Program* has developed a reporting system to monitor policy and environmental changes occurring in work sites so that it can evaluate the outcomes of its work site interventions. It is evaluating the Heart Check tool to determine whether the number of questions for the work site assessment can be reduced, thereby increasing ease of use. Pre- and post-Heart Check scores have increased an average of 75%, with improvements in nutrition, physical activity, and administrative support.
  Program contact: Margaret O. Casey, Healthy Heart Program, New York State Department of Health.

Partnerships

The multifaceted nature of opportunities for promoting CVH and preventing CVD requires the cooperation and collaboration of many partners in public and private sectors. A key task for partners is to develop a comprehensive CVH state plan and

ensure that it is implemented. The involvement of partners should promote the coordination of activities to avoid duplication of effort and to share responsibility for improving CVH. The state heart disease and stroke prevention program should secure the involvement of diverse partners and provide leadership.

The heart disease and stroke prevention program should partner internally with health department programs that address the following:

- CVD-related risk factors, such as high blood pressure, high cholesterol, tobacco use, physical inactivity, and poor nutrition.
- Related areas, such as diabetes and school health.
- Priority populations.
- Data (e.g., vital statistics, the state's BRFSS).

The heart disease and stroke prevention program should also form external partnerships with the following types of organizations:

- State agencies that address CVD risk factors, such as the departments of education, public safety, and emergency medical services.
- Organizations whose missions are associated with promoting heart health and reducing heart disease and stroke, such as the AHA.
- Other professional and voluntary organizations interested in improving health and quality of life and eliminating disparities in CVD burden, such as quality improvement organizations, minority health organizations, health care organizations, media, community-based organizations, academic institutions, and businesses.

In addition, the health department should collaborate with academic institutions and Prevention Research Centers (see www.cdc.gov/prc) to conduct research to improve programs and policies for CVH promotion and CVD prevention; to translate knowledge from social, behavioral, and medical sciences into sound public health practice; and to ensure that program interventions and evaluations are well grounded in science.

State Examples:

- The *Virginia CVH Program* coordinates strategic partnerships through the Healthy Pathways Coalition. The coalition is charged with comprehensively addressing primary and secondary prevention of CVD and promoting CVH. Partners represent private and governmental state-level organizations, including those representing priority populations. The CVH Program has developed a logic model that clarifies relationships among partners, sectors, and program activities. The logic model is being used to guide the coalition's strategic planning and will be in the resulting Call to Action document.
  Program contact: Jody Stones, Cardiovascular Health Program, Virginia Department of Health.
- The *Utah CVH Program's* key state partners form the Alliance for Cardiovascular Health in Utah. The alliance comprises more than 140 organizations representing government, private businesses, health care organizations, and nonprofit agencies. The alliance has developed a 3-year CVH plan (Uniting Partners for a Legacy of Health), which is designed to coordinate efforts among organizations and identify key strategies, with an emphasis on policy and environmental supports.
  Program contact: Joan Ware, Cardiovascular Health Program, Utah Department of Health.

Strategic Plans

Heart disease and stroke prevention programs need a comprehensive plan that identifies their priorities and focuses the efforts of their many partners. The heart disease and stroke prevention program and its diverse partners should develop and regularly update this plan, which should present strategic objectives that require leadership, ownership, coordination, and commitment of resources by both public- and private-sector partners. It should be a heart disease and stroke prevention program plan and not a health department plan. The strategic objectives should include population-specific strategies that address the needs of priority populations and should emphasize policy and environmental approaches, systems changes, and educational interventions that increase

support for heart-healthy choices and provide a context for more effective CVD prevention.

The CVH plan should be based on data, including the burden of CVD in the state and the results of an assessment of policies and legislation that influence heart health. It should also be based on an assessment of regulations, policies, and environmental barriers in work sites, health care settings, schools, and communities. The results of such an assessment will help program planners identify systems change interventions that may be needed to achieve the objectives of the CVH plan.

The CVH plan may be a stand-alone plan or an identifiable section within another state plan, such as a larger chronic disease plan. In either case, it should provide guidance for a comprehensive state heart disease and stroke program. The CVH plan may be packaged in a variety of formats (e.g., executive summary, monograph, visual presentation) for different audiences (e.g., decision makers, public health planners, the health care community, minority health organizations, the general public).

Although developing and updating a comprehensive CVH plan requires a major commitment of time and staff, such a plan can play a critical role in attaining the heart disease and stroke objectives.

State Examples:

- The *North Carolina Plan to Prevent Heart Disease and Stroke 1999–2003* provides a comprehensive vision that builds upon existing services and promotes new strategies for preventing CVD. The plan is based on the socioecological prevention model, which has been proven effective for creating environmental and policy change in multiple levels of society. The plan guides state and local interventions by providing strategies for preventing CVD risk factors, managing CVD, raising public awareness, and developing supportive policies. The plan's strategies are designed to be implemented in collaboration with partners from private and governmental sectors. It will be updated in 2003.
  Program contact: Libby Puckett, Cardiovascular Health Program, North Carolina Division of Public Health/DHHS.
- The *Alabama Cardiovascular State Health Plan* contains recommendations for changing policies, health systems, community settings, and environmental factors that influence CVH. The plan is designed to help policy makers, public health personnel, health care providers, schools, communities, and voluntary organizations develop coordinated approaches to CVD prevention. The plan is organized around three major goals: increasing awareness of CVD and how various sectors (e.g., health care providers and payers, schools, communities) can promote CVH; minimizing CVD risk factors through supportive environments; and promoting the use of recommended treatment guidelines by health care providers and facilitating state residents' access to and use of early detection and treatment options for CVD.
  Program contact: Janice Cook, Cardiovascular Health Program, Alabama Department of Public Health.

Policies

To identify priority policy areas for intervention, the state heart disease and stroke prevention program should assess existing policy and environmental supports. The assessment should also identify elements of the physical and social environments that can be modified to improve CVH-related behaviors.

The assessment should address the needs of priority populations and should focus on health promotion and primary and secondary prevention of CVD and related risk factors, including high cholesterol, high blood pressure, tobacco use, physical inactivity, and poor nutrition. The assessment should identify policies at the state level that could affect communities, such as state legislation that may affect CVH-related policies in schools or agency policies that may affect the implementation of nationally accredited guidelines for primary and secondary prevention of CVD in health care settings.

Although the assessment should initially identify state-level policies and environmental supports, additional assessments should eventually be conducted to identify policies in health care sites, work sites, schools, and communities. As a planning tool, the assessment does not need to be performed statewide for each setting, but the geographical area selected should be justified and should help the state meet the objectives of its CVH plan.

State Examples:

- The *Oklahoma Cardiovascular Health Program* assessed policies guiding stroke response and care and is working with local heath departments and hospitals to develop stroke protocols. The protocols will guide emergency medical personnel and other hospital personnel in providing comprehensive, appropriate care for stroke patients from the initial call for emergency services through rehabilitation. The CVH Program is collaborating with the AHA Oklahoma affiliate; Oklahoma Foundation for Medical Quality; Oklahoma Hospital Association; and local hospital physicians, stroke coordinators, and emergency medical service units. Although modified to meet Oklahoma's needs, the protocols are based on those developed by the AHA and the National Stroke Association.
  Program contact: Adeline Yerkes, Chief, Chronic Disease Service, Oklahoma State Department of Health.
- *The Healthy Maine Partnership* is a collaborative effort of the Maine Cardiovascular Health Program, the Community Health Program, Partnership for a Tobacco-Free Maine, and the Coordinated School Health Program. The Healthy Maine Partnership is working with 31 local communities and 54 school administrative units to assess local and school policies supporting cardiovascular health, such as tobacco-use policies in public places and nutrition guidelines in schools. The Maine Cardiovascular Health Program will use the assessment results to identify supportive policies and key partners for future policy development.
  Program contact: Debra Wigand, Maine Cardiovascular Health Program, Department of Human Services.

Health Communications

Heart disease and stroke prevention programs and their partners should have the capacity to effectively plan, implement, and evaluate communications and education strategies that support policy and environmental changes for CVH. Recognizing the need for a tool that incorporates the most effective communication models and strategies for change, CDC has developed a tailored edition of CDCynergy for CVH. The CVH edition has the same features and format as CDCynergy 2001 Basic but includes CVH case examples and resources. In addition to providing training on specific communications topics such as media and policy advocacy and product development, the tool will help users strategically convey information in ways that advance the overall program goal of making states heart healthy and stroke free.

Communications plans created by heart disease and stroke prevention programs using CDCynergy 2001 should be based on data from state surveys and burden documents, CVH state plans, and policy inventories. The communications plan should involve partners and their communications resources and should consider multiple and innovative channels to convey key messages, including conferences, work-shops, and seminars for select audiences; media outreach; and personal contact with policy and decision makers in health care, workplace, school, and community settings.

State Examples:

- The *West Virginia CVH Program's* partnership with St Mary's Hospital, Genesis Hospital System, led to the development of a social marketing campaign to educate residents of Lincoln County about the symptoms of heart attacks. CDCynergy was used to plan the campaign, and data from BRFSS, household surveys, Prizm national consumer surveys, and hospitals were used to

select the target county and develop media messages. Four radio spots and print ads were developed, and a pretest telephone survey was conducted in February 2001. The media campaign was launched in May 2001. It promoted awareness of the symptoms of a heart attack, the importance of immediate medical care, and healthy choices for daily living. The posttest telephone survey was conducted in December 2001 and showed an increased public interest (from 68% in the pretest to 84% in the posttest) in learning more about heart attack and stroke symptoms. Approximately 40% of those surveyed noticed the public service announcements (PSAs) regarding heart attack and stroke. Perceptions regarding stroke and heart attack symptoms closely mirror the results of the pretest survey. Further review of the evaluation results is planned. **Program contact:** Amy Carte, Cardiovascular Health Program, West Virginia Bureau for Public Health.

- The *Georgia CVH Program* has four main components in its communications plan: media advocacy, public relations, advertising, and social marketing. Its major social marketing campaign, "Take Charge of Your Health," is coordinated through the Georgia Coalition for Physical Activity and Nutrition (GPAN). The campaign goal is to communicate three simple messages: Take Action (walk, dance, play), Take 5-A-Day (fruits and vegetables), and Take Down Fat (choices, portions, and preparation). Media for conveying these three messages statewide include billboards, radio PSAs, and educational programs in schools for youth and in community settings for all age groups. Campaign evaluation and communications training for GPAN members and district chronic disease coordinators are under way. **Program contact:** Pamela Wilson, Cardiovascular Health Program, Division of Public Health, Georgia Department of Human Resources.

Professional Development, Training, and Technical Assistance

Heart disease and stroke prevention programs should identify ways to meet the training needs of their staff, partners, and others. Training and technical assistance should be provided to help state and local health department staff and partners acquire the skills needed to support the development and implementation of the CVH plan. This training may include areas such as population-based interventions, policy and environmental strategies, cardiovascular diseases and related risk factors, primary and secondary prevention strategies, health communications, cultural competency, epidemiology and use of data in program planning, media relations, strategic planning, program management, and evaluation. The program might also provide technical assistance on implementing programs in health care sites, work sites, schools, and communities.

CVH-related training needs should be assessed to ensure that ongoing training and skill building are available for health department staff, their CVH partners, health care and human service providers, and priority populations. States also might assist or collaborate with partners (e.g., AHA, managed care organizations, academic institutions) to provide professional and public education. Programs need to look for imaginative ways to provide training and skill building, including the use of technology and Web-casting. Programs should encourage staff to participate in national and regional training programs and conferences and then disseminate what they learn statewide.

Supporting Evidence and Consensus Documents

In the 1980s, large community demonstration projects that tested multiple intervention approaches for improving CVH were conducted in Finland and the United States. Many of the core capacities needed for state heart disease and stroke prevention programs are based on lessons learned from these projects.[9]

Results from these community projects suggested that states can play critical roles in activities such as strategic planning, working with other stakeholders, ensuring that projects are data-driven, supporting community participation, and providing guidance

for quality assurance and intervention approaches. Project evaluators found that "interventions that simultaneously target the community environment as well as organizations, groups, and individuals tend to influence the public's health far more than interventions at any one of these levels alone."[9]

Results from these projects also indicated that policy and environmental interventions were often more effective than direct behavior-change strategies. Social marketing techniques were used to create awareness of CVH issues and to create demand for services, access to primary and secondary prevention, and support for public policy and environmental change.

In addition to the lessons learned from these studies, programs also should use the following resources when developing their own comprehensive state heart disease and stroke prevention programs:

- *Preventing Death and Disability from Cardiovascular Diseases: A State-Based Plan for Action.* CVD Plan Steering Committee, Association of State and Territorial Health Officials, 1994.
- Publications of the Advisory Board of the International Heart Health Conferences, including *The Victoria Declaration on Heart Health* (1992), *The Catalonia Declaration—Investing in Heart Health* (1996), *Worldwide Efforts to Improve Heart Health: A Follow-Up to the Catalonia Declaration—Selected Program Descriptions* (1997), and *The Singapore Declaration: Forging the Will for Heart Health in the Next Millennium* (1998).
- *Evaluating Community Efforts to Prevent Cardiovascular Diseases: Community Changes.* Department of Health and Human Services, CDC, 1995.
- *North Carolina Plan to Prevent Heart Disease and Stroke 1999–2003.* North Carolina Heart Disease and Stroke Prevention Task Force, 1999.
- *Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality. Second Edition* and *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality. First Edition.* Available at www.cdc.gov/nccdphp/cvh.
- Policy as intervention: environmental and policy approaches to the prevention of cardiovascular disease. *Am J Public Health* 1995;85:1207-11.
- Community heart health programs: components, rationale, and strategies for effective interventions. *J Public Health Policy* 1993;14(4):463-79.
- Three articles in *Health Education Quarterly* in 1995 (volume 22, number 4): "Environmental and policy approaches to cardiovascular disease prevention through nutrition: opportunities for state and local action;" "Environmental and policy approaches to cardiovascular disease prevention through physical activity: issues and opportunities;" and "Environmental and policy interventions to control tobacco use and prevent cardiovascular disease."

National Leadership

A formal partnership has been formed among CDC; AHA; the Centers for Medicare & Medicaid Services; NIH's National Heart, Lung, and Blood Institute and National Institute of Neurological Disorders and Stroke; and the Office of Public Health and Science, HHS, through a memorandum of understanding that created the Healthy People 2010 Heart and Stroke Partnership. The goal of the partnership is to maximize the participating organizations' investments in CVH and to capitalize on their individual strengths to achieve the *Healthy People 2010* goal for preventing heart disease and stroke. The partnership divided this goal into the following four separate areas based on the different intervention approaches that would be needed to achieve them:

- Prevention of risk factors.
- Detection and treatment of risk factors.
- Early identification and treatment of heart attacks and strokes.
- Prevention of recurrent cardiovascular events.

The Healthy People 2010 Heart and Stroke Partnership has improved communication, coordination,

and collaboration at the national, state, and local levels. Activities proposed by the partnership to meet the *Healthy People 2010* goal and targets include

- Conducting population- and community-based health education and health promotion.
- Coordinating public awareness messages and media activities.
- Effecting environmental, policy, and system changes.
- Jointly promoting professional education and training, including joint presentations, cohosting of national conferences, dissemination of best practices, and joint consultation on cardiovascular issues for conferences and workshops.
- Facilitating relationship development, support, data collection, and resource sharing.
- Sharing scientific and information resources.

Examples of accomplishments to date include

- Developing a Healthy People 2010 Heart and Stroke Partnership database of activities, which will eventually be made available to the public.
- Developing and implementing the *Act in Time to Heart Attack Signs* campaign, including a joint press conference.
- Developing a year one evaluation report of the strategic partnership.
- Cosponsoring *Cardiovascular Health for All: Meeting the Challenge of Healthy People 2010—A National Conference,* which was held April 11-13, 2002, in Washington, DC.

The Cardiovascular Health Collaborative

In 1998, the Health Resources and Services Administration, CDC and the Institute for Health Improvement formed the National Diabetes Collaborative to aggressively address chronic disease by reducing disparities and increasing access to quality care in federally qualified community health centers. In April 2001, the first Cardiovascular Health Collaborative was initiated and integrated with the Diabetes Collaborative. In July 2002, the collaborative provided training and support to help community health centers and state heart disease and stroke prevention programs improve quality of care by implementing a chronic care model and an improvement process model for CVD management. Future training is planned.

Other Federal Partnerships

National High Blood Pressure Education Program

The National High Blood Pressure Education Program (NHBPEP), a cooperative effort of professional and voluntary health agencies, state health departments, and many community groups, has as its goal reducing death and disability related to high blood pressure. Strategies to achieve this goal include developing and disseminating professional, patient, and public education materials and programs that have a strong science base and developing partnerships among the program participants. The NHBPEP is coordinated by NIH's National Heart, Lung, and Blood Institute. At the core of the program is the NHBPEP Coordinating Committee, composed of representatives from 38 national health organizations and 7 federal agencies. For more information, see www.nhlbi.nih.gov.

National Cholesterol Education Program

NIH's National Heart, Lung, and Blood Institute launched the National Cholesterol Education Program (NCEP) to help reduce illness and death from coronary heart disease (CHD) in the United States by reducing the percentage of Americans with high blood cholesterol. Through educational efforts directed at health professionals and the public, the NCEP aims to raise awareness and understanding about high blood cholesterol as a risk factor for CHD and the benefits of lowering cholesterol levels. The NCEP relies on partnerships to bring cholesterol information to a wide audience. The NCEP Coordinating Committee, NCEP's policy-setting body and board of directors, embodies this partnership principle: its membership consists of representatives from more than 40 major medical and health professional associations, voluntary health organizations, community programs, and governmental agencies. For more information, see www.nhlbi.nih.gov.

Hearts N' Parks

Hearts N' Parks is a national, community-based program supported by NIH's National Heart, Lung, and Blood Institute. This innovative program aims to reduce the growing trend of obesity and the risk of coronary heart disease in the United States by encouraging Americans of all ages to aim for a healthy weight, follow a heart-healthy eating plan, and engage in regular physical activity. Through Hearts N' Parks, park and recreation departments and other community-based agencies offer science-based information about lifestyle choices that can reduce a person's risk of heart disease and teach skills for incorporating heart-healthy behaviors into one's life. An evaluation of a pilot Hearts N' Parks Program at 33 sites in North Carolina showed that participants retained information about heart-healthy behaviors and intended to eat healthier. In addition, children reported learning new physical activities and improving their performance in others; seniors reported feeling healthier and experiencing less pain in their daily lives by the end of the program. Community organizations interested in signing up to become a Hearts N' Parks community should contact the National Recreation and Park Association at 800-649-3042 or by E-mail at programs@nrpa.org. For more information, visit the Hearts N' Parks Web site at www.nhlbi.nih.gov/health/prof/heart/obesity/hrt_n_pk/index.htm.

Native American Cardiology Program

The Native American Cardiology Program, based at the University of Arizona, was developed by the Indian Health Service (IHS) to provide on-site cardiovascular care to Native Americans at reservation clinics within the Navajo, Phoenix, and Tucson areas of the IHS. It has evolved to become a unique collaboration involving the IHS, the University of Arizona, the University Medical Center, the Flagstaff Medical Center, the Southern Arizona VA Healthcare System, and Native American tribes and communities. The program promotes cardiovascular health and wellness for Native American patients throughout the Southwest through state-of-the-art treatment, education, and prevention to stem the rising epidemics of cardiovascular disease and diabetes now affecting Native American communities. For more information, see www.ihs.gov/MedicalPrograms/Cardiology/index.cfm

Professional Development Opportunities

The Cardiovascular Health Practitioner's Institute provides intensive training and skill building to state heart disease and stroke prevention program managers and AHA state health department liaisons from 12–15 states each year. The training is co-sponsored by CDC, the Association of State Chronic Disease Directors, AHA, and the University of Rochester Department of Community and Preventive Medicine. The goal of the training is to enhance participants' abilities to develop and maintain public health programs for preventing and controlling CVD, reducing related risk factors, eliminating disparities, and promoting CVH. In future years, an annual skill-building workshop will be provided to state heart disease and stroke prevention program staff from all states.

Resources

Web Resources

Communications and Health Promotion

University of Kansas's Community Toolbox. ctb.lsi.ukans.edu. Provides information on how to develop, manage, and evaluate community projects; includes tools and helpful hints.

HealthComm KEY. www.cdc.gov/od/oc/hcomm/additsource.pdf. Provides communications resources.

CDCynergy. www.cdc.gov/communication/CDCynergy.htm. Provides an interactive CD-ROM designed as a decision-making tool and step-by-step guide for planning health communications programs. Contact the CDC Heart Disease and Stroke Prevention Program for the CVH version.

Social Marketing

www.social-marketing.com/. Provides information on social marketing publications and the latest news in the field.

Evaluation

www.cdc.gov/eval/resources.htm. Provides CDC evaluation resources, including logic models, evaluation standards, organizations, and evaluation concept documents.

University of Kansas's Community Toolbox, Evaluation Model.
ctb.lsi.ukans.edu/tools/EN/section_1007.htm. Provides a model for evaluating comprehensive community initiatives.

Success Measures Guidebook.
www.developmentleadership.net/smp/manual/toc.htm. Provides a step-by-step guide for developing and implementing an evaluation plan and specific outcome indicators to help define success and effective allocation of resources.

Funding

University of Kansas's Community Toolbox, Grant Writing Tools.
ctb.lsi.ukans.edu/tools/en/chapter_1042.htm. Provides information on how to apply and receive grants and other financial resources.

