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hearing from you.**

## How personalised patient support in public-private partnerships can help us ...

- 1 Realise the full value of treatment
- 2 Care for more with less
- 3 Ensure patient needs are met



## Foreword

Danish healthcare is based on the principles of free and equal access for all citizens. It is built on a patient-centered approach where collaboration and efficiency play key roles in an integrated care system. The aim is to inform and empower patients as much as possible.

But like many of my political colleagues in other countries, I face a challenge: How do we ensure sustainability in health with more chronically ill patients in the future and with limited resources and healthcare professionals?

To handle this challenge, we need to be open to innovation. Digital healthcare and service solutions for patients can provide more value to society as well as for patients. With patient support solutions, it is possible to tailor treatment to the patient's needs – thereby improving adherence, treatment outcomes and efficiency. Furthermore, patient access to healthcare may depend on social factors and personal resources.

A more personalised healthcare approach – which minimises the social and personal

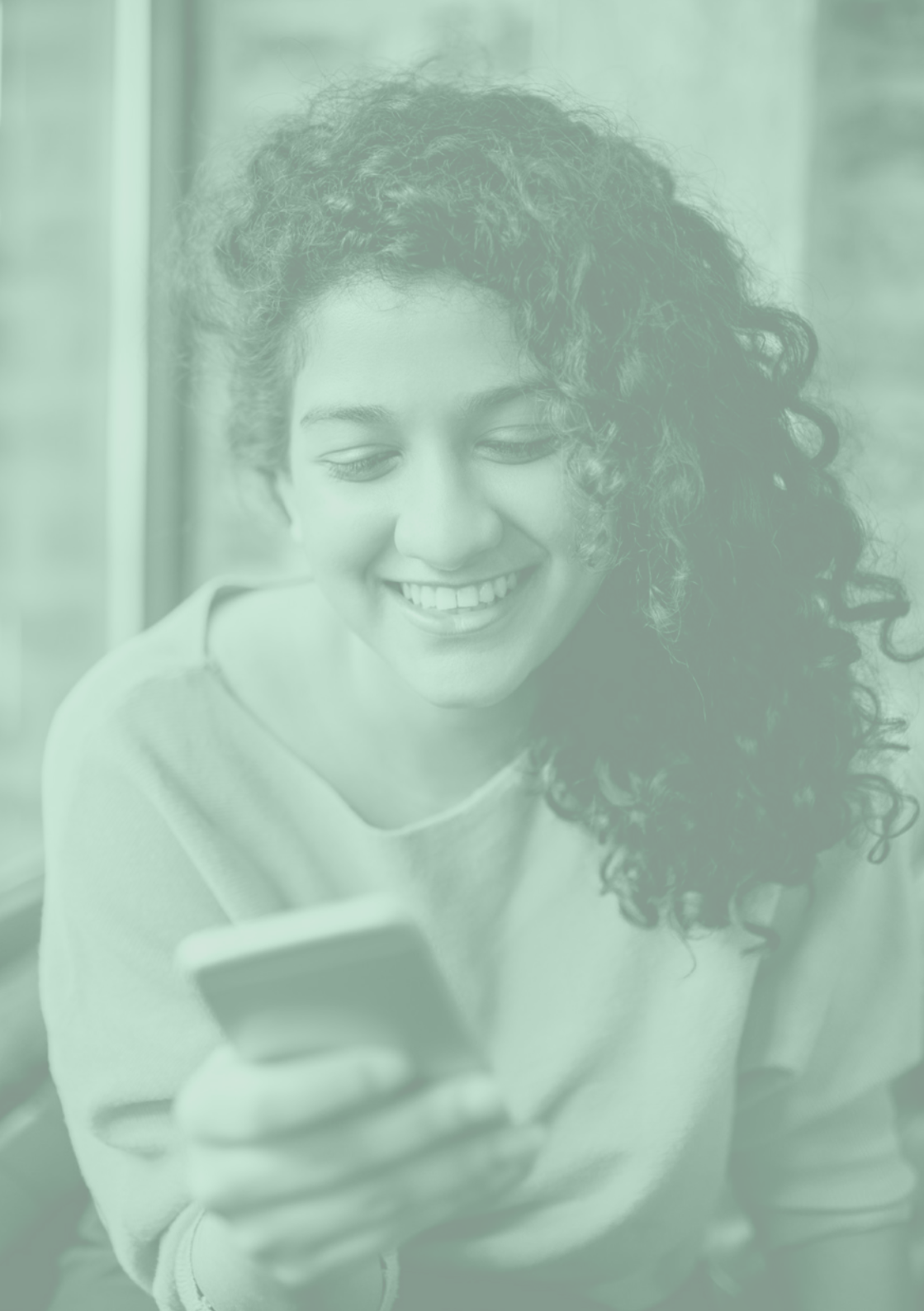
barriers in terms of access to healthcare – can therefore contribute to reducing inequality in health.

