

Steno Diabetes Center Copenhagen

Annual Report 2025



Contents

Steno is at the forefront with the patient pathway of the future	3
The new patient pathway: Digital solutions are gaining ground	4
Children and adolescents: New paths to peace of mind and mastery	12
Research showing the way	24
Scientific production.....	33
Knowledge benefits more people.....	34
Collaborations that make an impact.....	40
Operation	46
Organisation.....	50
Quality indicators	52

Steno is at the forefront with the patient pathway of the future

Several of Steno's users have found themselves having time off from Steno during 2025. Sort of.

One of them is Bettina, whom you can read more about on pages 8-9. Previously, Bettina was called in for routine consultations every three months. That is not the case any more. Now she is called in by Steno every other year, and she is happy about that. "It is a kind of reward because things are going so well. And I can just call if I need help."

Bettina's story shows that, at Steno Diabetes Center Copenhagen, we have come a long way with respect to developing new pathways for our users. We are on the leading edge of the direction in which the entire healthcare system will move in the coming years when it comes to modernising and transforming patient pathways.

” The new digital patient pathway is an exercise in meeting each user's needs in the right way.

Since autumn 2024, we have been working purposefully to develop a digital overview of all our 12,000 users at Steno. We call this overview *Detektor*.

Detektor gives our treatment providers a health overview of the data that users submit at Steno in connection with their treatment. These are, for example, clinical parameters such as blood glucose, blood pressure, and kidney function.

This means that we can address the individual user as needed: We will weed out unnecessary checks and examinations. Instead, we will create flexible, needs-driven, and digital pathways with more virtual consultations.

It gives the individual user much more flexibility when they do not have to take time off from work, be stuck in traffic or find a relative to take them to Steno. By doing away with unnecessary visits and follow-ups, we are also in a better position to treat those who actually need to come to Steno.

The new digital patient pathway is an exercise in meeting each user's needs in the right way.

We can also see that our digital patient pathway actually works. From 2022 to 2025, we have reduced the number of physical consultations at Steno by approximately 30 percent. At the same time, we have maintained a very high degree of satisfaction among our users. This is reflected in the figures from the Danish National Survey of Patient Experiences (Den Landsdækkende Undersøgelse af Patientoplevelser). The quality of treatment is also first-class and has been improved, especially for children and adolescents.

Our hope is that with the new digital patient pathway we can transform and rethink not only the treatment of diabetes but also of other chronic diseases. With the aim of creating an even better, more coherent, and more equitable healthcare system than today.

We will therefore also work to expand Detektor to other parts of the healthcare system. As a development and research hospital, we at Steno want to be a development engine with a focus on creating innovative solutions for the benefit of the entire healthcare system and function across sectors.

Detektor and the story about Bettina are just one of many stories you can read about in this annual report. For example, you can also learn more about our efforts at Steno to develop our diabetes care for children and adolescents.



Happy reading.

Yours sincerely,

Magnus T. Jensen
CEO, Professor
Steno Diabetes
Center Copenhagen

The new patient pathway: Digital solutions are gaining ground

Steno's new patient pathway is based on individual needs and makes extensive use of video and telephone consultations. Several digital tools have been developed and may be used in other hospitals.

A completely new patient pathway, which builds on the technological possibilities within digital health and personalised medicine, was initiated in the autumn of 2024. The focus is on an individual, needs-driven and digitised outpatient clinic.

With the new patient pathway, Steno aims to transform and rethink not only the treatment of diabetes but also other chronic diseases to create an even better, more coherent, and more equitable healthcare system than today.

Steno's experiences to be used in a new region

The Outpatient Clinic of the Future (Fremtidens Ambulatorium) in the coming Region of Eastern Denmark will be digital, needs-driven, and flexible, Just like Steno's. The six parties behind the establishment of the new council have included this modernisation of the healthcare system in their agreement.

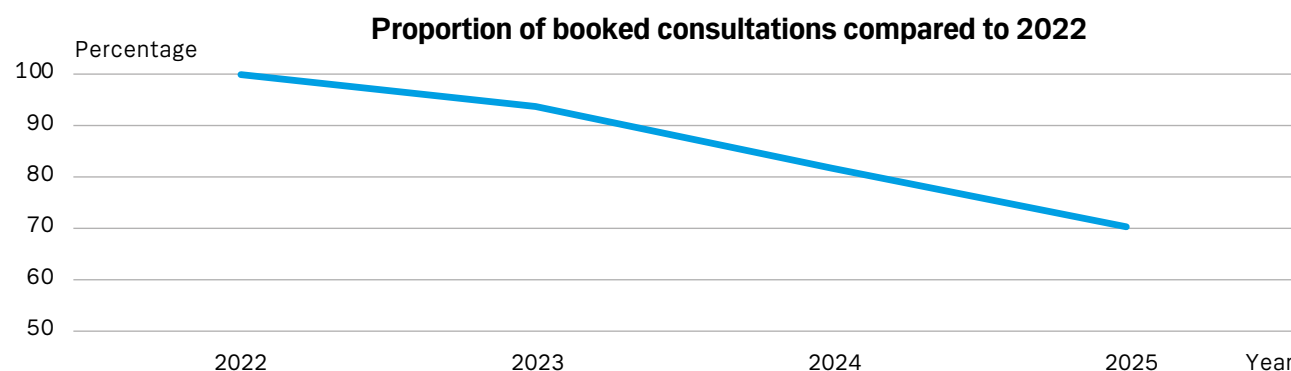
30 percent of all the nearly 1.8 million outpatient clinic visits in the large region should either be dropped or

converted into digital contacts by 1 January 2027. Steno already meets this objective in 2025 and is thus at the forefront of the transformation to the digital healthcare system.

The number of physical consultations has been reduced, and the proportion of virtual consultations has increased, but not correspondingly. This demonstrates a real shift towards needs-driven pathways, fewer routine attendances, and a more appropriate utilisation of clinical capacity.

The modernisation of the outpatient area has been initiated to meet the individual user's needs in the right way, to utilise new digital tools, and because there is increasing pressure on the healthcare system with a growing number of elderly, more people with chronic diseases, and fewer to treat and care for them.

Steno's new patient pathway thus directly aligns with the project of the Outpatient Clinic of the Future in the Capital Region, where the steering committee chairman is Magnus T. Jensen, CEO of Steno Diabetes Center Copenhagen.



The graph shows the proportion of booked consultations for adults at Steno compared to 2022. Consultations are all outpatient and virtual booked appointments except for appointments that were cancelled at least one day in advance. Consultations include all treatment providers, including biomedical analysts. The figures are adjusted for the number of patients enrolled at Steno.



Bettina Pedersen talks to her doctor, Henrik Ullits Andersen, on her mobile phone while looking at her health data. See page 8.



Health data can help us recover, was the message from Steno's CEO Magnus T. Jensen in a debate at Folkemødet (Danish democracy festival). See page 42.

DETEKTOR: A NEW DIGITAL POPULATION OVERVIEW

The number of physical consultations has decreased by an average of one consultation per user in 2025.

Detektor is a tool that gives the treatment provider a health overview of the data that users at Steno submit in connection with their treatment. Detektor currently serves as a digital safety net, monitoring central clinical parameters such as blood glucose, blood pressure, and kidney function, and flags deviations that require action.

The vision is to develop Detektor into a specialty-free and sector-free population centre that gives healthcare staff a comprehensive overview and the ability to intervene when the need arises. The prototype has been in operation with around 11,000 users at Steno since the autumn of 2024. During 2026, the prototype is expected to be re-

placed by a fully integrated solution in the Danish e-health platform (Sundhedsplatformen, SP) developed in collaboration with the Centre for Financial Affairs and the Centre for IT and Medical Technology (CIMT) in the Capital Region.

A division of users according to need (triage) is also clearly seen in the operation, as users are now called in for consultation at different intervals rather than being called in on a regular basis.