The Foundation Center.
fdncenter.org. Provides the foundation's annual reports, directories, books, and periodicals on fund-raising, program planning, and current data on the nation's largest funders.

Interventions and Program Development

Centers for Disease Control and Prevention (CDC).
www.cdc.gov/cvh. Provides information on heart disease, stroke, and state activities, including state program contacts.

Health Policy Coach.
www.policymatters.org. Provides tools, strategies, and information for creating policy change in communities.

Health Disparity Collaboratives.
www.bphc.hrsa.dhhs.gov/programs/hdcprograminfo.htm. Provides information on interventions in federally qualified health centers to improve health outcomes, including management of CVD, in underserved populations.

Fit, Healthy, and Ready to Learn: School Health Policy Guide.
www.nasbe.org/healthyschools/fithealthy.mgi. Provides direction on establishing an overall policy framework for school health programs and specific policies on physical activity, healthy eating, and tobacco-use prevention.

Get With the Guidelines.
www.americanheart.org/presenter.jhtml?identifier=1165. Provides a hospital-based CVD quality improvement program.

G8 Promoting Heart Health Telematics Project.
www.med.mun.ca/g8hearthealth. Provides a qualitative database of best practices for CVH programs; includes heart health issues such as tobacco control, diet, physical activity, psychosocial factors, hypertension, diabetes, and lipid management.

American Dietetic Association.
www.eatright.org/gov/tools.html. Provides grassroots tools for food and nutrition policy.

Public Education Network: Communities at Work.
www.publiceducation.org/interventions. Provides a guidebook of strategic interventions for engaging the community in school improvement to create systemic change through community dialogue, constituency building, engagement of practitioners, collaboration with districts, policy analysis, and legal strategies.

Turning Point Publications and Resources. www.wkkf.org/Programming/Resources.aspx?CID=8. Provides a variety of publications and resources produced by Turning Point (national initiative of the W.K. Kellogg and Robert Wood Johnson foundations) that provide actionable, evidence-based lessons for policy, practice, and research.

Center for Livable Communities. www.lgc.org/center/. Provides resources on building livable communities, including selected publications, manuals, conferences/trainings, and a land-use resource library.

National Committee for Quality Assurance. www.ncqa.org. Provides resources such as *The Business Case for Health Care Quality* and *The State of Managed Care Quality, 2001.*

Partnerships, Alliances, and Coalitions

University of Kansas's Community Toolbox, Community Work Station. ctb.lsi.ukans.edu/tools/CWS/coalitionbuilding/create_maintain_coalitions.htm. Provides information on establishing and maintaining partnerships, including coalitions.

Collaboration: What Makes it Work. www.wilder.org/pubs/collab_wmiw/index.html. Provides a review of research literature on factors influencing successful collaboration among service delivery agencies.

Building Community Health Partnerships. www.communityhealthpartners.org/default.cfm. Provides information on successful community health partnership models.

Coalition for Healthier Cities and Communities. www.healthycommunities.org/usa/index.cfm. Provides information on a collaborative established to improve the quality of life in communities through community-based development and coalition building.

Surveillance and Research

National Center for Health Statistics. www.cdc.gov/nchs. Provides data systems on vital events, health status, lifestyle, exposure to unhealthy influences, the onset and diagnosis of illness and disability, and the use of health care.

Centers for Medicare & Medicaid Services. cms.hhs.gov. Provides CVD-related data and statistics.

National Heart, Lung, and Blood Institute. www.nhlbi.nih.gov/resources/index.htm. Provides scientific resources on heart disease.

American Heart Association/American Stroke Association. www.americanheart.org. Provides scientific resources on heart disease and stroke.

CDC CVH Statistical Information. www.cdc.gov/cvh/statisticalinfo.htm. Provides data such as interactive maps on county-specific heart disease mortality rates by state, racial/ethnic group, and sex.

Print Resources

Schmid TL, Pratt M, Howze E. Policy as intervention: environmental and policy approaches to the prevention of cardiovascular disease. *Am J Public Health* 1995;85:1207-11.

Committee for the Study of the Future of Public Health, Division of Health Care Services, Institute of Medicine. *The Future of Public Health.* Washington, DC: National Academy Press, 1988.

Sallis JF, Owen N. Ecological models. In: Glanz K, Lewis FM, Rimer BK, editors. *Health Behavior and Health Education: Theory, Research and Practice. 2nd ed.* San Francisco: Jossey-Bass Publishers, 1997:403-24.

North Carolina Heart Disease and Stroke Prevention Task Force. *North Carolina Plan to Prevent Heart Disease and Stroke 1999–2003.* North Carolina: North Carolina Heart Disease and Stroke Prevention Task Force 1999;15-16.

Casper ML, Barnett E, Halverson JA, et al. *Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality. 2nd ed.* Morgantown, WV: Office for Social Environment and Health Research, West Virginia University, 1999. Available at www.cdc.gov/cvh.

Barnett E, Casper ML, Halverson JA, et al. *Men and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality. 1st ed.* Morgantown, WV: Office for Social Environment and Health Research, West Virginia University, 2001. Available at www.cdc.gov/cvh.

Centers for Disease Control and Prevention. *Policy and Environmental Change: New Directions for Public Health.* Atlanta, GA: Department of Health and Human Services, 2001.

Department of Health and Human Services. *Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III).* Bethesda, MD: Department of Health and Human Services, National Institutes of Health, 2001. NIH publication no. 01-3670.

Department of Health and Human Services. *The Sixth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure.* Bethesda, MD: Department of Health and Human Services, National Institutes of Health, 1997. NIH publication no. 98-1080.

Mittlemark MB, Hunt MK, Heath GW, Schmid TL. Realistic outcomes: lessons from community-based research and demonstration programs for the prevention of cardiovascular disease. *J Public Health Policy* 1993;14(4):437-62.

Gerber JC, Stewart DL. Prevention and control of hypertension and diabetes in an underserved population through community outreach and disease management: a plan of action. *J Assoc Acad Minor Phys* 1998;9(3):48-52.

Shediac-Rizhallah MC, Bone LR. Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research practice and policy. *Health Educ Res* 1998;13(1):87-108.

Sorensen G, Emmons K, Hunt MK, Johnston D. Implications of the results of community intervention trials. *Public Health* 1998;19:379-416.

Golaszewski T, Fisher B. Heart check: the development and evolution of an organizational heart health assessment. *Am J Health Promot* 2002;17(2):132-53.

Golaszewski T, Barr D, Cochran S. An organization-based intervention to improve support for employee heart health. *Am J Health Promot* 1998;13(1):26-35.

McKinlay JB. The promotion of health through planned sociopolitical challenges for research and policy. *Soc Sci Med* 1993;36(2):109-17.

Goldman L, Phillips KA, Coxson P, et al. The effect of risk factor reductions between 1981 and 1990 on coronary heart disease incidence, prevalence, mortality and cost. *J Am Coll Cardiol* 2001;38(4):1012-7.

Druss B, Marcus SC, Olfson M, Taneilian T, Elinson L, Pincusl HA. Comparing the national economic burden of five chronic conditions. *Health Affairs* 2001;20(6):233-40.

Galvin R, Milstein A. Large employers' new strategies in health care. *N Eng J Med* 2002;347(12):939-41.

Tu K, Davis D. Can we alter physician behavior by educational methods? Lessons learned from studies of the management and follow-up of hypertension. *J Contin Educ Health Prof* 2002;22:11-22.

Stroebel RJ, Broers JK, Houle SK, et al. Improving hypertension control: a team approach in a primary care setting. *J Qual Improvement* 1997;26(11):623.

Pronk NP, O'Connor PJ. Systems approach to population health improvement. *J Ambulatory Care Management* 1997;20(4):24-31.

Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness. *JAMA* 2002;228(14):1775-9.

Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness: the chronic care model, part 2. *JAMA* 2002;288(15):1909-14.

References

1. American Heart Association. *Heart and Stroke Statistics—2003 Update.* Dallas, TX: American Heart Association, 2002.
2. Murray CJL, Lopez AD. Alternative projections of mortality and disability by causes 1990–2020: Global Burden of Disease Study. *Lancet* 1997;349:1498-504.
3. National Heart, Lung, and Blood Institute. *Morbidity and Mortality: 2002 Chart Book on Cardiovascular, Lung, and Blood Diseases.* Bethesda, MD: National Heart, Lung, and Blood Institute, 2002. Available at www.nhlbi.nih.gov/resources/docs.
4. Cooper R, Cutler J, Desvigne-Nickens P, et al. Trends and disparities in coronary heart disease, stroke and other cardiovascular diseases in the United States. Findings of the National Conference on Cardiovascular Disease Prevention. *Circulation* 2000;102:3137-47.
5. Department of Health and Human Services. *Healthy People 2010. 2nd ed*. Vol. 1. Washington, DC: US Government Printing Office, November 2000.
6. Brownson RC, Koffman DM, Novotny TE, Hughes RG, Eriksen MP. Environmental and policy interventions to control tobacco use and prevent cardiovascular disease. *Health Educ Q* 1995;22(4):478-98.
7. Pellmar TC, Brandt EN, Macaran AB. Health and behavior: the interplay of biological, behavioral, and social influences: summary of an Institute of Medicine Report. *Am J Health Promot* 2002;16(4):206-19.
8. Fisher B, Golaszewski T, Barr D. Measuring worksite resources for employee heart health. *Am J Health Promot* 1999;13(6):325-32.
9. Elder JP, Schmid TL, Dower P, Hedlund S. Community heart health programs: components, rationale, and strategies for effective interventions. *J Public Health Policy* 1993;14(4):474.

Addressing Lifestyle Choices

Promoting Healthy Eating and Physical Activity for a Healthier Nation

Table of Contents

4

Promoting Healthy Eating and Physical Activity for a Healthier Nation

Introduction

This chapter provides a framework for a comprehensive program to address the problems of poor nutrition and physical inactivity on a state or community level. This framework is designed to give state and local guidance in establishing a coordinated, comprehensive nutrition and physical activity program and soliciting a broad coalition of stakeholders and partners. Health and human services are in a unique position to strengthen and coordinate efforts to improve nutrition and physical activity among Americans.

Burden of Physical Inactivity and Poor Nutrition

Overall Magnitude

The importance of proper nutrition and physical activity in reducing rates of disease and death from chronic diseases has been well established.[1-3] Poor diet and physical inactivity cause 310,000 to 580,000 deaths per year and are major contributors to disabilities that result from diabetes, osteoporosis, obesity, and stroke. The results of one study showed that 14% of all U.S. deaths in 1990 could be attributed to poor diet and activity patterns,[1] and another study linked sedentary lifestyles to 23% of chronic disease-related deaths in the United States in 1986.[2]

According to *Healthy People 2010,*[4] about 75% of Americans do not eat enough fruit, more than half do not eat enough vegetables, and 64% consume too much saturated fat. The diets of many population subgroups contain too much total fat, saturated fat, and calories but not enough of other important elements such as calcium. Low fruit and vegetable consumption and high saturated fat intake are associated with coronary heart disease, some cancers, and diabetes.[4-6]

Breast milk is acknowledged to be the most complete source of nutrition for infants and offers many benefits for mothers and babies. According to the *HHS Blueprint for Action on Breastfeeding*, breastfeeding reduces the incidence or severity of childhood infections and chronic diseases such as type 1 and 2 diabetes, asthma, and childhood cancers.[7] Additional evidence suggests that breastfeeding may help prevent childhood obesity.[8] Despite recognition by the American Academy of Pediatrics that breastfeeding is the ideal method of infant feeding,[9] only 64% of all mothers in the United States initiate breastfeeding, and only 29% continue to breastfeed their infants for 6 months after birth.[4]

Regular physical activity is essential for a healthy life.[3] Physically inactive people are almost twice as likely to develop coronary heart disease as people who engage in regular physical activity.[3] Thus physical inactivity poses almost as much risk for heart disease as cigarette smoking, high blood pressure, or a high cholesterol level, but is more prevalent than any of these other risk factors.[10] People with other risk factors for coronary heart disease, such as obesity and hypertension, may particularly benefit from physical activity.[3] It also helps older adults remain independent and enhances the quality of life for people of all ages.

Obesity or overweight status is defined by body mass index (BMI), which is derived by dividing weight in kilograms by the square of height in meters. From 1991–2000, the prevalence of obesity (defined as BMI > 30 k/m^2) among adults increased nationally, in every state, and in all segments of the population.[11-14] Obesity leads to numerous health problems, including hypertension, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, gall bladder disease, osteoarthritis, sleep apnea, respiratory problems, and some cancers (e.g., endometrial, breast, prostate, and colon cancers). Because obesity is a risk factor for several chronic diseases, the economic and social consequences of this obesity epidemic could be overwhelming.[15] While many factors have contributed to the obesity epidemic, prevention efforts should focus on helping people reduce their calorie intake and increase their physical activity. The prevalence of obesity is increasing more rapidly among children than among adults. Because a growing body of evidence suggests that breastfeeding offers protection against excessive weight gain in childhood and adolescence,[8] the Centers for Disease Control and Prevention (CDC) advocates breastfeeding as a reasonable strategy for reducing children's risk of becoming overweight.

Economic and Social Costs

The economic burden of poor diet, physical inactivity, and obesity is substantial. All are significant risk factors for developing coronary heart disease, certain types of cancer, stroke, and diabetes, conditions that involve considerable medical expense as well as lost work time, disability, and premature death. In one study, the direct medical cost for diet-related manifestations of these four conditions was estimated at $33.6 billion (in 1995 dollars), and the total cost, including lost productivity because of illness and premature death, was estimated to be $70.9 billion.[16] In another study based on 1987 medical expenditure data, researchers estimated that if the more than 88 million inactive Americans over the age of 15 began engaging in regular moderate physical activity, annual national medical costs could be reduced by as much as $76.6 billion in 2000 dollars.[17] The medical costs associated with obesity are even higher: an estimated $100 billion annually based on 1995 data.[18] Taken together, inactivity and obesity accounted for 9.4% of the 1995 health care expenditures in the United States.[18] In addition to these economic costs, immeasurable costs due to social and emotional problems, both for those affected and for their friends and families, may result from inactivity- and obesity-related diseases.[19]

Disparities

The problems associated with poor diet, physical inactivity, and obesity affect most population segments; however, there are marked disparities in the impact that these problems have on various groups of people, particularly by race/ethnicity and by education level. Data from *Healthy People 2010* [4] indicate that physical inactivity, vegetable intake, breastfeeding, and weight status vary by race/ethnicity, sex, educational level, and age (Table 1).

Related *Healthy People 2010* Objectives

Healthy People 2010 [4] contains 19 objectives directly related to nutrition and breastfeeding and 15 directly related to physical activity. However, because poor nutrition and physical inactivity are associated with increased risk for many health problems, they are also mentioned in almost every other priority area. The full text of *Healthy People 2010* can be found at www.healthypeople.gov.

Prevention Opportunities

Levels of Prevention

Because poor dietary habits and physical inactivity are associated with many adverse health outcomes, most adults and children could benefit from interventions designed to improve their eating habits and increase their activity levels. Such intervention programs fall into three general categories: health promotion, primary prevention, and secondary prevention. The goal of health promotion is to help people establish an active lifestyle and healthy eating habits early in life and to maintain these behaviors throughout their lives. The goal of primary prevention is to help people who have risk factors for

Table 1. Percentages of U.S. Adults in Various Physical Activity or Nutritional Categories, Overall and by Select Sociodemographic Characteristics

	No leisure-time physical activity, 1997	Consumption of 3 or more servings of vegetables per day,* 1994–96	Breastfeeding newborn infant for 6 months, 1998	Obese (BMI ≥ 30),† 1999–2000
Overall	40	49	29	31
Race/Ethnicity				
White	38	50	31	29
Black	52	43	19	40
Hispanic	54	47	28	34
Sex				
Men	36	64‡		28
Women	43	49‡		33
Educational level (among people 25 years of age and older)				
Less than 9th grade	73			
Grades 9–11	59		23	
High school graduate	46		21	
Some college or AA	35		21	
College graduate	24		40	
Family income level				
≤ 130% poverty threshold		42		
>130% poverty threshold		50		
Age groups				
18–24 years	31			
25–44 years	34			
45–64 years	42			
65–74 years	51			
75 years and older	65			

*People aged 2 years and older.
†People aged 20 years and older.
‡People aged 40–59 years.
Source: *Healthy People 2010* [4] and NHANES 1999–2000.

chronic disease (e.g., elevated blood pressure or serum cholesterol levels) prevent or postpone the onset of disease by establishing more active lifestyles and healthier eating habits. The goals of secondary prevention are to help people who already have a chronic disease cope with and control these conditions and to prevent additional disability by increasing their physical activity and establishing more healthful eating patterns.

Socioecological Approach

To be most effective in the long run, public health programs should focus on health promotion as well as disease prevention. For example, by promoting breastfeeding to pregnant women and new mothers and supporting their efforts to breastfeed, public health organizations can help children develop healthy eating habits during infancy. Because appropriate physical activity levels and healthy eating behaviors should be instilled in childhood and maintained throughout life, prevention efforts that target older children and schools are equally important, as are interventions for adults who are inactive or have poor dietary habits even though they have not yet developed chronic diseases. All interventions should be appropriate to the target audience, and different strategies may be required to reach different segments of the population. Interventions may address individuals, institutions, communities, policies, or the environment and can be effectively implemented in various settings, such as schools, work sites, health care facilities, and places of worship.

Whatever population segment is targeted by an intervention, its members are also influenced by a social network consisting of family members, friends, colleagues, and acquaintances. Interventions have the best chance of succeeding if they are directed at all elements of this network simultaneously.[20, 21] Increasingly, health promotion professionals are recognizing the dynamic interplay between individuals and their environments. Although lifestyle choices are ultimately personal decisions, they are made within a complex mix of social and environmental influences that can make healthier choices either more or less accessible, affordable, comfortable, and safe.[22-25]

Research has shown that behavior change is more likely to endure when a person's environment is simultaneously changed in a manner that supports the behavior change.[21, 26] Therefore, interventions should address not only the intentions and skills of individuals, but also their social and physical environments, including the social networks and organizations that affect them.[27]

Essential Strategies

Guidelines for Comprehensive Programs to Promote Healthy Eating and Physical Activity (www.astphnd.org) is a document designed to help state and local health practitioners create comprehensive nutrition, physical activity, and obesity control programs.[28] These guidelines provide recommendations in seven major areas: 1) leadership, planning/management, and coordination; 2) environmental, systems, and policy change; 3) mass communications; 4) community programs and community development; 5) programs for children and adolescents; 6) health care delivery; and 7) surveillance, epidemiology, and research.

To make the best use of scarce resources for prevention, health agencies attempting to prevent chronic disease should use strategies that focus on highly prevalent risk factors that are modifiable through behavior change. Following are four behavior change strategies that meet this criterion. Each strategy can target one or more *Healthy People 2010* objectives.

- *Promote increases in physical activity.* Exercise provides numerous health benefits and should be promoted to the most sedentary subgroups of the population.[3]
- *Promote breastfeeding*. Breastfed children have less risk for acute diseases of infancy and early childhood and a reduced risk of developing childhood obesity.[8]
- *Increase fruit and vegetable consumption*. Higher consumption of fruits and vegetables is associated

with lower incidence of several chronic diseases, including cardiovascular disease and some cancers.[4]

- *Reduce television-viewing time*. A reduction in the length of time that children and adolescents watch television may reduce the risk for obesity among young people.[29]

Physical Activity Strategies

The *Guide to Community Preventive Service*s (www.thecommunityguide.org/pa) recommends five population-based strategies for increasing a population's level of physical activity.[30] These strategies include ways to achieve *Healthy People 2010* objectives that deal with moderate and vigorous lifestyle activities for adults and young people (Chapter 22).[4]

- *Community-wide campaigns.* Large-scale, highly visible, multicomponent campaigns with messages promoted to large audiences through diverse media, including television, radio, newspapers, movie theaters, billboards, and mailings.
- *Individually targeted programs.* Programs tailored to a person's readiness for change or specific interests; these programs help people incorporate physical activity into their daily routines by teaching them behavioral skills such as setting goals, building social support, rewarding themselves for small achievements, solving problems, and avoiding relapse.
- *School-based physical education (PE).* School curricula and policies that require students to engage in sufficient moderate to vigorous activity while in school PE class. Schools can accomplish this by increasing the amount of time students spend in PE class or by increasing their activity level during PE class.
- *Interventions that provide social support for physical activity in community settings.* Interventions designed to promote physical activity by helping people create, strengthen, and maintain social networks that support their efforts to exercise more; examples include exercise buddy programs and the establishment of exercise contracts or walking groups.
- *Interventions to provide people greater access to places for physical activity.* Examples include building walking or biking trails and making exercise facilities available in community centers or workplaces.

NIH's National Heart, Lung, and Blood Institute (NHLBI) launched the Obesity Education Initiative (OEI) in 1991 to encourage Americans to adopt heart-healthy eating patterns and physical activity habits that will help to prevent overweight and obesity. The OEI also supports programs and activities related to the *Healthy People 2010* objectives for reducing the prevalence of overweight, obesity, and physical inactivity. OEI's two-pronged strategy consists of a population approach, which focuses on preventing overweight, obesity, and physical inactivity in the general population, and a high-risk approach, which targets people who are experiencing, or are at high risk for, the adverse health effects and medical complications associated with overweight and obesity. For more information, visit the OEI Web site at www.nhlbi.nih.gov/oei/index.htm.