Innovation in healthcare can be strengthened by empowering patients and by including public health authorities and the life science industry in trusted partnerships. Therefore we have a common task in fully exploring the potential of public-private partnerships to ensure better health outcomes and quality of life for patients.

I hope this paper, with selected Danish examples, will inspire you to raise questions and start a dialogue on the value of personalised patient support and how it can be part of a more sustainable health system.

**Magnus Heunicke**  
Minister for Health





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# What is personalised patient support?

In Denmark, new personalised patient support solutions underpin the continuous development of the healthcare system by:

- Empowering the individual patient
- Securing better health outcomes through personalised and integrated care
- Increasing the capacity of the healthcare system

The introduction of a value-based healthcare system enables more public-private partnerships with new solutions with which to address our growing health challenges. For society, the primary value drivers of personalised patient support solutions include a reduction in patient readmissions to hospitals, fewer unnecessary general practitioner visits, better efficacy in the use of medicine and medical devices and a higher quality of life for patients.

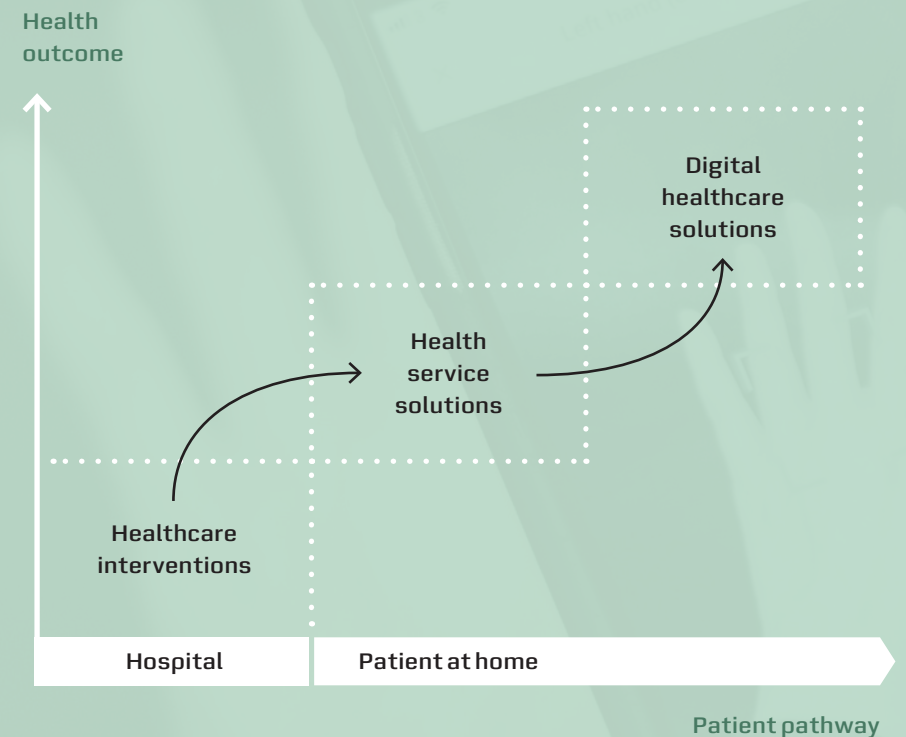
## A win for patients and healthcare services

More personalised and integrated healthcare solutions enable better health outcomes than medical devices alone. By giving patients the opportunity to better self-manage their own chronic diseases, adherence to treatment will be increased. At the same time, giving healthcare professionals better ways to monitor diseases improves both treatment and care.

**Figure 1:**  
Improving health  
through integrated  
solutions

Personalised and integrated healthcare solutions are defined as healthcare interventions combined with health services solutions and digital healthcare solutions

Figure 1



**Healthcare interventions** comprise medicine and medical devices as well as healthcare professionals.

**Health service solutions** include, among others, patient education, personalised advice and direct patient support, and improved patient accessibility to treatment (e.g. direct delivery to the home address).