The physical consultations per patient pathway have decreased from 4.41 in 2023 to 3.49 by the end of 2025 without a corresponding increase in virtual contacts.

With its digital population overview, Detektor provides a dynamic picture of the entire patient population and highlights where new risks arise, where there is a lack of services or capacity, and which efforts should be prioritised. Thus, Detektor serves not only as a monitoring tool but also as a strategic decision-making basis for planning and developing future services.



The vision behind the development of Detektor is to give healthcare staff across sectors a comprehensive overview.

Other medical specialties can use Detektor

With its integration into the Danish e-health platform and a gradually higher degree of automation, it is expected that in 2026 Detektor will take the next step towards a fully mature system solution with potential beyond the diabetes area.

Other specialties will have the opportunity to develop their own monitoring algorithms in the Detektor SP solution while reusing Steno's proven methods.

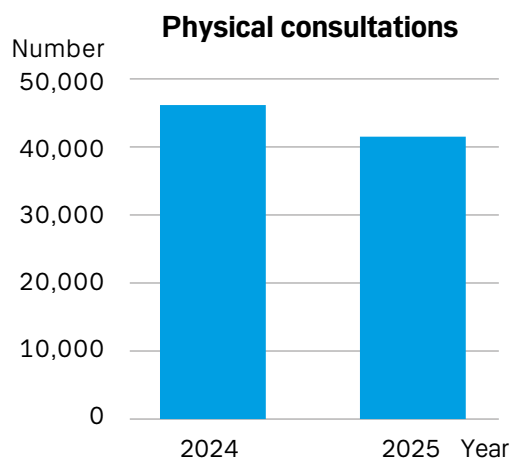
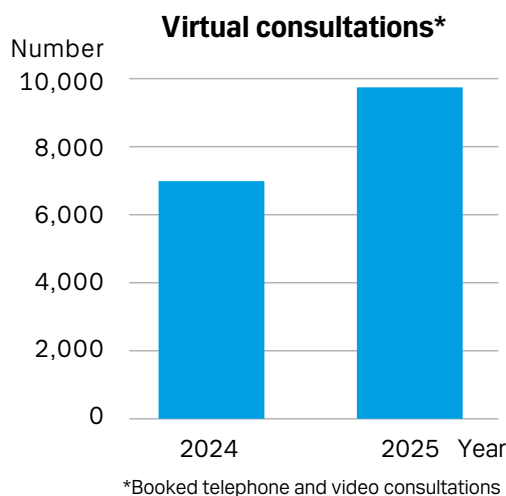
By the end of 2026, the version in the Danish e-health platform will be able to handle individual goals, improved workflows, and AI-based decision support based on clinical guidelines and patient data. This makes Detektor particularly relevant for cross-disciplinary special tasks such as monitoring home treatment/virtual hospital and supervision of hospitalised patients.

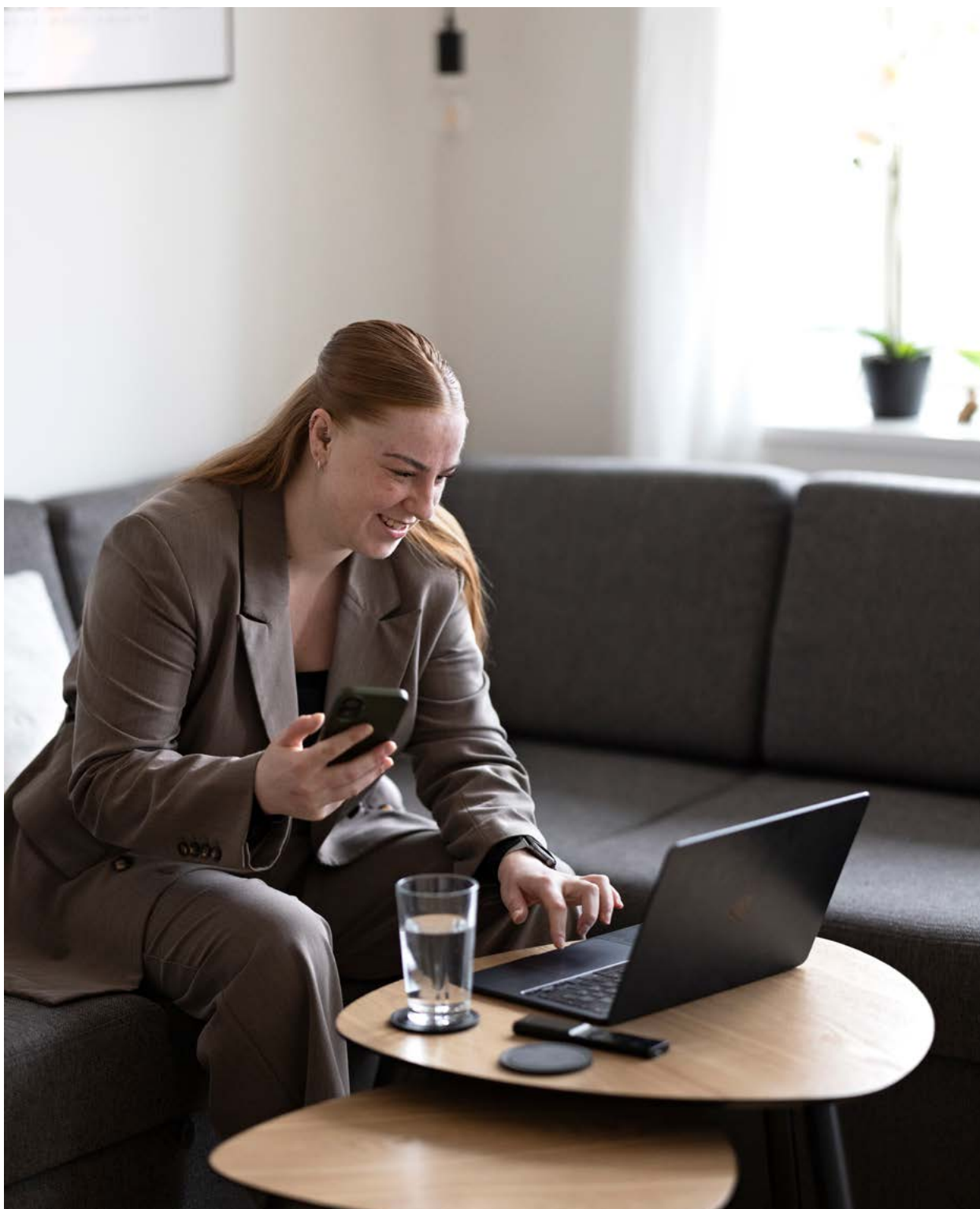
At the same time, Detektor could potentially directly align with the intentions in the chronic care packages, where improved cohesion, early detection, and shared digital solutions are central elements. A shared digital overview could make it possible for both general practice and municipal health initiatives to follow citizens with complex pathways in a more timely and safe manner. Municipalities can draw on the same principles within prevention and rehabilitation, while general practice can strengthen early intervention and avoid unnecessary referrals to the secondary sector.

Detektor can thus become a central component in the realisation of the chronic care packages and the transformation of the chronic care area across sectors – and positions Steno as a strategic development partner in the overall healthcare system.



Consultant Jonatan Ising Bagger during the recording of the podcast "The Diabetes Researchers" (Diabetesforskere), where he talks about Detektor. Listen to the podcast by pressing the QR code or scanning the code with your mobile camera.





Bettina Pedersen, who has both an insulin pump and a sensor, has used telephone consultations with her doctor several times. "It works really well because we know each other so well," she says, who has a master's degree in molecular biology.



I just call if I need help

Bettina Pedersen thinks it's a kind of "reward" that she is no longer called in for routine consultations every three months at Steno.

"I have been told by both my doctor and my nurse that I will now only be called in at Steno every other year. I have also received a message in my e-Boks, and I just think "Great!" It's a kind of reward because things are going so well."