Strategies to Increase Fruit and Vegetable Consumption

High fruit and vegetable intake is associated with low dietary fat intake, and dietary fat is associated with both cancer and heart disease.[5,6] The *Healthy People 2010* objectives related to fruit and vegetable consumption (Chapter 19) include recommendations to consume at least three servings of vegetables and two servings of fruit per day.[4] Unfortunately, less than 25% of the U.S. population consumes at least five servings of fruits or vegetables a day. To increase fruit and vegetable consumption, CDC, the National Cancer Institute (NCI), the American Cancer Society (ACS), and three Department of Agriculture agencies are collaborating to expand federal support for the national 5 A Day for Better Health Program. Resources to help health organizations promote fruit and vegetable consumption can be found at www.5aday.gov, www.5aday.com, www.5aday.gov/pdf/masimaxmonograph.pdf, and www.5aday.org/pdfs/research/health_benefits.pdf.

Nutrition and Your Health: Dietary Guidelines for Americans (http://www.health.gov/dietaryguidelines) serves as the principal federal policy document related to dietary choices. This joint publication of the Department of Health and Human Services and the Department of Agriculture is intended to serve the public in at least five ways:

- By helping consumers make dietary choices that will promote their well-being and help them avoid or postpone the onset of diet-related chronic diseases.
- By assisting federal, state, and local agencies in developing policies to guide the implementation of feeding and educational programs.
- By helping state and local agencies devise and implement regulatory policies and programs that relate to food, nutrition, and health.
- By assisting health care providers in primary disease prevention efforts.
- By guiding other domestic and international organizations in the implementation of food, nutrition, and health goals.

Strategies to Promote Breastfeeding

The *Healthy People 2010* [4] objective relating to breastfeeding (Chapter 16) states: "Increase to 75% the proportion of mothers who breastfeed their babies in the early postpartum period, increase to 50% the proportion of mothers who breastfeed their babies for at least 6 months, and increase to 25% the proportion of mothers who breastfeed their babies for at least 12 months." Specific strategies to promote breastfeeding are outlined in the *HHS Blueprint for Action on Breastfeeding,* which can be found at www.cdc.gov/breastfeeding/00binaries/bluprntbk2.pdf. These strategies include 1) developing social support resources for breastfeeding women, 2) training health care professionals to promote breastfeeding among their patients, 3) establishing maternity care practices and policies that promote breastfeeding, and 4) establishing workplace programs and policies that promote breastfeeding.

Strategies to Reduce Television Viewing Time

On average, U.S. children 2–17 years old spend approximately 4.5 hours a day watching some kind of electronic screen, with 2.5–2.75 hours of that spent watching television.[31, 32] National cross-sectional surveys have shown a positive association between the number of hours children watch television and their risk of being overweight.[29, 31, 32] This correlation probably has several causes: television watching may displace calorie-burning physical activity, children may eat more while watching TV, television advertisements may induce children to consume more high-calorie foods and snacks, and TV viewing may reduce children's metabolic rate.[33, 35-40] Based on data from young people in grades 9–12, the *Healthy People 2010* objective regarding TV watching (in Chapter 22) states: "Increase to 75% the proportion of adolescents who view television 2 or fewer hours per school day."[4]

Few studies have explored strategies for reducing children's TV viewing, and more testing and development of such strategies is needed before firm recommendations can be made. However, school-based programs have shown promise in helping to reduce children's TV viewing by providing means for parents and children to monitor and budget the time that children spend watching TV.[37, 39]

Interventions

Community-Based Programs

Community-based programs should use multiple approaches to provide people with the knowledge, skills, and attitudes necessary to eat a healthful diet and be physically active. These programs should work with local organizations to identify target populations[41-52] and should solicit full community participation in a comprehensive approach that addresses the physical, social, political, and cultural environments affecting community members.

Recommendations:

- Conduct community assessments to determine the dietary and exercise habits of residents, identify interventions that might help improve these habits, and identify community resources and potential partners that could help establish these interventions.
- Coordinate efforts to achieve *Healthy People 2010* objectives among various groups and agencies.
- Encourage representatives of the intended population to participate in program planning, design, implementation, and evaluation.
- Identify relevant population subgroups; attempt to understand physical activity, nutrition, and obesity from their point of view; and develop community-based strategies and programs that are relevant and acceptable to them.
- Educate the public and policy makers about the importance of supportive environments.
- Promote broad social and environmental changes that complement individual change efforts. Examples of such activities include
  - Promoting healthy food choices in away-from-home sites such as restaurants; fast-food outlets; school and work site cafeterias; vending machines; and sports, arts, and recreation venues.
  - Encouraging restaurants to label heart-healthy foods on menus and encouraging vending machine operators to include a certain percentage of choices low in fat, sodium, and sugar.
  - Coordinating community resources and identifying consistent, convincing, culturally appropriate, and scientifically sound nutrition and physical activity messages delivered through health professionals, grocery stores, places of worship, schools, the media, parks and recreational facilities and programs, food service operations, and other pertinent channels.
  - Improving lighting and security in public exercise areas such as walking paths (sidewalks, trails) and bike paths.
  - Involving the Department of Agriculture as a key partner through programs such as WIC.
  - Recruiting nontraditional partners such as food producers and retailers, bicycle-pedestrian coordinators, transportation planners, local land/urban planners, trail coordinators, violence-prevention advocates, and neighborhood associations.
  - Encouraging employers to adopt policies that support physical activity and good nutrition, such as offering flex-time and providing healthy food options at work-site cafeterias.
  - Demonstrating model physical activity and healthy nutrition policies, procedures, and practices at the work sites of agencies.
  - Ensuring that the public health benefits of both leisure-time and transportation-related physical activity are conveyed to transportation agencies, urban planners, building designers, and officials responsible for zoning and transportation-investment decisions.

School-Based Programs for Children and Adolescents

Coordinated school health programs have the potential to help young people adopt and maintain healthy eating and physical activity behaviors[53-56] and possibly to prevent and control obesity and other chronic diseases. Data from the National Health and Nutrition Examination Surveys (NHANES) reveal that the prevalence of obesity among U.S. children 6–19 years of age tripled in the past 20 years, to slightly more than 15%.[57,58] Information gathered through the Youth Risk Behavior Surveillance System (YRBSS) (www.cdc.gov/nccdphp/dash/yrbs/index.htm) indicates that more than a third of young people in grades 9–12 report not regularly engaging in vigorous physical activity. Meanwhile, the percentage that reported daily participation in school physical education classes declined from 41.6% in 1991 to 32.2% in 1999.[59]

School-based programs should use a coordinated school health model to

- Provide students with opportunities to engage in healthy eating and physical activity behaviors.
- Help students develop the knowledge, skills, and attitudes necessary to adopt and maintain these behaviors.
- Integrate school-based physical activity and nutrition programs with family and community life.

Recommendations:

- Employ a full-time school health coordinator to work collaboratively with the education department on school health issues related to nutrition and physical activity.
- Collaborate with the department of education to employ a physical education/activity coordinator at the department of education.
- Educate policy makers, health practitioners, and the general public about the importance of requiring daily physical education classes and state-of-the-art nutrition education in the core curriculum in kindergarten through 12th grade.
- Collaborate with the department of education to provide support, training, and technical assistance to help schools implement CDC school health guidelines for promoting healthy eating[60] and physical activity[61] and use the tools that support the implementation of these guidelines (e.g., the *School Health Index*[62, 63] and *Fit, Healthy, and Ready to Learn*[64]).
- Provide schools with the resources necessary to educate faculty and students about healthy eating and physical activity and implement curricula to promote healthy eating and physical activity.
- Encourage communities and businesses to support physical activity and nutrition programs for young people.
- Provide support, training, and technical assistance to help schools and community organizations achieve the following:
  - Create food service programs that are consistent with USDA school meal program regulations and physical education programs that are consistent with the National Standards for Physical Education.[65]
  - Create a healthy school nutrition environment in which appealing, healthy, and nutritious choices are available whenever and wherever food and beverages are offered to students.
  - Provide before- and after-school extracurricular physical activity opportunities such as physical activity clubs, intramural activities, and interscholastic sports.
  - Integrate physical activity and healthy eating into before- and after-school child care programs (e.g., extended-day programs).
  - Develop effective programs to increase the number of students walking to and from school.
  - Develop and implement school health councils, which include community representation, to guide school health programs.
  - Develop and implement effective employee health promotion programs and services.
  - Evaluate school programs in healthy eating and physical activity and make improvements where needed.

Health Care Programs

One of the roles of health care programs is to provide effective preventive services, including services related to behavioral risk-factor modification.[66] To more effectively promote physical activity and healthy eating in the communities they serve, health care systems should collaborate with community partners to create an integrated approach.

Recommendations:

- Work with health care systems to develop and use evidence-based standards of practice for delivering preventive services. At a minimum, health care plans should have standards of practice for

assessing physical activity and nutrition and for assessing the effectiveness of clinical interventions. All children and adults enrolled in health care plans should have access to appropriate primary and secondary prevention care services related to physical activity and nutrition.

- Work with health care systems to ensure that their health care professionals are qualified to deliver preventive services related to physical activity and nutrition.[67, 68]
- Work with health care systems to develop and evaluate prompts for counseling patients about nutrition, physical activity, and body weight regulation.
- Promote policies that either require or provide incentives for health care systems to include preventive services related to nutrition and physical activity as part of their benefit packages. Examples of policies that provide such incentives include reimbursing providers for preventive care and basing a health care system's quality-of-care rating at least in part on the quality of the preventive care it provides.
- Help health care systems coordinate their preventive care activities with community efforts to promote physical activity and healthy nutrition. The collaboration of the North Carolina Prevention Partners (www.ncpreventionpartners.org) illustrates how such a coordinated effort might function.
- Work with health care systems to include nutrition and physical activity indicators in the surveillance data they collect. These indicators can be used to evaluate the effectiveness of interventions to increase physical activity or improve nutrition among patients in the system.

Surveillance and Evaluation

Surveillance of a population's dietary practices and physical activity levels is necessary for quantifying problems, understanding the scope of these problems, identifying trends, targeting subgroups for intervention, guiding planning, evaluating the impact of interventions, informing the public, and influencing public policy.[69-79] Validated indicators of nutrition and physical activity and the life stages for which each is appropriate are shown in Table 2. This list is partial and could be modified according to a particular health department's interests.

In addition, program-specific and community-level indicators may be useful in targeting areas for intervention and monitoring progress in meeting specific program objectives. For example, information about the food choices available at various sites in a community could be useful in planning community nutritional interventions. Physical activity indicators could include policies related to community use of school facilities after school hours or required physical education classes for high school students.

To establish or increase their capacity to carry out dietary and physical activity surveillance, programs should collect data on a regular basis and incorporate existing surveys into their data collection efforts whenever possible. Examples of such surveys include the Behavioral Risk Factor Surveillance System (BRFSS) [www.cdc.gov/nccdphp/brfss] for adults, the YRBSS [www.cdc.gov/nccdphp/dash/yrbs/index.htm] for adolescents, and the Pediatric Nutrition Surveillance System (PedNSS) [www.cdc.gov/nccdphp/dnpa/pdf/pednss.pdf] for children in the WIC program. Programs should also consider using state- or local-level surveys that include nutrition and/or physical activity data. Because surveillance data are so essential to the success of programs, programs should 1) establish standards for data analysis and timely reporting and 2) provide training and technical assistance to help program personnel collect and analyze data.

Evaluations should describe how an intervention was conducted (i.e., process evaluation) as well as how successful it was in meeting its objectives (i.e., outcome evaluation). Because it is often not possible to see a short-term change in the ultimate outcome measure, program planners may need to identify intermediate outcome measures. For example,

Table 2. Possible Surveillance Indicators for Nutrition and Physical Activity Programs

Measure	Infants	Youth	Adults	Older Adults
Weight and height (for calculating body mass index: BMI)		X	X	X
Daily fruit and vegetable consumption (at least 5 per day)		X	X	X
Occupational physical activity (at least 4 hours per work day in a nonsitting activity)			X	
Nonoccupational physical activity (at least 1.5 hours per week)			X	X
Moderate-intensity physical activities such as walking and gardening (at least 5 days/week and 30 minutes/day)		X	X	X
Vigorous-intensity physical activities such as some sports and running (at least 3 days/week and 20 minutes/day)		X	X	
Strengthening activities (at least 2 days per week)			X	X
Participation in physical education, sports, and other school-based activities		X		
Television viewing time (less than 2 hours per weekday)		X	X	X
Breastfeeding rates (initiation, 6 months)	X			
Birth weight	X			

intermediate outcomes for a nutritional intervention aimed at increasing fruit and vegetable consumption might be increased awareness of the importance of fruit and vegetable consumption. Even when interventions have been implemented, evaluated, and shown to be successful in a prior setting, ongoing evaluation is essential to ensure that the program is working well in the current setting.

Partnerships

Strategic partnerships that can serve the goals of all partners are very important in leveraging limited resources. Health departments and community health centers can foster such partnerships by developing coalitions that include local health departments, other health care providers, and various partners capable of providing or supporting programs that promote better nutrition and greater physical activity. These coalitions should be as inclusive as possible and include both traditional partners, such as hospitals and national health organizations, and nontraditional partners, such as restaurants, grocery stores, and transportation agencies.

One example of a successful partnership is a collaborative effort between the New York Division of Public Health and the New York Academy of Medicine that produced *The Pocket Guide to Cases of Medicine and Public Health Collaboration* (www.nyam.org/library/publications). Available in both a print version and an on-line version, the guide describes more than 400 instances of medical and public health collaboration. Another example is the North Carolina Prevention Partners project, Building Alliances for Health Systems to Integrate

Preventive Care Services (BASIC) Benefits (www.ncpreventionpartners.org). This Web-based system coordinates and displays a variety of health-related information and programs that are relevant to North Carolina.

Community coalitions are another type of partnership that proved useful in Missouri, where the Bootheel Heart Health Program provided community-based activities designed to help residents of a rural, medically undeserved area of southeastern Missouri decrease their risk for cardiovascular disease by, among other things, exercising more and eating more healthful foods.[51, 52]

Web sites for organizations that can serve as partners for nutrition and physical activity programs are listed in Table 3.

Strategic Plans

A strategic plan for promoting healthy diets and physical activity should describe how the comprehensive program will coordinate multiple categorical programs that in any significant way address nutrition, physical activity, or obesity prevention. Key elements should include a surveillance system for monitoring progress; a public communication and education program focusing on all segments of the population; coordination with other programs and services (e.g., cardiovascular health, diabetes, cancer control, minority health, and aging/social services); and strategic partnerships with state and local government entities, academic institutions, and private organizations. Potential partners for whom nutrition, physical activity, and obesity prevention are relevant underlying issues could include programs or organizations focusing on diabetes, cardiovascular disease, neighborhood safety, or livable communities. The plan should also identify methods of working with government leaders and establish the organizational support and infrastructure necessary to promote policy-level interventions such as making communities more "activity friendly."

Policy

In addition to convincing people to be more physically active and eat a healthier diet, state and community programs should work to create environments, systems, and policies that

- Serve as passive inducements to being physically active and eating a healthy diet.
- Eliminate barriers to being active and eating a healthy diet.
- Provide explicit support, reinforcement, and inducements to making healthy choices such as taking stairs rather than riding elevators or eating fruits or vegetables instead less healthy foods.
- Change cultural and organizational norms for physical activity and body weight.
- Establish themselves as partners in planning and decision-making on environmental and policy issues that affect people's eating and physical activity habits.

Communications

Health communications efforts should have three main goals: 1) to educate the public about the importance of diet and exercise and motivate them to eat healthier and engage in more physical activity, 2) to motivate relevant groups and policy makers to create policies and environments that support healthy eating and increased physical activity, and 3) to eventually change social norms related to eating and activity. Potential audiences for communications activities might include others within the agencies, decision makers, health care providers, the general public, specific segments of the population, policy makers, the media, business leaders, and partners. Because each audience will have different concerns and "cultures," health communicators will need to be adept at defining their various audiences and at designing culturally appropriate communications strategies and messages for each. The CDCynergy program (www.cdc.gov/cdcynergy) can assist programs in planning communications activities.[80]

Because eating and exercise habits are complex

Table 3. Potential Partners for Comprehensive Nutrition and Physical Activity Programs

Organization	Web Site
American Academy of Pediatrics	www.aap.org/
American Alliance for Health, Physical Education, Recreation and Dance	www.aahperd.org
American Association of Public Health Physicians	www.aaphp.org
American Cancer Society	www.cancer.org
American College of Sports Medicine	www.acsm.org
American College of Preventive Medicine	www.acpm.org
American Council on Exercise	www.acefitness.org
American Diabetes Association	www.diabetes.org
American Dietetic Association	www.eatright.org
American Heart Association	www.americanheart.org
American Public Health Association	www.apha.org
Association of Schools of Public Health	www.asph.org
Association of Teachers of Preventive Medicine	www.atpm.org
Centers for Disease Control and Prevention	www.cdc.gov
Cooper Institute for Aerobics Research	www.cooperinst.org
HHS Administration on Aging Division	www.aoa.gov
HHS Office of Minority Health	www.omhr.gov
Human Kinetics Publishers	www.humankinetics.com
National Association for Community Health Centers	www.nachc.com
National Association for Health and Fitness	www.physicalfitness.org
National Heart, Lung, and Blood Institute	www.nhlbi.nih.gov
National Cancer Institute	www.cancernet.nci.hig.gov
National Institute of Diabetes, Digestive, and Kidney Diseases	www.niddk.nih.gov
National Park Service: Rivers, Trails, and Conservation Assistance Program	www.nps.gov/rtca
National Recreation and Park Association	www.nrpa.org
President's Council on Physical Fitness and Sports	www.fitness.gov
Prevention Research Centers	www.cdc.gov/prc
Society for Public Health Education	www.sophe.org
Society for Nutrition Education	www.sne.org
U. S. Department of Agriculture	www.usda.gov
U. S. Department of Education	www.ed.gov
U. S. Department of Energy	www.energy.gov
U. S. Department of Transportation	www.dot.gov
U. S. Food and Drug Administration	www.fda.gov
YMCA of the United States	www.ymca.net

behaviors linked to larger social, cultural, political, economic, and environmental factors, health communications activities should be part of a larger plan that addresses these other factors. Social marketing provides a useful framework for such a broad approach to health communications. Resources on social marketing can be found at http://socialmarketing-nutrition.ucdavis.edu/home.htm, www.turningpointprogram.org/Pages/socialmkt.html, and www.hc-c.gc.ca/hppb/socialmarketing.

Health communications messages should be as specific as possible (e.g., "Eat 5 a Day" rather than "Eat a Healthy Diet"). Because members of the general public cannot be expected to know what terms like "healthy diet" and "moderate physical activity" mean, program planners and health communicators should determine how their audiences perceive such concepts and define them more clearly if research shows this to be necessary. Research should include formative research (e.g., focus groups), pretesting of concepts and messages, and monitoring during the implementation of the program.

The Weight-Control Information Network (WIN) is a national service of NIH's National Institute of Diabetes and Digestive and Kidney Diseases. WIN was established in 1994 to raise awareness and provide up-to-date, science-based information on obesity, physical activity, weight control, and related nutritional issues to health professionals, people who are overweight or obese, the media, Congress, and the general public. *WIN Notes,* WIN's newsletter, features information on obesity and weight control research, new initiatives and programs, professional organizations, and materials and resources available from WIN and other organizations and agencies. Other publications include brochures, fact sheets, article reprints, conference and workshop proceedings, and materials developed by NIDDK on obesity and nutrition. For more information, see www.niddk.nih.gov/health/nutrit/win.htm.

The California Nutrition Network (www.dhs.ca.gov/cpns/network/index.html) offers an example of how states can design appropriate materials for specific populations. For several years, this group has produced social marketing campaigns that focus on the dietary habits of various target populations.

Professional Development

Staff should be familiar with recent scientific research related to nutrition and physical activity, as well as with current guidelines about what constitutes healthful dietary and physical activity behaviors. At a minimum, those who work with surveillance data should be familiar with current technology related to the measurement of these behaviors and associated environmental indicators. Those who work with programs may require training on behavioral and environmental motivators, program development and partnering strategies, program evaluation, social marketing, and communications. Networking with members of nutrition and physical activity programs in other states is another way for program personnel to stay abreast of new developments in their field.

Examples of training opportunities in physical activity include the Physical Activity and Public Health Courses. This series includes the 6-day Public Health Practitioner's Course on Community Interventions, the 8-day postgraduate Research Directions & Strategies course conducted annually by the University of South Carolina, and the national 5 A Day training conducted twice yearly by NCI and CDC. Various national organizations also offer opportunities for professional development in areas related to physical activity and nutrition. Such organizations include the American College of Sports Medicine; the American Alliance of Health, Physical Education, Recreation and Dance; the Society for Public Health Education; the Society for Nutrition and Education; the American Public Health Association; the Social Marketing for Public Health Conference; and the American Dietetic Association. The Web site of CDC's Division of Nutrition and Physical Activity (www.cdc.gov/nccdphp/dnpa) provides information on CDC-funded research and practices in these areas. CDC also offers monthly

nutrition and physical activity teleconferences. National training resources on obesity include health care provider training by the Centers for Obesity Research and Education (www.uchsc.edu/core/index.htm) and weight management training for dietitians provided by the Commission on Dietetic Registration (www.cdrnet.org/whatsnew/certificateofTraining.htm).

