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Making progress against cancer in Europe in 2008

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ABSTRACT

Europe is facing a cancer epidemic, with rapidly increasing incidence rates. Population growth and ageing will further increase the annual number of new patients with cancer. Cancer is a huge and growing contributor to the burden of disease and premature death within the European Union (EU). One in four of all deaths in the EU is attributable to cancer, and in the age range 45–64 years, the figure is almost one in two deaths. The 27 EU Member States differ greatly in cancer incidence, mortality and survival. Yet at least one-third of the cancer burden is preventable and a further third can be detected early and treated effectively, even on the basis of existing knowledge. "Cancer", however, comprises an extremely complex group of diseases and achieving the full potential for prevention and treatment poses very significant challenges. Success in cancer control will depend on a co-ordinated approach that involves every aspect of policy and service delivery.

The objective of this paper is to outline the basic requirements of an integrated strategy for cancer control, emphasising the co-ordination of the key elements of primary prevention, secondary prevention (screening), integrated care and advances in research, all at national and EU level. It is based on a detailed review of the status of cancer control in the EU today and summarises the policy recommendations arising from this review, undertaken under the auspices of the Slovenian Presidency of the European Union in 2008.

1. Introduction

1.1. *Cancer as an epidemic*

Cancer may be considered as an epidemic. Incidence and prevalence are rising rapidly, largely as a result of demographic change. Around 2.3 million new cancer cases occurred in the EU25 in 2006, and growing numbers of cancers are predicted for all countries in the region.[1] The lifetime risk of cancer based on current incidence rates suggests that one in three persons in the EU will develop cancer in a typical lifespan. The EU population is ageing rapidly; between 2002 and 2020, it is estimated that the annual number of new cases will increase by 20%, solely due to population growth and ageing.[2]

Mortality from cancer remains a huge and growing problem in the EU. Currently, about one in four of all deaths in Europe is attributable to cancer, and in the age range 45–64, the proportion is close to 50%.[3] In 2006, 1.2 million deaths in the EU25 were due to cancer.[1] Even though survival from some cancers has improved markedly since 1990,

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reflecting advances in diagnosis and treatment, marked inequalities remain, and survival for many cancers still varies widely between Member States.[4] Finally, the total burden of cancer, in both disability and premature mortality exacts a major toll on patients, their families and society at large.

2. Approaches to cancer control

Cancer control faces several important challenges – including optimal exploitation of early detection and early treatment, and of the growing array of treatment options that can significantly improve survival. However, significant variability exists in the delivery of services for cancer prevention and treatment, and that is reflected in cancer outcomes. It is important to identify any points in the cycle of cancer management where services do not reach current standards. Action to address these shortcomings would significantly improve the quality and effectiveness of services for the management of cancer.[5]

Because of its complexity, cancer poses many challenges for public health. The most important issue is how to translate existing knowledge into effective strategies at a population level.

To develop an integrated strategy for cancer control, four components must be co-ordinated:

- *Primary prevention*: aimed at reducing exposure to risk factors for cancer and thus reducing incidence rates. It is focused on health promotion, lifestyle interventions and government policies designed both to promote healthy choices and to influence industry and other stakeholders to participate in these strategies and so commit themselves to creating a healthier environment.
- *Secondary prevention:* aimed at early detection of the disease, thus reducing premature mortality and improving the quality of life of cancer patients. It has as its central focus the development and implementation of organised mass screening programmes for cancer, based on the evidence of effectiveness.
- *Integrated care:* aimed at providing the best possible treatment to all cancer patients. It requires the development of a well-trained, multidisciplinary workforce; the existence of appropriate equipment and facilities, effective diagnostics and drugs and improving the quality of life for cancer patients and their families, through support, rehabilitation and palliative care.
- Research is focused on finding new solutions to all aspects of cancer management, by identifying new possibilities for prevention, early detection, diagnosis and treatment. Its prerequisites are the promotion, funding and support of research at all levels – the EU, nationally and through networks of institutions.

3. Implications for partners and stakeholders

3.1. *Implications for patients*

It is of utmost importance to maintain the focus on cancer patients. Their needs, beginning with the diagnosis of cancer and often continuing for many years, are tremendous. The complexity of cancer treatment is evident from the long list of possible interventions, including surgery, radiotherapy, chemotherapy, hormones and psycho-oncology, and for untreatable cancer, palliative care. Patients should be supported through effective co-ordination of their individual care, support for their families and the overall operation of services. The successful outcome of all these efforts depends on cancer researchers, primary care teams, oncologists, specially trained psychologists, specialist nurses, therapists and others, who all work with cancer patients.