32-year-old Bettina Pedersen has had type 1 diabetes for 20 years, and for the last ten years, she has been enrolled at Steno Diabetes Center Copenhagen.

"For the first many years, I was called in about every three months and had to see either a doctor, nurse, ophthalmologist, or podiatrist – and rarely on the same day, because that was just not possible. So I sat there and was told that everything was as it should be, maybe with small changes here and there. This meant that my diabetes became quite consuming because I had to plan the visit to Steno: I had to take time off from work, find transport, and think about what I actually needed to talk to the doctor and nurse about rather than going to Steno because I actually needed it."

Today, Bettina is happy that she can just call and make an appointment if needed, and that others with more urgent needs can have more appointments:

"Diabetes is not constant, so of course I find it difficult at times to keep blood glucose under control. Luckily, I know that Steno has not completely let go of me, and that I can just call, as I always have, when things are tricky, and I need an appointment to get help. I am always taken seriously and welcomed with great kindness, so it is very reassuring."

So much love and care

Like many others, Bettina has been informed that things are going so well with her diabetes that she does not need to come to Steno as often as before.

The division of users at Steno according to need takes place while at the same time the digital tool De-tektor gives treatment providers an overview of the users' health data. This means that users who need it can be offered extra visits to Steno.

Bettina has used telephone consultations with her doctor a couple of times.

"It's easy just to call and it works really well because my doctor and I know each other so well. In fact, the only thing I miss is meeting more of the people I usually see at Steno, because you are met with so much care and love."

9,080
telephone and
video consultations
completed in 2025



Stenopool is ready for all diabetes centres

The digital platform Stenopool provides clinicians with a uniform and comprehensive overview of data from sensors and insulin pumps across suppliers. Another significant role for Stenopool is to continuously deliver data to the digital population overview Detektor. A long-term effort has therefore been to ensure smooth and easy data transfer from the manufacturers' data platforms. This ef-

fort culminated temporarily in 2025, where commitments have been obtained for technical integrations with virtually all manufacturers on the market. In 2024, Stenopool was designated as the IT infrastructure in the study with sensors for people with type 2 diabetes. In 2024 and the beginning of 2025, Stenopool was therefore rolled out, in collaboration with North Denmark Region's IT organisation, to all other Danish Steno Diabetes Centres, where they are ready for use.

Follow-up research programme creates knowledge about the new patient pathway

As part of the work on transitioning to the new patient pathway, a follow-up research programme was initiated at the beginning of 2025. The aim is to obtain knowledge about the process and implementation of the new patient pathway for the benefit of the clinic's quality development. The follow-up research is organised with a programme management in the Department of Prevention, Health Promotion and Community Care, an operational steering committee across departments, and a professional reference group. A number of themes have been developed for research, and several research activities under the programme have been launched during the year.

Employees and clinicians learn about engaged video consultations

In the Department of Diabetes Care, there is a strong focus on developing the competencies of employees and clinicians in relation to the new patient pathway. Work has been done to implement video consultations, and a tailored E-learning course has been developed. The focus is on the different forms of consultation offered by Steno. Mandatory courses are also held. These have been developed by a working group at Steno in collaboration with CAMES (Copenhagen Academy for Medical Education and Simulation) at Herlev Hospital. The course is titled "Video patient consultations - Engaged Communication, Contact and Relations" (Patientsamtaler over video - nærværende kommunikation, kontakt og relation).

Bridge builders help users

Steno has entered into a partnership with Social Sundhed, which aims to support digitally hesitant users at Steno in having a safe and positive experience with home treatment. Social Sundhed consists of volunteer bridge builders, who are typically medical science students.

The bridge builders are trained in a joint programme developed by Steno and offer home visits, where the bridge builder and user can log in together before a video consultation for users who wish to strengthen their digital skills and mastery of home treatment.



Children and adolescents: New paths to peace of mind and mastery

Play and social communities are important elements when testing a new patient pathway for children, adolescents, and their parents. The goal is to continue to improve treatment quality while families experience more peace, more well-being, and less diabetes stress.

Nearly 1,000 children and adolescents are enrolled at Steno Diabetes Center Copenhagen, which is thus Northern Europe's largest outpatient diabetes clinic for children.

Many of the children and their parents experienced a completely new way of visiting Steno in 2025: Individual consultations with a doctor or nurse are supplemented by group programmes focusing on activities, exchange of experience, and networking.

Since Steno Diabetes Center Copenhagen took over responsibility for all children and adolescents with diabetes in the region in 2021, there has been significant progress in treatment quality. The positive development continues, and the goal is still an even better diabetes control for the children.

The latest guidelines from the international organisation of paediatric diabetes doctors, ISPAD (International Society for Pediatric and Adolescent Diabetes), recommend an HbA1c (long-term blood glucose level) for children and adolescents with type 1 diabetes of $\leq 6.5\%$ (48 mmol/mol). In the Danish Diabetes Database, the quality indicator remains $\leq 7\%$ (53 mmol/mol), but the treatment providers at Steno work according to the new recommendations in collaboration with the families.

The path to this includes entirely new initiatives that aim to provide families with a sense of calmness, peace of mind, and mastery. Everyday life with diabetes today is characterised by new technology, which indeed continu-

ously improves treatment, but also presents a new type of challenge. Parents are able to constantly monitor their child's blood glucose. Children and adults alike are reminded of diabetes in the form of alarms about high or low blood glucose. This can be perceived as stressful.

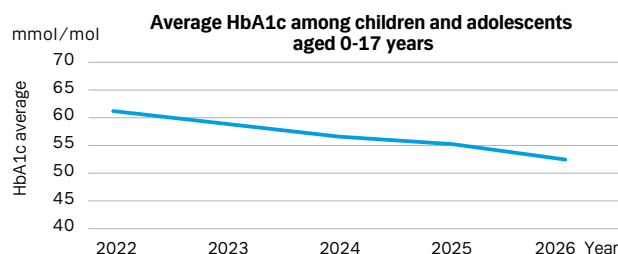
Many children and adults with type 1 diabetes also live with side effects as a result of the diabetes technology which is otherwise such a great help: Dry and thin skin, sores, eczema, and scars are common among those who have an insulin pump and continuous glucose sensor.

Despite major improvements in diabetes care, there are still children who are stigmatised, children who are afraid they won't make friends because of diabetes, and some who feel completely alone. Many children and adolescents with type 1 diabetes also have a psychiatric diagnosis such as anxiety, depression, or eating disorder.

Adolescents and young adults with type 1 diabetes have up to twice the risk of being diagnosed with a psychiatric disorder compared to healthy peers. This applies particularly to eating disorders, anxiety, depression/depressive symptoms, and behavioural disorders*.

Therefore, something completely different needs to be done.

**Source: "Increasing risk of psychiatric morbidity after childhood onset type 1 diabetes: a population-based cohort study". Diabetologia, 2018. (by consultant Jannet Svensson and others).*



A report from Steno Diabetes Center Copenhagen shows that children's average long-term blood glucose level (HbA1c) has decreased significantly from 2022 to the beginning of 2026.



The children cook together, while the parents talk about, for example, how a meal can still be enjoyable even though carbohydrates need to be counted and insulin taken. The picture also shows consultant and professor Jannet Svensson, who is responsible for much of the development around the new concept for the treatment of children with type 1 diabetes at Steno.





Children and adolescents find peace around diabetes

Does pizza make blood glucose rise? And how quickly does it happen?

Even small children with type 1 diabetes quickly learn to distinguish between fast and slow carbohydrates.

Here, a very young participant is having a chat with social educator Sidsel Friis Erdmann at the course DiabetesRo (Diabetes Peace).

Read more up to page 23



Consultant Kasper Ascanius Pilgaard and head nurse Ina Ehlers Petersen are two of the driving forces in Steno Next Generation.



It is good for the children to be with others with diabetes. My son thought it was fun and said, "Mum, we all beeped."

A mother who participated in the course "DiabetesRo".

