
Innovative
hospital services
in Denmark
Healthcare
Denmark

Table of contents

Foreword

Denmark is committed to the continuous innovation of its health system. Facing demographic challenges in the coming years, with an increasing elderly population and a shrinking workforce, innovation is considered one of the key tools for improving patient outcomes while increasing efficiency.

Denmark's healthcare transformation is driven by collaboration between hospitals, healthcare providers, and the life science sector. Together, they are building a health ecosystem that incorporates new technologies, specialized care pathways, and enhanced diagnostic tools. The role of hospitals is to foster innovative ideas as well as to contribute to testing and implementing solutions.

In 2024, two important outlines for the future of healthcare were introduced. One was the new Strategy for life science towards 2030, which establishes innovation in hospitals as a core task, alongside treatment, research, and education. Through the strategy's initiatives, hospitals will have additional incentives and opportunities to engage in innovation.

In November 2024 a broad political agreement was reached in the Danish Parliament on a comprehensive healthcare reform to be implemented over the coming years.

The ambition is to bring healthcare closer to patients and communities and, among other initiatives, to give hospitals a key role in developing innovative solutions to achieve this. The reform provides substantial funding for the continuous modernization of hospital infrastructure, the use of modern technology, and the adoption of innovative solutions.

We believe this publication will provide valuable insights and a forward-looking perspective on how innovative solutions can address the major health challenges of the future. The focus on innovation highlights a strong commitment to meeting both current and future healthcare demands.

Sophie Løhde, Minister for the Interior and Health & **Anders Kühnau,** President of the Danish Regions

Introduction

Denmark's hospital infrastructure is evolving to meet new and modern healthcare demands and challenges, emphasizing efficiency, patient-centred design, exploring new methods to deliver high-quality treatment and seamless sector collaboration to benefit a rising number of patients. Digital health solutions, sustainable building practices, and adaptable spaces are key features, positioning Danish hospitals as leaders in creating resilient, patient-friendly environments aligned with the vision for accessible, high-quality care.

The Danish Super Hospital Programme, introduced as part of the Structural Reform in 2007, represents a transformative approach to healthcare, focusing on creating a more sustainable and efficient system that emphasizes patient-centred care.

This is bolstered by the new ambitious political agreement from 2024 on an extensive healthcare reform, which commits significant resources to improve both physical and technological health infrastructures, ensuring Denmark remains at the forefront of health innovation.

With the construction of 16 new hospital projects across the country, the health reform aims to establish a streamlined hospital structure featuring fewer, yet larger and highly specialized hospitals. This strategy ensures that critical care is prioritized, while non-specialized treatments are made more accessible, closer to patients' homes or even within their homes.

INNOVATIVE HOSPITALS IN DENMARK

Supporting this vision, the reform has allocated 3.5 billion DKK for local health clinics, 22 billion DKK for renovation and modernization, and 2 billion DKK for the expansion of digital solutions outside hospitals and the establishment of a national data platform.

Moreover, the creation of new health regions and councils will enhance local health services, bringing care closer to the community and empowering patients as active partners in their care through advanced digital infrastructure and modern technology. The ongoing construction of new hospitals is set to bolster the delivery of hospital services in the future[1].

Some of the demands in the new hospital buildings were[2]:

- New investments should improve land use, task execution, and resource efficiency through improved logistics, technology, workflows, and high standards.
- Consolidating functions into fewer units for a more efficient hospital structure.
- Construction of single-bed rooms to reduce noise, improve sleep quality, reduce employee stress, and minimize errors but also help prevent infections and falls.
- Hospitals must be built flexibly to adapt to evolving treatments and technology while staying within financial constraints

Innovation and research

Danish hospitals, managed by the regions in Denmark, have made considerable progress in the areas of innovation and research, establishing a strong foundation in healthcare modernization.

Innovation is the introduction of new ideas or processes that create value, often resulting from collaboration across professional disciplines or sectors. In regional healthcare, innovation includes adopting effective practices from neighbouring regions to save costs, avoid mistakes, and improve healthcare outcomes[3]. This collaborative approach enables successful innovations to spread across departments and regions, maximizing impact and ensuring efficient, cost-effective healthcare solutions. To maintain high-quality care, it is essential to increasingly embrace and speed up the adoption of innovative practices.

The health system faces rising patient numbers, treatment options, and resource pressures, especially in staffing. Addressing these challenges requires creativity and innovation. New solutions are essential to meet healthcare demands driven by demographic shifts and scientific advancements, enabling better treatments and more efficient, cost-effective operations. This focus on innovation aims to tackle tomorrow's healthcare challenges.

Research is a vital foundation for innovation and development. Health research, the largest research area in Denmark, frequently involves multi-stakeholder and sector collaboration between the private sector and the public health system. Research not only drives innovation but also motivates and engages staff, forming the basis for a highly educated workforce. The regions are committed to providing the best framework conditions for health research.

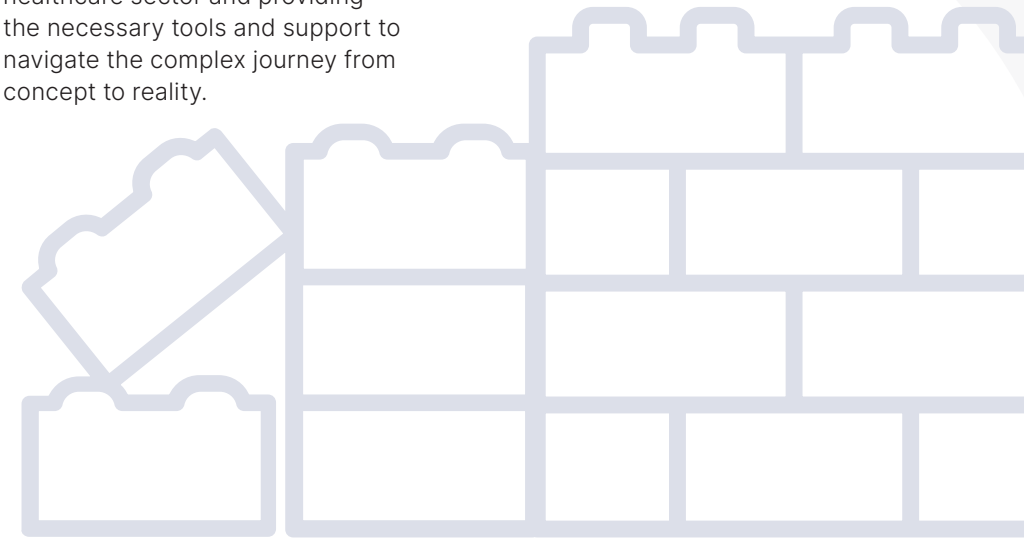
CASE *From research to healthcare solutions*

BETA.HEALTH is a national innovation and development initiative designed to transform and accelerate promising research into practical healthcare solutions.

By accelerating projects towards implementation, it plays a pivotal role in enhancing the delivery, efficiency, and scaling of healthcare services across Denmark. As an in-house accelerator embedded with the Danish regions, the programme works closely with regional health systems to bridge the gap between research and practical application.

BETA.HEALTH focuses on identifying breakthrough research within the healthcare sector and providing the necessary tools and support to navigate the complex journey from concept to reality.

This is done by offering programmes that support early-stage companies with access to funding, mentoring, and clinical validation environments to test and refine new health technologies. Through its comprehensive support system, the platform ensures that innovative ideas swiftly reach the market, thereby improving patient outcomes and contributing to the sustainability of healthcare advancement.

