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## The European Academy of Cancer Sciences

### Introduction



The Mission and Vision statement of the European Academy of Cancer Sciences may need a short introduction to help you understand its position and importance. In a period where cancer is the major cause of mortality in an increasing part of the world and presents an increasingly complex societal problem, a body that can provide authoritative, independent and evidence-based advice is needed more than ever.

The European Academy of Cancer Sciences is a key initiative that aims to structure the cancer community in an effort to fulfil its role in achieving and further developing the European Research Area (ERA). The Academy, which is hosted under the auspices of ECCO (European CanCER Organization), will strive for excellence, independence, leadership, diversity and flexibility. Throughout its work, the Academy will provide independent, authoritative and evidence-based advice to underpin policy for the prevention, the management and the palliation of cancer in Europe. In practice, the Academy will be a virtual reference point for policy-makers and professionals in the field of oncology research and care, at national, European, and global level.

We invite you all, professionals and non-professionals, policy-makers and politicians, involved in the cancer problem and in bringing solutions to a comprehensive management of this societal challenge, to read it carefully and engage in a discussion with this consultative body of advice.

Professor Alexander M.M. Eggermont, MD, PhD  
President European Academy of Cancer Sciences

## **The growing burden of cancer and today's challenges in research, prevention, screening and care**

The cancer problem is increasing annually and will escalate even further in the future due to the ageing population. According to recent figures from the International Agency for Research on Cancer (IARC), the number of new cancer cases diagnosed will increase by approximately 60% over the next 20 years, while cancer mortality will rise by a similar percentage. Today, cancer causes more deaths than any other disease – even more than AIDS, malaria, and tuberculosis combined.

The burden of cancer does not fall equally throughout all populations. It has a strong socio-economic gradient, both within and between countries. The current reduction in the mortality rate for some cancers in several countries with well-developed healthcare systems may reflect improved diagnostics and significant advances in treatment. However, due to an increasing incidence of cancer, absolute numbers of cancer deaths are rising and cannot be balanced by current improvements in prevention, diagnostics and treatments. An ageing population is having an important impact on present trends, although in some countries cancer is a major cause of death before 70 years of age. A significant problem for healthcare providers is the rise in the number of patients living with cancer which, in the next 20 years, will increase from approximately 30 million to more than 80 million globally.

Cancer is developing into a formidable healthcare problem which will be difficult to control unless research is able to improve the outcomes or prevention of the disease. Prevention, screening and improved treatment and care are major strategies that may also reduce mortality rates. Furthermore, given the large number of cancer patients and survivors predicted, focusing on their quality of life is fundamental.

### **Cancer research**

Cancer research today represents the whole continuum from basic research to implementation and evaluation of research outcomes in cancer care and prevention. It is also multidisciplinary, drawing on biology, chemistry, physics, bioinformatics, clinical research, epidemiology, behavioural, and health service research. Thus, there is a growing need to coordinate collaboration between disciplines.

A clinical research culture has clearly been established in Europe and there are numerous institutes with excellent infrastructures for both translational and basic research.

Top-quality fundamental research in oncology is being carried out at various institutions across Europe. Although clinical research output in Europe is very high, it could be significantly improved by coordinating collaborative research more efficiently and avoiding fragmentation and duplication of effort. Over the last decade, Europe has dominated the large clinical trials agenda in oncology and the time has now come to achieve the same domination in terms of translational and integrated research.

The need to link basic and clinical research is clear, as are joint efforts by the entire cancer continuum to realise innovation for the patient's benefit. It is evident that basic research is, and will continue to be the driving force behind developing translational and applied research, yielding new treatment options. A large number of clinical and cancer-prevention problems will not be solved unless our understanding of the biology underlying cancer expands via basic research in oncology.

### **Prevention**

Primary prevention aims to reduce incidence through reduced exposure to causal factors or by vaccination in case of cancers due to infectious factors. Major preventable risk factors of cancer can be behavioural (tobacco use, alcohol consumption, and poor diet); environmental and occupational threats (solar or nuclear radiation, air and water pollution, chemical exposure); infectious diseases (high-risk Papilloma and Hepatitis B viruses); and the socioeconomic determinants which often condition population exposure to these risks.

Prevention may be population-based, and can be carried out by means of legislation, health education, inter-sectoral actions, preventive medical procedures (e.g. Papilloma and Hepatitis B virus immunisation programmes, chemoprevention), and general health promotion activities in the community. Prevention can also focus on high-risk individuals when appropriate.

### **Screening (secondary prevention)**

Early detection of cancer or premalignant lesions is often referred to as secondary prevention. The benefit of evidence-based screening for breast, cervical and colorectal cancer is widely supported, although more research is needed to further develop the best tools and screening protocols. Challenges and controversies are greater for other tumours, and research is currently being carried out in these areas. An increasing problem associated with screening is the over-diagnosis and subsequent over-treatment of a cancer that would otherwise not cause symptoms or death.

### **Cancer care**

Multi-disciplinary and multi-professional cancer care is mandatory for high-quality care, and there are minimal requirements for multidisciplinary expertise which guarantee proper patient care for the majority of oncological diseases.

