• **Our assumptions underlying the estimates of direct nonpersonal costs.** Expenditures for research in 1991 are uncertain; they will depend on progress in research to treat AIDS patients and to develop a vaccine. Other nonpersonal direct costs of AIDS, especially health education, information, and support services, depend on the future community response to the AIDS epidemic.

• **Our assumption that wage patterns by age and sex remain the same over time.** This too is an unrealistic assumption, considering the changes that the American economy has been undergoing from a manufacturing to a service economy and the growing number of women in the labor force. However, in the absence of good data for an alternative assumption, we have assumed unchanged wage patterns.

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The Prevention and Control of Chronic Diseases: Reducing Unnecessary Deaths and Disability—A Conference Report

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Synopsis

Effective, yet underused, preventive measures exist to ameliorate such important public health problems as hypertension, coronary artery disease, and cervical cancer. The First National Conference on Chronic Disease Prevention and Control was convened in September 1986 by the Association of State and Territorial Health Officials and the Centers for Disease Control, Public Health Service, to disseminate information on successful chronic disease programs currently being implemented and to identify barriers to more widespread application of state-of-the-art prevention technology. This report briefly summarizes the deliberations of conference working groups (composed primarily of State and Federal public health officials) that addressed these issues. Numerous suggestions for improved surveillance, applied research, and training related to chronic disease prevention and control were offered, as well as ideas on organizing and marketing chronic disease intervention programs. The conference clearly identified a pressing need for a coalition of public health agencies and interested professional and voluntary organizations, as well as a coherent national agenda to combat chronic diseases.

CHRONIC DISEASES, THE MAJOR KILLERS and cripplers in industrialized societies, exact a devastating toll on the American people. Cancer, stroke, heart disease, diabetes, kidney diseases, chronic lung disease, arthritis, and liver diseases together account for more than 70 percent of all deaths in the United States (*1*) and have a corresponding impact on disability and economic burden (*2*).

The tragedy of this situation is that effective preventive measures now exist, the fruits of years of productive basic and applied research, that can avert a substantial fraction of the burden of chronic diseases. Community cardiovascular disease interventions (*3*), screening programs for early detection and treatment of breast and cervical cancer (*4,5*), smoking cessation projects (*6*), diabetes control projects (*7*)—all have demonstrated the potential to reduce the impact of chronic diseases. A recent assessment by the Carter Center of Emory University of the major opportunities for prevention estimated that approximately 28 percent of cancer deaths, 45 percent of cardiovascular disease deaths, and more than 50 percent of the debilitating complications of diabetes could be prevented with the widespread implementation of currently available knowledge (unpublished report).

In September 1986, the Centers for Disease Control (CDC) of the Public Health Service co-sponsored with the Association of State and Territorial Health Officials the First National Conference on Chronic Disease Prevention and Control held in Atlanta, GA. The purpose of the conference was to identify effective strategies for reducing mortality, morbidity, and disability from chronic diseases as well as barriers to the efficient application of those strategies. The 450 conference participants included approximately 300 officials from State health departments, 130 representatives of CDC, the National Cancer Institute (NCI), the National Heart, Lung, and Blood Institute (NHLBI), and other Federal health agencies, as well as representatives of several voluntary organizations and local health departments.

The conference included lectures and panel discussions in plenary sessions by recognized experts on chronic disease prevention, but was focused on smaller working groups and information exchanges to carry out most of its business.

Three working groups concentrated on "approaches to prevention": behavioral, health care, and environmental and occupational.

Four categories of activities needed to achieve chronic disease control were considered by other working groups: surveillance, applied research, and technology transfer; program organization, implementation and evaluation; marketing and communications; and training.

Three information exchanges on disease-specific subjects were also held: cancer, cardiovascular disease, and diabetes.

Summary reports of these sessions are available by writing Jeffrey P. Koplan, MD, Assistant Director for Public Health Practice, Building 1, Room 2047, Centers for Disease Control, Atlanta, GA 30333. This report highlights some of the major issues and concerns voiced at the conference.

Approaches to Prevention

Approaches to prevention are often classified as primary, secondary, or tertiary efforts (*8*), depending on where in the natural history of disease they are directed (see diagram). This classification provides a useful framework for summarizing many of the discussions at the conference.

Primary prevention activities are directed at well persons during the period of susceptibility and are intended to prevent the initial development of the pathologic process. Smoking cessation programs are an example of a primary prevention approach to both lung cancer and cardiovascular disease. Conference participants emphasized the importance of multifaceted approaches involving the individual, family, and community in primary prevention activities. Programs designed to reduce risk factors for chronic diseases by health education efforts that alter personal health behaviors such as smoking, diet, exercise, and others have been successfully implemented (*9*). School health education programs designed to prevent the initial development of unhealthy behaviors are particularly promising (*10*). Effective environmental or social approaches to risk reduction, such as modification of the food supply to yield a healthier diet and clean air legislation, have also been demonstrated (*9,11*).

Secondary prevention activities involve early detection and treatment of persons with asymptomatic, reversible disease; Papanicolaou cytology screening programs for cervical cancer and mammography screening for breast cancer are examples of secondary prevention approaches. Conference participants emphasized the need for public health officials to work with third-party payers to encourage insurance coverage of cost-

effective preventive health measures. Consensus guidelines or protocols for patient care were also cited as an effective way to educate health care providers on the state of the art in preventive health in order to diffuse new preventive technologies rapidly.

