Public Health in the Next Decade

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ACTIONS of the public health community in the last ten years have raised questions about the ability and determination of our society to act for the health of the public in the next decade. Compared to all we know how to do for the public's health, we have done very little. And it goes without saying that the greatest threat to people, the arms race, has expanded unabated.

What can we expect in the next decade? Are there major breakthroughs over the horizon? Will we apply what we know how to do? Will we demand the power and resources that we need? Will governments respond to our demands? In short, the question is whether or not public health people will challenge the social forces that preserve the conditions that cause disease, disability, and death. Improved knowledge is not sufficient!

Epidemiology is the basic science of public health. It continues to give us improved understanding of the causes of disease, disability, and death. We can identify the populations at risk. And we have learned the ways to protect these people and to prevent disease.

We are not lacking for targets and achievable goals for intervention. A simple analysis, comparing health indices for populations in the same country, suggests that improvements in health status are within the means of national government. Similar differences often occur in much smaller geographic areas, making the problems amenable to local government intervention.

To grasp what prevention can accomplish, I have looked at the geographic, social class, and racial differences in total and cause-specific mortality in the United States. The age-adjusted death rate for black men in 1982 was 10.5/1000 and for white men, 7.1, a 32 percent difference. In 1977 the death rate in West Virginia for all individuals age 45–64 was approximately 1.5 times as high as in Utah. The death rates in Kentucky and North Carolina were almost as high as in West Virginia. It should be

possible to improve death rates in all states to a level already attained in one state. If the national rate were similar to that of Utah, there would have been 110,000 fewer deaths in the 45–64 age group in a single year.

Similar differences in death rates within a single county further suggest the nature of the problem. In Allegheny County, Pennsylvania, for example, the age-adjusted death rates vary directly with the socioeconomic status of the census area. In the city of Pittsburgh, the age-adjusted death rate for white men in low socioeconomic areas was about 25 percent higher than in the upper socioeconomic areas. Other communities have also noted striking differences.

For particular diseases and particular causes of death, the relative differences become larger. The age-adjusted death rate for ischemic heart disease dropped 33 percent in the United States in the last 15 years. But even that impressive record can be improved, as is demonstrated by the differences in coronary heart disease death rates by state. In Colorado the 1979 rate was 229.7/100,000 and in West Virginia 427.5/100,000, a 46 percent difference. At a minimum, a major public health goal in the U.S. should be to reduce coronary heart disease mortality everywhere to levels that we know can be achieved.

We know what interventions make a difference. There is little doubt that in the United States, the interventions of the 1960s and 1970s were instrumental in reducing infant mortality. The War on Poverty, and prenatal care offered by public health agencies, community health centers, and Medicaid, contributed to reducing the differences between blacks and whites. There is little doubt that, as the Reagan Administration shuts off these programs, the hopeful trends will be slowed or reversed.

The unhappy experience of the United States makes me not altogether hopeful about the next ten years. I am sure that we know what to do. We have an agenda to keep us busy. However, I am not sure that we are willing to fight for public health or that if we fight we will win. Let's look at four issues: 1) Medical care from the point of view of equity; 2) High technology, a domain where public health can seize the initiative and capture some new technology for prevention; 3) Occupational and environmental health, where predictive sciences like toxicology, when used by public health practitioners, seem to demand changes in society even before the epidemiologists can count the bodies; and 4) Lifestyle questions, where many public health practitioners have accepted an approach that asks people as individuals to remedy problems created by society.

MEDICAL CARE AND INCOME TRANSFERS

The epidemiology of medical care has produced shocking results. While medical science would argue that there are appropriate ways to make a diagnosis and appropriate ways to treat patients, the statistics display variation that is astounding: three- to five-fold differences in the rates of particular surgical procedures by geographic area. Similar differences are seen in diagnoses under the Medicare program's classification by Diagnosis Related Group (DRG). The problem of making medical care rational will certainly challenge us for the next decade. Narrowing of the variation will be a first rough test for improvement. It does not, however, guarantee that doctors are doing the right thing for each problem, only that they are using a similar approach.