The diagnostic disciplines – pathology, cytology, imaging, molecular analysis and laboratory medicine – are all needed for microscopic diagnosis and clinical staging. The three main therapeutic disciplines are surgery, radiation therapy and systemic therapies, and treatment may aim at cure or palliation. Certain aspects of surgery continue to evolve, thereby enabling less-invasive therapy with possibly less morbidity. Improvements in radiation therapy are based on technological developments and greater insights into biology. Medical oncology delivers a number of treatment modalities: traditional chemotherapy, targeted drugs, hormonal treatment, biological treatments, and personalized combined therapy, available through the implementation of molecular diagnostics and molecular therapeutics.

Specialised oncology nursing is mandatory to guarantee high quality care, while quality of life of cancer survivors or patients living with cancer is often undervalued. Supportive care, psychosocial oncology, rehabilitation, and palliative care are important and require investment in rigorous research studies.

It is becoming increasingly accepted that highly integrated and comprehensive organisations are needed to accommodate the growing complexity of cancer care and management, a principle which has led to the development of the Comprehensive Cancer Centre model. Advanced and highly-specialised treatments rely on centres with the necessary critical mass of technological resources and competences.

While the delivery of high-quality cancer care is the responsibility of each country, the treatment of cancer patients moving from one European country to another is not straightforward and requires consideration.

## Vision statement

The European Academy of Cancer Sciences is an independent advisory body of eminent oncologists and cancer researchers, placing science at the core of policies to sustainably reduce the death and suffering caused by cancer in Europe.

## Mission

### *Provide information and expertise across the cancer continuum*

The Academy is an advisory body of Fellows elected by their peers from the entire cancer research continuum who have made outstanding contributions in their field. It will strive for excellence at all levels. Questions posed to the Academy will be relayed to the relevant experts in the field and, following validation, a well-substantiated response will be provided. Where agreement cannot be reached, the Academy will highlight critical issues for further analysis.

### *Develop strategies to improve cancer care*

The Academy will define and promote strategies to improve prevention, early detection, and therapeutics. Addressing health determinants, such as tobacco, alcohol and obesity, are of critical importance. The development of personalised cancer medicine is a strategy to improve the outcome of a treatment by tailoring it as closely as possible to the individual patient. It may lead to transforming cancer into a chronic disease as well as to improving long-term remission and cure rates. Early detection provides the link between prevention and therapeutics. The use of the translational cancer research continuum for more effective developments in prevention, early detection, and personalised cancer medicine will be an important task for the Academy.

### *Stimulate growth of knowledge and innovation within the European cancer research domain*

The Academy will support new strategies to improve innovation by creating links between cancer researchers and policy-makers. Innovation is one of the main challenges for Europe and a priority area for the European Union.

Innovation should be evaluated in terms of its long-term benefit for patients. The long period, often decades, that is required to implement and evaluate innovation in clinical practice or prevention is a key challenge. The effectiveness of the translation process from 'bench to bedside' should be enhanced. This requires better integration of preclinical and clinical research as well as a healthcare system that can facilitate translational research. Thus, aligning regulations concerning both ethical and legal issues in medicine and research, such as the use of patient samples across European countries, is of great importance.

### *Promote excellence as the driving force behind prioritisation of research funding*

Translational cancer research aimed at innovation is financed by different sources, but coordination between such sources remains suboptimal. National and international funding bodies, healthcare organisations and industry are the most important sources of cancer research funding. Closer collaboration, which is not restricted to national borders, and a shared vision would result in a more effective use of research resources. Lack of financial support for large preventive, clinical and epidemiological studies of no commercial interest remains a major problem for European cancer research.

The prioritisation of research areas in order to enhance innovation is a concern for most research funders, including the European Commission. The Academy will promote excellence as the driving indicator to prioritize research funding.

Furthermore, the current fragmented cancer research landscape in Europe needs a body to promote integration of the various research agendas and the Academy will fulfil such a role. Important questions raised by politicians and funding organisations, which touch on cross-border issues, will also be addressed by the Academy. This may include new partnership models between academic institutions and industry.

### *Develop translational cancer research as a model for European translational medicine*

One important mission for the Academy is to overcome the fragmentation of European cancer research by identifying opportunities to improve translational cancer research. New types of research collaborations – aimed at reaching the critical mass for all types of cancer research, as well as the development of the necessary infrastructures – will be promoted. The strategies and activities to improve translational cancer research in Europe will be used as a model for translational medicine in general, and the Academy will aim to promote a European structure for supporting and implementing translational medicine.

The Academy will support interaction between researchers. Focused scientific meetings alongside the exchange of researchers between cancer research centres are considered of great importance both for cross-fertilisation of know-how and good practice and to avoid duplication of efforts. Stimulating the development of translational cancer research is considered a priority, a prerequisite of which is fundamental, innovative, cutting-edge research on clinical material.

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***Define strategies to address common misconceptions in gridlocked areas of oncology***

Views are polarised in various areas of oncology where common misconceptions exist, such as screening and treatment protocols. The Academy will use an evidence-based approach to provide guidance on strategies for making progress in areas that are currently at a standstill.

**Contacting us:**

The European Academy of Cancer Sciences exists to provide professional, scientific, evidence-based advice. For any question you may have regarding the issues dealt with in this paper or topics you feel should be further explored, please contact us:

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