

Cancer Prevention in Central and Eastern Europe

W. Bodmer and D.G. Zaridze

CANCER RISK does not respect international frontiers although the types of cancer which are most common are different in Central and Eastern Europe than in the remainder of the continent. Of major significance in Central and Eastern Europe is the build-up in the epidemic of tobacco related cancers in younger men, where the rates of lung cancer are still increasing and about to surpass the record high rates recorded in Western European countries 20-30 years ago and where rates are generally falling. While it may be too late to prevent this part of the epidemic, the low rates observed throughout Europe in females confirm the need for urgent intervention aimed at controlling a major tobacco-related lung cancer epidemic among European

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women. The high mortality rates present in Central and Eastern European countries for uterine cancer, particularly cervix cancer, also determine an important area for cancer prevention.

About sixty scientists (see box) from 14 countries participated in a meeting on 2-4 September 1991 hosted by the All-Union Cancer Research Center in Moscow to discuss a cancer prevention programme for Central and Eastern Europe. This meeting was sponsored jointly by the Organisation of European Cancer Institute (OEI), the International Union Against Cancer (UICC), the Commission of the European Community (EC) and the International Agency for Research on Cancer (IARC). An action plan for cancer prevention was adopted by the meeting and is reproduced on the facing page; further elaboration of this Executive Summary is also given in the Box.

Executive summary

Thirty million men and millions of women in Europe will die in the prime of life as a consequence of smoking over the next 30 years. By far the most important measure for the prevention of cancer is therefore to reduce the use of tobacco.

Tobacco is responsible for about one-third of cancer deaths, and this proportion is increasing. Moreover, smoking is a major cause of death and disability from heart disease, stroke and chronic lung disease.

A health disaster is occurring among middle-aged men in the (former) USSR and Central and Eastern European countries, even surpassing the epidemic that has already occurred in Western Europe. In addition, international tobacco companies are now taking advantage of the new opportunities to mount massive promotional campaigns in these countries.

These developments can be prevented if urgent measures are taken immediately. With every year of delay, one million lives are lost to tobacco in Europe alone.

In response, every government must implement a comprehensive tobacco control policy, including legislation. Priority for immediate action should be given to the following measures:

- (1) Introduce and strictly enforce a complete ban on all direct and indirect promotion of tobacco goods and trademarks.
- (2) Adopt (as a minimum) European Community standards for health warnings on the packaging of tobacco goods.
- (3) In order to reduce tobacco consumption, and in particular to protect children and young people, increase progressively the price of tobacco products.
- (4) Following the lead of the European Community in agreeing targets for maximum tar delivery, proceed towards the adoption of, for example, a target of 20 mg by 1995 and 15 mg by the year 2000.
- (5) Ban the introduction of all new forms of tobacco.

In addition, about one-third of cancer can probably be avoided by modifying the diet. Knowledge of the precise components of the diet that affect the incidence of cancer remains incomplete. It is recommended that individuals eat a diet high in fruit and vegetables and low in fat and fatty foods, and that they avoid being overweight. Following these recommendations will reduce cancer incidence and also have a significant impact in reducing cardiovascular disease. It is also recommended that individuals moderate their consumption of alcohol.

Governments have a responsibility for education in public health and in medicine. In order to achieve the recommendations set out above and the recommendations detailed below, it is essential that, in addition to making regulations, governments ensure that the medical profession and the public are aware of information on the risks of smoking, on a healthy diet and on other factors relevant for cancer prevention, including screening, air pollution, and environmental and occupational carcinogens.

Epidemiological research is needed particularly to understand further the relation between diet and cancer: the current, changing situation in Central and Eastern Europe provides an important opportunity for such research. Other

epidemiological research on, for example, air pollution and other carcinogens, and screening, including the development of cancer registries, should also be supported.

These recommendations are based on the conclusions of working parties on smoking, diet and alcohol, occupation, air pollution, environmental carcinogens and screening. Their reports, including some further important recommendations, follow.

SMOKING

The most important measure for the prevention of cancer is to reduce the use of tobacco.

Tobacco is responsible for about one-third of cancer deaths, and this proportion is increasing. Moreover, smoking is a major cause of death and disability from heart disease, stroke and chronic lung disease.

The huge wave of premature deaths among middle-aged men seen in many western countries in the late 1950s and 1960s has clearly been shown to be due to the increase in tobacco smoking some 30 years earlier. A health disaster of at least the same magnitude is occurring in the (former) USSR and in all Central and Eastern European countries:

—In central and Eastern Europe, more than one-third of all deaths in middle-aged (35–69) men are now due to tobacco, with an average loss of more than 20 years of life.

—In 1985 tobacco caused about 260 000 deaths among middle-aged men in the (former) USSR and a further 100 000 deaths in the rest of Central and Eastern Europe.

—These figures are expected to increase as cigarette consumption in Eastern and Central European countries has risen by 14% in the past 15 years. During the same period, consumption decreased in many Western European countries. Hence, the gap between these parts of Europe will increase in the future.