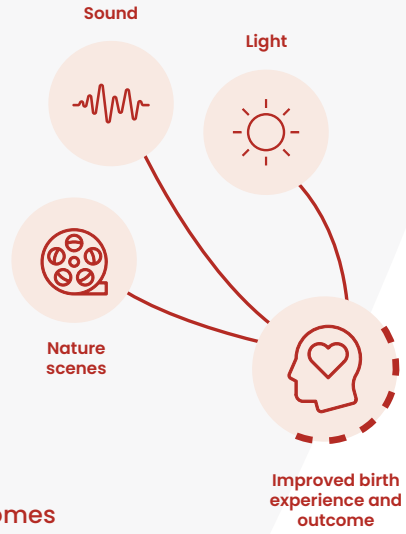


CASE *Sensory delivery room reduces stress and enhances birth experience*

Slagelse Hospital has introduced Wavecare's sensory solution in all its delivery rooms which combines ambient lighting, calming sounds, and custom audiovisual effects to create a peaceful, homelike environment. This innovative approach aims to help birthing women feel calm and empowered throughout labour, enhancing their overall birthing experience. Studies indicate that such an environment can reduce stress, lower the likelihood of acute caesarean sections, and contribute to safer, more positive outcomes.

The system includes a user-friendly interface that allows midwives to adjust the atmosphere of the room, tailoring the settings to meet the immediate needs of both the patient and healthcare staff.

The flexibility supports a soothing experience for mothers and improves the work environment for healthcare professionals, particularly during night shifts. This solution exemplifies how modern technology can transform clinical settings to support holistic, patient-centred care.



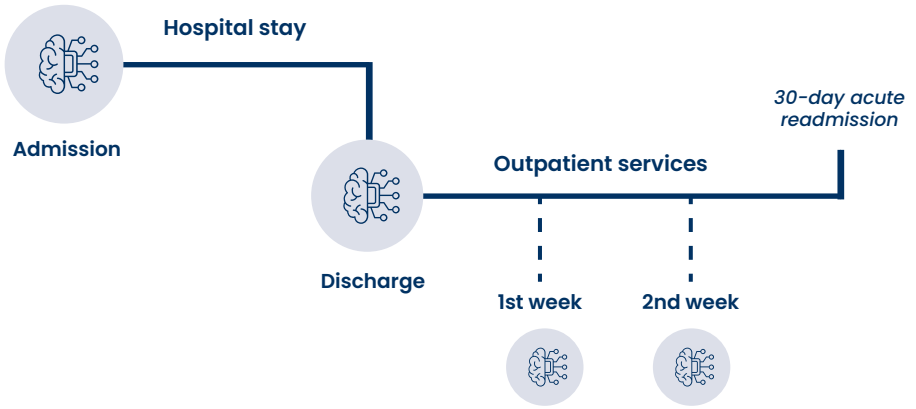
> Our focus is on improving patient outcomes and care with patient-centred innovation. We embrace the opportunities offered by new technology and knowledge. It was therefore a given that we would provide sensory delivery rooms for the entire maternity ward at our newly built hospital.

Niels Georg Reichstein Larsen,
Chief Director, Slagelse Hospital

CASE *Clinical implementation of AI model in electronic healthcare records to prevent psychiatric acute readmissions*

In Denmark, the Mental Health Services have developed a machine learning prediction model in the electronic healthcare records to reduce the number of psychiatric acute readmissions. The reason behind this development is the fact that 27% of patients discharged from a psychiatric department are currently acutely readmitted within 30 days of discharge and prior attempts to reduce the readmission rates have not been successful.

The machine learning model is an effective method for predicting the risk of acute psychiatric readmissions. The solution is still going through a refinement process with integration testing of the electronic healthcare record system. When showing sufficient beneficial effects during the testing phases, the model will be implemented and deployed across the Capital Region of Denmark and Region Zealand.



Hospital infrastructure

The Super Hospital Programme emphasises improved coordination of patient flow, aiming to reserve hospitals for specialized treatments while ensuring more people are treated closer to home by general practitioners and in the municipalities.

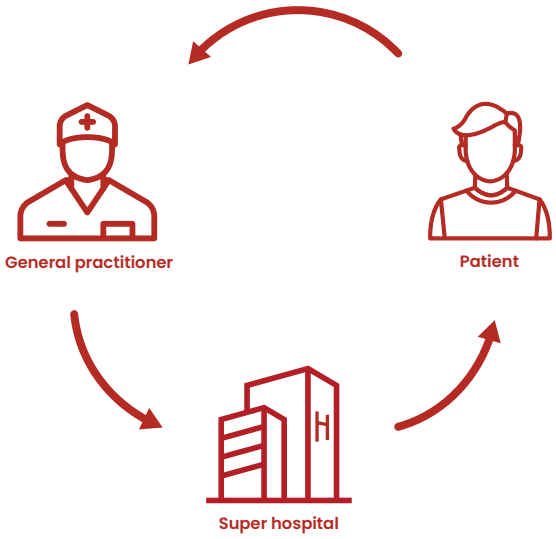
General practitioners will take on a larger role in preventing and managing chronic illnesses, with hospital visits limited to severe cases, ensuring cost-effective care in the patients' local environment. General practitioners' increased role highlights the importance of robust cross-sector collaboration between the primary and secondary healthcare sectors. Initiatives such as enhanced data sharing, improved digital communication and telehealth projects are key to strengthening coordination between sectors and engaging patients as active partners in their treatment as well as increasing patient safety.

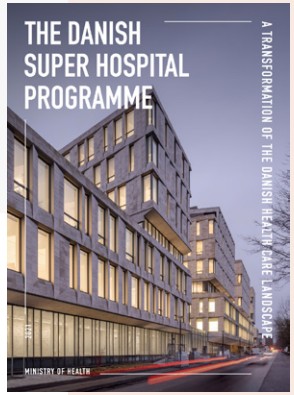
The new hospital infrastructure is designed to prioritize delivery of high-quality, specialized care while ensuring treatments are provided at the lowest effective cost. This concept centres around quality of care over proximity to hospitals.

The establishment of fewer specialized hospitals is one of the major changes as part of the Super Hospital Programme, corresponding to the goal of higher quality. An example of how this is implemented in the new hospital infrastructure is the establishment of joint emergency departments with the goal to improve quality and provide full treatment for a larger share of patients as well as reduce the need for further hospitalization.

In addition to this, the regions are constantly reviewing predictions for treatment needs and adjusting the number of beds, operating rooms, and outpatient clinics according to the predictions. As a major shift in the hospital infrastructure, all new hospitals that are part of the Super Hospital Programme will have single bedrooms strengthening the focus on quality of treatment and care. Another goal of the Super Hospital Programme is to improve efficiency gains in the construction of new hospitals.

The infrastructure of the new hospitals integrates new innovative solutions that aim to increase the working conditions of healthcare staff as well as improve quality of care and focus on patient needs[4].





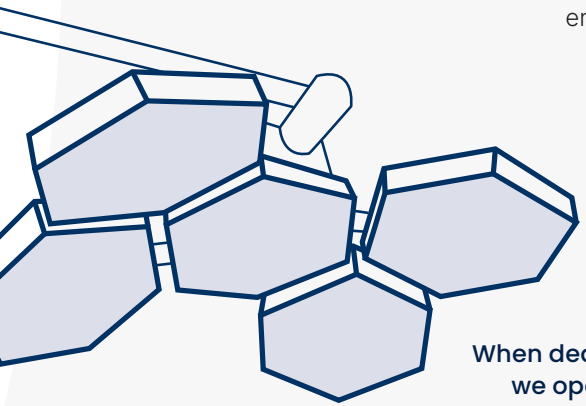
Read the full report

CASE *Ergonomic lighting facilitates work and enhances quality of surgeries*

The surgical staff at the Ear, Nose, and Throat Clinic at Akademiska Sjukhuset in Uppsala, Sweden, are now experiencing less work-related stress and an improvement of their work environment, thanks to a specially designed ergonomic lighting system from Chromaviso.