STENO NEXT GENERATION

Steno Next Generation is the heading for the two projects **StenoChild** and **StenoYouth**, which were initiated in the autumn of 2024 and involve a completely new way of practising diabetes care. Both initiatives aim to build social communities and explore how the exchange of experience among children, adolescents, and parents in groups can differ from traditional consultations.

Children, adolescents, and their parents can see themselves reflected in each other when they exchange experiences from their life with diabetes. This also means that the staff are trained and gain experience in facilitating groups

and in supporting knowledge sharing through the establishment of a rewarding, safe social community.

Small children have an active role in StenoChild

StenoChild is for children aged 3-9 years and their families. The idea is to develop and test a more child- and family-oriented clinic. This includes

- Better involvement of the child through age-appropriate communication, play, and activities
- Offering social communities for the children and their parents.



Post-doc Patricia DeCosta (left) has developed a way for children to have a clearer voice during diabetes consultations through play.

The objective is to:

- Contribute to greater acceptance of diabetes
- Provide tools for managing life with diabetes
- Reduce stress, worries, and anxiety among parents.

Each group session for both children and parents called **DiabetesRo** includes specific knowledge, input for reflection/guided meditations and dialogue and division of the group into parents of about 8 children. Themes can include, for example, how to find peace in tense situations, things that may cause worries and conflicts, and how to create good, enjoyable meals.

Teaching and facilitation are handled by a team of healthcare professionals, social educators, a psychologist, and a dietitian.

Meanwhile, the children gather around the same themes, so the family can also explore and talk about what they have learned when they get home.

Children's speaking time increased sixfold

The research project PLAY has developed a play-based communication tool that aims to give preschool children with type 1 diabetes a clearer voice in their diabetes consultations. Through play, storytelling, and the use of dolls and props, the children at Steno are now able to express themselves on their own terms. The aim has been to strengthen the children's participation, promote peace of mind, and support the relationship between the child and the healthcare professional.

The effect has been studied through filmed consultations before and after the implementation of the tool, and data show a significant increase in the children's active speaking time. Where the speaking time was previously $1.95\% \pm 1.50$, the speaking time with the new way of communicating with the children was $11.77\% \pm 3.72$. This corresponds to a sixfold increase in the children's speaking time.

In addition, the healthcare professionals asked almost five times as many questions directly to the child using the tool (from 16.2 to 79.6 questions per consultation).





I know the feeling!

Community is the key word for the new initiatives for children and adolescents at Steno. The children see themselves reflected in each other, while the parents exchange experiences about everyday life in a family where a child has diabetes.



The StenoYouth team together with the English collaboration partners. The picture shows, among others, medical doctor Christine Wohlfahrt Veje (third from the left) and head consultant Katrina Pitt Winther (centre). The social educators Karim Arrahaoui and Sidsel Friis Erdmann are seen second and third from the right.

Adolescents receive support in StenoYouth

StenoYouth is for adolescents aged 15-22 and primarily young people with poorly controlled diabetes or a significant degree of vulnerability.

Many projects have attempted to improve the treatment for young people with diabetes, but with limited success. Through a project developed at Guy's and St Thomas' Hospital in London (Youth Empowerment Skills (YES)), it has been possible to achieve solid results with a structured educational effort. Through the establishment of social community, inspiration, and educational activities, improvements have been made for the young people in terms of diabetes control, well-being, and relational competences.



In the group programme for young people, there is time for cosiness, fun, and exchange of experience. Photo: Niels Due-Boje Steengaard.

89.3%

of children and adolescents
with type 1 diabetes have
both a pump and a sensor



99.1%

of children and adolescents
with type 1 diabetes
have a sensor



StenoYouth has entered into a collaboration with Guy's and St Thomas' Hospital, which shares materials and trains staff from Steno. The conceptual initiative aims to enhance diabetes care for adolescents in the transition from youth to adulthood at Steno.

The objective is to:

- Contribute to improved quality of life
- Contribute to motivating adolescents to take responsibility for their own treatment
- Strengthen facilitation competences among the staff
- Test group programmes, networks, peer-to-peer, and educational support.

The group programmes are called **“YES! To StenoYouth”**. It runs over three days with a follow-up day of enjoyment with the social educators. The days include equal amounts of social activity, knowledge sharing, and simulation training. The latter involves playing out scenarios and then sharing experiences with the group. These can be sit-

uations with too high or too low blood glucose or where an adolescent finds it difficult to share their challenges with the healthcare professionals.

Social educators offer confidential talks

A significant element in StenoYouth is the employment of two social educators who, in addition to playing a crucial role in the group programme, also offer individual confidential dialogue and support for the adolescents. We call this **StenoYouth 1:1**. The adolescents can have a personal talk with one of the social educators, who can help with some of the difficult aspects of life. The adolescent decides what should be discussed. Maybe it's about diabetes. Maybe it's about friends, parties, school, education.

The social educators also play a significant role in recruiting adolescents for the group programme.

For both StenoChild and StenoYouth, a midway evaluation in the summer of 2026 will pave the way for adjustments to the programmes and support implementation and anchoring in the future BørneUngeSteno.



If I don't feel good, it affects my diabetes. If I get help with finding out what lies behind the problem, it gives me energy to cope with diabetes.

17-year-old girl in the study “Next” by post-doc Marianne Vie Ingersgaard.

For the age group 10-12 years, there is already a programme called **Tweens**. It is a programme that also involves forming networks, and where the learning is about gradually transferring the responsibility for diabetes care from the parents to the child.





How many carbohydrates should be entered on the pump?

Adolescents and parents meet in dialogue

Especially parents of adolescents with type 1 diabetes have requested events where they can talk with other parents and adolescents about topics that take up a lot of head space in life with diabetes.

So far, this has resulted in two theme evenings under the heading “Real Talk”. At the request of the target group, the themes were “Travelling with diabetes” and “Alcohol, pen and pump”. The speakers were young people with diabetes and professionals. In each their own group, and facilitated by Steno’s staff, parents and adolescents have had the opportunity to speak freely and exchange experiences.

The tone was informal and humorous, and afterwards one of the parents said “Well, I feel more secure now”. The initiative continues in 2026.

Young people are heard

Steno’s youth panel has become the StenoYouth panel and has gained renewed strength. The approximately 12 members participate in the development of the new ini-

tiatives, so that in the long term they can benefit all Steno’s adolescents regardless of conditions, wishes and needs.

Families are also seen virtually

Children, adolescents, and their families have consultations at Steno as needed. For some, a month passes between each consultation. For others, six months. Families can also have digital/virtual consultations, to which they are introduced at the onset of diabetes, and when the child needs an insulin pump. Some of the close follow-ups are also digital if the family can upload data.

Scan the two QR codes with your mobile camera and watch films about children and adolescents at Steno. Or find the films on Steno’s website: sdcc.dk/stenochild and sdcc.dk/stenoung

” I just hoped it was a mistake

Most children and adolescents enrolled at Steno have type 1 diabetes. However, type 2 diabetes is becoming more common among adolescents. Zenan is one of them.

On a holiday in Turkey with her parents, her brother and sister, Zenan became very ill. She had severe stomach pains, vomited, and in the end she was so ill that she fainted and was taken to hospital.

Here, she was told that she had type 1 diabetes, “because you are so young, so it can’t be type 2”.

“I just hoped it was a mistake,” says Zenan, who was only 14 years old when she was diagnosed with diabetes.

It was actually sort of a mistake, as Zenan did not have type 1 diabetes, but type 2 like both her parents, “but they did not get it until they were in their 30s,” she explains.

Zenan takes Ozempic and metformin, and her goal is to reduce her medication at some point. The way to achieve this is a healthy diet and exercise.

“My goal is to lose even more weight, and I also try to go for long walks so that my own insulin works better”.

At Steno, she later met six other young girls with type 2 diabetes. They cooked together and also wrote a letter to the treatment providers and a letter that the treatment providers can give to other adolescents who have just been diagnosed with type 2 diabetes. Zenan thinks this offer is a really good idea:

“If I could have talked to a young person who had diabetes when I got it, it would have helped me, because it is different to be so young when you get type 2.”



