

THE DANISH MODEL FOR

# CANCER TREATMENT AND PREVENTION

## PATIENTS AS PARTNERS

Patient organizations

## RESEARCH AND TREATMENT

Scientific Society



## CONCRETE INITIATIVES

Regional government

## NATIONAL CANCER PLANS

National government

# WELCOME

Imagine an innovation district in the heart of Copenhagen with 30,000 businesses, employees, researchers and students specialising in life sciences and green technologies, huge investments in state-of-the-art research facilities and transport infrastructure, green parks and attractive housing. Imagine a place where collaboration and sharing knowledge is the common goal. This is Copenhagen Science City. You are invited to join.

Copenhagen Science City has a world-class eco-system for cancer research and the development of new treatments. Rigshospitalet (the University Hospital of Copenhagen) is located in the centre of Copenhagen Science City right next to the University of Copenhagen's Faculty of Health and Medical Sciences and Copenhagen Bio Science Park, which hosts more than 70 biotech companies. Copenhagen Science City is therefore a central part of the Danish Model.

The ESMO 2016 Congress is a unique opportunity to share knowledge and enter into partnerships that can foster new solutions and enhance the quality of life for Europeans and patients worldwide. We look forward to meeting you there.



*"In Copenhagen Science City, we have created an innovative environment in which the health sector, researchers, and businesses work closely together to develop and convert research into new, innovative products. Working side by side in close strategic partnerships creates unique opportunities that benefit not only the companies and the health sector but also the patients."*

**Frank Jensen, Lord Mayor of Copenhagen**



*"I am thrilled that we're able to gather more than 20,000 researchers and companies in the Capital Region of Denmark. The exchange of knowledge and experiences with new and important cancer research can benefit people who are severely ill with cancer, and I hope the conference will show new avenues for researchers to follow in their efforts to further improve cancer treatment. Of course, it's an added bonus that the conference will bring a positive focus to Denmark as a country at the cutting edge in this field."*

**Sophie Hæstorp Andersen, Chairman of the Regional Council, The Capital Region of Denmark**

# PARTNER INTRO

On the occasion of Copenhagen hosting the largest European event dedicated to oncology – the ESMO 2016 Congress, the agency Hansen Agenda facilitated a partnership between some of the main Danish stakeholders tackling cancer: The Danish Cancer Society, The Danish Regions, The Danish Health Authority, The Danish Society of Clinical Oncology and Copenhagen Science City, to present the Danish model of cancer treatment and prevention.

The aim of the partnership is to pass on the Danish model of cancer treatment and prevention as a source of inspiration to both our fellow citizens and countries around the world, as the Danish model and the motto of this year's ESMO congress, "From disease treatment to patient care" fit very well together.

Not that everything is perfect regarding cancer in Denmark. Like most countries in Europe, we have a range of demographic challenges: the incidence of cancer is increasing, our diagnostic and treatment services are strained by increased demand and there is room for greater awareness and further

initiatives in the area of preventative measures. That said, Denmark has become a world leader in cancer treatment and research during recent decades.

An important part of this success has been the collaboration of health authorities, hospitals, patient organisations, researchers and businesses. The partners standing together behind this joint effort have all played a crucial part in creating an atmosphere of mutual trust between the different stakeholders within the national cancer sphere. In this publication each partner will highlight different aspects regarding the history of actions, governmental plans and opportunities for cooperation that have contributed to the results Denmark has achieved in fighting cancer.

We all hope that the Danish Model will give inspiration to others, in Europe and around the world.

/ The Danish Partners

## ESMO - European Society for Medical Oncology

Founded in 1975, ESMO is the leading professional organisation for medical oncology, with the overarching goal of improving outcomes for cancer patients everywhere. The organisation is the society of reference for oncology education and information, and is committed to supporting its members to develop and advance in a fast-evolving professional environment.

The ESMO 2016 Congress in Copenhagen, 7-11 October 2016, is the premier scientific platform to present the latest oncology research and as such, the ultimate learning experience for oncologists. The ESMO 2016 Congress brings together more than 19,000 oncology stakeholders from over 130 countries worldwide.