Previously, the lighting provided poor visibility and screen reflections, creating a stressful atmosphere for the surgical staff and making it difficult to see their instruments.

The new lighting system not only supports the needs of the staff but also helps create a safer and more relaxing environment for patients.



When dealing with this type of surgery, where we operate using screens and view the airways and nose, ergonomic lighting should be prioritized from the beginning. Ergonomic lighting makes it easier to see details on the screen and creates better contrasts in the images. As staff, we become more relaxed, less stressed, our eyes function better, and above all, we see better. All of this enables us to operate faster and more effectively.

Adnan Lidian,
Chief Surgeon at the Ear, Nose, and Throat Clinic at Akademiska Sjukhuset Uppsala, Sweden

CASE *Robot-powered mobile pickup system saves time for patients and staff*

Odense University Hospital has developed a robot-powered parcel pickup system in collaboration with Mobile Industrial Robots and Nordic Robotics. The system offers patients a new, flexible way to collect medical equipment, saving time. The 'parcel locker' is conveniently placed near the hospital's main entrance, with reserved short-term parking for patients.

Equipment can be collected anytime, not just during clinic hours. Every morning, a mobile robot brings the lockers to the clinical departments for on-site filling, instead of staff going to the pickup point which saves valuable resources. Patients receive a text message once their equipment is ready for pickup.

The system saves patients over 20 minutes due to easy access and reserved parking. To expand its use, a spin-off company was established in December 2024 to commercialize and scale the solution in Denmark and globally.

CASE *The future operating theatres*

As part of the construction of the new Odense University Hospital, 52 state-of-the-art operating rooms will be located on a single floor to optimise efficiency and accessibility. Strategic innovation has played a significant role in the development of the future operating rooms. They will be equipped with advanced technology and designed for adaptability across various surgical specialties. A key feature of these operating rooms is their flexible design, allowing for quick reconfigurations from one type of surgical workspace to another in a couple of days. Before being implemented at the new hospital, a prototype of the room was built and tested by all clinical specialties to ensure it met clinical needs. The prototype remains in daily use for surgeries to gather further learnings and improvements. These rooms improve both patient care and the working environment for healthcare staff[5].

Integration of technology in diagnosis and treatment

Technological advancements, including artificial intelligence (AI) and digitalisation, are revolutionizing diagnostics, treatment, and patient monitoring in the Danish health system. The Danish Regions have launched initiatives to accelerate technology and integrate AI into healthcare practices to future-proof the Danish health system. These efforts are crucial to meet the growing healthcare demands.

AI, machine learning, and advanced imaging are transforming diagnostic approaches applied in the Danish hospitals, providing more precise and timely results. In addition to this, innovative treatment methods such as robotic surgery are improving patient outcomes by enhancing precision in surgical procedures.

Implementing AI solutions in the Danish health system also reduces the workload for healthcare professionals. For example, AI systems assist in assessing medical imaging, such as identifying potential signs of cancer or detecting fractures and are implemented at many Danish hospitals.

This significantly reduces the time required for diagnoses by healthcare professionals and enables faster treatment for patients in the regions in Denmark.

These initiatives highlight the accuracy and effectiveness of AI solutions, and ongoing focus on ensuring that AI solutions are perceived as safe and beneficial by clinicians[6,7,8].

It is important to note that successful integration of these technological advancements requires addressing ethical, regulatory, and practical issues, as well as fostering multi-stakeholder and sector collaboration to develop and implement these technologies effectively.

INTEGRATION OF TECHNOLOGY IN DIAGNOSIS AND TREATMENT

CASE *Stabilizing ultrasound probes for safer heart examinations*

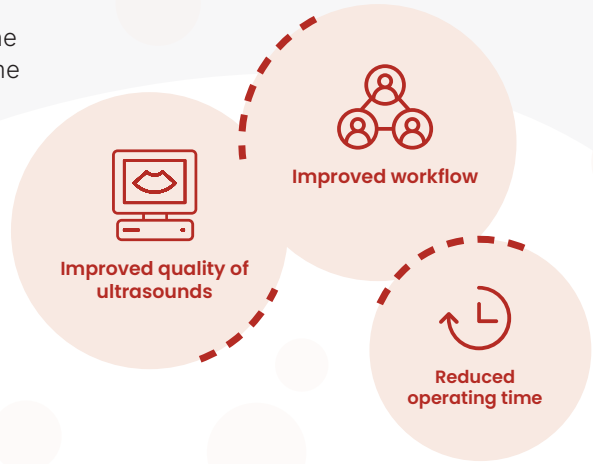
EchoVice is a simple, yet innovative device designed to make heart examinations and procedures safer and more efficient.

By stabilizing transesophageal ultrasound probes through a small device placed in the bite-guard, the solution ensures clear imaging throughout the procedure.

This reduces disruptions, shortens anaesthesia times, and enhances the experience and outcome for patients.

Cardiologists are all too familiar with the frustration of probe displacement caused by the natural movements of the heart, lungs, and esophagus.

This common issue interrupts critical workflows and increases risks. EchoVice solves this problem, transforming heart care with a practical solution that enhances both efficiency and reliability.



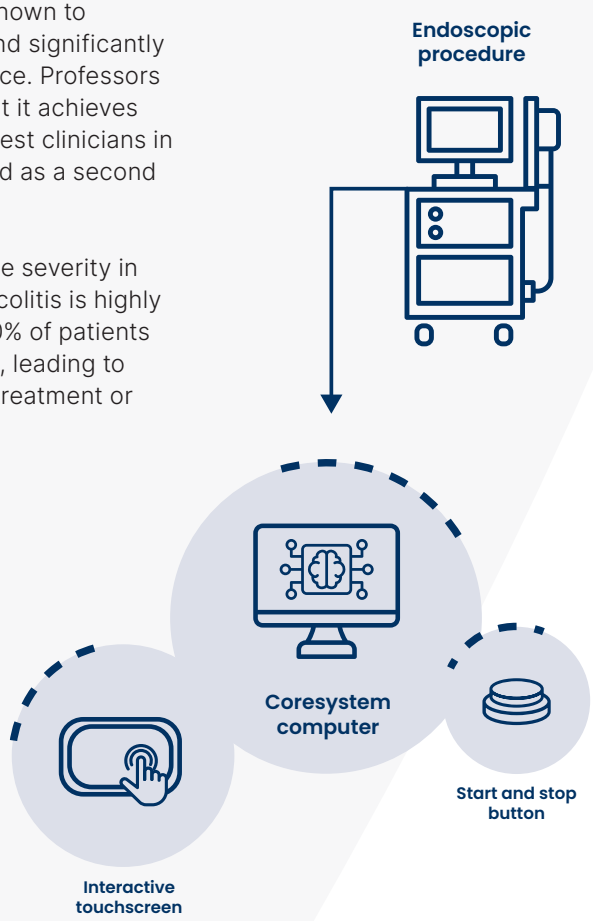
CASE *Enhancing accuracy in evaluating ulcerative colitis disease severity*

HECTOR is an artificial intelligence (AI) system that has been developed in collaboration with Hvidovre Hospital Gastrounit and the Department of Computer Science at Copenhagen University Hospital.