Zenan hopes to be able to help other young people who develop type 2 diabetes.

FACTS

Children and adolescents with type 2 diabetes

- 20 children and adolescents with type 2 diabetes are enrolled at Steno Diabetes Center Copenhagen. 18 of those 20 are of Turkish, Pakistani, Indian, and Spanish descent, respectively. Nationwide, 228 children and adolescents are registered with type 2 diabetes according to the annual report of the Danish Diabetes Database for 2024.
- For young people with type 2 diabetes, group programmes are also becoming a regular part of the usual care at BørneUnge-klinikken (Clinic for children and adolescents) at Steno.
- A dedicated nurse and doctor are responsible for the treatment, which focuses on well-being and quality of life for both the adolescent and the parents.

Research showing the way

People with diabetes are living longer, while researchers are working to halt the development of type 1 diabetes altogether and prevent type 2 diabetes and its complications.

A portrait of Peter Rossing, a middle-aged man with light brown hair, wearing a dark blue suit jacket over a white shirt. He is looking slightly to the right of the camera with a neutral expression. The background is blurred, showing green foliage on the left and a grey building facade on the right.

Not everyone with type 2 diabetes in Denmark receives the new medicines they should, which could make a positive difference for mortality, assesses head of research Peter Rossing.

EXCESS MORTALITY FROM DIABETES IS DROPPING

Prevention of both type 1 and type 2 diabetes will play an increasingly important role, says the head of Department of Clinical and Translational Research, Peter Rossing.

Mortality among people with type 1 diabetes in Denmark has halved in the period 1996-2024 both in absolute terms and relative to the population without diabetes.

This is documented by researchers from Steno Diabetes Center Copenhagen in a comprehensive report that maps diabetes incidence and treatment in the same period.

In the period 2017-2024, a 30-year-old with type 1 diabetes has thus extended life expectancy by two years.

"It is an enormous improvement in a short time, showing that diabetes treatment in Denmark is comparable to or better than the best in the world, including Sweden and Scotland", states head of research, consultant and professor Peter Rossing.

He attributes the great improvement particularly to better blood glucose control, greatly aided by new technology and new medicines. The risk of amputation and developing cardiovascular and kidney disease has also decreased for both people with type 1 and type 2 diabetes over the years.

However, mortality is still two to five times higher for people under 70 with type 1 diabetes compared to people without diabetes.

More people need the right treatment

There is also a slight downside when it comes to type 2 diabetes. Mortality fell until 2012 and then stabilised. However, mortality relative to the population without diabetes has increased slightly after 2012.

“We have reduced mortality from type 2 diabetes, but in light of the many new treatments we now have, it is a bit surprising that mortality does not decrease more than for the average Dane”, says Peter Rossing.

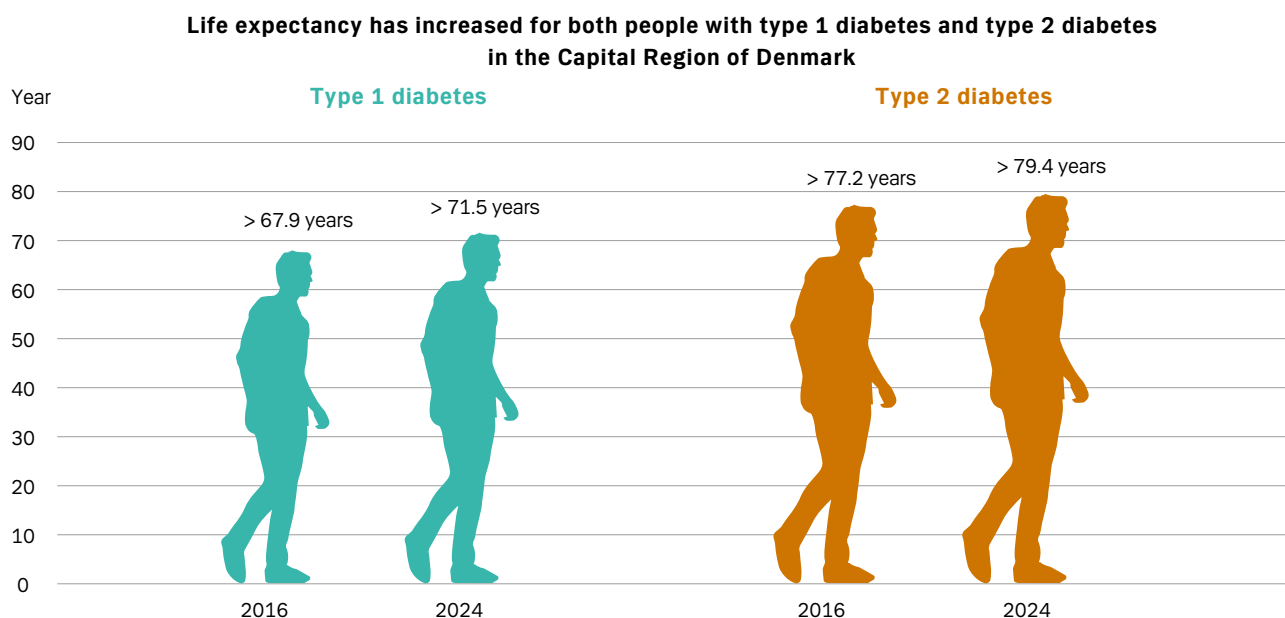
He assesses that the reason could be that new medicines such as GLP-1 and SGLT2 inhibitors are still not being used to the recommended extent for people at risk of cardiovascular and kidney disease.

“Not everyone in Denmark receives the treatment they should, but next time we make a similar statement, we hope to see that the new treatments have impacted the life expectancy of people with type 2 diabetes, so we can halt or prevent complications and premature death even more effectively.”

Another challenge is that more and more people are developing type 2 diabetes. The incidence of type 2 diabetes has increased by two percent per year since 1996.

“In a way, it is a success that so many in Denmark have diabetes, because part of the explanation is that people live longer with the disease than before. But the main challenge is that we develop diabetes in the first place. Therefore, prevention of both type 1 and type 2 diabetes will play an increasingly important role.”

Source: “Diabetes demography, risk factors, and diabetes-related complications in Denmark 1996-2024” by Epidemiologigruppen i Klinisk og Translationel Forskning: Bendix Carstensen, Christina Lee, Hjalte Søberg Mikkelsen, Pernille Falberg Rønn, Peter Rossing, Rasmus Wibæk, Stine Byberg, Thomas Gerds, and Vanja Kosjerina.



Source: The report “Diabetes demography, risk factors, and diabetes-related complications in Denmark 1996-2024” also states that the life expectancy for people with diabetes specifically in the Capital Region has increased.

New treatment for gastroparesis

About three to five percent of people with diabetes experience gastroparesis, which means that the stomach is partially paralysed and therefore passes food more slowly. The consequence can be inexplicable blood glucose fluctuations, stomach pain, nausea, and vomiting. The cause is neuropathy, i.e., nerve inflammation, which means that the nerves degenerate or lose their function. Until now, there has been no effective treatment, but researchers at

Steno Diabetes Center Copenhagen, Zealand University Hospital in Køge, and Hvidovre Hospital have now tested a method that appears to be a breakthrough in treatment. By means of laparoscopic surgery, doctors cut the small sphincter between the stomach and small intestine. This allows food to pass more quickly, and patients experience both fewer symptoms and better quality of life. The treatment is expected to be offered at Hvidovre Hospital and later also at other hospitals in Denmark.