**"Cancer patients and their needs are at the centre of all that we do: our profession is driven by our determination, individually and collectively, to secure the best possible outcomes for people with cancer across Europe and around the world."**

*Professor Fortunato Ciardiello,  
ESMO President*



## Hansen Agenda - Communication Agency

Hansen Agenda is a strategic communications agency. For years the agency has been developing strong agendas and partnerships around clients in all sections of society, insisting that the communication journey should be a part of solving greater problems in society. Hansen Agenda is the officially appointed local communication agency for the ESMO 2016 Congress, creating the partnership and coordinating the local communications. Read more about Hansen Agenda here: [www.hansenagenda.dk](http://www.hansenagenda.dk) or Twitter @LotteHansen

**"We are happy to be able to highlight that the Danish Agenda, with the cancer patients in focus, is similar to ESMO's mission when it comes to fighting cancer on a global scale."**

*Lotte Hansen, CEO, Hansen Agenda*



SETTING AGENDAS  
MOBILIZING PARTNERS

# PATIENTS AS THE KEY PARTNER OF THE HEALTHCARE SYSTEM

The great advances in Danish cancer treatment over the past fifteen years – which have reduced the mortality rate of cancer patients – are the result of a conscious political prioritisation of resources and medical planning.

Standardised cancer package pathways have reduced waiting times and contributed to a reduction in the mortality rate of Danish cancer patients. Together with the pooling of medical specialities at fewer units and hospitals, this has also improved the quality of medical care and the quality experienced by patients. Although many patients have had to travel further to be examined and treated, the results have been favourable and the provision of support services has been excellent.

## **Meeting targets and minimising waiting time**

When cancer patients experienced unreasonable waiting times for diagnosis and treatment back in the 1990s, the Danish Cancer Society drew attention to the problem. This generated political support for securing patients the right to rapid examination, diagnosis and treatment.

**Patients, politicians and doctors  
agreeing on goals is the cornerstone  
of the Danish model.**

Since then, the Danish Cancer Society has engaged in constructive dialogue with health authorities and medical professionals to ensure that the ambitions for cancer treatment remain high and to secure an unwavering focus on meeting targets and minimising waiting times. This is manifested particularly in the high priority given to the cancer area by all Danish governments, of whatever shade, and their willingness to invest the Cancer Action Plans, the fourth of which will soon come into effect.

Crucially, this interaction between patients' clear expectations of action, a political desire for state of the art cancer treatment

and transparent clinical objectives has led to a situation in which Danish cancer treatment is significantly better than it was fifteen years ago. The fact that patients, politicians and doctors have clear lines of communication and have shared objectives is a cornerstone of the Danish model.

## **Specialisation challenged continuity**

The centralisation and specialisation of treatment also meant, however, that patient care pathways became more complex and involved more doctors, more units and different hospitals. Many patients also found that every time they were called in to a consultation or examination at the hospital, they encountered a different doctor. This challenged the continuity of the care pathways. For patients, this meant that the coordination of their own treatment became increasingly important, while also increasing the risk of error when being handed over to new care providers.

## **Developing the Danish model**

Improved continuity and clearer responsibility for each patient's treatment were therefore high on the patients' wish list. The Danish Cancer Society joined forces with medical associations to develop a model which would designate an accountable doctor with responsibility for each patient. In the government's proposal for a new Cancer Plan, this model has become a key element of the plan to make the healthcare system and cancer treatment more patient-centred. Having an accountable doctor responsible for each patient is a point of departure from previous approaches to patients and their treatment, when responsibility for the patient was not the responsibility of specific doctor, but was organisationally rooted in the unit providing the treatment.

## **Broad support for cancer research**

To patients, the development of new treatment paradigms and better and gentler medication have been reliable indicators that Danish doctors and hospitals are world-class. This also explains why Danes have always been very willing to support cancer research through donations to the Danish Cancer Society and participate in the many research experiments conducted at various oncology units and university hospitals in Denmark. The Danish Cancer Society houses one of the leading basic cancer

research units in Scandinavia and also conducts unique registry-based research. The Danes' deep confidence in the health authorities' processing of personal data makes it possible to carry out comprehensive population studies based on registry data in the field of healthcare.