**Digital healthcare solutions** can range, for example, from specialised patient apps that coach and help monitor the chronically ill patient, to telehealthcare between the patient and healthcare professionals.





The World Health Organisation recognises that the increasing burden of chronic disease is one of the major health challenges in the world.<sup>1</sup>

# Public-private partnerships – the future of value-based healthcare

**Denmark is facing significant challenges with increased prevalence of people living with chronic disease and a population with co-morbidities. This will add further pressure on healthcare systems – especially the demand for healthcare professionals.**

## The role of public-private partnerships in value-based healthcare

Value-based healthcare has been introduced in many countries including Denmark.<sup>2</sup> Even though implementation is not straight forward, examples of Danish public-private collaboration in value-based healthcare as enabled by new procurement approaches, are starting to emerge.

A closer collaboration between health authorities, regional and local healthcare functions, and healthcare providers is high on the Danish political agenda. With the patient as the focal point, life science companies are invited to contribute. The Danish life science industry has valuable and extensive knowledge about the patient journey and unmet patient needs. And because the most innovative companies see a clear benefit in helping patients to better adhere to their treatments, the goal of both governments and the life sciences industry – increasing quality of care – is aligned.

## Denmark – a collaborative and universal healthcare system

The Danish healthcare system is a universal coverage system providing free and equal access to healthcare for all citizens, financed via taxes. The five Danish regions are responsible for hospitals and local general practitioners, while the 98 municipalities are responsible for rehabilitation, prevention, and elderly care.

Denmark is known for mutually trusted collaboration between the public and the private sector. Private funds make donations to the benefit of citizens in the form of innovation centers, research units and hospitals. Furthermore, the life science industry plays an active role in providing innovative digital healthcare and service solutions to Danish citizens.

The full value of treatment is often compromised by lack of adherence, leading to in-efficacious treatment, complications and even re-hospitalisation. This means that getting the most out of existing and new products still holds unexploited potential for the patient and for society.

How personalised patient support in public-private partnerships can help us...

## Realise the full value of treatment

### The value of patient insights

In Denmark, private healthcare suppliers play an increasingly important role in the development of innovative healthcare solutions. Through their work, the life science industry gathers deep insights into patient needs and patient pathways within specific disease areas. The combination of this knowledge with the services from the healthcare sector results in innovative solutions that target the most prominent patient needs.

### The benefits of better disease management

Optimised disease management reduces complications and thereby health costs. Services such as proper patient information, education, and continuous support can help increase patients' understanding of a disease and improve health monitoring. This leads to increased product compliance and often better treatment outcomes. In addition, patients will typically experience other value-adding improvements such as fewer hospital visits, leading to more flexibility, control and a feeling of dignity that they are better able to manage their own lives.

The following cases are examples of companies that offer not only a product but also a support solution to the patient. This way, healthcare suppliers move away from being traditional product suppliers and towards becoming full-blown healthcare partners.





## Coloplast Care means fewer hospital readmissions and emergency room visits for ostomy patients

### The challenge

More than two million people worldwide live with an ostomy – a surgery that allows faeces to be diverted out of the body through the abdomen – either permanently or temporarily. People with cancer or inflammatory bowel diseases may face a situation where ostomy surgery is necessary. Living with an ostomy often implies continuous healthcare support throughout the patient's life to balance the demands of the condition with those of everyday life.

### The solution

At Coloplast, a full patient support solution is offered that combines innovative products, personalised support and direct-to-consumer delivery. These initiatives help patients better manage their condition to live normally without placing demands on resources in the healthcare system.

The patient gets help with choosing the right product for his or her personal needs, which ensures the best possible outcome for the individual patients while also reducing overall healthcare utilisation costs.

Coloplast engages in partnerships with Danish municipalities to optimise product choice and usage through close support for patients enrolled in the care programme.