Challenges Ahead

Although the dietary practices of Americans have changed substantially in the past 20 years, none of these changes has yet been causally linked to the obesity epidemic. Thus the development of effective evidence-based strategies to prevent and treat obesity through dietary changes remains a high priority. In addition, although obesity has been negatively correlated with physical activity levels and breastfeeding history and positively correlated with time spent watching television, we have only limited information about the best way to translate these findings into effective public health strategies. Thus further research and continued monitoring of existing interventions are essential in these areas as well. Furthermore, as health departments attempt to coordinate the efforts of various categorical programs promoting physical activity and healthful diets, new, more effective strategies are likely to emerge.

Web-Based Resources

Public Health Policy

www.healthypeople.gov*:* Provides updated information on *Healthy People 2010* objectives, leading health indicators, and national and state programs.

www.cdc.gov/nccdphp/sgr/sgr.htm*: The Surgeon General's Report on Physical Activity and Health* (1996).

www.surgeongeneral.gov/topics/obesity: *The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity*. Provides updated information on strategies to reduce the burden caused by obesity.

www.nns.nih.gov: National Nutrition Summit. Provides highlights of accomplishments in the areas of food, nutrition, and health since the landmark 1969 White House Conference on Food, Nutrition, and Health and identifies continuing challenges and emerging opportunities for the nation in these areas; focuses on nutrition and lifestyle issues affecting people of all ages, particularly those related to the nation's epidemic of overweight and obesity.

www.cdc.gov/nccdphp/publicat.htm*:* A source for various government publications relevant to physical activity and health.

http://odphp.osophs.dhhs.gov: Provides information on public health policies and reports and on the Best Practices Initiative of HHS's Office of Disease Prevention and Health Promotion.

Surveillance, Evaluation, and Research

www.cdc.gov/nccdphp/brfss: Provides Behavioral Risk Factor Surveillance System data, including state and national summaries as well as copies of current and past questionnaires.

www.cdc.gov/nccdphp/dash/yrbs/index.htm: Provides Youth Risk Behavior Survey data as well as copies of current and past questionnaires.

www.cdc.gov/nccdphp/dnpa/pnss.htm: Provides information collected by the Pediatric Nutrition Surveillance System, including data collected from health, nutrition, and food assistance programs for infants and children.

www.cdc.gov/nccdphp/dnpa/physical/handbook/index.htm*: Physical Activity Evaluation Handbook*. Provides tools for state and local agencies and community-based organizations that are evaluating physical activity programs.

For additional information on how to conduct evaluations of health programs, see www.cdc.gov/

eval.

Interventions and Program Development

http://thecommunityguide.org/pa/ Guide to Community Preventive Services. Provides recommendations for effective, evidence-based strategies.

www.cdc.gov/nccdphp/dnpa/kidswalk/kidswalk_guide.htm: Includes information on how communities can implement the Kids Walk to School Program.

www.paceproject.org: Patient-centered Assessment and Counseling for Exercise and Nutrition. Provides information on physician counseling techniques for physical activity and nutrition programs.

www.cdc.gov/nccdphp/dnpa/pahand.htm*:* Provides access to *For Promoting Physical Activity: A Guide for Community Action.*

www.cdc.gov/nccdphp/dnpa*:* The Web site of CDC's Division of Nutrition and Physical Activity.

www.cdc.gov/nccdphp/dash/SHI/index.htm*:* The Web site of CDC's School Health Index.

www.state.hi.us/doh/legrpts2002/tspact_259sec27.pdf: The Web site of the Healthy Hawaii Initiative, which provides examples of community health improvement strategies in the areas of tobacco use prevention and control, physical activity, and nutrition.

www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm: This web site provides the *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults* from the National Heart, Lung, and Blood Institute.

www.ihs.gov/MedicalPrograms/Nutrition. The Web site of the Indian Health Services' National Nutrition and Dietetics Training program.

www.astphnd.org: Nutrition and Physical Activity Work Group's *Guidelines for Comprehensive Programs to Promote Healthy Eating and Physical Activity.*

http://thecommunityguide.org/pa: A systematic review of the effectiveness of selected population-based interventions designed to increase levels of physical activity from the Task Force on Community Preventive Services.

www.cdc.gov/breastfeeding/00binaries/bluprntbk2.pdf: *HHS Blueprint for Action on Breastfeeding, 2000*.

www.cdc.gov/nccdphp/dnpa/pep.htm*:* Personal Energy Plan (PEP), a 12-week self-directed work site program.

Communications and Social Marketing

www.cdc.gov/cdcynergy/: The Web site for CDCynergy, an interactive CD ROM that guides the user through the communications planning process.

www.hsc.usf.edu/CFH/ntcsm/: An on-line training course in social marketing from the University of South Florida.

http://www.niddk.nih.gov/health/nutrit/win.htm: The Web site of NIH's Weight Control Information Network.

Partnerships, Alliances, and Coalitions

www.dhs.ca.gov/cpns/index.htm*:* Describes nutrition-related partnering opportunities in California.

www.ncpreventionpartners.org*:* Describes how North Carolina used various partnerships to pursue public health goals.

www.cdc.gov/prc/glance*:* A CDC Web site that lists current Prevention Research Centers and describes some of the projects they have engaged in.

References

1. McGinnis JM, Foege WH. Actual causes of death in the United States. *JAMA* 1993; 270:2207-12.
2. Hahn RA, Teutsch SM, Rothenberg RB, Marks JS. Excess deaths from nine chronic diseases in the United States, 1986. *JAMA* 1990; 264:2654-9.
3. Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General.* Atlanta: Department of Health and Human Services, Centers for Disease Control and Prevention, 1996.
4. Department of Health and Human Services. *Healthy People 2010. 2nd ed.* 2 vols. Washington, DC: U.S. Government Printing Office, 2000.
5. Ness AR, Powles JW. Fruit and vegetables and cardiovascular disease: a review. *Int J Epidemiol* 1997;26:1-13.
6. Ness AR, Powles JW. High costs of poor eating patterns in the United States. In: Frazao E, editor. *America's Eating Habits: Changes and Consequences.* Washington, DC: U.S. Department of Agriculture, Economic Research Service, Food and Rural Economics Division, 1999:5-32. Agriculture Information Bulletin No. 750. Available at www.ers.usda.gov/publications/aib750.
7. Department of Health and Human Services, Office on Women's Health. *HHS Blueprint for Action on Breastfeeding, 2000*. Available at www.cdc.gov/breastfeeding/00binaries/bluprntbk2.pdf.
8. Dietz WH. Breastfeeding may help prevent childhood obesity. *JAMA* 2001;285:2506-7.
9. American Academy of Pediatrics. Policy statement on breastfeeding and the use of human milk. *Pediatrics* 1997;100(6):1035-9.
10. Centers for Disease Control and Prevention. Physical activity and the prevention of coronary heart disease. *MMRW Morb Mortal Wkly Rep* 1993;42:669-72.
11. Mokdad AH, Serdula MK, Dietz WH, Bowman BA, Marks JS, Koplan JP. The spread of the obesity epidemic in the United States, 1991-1998. *JAMA* 1999;282:1519-22.
12. Mokdad AH, Serdula MK, Dietz WH, Bowman BA, Marks JS, Koplan JP. The continuing epidemic of obesity in the United States. *JAMA* 2000;284(13):1650-1.
13. Mokdad AH, Bowman BA, Ford ES, Vinicor F, Marks JS, Koplan JP. The continuing epidemics of obesity and diabetes in the United States. *JAMA* 2001;286(10):1195-200.
14. Flegal KM, Carroll MD, Ogden CL, Johnson CL. Prevalence and trends in obesity among US adults, 1999-2000. *JAMA* 2002;288:1723-7.
15. Thompson D, Edelsberg J, Colditz GA, Bird AP, Oster G. Lifetime health and economic consequences of obesity. *Arch Intern Med* 1999;159:2177-83.
16. Colditz GA. Economic costs of obesity and inactivity. *Med Sci Sports Exerc* 1999;31(11): S663-7.
17. Pratt M, Macera CA, Wang G. Higher direct medical costs associated with physical inactivity. *The Physician and Sports Medicine* 2000; 28:63-70.
18. Wolf AM, Colditz GA. Current estimates of the economic cost of obesity in the United States. *Obes Res* 1998;6:97-106.
19. Gortmaker SL, Must A, Perrin JM, Sobol AM, Dietz WH. Social and economical consequences of overweight in adolescence and young adulthood. *N Engl J Med* 1993;29:1008-12.
20. McLeroy KR, Bibeau D, Steckler A, Glanz K. An ecological perspective on health promotion programs. *Health Educ Q* 1988; 15:351-77.
21. Abrams DB. Conceptual models to integrate individual and public health interventions: the example of the workplace. In: *Proceedings of the International Conference on Promoting Dietary Change in Communities.* Seattle: The Fred Hutchinson Cancer Research Center, 1991: 170-90.

22. Gottlieb NH, McLeroy KR. Social health. In: O'Donnell MP, Harris JS, editors. *Health Promotion in the Workplace, 2nd ed.* Albany, NY: Delmar Publishers, 1994.

23. Green LW, McAllister AL. Macro-intervention to support health behavior: some theoretical perspectives and practical reflections. *Health Educ Q* 1984;1:322-39.

24. King AC. Community intervention for promotion of physical activity and fitness. *Exerc Sport Sci Rev* 1991;19:211-59.

25. King AC, Jeffery RW, Fridinger F, et al. Environmental and policy approaches to cardiovascular and disease prevention through physical activity: issues and opportunities. *Health Educ Q* 1995; 22(4):499-511.

26. Lasater T, Abrams D, Artz L, et al. Lay volunteer delivery of a community-based cardiovascular risk factor change program: the Pawtucket Experiment. In: Matarazzo JD, Weiss SM, Herd JA, editors. *Behavioral Health: A Handbook of Health Enhancement and Disease Prevention*. New York: Wiley, 1984:1166-70.

27. Stokols D. Translating social ecological theory into guidelines for community health promotion. *Am J Health Promot* 1996; 10(4):282-98.

28. Nutrition and Physical Activity Work Group. *Guidelines for Comprehensive Programs to Promote Healthy Eating and Physical Activity.* Champaign, IL: Human Kinetics, 2002. Available at www.astphnd.org.

29. Andersen R, Crespo C, Bartlett S, Cheskin L, Pratt M. Relationship of physical activity and TV watching with body weight and level of fatness among children: results from the Third National Health and Nutrition Examination Survey. *JAMA* 1998;279(12):938-42.

30. Centers for Disease Control and Prevention. Increasing physical activity: a report on the recommendations of the Task Force on Community Preventive Services. *MMWR Recomm Rep* 2001;50(RR-18):1-14.

31. Roberts DF, Foehr UG, Rideout VJ, Brodie M. *Kids and Media @ the New Millennium*. A Kaiser Family Foundation Report, 1999 (www.kff.org/content/1999/1535).

32. Woodard EH, Gridina N. *Media in the Home 2000: The Fifth Annual Survey of Parents and Children.* The Annenberg Public Policy Center, 2000. (www.appcpenn.org/mediainhome/survey/survey7.pdf).

33. Crespo CJ, Smit E, Troiano RP, Bartlett SJ, Macera CA, Andersen RE. Television watching, energy intake and obesity in U.S. children. *Arch Pediatr Adolesc Med* 2001;155:360-5.

34. Dowda M, Ainsworth BE, Addy CL, Saunders R, Riner W. Environmental influences, physical activity, and weight status in 8- to 16-year-olds. *Arch Pediatr Adolesc Med* 2001;155(6):711-7.

35. Clancy-Hepburn K, Hickey AA, Nevill G. Children's behavior responses to TV food advertisements. *J Nutr Educ* 1974;6:93-6.

36. Gortmaker S, Must A, Sobol A, Peterson KI, Colditz G, Dietz W. TV viewing as a cause of increasing obesity among children in the United States, 1986-1990. *Arch Pediatr Adolesc Med* 1996:150:356-62.

37. Robinson TN. Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA* 1999;282(16):1561-7.

38. Robinson TN. Television viewing and childhood obesity. *Pediatr Clin North Am* 2001:48(4): 1017-25.

39. Gortmaker Sl, Cheung LWY, Peterson KE, et al. Impact of a school-based interdisciplinary intervention on diet and physical activity among urban primary school children: eat well and keep moving. *Arch Pediatr Adolesc Med* 1999;153(9): 975-83.

40. Gortmaker SL, Peterson K, Wiecha J, et al. Reducing obesity via a school-based interdisciplinary intervention among youth: Planet Health. *Arch Pediatr Adolesc Med* 1999;153(4):409-18.

41. Centers for Disease Control and Prevention. *Promoting Physical Activity: A Guide for Community Action.* Champaign, IL: Human Kinetics, 1999. Information on obtaining a copy is available at www.humankinetics.com.

42. Association of State and Territorial Public Health Nutrition Directors. *Moving to the Future: Developing Community-Based Nutrition Services,* 1996. Available at www.astphnd.org/programs/moving.htm.

43. Centers for Disease Control and Prevention. Community-based programs addressing multiple factors in heart health. In: *Worldwide Efforts to Improve Heart Health: A Follow-up to the Catalonia Declaration.* Atlanta: Department of Health and Human Services, 1997: 3-96.

44. Brownson RC, Housemann RA, Brown DR, et al. Promoting physical activity in rural communities: walking trail access, use, and effects. *Am J Prev Med* 2000;18:235-41.

45. Luepker RV, Murray DM, Jacobs DR Jr, et al. Community education for cardiovascular disease prevention: risk factor changes in the Minnesota Heart Health Program. *Am J Public Health* 1994;84:1383-93.

46. Young DR, Haskell WL, Taylor CB, Fortmann SD. Effect of community health education on physical activity knowledge, attitudes, and behavior. *Am J Epidemiol* 1996;144:264-74.

47. Heath GW, Wilson RH, Smith J, Leonard BE. Community-based exercise and weight control: diabetes risk reduction and glycemic control in Zuni Indians. *Am J Clin Nutr* 1991;53: 1642S-6S.

48. Hinkle AJ. Community-based nutrition interventions: reaching adolescents from low-income communities. *Ann NY Acad Sci* 1997;817:83-93.

49. The California Adolescent Nutrition and Fitness Program (CANFit). *CANFit Recipes for Success: Nutrition and Physical Activity Programs for Youth.* Berkeley, CA: CANFit. Available from www.canfit.org.

50. Fortmann SP, Varady AN. Effects of a community-wide health education program on cardiovascular disease morbidity and mortality: the Stanford Five-City Project. *Am J Epidemiol* 2000;152:316-23.

51. Brownson RC, Smith CA, Pratt M, et al. Preventing cardiovascular disease through community-based risk reduction: the Bootheel Heart Health Project. *Am J Public Health* 1996; 86:206-13.

52. Brownson CA, Dean C, Dabney S, Brownson RC. Cardiovascular risk reduction in rural minority communities: The Bootheel Heart Health Project. *Journal of Health Education* 1998;29:158-65.

53. Sallis JF, McKenzie TL, Alcaraz JE, Kolody B, Faucette N, Hovell MF. The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. *Am J Public Health* 1997;87:1328-34.

54. Luepker RV, Perry CL, McKinlay SM, et al. Outcomes of a field trial to improve children's dietary patterns and physical activity. The Child and Adolescent Trial for Cardiovascular Health (CATCH). *JAMA* 1996;275:768-76.

55. Marx E, Wooley SF, Northrop D, editors. *Health is Academic: A Guide to Coordinated School Health Programs.* New York: Teachers College Press, 1998.

56. McKenzie TL, Nader PR, Strikmiller PK, et al. School physical education: effect of The Child and Adolescent Trial for Cardiovascular Health. *Prev Med* 1996;25:423-31.

57. Troiano RP, Flegal KM, Kuczmarski RJ, et al. Overweight prevalence and trends for children and adolescents: The National Health and Nutrition Examination Surveys, 1963 to 1991. *Arch Pediatr Adolesc Med* 1995;149:1085-91.

58. Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA* 2002;288(14):1728-32.

59. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance, United States, 1999. *MMWR Surveill Summ* 2000;49(SS-5): 1-96.

60. Centers for Disease Control and Prevention. Guidelines for school health programs to promote lifelong healthy eating. *MMWR Recomm Rep* 1996;45(RR-9):1-33.

61. Centers for Disease Control and Prevention. Guidelines for school and community programs to promote lifelong physical activity among young people. *MMWR Recomm Rep* 1997; 46(RR-6):1-36.

62. Centers for Disease Control and Prevention. *School Health Index for Physical Activity and Healthy Eating: A Self-Assessment and Planning Guide* (elementary school version). Atlanta: Department of Health and Human Services, 2000.

63. Centers for Disease Control and Prevention. *School Health Index for Physical Activity and Healthy Eating: A Self-Assessment and Planning Guide* (middle school/high school version). Atlanta: Department of Health and Human Services, 2000.

64. Bogden JF. *Fit, Healthy, and Ready to Learn: A School Health Policy Guide. Part 1: Physical Activity, Healthy Eating, and Tobacco-Use Prevention*. Alexandria, VA: National Association of State Boards of Education, 2000 (www.nasbe.org/healthyschools/fithealthy.mgi).

65. National Association for Sport and Physical Education. *Moving into the Future: National Standards for Physical Education. A Guide to Content and Assessment*. Reston, VA: Mosby, 1995.

66. U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services, 2nd ed.* Baltimore: Williams & Wilkins, 1996.

67. Calfas KJ, Long BJ, Sallis JF, Wooten WJ, Pratt M, Patrick K. A controlled trial of physician counseling to promote the adoption of physical activity. *Prev Med* 1996;25:225-33.

68. Long BJ, Calfas, KJ, Wooten W, et al. A multisite field test of the acceptability of physical activity counseling in primary care: Project PACE. *Am J Prev Med* 1996;12:73-81.

69. Centers for Disease Control and Prevention. Updated guidelines for evaluating surveillance systems: recommendations from the Guidelines Working Group. *MMWR Recomm Rep* 2001; 50(RR-13):1-35.

70. Teutsch SM, Churchill RE, editors. *Principles and Practice of Public Health Surveillance.* New York: Oxford University Press, 1994.

71. Thacker SB, Berkelman RL. Public health surveillance in the United States. *Epidemiol Rev* 1988;10:164-90.

72. Thacker SB, Stroup DB. Future directions for comprehensive public health surveillance and health information systems in the United States. *Am J Epidemiol* 1994;140:383-97.

73. Macera CA, Pratt M. Public health surveillance of physical activity. *Res Q Exerc Sport* 2000; 71:S97-S103.

74. Department of Agriculture, Department of Health and Human Services. *Nutrition and Your Health: Dietary Guidelines for Americans, 5th ed.* Home and Garden Bulletin No. 232. Washington, DC: Government Printing Office, 2000.

75. Department of Health and Human Services. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report.* Rockville, MD: National Institutes of Health, 1998.

76. ACC/SCN. Suggested approaches for nutritional surveillance for the Interagency Food and Nutrition Surveillance Program. *Food Nutr Bull* 1989;11:62-73.

77. Ballard-Barbash R. Designing surveillance systems to address emerging issues in diet and health. *J Nutr* 2001;131:437S-9S.

78. Habicht JP, Pelletier DL. The importance of context in choosing nutritional indicators. *J Nutr* 1990;120:1519-24.

79. Peterson KE, Chen LC. Defining undernutrition for public health purposes in the United States. *J Nutr* 1990:120:933-42.

80. Centers for Disease Control and Prevention. *CDCynergy: An Interactive Multi-Media Tool for Planning Health Communication Within a Public Health Framework.* Atlanta: Centers for Disease Control and Prevention, 2001 (www.cdc.gov/cdcynergy).

Advancing Tobacco Control Through Evidence-Based Programs

Table of Contents

5

Advancing Tobacco Control Through Evidence-Based Programs

Overview

In the Surgeon General's report, *Reducing Tobacco Use*, former U.S. Surgeon General David Satcher noted that "Our lack of greater progress in tobacco control is more the result of our failure to implement proven strategies than it is the lack of knowledge about what to do."[1] The report provides a complete analysis of five major approaches to reducing tobacco use: educational, clinical, regulatory, economic, and comprehensive. The authors of the report concluded that the comprehensive approach, which involves the synergistic coordination of the other major approaches, has been most successful in reducing tobacco use, and that statewide comprehensive approaches were particularly effective. They estimated that if the strategies shown to be effective were fully implemented, the rates of tobacco use, both among young people and among adults, could be cut in half by 2010.[2] In an independent analysis, the Institute of Medicine (IOM) also concluded that comprehensive state tobacco control programs can reduce rates of smoking and save lives.[3]

The conclusions of the Surgeon General's report and the IOM report are thus consistent: comprehensive statewide tobacco control programs work. Recommended strategies for implementing such programs can be found in *Reducing Tobacco Use* (www.cdc.gov/tobacco)[2] and *Best Practices for Comprehensive Tobacco Control Programs* (www.cdc.gov/tobacco)[4] from the Centers for Disease Control and Prevention (CDC) and on the Web sites of the Task Force on Community Preventive Services (www.thecommunityguide.org)[5] and the Surgeon General (www.surgeongeneral.gov/tobacco/smokesum.htm).[6] The proven strategies discussed in these sources provide a strong foundation for action at the state and local levels. Possible funding sources for comprehensive state tobacco control programs include money from the settlement of the states' lawsuits against the tobacco industry, state excise tax revenues, general state funds, and federal and private sources.