#### Next step: Comprehensive Cancer Centre

Together with leading cancer researchers and regional hospitals, the Danish Cancer Society wants to make Denmark even more attractive for new cancer research. The goal is to continuously improve cancer treatment and to introduce new treatment breakthroughs into clinical practice as soon as possible. This is also why the government, in its forthcoming cancer plan, will invest resources in the establishment of a Comprehensive Cancer Centre.

This type of national centre would be a unique construction and establish national cancer research units involving all five of Denmark's regional hospital owners and set common standards for treatment and research. The prospects for patients will be uniformly high-quality treatment and rapid access to the latest advances in treatment with maximum curative effects and minimum harmful effects.

#### Patients as partners – a necessary approach

The Danish healthcare system is in the process of adopting an approach in which all patients are seen as individuals with individual needs. Experimental efforts are being made to increase patient involvement through shared decision-making and supportive electronic tools based on patient-reported information. This focuses the dialogue and levels the playing field between patient and healthcare staff. But of at least equal importance is a resulting change in the culture of the healthcare system, such that professional caregivers will perceive patients as partners instead of objects in the treatment situation. Without

this approach, the healthcare system risks wasting countless resources on unnecessary treatment, which the patient either does not want or does not understand the scope or consequences of.

**Professional caregivers should perceive patients as partners instead of objects in the treatment situation. Without this approach, the healthcare system risks wasting countless resources on unnecessary treatment, which the patient either does not want or does not understand the scope or consequences of.**

#### Preparing for future challenges

Over the next ten years, the increasing numbers (at least 10,000) of elderly cancer patients with comorbidities will further exacerbate the challenge. These patients will expect to be involved in their own treatment and will expect the treatment to be based on their unique needs. In addition, health inequity will increase, because cancer and mortality rates are disproportionately distributed between low-income and high-income groups. The healthcare system must be prepared to cope with all of the above.

The Danish healthcare system is in the process of adapting to and addressing the challenges that are urgent right here and now and which will become even greater going forward. The adaptation process is based not only on necessity, but also on political, professional and administrative readiness. The Danish Cancer Society and patients are monitoring and contributing to this adaptation process.



#### Danish Cancer Society

- The Danish Cancer Society is a private association that is entirely dependent on support from Danes.
- 425,700 Danes are members and about 45,000 are volunteers.
- The Danish Cancer Society provides free counselling to patients and relatives at more than 30 locations around Denmark and telephone counselling via the Cancer Line.
- The Danish Cancer Society has its own research centre with some 225 researchers and technicians from all over the world.
- The Danish Cancer Society produces 300+ research findings each year, published in international scientific journals. A third of these articles are among the 10% most-quoted articles in the world in their field.
- In 2015, the Danish Cancer Society invested roughly DKK 350 million in both its own research and external cancer research.

# SCIENTIFIC SOCIETY PROMOTING THE DEVELOPMENT OF CLINICAL ONCOLOGY

It is important to put the patient in the center and to be able to offer the best treatment for each patient, to do so in a timely way and to ensure that all patients have the same opportunities. DSKO plays an active role in the political debate to focus on all important aspects of cancer, from prevention and early detection, to treatment, palliation and rehabilitation.

DSKO actively follows approval processes of new agents, but also appreciates that organizational change, such as the centralization of surgical and medical facilities, may have a greater impact on survival rates than new, expensive medicines. As a consequence, DSKO is very actively involved in the prevention debate, especially since smoking is much more common in Denmark than in our neighboring countries. DSKO has representatives on several councils and boards. As such, DSKO has had a significant impact on the formulation of Denmark's national cancer plans.

## **Increasing complexity prompted the birth of DSKO**

The Society represents all doctors in the field of clinical oncology, which encompasses both medical and radiation oncology. As such, the training encompasses both ESMO and ESTRO core curriculum. Its primary aim is to promote the development of clinical oncology and to improve the conditions for education and research in clinical oncology. At the annual meeting in March/April, both scientific and health policy issues are discussed. The meeting is an opportune occasion to meet colleagues from other parts of Denmark.

## **National Multidisciplinary Working Groups**

DSKO appoints members to the National Multidisciplinary Working Groups, in order to: ensure that all cancers are managed in accordance with best international evidence; to update clinical databases; and to coordinate clinical research. Some of the Danish multidisciplinary teams have track records going back more than 30 years (Danish Breast Cancer Cooperative Group, DBCG; and Danish Head and Neck Cancer Group, DAHANCA) and have produced numerous randomized studies which have resulted in changes in practice.