The solution has been shown to support endoscopists and significantly improve their performance. Professors and experts mention that it achieves results on par with the best clinicians in the field and can be used as a second opinion.

The evaluation of disease severity in patients with ulcerative colitis is highly subjective, with up to 30% of patients being wrongly classified, leading to potential over or under-treatment or delays in treatment.

HECTOR is ready for implementation and is intended to be used within the Capital Region to support endoscopists during colonoscopy and sigmoidoscopy procedures in real-time, to secure better treatments for the patients.

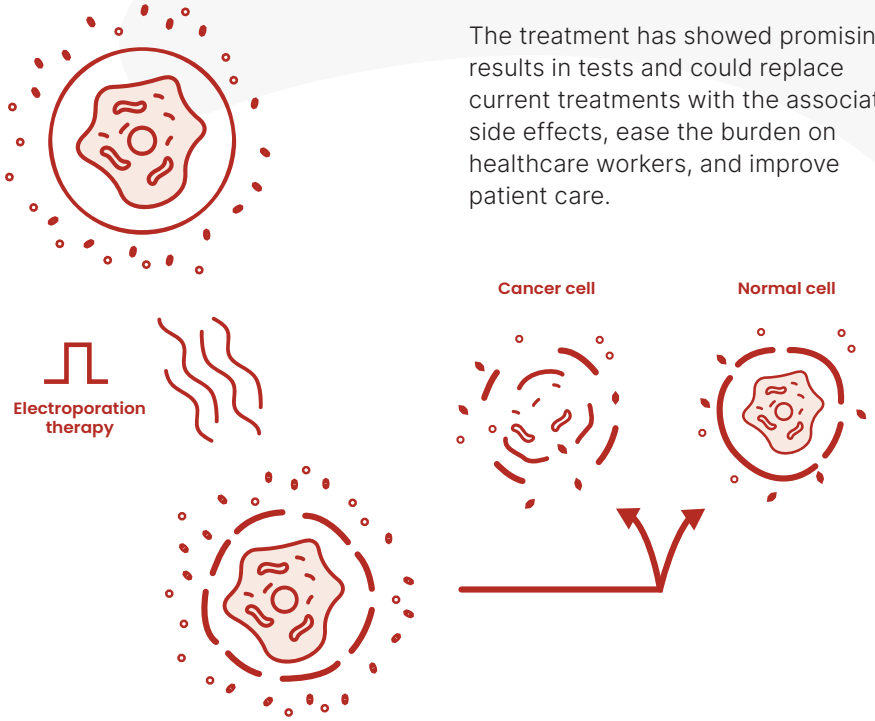


CASE *Efficient treatment of bladder cancer*

Bladder cancer is common in Europe, and it is expected to rise 31% by 2040. Most of these tumors are superficial and surgically treated which involves several costly therapies. Some tumors are treated with surgical removal of the bladder carrying a high risk of complications, perioperative mortality and not all patients are fit for it. This surgery has a negative impact on patients' quality of life.

The OPFIELD electrode is under development between Zealand University Hospital and the engineering company Soltech. It is a simple addition to endoscopic surgery where the electrode makes cell membranes temporarily open to allow specific molecules to enter the cell. The technique combined with calcium solution only kills cancer cells while sparing healthy cells. Furthermore, this engages the body's immune response to tumors.

The treatment has showed promising results in tests and could replace current treatments with the associated side effects, ease the burden on healthcare workers, and improve patient care.



Healthcare at home

The Danish health system is working actively to explore ways in which both patients and the health system can benefit from moving treatment and monitoring to the patients' own homes.

This approach offers numerous benefits such as reducing readmissions, enhancing patient autonomy, and addressing efficient use of resources by avoiding unnecessary routine consultations[9].

Additionally, moving treatment and monitoring to patients' homes supports the Super Hospital Programme and the latest Danish health reforms, which focus on reserving hospital environments for specialized treatments to manage growing demands and pressures on the health system.

One way to understand the various approaches to hospital treatment in a patient's own home includes distinguishing between three categories: **1) home treatment, 2) home monitoring, and 3) home hospitalization, also known as hospital at home[10].**

In December 2023, the Government, Danish Regions, and Local Government Denmark reached an agreement to allocate more than 65 million euros for home treatment supported by digital solutions from 2023-2028. The funds allocated via the agreement will be used for equipment for citizens with COPD and diabetes, digital services within psychiatry and rehabilitation, and virtual consultations in municipal nursing care and at general practitioners. The agreement includes five ambitious goals for the development of home treatment by 2028.

By 2028, the home treatment will be significantly expanded, hospital visits for COPD, diabetes, and heart failure patients will be cut by half through digital monitoring and virtual consultations. Digital pathways for mental disease will double, and all municipalities will need to offer digital rehabilitation. Screen visits will be standard in nursing care, and video consultations in general practice will need to increase annually[11].

Level of care	Type	Example
Home treatment	Outpatient care at home	Antibiotics intravenously
Home monitoring	Outpatient follow-up at home	Early transfer to one's own home
Home hospitalization	Hospitalization at home, including 24/7 monitoring, access to assistance, and alarms	Monitoring of heart patients

Reference 10

The agreement also follows the recommendation from the Resilience Commission about implementing a common principle about "digital and technology first" in the healthcare sector. This means that citizens should, as a rule, be offered a digital consultation/contact instead of a physical meeting in situations where it is medically and economically justified and aligns with the citizen's preferences.

It is therefore also a part of the agreement to explore new patient groups that may benefit from digital treatment or consultation instead of physical[11].

Home treatment

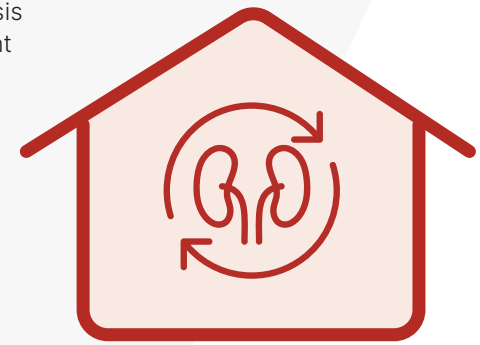
Home treatment involves outpatient medical and therapeutic procedures conducted in the patient's home instead of a hospital. Examples include intravenous therapy, such as antibiotics, and chemotherapy for acute leukemia[10].

CASE *Home dialysis treatment*

Aalborg University Hospital has successfully implemented home dialysis treatment, offering patients a flexible and patient-centred alternative to in-hospital dialysis.

The key advantage of home dialysis is the increased freedom it provides to patients. With this option, patients can plan their treatments at times that best suit their daily routines and lifestyles. Additionally, home dialysis allows for the possibility of more frequent dialysis sessions, which can lead to significant health benefits.

By avoiding transport and waiting times, patients gain precious hours for other activities and experience less disruption to their everyday lives. Moreover, the option of more frequent dialysis reduces the strain on the body caused by the accumulation of waste products and fluids in the blood. This leads to improved physical well-being and an overall better quality of life.



Home monitoring

Home monitoring focuses on regularly collecting and tracking health-related data from patients outside the hospital. It enables early detection of changes in health to improve outcomes and prevent hospital admissions.