Burden

Tobacco use is the single most preventable cause of death and disease in the United States. Each year, it causes more than 440,000 deaths and costs the nation approximately $75 billion in medical expenses and $81.9 million in productivity losses.[7] Tobacco use is associated with cancer, heart disease, chronic obstructive pulmonary disease, and stroke—4 of the 5 leading causes of death in the United States. In 2000, an estimated 46.5 million U.S. adults (23.3%) were current smokers. The prevalence of smoking was higher among men (25.7%) than among women (21.0%). Among racial/ethnic groups, Asians (14.4%) and Hispanics (18.6%) had the lowest prevalence of adult cigarette use, and American Indians/Alaska Natives had the highest rates (36%) (Table 1).[8] Although nearly 70% of adult smokers want to quit smoking completely, only a small fraction are successful in any given year because of the highly addictive nature of tobacco use.[9]

Smoking rates among children and youth are perhaps even more disturbing than rates among adults. For example, rates among U.S. high school students increased significantly from approximately 28% in 1991 to 35% in 1999,[10] while 15% of middle school students currently use some form of tobacco (cigarettes, smokeless tobacco, cigars, pipes,

bidis, or kreteks).[11] Overall, white teens are taking up smoking at higher rates than are black and Hispanic teens.[11] Although recent studies indicate that U.S. teen smoking rates may have leveled or begun to decline,[12] they are still substantially above the goals articulated in *Healthy People 2010.*[13]

Tobacco products other than conventional cigarettes have also had catastrophic effects on users' health. The use of smokeless tobacco has been associated with leukoplakia and oral cancer, as well as with the early indicators of these conditions, peridontal degeneration and soft tissue lesions; regular cigar use has been associated with cancers of the lungs, larynx, oral cavity, and esophagus; and the use of bidis (small, brown, often flavored tobacco cigarettes from India that are hand-rolled in tendu or tenburni leaf and secured with a string at one end) has been associated with heart disease and cancers of the mouth, pharynx and larynx, lung, esophagus, stomach, and liver. Although bidis were virtually unheard of in this country until quite recently, their popularity among young people has grown alarmingly: as of 2000, 2.4% of middle school students and 4.1% of high school students reported smoking bidis.

Table 1. Percentage of persons aged 18 years and older who were current smokers, by selected characteristics—National Health Interview Survey, United States, 2000*

	Men (n=13,986)		Women (n=18,388)		Total (n=32,374)	
Characteristic	**%**	**(95% CI†)**	**%**	**(95% CI)**	**%**	**(95% CI)**
Race/Ethnicity§						
White, non-Hispanic	25.9	(± 1.0)	22.4	(± 0.8)	24.1	(±0.7)
Black, non-Hispanic	26.1	(± 2.5)	20.9	(± 1.7)	23.2	(±1.5)
Hispanic	24.0	(± 2.1)	13.3	(± 1.6)	18.6	(±1.3)
American Indian/Alaska Native¶	29.1	(±11.0)	42.5	(±11.0)	36.0	(±8.0)
Asian**	21.0	(± 4.6)	7.6	(± 2.8)	14.4	(±2.8)
Education††						
0–12 (no diploma)	33.2	(± 2.2)	23.6	(± 1.7)	28.2	(±1.4)
≤8	*26.1*	*(± 3.1)*	*14.2*	*(± 2.2)*	*20.0*	*(±1.9)*
9–11	*37.6*	*(± 3.5)*	*30.8*	*(± 2.7)*	*33.9*	*(±2.2)*
12	*40.1*	*(± 6.8)*	*25.3*	*(± 5.1)*	*32.7*	*(±4.4)*
GED§§ diploma	50.1	(± 6.2)	44.3	(± 5.7)	47.2	(±4.3)
12 (diploma)	31.7	(± 1.9)	23.5	(± 1.4)	27.2	(±1.2)
Associate degree	21.9	(± 2.8)	20.4	(± 2.4)	21.1	(±1.8)
Some college	25.8	(± 2.1)	21.6	(± 1.7)	23.5	(±1.3)
Undergraduate degree	14.2	(± 1.7)	12.4	(± 1.5)	13.2	(±1.1)
Graduate degree	9.1	(± 1.8)	7.5	(± 1.6)	8.4	(±1.2)
Age group (yrs)						
18–24	28.5	(± 2.7)	25.1	(± 2.4)	26.8	(±1.8)
25–44	29.7	(± 1.4)	24.5	(± 1.1)	27.0	(±0.9)
45–64	26.4	(± 1.5)	21.6	(± 1.3)	24.0	(±1.0)
≥65	10.2	(± 1.3)	9.3	(± 1.0)	9.7	(±0.8)
Poverty status¶¶						
At or above	25.4	(± 1.0)	20.4	(± 0.9)	22.9	(±0.7)
Below	35.3	(± 3.2)	29.1	(± 2.3)	31.7	(±1.9)
Unknown	23.6	(± 1.8)	19.5	(± 1.4)	21.4	(±1.1)
Total	25.7	(± 0.8)	21.0	(± 0.7)	23.3	(±0.5)

* Smoked >100 cigarettes during their lifetime and reported at the time of interview smoking every day or some days. Excludes 301 respondents for whom smoking status was unknown.

† Confidence interval.

§ Excludes 287 respondents of unknown, multiple, and other racial/ethnic categories.

¶ Wide variances among estimates reflect limited sample sizes.

** Does not include Native Hawaiians and Other Pacific Islanders.

†† Persons aged >25 years. Excludes 305 persons with unknown years of education.

§§ General Educational Development.

¶¶ The 1999 poverty thresholds from the Bureau of the Census were used in these calculations.

Smoking also poses health risks for nonsmokers as well as for those who smoke. Nearly 9 of 10 nonsmoking Americans are exposed to environmental tobacco smoke (ETS), which has been associated with lung cancer and heart disease among nonsmoking adults and with serious respiratory problems among children. In addition, substantial evidence now indicates that ETS exposure is also associated with low birthweight and sudden infant death syndrome.

The consequences of tobacco use have become a global concern. The World Health Organization (WHO) estimates that about 4 million people die every year of tobacco-related diseases and that without effective international tobacco control programs, the annual death toll will increase to as many as 10 million by 2030, including 7 million among people in developing countries.

Healthy People 2010 Objectives

Tobacco use is one of the 28 focus areas of *Healthy People 2010* . For more information on the tobacco-related objectives in *Healthy People 2010*, visit www.healthypeople.gov.

National Leadership

Reducing rates of tobacco use requires a partnership between the federal government and states. Several federal agencies have conducted studies whose results can provide a foundation for state action, including the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), the Substance Abuse and Mental Health Services Administration (SAMHSA), and the Agency for Health Care Policy and Research (AHCPR). These and other federal entities have produced and disseminated important information about the extent of tobacco use, the impact of tobacco use, and the effectiveness of various interventions to reduce tobacco use.

Surveys

Federally supported surveys of tobacco use include the Behavioral Risk Factor Survey, the National Health Interview Survey, the Youth Risk Behavior Survey, and the Youth Tobacco Survey conducted through CDC; the tobacco use supplement to the current population survey being conducted by the Bureau of Census, with support from NIH and CDC; the Monitoring the Future Study conducted through NIH; and the National Household Survey on Drug Abuse conducted through SAMHSA.

Research

The federal government also has sponsored research on the health impact of tobacco use, the determinants of tobacco use, and interventions to reduce tobacco use. Most of this research has been supported by NIH's National Cancer Institute (NCI); however, research into tobacco use has also been supported by other federal entities, including the National Institute on Drug Abuse, the National Institute of Child Health and Development, and the National Heart, Lung, and Blood Institute. Besides supporting disease-specific research, NCI has supported smoking-prevention and smoking-cessation intervention studies, including mass media and school trials and large-scale demonstration projects such as COMMIT and ASSIST. CDC also supports applied research through its Prevention Research Centers; this research focuses on identifying population segments disproportionately affected by tobacco use and on reducing or eliminating these disparities.

Programs

In addition to providing research and survey data that can help states design and implement tobacco control programs, various federal entities also directly support state programs. For example, SAMHSA implements the Synar regulation to reduce youth access to tobacco products through state-level compliance activities; AHCPR has published clinical practice guidelines on smoking cessation and has worked with a variety of health care organizations to ensure that the guidelines are implemented; and CDC supports several programs to prevent and reduce tobacco use, including the National Tobacco Control Program, which in FY

1999 funded efforts in all states and territories and the District of Columbia to establish core tobacco use prevention and reduction programs. CDC has also developed several educational and media programs that can be used in tobacco control efforts, including the Media Campaign Resource Center, which makes high-quality antismoking advertising materials available for use by states and organizations.

Private organizations are also playing an increasing role in tobacco control. The Robert Wood Johnson Foundation/American Medical Association's SmokeLess States program, for example, directly funds policy-focused interventions and approaches by private, nonprofit organizations. The American Legacy Foundation, an independent national public health foundation, is another important source of funding for state tobacco control programs. Created by the 1998 Master Settlement Agreement between participating states and the tobacco industry, the foundation aims to reduce rates of tobacco use and ETS exposure, reduce disparities in access to prevention and cessation services, and increase smoking-cessation rates. Although numerous national organizations have undertaken critical activities to curb tobacco use, the success of tobacco control interventions will ultimately depend on the state and local agencies that devise and implement them.

Following is a list of some of the national organizations that can aid in state and local tobacco control efforts:

Action on Smoking and Health: www.ash.org

Advocacy Institute: www.advocacy.org

American Cancer Society: www.cancer.org

Americans for Nonsmokers' Rights: www.no-smoke.org

American Heart Association: www.americanheart.org

American Legacy Foundation: www.americanlegacy.org

American Lung Association: www.lungusa.org

Agency for Healthcare Research and Quality: www.ahrq.org

Campaign for Tobacco-Free Kids: www.tobaccofreekids.org

Environmental Protection Agency: www.epa.gov

National Cancer Institute: www.nci.nih.gov

CDC: www.cdc.gov/tobacco

Robert Wood Johnson Foundation/American Medical Association SmokeLess States program: www.ama-assn.org/ama/pub/category/3230.html

Substance Abuse and Mental Health Services Administration: www.samhsa.gov

Prevention Opportunities

Data from California and Massachusetts show that comprehensive tobacco control programs can substantially reduce tobacco use, and in the case of California, reduce rates of death from lung cancer and cardiovascular disease. CDC recommends that such programs have four main goals:

- To prevent the initiation of tobacco use among young people (primary prevention).
- To help current smokers quit (secondary prevention).
- To eliminate ETS exposure among nonsmokers (primary and secondary prevention).
- To identify population groups disproportionately affected by tobacco use and eliminate these disparities (primary and secondary prevention).

Comprehensive tobacco control programs should attempt to create "environments" in which smoking is discouraged or banned. The primary way of doing this is by supporting legislative, regulatory, and voluntary organizational restrictions on the use of tobacco, such as on how it is sold, priced, and promoted, and where tobacco products are allowed to be used. These "environmental change" efforts should be supported by tobacco use prevention, treatment, and cessation programs and efforts to prevent people from being exposed to environmental tobacco smoke.

Comprehensive tobacco control programs should serve as a model for "cultural inclusiveness" and "cultural competency" by addressing the specific concerns of various population segments, including racial and ethnic minorities and other groups at high risk for tobacco-related diseases. They should also attempt to increase awareness of the disproportionate toll that tobacco use exacts from minorities and to convince minority advocacy groups to include tobacco control as part of their agendas.

Comprehensive tobacco control programs should attempt to partner with any group with overlapping interests that can help them reach their goals, from national nongovernmental health organizations such the American Cancer Society, to federal agencies such as CDC or NIH, to groups representing specific local constituencies such as a PTA chapter or minority advocacy group. Partnering with local groups or community leaders is essential, especially in areas with predominantly minority populations, since these local groups and leaders can help state program officials design interventions or educational campaigns that target local residents in a culturally appropriate manner.

Best Practices for Comprehensive Tobacco Control Programs[4] recommends ways in which states can establish tobacco control programs that are comprehensive, sustainable, and accountable. Its recommendations are based largely on analyses of existing state programs, especially on those in California and Massachusetts, which were funded with revenue from state tobacco excise taxes. Although the document includes recommended funding ranges for various program components, state officials are of course responsible for funding decisions and, in making them, will have to determine what their most pressing needs are and what funds are available.

Best Practices identifies the following nine categories of programs that should be part of any comprehensive state-level tobacco control program:

I. Community Programs to Reduce Tobacco Use

Local community programs offer a wide range of prevention activities, including engaging youth in developing and implementing tobacco control interventions; developing partnerships with local organizations; conducting educational programs for young people, parents, enforcement officials, community and business leaders, health care providers, school personnel, and others; and promoting both governmental and nongovernmental policies that promote clean indoor air, restrict access to tobacco products, foster insurance coverage for smoking-cessation treatment, and support other program objectives.

II. Chronic Disease Control Programs to Reduce the Burden of Tobacco-Related Diseases

Even if current tobacco use stopped, the accumulated effects of smoking would cause disease among past users for decades to come. Therefore, any comprehensive tobacco control program should encompass programs to prevent tobacco-related diseases and to detect them as early as possible, including cardiovascular disease prevention programs, asthma prevention programs, oral health programs, and cancer registries.

III. School Programs

School program activities include implementing CDC's *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*,[14] which call for tobacco-free policies, teacher training, parental involvement, cessation services, the implementation of curricula shown to be effective, and the coordination of school-based tobacco control efforts with those of local community coalitions and statewide media and educational campaigns.

IV. Enforcement

To be effective, tobacco control policies must be vigorously enforced, particularly policies that restrict minors' access to tobacco and those that restrict smoking in public places. State enforcement efforts should be coordinated with those of the Food and Drug Administration (FDA) and the

Substance Abuse and Mental Health Services Administration (SAMHSA). California and Massachusetts have addressed enforcement issues by making enforcement a required activity for all recipients of community program grants. Florida has taken a more centralized approach by having state alcoholic beverage control officers conduct compliance checks with the help of locally recruited youth in all regions of the state.

V. Statewide Programs

State tobacco control programs can support local programs by providing technical assistance in conducting program evaluations, using the media to discourage tobacco use, implementing smoke-free policies, and reducing minors' access to tobacco. Statewide organizations representing population segments disproportionately affected by tobacco use can be particularly helpful in devising and implementing interventions targeting those groups

VI. Counter-Marketing

As its name indicates, counter-marketing is used to counter the marketing efforts of tobacco companies as well as subtler social forces (such as youth peer pressure) that encourage smoking. Counter-marketing can take many forms, including paid television, radio, billboard, and print advertisements; the use of media advocacy and other public relations techniques such as press releases, local antismoking events, and health promotion activities; and efforts to reduce tobacco industry sponsorship and promotion of various events (often by helping to arrange for replacement sponsors). Counter-marketing activities can be used to promote smoking cessation and discourage smoking initiation, as well as to garner public support for tobacco control interventions. Counter-marketing campaigns should be a primary activity in all states with comprehensive tobacco control programs.

VII. Cessation Programs

Smoking-cessation programs can yield significant health and economic benefits. Effective cessation strategies include brief advice by medical providers, counseling, and pharmacotherapy. Smoking-cessation activities of comprehensive state tobacco control programs should include establishing population-based treatment programs such as telephone cessation helplines; working to ensure that treatment for tobacco use is covered under both public and private insurance; and eliminating cost barriers to treatment for underserved populations, particularly the uninsured.

Treating Tobacco Use and Dependence,[6] a Public Health Service-sponsored *Clinical Practice Guideline,* updates the 1996 *Smoking Cessation, Clinical Practice Guideline No. 18* that was sponsored by AHCPR. The original guideline reflected the scientific research literature published between 1975 and 1994. This guideline was written in response to new, effective clinical treatments for tobacco dependence that have been identified since 1994, and these treatments promise to improve the rates of successful tobacco cessation. A variety of supporting materials are also available, including a quick reference guide for clinicians and consumer materials in English and Spanish. For more information, see www.surgeongeneral.gov/tobacco.

VIII. Surveillance and Evaluation

Tobacco-use surveillance involves monitoring people's tobacco-related behaviors, attitudes, and long-term health outcomes at regular intervals. Tobacco control programs should use such surveillance activities to measure both local and statewide progress toward meeting short-term and intermediate objectives.

Through coordinated surveillance and evaluation activities, tobacco control programs can demonstrate their accountability, monitor the implementation of program elements, and measure their impact over various periods of time. Logic models can help them to plan and report on these surveillance and evaluation activities, as well as to use surveillance and evaluation results to

demonstrate the effectiveness of program activities to decision makers and to show program stakeholders what the program can accomplish over a given period of time (Figure 1).

An Introduction to Program Evaluation for Comprehensive Tobacco Control Programs[15] from CDC recommends that tobacco control programs divide their evaluation efforts into the following six steps:

Step 1: Engage stakeholders.

Step 2: Describe the program.

Step 3: Focus the evaluation design.

Step 4: Gather credible evidence.

Step 5: Justify conclusions.

Step 6: Ensure that evaluation findings are used, and share lessons learned.

To ensure the comparability of evaluation data from state tobacco control programs throughout the country, states should consider using surveillance systems compatible with the Behavioral Risk Factor Surveillance System (BRFSS), the Youth Risk Behavior Survey (YRBS), the Adult Tobacco Survey (ATS), and the Youth Tobacco Survey (YTS). States can modify these existing systems to meet their specific needs, either by adding additional questions or survey modules, by sampling more extensively to capture local-level data, or by focusing surveillance efforts on populations with high rates of tobacco use or tobacco-related illnesses. In addition, states can combine traditional surveillance with the collection of data on "environmental indicators" such as state and local tobacco policies, pro-tobacco efforts, and taxes on tobacco products; use information from a variety of sources in program planning; and disseminate surveillance and evaluation findings in forms most appropriate for specific groups of program stakeholders.

Although state agencies should develop the capacity to manage and conduct surveillance and evaluation activities, they should also, when possible, partner with organizations capable of helping them with these activities, including universities, various health organizations, and local groups that can help them reach populations disproportionately affected by tobacco use.

IX. Administration and Management

To be effective, tobacco control programs will need a strong management structure to coordinate program components, involve multiple state and local agencies (e.g., health, education, law enforcement) and levels of local government, and partner with statewide voluntary health organizations and community groups. In addition, their administration and management systems must be able to prepare and implement contracts and monitor program spending and program activities.

The management team of tobacco control programs should include people with expertise in program development, coordination, and management; fiscal management, including management of funding to state and local partners; leadership development; tobacco control and tobacco use prevention content; cultural competence; public health policy, including analysis, development, and implementation; community outreach and mobilization; training and technical assistance; health communications, including counter-marketing; the strategic use of both free and paid media messages; strategic planning; gathering and analyzing data (surveillance); and evaluation methods.

Technical Resources

General Planning Resources

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *Preventing Heart Disease and Stroke: Addressing the Nation's Leading Killers, At A Glance 2003* (www.cdc.gov/nccdphp/aag/aag_cvd.htm).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Cardiovascular Health Program (www.cdc.gov/nccdphp/cvh/index.htm).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) Computer Software and Documentation, 1996.

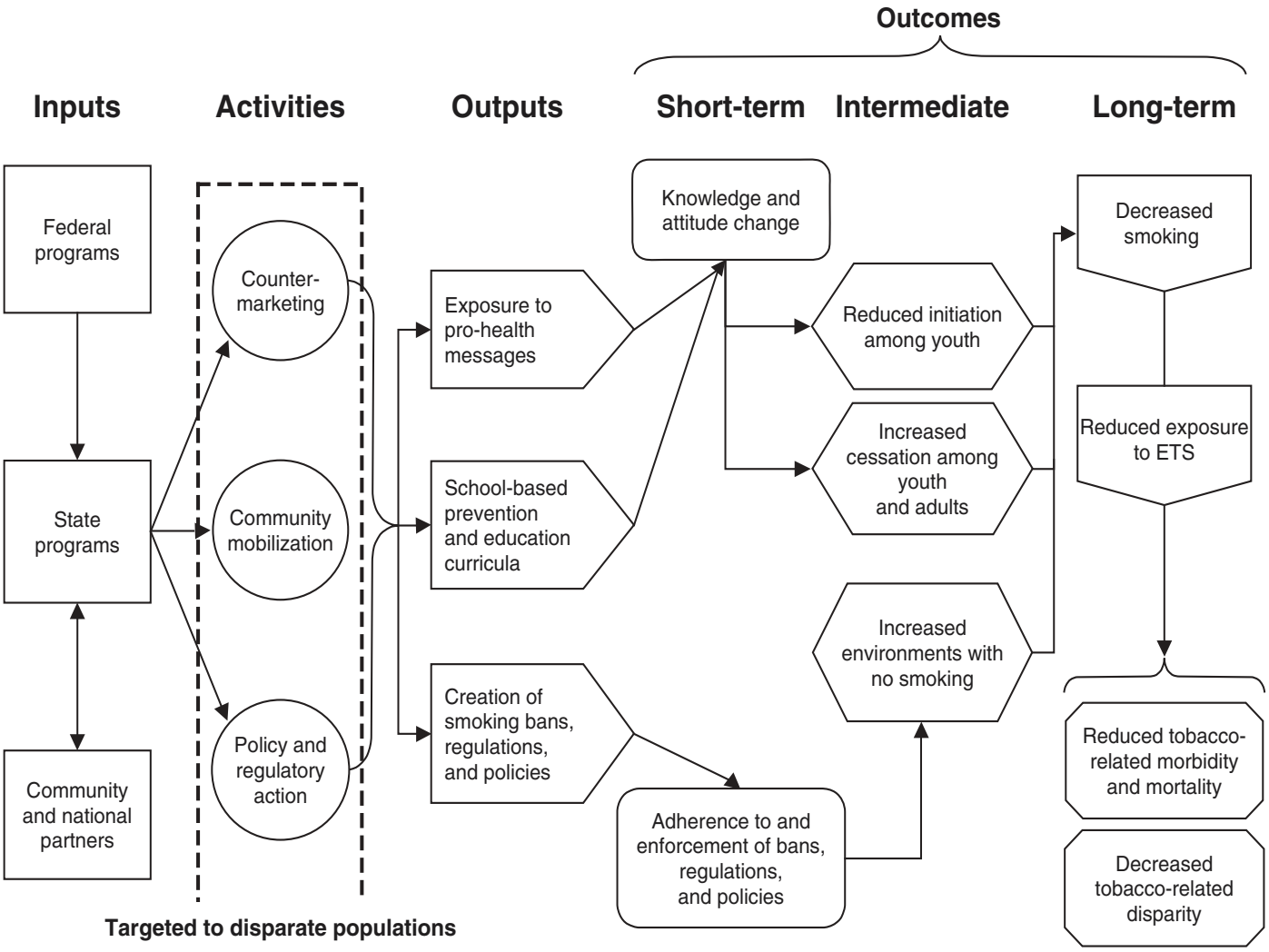
Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. *Tobacco Information and Prevention Source: Health Consequences* (www.cdc.gov/nccdphp/tobacco/hlthcon.htm).