Neuropathy is a risk marker for the development of brain disease

For people with type 2 diabetes and neuropathy, the risk of developing dementia is four times higher than for people with type 2 diabetes without neuropathy. Furthermore, neuropathy is associated with an increased risk of cerebrovascular disease such as strokes and brain haemorrhage, both in people with type 1 and type 2 diabetes. This appears from a registry study with data from 15,036 persons enrolled at Steno Diabetes Center Copenhagen. The study is based on annual measurements of the participants' vibration sense made in the clinic during the period 1998–2020 linked with information from national health registers. The results indicate that neuropathy is a risk marker for serious brain diseases in people with diabetes.

People with low birth weight tolerate eating extra sugar poorly

Eat extra sweets, drink extra soft drinks and juice for four weeks. This was the recipe given to 48 healthy men aged 35–38 by researchers at Steno Diabetes Center Copenhagen. All the men gained weight, on average 1 kilo, and all accumulated more fat in the liver. But the men with a low birth weight also experienced an increase in fasting blood glucose, an increase in lipids (fats in the blood, for example triglycerides), and increased insulin resistance (i.e. poorer insulin effect). This did not happen for the men born with a normal birth weight. The study published in the international scientific journal *Diabetes* indicates that persons with low birth weight have not been programmed in the womb to 'overeat' and are therefore at greater risk of developing type 2 diabetes.

Pain in the musculoskeletal system is widespread

People with diabetes have a two to three times higher risk of experiencing pain and discomfort in shoulders, arms, hands, and fingers, according to a mapping of knowledge in the area published in the journal *Diabetes Care*. Complications include frozen shoulder, snapping finger, or carpal tunnel syndrome. It is especially persons over 50 years old who have lived with diabetes for a long time that are at risk of developing the complications. The risk is also higher if you have high blood glucose levels, are overweight or a smoker. The mapping was carried out by researchers from both Steno Diabetes Center Copenhagen and Aar-

hus as well as Bispebjerg Hospital and researchers in the United States, Sweden, and Norway. In 2023, a study at Steno Diabetes Center Copenhagen showed that no less than 48% of people with type 1 diabetes had a regular diagnosis for diseases in the musculoskeletal system.



Sores and eczema are everyday occurrences for many users of diabetes equipment

Many children, adolescents and adults with type 1 diabetes experience new health problems when they use an insulin pump and sensor to control blood glucose levels. An international study published in SKIN-PEDIC and led by Steno Diabetes Center Copenhagen has mapped the problem among children and young people with type 1 diabetes at 22 paediatric diabetes departments in Europe, the United States, Egypt, and Brazil, among others. In total, the mapping includes 1,719 children and adolescents with type 1 diabetes and shows that 52% of children and adolescents using an insulin pump have visible skin problems. 30% of those with a sensor have visible skin problems. Nine percent of those using either a pump or sensor have eczema from the diabetes equipment.



Combination treatment helps with type 2 diabetes and chronic kidney disease

According to the CONFIDENCE study published in the New England Journal of Medicine, people with type 2 diabetes and chronic kidney disease benefit from combination treatment with an SGLT2 inhibitor and finerenone rather than individual administration of the treatments. The study with researchers from Steno Diabetes Center Copenhagen is the first randomised study of its kind. The combination treatment resulted in a decrease in albuminuria (excretion of the protein albumin in the urine) of about 50% compared to baseline. This reduction was 29% greater than with treatment with finerenone alone and 32% greater than with treatment with only empagliflozin.

The mother's diet during pregnancy can increase the child's risk of type 1 diabetes

A study of 67,000 Danish mothers and their children born between 1996 and 2002 shows that an inflammatory diet during pregnancy can increase the child's risk of type 1 diabetes. The child's risk thus increases by 16 percent if the mother had an 'inflammatory' diet during pregnancy – for example red meat, soft drinks, sweets, cakes, fast food, and ready meals. The mothers in the birth cohort "Better Health in Generations" had completed a detailed questionnaire about their diet and lifestyle in the middle of pregnancy. This information was linked with data on which children developed type 1 diabetes before their 18th birthday.

Low birth weight increases the risk of a more severe type 2 diabetes

Approximately 8,000 persons with newly diagnosed type 2 diabetes from the DD2 cohort (Danish Center for Strategic Research in Type 2 Diabetes) were examined and classified using a genetic risk score, birth weight, and estimated lifestyle. People with diabetes primarily caused by low birth weight or lifestyle factors already

had a more severe disease profile at the time of diagnosis and an increased risk of cardiovascular diseases and microvascular complications up to ten years after the diabetes diagnosis compared to people with a predominantly genetic disposition. The results suggest that it may be relevant to consider the underlying causes of the disease when assessing risk and planning treatment strategy for people with type 2 diabetes.



Few women are tested for diabetes in the first years after gestational diabetes

Despite clear recommendations for regular screening, fewer than a third of Danish women are tested for diabetes within four years after a pregnancy with gestational diabetes. This is evident from a new national survey based on registry data from nearly 20,000 women in 2015-2022.

Only about five percent were tested in the first year and again in the following four years. The low participation increases the risk of undetected type 2 diabetes and early complications.

Blood test reveals differences in prognosis for type 1 diabetes

A single test can distinguish between high and low risk of early death and cardiovascular disease in type 1 diabetes, according to a study from Steno published in the *Journal of Internal Medicine*. High levels of the two biomarkers IL-6 and suPAR can indicate an increased risk of developing cardiovascular disease and premature death. Both markers are indicators of chronic inflammation and an overworked immune system. The study points to new possibilities for early detection of individuals with type 1 diabetes at high risk and potential prevention.

New medicine also has kidney protective properties for people with type 1 diabetes

The medicinal product finerenone, which has been approved since 2022 as medicine for people with type 2 diabetes with kidney disease, also benefits people with type 1 diabetes with chronic kidney disease. This is documented by the FINE-ONE study presented at the American kidney conference Kidney Week. Researchers from Steno Diabetes Center Copenhagen participated in the study, which is the first positive study for the treatment of kidney disease in type 1 diabetes since 1993.

Risk score to help curb type 1 diabetes

Researchers from Steno Diabetes Center Copenhagen have helped develop a risk score that can show the potential development of type 1 diabetes based on microRNA molecules. This is crucial for potential preventive treatment. Together with researchers from Australia, Hong Kong, China, Canada, the United States, and India in the international study group called "The PREDICT T1D Study Group", the risk score has been developed and published in Nature Medicine.

People with type 1 diabetes have their diabetes type validated

Preliminary results in the VERIFY project indicate that 0.9-1.5 percent of the screened population of persons with type 1 diabetes actually do not have type 1 diabetes. In the project, which is a collaboration with Steno Partner Hospitals in the Capital Region, people with type 1 diabetes are systematically tested at least three years after onset using biochemical (C-peptide and autoantibodies) and genetic markers (screening for monogenic diabetes).

Groups can reduce diabetes stress

One in three with type 2 diabetes experiences moderate to high diabetes stress: A term for the worries and emotional burdens that may accompany life with diabetes. In the City of Copenhagen, they have succeeded in reducing diabetes stress among a group of citizens with type 2 diabetes. The initiative is developed in collaboration with the Centre for Mental Health (Center for Mental Sundhed) and researchers at Steno Diabetes Center Copenhagen and consists of a wide range of methods, exercises, and tools gathered in the toolbox "Mental well-being in life with type 2 diabetes. Detection, prevention, and reduction of diabetes stress in municipal rehabilitation" (Mental trivsel i livet med type 2-diabetes. Opsporing, forebyggelse og reduktion af diabetes-stress i kommunal rehabilitering). The tools have been developed and tested at the Centre for Diabetes and Heart Disease (Center for Diabetes og Hjertesygdomme) in the City of Copenhagen. Here, 84 percent of course participants experienced a reduction in diabetes stress, and 85 percent experienced an increase in their ability to manage diabetes. The toolbox includes, among other things, breathing and mindfulness exercises and group dialogues where others in the same situation provide support.