For patients with cancer, the main goal is to regain their health and to return to their everyday lives as quickly as possible. Younger patients will usually wish to return to the productive lives they led before diagnosis, whilst older patients will seek to return to their previous level of independence. This rehabilitation, in the widest sense, should be the main purpose of treatment and the ultimate goal of our efforts to treat cancer patients. When the nature or the stage of the disease at diagnosis renders this impossible, palliative care should be provided.

Access to high-quality information should be provided to all patients with cancer in their own language. Patients should be enabled to make informed decisions about their care. This information base should include a Europe-wide registry of information on clinical trials, encouraging the participation of more cancer patients. Links with patient groups should be formally created through national medicines regulators, following the model promoted by the European Medicines Evaluation Agency (EMEA).[6]

For patients in today's wider European Union, creating more equitable access to prevention and treatment services is a high priority. The establishment of a European cancer task force could provide such a framework, to address inequalities in cancer control and to share best practices in cancer prevention and care.

3.2. *Implications for health policy*

A comprehensive approach to cancer at both national and international levels is vital. The first step is a detailed analysis of the current situation. Nationally, such an analysis needs to provide information on geographical and temporal patterns of cancer incidence, mortality and survival, for each of the common cancers. After that, it is necessary to establish priority areas for cancer control. Priority should be given to the development of a national cancer plan or – if such a plan already exists – to the evaluation of its achievements. One of the most important tasks for health policy is to maintain the proportion of total national expenditure on health allocated to cancer control.

A key requirement for successful cancer control is the development of national cancer plans. The World Health Organization advocates national cancer control programmes, within available resources, as a practical means of reducing the incidence and impact of cancer and improving the quality of life of cancer patients. Developing a cancer plan involves a comprehensive approach addressing the entire cycle of cancer management – from cancer prevention and screening through diagnosis, treatment, rehabilitation and palliative

care.[7] Palliation is too often neglected, but health systems can make an important difference for patients whose cancer cannot be cured (this issue).[8] Scenario planning can assist in developing alternative policy options for prevention, screening and treatment in the future.

Given the wide inequalities in cancer control across Europe, the EU should facilitate shared learning and information exchange. This applies in particular to the areas where there is EU competence, such as in the free movement of goods and services.

Health policy must recognise the crucial importance of integrated information systems to monitor the quality of cancer control activities. The main providers of such information are cancer registries. To assure and preserve their roles, adequate investment and protection of their tasks and functions are essential. All member states should agree to provide their respective inputs to such systems in a standardised way. Legal provisions should be similar to those regulating the notification of communicable diseases, as set out in the International Health Regulations, and should not impede the required information flows.

3.3. *Implications for reimbursement and financing agencies*

Cancer care is a complex activity that can require significant resources at every step of the patient's care pathway. This applies both to an adequate supply of highly trained professionals and to the availability of equipment and materials – cancer drugs and sophisticated diagnostic and therapeutic equipment, all of which can be extremely expensive. As cancer gradually becomes a disease that can be detected ever earlier in its course, the economic implications become even greater. In view of these developments, health technology assessment becomes significantly more important, with the need for countries to ensure equity in the distribution of treatment resources. The cost-effectiveness of new technologies and the efficacy and cost-effectiveness of cancer drugs need to be examined regularly. The European social model, supported by the agreed statements of basic values, implies that governments are responsible for ensuring that clinically proven interventions are available to all those who need them.

At a time when new systemic treatments are becoming more important in cancer treatment but also significantly more expensive, it is critically important to support further scientific developments such as molecular pathology, imaging, radiotherapy and surgery. Development of these technologies for the management of cancer should be encouraged actively by the EU, alongside the Innovative Medicines Initiative (IMI), which is focused solely on new drugs. As technologies advance, new and existing staff will need to be adequately trained to operate them. This in turn requires a substantial and sustained long-term investment.

Four key resource needs can be identified for cancer control:

(a) Human resources – highly qualified and specialised staff.
(b) Physical resources – appropriate equipment, facilities and drugs.
(c) Knowledge resources – evidence-based clinical guidelines.
(d) Social resources – systems for long-term support for patients and their families.