Centers for Disease Control and Prevention, National Center for Environmental Health. National Asthma Control Program. *Reducing Costs and Improving Quality of Life, At A Glance 2002* (www.cdc.gov/nceh/airpollution/asthma/ataglance/asthmaAAG.pdf).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. *Making Your Workplace Smokefree: A Decision Maker's Guide*. Atlanta: U.S. Department of Health and Human Services, 1996 (www.cdc.gov/tobacco/research_data/environmental/etsguide.htm).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention

Figure 1. Logic Model for Tobacco Use Prevention and Control



and Health Promotion. *Oral Health: Preventing Cavities, Gum Disease, and Mouth and Throat Cancer, At A Glance 2003* (www.cdc.gov/nccdphp/aag/aag_oh.htm).

School Programs Core Resources

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health. *Health Bibliography: Effective School-Based Tobacco Prevention Programs: Recommendations and Syntheses.* 2002.

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction*. 1994 (www.cdc.gov/nccdphp/dash/guidelines/nutptua.htm).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *Guidelines for School Health Programs: Preventing Tobacco Use and Addiction, Overview.* 2000.

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *School Health Index for Physical Activity, Healthy Eating, and a Tobacco-Free Lifestyle*. 2002 (www.cdc.gov/nccdphp/dash/SHI/index.htm).

National Association of State Boards of Education. *Fit, Healthy, and Ready to Learn. A School Health Policy Guide*. 2000 (www.nasbe.org).

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. *School Health Policies and Programs Study Fact Sheet: Tobacco Use Prevention*. 2001.

Drug Strategies, Inc. *Making the Grade: A Guide to School Drug Prevention Programs*. Washington, DC: Drug Strategies, Inc. 1999 (www.drugstrategies.org).

Enforcement Core Resources

California Environmental Protection Agency (CalEPA). *Health Effects of Exposure to Environmental Tobacco Smoke*. Sacramento: CalEPA, Office of Environmental Health and Hazard Assessment, 1997.

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. *Making Your Workplace Smokefree: A Decision Maker's Guide*. Atlanta: U.S. Department of Health and Human Services, 1996 (www.cdc.gov/tobacco/research_data/environmental/etsguide.htm).

DiFranza JR, Celebucki CC, Seo HG. A model for the efficient and effective enforcement of tobacco sales laws. *Am J Public Health* 1998;88:1100–1.

Food and Drug Administration. Regulations restricting the sale and distribution of cigarettes and smokeless tobacco products to protect children and adolescents—final rule. *Fed Regist* 1996;61:41,314–75.

Institute of Medicine. *Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youths.* Washington, DC: National Academy Press, 1994.

Substance Abuse and Mental Health Services Administration. Final regulations to implement section 1926 of the Public Health Service Act regarding the sale and distribution of tobacco products to individuals under the age of 18. *Fed Regist* 1996;13:1492–1500.

Substance Abuse and Mental Health Services Administration. *Synar Regulation: Tobacco Outlet Inspection—Guidance*. Rockville, MD: SAMHSA, Center for Substance Abuse Prevention, 1997.

U.S. Department of Health and Human Services. *Preventing Tobacco Use Among Young People: A Report of the Surgeon General*. Atlanta: U.S.

Department of Health and Human Services, Public Health Service, 1994.

U.S. Environmental Protection Agency (USEPA). *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington, DC: USEPA, Office of Research and Development, Office of Air and Radiation, 1992. Publication No. EPA/600/6–90/006F.

Statewide Programs Core Resources

California Department of Health Services. *A Model for Change: The California Experience in Tobacco Control*. Sacramento: California Department of Health Services, 1998.

California Department of Health Services. *California Tobacco Control Project Showcase: A Compendium of Abstracts.* Sacramento: California Department of Health Services, 1998.

Counter-Marketing Core Resources

Cummings KM, Clark H. *The Use of Counter-Advertising as a Tobacco Use Deterrent and Analysis of Pending Federal Tobacco Legislation.* Washington, DC: Advocacy Institute, Health Science Analysis Project, 1998.

Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Media Campaign Resource Center. *Media Campaign Resource Books and Video Catalogs. Vol. I*, 1995, and *Vol. II*, 1998 (www.cdc.gov/tobacco/mcrc).

Wallack L, Dorfman L, Jernigan D, Themba M. *Media Advocacy and Public Health*. Newbury Park, CA: SAGE Publications, 1993.

Cessation Core Resources

Agency for Health Care Policy and Research. *Smoking Cessation: Clinical Practice Guideline, No. 18, Information for Specialists*. Washington, DC: AHCPR, 1996. AHCPR Publication No. 96–0694.

American Medical Association. *How to Help Patients Stop Smoking, Guidelines for Diagnosis and Treatment of Nicotine Dependence*. Chicago: American Medical Association, Division of Health Science, 1994. Publication No. AA41: 93–668.

National Cancer Institute. *How to Help Your Patients Stop Smoking: A National Cancer Institute Manual for Physicians.* Bethesda, MD: NIH, 1991. NIH Publication No. 93–3064.

National Cancer Institute. *How to Help Your Patients Stop Using Tobacco: A National Cancer Institute Manual for the Oral Health Team*. Bethesda, MD: NIH, 1993. NIH Publication No. 93–3191.

National Heart, Lung, and Blood Institute. *Nurses: Help Your Patients Stop Smoking.* Bethesda, MD: DHHS, PHS, NIH, 1993. NIH Publication No. 92–2962.

U.S. Preventive Services Task Force. *Guide to Clinical Preventive Services, 2nd ed*. Baltimore: Williams & Wilkins, 1996.

Surveillance and Evaluation Core Resources

MacDonald G, Starr G, Schooley M, Yee SL, Klimowski K, Turner K. *Introduction to Program Evaluation for Comprehensive Tobacco Control Programs.* Atlanta: Centers for Disease Control and Prevention, 2001 (www.cdc.gov/tobacco/evaluation_manual/contents.htm).

Yee SL, Schooly M. *Surveillance and Evaluation Data Resources for Comprehensive Tobacco Control Programs.* Atlanta: Centers for Disease Control and Prevention, 2001 (www.cdc.gov/tobacco/surveillance_manual/contents.htm).

Independent Evaluation Consortium. *Final Report of the Independent Evaluation of the California Tobacco Control Prevention and Education Program: Wave I Data, 1996–1997*. Rockville, MD: The Gallup Organization, 1998.

Pierce JP, Gilpin EA, Emery SL, et al. *Tobacco Control in California: Who's Winning the War? An Evaluation of the Tobacco Control Program, 1989–1996*. La Jolla, CA: University of California–San Diego, 1998.

Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention. *Reducing Tobacco Use Among Youth: Community-Based Approaches—A Guideline*. Washington, DC: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention, 1997. DHHS Publication No. 97–3146.

Stanford Center for Research in Disease Prevention. *Tell Your Story: Guidelines for Preparing an Evaluation Report*. Palo Alto, CA: California Department of Health Services, Tobacco Control Section, 1998.

Windsor, R. *Evaluation for Health Promotion, Health Education, and Disease Prevention Programs, 2nd ed*. Mountain View, CA: Mayfield Publishing Company, 1994.

Administration and Management Core Resources

California Department of Health Services. *A Model for Change: the California Experience in Tobacco Control.* Sacramento: California Department of Health Services, 1998.

References

1. Centers for Disease Control and Prevention. *Reducing Tobacco Use: A Report of the Surgeon General: At A Glance.* Atlanta: U.S. Department of Health and Human Services, 2000.
2. Centers for Disease Control and Prevention. *Reducing Tobacco Use: A Report of the Surgeon General*. Atlanta: U.S. Department of Health and Human Services, 2000.
3. Institute of Medicine. *State Programs Can Reduce Tobacco Use*. Washington, DC: National Research Council, 2000.
4. Centers for Disease Control and Prevention. *Best Practices for Comprehensive Tobacco Control Programs—August 1999*. Atlanta: U.S. Department of Health and Human Services, 1999.
5. Hopkins D, Fielding J, Task Force on Community Preventive Services, editors. The Guide to Community Preventive Services: Tobacco use prevention and control-reviews, recommendations, and expert commentary. *Am J Prev Med* 2000;20(2S).
6. Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence. Clinical Practice Guideline.* Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, 2000.
7. Centers for Disease Control and Prevention. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995–1999. *MMWR Morb Mortal Wkly Rep* 2002;51(14):300–3.
8. Centers for Disease Control and Prevention. Cigarette smoking among adults—United States, 2000. *MMWR Morb Mortal Wkly Rep* 2002;51(29);642–5.
9. Substance Abuse and Mental Health Services Administration (SAMHSA). *Summary of Findings from the 2000 National Household Survey on Drug Abuse*. NHSDA Series H-13. Rockville, MD: U.S. Department of Health and Human Services, 2001. DHHS Pub. No. (SMA) 01-3549. Available at www.samhsa.gov/news/click3_frame.html.
10. Centers for Disease Control and Prevention. Trends in cigarette smoking among high school Students—United States, 1991–1999. *MMWR Morb Mortal Wkly Rep* 2000;49(33).
11. Centers for Disease Control and Prevention. Youth tobacco surveillance, 2000. *MMWR Surveill Summ* 2001;50(SS-4).
12. Centers for Disease Control and Prevention. Trends in cigarette smoking among high school students—United States, 1999-2001. *MMWR Morb Mortal Wkly Rep* 2002;51(19):409-12.

13. U.S. Department of Health and Human Services. *Healthy People 2010* (conference edition, in two volumes). Washington, DC: U.S. Department of Health and Human Services, 2000.

14. Centers for Disease Control and Prevention. Guidelines for school health programs to prevent tobacco use and addiction. *MMWR Recomm Rep* 1994;43(RR-2).

15. MacDonald G, Starr G, Schooley M, Yee SL, Klimowski K, Turner K. *Introduction to Program Evaluation for Comprehensive Tobacco Control Programs.* Atlanta: Centers for Disease Control and Prevention, 2001.

Building a Healthier Future Through School Health Programs

Table of Contents

6

Building a Healthier Future Through School Health Programs

The Critical Need for Effective School Health Programs

In the United States, 53 million young people attend nearly 129,000 schools for about 6 hours of classroom time each day for up to 13 of the most formative years of their lives.[1] More than 95% of young people aged 5–17 years are enrolled in school. Because schools are the only institutions that can reach nearly all youth, they are in a unique position to improve both the education and health status of young people throughout the nation.

Supporting school health programs to improve the health status of our nation's young people has never been more important. Many of the health challenges facing young people today are different from those of past decades. Advances in medications and vaccines have largely reduced the illness, disability, and death that common infectious diseases once caused among children. Today, the health of young people, and the adults they will become, is critically linked to the health-related behaviors they choose to adopt. Certain behaviors that are often established during youth contribute markedly to today's major causes of death, such as heart disease, cancer, and injuries. These behaviors include

- Using tobacco.
- Eating unhealthy foods.
- Not being physically active.
- Using alcohol and other drugs.
- Engaging in sexual behaviors that can cause HIV infection, other sexually transmitted diseases, and unintended pregnancies.
- Engaging in behaviors that can result in violence or unintentional injuries.

Three of these behaviors—tobacco use, unhealthy eating, and inadequate physical activity—contribute to chronic diseases such as cardiovascular disease, cancer, and type 2 diabetes. These behaviors are typically established during childhood and adolescence, and recent trends have been alarming. Young people are clearly at risk, as the following data show:

- Every day, nearly 5,000 young people try their first cigarette.[2]
- In 2001, only 32% of high school students participated in daily physical education classes, compared with 42% of students in 1991.[3]
- Seventy-nine percent of young people do not eat the recommended five servings of fruits and vegetables each day.[4]
- Each year, more than 900,000 adolescents become pregnant,[5,6] and about 3 million become infected with a sexually transmitted disease.[7]

Rigorous studies in the 1990s showed that health education in schools can reduce the prevalence of health-risk behaviors among young people.

- Studies using a multiple-session school curriculum based on the social influences model and delivered to sixth- and seventh-grade students achieved significant reductions in smoking among these students through the ninth grade.[8]
- The prevalence of obesity decreased among girls in grades 6–8 who participated in a school-based intervention program.[9]

- Middle/junior high school students enrolled in the school-based Life Skills Training Program were less likely than other students to use tobacco, alcohol, or marijuana, and these effects lasted through the 12th grade (www.lifeskillstraining.com).[10]

Healthy People 2010

Healthy People 2010 outlines 467 national health objectives, of which 107 are directed specifically toward adolescents and young adults (i.e., 10- to 24-year-olds). Among these 107 objectives, 21 are identified as "critical" on the basis of two criteria: 1) they involve critical health outcomes or behaviors that contribute to them, and 2) state-level data necessary to measure progress in meeting the objective are available or soon will be.[4]

Promising Practices for School Health Programs

This document describes promising practices that states and communities should consider when planning school-based policies and programs to help young people avoid behaviors that increase their risk for obesity and chronic disease, especially tobacco use, unhealthy eating, and inadequate physical activity. These promising practices incorporate four key concepts.

1. Coordinate Multiple Components and Use Multiple Strategies.

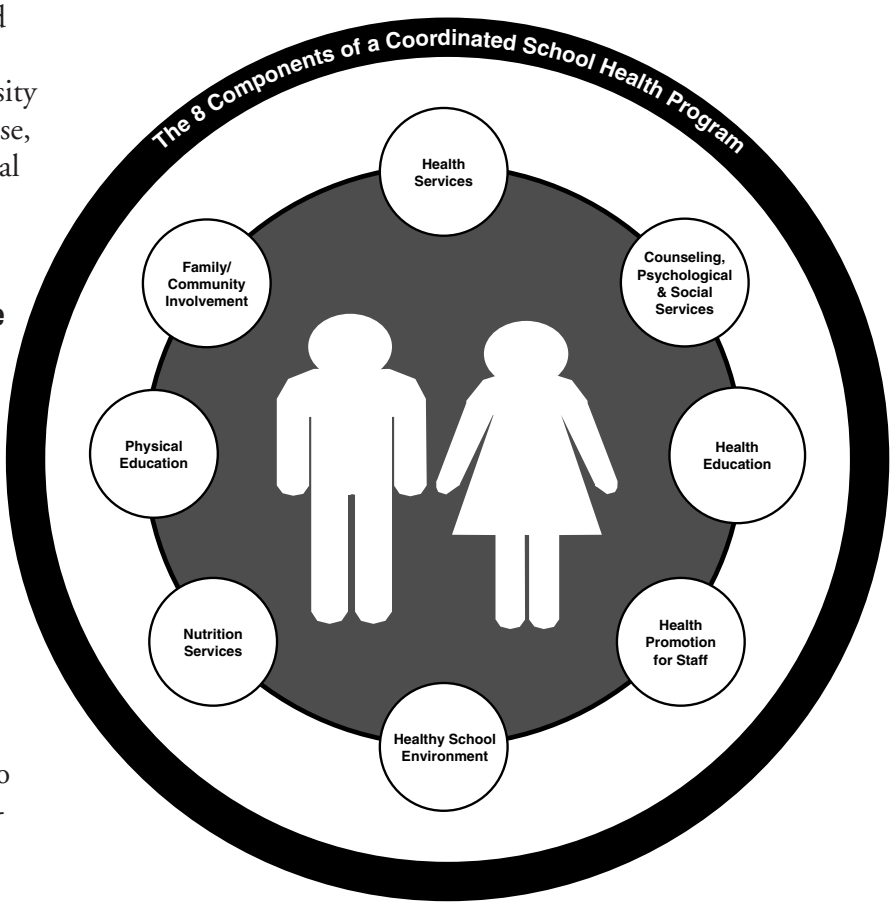
Modern school health programs integrate the efforts and resources of education, health, and social service agencies to provide a comprehensive set of programs and services to promote health and prevent chronic diseases and their risk factors among young people. Such school health programs systematically coordinate the following eight components: 1) health services; 2) health education; 3) efforts to ensure healthy physical and social environments; 4) nutrition services; 5) physical education and other physical activities; 6) counseling, psychological, and social services; 7) health programs for faculty and staff; and 8) collaborative efforts of schools, families, and communities to improve the health of students, faculty, and staff (Figure 1).

Resources

- *Building Business Support for School Health Programs.* 1999. National Association of State Boards of Education. Available from www.nasbe.org/HealthySchools.

A coordinated school health program provides a framework for school districts and schools to use in organizing and managing school health initiatives. It

Figure 1. A Coordinated School Health Program (CSHP)



also provides an organizational framework for agencies to use in planning and coordinating school health initiatives, synchronizing comparable public health and school health programs, and efficiently using multiple funding sources to improve the health and education of young people.

2. Coordinate the Activities of Health and Education Agencies and Other Organizations Working to Improve the Health of Young People.

Health and education agencies share the common goal of improving and protecting the health and well-being of young people, so collaboration should be encouraged at all levels. It is important to build a state-level structure that supports the implementation of a coordinated approach to school health. Bringing together key resources, programs, and decision makers within a supportive structure demonstrates that school health programs are a priority and models a collaborative structure for those involved in implementing school health programs at the local level. State health and education agencies that do not have a school health coordinator position should be encouraged to establish one to facilitate communication and coordination of programs among key players.

3. Implement the School Health Guidelines.

Developed by the Centers for Disease Control and Prevention (CDC) after an exhaustive review of published research and with input from academic experts and national, federal, and voluntary organizations interested in child and adolescent health, these school health guidelines offer specific recomendations to help states, districts, and schools implement school health programs and policies that have been found to be most effective in promoting healthy behaviors among young people.

The school health guidelines emphasize multiple strategies to prevent tobacco use, promote physical activity and healthy eating, and reduce rates of obesity among young people. The guidelines also identify priorities for state decision makers to consider. Recommendations address policy development, curriculum development and selection, instructional strategies, environmental changes, direct interventions, professional development, family and community involvement, program evaluation, and linkages among components of a coordinated school health program.

A number of tools have been developed that can help schools implement the school health guidelines. These include the following:

- *School Health Index for Physical Activity, Healthy Eating, and a Tobacco-Free Lifestyle: A Self-Assessment and Planning Guide.* This tool from CDC enables schools to identify strengths and weaknesses of health promotion policies and programs; develop an action plan for improving student health; and involve teachers, students, parents, and the community in promoting health-enhancing behaviors and better health.

Resources

- *Guidelines for School Health Programs to Prevent Tobacco Use and Addiction. MMWR* 1994;43(RR-2). Available at www.cdc.gov/nccdphp/dash/guidelines.
- *Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People. MMWR* 1997;46 (RR-6). Available at www.cdc.gov/nccdphp/dash/guidelines.
- *Guidelines for School Health Programs to Promote Lifelong Healthy Eating. MMWR* 1996;45(RR-9). Available at www.cdc.gov/nccdphp/dash/guidelines.

- *Fit, Healthy, and Ready to Learn: A School Health Policy Guide.* This policy guide from the National Association of State Boards of Education provides direction on establishing an overall policy framework for school health programs and specific school policies to promote physical activity and healthy eating and discourage the use of tobacco. The guide is designed for use by states, school

districts, and individual schools, both public and private.

- *Changing the Scene: A Guide to Local Action.* This kit from the U.S. Department of Agriculture (USDA) promotes discussion of healthy school nutrition environments at the local, state, and national levels. Tools within the kit will help school administrators, teachers, parents, school food-service professionals, and community and business leaders to work together to support changes in the school nutrition environment.

4. Use a Program Planning Process to Achieve Health Promotion Goals.

The exact nature of coordinated school health programs depends on the unique needs of the school population and on the resources available to the school and community. Having a program planning process in place is critical for program improvement and long-range planning. This process, which should involve all stakeholders, includes defining priorities on the basis of a population's unique needs, determining what resources are available, developing a strategic plan based on realistic goals and measurable objectives, and establishing processes for determining whether these goals and objectives are met and for continuously improving the program.[11]

Resources

- *Step by Step to Comprehensive School Health: The Program Planning Guide*. ETR Associates. Available at www.etr.org/pub.
- *Step by Step to Health-Promoting Schools*. ETR Associates. Available at www.etr.org/pub.

Eight Priority Actions for Improving the Health of Young People

In the remainder of this chapter, we discuss the following eight priority actions that states can take to improve the health and academic outcomes of their young people.

