The prevention of disease and promotion of health: the need for a new approach

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One of the major goals in the field of health promotion and disease prevention is to identify risk factors for disease so that information about these risk factors can then be shared with people. Our hope is that people will use this information to change their behavior to lower their disease risk. There are three major problems with this model that require our serious attention.

The first problem is that after decades of epidemiological research, it has proven very difficult to identify disease risk factors. Consider, for example, the case of coronary heart disease. For over 50 years, extensive research has been done all over the world to identify risk factors for this disease. As a result, we now have knowledge about many of them including serum cholesterol, high blood pressure, cigarette smoking, physical inactivity, obesity, diabetes and so on. In spite of this success, however, most of the coronary heart disease that occurs is not explained by these risk factors. It is estimated that all of the risk factors we know about, combined, explain less than half of the CHD that occurs. This does not, of course, diminish the importance of the risk factors we have identified, but it does suggest that things are more complicated than we had thought. The problem we have with CHD is very much the same for many other diseases as well.

The second problem is that even when we do identify disease risk factors, we have a very difficult time in getting people to change their behavior. Many research studies have shown that even when people know about risk factors for disease, this often does not result in their changing behavior to lower risk. Most behavior changes occur, in fact, in response to a variety of environmental and community forces that constrain and modify behavior. Cigarette smoking offers a clear example on this phenomenon.

The third problem with our current public health model, however, is the most challenging of all. Even if everyone at risk did change their behavior to lower their risk, new people would continue to enter the at-risk population at an unaffected rate. This is because we rarely identify and intervene on those forces in the community that cause the problem in the first place. This is a major issue for us in public health. If one of our goals is to prevent disease and promote health, I do not think we can accomplish this mission by an exclusive focus on individual diseases and risk factors. There is a lesson to be learned here by looking at the success we have had in preventing many infectious diseases. Some of that success has been attributable, of course, to vaccines. But most of this success has been due to an improvement in the environment. This improvement came about because of the way in which diseases were classified. These disease classifications were in terms of water-borne diseases, food-borne diseases, air-borne diseases and vector-borne diseases. These disease classifications are not of much value clinically—in the treatment of individual cases—but they are of great importance in telling where diseases are coming from and where we should direct our prevention efforts.

Do we have a similar classification system for the noninfectious diseases of concern today? Do we have a way of understanding the environmental and community forces that influence disease risk and that shape behavior in the first place? An understanding of the fundamental determinants of health and disease would seem to be a first priority for developing a truly effective program to prevent disease and promote health and, in my view, we do not currently have a model of this kind.

This problem constitutes a major challenge to our current public health model and, to address it, we will need a different approach. The new approach will require a new way of classifying disease, one that does not depend on the currently-used clinical model of disease. It will also require that we focus (i) more on life problems that are of concern to people in the community and (ii) less on problems of concern to us; experts in Public Health.

It is, however, very difficult to get money from government groups or foundations to support this type of more general approach to health and disease. Three years ago, we responded to a grant announcement from the Centers for Disease Control of the U.S. Public Health Service to develop an intervention program for children. The CDC was interested in programs that dealt with smoking and other drug use, or violence, or obesity, or school performance, or inappropriate sexual behavior. We took a chance and submitted a proposal that said we were not going to focus on any of those targets. This is not a very sensible strategy in dealing with a granting agency and I do not recommend it. In our request to the CDC, we said that we would work with 5th grade children living in a very low-income area where many children did not think they would live beyond the age of 20. If that was their view of the future, it was hard to imagine that they would care about smoking, violence, or school performance, or weight control. The intervention we proposed, therefore, dealt with hope. We decided to work with these 10-year old kids to help them see that they could have a future. Our argument was that if they had hope for a future, the smoking and school issues and diet problems would follow along naturally.

To my amazement, the CDC accepted our logic and ranked our proposal as number one in the country.
the funding problem is a challenging one, it can sometimes be dealt with success.