Tertiary prevention efforts are directed at arresting the progression of disease in persons with established illness. Diabetes control programs, designed to prevent the development of complications such as retinopathy and the need for limb amputations, are examples of tertiary interventions. Cost-effective tertiary interventions have the potential to reduce substantially the burden of disability and death in those already afflicted with chronic diseases, as well as in the increasing number of such persons anticipated in the aging American population.

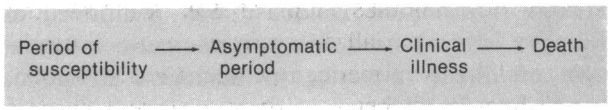
A recurrent theme of the conference was the need to pay particular attention in all these efforts to certain high-risk groups, such as blacks and other minorities. These groups have substantially increased rates of many chronic diseases and the risk factors for these conditions and often have limited access to preventive health services.

Prevention Activities

The role of public health agencies in the prevention and control of chronic diseases is evolving. Although the direct provision of services, particularly to certain underserved populations, will continue to be important, a broader role for the public health community as facilitators and mobilizers of prevention activities seems to be emerging. Participants cited opportunities for substantial impact in the areas of surveillance, applied research and demonstration projects, and implementation and technology transfer.

Surveillance. The development of more, better, and more relevant data on chronic diseases was repeatedly identified as essential both for the prioritization of chronic disease activities and for program evaluation. The need for three categories of data was cited: (*a*) burden of disease—mortality, morbidity, disability, and costs; (*b*) determinants of disease—behavioral risk factors, environmental exposures, and preventive health practices; and (*c*) program measures—indices of utilization, provider surveys, and others. One innovative suggestion at the conference was a call for "consumer epidemiology"—a blend of health surveys and marketing techniques, such as focus groups—to identify community perceptions of needs and priorities.

Natural history of chronic diseases



Applied research and demonstration projects. This category covers the range of activities necessary to identify effective interventions appropriate for widespread dissemination. It includes epidemiologic studies to identify risk factors for chronic diseases, intervention development and testing, and operational research to optimize program effectiveness and efficiency. The process of evaluating preventive measures varies depending on the nature of the intervention. Experimental clinical trials and controlled nonexperimental community trials are two powerful tools in the search for effective interventions. In addition, the evaluation of actual programs offers a unique opportunity for determining the "real-life" utility of programs that work in the more controlled (and resource intensive) trial setting.

The appropriate balance between resources devoted to interventions and those devoted to evaluations and other data needs was identified as an important unresolved issue in this era of scarce resources and extensive programmatic opportunities. Participants noted that since some useful approaches have been thoroughly tested and are available for wide application, much can be accomplished without evaluating them more extensively.

Program implementation. Discussions on organizational issues highlighted the critical importance of chronic disease coalitions on the Federal, State, and community levels for successful programmatic activities. Public health agencies, professional groups, voluntary organizations, and other interested parties all should participate in these coalitions. The need for a national agenda for chronic disease control, perhaps based on combining the 1990 Objectives and the Model Standards for Community Health, was also identified as essential to mobilize these groups for action.

Communication issues considered included the need to use modern technology to ensure rapid diffusion of information relevant to chronic dis-

ease prevention and control. CDC's Community Health Information Database was mentioned as filling a critical need for programmatic information of direct relevance to managers of public health interventions.

Training issues discussed included the diversity of skills needed for successful chronic disease interventions. State health department officials identified their greatest training needs to be in program prioritization and organization. They also cited the need for packages or courses to use in training providers and local health department staff in the chronic disease field.

Resource issues mentioned included the need for reliable and flexible financial and personnel resources for health agencies commensurate with the impact of chronic diseases. Model protocols were repeatedly cited as necessary at every level—from patient care standards to program management guidelines—to ensure the rapid spread of state-of-the-art methods for chronic disease prevention and control.

Conclusions

There is considerable activity in chronic disease control at local, State, and Federal levels by health departments, Federal health agencies, academic institutions, and voluntary organizations. In addition, less formal but potentially very effective influences and messages about chronic diseases are seen in advertising, the popular arts, and the written and electronic media.

Programs in chronic disease prevention and control may target diseases such as arteriosclerotic heart disease, various cancers, diabetes, and hypertension or the reduction of risk factors such as smoking, sedentary lifestyle, or diets high in saturated fat.

Although existing approaches to chronic disease control are usually thoughtful and effective, there is little coordination of these programs and activities, with potential duplication and inefficiency of effort and resource allocation.

A task emanating from this First National Conference on Chronic Disease Prevention and Control is to establish a national agenda for chronic disease prevention and control and to determine strategies, needs, and priorities. This agenda should aid local programs directed toward specific diseases or risk factors in planning and implementing their activities in a coordinated manner. This agenda will be developed with further input from both conference participants and key players in the chronic disease field not represented at the conference.

We must transfer the findings gained from research and demonstration projects into practical and cost-effective programs for public health agencies, health care providers, and consumers. We must translate "chronic diseases control"—a vague and uninspiring term—into a coordinated and comprehensive lifestyle initiative which will improve health and reduce the burden of illness for a broad category of ailments, while not losing sight of our objectives for individual diseases and risk factors. Such efforts to transfer and market research findings are the challenge that we must meet to make a major advance in the prevention and control of chronic diseases.

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