

Environment viewed as necessary part of health equation

by Rene Dubos

EDITOR'S NOTE: This is the first in a series of fifteen articles exploring "The Nation's Health." In this article, microbiologist Rene Dubos discusses the potential and limits of modern medicine. This series, written for COURSES BY NEWSPAPER, a program of University Extension, University of California, San Diego, was funded by a grant from the National Endowment for the Humanities.

THE NATION'S HEALTH I: MEDICINE AND HEALTH

A generation ago, there was almost universal faith in the miraculous power of modern medicine.

There have been numerous spectacular medical advances since then, yet, paradoxically, it has become fashionable to downgrade the contributions of medicine to health.

Several learned physicians have even stated that the steady improvement in public health during this century has been brought about not by medicine, but by improvements in sanitation, nutrition, housing, and our general standard of living.

There is some truth in that statement. But it is also true that several diseases that used to kill large numbers of people can now be readily cured, thanks to modern medicine. I shall use my own life as an example.

I was almost 79 years old when I wrote these lines. I walked several miles every day in any kind of weather. I climbed three flights of stairs to my office and had many national and international activities, carrying my own luggage wherever I traveled.

All this sounds as if I had always been in perfect health. But in fact, I have been medically handicapped throughout my life.

At age 8, I contracted a severe sore throat and developed acute rheumatic fever that resulted in a heart lesion, at the aortic valve. This lesion is still with me and has made me a cardiac cripple, preventing me from playing the conventional games.

Some 10 years ago, I developed bacterial endocarditis, an inflammation of the heart membrane. This disease used to be uniformly fatal, but I recovered because it can now be successfully treated with antibiotics.

I have had several attacks of atrial fibrillation, or irregular muscle spasms of the heart, and in fact am fibrillating right now. After each episode, I have tried to rehabilitate myself by progressively increasing my physical activities. I have been so successful that at age 78, before my last attack of fibrillation, I was

physically more vigorous than ever before.

My medical history would have been very different had I been born fifty years later. Laboratory tests would have shown that my initial sore throat was caused by a hemolytic streptococcus, and doctors would have known that infection with this microbe commonly leads to rheumatic fever. I would have been immediately treated with an antibiotic and would never have suffered from rheumatic heart disease. In fact, as a result of modern medicine, this type of heart condition is becoming rare.

CHANGING CAUSES OF DEATH

Until the end of the last century, a very large percentage of young people suffered and died from malnutrition and infection. Today, in contrast, poor nutrition is no

result of smoking. In contrast, cancers of the stomach and of the uterus have markedly decreased in the United States, whereas they have remained high in several other countries.

HEALTH AND THE ENVIRONMENT

Such differences and changes in the prevalence of fatal diseases make it obvious that these diseases are not the inevitable consequences of aging but are largely determined by environmental factors. This conclusion is supported by the fact that ethnic groups who adopt American ways of life also acquire the disease patterns characteristic of Americans.

Social relationships are other aspects of the environment that affect health and disease. People who are single, widowed, divorced, dissatisfied with their jobs, or

probably also played a role. Cigarette smoking has markedly decreased among adult men (although it is increasing among women and teen-agers); we have appreciably reduced the saturated fatty acids in our diet; and we may have increased our physical activity, as indicated by the popularity of jogging and other active sports.

The ideal goal of medical intervention is, of course, either to prevent disease or to achieve complete cure. There are many situations, however, in which medicine can contribute to the welfare of people, even though it cannot prevent or cure disease.

Medical care can relieve symptoms, for example, by treating patients suffering from arthritis or hypertension with drugs and advising them as to the proper ways of life. It can facilitate rehabilitation by helping the patient to compensate for one or another handicap — as I have been able to do with my own cardiac insufficiency. Finally, it can relieve anxiety by reassuring a patient, for example, as my physician did when he told me that atrial fibrillation is compatible with a fairly normal life.

Disease is probably inevitable because we can never achieve perfect adaptation to the various environments in which we live. I doubt, furthermore, that medicine can ever develop methods for the complete prevention or cure of all diseases.

But I believe that medicine will be increasingly capable of enabling patients to function comfortably and effectively even in the continued presence of organic disease — a goal at least as important as the prevention and cure of disease or the addition of still more years to our lifespan.

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longer a significant problem in the United States except among very poor people or in fringe social groups.

The most destructive microbial plagues of the past have also been essentially brought under control. For example, tuberculosis, lobar pneumonia, streptococcus infections, typhoid fever, dysentery, smallpox, poliomyelitis, and measles can either be prevented by sanitation and vaccination or cured by drugs. As a result of the control of nutritional and microbial diseases, the causes of death are now completely different from what they were half a century ago.

For people under 40, the chief causes of death are no longer diseases, but homicide, suicide, automobile accidents, and other forms of violence. After age 40, although deaths from violence continue to be common, more and more people die from a small variety of chronic and degenerative diseases, particularly arteriosclerotic heart disease, strokes, various forms of cancer, and cirrhosis of the liver.

The various causes of death now affect similarly black and white people in the United States, but their prevalence differs profoundly from one part of the world to another and changes with time. During the 1970s, for example, the death rate from coronary heart disease was ten times higher in the United States than in Japan!

As is well known, lung cancer has been extremely high in American men for several decades and is beginning to increase in women, almost certainly as a

result of smoking. In contrast, cancers of the stomach and of the uterus have markedly decreased in the United States, whereas they have remained high in several other countries.

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CONTROL OF DISEASE

Nutritional and microbial diseases that used to be common in the past can be controlled by methods requiring little effort on the part of the person to be protected or treated, for example, by adding chlorine to public water supplies, giving appropriate vaccines, administering a drug, supplementing food with vitamins.

In contrast, it takes personal responsibility and a sense of discipline to control, over a whole lifespan, one's food and alcohol consumption, cigarette smoking, driving habits, physical exercise, and equanimity toward other people.

There are good reasons to be skeptical about the possibility of changing human behavior, but there are also reasons for hope. For example, deaths from heart disease, which had steadily increased since the beginning of the century, began to decline in the 1960s and have continued to decline ever since.

This improvement may be due in part to the use of drugs against hypertension and to better handling of heart attack victims, but changes in our ways of life have

NEXT WEEK: Dr. Lester Breslow, Dean of the School of Public Health at the University of California, Los Angeles, discusses how and why our health has been improving.

ABOUT THE AUTHOR

RENE DUBOS is Professor Emeritus of The Rockefeller University, where he first joined the faculty in 1927. A microbiologist and experimental pathologist, he was a pioneer in the development of antibiotics. From 1946 to 1972, he edited "The Journal of Experimental Medicine," and he has been a contributing editor to "The American Scholar" since 1970.

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