### The result

The Coloplast Care programme has been documented as reducing healthcare complications for people living with an ostomy as well as costs to society. A study compared enrollees in the care programme with patients outside a patient support programme. A month after discharge, the following results were obtained:

- 55% fewer hospital readmissions
- 63% fewer emergency room visits when patients were enrolled in the programme<sup>3</sup>



# ALK Klarify helps people manage allergies – a leading cause of lost productivity



Allergy is associated with substantial direct and indirect costs, which increase with disease severity:

- Direct costs (24%): Pharmacotherapy (antihistamines, corticosteroids, antileukotrienes and immunotherapy) and healthcare resources (doctors' visits, diagnostic tests and hospitalisations)
- Indirect costs (76%): Absenteeism; 1-4 days lost per year on average, and presenteeism; 17% average reduction in working capacity

## The challenge

More than 500 million people worldwide have allergies. Many of them suffer in silence and rarely see a doctor. The most common allergies are caused by airborne particles such as grass or tree pollens. For most people, these tiny particles are insignificant, but for people with an allergy, they can trigger seasonal or chronic respiratory conditions such as hay fever or allergic asthma. Allergy is a leading cause of lost productivity and lost workdays, outstripping conditions such as hypertension, migraine, asthma and diabetes in its cost to businesses.

## The solution

A free smartphone app that helps users track and manage their pollen allergy has been developed by ALK. The app provides personalised allergy information including accurate pollen counts, forecasts for all relevant pollen types such as grass, weeds and trees, and the latest air quality readings. By regularly logging how hay fever is affecting them, users can get personalised insights to help them plan around their allergy. The app also includes tools designed to help diagnose allergies and to connect users with doctors who can prescribe a suitable treatment.

## The result

- 500,000 downloads to date<sup>4</sup>
- Hundreds of thousands of users use the app during the pollen season to track their symptoms, monitor pollen count and air quality and thereby plan their day in relation to sport, travel or other outdoor activities<sup>5</sup>

User education and empowerment to take action are key features of the Klarify app. Insights from new users showed that more than 60% were "not at all happy with their current allergy treatment options"

or "would like to improve but don't know how". To date, users have spent more than 100,000 hours interacting and consuming content from the app, including the easily understandable, research-based articles on topics around allergy, diagnosis and treatment options. Several thousands have taken action against their allergy by using the features in the apps to find the nearest allergy specialist where they can book an appointment to get a diagnosis and/or receive treatment.



A growing ageing population, more chronically ill patients, and a lack of personnel means that the pressure on already stretched healthcare systems will only increase. Digital solutions can enable us to provide better care, to more people with less resources.

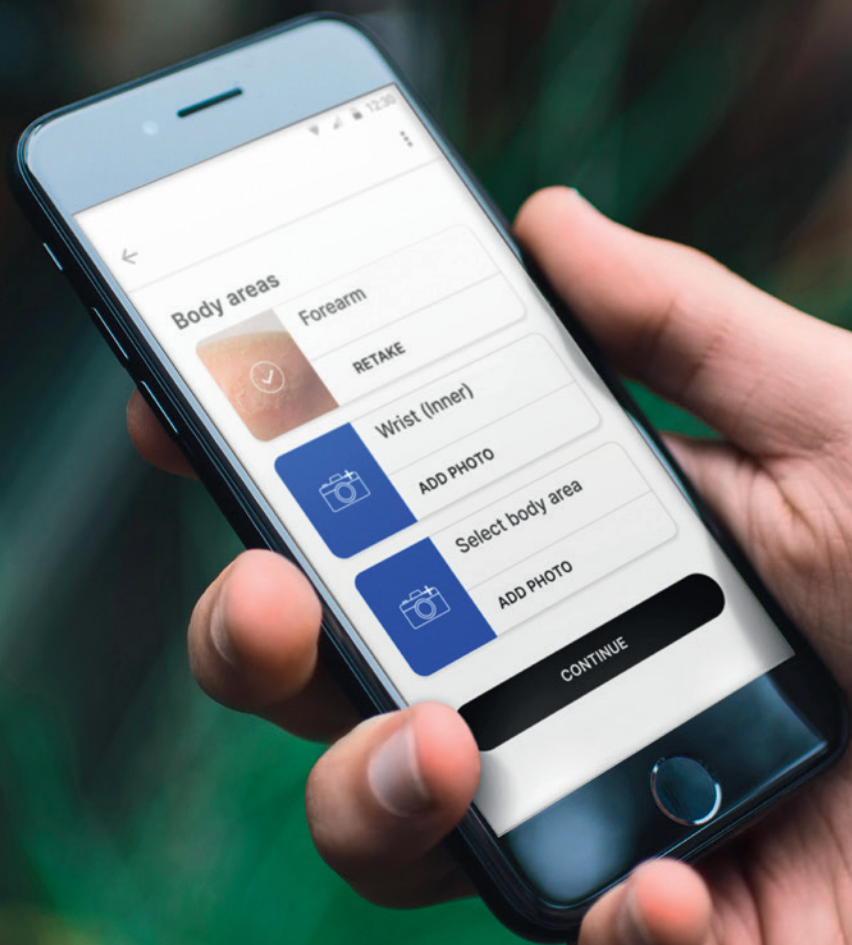
How personalised patient support in public-private partnerships can help us...

