

# National Cancer Control Programmes

**POLICIES AND MANAGERIAL GUIDELINES**

**WORLD HEALTH ORGANIZATION  
GENEVA**

# National Cancer Control Programmes

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**Policies and managerial guidelines**



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# Preface

Cancer is an increasingly important item on every country's health agenda. Medical knowledge is now sufficiently advanced to allow the prevention of at least one-third of all cancers, the cure of a further third provided that there is early diagnosis, and adequate symptom control (palliative care) of the remainder. Putting this knowledge into effect for the control of cancer, however, requires the establishment of systematic programmes on a national basis.

This handbook aims to provide guidance on the development of national cancer control programmes (NCCPs). It is therefore directed primarily at policy-makers in health and related fields, but will also be of interest to health ministries and academic institutions and, more generally, to individuals who need to keep abreast of developments in cancer control. It is additionally intended as a concise statement of what is feasible and desirable in cancer control in terms of putting science into practice.

The timeliness of this publication is underlined by the fact that the World Health Organization's programme on NCCPs, developed over the past 12 years, is about to be expanded on the basis of experience gained in the countries that have already, with WHO assistance, established such programmes. Moreover, WHO Member States, in their work towards health for all by the year 2000, are continuing to formulate and implement national health strategies, of which plans for cancer control must form an increasing part.

A preliminary version of this handbook was produced following the meeting of a Working Group on National Cancer Control Programmes, 25–29 November 1991, at WHO headquarters in Geneva, Switzerland. It was initiated and edited by Anthony B. Miller (visiting scientist, Cancer and Palliative Care, WHO) and Jan Stjernswärd (Chief, Cancer and Palliative Care, WHO). Two earlier reports served as a basis for its preparation, one drafted by Lester Breslow (School of Public Health and Jonsson Comprehensive Cancer

Center, University of California, Los Angeles, CA, USA) and the other written by the editors. The final version was produced following the meeting of a Working Group on National Cancer Control Programmes in Banff, Alberta, Canada, 26 September–1 October 1993.

More than 40 countries have already instituted NCCPs or received comprehensive grounding in their principles and operation. The target for the year 2000 is for this number to exceed 100; some programmes will serve as demonstration projects, with carefully monitored and evaluated indicators for implementation.

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# Executive summary

This handbook outlines the scientific knowledge that is the basis for national cancer control programmes (NCCPs) and offers extensive guidance on their establishment and organization. Much of its content derives from experience gained in the various countries that have already—with assistance from the World Health Organization—instituted their own NCCPs.

Cancer annually affects 9 million people and causes 5 million deaths. In developed countries it is the second most common cause of death, and epidemiological evidence points to the emergence of a similar trend in developing countries. The principal factors contributing to this disease pattern are the increasing proportion of elderly people (in whom cancer is more prevalent) in most populations, the greater ability of medical science to control once-fatal communicable diseases, and the rising incidence of certain forms of cancer, notably lung cancer resulting from tobacco use. It is likely that 300 million new cases of cancer and 200 million deaths from the disease will occur in the next 25 years, with almost two-thirds of cases arising in developing countries.

Medical advances mean that one-third of all cancers are preventable and a further one-third, if diagnosed sufficiently early, are potentially curable. Moreover, appropriate palliative care of the remaining one-third of cancer patients can bring about substantial improvements in the quality of life. With careful planning and appropriate priorities, the establishment of NCCPs offers the most rational means of achieving this degree of cancer control, even where resources are severely limited.

When cancer is diagnosed, it is a natural reaction to seek to cure the condition, and increasingly effective treatment strategies indeed make cure possible in certain cases. However, undue reliance on this approach, which often involves the use of sophisticated and expensive techniques, can result in inequitable selection of patients, rapid depletion of scarce resources, and a shift in emphasis away from much more appropriate and affordable prevention activities.

## The nature of cancer

The term cancer is used generically for some 100 different diseases including malignant tumours of different sites (breast, cervix, prostate, stomach, colon/rectum, lung, mouth, etc.), leukaemia, sarcoma of bone, Hodgkin disease, and non-Hodgkin lymphoma. Common to all forms of the disease is the failure of the mechanism that regulates normal cell growth and proliferation; ultimately, there is progression of the resulting uncontrolled growth from mild to severe abnormality, with invasion of neighbouring tissues and, eventually, spread to other areas of the body.