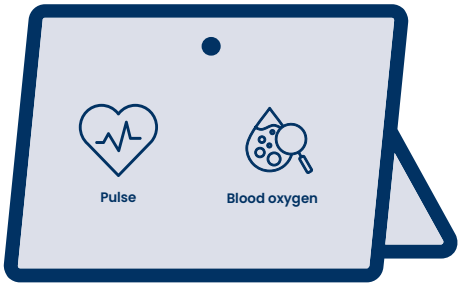
Examples include monitoring vital signs in chronic disease patients, blood sugar levels in patients with diabetes, and complications in pregnancies[10].

CASE *Self-monitoring improves quality of life*

TeleKOL is a nationwide telemedicine initiative targeted patients with severe Chronic Obstructive Pulmonary Disease (COPD) who have been hospitalized due to their condition. The goal of the TeleKOL programme is to help patients detect worsening symptoms before they lead to readmission. Exacerbations can, among others, be caused by viruses, bacteria, or even anxiety and insecurity.

The solution is designed to equip individuals with greater health competencies to live with COPD. The patients receive a tablet and training to measure their pulse and blood oxygen levels twice a week, with the results sent to a nurse.

If the measurements indicate worsening symptoms, the patient is provided with guidance via the tablet on how to address them.
Ultimately, this increased ability for the patients to manage their own condition improves quality of life and provides reassurance that they will be contacted by a nurse if signs of worsening are detected[12].



Home hospitalization

Home hospitalization, also known as "hospital at home", is an evidence-based substitute for conventional acute inpatient hospital care. It takes acute clinical services usually provided in-hospital, such as 24/7 monitoring and advanced care, and delivers to patients in their own homes or in nursing homes. It is used to prevent hospital admissions, to enable early discharge or both[10].

CASE *Hospital at home solution*

The Research Department at Nordsjællands Hospital has developed a telemedicine-supported, patient-centred, hospital-at-home model – called Influenzer, which is in the final process of being validated in a randomized controlled trial to establish the effects on physiological and mental health of the patients, treatment satisfaction, and economic endpoints. The purpose of the Influenzer programme is to develop a new service for patients that enables high-quality treatment in their own home. At the same time, this is expected to lead to increased hospital capacity and support in-hospital treatment of the most complex patients.

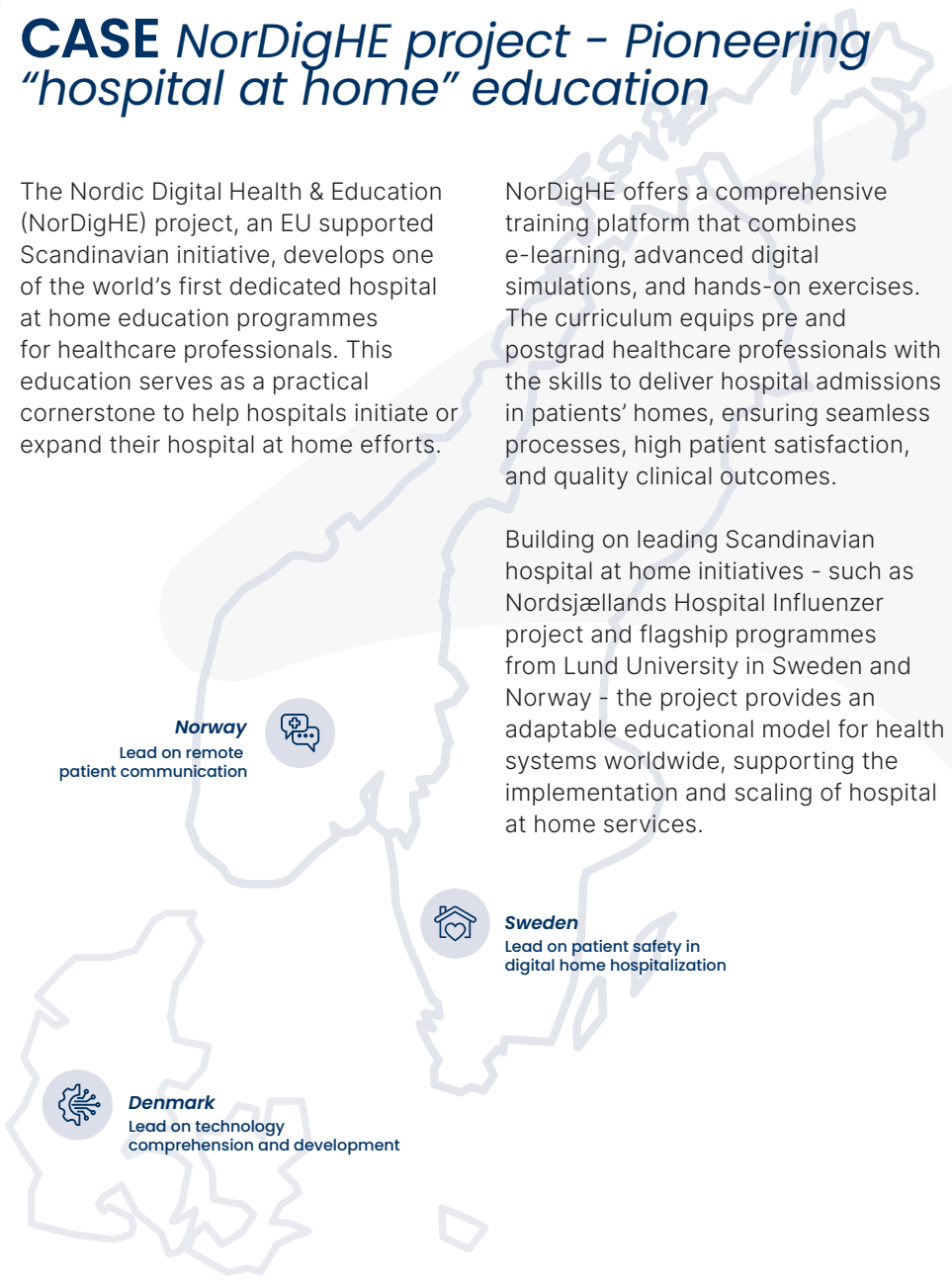
Using a digital monitoring and communications system based on the hospital's daily routines and co-created with patients and healthcare workers, the model has been developed with supporting principles such as safety, ease of use, and high functionality. It is flexible, scalable, and comes with a full governance system and risk-mitigation tool and can quickly be adapted into international health systems.

CASE *NorDigHE project - Pioneering "hospital at home" education*

The Nordic Digital Health & Education (NorDigHE) project, an EU supported Scandinavian initiative, develops one of the world's first dedicated hospital at home education programmes for healthcare professionals. This education serves as a practical cornerstone to help hospitals initiate or expand their hospital at home efforts.

NorDigHE offers a comprehensive training platform that combines e-learning, advanced digital simulations, and hands-on exercises. The curriculum equips pre and postgrad healthcare professionals with the skills to deliver hospital admissions in patients' homes, ensuring seamless processes, high patient satisfaction, and quality clinical outcomes.

Building on leading Scandinavian hospital at home initiatives - such as Nordsjællands Hospital Influenzer project and flagship programmes from Lund University in Sweden and Norway - the project provides an adaptable educational model for health systems worldwide, supporting the implementation and scaling of hospital at home services.



Patient-centred journey

A patient-centred approach in hospital treatment enhances healthcare by focusing on individual needs and preferences. This personalized care model improves patient satisfaction, engagement, and health outcomes by empowering patients as active partners in their own care.