3.4. *Implications for research*

Cancer research is a source of continued improvements in all aspects of comprehensive cancer care. New approaches can be proposed and implemented in clinical and public health settings through better and evidence-based interventions. Population-based research derived from cancer registries is an important tool for evaluating the different interventions to reduce the cancer burden in the population as a whole. Appropriate stimulation of research will bring new knowledge, insights and solutions. Additive effects on cancer control can be achieved through broadened public awareness of prevention and screening, such as tackling the obesity epidemic. The European Commission Green Paper from 2007[9] clearly states that the focus of research should be on public health and the needs of cancer patients, rather than the economic advantage.

Research should include the following topics:

- Risk factors – identification of risk factors, and how to reduce or eliminate exposure to them; more attention should be given to behavioural research on how to prevent the preventable – we should understand better how to improve communication, health education and social marketing in order to overcome behavioural barriers.
- Lifestyle challenges – developing more effective ways of changing unhealthy lifestyles that increase the risk of cancer, this would also have a positive impact on the prevention of other chronic diseases and disorders related to the same unhealthy lifestyles.
- Screening – identification and development of new screening tests, better implementation of existing screening programmes, examining the effectiveness and cost-effectiveness of existing and newly developed screening methods and, finally, identifying the obstacles to the successful implementation of proven screening methods.
- Treatment – new drugs need to be meticulously evaluated from the clinical and societal perspectives (involving both clinical and population effects, in view of equity); there is also significant scope for improvement in the delivery of existing treatments.
- Clinical management – improved access, equity, effectiveness, outcomes and patient satisfaction; this should include better health care system solutions and methods to enhance the quality of life for cancer patients.
- Rehabilitation and palliative care – innovations; extending access to all cancer patients.
- Monitoring – quantify and explain recent trends and predict trends in incidence, mortality and survival for at least the next 10 years.

- Development of a stable research community with a Europe-wide commitment to the motivation and training of future researchers.

3.5. *Implications for the pharmaceutical and medical technology industries*

Technological and therapeutic advances have transformed the management of some cancers, especially those afflicting children. Increasing knowledge of the cellular mechanisms that underlie the development and spread of cancer now offers scope for the development of new therapeutic approaches. Yet this comes at an increasingly high cost. The ground rules for cooperation between the public and private sectors should be explicit, fair and transparent. Industry and government must find ways of working together in order to ensure not only a steady stream of innovation but also access to affordable treatment and care for all those who need it.

4. Measures to be undertaken

At national level, cancer prevention should be integrated in all health promotion activities. This offers the potential for huge long-term economic benefits, but it requires substantial investment in the short and medium term to provide any realistic prospect of achieving those benefits. The most important lifestyle interventions that could be implemented at national level include those in relation to tobacco and to nutrition and physical activity. Effective national implementation of the Framework Convention on Tobacco Control and of the Global Strategy on Diet and Physical Activity[10,11] would go a long way towards reducing the cancer burden. All countries should also seek to implement the European Code against Cancer as soon and as fully as possible.[12] A consistent approach to the promotion of healthy lifestyles should become an important element of cancer prevention. This would also help reduce the burden of other important chronic non-communicable diseases, especially the cardiovascular diseases, from which mortality in Europe is at least as high as cancer mortality. The complexity of cancer prevention and the various strategies for achieving it are discussed elsewhere in this issue of EJC.[13]

National (and regional) cancer registries are the only source of population-based data about the number of new cancer cases diagnosed each year, and of cancer survival. They are a crucially important resource for estimating and tracking trends in the cancer burden by age, sex and type of cancer, and for prioritising the allocation of resources for cancer control. High-quality cancer registries are essential if cancer services are to be planned rationally and monitored efficiently. They are also an important resource for national and international epidemiological studies, which have provided so much evidence for the development of policies to prevent and treat cancer.

The development of national cancer screening programmes is vital. For three common cancers, sufficient evidence exists that mass screening – as a public health policy – is an effective strategy for reducing risk or mortality. Thus, mortality from breast cancer can be reduced by an efficient population-based mammographic screening programme and the rapid treatment of screen-detected cancers. The incidence of invasive cervical cancer can be reduced by organised mass screening programmes using the Pap test or visual inspection. Mass screening for colorectal cancer with the faecal occult blood test, backed up by sigmoidoscopy or colonoscopy, has been shown to reduce mortality from this cancer by 10–20%[14] (this issue) and it should be implemented as soon as resources allow.

Lastly, effective national cancer plans will include all the elements described above. They should also cover comprehensive cancer care, the organisation and delivery of optimal treatment services to all cancer patients, and rehabilitation and research. Examples from several countries show that comprehensive national cancer plans are very effective in achieving optimal prevention and treatment of cancer.