The disease arises principally as a consequence of the conditions of life—exposure of individuals to carcinogenic agents in the atmosphere and in what they eat and drink. Personal habits such as tobacco use, frequently developed in response to social circumstances, and occupational exposure to carcinogens play a particularly significant role in the etiology of cancer, as may biological factors such as viral hepatitis B infection. Many of these factors can be exploited as a means of cancer control; vaccination against hepatitis B, for instance, can protect against liver cancer.

## Prevention of cancer

The present and potential burden of tobacco-induced cancer is such that every country should give immediate priority to tobacco control in its fight against cancer: tobacco use in all forms is responsible for about 30% of all cancer deaths in developed countries and a rapidly rising proportion in developing countries. The habit of tobacco use is reinforced by physiological dependence on nicotine, and cigarette smoking in particular is encouraged by the marketing activities of national and multinational tobacco companies. Unchecked, smoking will cause more than 10 million deaths from cancer (predominantly lung cancer) in the next decade.

Dietary modification is another approach to cancer control. In recent years, substantial evidence has pointed to a causative role of excessive dietary fat in certain cancers, and to a protective effect of increased consumption of whole grains, fruit, and vegetables. Moreover, eating habits that may inhibit the development of diet-associated cancers will also lower the risk of cardiovascular disease.

Occupational and environmental exposure to a number of chemicals can cause cancer of a variety of sites; examples include lung cancer (asbestos), bladder cancer (aniline dyes), and leukaemia (benzene). Excessive consumption of alcohol increases the risk of cancer of the oral cavity, pharynx, and oesophagus, and is strongly associated with cancer of the liver in developed countries. Strong links also exist between a number of infections and certain types of cancer: viral hepatitis B is linked with

cancer of the liver, and human papilloma virus infection with cervical cancer. In some countries the parasitic infection schistosomiasis significantly increases the risk of bladder cancer. Exposure to some forms of ionizing radiation and to excessive ultraviolet radiation—particularly from the sun—is also known to give rise to certain cancers, notably of the skin.

The wealth of knowledge that already exists about these predisposing factors provides obvious and ample scope for action to reduce the cancer burden of all countries.

### **Early detection of cancer**

The earlier a cancer is detected and diagnosed, the greater is the chance that curative treatment will be successful; this is particularly true of cancers of the breast, cervix, mouth and skin. It is therefore critical that people are taught to recognize early signs of the disease, such as lumps, sores that fail to heal, abnormal bleeding, persistent indigestion, and chronic hoarseness, and urged to seek prompt medical attention. This can be promoted in all countries by public health education campaigns and through training of primary health workers.

Population screening, i.e. mass application of simple tests to identify individuals with asymptomatic disease, is another approach to early detection. However, screening programmes should be undertaken only where their effectiveness has been demonstrated, where resources (personnel, equipment, etc.) are sufficient to cover at least 70% of the target group, where facilities exist for confirming diagnoses and for treatment and follow-up of those with abnormal results, and where prevalence of the disease is high enough to justify the effort and costs of screening. At present, mass screening can be advocated only for cancer of the breast and cervix. Efforts should concentrate on women at greatest risk of developing invasive cancer, i.e. those aged 35 and over for cervical cancer and those aged over 50 for mammography programmes for breast cancer.

### **Treatment of cancer**

The primary objectives of cancer treatment are cure, prolongation of life, and improvement of the quality of life. An NCCP should therefore establish guidelines for integrating treatment resources with programmes for screening and early diagnosis, and provide therapeutic standards for the most important cancers in the country.

Care of cancer patients typically starts with recognition of abnormality, followed by consultation at a health care facility with appropriate services

for diagnosis and treatment. If necessary, there should be referral to a specialized cancer treatment centre. Treatment may involve surgery, radiation therapy, chemotherapy, hormonal therapy, or some combination of these.

The most advanced forms of treatment may produce a 5-year survival rate of 75% or more in certain types of cancer, e.g. cancer of the uterine corpus, breast, and testis, and melanoma. By contrast, survival rates in cancer of the pancreas, liver, stomach, and lung are generally less than 15%. Some treatments require sophisticated technology that is available only in locations with substantial resources. Since the cost of establishing and maintaining such facilities is high, it is desirable that they should remain concentrated in relatively few places in a country to avoid draining resources that could valuably be devoted to other aspects of the NCCP's work.