1. Monitor critical health-related behaviors among young people and the effectiveness of school policies and programs in promoting health-enhancing behaviors and better health.
2. Establish and maintain dedicated program-management and administrative-support systems at the state level.
3. Build effective partnerships among state-level governmental and nongovernmental agencies and organizations.
4. Establish policies to help local schools effectively implement coordinated school health programs and the school health guidelines.
5. Establish a technical-assistance and resource plan that will provide local school districts with the help they need to effectively implement the school health guidelines.
6. Implement health communications strategies to inform decision makers and the public about the role of school health programs in promoting health and academic success among young people.
7. Develop a professional-development plan for school officials and others responsible for establishing coordinated school health programs and implementing the school health guidelines.
8. Establish a system for evaluating and continuously improving state and local school health policies and programs.

Priority 1. Monitor Critical Health-Related Behaviors Among Young People and the Effectiveness of School Policies and Programs in Promoting Health-Enhancing Behaviors and Better Health.

Conduct a statewide assessment of critical health-risk behaviors and the policies and programs designed to discourage them.

School health programs should be based on high-quality data describing the health-risk behaviors of young people and the characteristics of the policies and programs already in place to address those behaviors. The Council of State and Territorial Epidemiologists has approved the following set of adolescent health-risk indicators for inclusion in the National Public Health Surveillance System:[12]

- Cigarette smoking.
- Smokeless tobacco use.

- Consumption of fewer than five servings of fruits or vegetables daily.
- Lack of vigorous and moderate physical activity.
- At risk for being overweight.
- Overweight.
- Alcohol use.
- Binge drinking.

To obtain continuous, high-quality, comparable data for each indicator and other measures of chronic disease risk factors, states can conduct a Youth Risk Behavior Survey (YRBS) every 2 years among representative samples of 9th- through 12th-grade students. States can supplement the YRBS data with data from the Youth Tobacco Survey (YTS) or other surveys assessing relevant health-related behaviors and their determinants among young people. States conducting the YRBS, YTS, or other school-based surveys can receive technical assistance from CDC in selecting the sample and implementing the survey, thus reducing the burden that multiple school-based surveys can place on schools.

To evaluate the effectiveness of school health policies and programs, states can develop School Health Education Profiles every 2 years by surveying representative samples of middle/junior high and senior high schools. These surveys provide information on local education and health policies, including tobacco-use-prevention policies, nutrition-related policies, violence-prevention policies, health education, and physical education and physical activity programs.

States should create a framework for coordinating state-level data-gathering and data-analysis activities and establish ongoing processes for selecting samples, collecting data, interpreting results, writing reports for state and local decision makers, and sharing data with agencies and organizations interested in improving the health of young people. Results from the YRBS and the profiles can be disseminated to key decision makers in both the public health and education sectors, such as state and local health officers, education administrators, school board members, legislators, and parents.

YRBS and School Health Education Profiles data can be used to describe the extent and type of health-risk behaviors among students, raise public awareness of these behaviors, set program goals, develop health education programs, monitor health education policies and programs, support professional development, and support health-related legislation.

States can also participate in national surveys that measure health-risk behaviors among young people, such as the National Youth Risk Behavior Survey, or that measure school health policies and programs, such as the School Health Policies and Programs Study (SHPPS). These surveys provide national data that can be compared with state-level data.

Resources

- *Youth Risk Behavior Surveillance System* (YRBSS): Information about the YRBSS is available at www.cdc.gov/yrbs.
- *School Health Policies and Programs Study* (SHPPS): Information about SHPPS and sample questionnaires are available at www.cdc.gov/shpps.
- *Handbook for Conducting Youth Risk Behavior Surveys* (YRBS). Centers for Disease Control and Prevention, 2000. Contact CDC at 770-488-6170.
- *PC Sample/PC School: Survey TA Sampling Software.* Centers for Disease Control and Prevention, 2000. Contact CDC at 770-488-6170.
- *Handbook for Developing School Health Education Profiles* (SHEP). Centers for Disease Control and Prevention, 2000. Contact CDC at 770-488-6170.

As an example of how state survey data can be used, every 2 years the Montana Office of Public Instruction distributes the *Montana School Health Education Profile: The Status of Health Education in Montana Schools* to state leaders, parents, and others interested in school health education. This document is used to set policy and establish priorities for improving health education programs. For more information, contact the Montana Department of Education at 406-444-1963.

Support local-level assessments of school health policies and programs.

States can support local assessments of school health policies and programs to determine their strengths and weaknesses and to identify the resources needed to successfully implement priority school health guidelines. The information can be useful to local school and community leaders in developing a strategic plan for improving the health and education of youth.

The *School Health Index for Physical Activity, Healthy Eating, and a Tobacco-Free Lifestyle: A Self-Assessment and Planning Guide* can help school officials assess the strengths and weaknesses of the eight components of their school health program and of other policies and programs related to chronic disease prevention, establish priorities for improving programs, and monitor changes in processes and outcomes.

Resources

- *School Health Index for Physical Activity, Healthy Eating, and a Tobacco-Free Lifestyle: A Self-Assessment and Planning Guide.* Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2000. Available at www.cdc.gov/nccdphp/dash/SHI/index.htm.

State health and education agencies should also provide technical assistance and resources to support local-level assessment and assist schools in analyzing and using assessment results gathered through the *School Health Index* or other instruments.

Priority 2. Establish and Maintain Dedicated Program-Management and Administrative-Support Systems.

State and local agencies collectively build the support systems to plan, implement, and evaluate fully functioning coordinated school health programs. By coordinating the allocation of new resources and using existing resources more efficiently, state agencies can help schools to meet the health needs of students and their families. To build a state-level infrastructure that supports coordinated school health programs, health and education agencies must work with other relevant state agencies such as social services, mental health, and environmental health, as well as with nongovernmental organizations in the state. The heads of state government agencies must commit to supporting the process of infrastructure development. These leaders should focus on the following when developing infrastructure.

- **Personnel and Organizational Involvement:** State and local leaders of school health programs should identify the relevant agencies and the personnel responsible for implementing school health-related policies and programs and should help to coordinate the delivery and use of resources for multiagency programs related to school health.
- **Authorization and Funding:** State and local leaders should also 1) identify laws, directives, policies, and mandates that authorize school health programs and promote the implementation of school health guidelines at the local level and suggest new ones that may be needed; 2) obtain the funding needed to support school health programs and ensure that the funding can be used in flexible ways; and 3) establish interagency agreements to facilitate collaborative program planning and to provide resources for local school health programs.

  The search for funding sources can be complicated because coordinated school health programs cover many content areas and health problems. In

addition, funding sources and application protocols change substantially from year to year. The Healthy Youth Funding Database from CDC provides access to an array of current information on federal, state, and private-sector funding. The easy-to-use database offers examples of how states use federal funds to support adolescent and school health programs.

Resources

- *Healthy Youth Funding Database.* CDC. Available at www.cdc.gov/nccdphp/shpfp/index.asp.

- **Technical Assistance and Resources:** State and local agency leaders should develop processes for identifying, developing, and disseminating resources for supporting coordinated school health programs and implementing the school health guidelines at the school and district levels. They should identify existing human, data, technological, and material resources that could be used to enhance school health programs; obtain additional resources if they are needed; coordinate the use of professional development resources to improve statewide training networks; and coordinate the support provided by external partners, including institutions of higher education and philanthropic agencies.
- **Communications and Linkages:** State and local leaders must establish and strengthen linkages that will 1) build the state's capacity to assist in the local implementation of school health guidelines and coordinated school health programs, 2) strengthen collaborations among relevant partners, and 3) facilitate advocacy for school health programs. They should also establish communications networks to promote broad-based decision making, to ensure that state-level policies and programs are adopted at the local level, and to promote the effective use of local school and district resources to enhance school health programs.

In addition to focusing on these important organizational supports, health and education leaders must help state and local school health-related staff develop the skills they need to effectively organize and manage school health programs. The *Coordinated School Health Program Infrastructure Development: Process Evaluation Manual* can help build the necessary support for coordinated school health programs and institutionalize this support at the state and local levels.

State agencies in Wisconsin and Rhode Island have completed assessments of their organizational capacity and leadership for school health and are using the results to strengthen their infrastructure for school health. California created a consensus document, *Blueprint for Action,* to set directions for state school health programs.

Resources

- *Coordinated School Health Program Infrastructure Development: Process Evaluation Manual.* Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1997. Available at www.cdc.gov/nccdphp/dash/publications/index.htm.

Priority 3. Build Effective Partnerships Among State-Level Governmental and Nongovernmental Agencies and Organizations.

Reducing health-risk behaviors among young people is a complex effort that requires cooperation and collaboration among many partners at the state, regional, and local levels. At the state level, structures for intra-agency, interagency, and community partnerships must be developed.

Build coordination and planning within state agencies.

State departments of health can foster the intra-agency coordination of programs that address the needs of young people (e.g., maternal and child health, chronic disease, cardiovascular health, physical activity, nutrition, tobacco control) to ensure

that these programs, which are often delivered in both community and school settings, are connected and efficient.

Resources

- *Final Report: Comprehensive School Health Program Infrastructure Needs Assessment.* Providence: Rhode Island Department of Education and Department of Health, 1996. Available at www.health.state.ri.us/disprev/hshk/home.htm.
- *Supporting School Health: An Initial Assessment of Infrastructure for Comprehensive School Health, Student Services, Prevention and Wellness Programs. Phase One, DPI Status and Dynamics.* Madison, WI: Wisconsin Department of Public Instruction, 1995.
- *Building Infrastructure for Coordinated School Health: California's Blueprint.* Sacramento: California Department of Education, 2000. Available at www.cde.ca.gov.

Similarly, state departments of education can foster the intra-agency coordination of programs such as Safe and Drug-Free Schools, health education, physical education, food services, health services, and counseling and psychological services. In short, state departments of both health and education should strive to build structures that foster intra-agency collaboration and planning. Such internal partnerships allow agencies to use resources more efficiently, improve communication among staff involved with complementary programs, and, as a result, strengthen the programs themselves.

Promote collaboration among state agencies.

To reduce duplication of effort and maximize the use of limited state resources, leaders of state agencies should establish a school health interagency program committee. This committee's primary role would be to coordinate the management and implementation of multiple school health-related programs across agencies. State agencies can develop agreements

Resources

- *Schools and Health: Our Nation's Investment.* Institute of Medicine. Washington, DC: National Academy of Science Press, 1997: 247-52.
- *Coordinated School Health Program Infrastructure: Process Evaluation Manual.* Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1997. Available at www.cdc.gov/nccdphp/dash/publications/index.htm.

(e.g., memoranda of understanding) that include jointly prepared plans for coordinating administrative responsibilities and activities among agencies.[13] The interagency collaboration can be coordinated and jointly led by school health leaders from the state education and health agencies. Other members of this committee might include representatives from state agencies that address social services, justice, mental health, agriculture, substance abuse, parks and recreation, labor, economic development, and transportation, as well as representatives from the governor's office.

Such an interagency committee should not be limited to agency leaders. It should include the program staff who are responsible for promoting the implementation of school health guidelines and strengthening the delivery of services through local school health programs. The committee may take on a variety of roles and responsibilities, including the following:[14]

- Improve communication, planning, coordination, and collaboration among state agencies engaged in ongoing activities relevant to the health and academic achievement of young people.
- Identify needs and strategies for improving state leadership of school health programs.
- Identify and implement state policies and programs to facilitate quality school health programs.

- Coordinate federal, state, and philanthropic funding for school health programs awarded to state agencies.
- Help identify successful school health programs and disseminate information about them to school health officials throughout the state.
- Help coordinate health programs in private, voluntary, and postsecondary institutions.
- Prepare reports and make policy recommendations to relevant state officials.

Strong working relationships between state agencies are evident in Tennessee and Oregon. In Tennessee, for example, the state commissioners of education and health issued a joint statement on school health that resulted in the formation of a working group with members from each agency. As a result of this group's efforts, the agencies executed a memorandum of agreement that established a permanent working relationship between the two agencies and addressed all components of the Tennessee Coordinated School Health Program.

The Oregon Coordinated School Health Initiative is steered by the Blueprint Working Group, which is responsible for guiding the development of the Coordinated School Health Blueprint for Action. This 5-year strategic plan will outline the priority state and local actions to

- Build infrastructure for coordinated school health programs.
- Strengthen the components of coordinated school health programs.
- Address key health-risk behaviors among children and adolescents.

The Blueprint Working Group is made up of state agency program coordinators responsible for the various components of a coordinated school health program and for reducing health-related risk factors among children and adolescents. Members of the working group from the Oregon Department of Education include the coordinated school health program director, an HIV prevention specialist, the director of federal programs, a physical education specialist, a child nutrition programs specialist, the juvenile corrections director, a school counseling specialist, and a safe and drug-free schools specialist. Members from the the Oregon Department of Health include the coordinated school health program director, the adolescent health manager, the YRBS coordinator, and staff from the following programs: tobacco, cardiovascular health, school-based health, immunization, environmental health, family planning/teen pregnancy prevention, and asthma. The working group also includes representatives from the Oregon Office of Alcohol and Drug Abuse Program, including staff from the Governor's Council on Alcohol Tobacco and Other Drugs, and the Youth Development Director from the Oregon Commission on Children and Families.

Establish a state school health coordinating council.

To expand access to school health resources and coordinate efforts of the larger community interested in improving the health of students, states can establish a school health coordinating council.[10] This council can include representatives from the interagency program committee; health and education leadership organizations such as the state school boards association; nongovernmental organizations such as the American Cancer Society; and associations representing health education, physical education, health care providers, post-secondary institutions, businesses, and community health coalitions, as well as parents and students.

States should establish policies and guidelines that will clearly define the roles and responsibilities of the school health coordinating council in establishing priorities for state school health programs. These roles and responsibilities could include the following:

- Developing statewide consensus on key issues related to school health programs and policies and communicating these issues to the interagency program committee.
- Showcasing effective and innovative coordinated school health programs for multiple audiences, including the state legislature.

- Conveying a clear vision of the role of school health programs in improving the health and academic achievement of students. Councils might convey this vision by developing consensus statements about the correlations between participation in such programs and academic success, by identifying and reducing the barriers to collaboration among state organizations concerned with the health and well-being of children and adolescents, or by integrating programs across agencies and organizations.
- Proposing appropriate state policies and legislation and helping school districts and schools implement the school health guidelines by disseminating resources such as the *School Health Index.*

The Rhode Island School Health Advisory Council was formed as a primary partner in the state's comprehensive school health initiative, *Healthy Schools! Healthy Kids!* The council comprises approximately 150 members representing various constituency groups concerned with changing health priorities, including representatives from state government, the state chapter of the American Academy of Pediatrics, hospitals, schools, community groups, colleges and universities, and various heart, lung, and cancer associations. The council developed Rhode Island's *Healthy Schools! Healthy Kids! Plan for Comprehensive School Health* and continues to implement the recommendations in the plan and to help identify new and emerging health priorities in school health.

Priority 4. Establish Policies to Help Local Schools Effectively Implement Coordinated School Health Programs and the School Health Guidelines.

States use laws, policy statements, and administrative regulations to articulate their expectations and recommendations for school health programs and the important role that schools have in improving the health of young people.[14] State and local agency leaders can establish policies to support local implementation of the school health guidelines and programs. In addition, state education and health agencies can provide model implementation policies to local school districts. This option is especially important in states that have minimal legislative mandates for school health. Model policies should be developed in cooperation with the state's board of education and association of school boards.

The National Association of State Boards of Education (NASBE), in cooperation with the National School Boards Association (NSBA), has developed *Fit, Healthy, and Ready to Learn*, a school health policy guide that translates the school health guidelines into model policy language.[15] This document can help guide policy development at the state, district, and school levels. It also contains a wealth of information that can guide state health leaders through the process of creating educational policy.

Resources

- *Fit, Healthy, and Ready to Learn: A School Health Policy Guide.* National Association of State Boards of Education. Washington, DC: NASBE, 1999. Available at www.nasbe.org/HealthySchools/nasbepubs.mgi.
- *Changing the Scene, Improving the School Nutrition Environment: A Guide to Local Action.* U.S. Department of Agriculture, Food and Nutrition Service, 2000. Available at www.fns.usda.gov/tn/Healthy/changing.html.

State school health policies typically are enacted or adopted by either the state legislature, the state board of education, or state commissions. Some regulations that have the force of policy can be adopted by the state education agency, which typically is also responsible for implementing state school health policies. The state health department can provide data and testimony to help guide the development of state school health policies. Following are some of the issues that these state-level policies can address.

The formation of school health councils and placement of school health coordinators at the district level.

Some school boards delegate oversight authority on specified health-related issues to a school health

coordinating council that includes parents and community representatives. This council might operate as a standing committee of the board or as a distinct body. It might simply be an advisory body or might have authority to enhance program coordination among staff members working in the various school health components. When such a council is active and has real influence, it is a natural forum for involving outside professionals—such as physicians, law enforcement officers, media representatives, and university faculty members—with the school district. Virginia and Texas require districts to have school health councils.

The size of a superintendent's staff depends on the size and the resources of the district. A district may or may not have school health program coordinators who provide guidance and technical assistance to school personnel. If they are present, such staff members are natural points of contact for outside professionals who want to work with schools.

Resources

- *Improving School Health: A Guide to the Role of the School Health Coordinator.* Atlanta: American Cancer Society, 1999. Available at www.schoolhealth/info.
- *Improving School Health: A Guide to School Health Councils.* Atlanta: American Cancer Society, 1998. Available at www.schoolhealth/info.
- *Promoting Healthy Youth, Schools, and Communities: A Guide to Community-School Health Advisory Councils.* Des Moines: Iowa Department of Public Health, 1999. Available at www.idph.state.ia.us/fch/fam_serv/advisory.htm.

Instructional delivery and curricula content.

State education agencies and local school districts may use the National Health Education Standards, which are based on health education theory and practice, to establish curriculum frameworks and standards. These standards provide a framework for decisions about which lessons, strategies, activities, and types of assessment to include in a health education curriculum. Health education curricula based on the national standards can foster universal health literacy, which the Joint Committee on National Health Education Standards defines as the ability to obtain, interpret, and understand basic health information and services and to use such information and services to improve one's health.

Student and staff performance standards.

State boards of education, state school boards associations, and public health boards can set learning standards for health education and physical education. These standards can serve as the basis for local school health education and physical education programs and the development of performance standards for teachers. Many states have developed student performance standards that are either based on or aligned with national health- and physical-education standards.

Resources

- *National Health Education Standards: Achieving Health Literacy.* Joint Committee on National Health Education Standards. Atlanta: American Cancer Society, 1995. Available at www.aahperd.org/aahe/natl_health_education_standards.html.
- *Moving into the Future: National Standards for Physical Education.* National Association for Sports and Physical Education. Washington, DC: NASPE, 1995. Available at www.aahperd.org/naspe/publications-nationalstandards.html.

Specifications for a healthy school nutrition environment.

State boards of education can adopt policies that limit the number of times that students have access to food and beverages in vending machines at school or that set specific nutritional quality standards for the types of food and beverages available on campus, including those in vending machines. In West Virginia, the state board of education adopted a

nutrition policy for the types of foods available in school vending machines that is one of the strongest in the nation.

Resources

- *School Health: Findings from Evaluated Programs. 2nd ed.* U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Washington, DC: HHS, 1998.
- *Safe and Drug-Free Schools Program. Principles of Effectiveness.* U.S. Department of Education. Federal Register. Vol. 63, No. 104, 1998:29902–6. June 1, 1998. Available at www.ed.gov/legislation/FedRegister/announcements/1998-2.
- *Exemplary and Promising Safe, Disciplined, and Drug-Free Schools Programs.* U.S. Department of Education, Office of Special Educational Research and Improvement and Office of Reform Assistance and Dissemination. Washington, DC: DoE, 2001.
- *Health Framework for California Public Schools Kindergarten Through Grade Twelve*. California Department of Education. Sacramento: California DoE, 1994.

Tobacco-free schools.

A tobacco-free environment is one in which tobacco use is prohibited on school property, including buildings, grounds, and vehicles, and at school-sponsored events on and off school property. This rule applies to students, staff members, and visitors. Policies that ensure a tobacco-free environment can be adopted at the school, district, or state level. At the state level, these policies are generally enacted as law by the state legislature, but some states have empowered their state boards of education with the authority to mandate policies that affect districts and schools. States with tobacco-free school policies include Alabama, Arizona, Arkansas, California, Colorado, Hawaii, Mississippi, New Mexico, New York, Ohio, Texas, Utah, Washington, and West Virginia.

Resources

- *Fit, Healthy, and Ready to Learn: A School Health Policy Guide.* National Association of State Boards of Education. Washington, DC: NASBE, 1999. Available at www.nasbe.org/HealthySchools/fithealthy.mgi.
- *Creating and Maintaining a Tobacco-Free School Policy.* Partnership for a Tobacco-Free Maine. Augusta, ME: Department of Human Services. 2000. Available at www.tobaccofreemaine.org.
- *Tobacco-Free School Policy Guide.* Available from the Office of Public Instruction, P.O. Box 202501, Helena, MT 59620-2501.
- *Guidelines for Implementation of West Virginia Board of Education Policy 2422.5A: Tobacco Control.* Available from the West Virginia Department of Education, 1900 Kanawaha Blvd. East, Charleston, WV 25305-0330.

