The increase in the number of tobacco-caused deaths over the last 50 years is one of the most tragic developments in the modern history of medicine. The most common cancers globally are stomach cancer, with 669,400 cases diagnosed each year, and lung cancer with 660,500 new cases yearly (7). Those rates are not stable, however; lung cancer is actually overtaking gastric cancer. This is the situation for a mainly self-induced, avoidable—in other words, preventable—disease. To win the war against cancer, we must first win the battle against tobacco.

A study of cancer mortality trends between 1960 and 1980 in 28 industrialized countries, conducted by the United Nations' World Health Organization (WHO), showed that the age-adjusted mortality rate for men increased by 19% in that period. Lung cancer mortality increased by 76% for men and 135% for women (2). Over the last 20 years, mortality rates from lung cancer in women increased more than 100% in Japan, Norway, Poland, Sweden, and the United Kingdom; more than 200% in Australia, Denmark, and New Zealand; and more than 300% in Canada and the United States (3).

A WHO survey of smoking prevalence between 1975 and 1986 in 65 countries showed that, of the 30 countries with the highest rates, 21 were "developing" and nine were "developed" nations. It is estimated that one of three males above the age of 15 smokes cigarettes in developed countries, and one of two in developing countries. The rates for females are lower, but they are rising rapidly in developing countries.

For years to come, cancer mortality is expected to increase in nearly all regions of the world, owing to a general increase in the age of the populations and an increasing use of tobacco. Cancer incidence is increasing globally, in spite of the enormous body of knowledge accumulated in cancer control over the last 40 years.

The earlier-mentioned WHO analyses revealed the limited impact of treatment on overall mortality from common cancers and, consequently, the urgent need for strengthening preventive measures, especially tobacco control. Nothing would have greater impact today on cancer worldwide than the effective application of current knowledge about cancer control. Existing knowledge is best implemented through national programs that set the right priorities and strategies for use of available resources (4). Methods have already been worked out for estimating the cost-effectiveness of various measures (5). It sounds simple and straight forward enough. Is it then being done? Unfortunately, usually not. Only a handful of countries have established national cancer-control programs.

The lung cancer mortality trends so far show us that the fight to control tobacco-caused cancers is currently being lost. Where do we go wrong? Early screening and diagnosis have proved inefficient in reducing mortality from lung cancer in controlled studies; the benefit of therapy is modest at best. Nevertheless, therapy is still receiving the bulk of the available resources. Even if effective therapies are found, they are likely to be unavailable to the majority of the world's lung cancer patients for decades. At present, primary prevention constitutes the only available means of reducing deaths from lung cancer. What are the lung cancer specialists doing in light of these facts? The Fourth World Conference on Lung Cancer in 1985 offered 38 scientific sessions. None dealt with primary prevention. Only one concerned supportive care, but 90% addressed symptoms caused by therapies.

In fact, 21 sessions addressed therapy; two, diagnosis; four, pathology; and three, epidemiology. It does not help to change names to "innovative radiotherapy" or "neo-adjuvant chemotherapy," or to change "immunotherapy" to "immunomodulators." It may help if part of the 90% of resources that goes to therapy, with a cure rate of around 10%, could go to prevention of the 90% preventable. A WHO Expert Meeting held last July also recommended that governments promote the introduction of programs of palliative care for the eventual incurable victims with tobacco-induced cancer in countries that accept the marketing policies of tobacco companies.

One day, hopefully, the right priorities also will be reflected in the types of intervention studies undertaken, grants awarded, and scientific papers published.

The world's two most common cancers, lung cancer and stomach cancer, are associated with lifestyles, and the former is increasing and the latter is decreasing, without any major interventions from the cancer-research establishment. The lessons from the McKeown analysis on change in mortality in tuberculosis (6) may illustrate this phenomenon and make the concept easier to accept. The discovery of the causative agent, tuberculosis, introduction of chemotherapy, and development of a vaccine contributed insignificantly to the worldwide decrease in death due to tuberculosis. The decrease in mortality was due to lifestyle changes—changes away from crowded, unsanitary living conditions. Changes in mortality from lung cancer and stomach cancer may be as strongly dependent on lifestyle changes.