To public health practitioners who are interested in the efficacy of medical care, the inconsistency of medical decisions is a challenge as we struggle to focus on the effectiveness of services. In the United States, at least, most of the interest in medical services is in their cost, and most of the cost-cutting measures ignore the variations that reflect physician decisions. Most of the policies of the Reagan Administration have aggravated the discrepancy between rich and poor, urban and rural, white and black. In the U.S. we seem to accept a two-class system of medical care as the natural consequence of efforts to contain medical care costs.

Even before draconian measures to reduce costs are introduced, there are many fiscal features of the medical care system that affect the wealth and well-being of most of our citizens. Studies of geographic variation in the provision of services have suggested income transfer phenomena that probably occur in both the U.S. and Canada. Income transfer principles apply to the U.S., which spends 11% of its GNP on health, and Canada, where the figure is below 8%. In both cases, taxes and insurance premiums that pay for medical care are a large pot of money. Who pays is important. And who receives the services is also important.

It may seem very obvious, but health care services tend to be received by those people who have access to medical care resources. In the U.S. this has often meant city dwellers and suburbanites, but not rural folk. Thus, in a situation where everyone is contributing almost equally in taxes and insurance premiums, rural populations are usually subsidizing medical care and medical resources in urban centers.

I believe that in both the U.S. and Canada, these three issues in the equity of medical care services will remain: to assure that the services

received by the population reflect the best judgment about effectiveness; to assure that all geographic, age, racial, and social class groups have access to needed medical services, including special services to meet special needs; and to assure that the income transfers inherent in paying for and providing medical resources do not aggravate the problems faced by disadvantaged members of society.

HIGH TECHNOLOGY

In the last ten years, public health people have become alarmed by the rapid introduction of new technologies. These have often been very expensive and sometimes unproven as to effectiveness. New technologies have been used for diagnosis or therapy, but rarely for prevention of disease. The world of community medicine and public health has come to pride itself on being people-oriented and anti-technology. There is at least one domain where this will be counterproductive.

Genetic engineering and biotechnology can perform remarkable feats. Almost any protein can be produced in large quantities at low cost. The technology may also be useful in producing polysaccharides. Ironically, the most valuable use of the new technology may be neglected: vaccines.

For the last few years, the U.S. Congress has wrestled with the problem of vaccines. Vaccine prices have increased several fold, causing cutbacks in state and local immunization efforts. Manufacturers blame the price increases on the cost of lawsuits and liability insurance related to vaccine reactions. Many firms have dropped out of the vaccine business altogether, causing public health officials to worry that some vaccines may become totally unavailable. However, an investigation by the Health and Environment Subcommittee of the House Committee on Energy and Commerce suggests that investment in vaccine development was tailing off even before anyone recognized a liability problem.

Unfortunately, the new technology for vaccine development, capable of producing new and safer vaccines quickly and often cheaply, comes as both government and industry are cutting back on research to produce new vaccines. A hearing last March, by the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce of the U.S. House of Representatives, drew attention to the prescience of researchers at the National Institute for Allergy and Infectious Disease who drew up an accelerated vaccine-development plan in 1979, and to a report from the Institute of Medicine which confirmed the NIH's wisdom. Within five years it should be possible to have at least 10 new vaccines

ready for use. This compares with the rate of 16 widely used vaccines developed during the first 200 years after Jenner. Despite the promise of immense savings in lives and disability, as well as in medical care costs, the Reagan Administration has not increased funding for vaccine development; in fact, inflation has meant a true decrease in government efforts. Industry, which was already moving out of the vaccine business, does not appear to have reversed field when genetic engineering appeared on the scene. The failure to produce a safe pertussis vaccine is a relatively minor problem for the United States, but failure to produce vaccines against rotavirus or malaria is to miss a truly dramatic opportunity for improving the health of people in developing countries.

In addition to vaccines, commercial investment may not be directed at research into new and more effective contraceptives. Safer, longer acting, and male-targeted contraceptives are now possible with genetic engineering. A greater variety in contraceptive techniques seems to be required to meet the needs of all members of every population group in the world. Again, this research is directed at the problems of some of the poorest people in the world and does not appear to be attractive to commercial enterprises.