Through the education committee, DSKO is responsible for the theoretical part of the clinical oncology training for physicians in specialist training. As such, it is the responsibility of DSKO to follow and update educational plans and ensure that

**As part of the Danish Model, the Danish Society of Clinical Oncology plays an active role in developing national cancer plans, establishing multidisciplinary teams and securing the training of future oncologists.**

both the ESMO and ESTRO global core curricula are fulfilled. DSKO is also following and attempting to regulate the dimension plans and requirements for future oncologists in order for them to be able to handle the growing number of patients and new complex therapies.

DSKO plays an active role in the development of national cancer plans, the establishment of multidisciplinary teams to establish best evidence and registration in clinical databases, and to secure the training of future oncologists in accordance with best international standards. Danish research is valued highly by the society and ESMO provides an excellent means to securing international collaboration.

### Integrating research with daily oncology practice

As a scientific society, research is a key priority for DSKO. Denmark has a strong international position in relation to clinical research, ranking second in the world in scientific publications and citations relative to the size of the population. DSKO has fought actively for the integration of clinical research into daily oncological practice, both at university hospitals and in regional departments. Both within the cancer plans and specific task forces, both Denmark's national governments and its regional administrations have invested in infrastructure for clinical research, with NEXT as the most recent initiative. The president of DSKO, Professor Ulrik Lassen, is head of the National Experimental Therapy Partnership (NEXT) pilot center for Phase 1 trials at Rigshospitalet in Copenhagen.

### Research conducted at Rigshospitalet

At Rigshospitalet, research is an integral part of treatment practice, which itself is research-based. Basic research, clinical and translational research, along with the scientific development of methods and innovation, form the basis for Rigshospitalet's position as a frontrunner in the development and use of documented treatment leading to the best healthcare results.

Research is conducted within all areas of specialization and expertise in health environments, as well as in nursing and care, not to mention within adjacent fields such as medical equipment and the theory of medicine.

### Global research and collaboration

In the field of oncology, Rigshospitalet is an official collaborative partner with the largest cancer hospital in the US, the MD Anderson Cancer Center <https://www.mdanderson.org/>. Rigshospitalet is officially a Sister Institution, meaning that Rigshospitalet is part of a global network comprising 24 cancer hospitals. Rigshospitalet is part of the Global Academic Programme (GAP), which provides access to a global research network and thereby more rapid access to the latest technology and frontline clinical research. Research and treatment collaboration takes place in fields including child cancer, radiotherapy, accelerated patient pathways, gynecological cancer and palliative medicine.

### Danish Society of Clinical Oncology - DSKO

In 1981 the Danish Board of Health established a basic specialty (oncology) to perform both radiotherapy and medical cancer treatment. The two societies, Danish Society of Oncology (DSO) and the Danish Society for Medical Oncology (DMO) had until then disagreed as to whether the non-surgical treatment of cancer should be divided into two specialties, a radio-therapeutic and a medical-chemotherapeutic specialty. In 1983 the Danish Young Oncologist Group (FYO) was established.

Due to the increasing complexity of oncology and in order to ensure future recruitment, the two societies merged in 2004 and established a new society: DSKO, the Danish Society of Clinical Oncology.

### Rigshospitalet

As a tertiary referral teaching hospital with special responsibility for specialized and highly specialized medical care, Rigshospitalet has a particular focus on research and receives patients from other parts of Denmark and from other countries.

### Significant collaborative partners

- Faculty of Health and Medical Sciences, University of Copenhagen
- Copenhagen Science City
- Metropolitan University College
- Technical University of Denmark

Read more:

<https://www.rigshospitalet.dk/english/research/Pages/default.aspx>



# THE DANISH MODEL – SIX CONCRETE INITIATIVES

During the past ten years, the cancer field has witnessed enormous professional and organizational progress, which has improved patient procedures, while reducing the time spent on them, and lowered cancer mortality. National cancer pathways have been created and implemented, new treatment regimes have been introduced, and cancer treatment has been centralized organizationally.

With the introduction of cancer pathways there has been a notable improvement in the professional work on elucidation, cancer treatment and follow-up. The results of this effort can now be seen in increasing rates of survival, such that Denmark now is in line with our neighbouring Scandinavian countries.