To achieve this, hospitals are increasingly adopting practices and policies that prioritize patient individuality and tailored care solutions. The Danish Regions emphasize patient involvement in treatment decisions, enhancing their quality of life and treatment effectiveness.

An example of how the hospitals are working with patient-centred approaches is the shift towards fewer shared patient rooms and a greater emphasis on private rooms which reflects commitment to patient-centred care by enhancing comfort, privacy, and dignity, reducing infection risks, and promoting faster recovery through quieter environments. These rooms also facilitate greater family involvement in care, aligning with evidence-based design principles to improve health outcomes and overall patient experiences.

Hospitals are increasingly exploring healthcare at home options to provide care beyond the traditional hospital setting with the patient's needs at the centre of the solutions.

CASE *Leading the way in patient-centred innovation*

Thinking patient-centred and rethinking health delivery require bold questions and a willingness to challenge old habits. The consulting company not a box helps hospital administrations rethink patient needs beyond outdated solutions, as demonstrated by their involvement in the planning and construction of new hospitals in Denmark and the Nordics. Their expertise lies in providing guidance and advisement at the C-level and help with innovation processes, starting with exploring the problem.

For example, not a box collaborated with management teams to explore what a patient-call system should achieve in developing solutions to patients' needs.

This approach has led to improved call solutions for patients, including new bedside devices that allow them to call nurses using different urgency codes, view doctor schedules, access treatment plans, and select meal options — providing patients with more control of their day and their own plan for recovery.

Implementing these patient-centred innovations takes time. The point is not merely to introduce IT devices, it is about reinventing healthcare. Patient benefits should be prioritized first, followed by an understanding of the workflow changes staff need to implement to achieve these gains. For instance, with the new patient-call system, physicians now need to plan consultations so that patients know when to expect them, enabling the patients to attend activities and receive visitors without missing their physician's visit. This enhances the patient experience, but in the end, it also leads to more efficient workflows for the personnel, focusing on the patient and the service.

CASE *Mary Elizabeth's Hospital – Rigshospitalet for children, teens, and expecting families*

The Capital Region of Denmark, Rigshospitalet, and the non-profit foundation Ole Kirk's Fond have partnered to build a public children's hospital that sets new standards for the treatment of children, teens, and pregnant women.

To seamlessly integrate treatment, research, development, innovation, and education, key competencies and specialties at Rigshospitalet will be centralized, avoiding the need to move patients between departments. The hospital is designed around a core of central functions, reducing distances, shortening transitions, and minimizing risks to ensure safer and more efficient care.

When children and teens become ill, life changes for the whole family and becomes focused on illness, treatment and logistics. Their overall hospital experience therefore not only depends on the outcomes of treatments but also on the interactions that occur between treatments and admissions. The hospital will foster a homely atmosphere where play and collaborative care enhance quality of life.

Mary Elizabeth's Hospital utilizes playful initiatives as key communication tools to forge stronger connections with patients and their families. To address the challenges of these efforts being sporadic and not universally accessible today, the hospital will implement a structured approach with a strategy aimed to establish a professional community that integrates play across all interactions. Moreover, a dedicated design team has embraced a user-centred approach, ensuring that the development, design, and testing of new solutions actively involve user perspectives.

PATIENT-CENTRED JOURNEY

A unique public-private partnership

Both the Capital Region of Denmark, Rigshospitalet, and Ole Kirk's Fond bring unique competencies to the project. In addition to donating nearly a third of the total budget, Ole Kirk's Fond contributes expertise in design, innovation, and play to enhance the hospital experience. Rigshospitalet contributes with the clinical expertise and patient-centred understanding, and The Capital Region of Denmark contributes with construction and project management expertise.

Mary Elizabeth's Hospital is set to open in 2027.

CASE *Steno Diabetes Center Copenhagen: Empowering Patients in Diabetes Care*

Steno Diabetes Center Copenhagen (SDCC) is a leading diabetes clinic dedicated to patient-centred care, combining treatment, research, prevention, and education. Established in 2017 with Novo Nordisk Foundation funding, SDCC integrates seamlessly into the public health system, advancing diabetes care through innovation and collaboration.

The center's innovative design in the new hospital emphasizes natural light and green spaces to create a calming, healing environment for patients and staff. It emphasizes empowering patients to manage their condition effectively.

Multidisciplinary teams - comprising doctors, nurses, physiotherapists, and dietitians - develop personalized treatment plans while fostering close collaboration with hospitals, general practitioners, and municipalities to ensure continuity of care.

Digital tools play a central role in patient involvement. Continuous Glucose Monitoring (CGM) systems provide real-time insights, enabling precise adjustments to treatment. Telemedicine offers patients convenient access to consultations, reducing the need for hospital visits. Platforms like Stenopool further enhance engagement by allowing patients to share glucose data, enabling informed and tailored care.

By prioritizing patient empowerment and innovative care strategies, SDCC serves as a model for integrated and forward-thinking diabetes care.

In Denmark, there is a Steno Diabetes Center in each region focusing on developing the best possible diabetes treatment in the region.

Workforce in healthcare

Like in many other countries, the Danish health system faces challenges with workforce shortages and recruitment difficulties, particularly in healthcare and social care sectors. The rising demand for healthcare services, driven by an ageing population and the limited supply of qualified workers, exacerbate recruitment issues.

Therefore, the regions are currently working actively with strategies to improve working conditions. A comprehensive approach, including better educational pathways, improved work environments, and effective retention strategies, is necessary for a sustainable workforce capable of delivering high-quality services[13].

Efforts also include promoting healthcare careers, enhancing working conditions through flexible scheduling and mental health support, and introducing digital solutions to reduce administrative tasks. These initiatives also help to ensure that healthcare staff can focus more on patient care, ultimately supporting the quality and sustainability of care while alleviating workforce pressure.

CASE *Increased productivity by flexible working schedules*

Creating good staff schedules at hospitals is a time-consuming and complicated process. It demands the utmost efficiency and agility when it comes to managing shift plans for hospital staff.

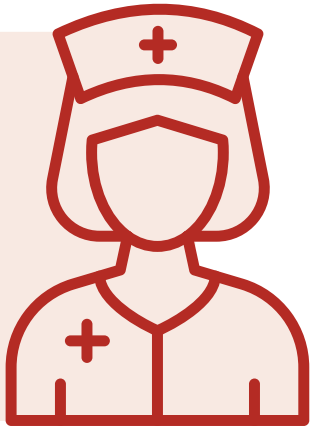
The Regional Hospital in Randers implemented PDC Plan initially focusing on the challenges of recruiting and retaining healthcare staff by enhancing work-life balance. The hospital introduced a flexible working schedule that allowed nurses to have an additional day off every three weeks. This change has made the hospital more attractive to potential recruits and has significantly improved staff retention rates.

With the help of PDC Plan, Randers Hospital has increased productivity in knee and hip surgeries by 33 %. The solution has not only contributed to a more motivated and satisfied workforce but also increased the production and at the same time ensured a better patient care.

It's not only the employees and the patients that are pleased by more precise scheduling ensuring right number of staff with the right qualifications at the place. The Finance department also thrives with a higher productivity[14]

Michael Tjørnild
Chief Physician in Orthopedic surgery

Innovative planning tool enables an extra day off every three weeks



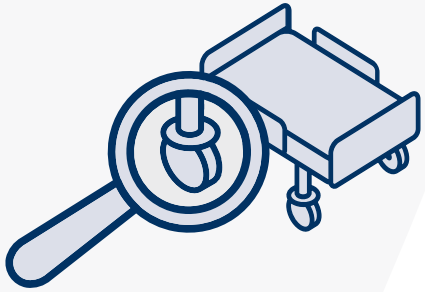
CASE *Improving working conditions for hospial staff*

Hospitals face significant challenges with bed transport, causing hospital staff stress, fatigue, and sick leave. TENTE and LINAK have addressed these issues with the WeAssist solution, which is an innovative smart wheel technology that makes it easier for staff to move heavy hospital beds.