How does the future look? Out of today's estimated 660,000 lung cancer cases a year, one-third are in developing countries (7). In developed countries, many of which have health legislation, price policies on tobacco, and na-
Vol. 81, No. 20, October 18, 1989

national tobacco-control programs to protect their people, overall tobacco consumption has been slowing at a yearly rate of 1.1%. In the developing countries, it continues to rise at a yearly rate of 2.1% (7). Most of these countries have no or few measures to protect their people.

Most likely, the developing countries are the last great market for the tobacco industries. Their mortality pattern is rapidly changing. In Shanghai County, China, cancer was the sixth cause of death in 1960. In only 20 years’ time, in 1980, it was killer number one. Cerebrovascular, heart and respiratory diseases were killers numbered two through four. These four leading causes of death all have one common causative factor: tobacco. One out of every two young men in China today smokes, and it has been estimated that, of the young under the age of 20, 50 million will die prematurely because of tobacco.

If the world’s tobacco smoking rates stabilize at their current figures, lung cancer rates in developing countries will increase to half the magnitude of current rates in developed countries in 15 years. The rate of lung cancer in developing countries will be the same as in developed nations in 40 years. Under these conditions, by the year 2000 there will be 2 million lung cancer cases per year. By the year 2025, this number could increase to more than 3.5 million cases per year (8). Tomorrow’s cancers are preventable today—but what is happening? Yesterday’s noncommunicable diseases have today become diseases communicable by lifestyle.

We Can Win the Battle

We know what should be done to control the world epidemic of tobacco-caused diseases. Nonsmoking should be established as the norm of social behavior. The key is effective coordinated national and international action. Legislation is required, including regular price increases and laws on advertising and education, especially of the young. A national focal point with authority and resources is needed, and it should be multidisciplinary and multiministerial or multidepartmental and include nongovernmental as well as governmental organizations. Political commitment and leadership are essential for action and success.

Over the years, the reports of the U.S. Surgeon General on the health consequences of smoking (9) have spelled out the risks, and reports of the Royal College of Physicians (10), the World Health Organization (11), and the International Union Against Cancer (12) have made clear that what is needed now is effective preventive measures. Reductions in lung cancer mortality as a result of effective national programs have occurred in Finland and the United Kingdom (13). Major reductions in tobacco consumption and smoking rates have occurred in Norway and Sweden in both young males and young females. After an initial decrease, though, the smoking rate has remained constant and a new addictive nicotine habit, tobacco chewing, has increased.

The report in this issue of the Journal by Devesa, Blot, and Fraumeni of the National Cancer Institute on declining lung cancer among young men and women in the United States indicates that we finally may be “winning the battle”—this even in a country where the tobacco industry spends over $2 billion a year for promotion of the addictive habit of smoking. Although overall age-adjusted rates of mortality from lung cancer continue to rise in the United States, the authors found that rates at ages below 45 years have begun to decline, a conclusion drawn on the basis of incidence data from the nine cancer registries of the Surveillance, Epidemiology, and End Results Program (SEER). No decline was seen in the older age group. Devesa and colleagues conclude that targeting young people for prevention programs has the potential of reducing mortality from tobacco-caused diseases. They predict that, if observed trends continue, overall lung cancer mortality rates will start to decline in the United States in the 1990s among men and, after the year 2000, among women.

While cigarettes and tobacco-using habits are being exported and promoted from the United States, it is hoped that the above-indicated preventive measures also can be exported to other countries that badly need them. Effective anti-tobacco measures will decrease not only cancers, but also numerous other ill-health effects and diseases caused by tobacco. Effective preventive measures should be a priority of cancer-control activities in every country.

References

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EDITORIAL 1525