Denmark prides itself on having particularly open access to health data, not least in respect to the Danish Multidisciplinary Cancer Groups' data bases. These health data are an extremely valuable resource in achieving quality improvements with regard to the fight against cancer. To maximize the payoff from the health data, Danish Regions, in collaboration with the Danish government and the municipalities, is launching a new quality program, which offers greater levels of support for improvements in quality and focuses on effectiveness.

## Six notable interventions

Of special interventions included within the Danish model, the following are notable: 1) Establishment of cancer pathways, 2) The national quality program and data-driven improvement, 3) Personal Medicine and biobanks, 4) Clinical Trials Office Denmark, 5) National Experimental Therapy Partnership (NEXT) and 6) Danish Comprehensive Cancer Center (DCCC).

### 1. Patient cancer pathways

In 2007 the Danish Government and the Danish Regions entered into an agreement concerning the treatment of all acute cancer types in Denmark. The aim of the agreement was defined as follows: "To ensure that all cancer patients and patients suspected of having cancer are offered a fast and well organized pathway

without initial or not-clinically-justified intermediate waiting-time. It is expected that professional optimal diagnosis and treatment procedures for the individual patient will lead to improved prognosis, better quality of life and (help) reduce the uncertainty associated with unexplained waiting time."

The patient pathways are based on national evidence-based clinical guidelines, from which central information regarding clinical content, organizational principles, estimated clinically justified time requirements, and principles for the provision of patient information concerning each step in the diagnosis and treatment pathway are developed to describe the steps and structure of a standard patient pathway.

As an integral part of the patient pathway, a model for monitoring patient pathways has been developed. The aim is to ensure continuous monitoring of how quickly patients directed to patient pathways are diagnosed and, if applicable, treated. The monitoring model is an important tool for the five hospital Regions in Denmark in securing a successful ongoing implementation process and in ensuring optimal cancer diagnosis and treatment procedures.

**Access to health data is invaluable in achieving improvements in quality in the fight against cancer. To maximize the payoff from health data, Danish Regions, in collaboration with the Danish government and the municipalities, is launching a new quality program, which offers greater levels of support for improvements in quality and focuses on effectiveness.**

### 2. The national quality program and data-driven improvement

Denmark has a great tradition within the clinical development of new drugs and principles, and has historically been among the countries in the world that undertake the largest number of clinically controlled trials relative to population, especially in oncology. One explanation for this is to be found in Denmark's homogeneous and digitalized health care, a population that is positive about participating in trials, a strong health



## Danish Regions

Danish Regions is the interest organization for the five Regions in Denmark. Danish Regions' overall mission is to safeguard the interests of the Regions. The most important tasks of the organization are:

- to safeguard regional government interests within health care, hospitals, special education, regional development, environment and finances
- to act as spokesman on behalf of the Regions vis-à-vis national government, the EU, other interest organizations and the media
- to negotiate the annual financial frames of the Regions with national government
- to negotiate pay and working conditions for regional employees as the Regions' central employers and bargaining organization

Read more: <http://www.regioner.dk/services/in-english>

industry, and opportunities for collaboration through the Danish Multidisciplinary Cancer Groups. This has contributed to national-based studies being the rule rather than the exception.

The Danish government, Danish Regions and Local Government Denmark have launched a new national quality programme in which data-driven quality improvement, systematic patient involvement, better use of health data, and value-based management are the cornerstones. Data-driven leadership and real-time data are important foundations in clinical quality development and research. To improve data quality, the Regions are included in a central collaboration around the use and sharing of health data across government, Regions and municipalities. This also includes collection of new types of data on patient-related results (PROM), focusing on the treatment of the patient and data about coherent patient processes across sectors and specialities.

### 3. Personalized medicine and biobanks

Denmark aspires to be a global leader of personalized medicine, paving the way for future generations. In collaboration with the state and other central stakeholders, Danish Regions are currently establishing a framework for this vision. In Denmark, there is access to biobanks containing samples of, for example, tissues and blood offering unique research opportunities. With individual personal identity numbers, access to biological material from biobanks (for example, the Danish Cancer Biobank <http://www.danskcancerbiobank.dk/en/aboutus/>) and accessible information, scientists are able to tailor more precise and personalized medical treatment of each patient.