## Care for more with less

The increased pressure on the healthcare system fosters new collaborations between public and private partners which add significant value to society. Increasingly, Danish companies are developing new, digital healthcare solutions, while various initiatives are being taken to connect this entrepreneurship to the public health sector with the aim of innovating solutions for global health challenges.

The following examples illustrate how bottlenecks caused by lack of resources at hospitals or health centres can be reduced by innovative collaboration with private partners.

## LEO Pharma app reduces bottlenecks in the diagnosis of scabies



### The challenge

Scabies is an itchy skin condition caused by a tiny burrowing mite. The prevalence and complications of scabies make it a significant public health problem in the developing world and is estimated to affect up to 300 million people worldwide.

The number of cases of scabies in Denmark has suddenly exploded, especially within teenagers at boarding schools. To get an appointment with a dermatologist – which is currently required to diagnose scabies – the patient must obtain a referral from their general practitioner (GP). The rise in scabies infections has led to an increased pull on GPs and even longer waiting lists at the dermatologist.

### The solution

LEO Innovation Lab has developed a triage teledermatology solution designed to help consumers understand the likelihood of having scabies. The solution uses remote assessment of the patient's photos and medical history by a dermatologist and is developed in close collaboration with Bispebjerg Hospital and the Capital Region of Denmark. The patient takes a picture of the affected skin area and sends it to the hospital where a dermatologist determines whether the condition is likely to be scabies. This way, the burden of scabies on primary care is likely to be reduced.

### The result

The app will enable dermatologists to diagnose a large number of cases much faster. This is expected to reduce the number of GP visits as well as the dermatologist waiting lists. Furthermore, the risk of misdiagnosis and subsequent unnecessary use of expensive treatment is reduced.

The use of digital solutions for early diagnosis of common skin diseases could potentially reduce the number of referrals to dermatologists by 550,000 per year (39%), corresponding to savings close to MDKK 280 (\$41M)\*

\*Based on a total of 3.75 million yearly GP consultations concerning skin, of which 37.5% result in a referral. The current cost of a dermatology consultation is DKK 519 (\$75).



# Danish municipalities commission a digital platform that increases level of care and reduces cost of chronic diseases

## The challenge

One out of every three Danes above 16 years of age suffers from one or more chronic diseases.<sup>6</sup> This high and increasing number of chronically ill patients is a huge challenge for the healthcare system as it requires more personnel to provide sufficient treatment and support.

## The solution

Several Danish municipalities have invested in a digital platform developed by Liva Healthcare which targets citizens with lifestyle related illnesses such as diabetes, heart diseases, COPD and obesity. Through Liva's digital health programme, patients have access to a personal health coach who provides professional guidance, support and empathy through an ongoing relationship in order to build long-lasting behaviour changes. Participants can track their progress in real-time via the Liva app and engage with a support group of peers to keep them motivated. Liva is a partner of NHS England in its ambitious National Diabetes Prevention Programme (NDPP).

"In our municipality, the first meeting is always a physical meeting at the health centre, where the citizen meets the supervisor in person and together outline a number of realistic targets for the course. From here, communication is done via video and text messages. We experience that the two parties build a close and trustful relationship because the citizen gets a personal supervisor from the start. This partly explains the very good results."

— **Michael Metzsch**

Head of Department for Health & Psychiatry  
in Aabenraa Municipality



## The result

The digital platform has improved the lifestyle considerably for more patients than would be possible were they to simply show up physically at the healthcare facilities. Additionally, citizens that do not have time or energy to come to the health centre can also be reached. And, although most communication is digital, a high degree of attention can still be paid to the personal relationship between the supervisor and the citizen. Currently, 25 Danish municipalities use this digital solution.