The wheel detects the pressure applied by staff, offering necessary support to manoeuvre beds ergonomically and with minimal effort. The result is significantly reduced physical strain on the back, shoulders, and knees.

Bed transports can be carried out by one person instead of two, even on inclines and with heavy patients, however, two persons are still needed in emergency situations.

This enables the hospitals to maximise resource efficiency while maintaining high standards of patient care and improving working conditions for hospital staff. WeAssist supports both health and operational efficiency in hospitals worldwide.



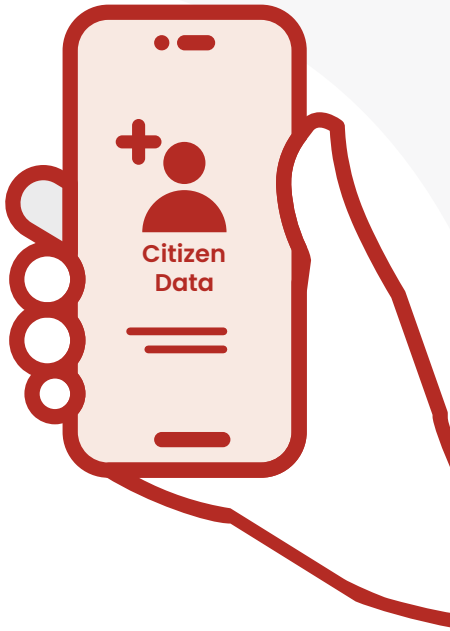
CASE *Innovative collaboration platform creates calm and enables proactive patient care*

Nurses and doctors in emergency departments face constant interruptions, making it harder to focus on patients. To address this, Systematic has developed Columna Flow Clinical Tasking, a mobile collaboration platform that enhances communication and coordination between clinicians. It provides secure messaging within the patient context, supporting easier prioritisation and reducing distractions. At Aalborg University Hospital, the platform has been shown to reduce stress, streamline workflows, and enable clinicians to focus more on patients, creating a calmer work environment.

In the near future, there will be integration of intelligent monitoring in single-patient rooms, including wearables for vital signs and radar technology to detect fall risks, “no bed return” situations, and critical conditions such as delirium or seizures. The platform relays critical insights directly to nurses via mobile notifications, enabling timely interventions, reducing patient risks, and improving clinician workflows.

My work has become less stressful. There are fewer distractions, and I make fewer phone calls. It gives me more peace of mind.

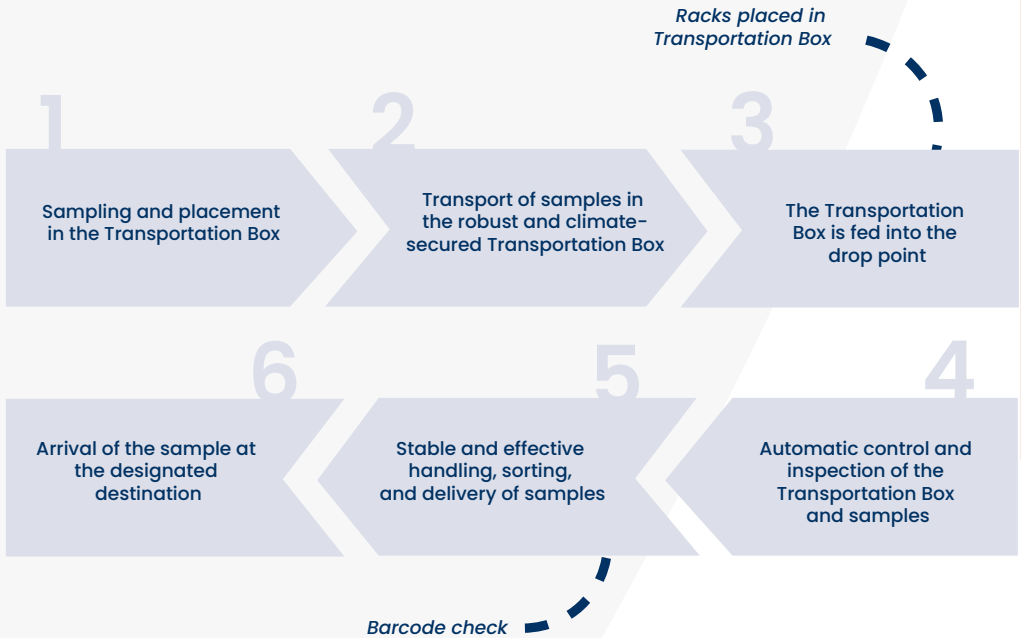
Junior Doctor,
Emergency Department at Aalborg University Hospital



CASE *Automated sample reception and sorting optimizes workflow*

LabEntry is a newly developed, innovative, and scalable automated solution that combines world-class technologies to optimise every step in the entire flow of patient samples, from GP to final destination. The solution can effectively handle a large and diverse variety of patient samples, which are traceable from the moment they are collected and placed in the transportation box. Each sample is automatically received, checked, processed, and sorted.

It enables laboratory technicians to reduce time-consuming, repetitive manual tasks, minimise bottlenecks, and improve the working environment, thereby enhancing sample quality and accelerating both diagnostics and treatment. LabEntry is designed to meet specific needs and can be continuously adapted as needs or requirements change. This provides greater flexibility and better capacity utilisation, delivering significant benefits for both laboratories and patients.



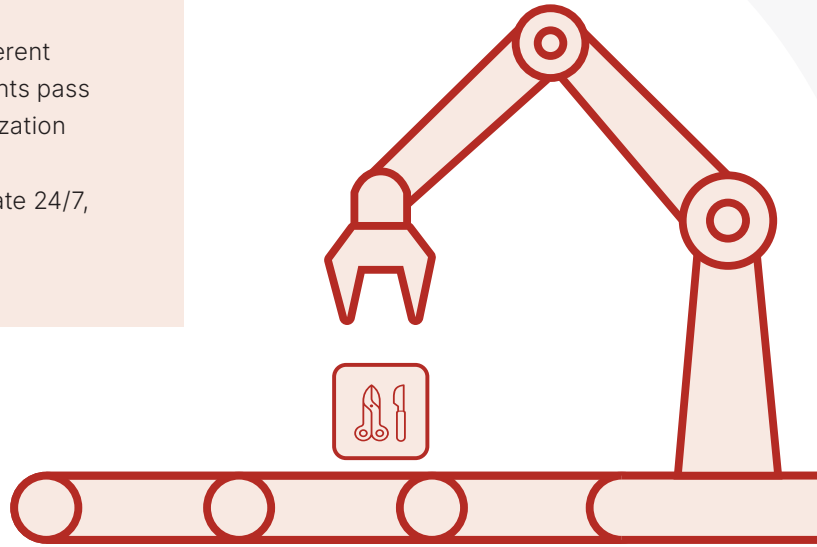
CASE *A tailor-made sterilization center*

Advanced sterilization centers, featuring robots, conveyor belts, and a fully automated sterile storage solution are implemented by Gibotech at all hospitals in the Capital Region. Robots streamline the process from the moment surgical instruments arrive at the sterilization centers from operating theaters to the trays are packed and sterilized.