### 4. One entry for clinical drug trials in Denmark

The five Danish Regions have together established "One Entry" for the industry for clinical trials. "One Entry" will contribute to increasing the number of clinical drug trials in Denmark. "One Entry" is a free service for companies needing to find suitable sites for clinical trials and patient recruitment. Information will typically be supplied to companies "considering locating clinical

trials in Denmark" within four days. Thus, an overview of the number of potential patients and collaborators is made available to them at an early stage. "One Entry" also functions as an overall negotiation party in relation to contracts. "One Entry" covers all phases of clinical trials and collaborates with NEXT. For further information, please see: <http://www.clinicaltrialsdenmark.com/>.

### 5. National Experimental Therapy Partnership (NEXT)

NEXT is a public-private partnership within clinical research, consisting of the Danish Regions, universities and twelve pharmaceutical companies and one GTS institute. NEXT is intended to make Denmark the pharmaceutical industry's first choice for early clinical trials of new drugs for patients, with a particular focus on Proof of Concept trials. NEXT works hard to optimize all processes from start-up to close-out of clinical trials, and prioritizes the optimization of legal and regulatory processes. A high degree of predictability in the clinical trials is also an important element for NEXT. Clinical trials are initiated as planned, and the agreed number of patients is recruited. NEXT offers a one-stop shop for the pharmaceutical industry and hospital researchers: Easy access to Denmark's strongest clinical research environment within experimental research in the early phases, national recruitment of patients and establishment of patient databases as well as optimized administrative and regulatory processes. NEXT has established centers within areas including oncology. See more at: <https://nextpartnership.dk/en/>

### 6. Danish Comprehensive Cancer Center (DCCC)

To increase the collaboration and to attract international financing and partnerships, the Regions have decided to create a Danish Comprehensive Cancer Center (DCCC), which is recognized in accordance with international standards. The goal is to create optimal conditions for Danish cancer research and shorten the path from research to clinic. The inspiration comes from the establishment of Comprehensive Cancer Centers in the USA and Europe. The vision is that all patients must meet the same high professional standards.

# NATIONAL CANCER ACTION PLANS – THE DANISH EXPERIENCE

A number of initiatives in the Danish health sector have contributed to the improvements seen in Denmark regarding prevention, diagnosis, treatment and care for cancer patients. Three – soon to be four – National Cancer Action Plans are playing a major part in these improvements.

The first Danish National Cancer Action Plan was introduced in 2000, and had a strong focus on strengthening the Danish health system's ability to diagnose and treat cancer patients, and included an increase in hospitals' provision of advanced imaging and radiotherapy, as well as improving the skills of health care professionals caring for cancer patients. The first National Cancer Action Plan was developed by the Danish Health Authority with broad stakeholder involvement, including health care professionals, researchers and patient representatives. Resources to implement the recommendations of the National Action Plan were allocated from the national budget.

Subsequent National Cancer Action Plans were introduced in 2005 and 2011, and focused, inter alia, on cancer prevention, especially tobacco control; specialization and quality improvement of surgical services; planned patient pathways to reduce waiting times; improved national screening programs;

**A successful Danish Model requires: Political consensus and focus, broad and representative involvement of stakeholders, strong collaboration between national authorities, regional decision makers and hospital administrators, effective use of robust patient pathway data, national multi-disciplinary collaboration between clinicians and researchers and a continued commitment to improvement.**

measures to ensure early detection of cancer; and initiatives to improve rehabilitation and palliative care for cancer patients.

## Structural reforms and tobacco legislation

Since the turn of the century, a number of other initiatives in the Danish health sector have contributed to improvements seen in Denmark regarding prevention, diagnosis, treatment and care of cancer patients. The most important initiatives are:

- 1999-2001: Introduction in health care law of patients' rights of very short maximum waiting times for diagnosis and treatment of cancer
- 2004: Establishment of the Danish Multi-disciplinary Cancer Groups (DMCG)
- 2007: National political consensus on rapid diagnosis and treatment of cancer, with the establishment of cancer patient pathways and a National Task Force
- 2007: Structural reform establishing new Regions and municipalities with the critical mass and robustness necessary to deliver specialized health care
- 2007: Strengthening of the legal framework available to the Danish Health Authority, enabling the creation of a national plan for specialized hospitals services
- 2007: New legislation to control smoking in public spaces