There is the general problem that socially useful products will not be developed if they are not anticipated to be sufficiently profitable. There are other examples in the biotechnology of food, energy production, and toxic waste management. But public health professionals can quickly grasp the potential for new and safer vaccines and demand adequate government intervention to assure that these tools of prevention are rapidly developed. This piece of high technology can belong to public health!

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

The last ten years have revealed a major failure in moving from scientific evaluation of hazards to actions to prevent them. The long period between exposure to a chemical and subsequent development of disease has made it difficult to rely on epidemiology or human studies to predict hazards. Thus laboratory-based toxicology tests have been used to predict which chemicals would be dangerous—would cause cancer, for example. Unfortunately, toxicology was underused, and hazards were often discovered when they finally caused cancer in people.

Rules now protect us from very few of the hazards we might be exposed to. In the U.S., efforts to protect the public based on toxicologic predictions are regularly challenged and delayed in the courts. Environmental

programs have been countered by massive investments in legal talent to stop or delay decisions against industry. Industry spends great sums on scientists and research, not to remedy environmental problems but to challenge government or independent researchers. Environmental regulation has never risen above a continuing, expensive, adversarial relationship. It is characterized by secrecy, with industry withholding information about possible dangers. And even when industry is making tremendous efforts to eliminate hazards—such as in the use of asbestos—it continues to argue that the material is totally safe.

Public health practitioners have been slow to adopt predictive sciences. Even when it is possible to use correlations between toxicology and epidemiology for several model agents, public health people have felt uncomfortable about taking action without specific epidemiologic studies. And without support from the health world, environmentalists and organized labor have been weak. Quebec is an example of where economic interests have managed to muddy the water about asbestos. The provincial government promotes this murderous agent! And, if not silent, the public health world has not shouted the outrage that is deserved. Imagine, promoting a known carcinogen at a time when it can be replaced in every use! It's just like North Carolina promoting cigarettes. I hope that when the United States bans the importation of asbestos, Canada will respond by banning U.S. cigarettes from the Canadian market.

INDIVIDUAL LIFESTYLES

The cost of doing all of the things we know how to do to prevent the most common and most costly causes of death, disease, and disability is very small compared to what we spend today on medical care to treat those problems. The Canadian government deserves the credit for the first such analysis. In 1973, Marc Lalonde, the Minister of National Health and Welfare, asked his staff to prepare a report describing more effective ways to spend Federal health dollars than by contributing to provincial health insurance programs. The now famous report, *A New Perspective on the Health of Canadians*, appeared in April 1974. The report proposed eliminating "self-imposed" risks and environmental risks.

These "self-imposed risks" have been loosely translated into lifestyle issues: smoking, eating, exercise, and drinking. Implicit in that designation is the idea that each individual chooses and thus may change his lifestyle. This image is deeply respectful of the individual, but a dismal basis for a public health strategy.

The health-oriented Members of Congress have just spent one year fighting to change the warning labels on cigarette packages and the warnings in advertisements. In taking on the cigarette industry, they took on a group with little or no concern for the public health, and the biggest achievement was that dozens of members of Congress learned of this selfish disregard for the public's health and safety. Next month, the new labels will appear, but their impact will be small. Warnings assume that we can rely on individuals to stop smoking or resist the pressures to start. Those pressures are supported by an advertising budget that is large enough to finance the complete immunization of all of the children of the developing world. We have our priorities wrong if we fail to attack the social cause directly: the tobacco industry.

Saturated fat in our diets, exercise patterns, and alcohol consumption could all be influenced more effectively by direct policies than by waiting for individuals to alter their lifestyles. Societies have always given health officials special police powers to protect the public health. This is not the time to relinquish that special role in favor of competition for the minds and bodies of the nation. Public health authorities have not abused their power, and it is just as important to exercise it against cigarette companies in the 1980s, as it was to use it against dairies to assure safe milk early in this century.

I hope I have convinced you that there is a sufficient agenda in public health. The question that remains is whether there is the will to proceed aggressively.

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