At EU level, coherent, Europe-wide measures to complement national policies for controlling the effects of unhealthy lifestyles should be developed. A recent meeting on cancer control, held in Lisbon during the Portuguese EU presidency in late 2007, led to a number of conclusions and practical proposals of this type: they are reported elsewhere in this issue.[15] In addition to general health-promotion activities, special attention should be directed towards alcohol and tobacco. Such activities should aim in particular at reducing exposure to tobacco smoke and limiting access to alcoholic beverages. Examples include the reduction of tobacco and alcohol consumption through adequate pricing policies, policies to reduce harm related to exposure to environmental tobacco smoke and harmful drinking of alcohol, other policies to reduce demand and limit access, and the avoidance of internal market policies that will increase consumption. European policies should also be designed to promote healthy nutrition and physical activity, the safest occupational and environmental guidelines, and a coherent approach towards preventative alternatives against infectious agents that can cause cancer, such as the hepatitis B and human papilloma viruses.[16]

Research should be stimulated and promoted via the development and funding of extended research programmes to broaden knowledge of cancer epidemiology and the causes, early detection, diagnosis, treatment, survival and palliation of cancer. Research in cancer is particularly expensive, and international co-operation should be stimulated through adequate programmes. This is of particular importance as a means of ensuring access to information for the 12 Member States that have joined the EU since 2004. Serious consideration should be given to re-launching a special Europe-wide programme on cancer, similar in ambitions and scope to the Europe Against Cancer Programme (1987–2002).[17] Furthermore, complementary research should examine the impact and effectiveness of actions designed to achieve cancer control. This should include testing new strategies and methods for prevention, early detection, treatment, support and rehabilitation and palliative care. It is important to recognise that a number of statutory and regulatory constraints affect the conduct of cancer research as explained elsewhere in this issue.[18]

The substantial inequalities in cancer incidence and survival across Europe are a source of serious concern, with evidence that the gap has actually widened (this issue).[19] The EU should develop and implement a trans-national policy to reduce these inequalities. Establishment of reference treatment centres and cross-border collaboration, especially for patients who live far from the main population centres in their own country, could offer a useful approach to removing some inequities in access to optimal care. This would also provide invaluable support and assistance for EU Member States in the successful management of cancer for all their citizens. The development of reference centres for the treatment of rare cancers, in particular, should serve to ensure rapid implementation of the most up-to-date diagnosis and treatment. Such centres should also serve as centres of research, training and transfer of knowledge and expertise in order to ensure the continued care of all their patients, who would complete their treatment in their home environment.

Optimal policies are required for the evidence-based introduction of new health technology for cancer control. The well-known provisions for the licensing of new drugs should be supplemented with a more consistent approach to the assessment of *all* new health technologies, including consensus guidelines for the investigation and treatment of cancer. This will need to be carried out with full respect for the principle of subsidiarity, under which Member States are responsible for health.

Lastly, common strategies should be developed and implemented for systematic assessment of the quality of cancer management programmes, covering issues such as the effectiveness, misuse, overuse and sustainability of approaches to the care and treatment of cancer patients. Objective criteria for health technology assessment would also be used to monitor the appropriateness of the use of technology.

5. Conclusions

Cancer is a complex group of common, non-communicable, chronic and potentially lethal disease, affecting most families in Europe. Adequate cancer control will require a structured and co-ordinated approach at all levels of European society, with involvement of all the relevant stakeholders, including the cancer patients. Given the rising burden of cancer, further enhanced by population ageing, unfavourable trends in unhealthy lifestyles, the difficulties of tackling environmental carcinogens and the complexity and growing cost of cancer treatment, cancer will rise to the top of the health policy agenda in most European Member states, and it will stay there for several decades to come.

In order to face the challenges posed by these developments, Europe must focus on four types of intervention – primary prevention and health promotion; secondary prevention with proven screening programmes; more equitable access to optimal treatment and integration of all cancer care services, and sustained and consistent support for independent research.

Comprehensive cancer control programmes will need to involve patients, health policy-makers, healthcare payment agencies and researchers. Only in this way can we optimise cancer outcomes, based on prevention, screening and cost-efficient care driven by the goals of safety, quality of life and enhanced survival. Action is required at every level of society, starting from the local and regional level, through national governments and finally, with the EU reaching broad agreement on common policies for all those issues where cancer control can be successfully implemented across the entire European Union.

Conflict of interest statement

None declared.

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