—International tobacco companies are now taking advantage of the new opportunities to mount massive promotional campaigns in these countries.

These developments, however, could be prevented if urgent measures were taken immediately. With every year of delay, a further million lives are lost to tobacco in Europe alone.

In response, every government must implement a comprehensive tobacco control policy, including legislation.

Priority for immediate action should be given to the following measures: (1) Introduce and strictly enforce a complete ban on all direct and indirect promotion of tobacco goods and trademarks. (2) Adopt (as a minimum) European Community standards for health warnings on the packaging of tobacco goods. (3) In order to reduce tobacco consumption and, in particular to protect children and young people, increase progressively the price of tobacco products. (4) Following the lead of the European Community in agreeing targets for maximum tar delivery, proceed towards the adoption of, for example, a target of 20 mg by 1995 and 15 mg by 2000. (5) Ban the introduction of all new forms of tobacco and of other nicotine-containing products, except smoking cessation products.

In addition, as a part of their legislative programmes, governments should initiate action in other areas of tobacco control policy, as recommended by the World Health Organization, including:

- protection of nonsmokers from exposure to other people's tobacco smoke;
- public education and public information programmes;

- provision of help to smokers who wish to give up their habits; and
- encouragement of diversification by tobacco manufacturers and farmers.

DIET

Dietary factors are closely involved in the occurrence of several important forms of cancer, including those of the stomach, bowel, oesophagus and possibly breast. About one-third of all cancer cases could probably be avoided by modifying the diet, although current knowledge of the precise components of the diet that are involved remains incomplete. There is a strong need for research, particularly epidemiological research, on diet and cancer. Opportunities are available in the current, changing situation in Central and Eastern Europe that could be profitably exploited with regard to dietary modification. The following recommendations are consistent with those made by other organisations, such as the 'Europe Against Cancer' programme and many national cancer societies, with respect to avoidance of cancer; they can also be expected to reduce the risk for cardiovascular disease: (1) Governments should promote the following health behaviours

- eat a diet high in fruit and vegetables and low in fat and fatty foods. This will reduce cancer risk and is certainly beneficial to health.
- Avoid being overweight. Excess weight has been associated with increased risk of several forms of cancer.
- If you consume alcohol (beer, wine and spirits) moderate your consumption.

- (2) Appropriate food labelling is essential for implementation of dietary guidelines.
- (3) Improved methods of food preservation, particularly avoidance of salt curing, should be encouraged.
- (4) Epidemiological research on diet and cancer should be a priority in Central and Eastern Europe.

OCCUPATION

Cancer risks related to occupational exposure have been investigated since the eighteenth century. The epidemiological evidence so far available, and evaluated in the Monographs Programme on the Evaluation of Carcinogenic Risks to Humans (Vol. 1-52) of the International Agency for Research on Cancer, has demonstrated that 29 industrial substances or processes increase the risk of cancer in humans. Many of these are widely used (e.g. asbestos and chromium) in both industrialised and less industrialised countries. Experimental and epidemiological studies have indicated that about 100 additional substances found in the workplace are either probably or possibly carcinogenic to humans.

The quantitative impact on a national population of exposure to occupational carcinogens is difficult to assess, although overall estimates range from 1 to 4% of all cancers. The proportion of cancers related to occupation varies as a function of both place and time. For example, the incidence of cancers of the bladder and lung can be substantial in heavily industrialised areas with poorly controlled exposure conditions.

Cancers of recognized occupational origin, are more easily preventable—through appropriate technological control—than cancer due to exposure to carcinogens related to personal habits. In addition, there are limitations to the extent to which individuals can protect themselves from exposure to carcinogens in the workplace. Adequate industrial hygiene measures are thus essential.

The carcinogenic risks associated with the international transfer and use of hazardous technology are of particular concern.

The following measures are recommended: (1) implement and monitor the elimination or substitution of known occupational carcinogens or the reduction of exposure at least to the standards of the European Economic Community. (2) Provide labelling of known occupational carcinogens. (3) Assess in each country the size of exposed populations, their distribution and time trends in their exposure to known carcinogens. (4) Regulate the international transfer and use of hazardous technology and products. (5) Provide economic incentives for designing and building clean plants and for improving existing working environments.

AIR POLLUTION

Epidemiological evidence suggests that high levels of urban air pollution and exposures near some types of industries, such as nonferrous smelters, may be related to an increased risk of lung cancer. Ambient air pollution may also be of importance for cancers at other sites.

The effects of other carcinogenic exposures, such as tobacco smoking, may be potentiated by air pollution; however, the available evidence on such interactions is inconclusive.

Imprecise data on exposure and uncontrolled confounding constitute major problems for interpreting epidemiological evidence on air pollution and cancer. These may contribute to both over and underestimations of the effects.