People with MODY often first have an incorrect diabetes diagnosis

MODY (Maturity-Onset Diabetes of the Young) is a rare form of highly hereditary diabetes caused by mutations in a single gene, which is very likely to lead to diabetes before the age of 35. People with MODY are often first diagnosed with type 1 diabetes or type 2 diabetes. In the studied population, the median age for onset of diabetes was 22 years. From the

time the person developed diabetes to the correct genetic diagnosis being made, an average of eight years passed. One year after the onset of diabetes, 40 percent had had the correct diagnosis, while 46 percent were incorrectly diagnosed with type 1 or type 2 diabetes (data was missing for 14 percent). The individuals in the population generally had a high incidence of diabetes in the family, normal BMI, and well-controlled long-term blood glucose.

”

I make an effort to be happy with life

Erik Hageman has had type 1 diabetes for 83 years and has been treated at Steno all these years. He is thus a good example of the increased life expectancy with diabetes without serious complications.

When Erik was two years old and got type 1 diabetes in 1942, the message from the general practitioner to his parents was: "Do nothing. That's the only right thing. Then he will die within 14 days, three weeks."

Fortunately, the parents did not listen and had Erik admitted to Niels Steensens Hospital, which was inaugurated in 1932: The current Steno Diabetes Center Copenhagen, where Erik has been treated for all these years.

Steno's very first consultant Hans Christian Hagedorn was also Erik's first doctor.

Erik was admitted quickly despite the family doctor's "recommendation," because Erik's father was a caretaker at what was then called The Danish State Institute of Physical Education (Danmarks Højskole for Legemsøvelser). It was located on Nørre Allé in Copenhagen and is today called the Department of Nutrition, Exercise and Sports.

The Laboratory for Human Physiology (Laboratoriet for Human Fysiologi) was also located in the area, and this was where Nobel laureate August Krogh, who brought insulin production to Denmark together with his wife Marie, also spent his time. The parents therefore received ad-

vice and guidance from one of the professors at the laboratory, who actually collaborated with Hagedorn: Two-year-old Erik was admitted the same day.

Erik is an example of the good and long life you can have with type 1 diabetes – even though he grew up in a time when diabetes treatment was undeniably different from today.

"I make an effort to be happy with life", says Erik, who today suffers from a bit of neuropathy in his feet, but not to a degree where it causes him any particular problems.



Scan the QR code with your mobile camera and watch a film with Erik Hageman. Or find the film on Steno's website: sdcc.dk/moedErik



*"I have been lucky," says Erik Hageman
about his many years with type 1 diabetes.*

OTHER RESEARCH PROJECTS



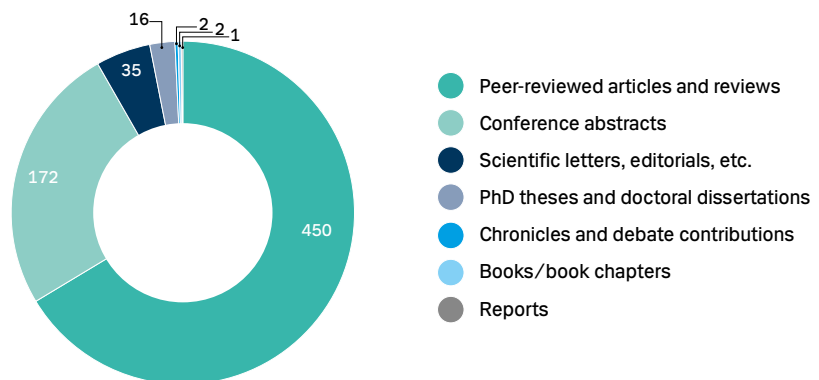
Senior researcher Joachim Størling hopes for a breakthrough in research into type 1 diabetes.

- **What is the interaction between chronic hepatitis B and cardiometabolic diseases such as type 2 diabetes and cardiovascular disease?** This is what an interdisciplinary group of researchers from Hvidovre Hospital and Steno Diabetes Center Copenhagen will examine. The project has received a Challenge Grant from the Novo Nordisk Foundation of 60 million DKK.
- **Is it possible to identify children at risk of developing type 1 diabetes even before the first symptoms appear?** This is what a national screening programme will find out. The project has received a Steno National Collaborative Grant of 24.8 million DKK and is carried out in collaboration with the Steno Diabetes Centres in North Jutland, Aarhus, Odense, Zealand, and the Faroe Islands.
- **Using kidney biopsies, the disease mechanisms behind diabetic kidney disease will be mapped.** The project has received a Steno Collaborative Project Grant of 10 million DKK and is carried out in collaboration with the nephrology departments at several hospitals, Aarhus University, and the University of Michigan.
- **Can weight stigma be prevented in families?** The research collaboration FAIR will investigate and test new methods. FAIR is supported with 7 million DKK by the Centre for Health Professional Learning and Training (Sundhedsfaglig Læring og Træning) and is a collaboration between Steno Diabetes Center Copenhagen, the Children and Adolescents Outpatient Clinic at Esbjerg Hospital, the Centre for Child and Youth Well-being in the City of Copenhagen, the Danish National Center for Obesity, the University of Copenhagen, and funded by the Centre for Childhood Health.
- **The development of a new tool will help especially decision-makers prioritise the health initiatives that generate the most value for money.** The project has received a Steno Collaborative Project Grant of 5.9 million DKK and is carried out in collaboration with the Steno Diabetes Centres Aarhus and Zealand as well as the University of Southern Denmark.
- **Will we in the future be able to prevent the insulin-producing beta cells from dying during the development of type 1 diabetes?** This is what researchers at Steno Diabetes Center Copenhagen now want to find out by studying if the beta cells undergo a very special form of inflammatory cell death called “pyroptosis”. The project is supported with over 2.2 million DKK from the Independent Research Fund Denmark to senior researcher Joachim Størling (pictured).

Scientific production

Steno continues to enter into more collaborations and partnerships alongside increasing scientific production.

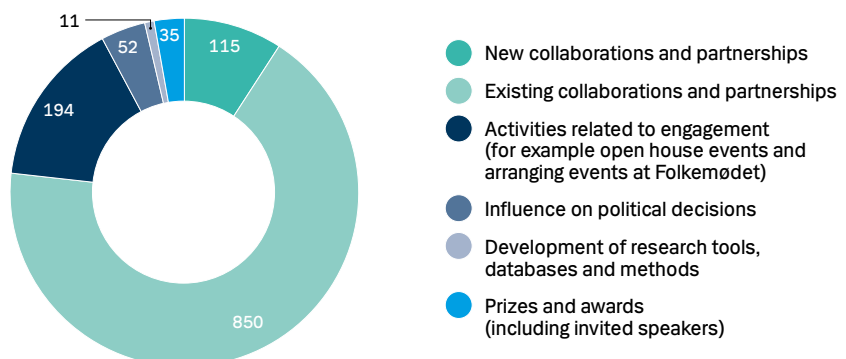
Number of publications in 2025 by type



A total of 678 publications in the form of, among others, scientific articles, conference abstracts, and PhD theses have been published by Steno's researchers in 2025. Several of the scientific articles have been published in some of the most recognised journals. Thus, two articles

have been published in The Lancet, five articles in NEJM (New England Journal of Medicine), one in JAMA (Journal of the American Medical Association), and one in BMJ (British Medical Journal).

Knowledge sharing and development activities in 2025



Knowledge benefits more people

Steno invites professionals and users to debate. Knowledge is disseminated through education, conferences, and podcasts.

INITIATIVES IN TINGBJERG ATTRACT INTERNATIONAL INTEREST

While the incidence of type 2 diabetes is generally on the rise in Denmark, it is decreasing in the Copenhagen district of Tingbjerg. This was announced by Steno Diabetes Center Copenhagen in March during a visit by the British Minister of Health Karin Smyth in Tingbjerg.

Like several other international delegations during the year, the British minister was visiting to gain inspiration on how the British can also improve health in vulnerable housing areas. For ten years, Steno has been at the forefront of the effort to promote the health of residents in Tingbjerg. This has been founded on research-based health-promoting initiatives and has been developed and implemented in collaboration with the citizens in the residential area, the comprehensive plan for residential social work, local associations, municipal administrations, centres and institutions, as well as external partners.