### Real world data across Liva population combined from scientific RCT setting and observational setting:

- 38% of people on the programme living with overweight obtained a sustained weight loss of +5% of their body weight at 12 months
- 47% of people on the programme living with prediabetes normalised their long-term blood sugar below the threshold of prediabetes
- 80% of people on the programme living with prediabetes sustained a reduced HbA1c at 12 months
- Each supervisor can handle up to 300 patients per year through the Liva programme<sup>7</sup>
- Municipalities save DKK 16,000 (\$2,360) per year per citizen living with diabetes<sup>8</sup>



A key objective for any innovation in healthcare is that patients must feel that their needs are met. Many Danish life science companies work closely with patients when new healthcare solutions are designed, and patient associations play a crucial part in this cooperation.

How personalised patient support in public-private partnerships can help us...

## Ensure patient needs are met

### Patient organisations in Denmark

Patient organisations play an important role in the Nordic healthcare systems. They have a long tradition and are well organised with a strong influence on society. Health authorities recognise and value their opinion, for example in Health Technology Assessments (HTAs). Patient organisations act as advocacy organisations and service providers for their members, and they often contribute to research in their respective areas. These organisations are typically financed by membership fees, collections and donations.

There are approximately 125 registered patient organisations in Denmark today of which the largest, the Danish Cancer Society, has more than 460,000 members.

"In Denmark, we are very fortunate that the life science industry calls upon us as patient organisations to include patients in all phases of the development of pharmaceuticals and medical devices. This ensures that the products actually live up to the needs of the patients. The detailed and specialised insights that the private companies obtain through years of research result in advanced solutions which complement the offers from the public healthcare in the best possible way."



**Lars Werner**  
Managing Director, The Danish Psoriasis Association

The case from the Danish Multiple Sclerosis Society on next page exemplifies how collaboration between patient associations and public and private partners results in innovative solutions that target patients' unmet needs.

# Partnership results in **OKMS Platform** improving symptom management and quality of life for patients with multiple sclerosis

## The challenge

Denmark has the third highest prevalence of Multiple Sclerosis (MS) in the world with more than 16,000 patients. The number has doubled in less than 20 years and each day, two or more Danes – primarily women in the age of 20-40 years – are diagnosed with MS.

While many MS patients receive disease-modifying treatment, MS is still a progressive and incurable disease affecting all aspects of the patient's life. MS patients routinely search for reliable and scientifically proven information on symptom management and ways of influencing the personal experienced progression in their disease. However, they are often met with information overload, a lack of reliability, and any kind of personalised advice simply doesn't exist. Furthermore, there is little systematic information about how disease-modifying treatment can affect daily life such as the individual's sleep patterns, well-being and cognition. The capacity of MS neurologists in DK cannot meet the needs from an increasing MS patient population. In other words, there is a need for a more systematic, time-reducing procedure for doctor-to-patient consultation.

## The solution

The Danish MS Society is currently rolling out a digitally based platform called "OKMS" with personalised and data-driven lifestyle programmes for MS patients. The platform provides access to nutritional recommendations, physical and cognitive training, and exercise – all presented with a "how to" perspective utilising content such as recipes and home-training style videos.

This digital lifestyle universe is the result of a partnership between MS medical, nursing and physiotherapy specialists, researchers, patients, professional experts and the healthcare industry.

## The result

The platform will be a valuable tool in the dialogue between patients and healthcare personnel as well as providing valuable data for research. Patient-provided data and data from "wearables" will generate dashboards for medical consultation and disease management. Data collected provides new insights for both the patient and the providers, as exemplified on the opposite page.

"When I visit the neurologists, I am always asked if there is anything new since our last meeting. But if I get new symptoms or if the illness gets worse, I tend to forget it after some time. So when the neurologist asks me 6 months later, I don't remember. With this diary [in the app], I can give a much better description of the disease development."

— Woman with MS

"My physiotherapist looked at my wearable and noticed that after a day with high activity, I don't sleep at night. I never thought about that, but it was true."

— Woman with MS



Understanding patient needs is crucial in developing health solutions that make a difference. Equally critical for success is to create an environment that favours innovation and offers the right framework for innovative collaboration.