### **Palliative care**

Improved quality of life is of paramount importance to patients with cancer, and pain relief and palliative care must therefore be regarded as integral and essential elements of an NCCP, whatever the possibilities of cure. Since they can be provided relatively simply and inexpensively, they should be available in every country and should continue to be given high priority, especially in developing countries where cure of the majority of cancer patients is likely to remain impossible for years to come. Health professionals should be trained to deliver palliative care, both within health-care facilities and in patients' homes. Guidelines for the relief of cancer pain have been drawn up by, and are available from, WHO; the widespread availability of morphine for oral administration is critical to pain relief, and should be ensured by appropriate legislation.

### **National policies for cancer control**

The development of national policies for cancer control depends upon assessing the extent to which the population is affected by cancer, determining the factors responsible for the disease, and identifying means of dealing with the problem. The essential data can be obtained from cancer registries where these have been established, but are also available from other sources.

Policies should take account of the resources that can be devoted to proposed activities, and programmes should be undertaken only if they fulfil the criteria of scientifically demonstrable value, acceptability to the population concerned, and financial feasibility. In the long run, pre-

ventive activities are more effective and much less costly than efforts to treat the disease. Policies should therefore make provision for:

- controlling tobacco use by various means, including mass education, tax increases, and restrictions on sales and places of use;
- evaluation of dietary intake of fats, fruits, and vegetables, and promoting the adoption and maintenance of healthy diets;
- alerting the public to the cancer risks of certain communicable and sexually transmitted diseases, and promoting appropriate measures such as vaccination against viral hepatitis B infection;
- identification of carcinogens to which people are exposed, and legislation for their control.

The relative importance of the various forms of cancer in the country concerned should be considered. The national cancer control strategy should incorporate measures for prevention, early diagnosis, and treatment, and should be based on comprehensive analysis of the existing situation, including a review of the causes of these cancers and of the resources available to deal with the problem.

Greatest effectiveness is achieved by integration of cancer control into a country's overall health service, with coordinated action on the risk factors that are shared with other diseases. The health infrastructure can be used for mass education about the nature of the disease, its causes and manifestations, and about what preventive action can be taken by the individual (with regard to diet and alcohol and tobacco use) and by society as a whole (control of tobacco availability and use and of occupational and environmental exposure to carcinogens). Policies should cover the training and continuing education of primary health workers in the prevention and early detection of cancer, and in referral of patients to appropriate diagnostic and treatment services.

Policies for cancer control should also extend beyond the health sector to include relevant activities in the fields of education, agriculture, industry, and commerce. Where possible, economic incentives for minimizing cancer hazards should be provided in industry and agriculture.

## **Establishing an NCCP**

There are four basic steps to the establishment of an NCCP—assessing the magnitude of the national cancer problem, setting measurable objectives for control of the disease, evaluating possible control strategies, and choosing priorities for initial control activities.

If no reliable national data are available, it may be assumed that background cancer incidence is in the range 100–180 per 100 000. The

lower level is likely to represent the situation in a country with more than half its population under 20 years of age, and the upper level a country in which a maximum of one-third of the population is under 20. Where awareness of cancer is low and access to health care severely limited, few of the actual cases of cancer (perhaps only 5–10%) will be known to the health service. As awareness increases, so will demands for care and thus the burden on health service resources.

The options for cancer control appropriate to a particular country should be examined from a number of perspectives, such as the prevalence of the 10 most common forms of cancer, the level at which care will be provided (primary health care or hospital care), the stage of intervention (prevention, early diagnosis, treatment, palliative care), the general concerns of the public, management activities (e.g. information systems), and political and planning concerns. Assessment of the current situation should be initiated through the ministry of health in collaboration with nongovernmental organizations active in cancer control; advisers with expertise in cancer control should be consulted as necessary.

It is envisaged that the process of establishing an NCCP should include launch of the programme with a workshop, development of a communication strategy, appointment of an NCCP coordinator, preparation of a draft national cancer control plan, determination of the part already being played in cancer control by existing organizations, identification of new and existing resources for the NCCP, setting of priorities, and formulation of a specific budget for cancer control. Managerial expertise is essential in the areas of implementation of the programme, fund-raising, public education, professional education and development, information systems, quality assurance, research and policy development, and evaluation.

Knowledge gained over the past two decades provides enormous scope for controlling cancer throughout the world, and the most appropriate mechanism for exploiting that knowledge is through the establishment of national cancer control programmes.

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