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Prevention of Cancer

Each year in the United States, there are more than 665,000 new cases of cancer and about 380,000 deaths caused by it. The direct medical expenses involved are estimated at \$3 billion, and that is only part of the bill. The agony of patients and the heartache of families and friends represent a far more serious cost. We are not alone in our suffering—the whole world shares these experiences.

Since cancer is such a dread disease, many physicians and scientists have devoted their lives to fighting it. They have been only moderately successful. Cancer is not one disease. It is a hundred or more diseases. A few of these respond well to intervention—surgery, radiotherapy, or chemotherapy. But overall, the probability of achieving a 5-year cure is only about 40 percent. In some instances, such as that of brain or lung cancer, the prognosis for a cure is poor.

Cheered on by the success of "miracle drugs" in controlling communicable diseases, the public and, indeed, medical scientists have been concentrating on seeking the "silver bullet." It is just possible that for many of the forms of cancer, there will be no silver bullet and that the most practical approach will be to find means of prevention.

Various experts in epidemiology have estimated that 80 to 90 percent of cancerous tumors may be related to environmental factors. Some of the causative agents are obvious, and they produce major, clear-cut effects. For example, about 30 percent of cancer deaths of men in the United States are attributable to cigarette smoking. In other instances, the causative agents are not definitely known, but there are tantalizing indications of major environmental effects. About 27 percent of all cancer deaths are connected with disease of the digestive organs. A comparison of the incidence of cancer in these organs shows interesting differences around the world. For example, the Japanese suffer nearly seven times as many deaths from stomach cancer as Americans do. However, the Japanese death rate from cancer of the colon and rectum is less than half that of Americans. Various studies suggest that these effects are largely of dietary origin—that is, observations have been made of Japanese who have changed their customs after emigration, and their cancer incidence approaches that of their new neighbors.

Another interesting observation comes from Roland L. Phillips of Loma Linda. He states that devout Seventh Day Adventists in California experience an overall cancer incidence only a third of that of other citizens of the state. He attributes this to their lifestyle.

In the light of comparative apathy about cancer deaths from smoking, the excitement over flimsy evidence of carcinogenicity of cyclamates and some other chemicals seems ridiculous. Yet prudence calls for vigilance. Many new chemicals are being introduced each year, and nasty but delayed surprises could be in store. It was therefore puzzling to read in a government publication, "Cancer is not a reportable disease, and it has been twenty years since a nationwide survey of the extent and impact of cancer in the United States has been undertaken." * Such a survey is now in progress, but surveillance should be continuous, not spasmodic, and it should exploit the power of an electronic computer network. If epidemiologists are to make optimum progress in identifying environmental hazards, they need to be alerted when symptoms first appear and not some years later, after the victims have died.—PHILIP H. ABELSON

* National Cancer Institute 1973 Fact Book (publication No. (NIH) 73-512, Department of Health, Education, and Welfare, Washington, D.C., 1973).