Making it work:

## The importance of policy framework conditions

### Creating a framework for value-based procurement

In Denmark, public healthcare expenses have grown by more than 40% from 2000 to 2017.<sup>9</sup> The five regions in Denmark buy equipment and services for more than 40 bn DKK (\$5.9 bn) every year.<sup>10</sup> Of this, around 5 bn DKK is spent on medtech.<sup>11</sup>

For this reason, strategic procurement and partnerships with innovative suppliers are areas of huge interest in Denmark. The focus on product cost is gradually being replaced by a more holistic and value-based approach that aims to achieve more efficient healthcare solutions – to the benefit of patients, society and private companies.

For several years, the Capital Region of Denmark has nurtured innovation through value-based purchasing of medtech equipment and by the end of 2019, an extended collaboration between the life-science industry and the public sector was established. A partnership was made between the Ministry of Business, the Ministry of Health, purchasers from the regions and municipalities, and a number of private companies. Together, these parties will improve the conditions for fostering innovation and freeing up resources to focus on the patient.

### What do the politicians think?

“The Danish government wants the public and private players to collaborate, bearing in mind that the result for the patient is the ultimate focus. The life-science industry has an important role to play in creating the best possible treatments and in helping secure that employees in the healthcare sector get more time for patient care.”



**Simon Kollerup**  
Minister for Business, Industry and Financial Affairs

“Our aim is to build a healthcare system where the needs of each individual person is at the center. An increased use of personalised healthcare technology is of great importance to achieve this and furthermore help us to use our limited resources in a more efficient manner. Public-private partnerships focusing on developing these new technologies are of vital importance.”



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



# Public procurement promotes public-private innovation with **QLife** home monitoring for kidney cancer patients



## The challenge

Kidney patients are often subject to frequent hospital visits to get treatment and follow-up consultations. In addition to being time consuming, hospital visits also present a risk to patients due to their suppressed immune system.

## The solution

At the Oncology Department at Herlev Hospital, doctors are collaborating with the Danish start-up, QLife, and the Capital Region's central procurement department to trial a technology that enables patients to test their blood at home. The technology makes it possible for patients to measure different biomarkers themselves and get results via their smartphone that are also automatically sent to their GP. The device uses capsules like a Nespresso machine, requires only a few drops of blood and is easy to use.

## The result

Moving the technology into people's homes enables easy blood testing without having to go back and forth to the hospital. This reduces the risk of complications that might require readmission.

More frequent monitoring supports earlier detection of eventual side effects and a more individual control and treatment regimen for vulnerable patients. Home monitoring might also save a patient several hours in transport and time at the hospital, while the more frequent monitoring is expected to be cost neutral for the hospital and may even save valuable time for laboratory technicians.

"The project with kidney patients is just one example of how procurement can promote public-private innovation and create value for the patient through new technology. The life science partners receive clinical know-how, strengthen their product development and get access to a better global positioning, which is especially important for Danish start-ups."

— **Lars Dahl Allerup**

Corporate Procurement, the  
Capital Region of Denmark



# References & credits

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## References

1. World Health Organisation (WHO, 2014). Global Status Report on Non-communicable diseases.
2. Rethink Value, [www.rethinkvalue.org](http://www.rethinkvalue.org).  
<https://www.slideshare.net/futureagenda2/value-based-healthcare-2020>.
3. Rojanasart, S. The Impact of Early Involvement in a Postdischarge Support Program for Ostomy Surgery Patients on Preventable Healthcare Utilization. *Journal of Wound, Ostomy & Continence Nurs.* 2018;45(1):43-49.
4. ALK, app analytics (google store/iOS store).
5. ALK, in-app 'Allergy quiz'.
6. Den Nationale Sundhedsprofil (The National Health Profile) (2017), Danish Health Authority.
7. Komkova et al (2019): Electronic Health Lifestyle Coaching Among Diabetes Patients in a Real-Life Municipality Setting: Observational Study.
8. Sortsø et al (2017): Liva Healthcare 2017 cost-effectiveness analysis.
9. Ministry of Finance (May 2018). Økonomisk Analyse: Udviklingen i de offentlige udgifter fra 2000 til 2017 (Economic analysis: The development in government spending from 2000 to 2017).
10. Danish Regions (2015): Regionernes fælles strategi for indkøb frem mod 2020 (The Region's joint strategy for procurement towards 2020).
11. Medicoindustrien.dk.

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