Procedures for monitoring and enforcing tobacco-free schools policy can also be established at the local or state level. For example, a state department of education may require districts to report tobacco-use violations; a local school board might require a progressive discipline plan for student policy violations that begins with an educational intervention. The National Association of State Boards of Education and a number of state and local education and health agencies have produced guidelines for implementing tobacco-free school policies.

Quality professional development of school health staff.

State boards of education can set professional development requirements for school health program staff and other personnel who implement health programs in schools. For example, Maine decided to focus on middle school students as part of its efforts to reduce tobacco addiction rates among teens and young adults. All of the state's middle school teachers were offered professional development in Life Skills Training, a program to help teens develop healthy personal and social skills. Since the program began in 1997, smoking among Maine high school students

has dropped more than 20%. Increases in the state excise tax and new community-based programs also contributed to this decrease. (For more information about the importance of professional development, see Priority 7.)

Priority 5. Establish a Technical-Assistance and Resource Plan that Will Provide Local School Districts with the Help They Need to Effectively Implement School Health Guidelines.

To advance state policies and support the local implementation of priority school health policies and programs that are consistent with the school health guidelines, state and local agencies can develop and implement a plan for providing technical assistance and resources to school districts and schools. State education and health agencies must develop the capacity to help schools improve their school health programs and provide school personnel with the tools they need to help reduce tobacco use, increase physical activity, and support healthy eating patterns among students. State and local health and education agency leaders can

- Establish criteria to help local schools develop, assess, and select effective curricula; institute processes for identifying and reviewing potential programs based on these established criteria; and develop strategies for disseminating information about selected programs to teachers and community members.
- Develop and disseminate guidelines and resources to assist school districts in establishing school health councils.
- Identify and promote the use of resources for developing school health policy and for planning and assessing school health programs (e.g., CDC's *School Health Index*; NASBE's *Fit, Healthy, and Ready to Learn*; and USDA's *Changing the Scene*) and make these resources available to local school districts. For example, in Georgia, the DeKalb County Board of Education and Board of Health have collaborated to promote the use of the *School Health Index* in DeKalb's elementary schools. In the 2001–2002 school year, 17 schools completed the index, including the action plans, and 8 schools received funding from a variety of Board of Health programs. Funded activities include the following:
    - Hiring certified physical education teachers for the first time.
    - Developing walking clubs.
    - Establishing wellness programs for school staff members.
    - Purchasing exercise equipment for students to use.
    - Developing fitness stations on the school campus for use by students, staff members, and the community.
    - Providing professional development for teachers.
    - Offering healthier choices in the school vending machines.

Resources

- *Moving into the Future: National Standards for Physical Education*. National Association for Sports and Physical Education. Washington, DC: NASPE, 1995. Available at www.aahperd.org/naspe/publications-nationalstandards.html.
- *National Health Education Standards: Achieving Health Literacy.* Joint Committee on National Health Education Standards. Atlanta: American Cancer Society, 1995. Available at www.aahperlth_education_ standards.htm.
- *Keys to Excellence: Standards of Practice for Nutrition Integrity.* American School Food Service Association. Alexandria, VA: ASFSA, 1995. Available at www.asfsa.org. (Search "Keys to Excellence.")
- *Scope and Standards for Professional School Nursing Practice.* National Association of School Nurses, Inc., and American Nurses Association. Washington, DC: American Nurses Publishing. 2001. Available at www.nasn.org and at www.ana.org.

- Identify community-resource personnel and programs that complement school health policies and make these available to local school districts to foster community-school partnerships.
- Identify national standards and guidelines for health education, physical education, school nutrition programs, and school health services and convey this information to local school districts to facilitate effective policy and program implementation.
- Establish technical-assistance communication networks (e.g., e-mail networks) or refer school health staff to existing national technical-assistance communication networks. For example, the Maine Department of Education, through its *Maine's Learning Results,* has developed a technical-assistance plan to strengthen state and local efforts to improve student learning, define professional development needs, update local curricula and instructional practices, and assess student achievement. It also provided additional resources to improve school health programs through its publications, communications networks, and technical assistance.

Resources

- *State of Maine Guidelines for Coordinating School Health Programs.* Maine Department of Education. Available at www.mainecshp.com.

- Identify a contact or lead person in every school to receive regular school health communications and resources.
- Identify appropriate media campaign materials and resources that can help local health agencies and school districts promote positive health messages and programs for youth.

Resources

- CDC's *Youth Media Campaign.* Available at www.verbnow.com.

- Respond to requests for technical assistance and information from local school health staff or strengthen regional technical-assistance systems to support local needs.
- Communicate school health-related findings from the *Community Guide to Preventive Services*, which features systematic reviews of published studies conducted by the Task Force on Community Preventive Services. In one such review, the Task Force found that physical education classes are effective in improving both physical activity levels and physical fitness among school-aged children. On the basis of these findings, the Task Force issued a strong recommendation to implement programs that increase the amount of time that students spend in school-based physical education classes.

Resources

- *Community Guide to Preventive Services.* Available at www.thecommunityguide.org.

State and local health and education agencies can establish frameworks for allocating funds to support local school health policies and programs that are consistent with the intent of state policies and appropriations. For example, in response to legislation that appropriated health protection funds to the Massachusetts Department of Education, the agency developed specific assurance documents that established school health councils and coordinators in the districts that received these funds. The education agency also provided technical assistance to help local coordinators implement a comprehensive, interdisciplinary Pre-K–12 health education and human services program.

Resources

- *Health Protection Fund.* Massachusetts Department of Education. Available at www.doe.mass.edu. (Search "Health Protection Fund.")

Priority 6. Implement Health Communications Strategies to Inform Decision Makers and the Public About the Role of School Health Programs in Promoting Health and Academic Success Among Young People.

State and local agencies need to build support at both the state and local levels for school-based programs to reduce tobacco use, increase physical activity, and improve eating behaviors among students. As an important part of this effort, state and local health and education agencies can develop and implement a school health communications plan to promote the value of school health programs among legislative leaders, state and local government policy makers (including health and education leaders), local school leaders, business leaders, parents, students, and other community members. Such a plan should foster communication among state-level partners working to improve school health programs and increase the flow of information and resources between the state and local levels.

Resources

- *Building Business Support for School Health Programs.* National Association of State Boards of Education, 1999. Available at www.nasbe.org/Educational_Issues/Safe_Healthy.html.
- *School Health Starter Kit: For Motivated People Who Want to Get Others Involved.* Washington, DC: Council of Chief State School Officers, 1999. Available at www.publications.ccsso.org.

For example, the Oregon Department of Education formed an external communications work group to develop and implement an awareness campaign to promote coordinated school health programs among local decision makers and gatekeepers (e.g., school board members, school administrators, county commissioners). The campaign has stressed the links between students' educational outcomes and their physical, social, and emotional health and the critical role that school health programs can play in improving these outcomes. This work group includes representatives from a wide variety of state partners interested in school health, including the Oregon Association for Health, Physical Education, Recreation and Dance; the Oregon School Health Education Coalition; the Oregon Dairy Council; the Oregon Partnership (alcohol-use prevention); the Northwest affiliate of the American Cancer Society; the Oregon School Nurses Association; and Children First for Oregon (a Kids Count affiliate). As a result of the work group's efforts, in many districts, school health councils have been formed to plan the implementation of school health programs.

Priority 7. Develop a Professional-Development Plan for School Officials and Others Responsible for Establishing Coordinated School Health Programs and Implementing the School Health Guidelines.

Professional development is critical to the effective implementation of the school health guidelines and coordinated school health programs.[13] Any state plan for reducing the risk for chronic disease among young people should include a comprehensive plan for teaching the skills that state and local decision makers, school staff, parents, and community members will need to support and implement a coordinated school health program. This development plan should address the specific training needs of the various target groups and should be informed by literature from the field of professional development and training. States and communities can provide or support professional-development training in a variety of ways:

- Through a cadre of trainers who can provide and model interactive professional development and who are themselves provided with ongoing support, training, and feedback.
- Through multiple delivery systems, such as scheduled workshops, materials centers, interactive Web sites, and district mentoring programs.
- By providing funds for professional-development events and materials.
- By providing support staff to manage the logistics of training.

- Through marketing strategies to create awareness of and encourage participation in professional development and training.

Resources

- *Strategies for Professional Development in Cooperative Agreements with State Education Agencies, Local Education Agencies, and National Non-Governmental Organizations.* Available at www.cdc.gov/nccdphp/dash.
- Wood FH, Thompson SR. Assumptions about staff development based on research and best practice. *Journal of Staff Development* 1993;14(4):52-57.

Plans should specify the target audience for each professional-development event and should include learning and performance objectives. Insofar as possible, participants in these events should develop action plans that describe how they will incorporate their newly acquired knowledge and skills into their professional responsibilities. Professional-development events should be evaluated by the quality of those plans and how well they are implemented.

Professional-development events may be needed for school personnel, such as health and physical education teachers, nurses, school counselors, food service directors, and administrators. Others who require professional development may include school board members; parents; health educators in state health departments; health department staff who work with youth-focused, community-based organizations; parks and recreation staff; business leaders; clergy; and social services and juvenile justice staff. Depending upon the work plan and desired outcomes, professional development could include awareness sessions, skill-building training, topical events, or customized offerings for teachers and school health coordinators.

Opportunities for professional development to support school health programs are available through

Education Resources

- American School Food Service Association (ASFSA): www.asfsa.org
- Association for Supervision and Curriculum Development (ASCD): www.ascd.org
- American Association for Health Education (AAHE): www.aahperd.org/aahe
- National Association for Sport and Physical Education (NASPE): www.aahperd.org/naspe
- American School Counselor Association (ASCA): www.schoolcounselor.org
- National Association of School Nurses (NASN): www.nasn.org
- National Association of School Psychologists (NASP): www.nasponline.org
- Society of State Directors of Health, Physical Education and Recreation (SSDHPER): www.thesociety.org

Public Health Resources

- American Public Health Association (APHA): www.apha.org
- Association of State and Territorial Chronic Disease Program Directors (ASTCDPD): www.chronicdisease.org
- Association of State and Territorial Directors of Health Promotion and Public Health Education (ASTDHPPHE): www.astdhpphe.org
- Society of Public Health Educators (SOPHE): www.sophe.org

Federal Resources

- U.S. Department of Agriculture (USDA): www.usda.gov
- U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC): www.cdc.gov
- Health Resources and Services Administration (HRSA): www.hrsa.gov
- The President's Council on Physical Fitness and Sports: www.fitness.gov

a variety of venues, including national and state-level conferences and other continuing education opportunities offered by professional organizations.

National health organizations also offer specialized opportunities for professional development, such as those offered at the American Cancer Society's School Health Coordinator Leadership Institute. Several states have replicated the institute or are planning to do so. For more information, contact the American Cancer Society, Children and Youth Initiatives, at 404-982-3672.

Other venues for professional development include professional-preparation programs offered by institutions of higher education, professional journals, on-line courses, and list servs. States should develop systems to provide follow-up support to participants after the professional-development events have concluded. Such support could be provided through booster sessions, peer counseling, networking groups, or ongoing sequential training. CDC has developed *Training Tracker*, a database program that enables agencies and organizations to track their various training and professional-development activities over time. *Training Tracker* will store data useful for planning and evaluating professional-development events.

Resources

- *Training Tracker: A Computer-Based Training Tool.* (E-mail request for information to nccddashtracker@cdc.gov.)

State and local health and education agencies should support policies and identify funding that will advance the development of a statewide, comprehensive professional-development plan. In general, state agencies should designate staff to both develop this plan and ensure its implementation at the state and school-district levels. However, if professional-development events are typically delivered at the regional level, it might be more appropriate for regional, county, or local education agency staff to develop their own plans.

Priority 8. Establish a System for Evaluating and Continuously Improving State and Local School Health Policies and Programs.

Program evaluation is an essential ongoing organizational practice in public health and education. The results of such evaluations not only measure a program's success in meeting its goals but also provide information for planning future program activities. Agencies need to develop clear plans, inclusive partnerships, and feedback systems that foster learning and ongoing improvement. Routine, practical evaluations that provide information for management and improve program effectiveness should be a part of education and public health programs at both the state and local levels.

Program evaluation helps program officials to better understand their programs' needs and assets, to establish priorities, and to use their resources more effectively.

As an agency develops its program goals, objectives, and implementation plans, it should also develop procedures for measuring its success in meeting these goals and objectives. Evaluations can be used to assess the following four aspects of program activities:

1. The development and implementation of health-related education policies.
2. The provision of professional development activities for decision makers and education and public health agency staff.
3. The development and implementation of effective curricula and programs for students.
4. The establishment of sufficient capacity to develop and implement program activities and collaborate with other organizations.

Agencies can perform two kinds of evaluations: *process evaluations* and *outcome evaluations. Process evaluations* require accurate and organized records of program activities and are central to the ability of

Resources

- Framework for program evaluation in public health. *MMWR* 1999;48(RR-11). Available at www.cdc.gov/eval/framework.htm.
- Collins J, Rugg D, Kann L, Pateman B, Banspach S, Kolbe L. Evaluating a national program of school-based HIV prevention. *Evaluation and Program Planning* 1996;19(3): 209–18.
- MacDonald G, Starr G, Schooley M, Yee SL, Klimowski K, Turner K. *Introduction to Program Evaluation for Comprehensive Tobacco Control Programs.* Atlanta: CDC, 2001.
- *Handbook for Evaluating HIV Education.* Atlanta: CDC, 1992. Available at www.cdc.gov/nccdphp/dash/publications/index.htm.
- *Coordinated School Health Program Infrastructure Development Process Evaluation Manual.* Atlanta: CDC, 1997. Available at www.cdc.gov/nccdphp/dash/publications/index.htm.
- *Physical Activity Evaluation Handbook.* Atlanta: CDC, 2002. Available at www.cdc.gov/nccdphp/dnpa/physical/handbook/index.htm.

program staff to effectively monitor and report on their activities. By delineating the *who, what, when,* and *where* of program activities, process evaluations allow agency staff to assess whether these activities met their goals and objectives. Agency staff can also use process evaluations to chart and report on activities across time in a very systematic and cost-effective manner. Because a basic understanding of the process of program activities is critical to evaluating their outcomes, education and public health agencies should conduct process evaluations annually. *Outcome evaluations* are used to assess the impact of program activities on their participants, including changes in their knowledge, attitudes, skills, and behaviors both immediately following program activities and over the long term.

Evaluation results are only valuable when they are used to develop and improve program activities. Evaluation results may be communicated to national, state, and local education and public health agencies; to school districts and individual schools; to community-based organizations; and to community members.

State agencies should develop evaluation resources, tools, and a technical assistance process to help local agencies evaluate their program activities. Agencies may want to consider enlisting the help of post-secondary institutions or of independent evaluators or evaluation firms. However, the respective roles and duties of agency staff and hired evaluators must be clearly outlined, and evaluators and agency staff must agree on the purpose, methods, and procedures of evaluations.

There are four commonly accepted standards for evaluation: *utility, feasibility, propriety,* and *accuracy. Utility* refers to the usefulness of evaluation results. Evaluations with good utility specify the amount and type of information collected, make clear the values used in interpreting collected data, and present findings in a clear and timely way. *Feasibility* refers to the extent that evaluations employ practical, non-disruptive procedures, take into account the differing political interests of those involved, and use resources prudently. *Propriety* is a measure of how well the rights of those affected by the evaluation are respected. Evaluations with good propriety have protocols and other agreements to ensure that the welfare of human subjects is protected, that the findings are disclosed in a complete and balanced fashion that reflects multiple perspectives, and that conflicts of interest are addressed in an open and fair manner. *Accuracy* is a measure of how well evaluation results reflect reality. Accurate evaluations describe the program activities and their contexts, articulate the purpose and methods of the evaluation, employ systematic procedures to gather valid and reliable information, apply appropriate methods of analysis and synthesis, and produce impartial reports containing justified conclusions.

National Leadership

Collaborative strategies are necessary to promote healthy communities, healthy schools, and healthy children within our nation. In recognition of the need for sustained and coordinated federal efforts to strengthen and improve the education and health of school-age children and youth, the U.S. Departments of Education, Health and Human Services, and Agriculture established the Interagency Committee on School Health in 1994. The committee, which meets twice each year, is co-chaired by the Assistant Secretary for Health in the Department of Health and Human Services, the Assistant Secretary for Elementary and Secondary Education in the Department of Education, and the Under Secretary of Food, Nutrition and Consumer Affairs in the Department of Agriculture. Committee members represent the Department of Defense, the Department of Justice, the Environmental Protection Agency, the Indian Health Service, the Bureau of Indian Affairs, and the Consumer Product Safety Commission, as well as the Departments of Education, Agriculture, and Health and Human Services.

The National Coordinating Committee on School Health (NCCSH) was established in 1994 by the Secretaries of the Departments of Education and Health and Human Services. Shortly after NCCSH was created, the Department of Agriculture added its support. The NCCSH was formed to link federal departments with national nongovernmental organizations to support quality coordinated school health programs in our nation's schools. Its responsibilities include providing national leadership for the promotion of quality school health programs; improving communications, collaboration, and information sharing among national organizations; identifying local, state, and federal barriers to the development and implementation of effective school health programs; and collecting and disseminating information that can help to improve the effectiveness of these programs. Membership has grown to approximately 75 national organizations.

Healthy Schools, Healthy Communities (HSHC) was established by the Health Resources and Services Administration (HRSA) in 1994 to encourage the development of new, comprehensive, full-time, school-based primary care programs that serve children at high risk for health problems through treatment and services such as counseling, mental and dental health services, nutrition, and health education. HSHC funds 76 organizations, including community health centers, local health departments, hospitals, private, nonprofit health providers, and university medical centers, to establish new school-based health centers. The program has established a number of collaborative linkages with other government agencies and private organizations that enable the school-based centers to strengthen the quality of care that they provide. For more information, visit the HSHC Web site: bphc.hrsa.gov/programs/HSHCProgramInfo.htm.

HRSA also supports the National Adolescent Health Information Center (NAHIC), which is based within the University of California, San Francisco's Division of Adolescent Medicine, Department of Pediatrics, and Institute for Health Policy Studies. NAHIC's goal is to improve the health of adolescents by serving as a national resource for adolescent health information and research and to assure the integration, synthesis, coordination and dissemination of adolescent health-related information. In all of its activities, NAHIC emphasizes the needs of special populations who are more adversely affected by the current changes in the social environment for youth and their families. For more information, visit the NAHIC Web site at http://youth.ucsf.edu/nahic.

Challenges Ahead

Because every child needs sound preparation for a healthy future, school health programs should be established in all U.S. schools. Convincing children and adolescents to adopt behaviors that reduce their risk for chronic diseases is a continual challenge and should be a goal of all public health programs. Achieving this goal requires that state leaders in public health and education accept the opportunity

and responsibility to effectively implement and improve school health programs.

References

1. Snyder T, Hoffman C, editors. *Digest of Education Statistics 2001.* Jessup, MD: National Center for Education Statistics, 2002: Table 2 (Pub. #2002130).
2. Centers for Disease Control and Prevention, Office on Smoking and Health. Unpublished data. Calculated from: Substance Abuse and Mental Health Services Administration. *National Household Survey on Drug Abuse, 1999 and 2000.* Table F64.
3. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance—United States, 2001. *MMWR Surveill Summ* 2002; 51(SS-04):1–64. Available at www.cdc.gov/yrbs.
4. U.S. Department of Health and Human Services. *Healthy People 2010. 2nd ed.* 2 vols. Washington, DC: U.S. Government Printing Office, 2000. Available at www.health.gov/healthypeople.
5. National Campaign to Prevent Teen Pregnancy. *Special Report: U.S. Teenage Pregnancy Statistics with Comparative Statistics for Women Aged 20–24.* Available at www.agi-usa.org/pubs/teen_preg_sr_0699.html.
6. Ventura SJ, Martin JA, Curtin SC, Mathews TJ. Report on final natality statistics, 1996. *Monthly Vital Statistics Report* 1998;46(11s).
7. Eng TR, Butler WT, editors. *The Hidden Epidemic.* Washington, DC: National Academy Press, 1997.
8. Centers for Disease Control and Prevention. *Reducing Tobacco Use: A Report of the Surgeon General.* Washington, DC: U.S. Department of Health and Human Services, 2000. DHHS Pub. No. S/N 017-001-00544-4.
9. Gortmaker SL, Wiecha J, Sobol AM, Dixit S, Fox MK, Laird N. Reducing obesity via a school-based interdisciplinary intervention among youth: Planet Health. *Arch Pediatr Adolesc Med* 1999;153(4):409–18.
10. Botvin GJ, Baker E, Dusenbury L, Botvin EM, Diaz T. Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population. *JAMA* 1995;273(14): 1106–12.
11. Allensworth DD. Improving the health of youth through a coordinated school health programme. *Promot Educ* 1997;4(4):42–7.
12. Indicators for chronic disease surveillance. Available at http://cdi.hmc.psu.edu. Accessed August 18, 2002.
13. Sweeney DB, Nichols P. The state role in coordinated school health programs. In: Marx E, Wooley S, editors. *Health is Academic: A Guide to Coordinated School Health Programs.* New York: Teachers College Press, 1998:244–68.
14. Institute of Medicine. *Schools and Health: Our Nation's Investment.* Washington, DC: National Academy Press, 1997.
15. National Association of State Boards of Education (NASBE). *Fit, Healthy, and Ready to Learn: A School Health Policy Guide.* Washington, DC: NASBE, 1999.
16. Centers for Disease Control and Prevention. School Health Policy and Programs Study 2000. *J Sch Health* 2001;71(7):251–350.