Technologies handle physical tasks such as unpacking and loading equipment into transport carts, improving ergonomics for staff - freeing up time for clinical and patient-related tasks.

Besides systems for sorting, cleaning, disinfecting, and autoclaving, the sterilization centers are combined with an optimized storage solution. This reduces manual handling by staff, prolonging instrument sterility by minimizing contact with trays and instruments.

- The sterilization centers consist of two units – one at Herlev Hospital and one at Rigshospitalet – ensuring the sterilization of instruments for the region's hospitals.
- Up to 46,000 different types of instruments pass through the sterilization centers.
- The centers operate 24/7, 365 days a year.



Future Perspectives

In 2024, the Danish government has introduced the largest healthcare reform in almost 20 years[1]. Despite the fact that Denmark already has a strong health system, it is necessary to continually adjust and future-proof the healthcare services to ensure that the system remains strong and can adapt to future needs.

Globally, health systems face significant challenges, including ageing populations, increase in chronic diseases, and shortage of healthcare professionals. To address these challenges and ensure equal access to treatment for all citizens, it is essential to change how healthcare services are delivered.

A key challenge today is that the areas with the most chronic patients often have the fewest doctors and resources. This creates inequality in healthcare and access to optimal treatment. The new Danish healthcare reform continues to support the overall goal of bringing the health system closer to citizens and ensure even better coordination of patient pathways, placing the patient at the center.

Regions, already in charge of managing the hospitals, will be given greater responsibility for the entire patient pathway. At the same time, the number of regions will be reduced from five to four, enabling more efficient resource distribution and prioritization of the most vulnerable areas.

New patient rights will guarantee prompt treatment, supported by the expansion of digital health solutions. These digital platforms will enable hospitals to provide digital services, consultations, remote monitoring, and quicker access to specialized care, particularly benefiting patients in rural and underserved areas.

As part of the reform, 17 health councils will be established, including politically elected representatives from both municipalities and regions. These councils will have decision-making authority and financial resources to strengthen efforts outside the hospitals.

The goal is to ensure that patients can receive care closer to home, making data and digitalization key-tools in the future health system. For example, chronic care packages for diabetes, COPD, and heart disease will be implemented to ensure comprehensive care pathways. In this setup, the general practitioner will take on the role of coordinator, giving patients greater control over their disease closer to home.

This also includes increasing the number of GPs significantly by 2035. The reform will be implemented gradually over the next 10 years to create modern hospitals, medical equipment, innovative solutions and strengthen local healthcare initiatives. The goal is to have a stronger and more cohesive health system, where patients, relatives, and healthcare professionals all benefit from a more accessible and efficient setup.

3 Central Initiatives

being implemented via the Danish healthcare reform in the next 10 years

References & credits

Editor-in-Chief
Healthcare Denmark; Signe Dilling-Larsen, sdl@hcd.dk
Healthcare Denmark; Ida Hvitved, idh@hcd.dk

Associate editor
Healthcare Denmark; Ari Vigur Hansen, avh@hcd.dk

Innovative hospital services in Denmark - March 2025
A publication in the Triple-I paper series: Denmark Informs - Inspires - Invites

References

1. Ministry of Interior and Health (2024). Aftale om sundhedsreform 2024. Located November 15. 2024 at: https://www.ism.dk/publikationer-sundhed/2024/november/aftale-om-sundhedsreform-2024
2. Ministry of Interior and Health and Ministry of Finance (2010). Regionernes investerings og sygehusplaner – Screening og vurdering II. Located February 17. 2024 at: https://www.ism.dk/Media/637642838653570722/Regionernes%20investerings-%20og%20sygehusplaner%20-%20Screening%20og%20vurdering%202.pdf
3. Danish Regions (2024). Sundhedsinnovation og forskning. Located November 18. 2024 at: https://www.regioner.dk/sundhed/sundhedsinnovation-og-forskning/
4. Ministry of Health (2021). The Danish Super Hospital programme. Located November 12. 2024 at: https://www.ism.dk/Media/0/2/TheDanishSuperHospitalProgramme2021.pdf
5. OUH, Odense University Hospital and Svendbord Sygehus (2024). Fremtidens operationsstue. Located October 6. 2024 at: https://ouh.dk/til-samarbejdspartnere/det-nye-ouh/fremtidens-hospital-det-nye-ouh/operationsstuen
6. Dagens Medicin (2024). I Nordjylland har de succes med kunstig intelligens. Located November 12. 2024 at: https://dagensmedicin.dk/i-nordjylland-har-de-succes-med-kunstig-intelligens/
7. Danish Regions (2022). Digital diagnosticering skal op i galop. Located November 12. 2024 at: https://www.regioner.dk/services/nyheder/2022/maj/digital-diagnosticering-skal-op-i-galop
8. Danish Regions (2023). Debat: Kunstig intelligens i sundhedsvæsenet er højt på regionernes liste. Located November 12. 2024 at: https://www.regioner.dk/services/nyheder/2023/december/kunstig-intelligens-i-sundhedsvaesenet-er-hoejt-paa-regionernes-liste/
9. Dansk Selskab for PatientSikkerhed (2023). Fremtidens hospitalsbehandling er i hjemmet. Located November 6. 2024 at: https://patientsikkerhed.dk/fremtidens-hospitalsbehandling-er-i-hjemmet/
10. Ugeskrift for Læger (2024). Behandling, monitorering og indlæggelse i hjemmet. Located December 2. 2024 at: https://ugeskriftet.dk/videnskab/behandling-monitorering-og-indlaeggelse-i-hjemmet
11. Ministry of Interior and Health (2023). Ny aftale: En halv milliard kroner til hjemmebehandling med digitale løsninger. Located November 21. 2024 at: https://www.ism.dk/nyheder/2023/december/ny-aftale-en-halv-milliard-kroner-til-hjemmebehandling-med-digitale-loesninger-
12. Region of Southern Denmark (2024). Telemedicin skal give borgere med KOL større livskvalitet. Located December 4. 2024 at: https://regionsyddanmark.dk/om-region-syddanmark/presse-og-nyheder/magasinet-sund-i-syd/tema-om-fremtidens-sundhedsvaesen/telemedicin-skal-give-borgere-med-kol-storre-livskvalitet
13. VIVE (2022). Arbejdskraftmangel og rekrutteringsudfordringer på de store velfærdsområder. Located November 12. 2024 at: https://www.vive.dk/media/pure/17277/6598683
14. Danmarks Radio (2024). Fra tre til fire 'onsdagsknæ': I Randers kan de både rekruttere og fastholde sygeplejersker. Located November 4. 2024 at: https://www.dr.dk/nyheder/indland/fra-tre-til-fire-onsdagsknae-i-randers-kan-de-baade-rekruttere-og-fastholde

Photo & Illustration credits

Front page:	3XN Architects
Page 3, left:	Left, Denmark's Liberal Party & The Danish Parliament, Marie Hald
Page3, right:	Anne-Li Engström
Page 27:	3XN Architects
Page 29:	Rasmus Hjortshøj / Vilhelm Lauritzen Architects, Mikkelsen Arkitekter Steno Diabetes Centre Copenhagen

Do you want more information, inspiration, or an invitation for dialogue?

Healthcare Denmark arranges roundtables, webinars and delegation visits and represents Danish life science and healthcare at conferences and meetings abroad.

We look forward to hearing from you.

HEALTHCARE DENMARK

www.healthcaredenmark.dk
info@healthcaredenmark.dk