But this is clearly an unusual, and rare experience. In the United States, the National Institutes of Health supports almost 95% of medical research that is done in the country. The NIH is organized into many institutes, all of them focusing on one or another disease: heart disease, cancer, arthritis, stroke, and so on. If I send a research grant proposal to the U.S. NIH to study poverty diseases, to which disease-specific institute would they refer my request? Or what about a proposal to study nutritional deficiency diseases? Or racial discrimination diseases? NIH would not know what to do with such proposals. They would probably send it to the institute that most closely approximated to what I was trying to get at but that would do fundamental damage to the point of my request.

A few years ago, the Canadian government was considering the establishment of an NIH for Canada. Many of us warned them that if they patterned their NIH along the lines of the United States, NIH, it would be a major setback for the cause of disease prevention. They subsequently did establish a Canadian Institute for Health Research. They did set up a whole series of institutes focusing, as we do, on heart disease, cancer and arthritis but they also established institutes of Population Health, Gender, and Aboriginal Health. I have served on the Advisory Committee for the Institute of Population and Public Health and it has been very interesting for me to see the difference it makes in decision-making when one can think about the population determinants of health without a narrow focus on one particular disease or risk factor.

At the University of California at Berkeley, we have been trying to develop an intervention that deals with the problems people have in their daily lives rather than on the problems we experts worry about. This project has involved developing a series of Wellness Guides. These Guides are based on two considerations. One is the epidemiologic observation that disease rates increase when people have less control over the events that impinge on their lives. These findings are also supported by the work of Karasek and Theorell in their studies of the health effects of job stress. In their work, it turns out that the crucial dimension in job stress is not the demands that are put on workers but rather the discretion and latitude that workers have in dealing with job demands.

There is now beginning evidence that the less control one has in one’s life, the higher the allostatic load. Allostatic load is a crude measure of the body’s immunologic vigor. It consists of such physiologic assessments as cortisol levels, C reactive protein, and the like. The evidence is now beginning to show that as people have less control over events that impinge on their lives, the higher their allostatic load, and the more vulnerable they become to such external disease risk factors as viruses, air pollution, serum lipid levels, and so on. This conceptualization would explain why disease-specific risk factors only sometimes are related to disease incidence and why many psychosocial risk factors are related to a higher rate of many diseases involving many organ systems. We are all working hard to discover other biological markers that are easily measurable and that summarize a whole range of different life experiences and that clearly have health consequences.

The second observation on which we based the Guides is that written documents are less useful when they are written by public health experts who focus on the diseases and risk factors that they have devoted their lives to studying but that people do not care as much about. The first draft of the Guide was written by me and several of my colleagues in the School of Public Health at Berkeley. When we asked people in the community to check what we had done, many of them laughed and said: “You people at the University have done it again! If you would like to know what our problems are, why don’t you ask us?” As a result, the Guides we used were rewritten by the people for whom the Guides were intended. Children wrote a section on children, old people wrote their section, and people with mental health problems wrote that section. Our evaluations revealed that the Guides were very useful in helping people learn “how to work the system”: People learned ways to find community resources as well as strategies for successfully dealing with authorities.

We will soon face a serious new challenge in Health Promotion. In most of the industrialized countries of the world, there will be a major increase in the number of older people in our societies. In the United States and Canada, this will happen between the years 2020 and 2030. By that time, the number of people over the age of 65 in our two countries will have doubled. Our medical care systems will then be strained as perhaps never before. I think the same phenomenon will occur in Europe. Our best hope is to develop better programs to prevent disease in the first place and not wait until disease has already developed. To develop effective intervention programs, we will need to get people to change high-risk behavior. We will need for people to stop doing things they have done for years and they will need to begin doing things they perhaps have never done before. And we in the field of health promotion will need to develop much more effective ways of communicating with people in the community. To do that, we will have to re-think the way we classify diseases, we will need to understand better what people care about, and we will need to do more relevant research. This will require a new way of funding such research and of training a new generation of people working in the field of health promotion and disease prevention. To accomplish this transformation, we will require governmental policies very different from those now in place. That may be the biggest, and most difficult, challenge of all.

These are very challenging issues. But so is the problem we face. We will need to do our best. And we will need to begin soon.

References