The following measures are recommended: (1) Further epidemiological studies should be conducted in the heavily polluted areas of the European region, using methods that enable a quantitative assessment of cancer risks. (2) Even in the face of the present uncertainty about the influence of ambient air pollution on cancer risks, it would appear justified to take action aimed at progressive reduction of emissions of carcinogens, following a policy similar to that adopted within the European Community.

SCREENING

Cytological screening for cervical cancer is recommended in countries where this disease is an important public health problem. The intensity of screening will depend on the economic resources available; it may range from a single smear (optimally at age 40) to one every 3-5 years for women between the ages of 25 and 60 years.

Screening for breast cancer by mammography every 2-3 years can substantially reduce mortality from this disease in women aged over 50 years. In countries with adequate resources, and where breast cancer is an important public health problem, such screening is recommended.

Screening for cancers other than those of the breast and cervix should not presently be included in cancer control activities. Only proven screening methods should be used, and these should be accompanied by appropriate quality control and monitoring of programme efficacy. Unproven methods of cancer screening may have detrimental medical or economic effects.

IONISING RADIATION

Scope for the prevention of lung cancer may be provided by controlling environmental exposure to radon. At present, however, it is far more important to concentrate on controlling the use of tobacco, as the number of deaths caused by tobacco is at least one order of magnitude greater than the number caused by environmental radon.

Diagnostic radiology should be used only when medically

necessary, and care should be taken to ensure that the dose per examination is kept as low as possible.

Individuals known to have received large doses of ionising radiation should be identified and offered appropriate medical follow-up.

ULTRAVIOLET RADIATION

The medical profession and the public should be educated about the dangers of excessive exposure to the sun, the use of sun-beds, and the use of effective sunscreens and protective clothing should be promoted.

Members of the public should be encouraged to seek a medical examination if skin changes are noticed.

The production and use of chlorofluorocarbons should be reduced and eventually eliminated in Central and Eastern Europe, as in other countries, because of their damaging effect on the ozone layer.

INFECTIOUS AGENTS

To reduce the spread of infectious agents which cause cervical cancer, as well as AIDS and other diseases, sex education should be given, especially in schools, which emphasises health issues. Furthermore, high-quality, cheap condoms should be readily available.

To limit the risk of cancer and other diseases from blood-borne viruses, appropriate testing and treatment of donated blood is essential. Tests for the human immunodeficiency and hepatitis viruses, at least, are necessary, under strict quality control.

EDUCATION

Education can contribute to prevention in several ways. Two are particularly important:

Medical education. Experience has shown that the efficacy of any information campaign depends critically on the attitude of general practitioners. Unfortunately, in several European countries, medical students do not receive adequate education about prevention in their curriculum. The European action against cancer has recommended that sufficient time be introduced into the curricula of medical schools for courses on: (a) prevention of cancer, the risks associated with tobacco and the fight against smoking; (b) the practical value of early diagnosis of cancer and screening when a proper quality control programme is implemented; and (c) information on occupational and environmental cancer risks.

Health education at school. The impact of information campaigns varies markedly with the educational level of the individual. Health education should thus be introduced early on in the school programme, for the age range 5–12 years. European action has been taken in this regard, and the recommendations have been endorsed by the European Ministers of Education.

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Trends in Cancer Mortality in Europe

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EXISTING EUROPEAN cancer incidence and national cancer mortality data around the early 1980s have already been published [1]. Mortality patterns from various types of cancer in the European Community at a 'county' level are also becoming available [2] and the cancer burden in the European Community and its Member States has been estimated [3]. Thus, there is now a good quantity of information available about cancer occurrence in Europe with, for example, systematic differences being observed between cancer patterns in Central and Eastern Europe compared with the remainder of the Continent [4].

Despite their existence spanning nearly 40 years, there has been no attempt at a systematic analysis and evaluation of cancer mortality trends in Europe. In this issue of the *European Journal of Cancer* [5] and in the next four issues, mortality rates for 28 types of cancer in 28 European countries will be presented together with minimal commentary. In many respects, the major purpose of this work is to offer summary documentation and a

general reference for epidemiologists, health statisticians and oncologists regarding cancer time trends in Europe.

The information presented is based on death certification data, compiled at a national level and transmitted to the World Health Organisation mortality database. A few small countries had to be excluded from this presentation: these include Andorra and Liechtenstein. A more important absence is that of the (former) Soviet Union whose data have only been contributed in the latter half of the 1980s thus making examination of time trends impracticable.

For each cancer site, the available information is presented for each country, in alphabetical order, in a standard manner. For each 5 year time period, the total number of deaths, the average annual age adjusted death rate and the truncated death rate (age 35–64) are presented separately for males and females in a table. The top figure investigates the temporal trends in the age-adjusted rates, both all-ages and truncated, in each sex. The remaining two figures investigate age-specific rates from age groups 30–34 to 80–84, the rates being presented by median year of birth. The observations corresponding to the same age