## Initiatives reduce system delays

The initiatives contained within the three National Cancer Action Plans, as well as other measures, have significantly improved the diagnosis, treatment and care of cancer patients in Denmark since the turn of the century. Delays in the implementation of cancer patient pathways are now among the shortest seen across comparable jurisdictions. From 2013 through 2015 the ratio of cancer patient pathways completed within defined standard time intervals improved from 72 % to 79 %, a satisfactory outcome, given that standard time intervals do not include, for example, the additional time needed to treat comorbidities, or increased waiting times initiated by patients themselves.

## Specialization improves patient survival

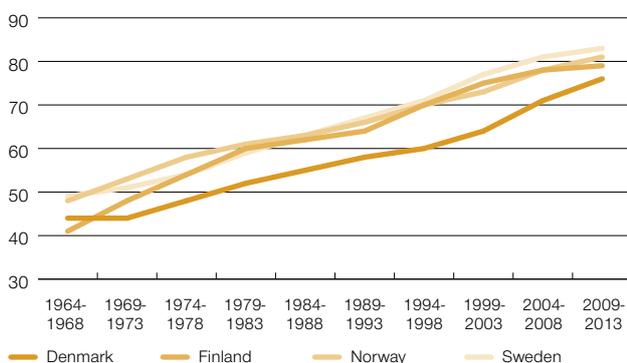
The quality of hospital services has improved dramatically. For example, the treatment of Danish ovarian cancer patients now takes place in four highly specialized university hospitals, against around 50 hospitals at the turn of the century, with dramatically improved results. Similar trends have been seen in the field of pulmonary cancer, with a reduction from 90 to 13 centers involved in the diagnosis of suspected pulmonary

cancer, with approximately 60% of surgical cases being offered laparoscopic procedures and approximately 80 % of surgical cases treated by lobar resection. The number of centers offering surgery for rectal cancer has been reduced from 47 to 15, resulting in a reduction of post-operative mortality from 7.3 % to 1.8 %. For women with breast cancer, more than 70 % are now offered a lumpectomy compared to approximately 30 % in 1995. However, challenges remain in several fields, for example bladder and kidney cancer.

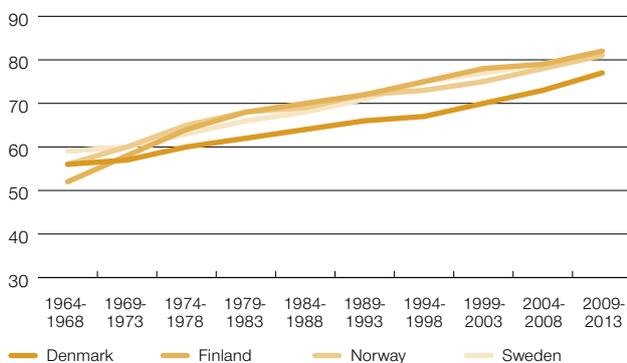
### Improving prospects for men

Survival rates of Danish cancer patients, particularly those of men, are now improving, as demonstrated by comparing relative survival rates across the Nordic countries.

#### 1-year relative survival in men



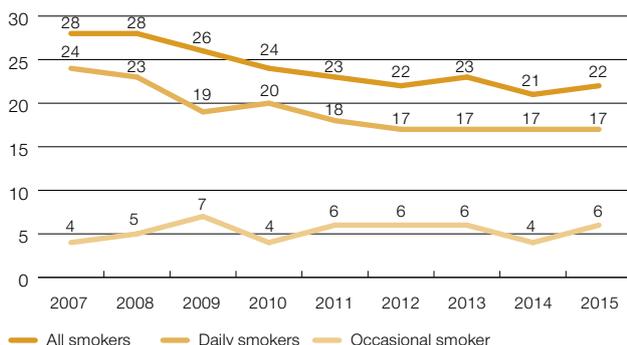
#### 1-year relative survival in women



However, there is still room for improvement, especially with regard to prevention. Tobacco use is still very high in Denmark, with no improvement over the last five years.

