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

Peter Boyle

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 occurence 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

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group have been joined to provide clearer graphs. Systematic changes in risk from birth cohort to birth cohort will be noticeable as changes along a vertical line.

It is always important to bear in mind the possibility of artefactual distortion of mortality statistics for cancer. For example, the revision of the 'International Classification of Diseases' in use has changed four times throughout the decades covered by this report and this may be creating some inconsistency in the comparibility of disease definition, at least in terms of coding, throughout the period. The simple interpretation of mortality rates as a surrogate for incidence rates can also be distorted by changes in survival rates. For example, while the correspondence for cancer of the trachea, bronchus and lung ('lung cancer') has changed little over the period, the marked improvement in prognosis of testicular cancer following the implementation of new therapy in the 1970s [6] has greatly influenced the congruence between incidence rates and mortality rates from this malignancy. While acknowledging the possible existence of problems related to the accuracy and completion of death certificates in various countries, for various sites and in various calendar periods, for most common cancer sites and European countries, death certification can be considered sufficiently reliable and comparable particularly in relation to trends within countries. Greater caution should be taken when interpreting a few cancer sites whose diagnosis and registration may have been heavily influenced by the development and use of diagnostic techniques. These sites include liver, prostate, multiple myeloma and other lymphoreticular neoplasms: the specific problems of interpreting the dramatic trends in brain tumours in the elderly [7] have been addressed [8].

There are many interesting patterns which emerged from inspection of these data: the dramatic increases in mortality rates of cancer of the mouth and pharynx in many countries, rises in mortality rates from pleural cancer, the suggestion of more favourable trends in breast cancer in younger women, the impact of therapy on reducing mortality from testicular cancer, the epidemic of lung cancer in younger men in Central and Eastern Europe and several more. The information presented here is of more interest than that of descriptive epidemiology and public health since it allows comparative examination and assessment of long-term trends and, therefore, current and future priorities for prevention and intervention.

The authors present this information as a service to the oncological community. Although every care has been taken to avoid mistakes it seems probable in an exercise of this magnitude that some will have occurred. The authors would be grateful if anyone finding errors could inform them to avoid propagating such errors into future work.

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