### Smoker in the Danish population

(age > 15 years, occasional smokers, daily smokers, total)



### Danish Health Authority

The Danish Health Authority (DHA) was established in 1907 and is the supreme national government authority in the fields of health and ageing.

The DHA is tasked with planning national health care in primary and hospitals sectors, national action plans in the areas of cancer, psychiatry, cardiovascular disease, health sector emergency preparedness, public health and preventative measures, care of the elderly, radiation protection, training of health professionals, evidence-based medicine, pharmacotherapy etc.

Director General: Dr. Søren Brostrøm.

Website: [sst.dk/en](http://sst.dk/en)

### Proposed fourth National Cancer Action Plan

To meet the challenges in the Danish cancer field, a fourth National Action Plan is being developed. The Danish Health Authority, with wide stakeholder engagement, presented a comprehensive analysis of past achievements, current challenges and possible solutions in July 2016. Based on these recommendations, in August 2016 the Danish government presented a proposal for a fourth National Cancer Action Plan. Funding of 1.5 billion DKK (200 million EUR) has been proposed for the initiative, and including already allocated national funding, a total of 2.2 billion DKK (300 million EUR) will potentially be allocated over a four-year period to fund the initiatives contained within the fourth National Cancer Action Plan. The government is currently seeking a parliamentary majority for the proposals to be included within the national budget for 2017.

#### Main goals of the plan

- By 2025, Denmark will achieve survival rates comparable with the best of our Nordic neighbors
- By 2030, Denmark will have the first tobacco-free generation
- By 2020, 90% of cancer patients will benefit from having a single doctor responsible for the continuity of their care

A number of specific initiatives are proposed, including measures for tobacco control, improved prevention of and screening for HPV-related cancer, innovative solutions for patient-centered care, initiatives targeted at children and young people with cancer, optimization of patient pathways, better tools for joint decision-making, and strengthening of rehabilitation and palliative care. Resources are proposed for increasing capacities in hospitals including imaging and radiotherapy, and for supporting research and evidence-based medicine.

# JOIN US IN COPENHAGEN SCIENCE CITY

We hope you will enjoy ESMO 2016 and be inspired by the Danish Model for cancer treatment. We also hope to see you again in Denmark, Greater Copenhagen and Copenhagen Science City.

Located in one of the most liveable cities in the world, Copenhagen Science City offers one of Europe's largest concentrations of education and research in the fields of medicine, health sciences and natural sciences. Our vision is to contribute to the development of Greater Copenhagen as a green and innovative metropolis with high growth, employment and quality of life on at least a par with other metropolises in Europe.

#### Here is what we do:

- Together with our partners in Denmark and Greater Copenhagen we attract and retain highly skilled international talent and businesses.
- We facilitate cooperation between businesses, researchers and students to create new businesses and innovative solutions.
- We promote green, smart-city urban development, adding to the quality of life for residents.



15 floors of ultra-modern facilities for health-related research at the new Maersk Building, Faculty of Health and Medical Sciences

#### This is what Copenhagen Science City has to offer on cancer:

1. World class basic and translational research in cancer and related fields of research based at Faculty of Health and Medical Sciences at University of Copenhagen. The Faculty offers excellent research infrastructure and has a long tradition for innovation and collaboration with the pharmaceutical industry and the Danish Cancer Society to ensure that basic scientific advances can be translated into new treatments and commercially promising projects.
2. One of Europe's largest communities working in the area of cancer diagnosis most notably at the Department of Clinical Physiology, Nuclear Medicine & PET at Rigshospitalet.
3. One of Europe's leading environments for the preclinical testing of new experimental treatments in the form of the Phase 1 Unit at Rigshospitalet, which is a European leader in the use of gene sequencing and tailored cancer treatments (personalized medicine). A rapidly growing number of foreign biotech and pharmaceutical companies choose to carry out their early clinical testing in collaboration with the Phase 1 Unit.
4. A thriving community of local biotech companies and startups.
5. Investments of approximately DKK 6 billion in state-of-the-art research, teaching and treatment facilities, some of which have already been taken into use.

#### Contact us – we will connect you free of charge

Kristoffer Klebak  
Head of Secretariat, Copenhagen Science City

Direct: +45 35334983  
kk@copenhagensciencecity.dk  
www.copenhagensciencecity.dk