Employees in the Ministry of the Interior and Health have also been on inspiration visits.

Steno's analyses of data from Statistics Denmark show that the incidence of type 2 diabetes was almost twice as high in Tingbjerg as in the rest of Denmark before the initiative in the district.

Today, the incidence of type 2 diabetes is at the same level in Tingbjerg as in the rest of Denmark.

Steno is now working to transfer the experiences from Tingbjerg to the general social housing sector.



Mary-Anna Aberdeen is one of Tingbjerg's residents who explained how she uses the offerings in the housing area.

115

new partnerships and
collaborations were
initiated in 2025



450

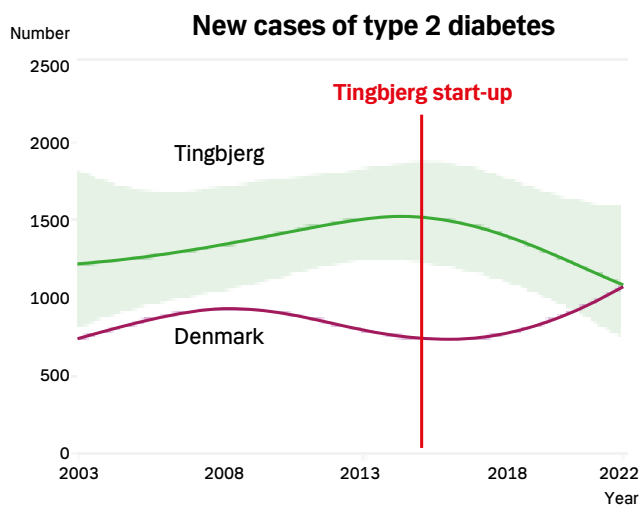
scientific articles
were published by
Steno researchers in 2025





Regional Council Chairman Lars Gaardhøj, the British Minister of Health Karin Smyth, Copenhagen's then Mayor of Health and Care Sisse Marie Welling (now Lord Mayor), and CEO Magnus T. Jensen from Steno Diabetes Center Copenhagen in Tingbjerg.

Photo: Nils Meilvang



The estimated incidence of new cases of type 2 diabetes in Tingbjerg and Denmark in the period 2003-2022 per 100,000 citizens. The health-promoting initiative in Tingbjerg was initiated in 2015 - the point at which the diabetes curve begins to break in the district.

The green area shows the potential fluctuation of the Tingbjerg curve due to statistical coincidences.

Source: Steno Diabetes Center Copenhagen

” I will walk and dance again

Every sixth hospitalised patient in the Capital Region has diabetes. On this basis, Steno has trained a number of diabetes ambassadors.

Edsel Benjamin was suddenly struck by inflammation of the spinal cord and could not walk. He was therefore admitted to the Department of Neurology at Rigshospitalet (Copenhagen University Hospital), and here his type 2 diabetes became insulin-requiring.

It is a well-known fact that Edsel was admitted with something other than his diabetes. In fact, every sixth hospitalised patient in the Capital Region has diabetes but is admitted for another condition. Therefore, Steno Diabetes Center Copenhagen has trained a number of diabetes ambassadors in collaboration with the endocrinology departments at the region's other hospitals.

The idea is for the ambassadors to help colleagues with knowledge on how to best treat diabetes on admission for another illness.

The initiative has shown that healthcare staff ben-

efit from updated knowledge about diabetes. The new knowledge has led to better blood glucose control and increased confidence for the staff.

Edsel Benjamin has benefited from this, as he suddenly needed insulin and had to have his blood glucose measured several times a day, which he was not used to. The fact was that the medicine prednisolone caused his blood glucose to rise.

But Edsel was in good spirits: “I will walk and dance again”, he said during the admission.

More than 60 diabetes ambassadors have been trained, and 1,250 doctors, nurses, and other care staff have completed an E-learning course on basic knowledge and competences in diabetes care. Special dashboards have utilised data from those admitted with diabetes, so that both the units, departments, and the outbound teams from the endocrinology department could follow the patients and their treatment.

The project model as a concept can today be rolled out in relevant departments.



Nurse Rikke Duus Skovlund says that she and her colleagues from Rigshospitalet have become more confident in caring for the diabetes patients after completing the educational programme. Edsel Benjamin has today been discharged for rehabilitation. The picture also shows Edsel's wife, Evangeline.

International experts gathered on eating disorders: What needs to be done?

Steno Diabetes Center Copenhagen hosted the DADE (Diabetes And Disordered Eating) conference on the connection between diabetes and eating disorders. The conference brought together researchers and treatment providers from England, Canada, the United States, Norway, the Netherlands, and Denmark, among others, and focused on an area that is largely overlooked both in clinical practice and in diabetes research, it was said. Eating disorders are far more prevalent among people with diabetes than in the rest of the population. Eating disorders also increase the risk of complications and early death. Women with type 1 diabetes have, for example, a two to three times higher risk of having disordered eating and eating disorders compared to women without diabetes. Women with type 1 diabetes also have a three times higher risk of dying from an eating disorder if they deliberately omit to take the neces-

sary insulin (to lose weight) compared to women who have type 1 diabetes without an eating disorder. Researchers from Steno are now working to establish an international working group, a “special interest group,” within PSAD (Psychosocial Aspect of Diabetes Study Group.)



Together with post-doc Pil Lindgreen, research director Bryan Cleal was in charge of organising the conference on eating disorders.



The researchers presented their knowledge about eating disorders at the conference – here Eleanor Bowes from the University of Leeds.

Chatbots to help with knowledge

To give users even better opportunities for having their need for knowledge met, the Department of Education has been developing AI-based chatbots that exclusively draw on limited and quality-assured sources selected by Steno. The chatbot solutions have been tested, and several of them are almost ready for implementation. A chatbot has been developed for users of videncenterfordiabetes.dk based on the website's content, a chatbot for clinicians who need to quickly find answers in

clinical treatment guidelines, and a chatbot to support work with prevention and health promotion in the public health area. The “Public Health Bot” (Folkesundhedsbotten) has attracted great interest from a number of players. It has been presented to the Danish Health Authority, Danish Regions, Local Government Denmark, the University of Copenhagen, and the Danish Healthy Cities Network, among other, which have contributed input for further development of the bot. A total of 16 municipalities have agreed to test the public health bot in 2026.

The Steno Diabetes Neuro Unit symposium was held for the second time with nearly 100 participants. Diabetes is closely connected with the nervous system – and with serious complications such as painful neuropathy (nerve inflammation) and dementia. Researchers point out that insulin resistance – that is, when the body's ability to absorb glucose into the cells is impaired – may be one of the keys to understanding the connection. Insulin resistance was precisely the theme at this year's symposium.

Diabetes at Eye Level (Diabetes i øjenhøjde) is a symposium with a professional focus on diabetes for those who work with diabetes daily. This year's topics included treatment of severe mental illness and diabetes, the hospitalised patient with diabetes, mental well-being when living with type 2 diabetes, and grief as part of life with diabetes. Approximately 100 employees from municipalities, hospitals, residential homes, and other institutions participated.

Diabetes Day (Store Diabetes Dag) for general practice was held in collaboration with the Quality Unit in General Practice in the Capital Region. More than 100 general practitioners and practice staff participated and acquired new knowledge about diabetes treatment and prevention.



Steno Focus elevates the health debate

How can we create a healthcare system that provides the greatest support to those who need it? And how do we make the best use of digitally supported treatment and stratification? These were the two themes at this year's

Steno Focus. Steno Focus is a new initiative where Steno highlights areas in the health debate that Steno wants to help elevate and therefore invites speakers for presentations and debates with the audience. A total of 135 participated in the two events.

Collaborations that make an impact

Knowledge and visions are developed and exchanged among all Steno Diabetes Centres, with the healthcare system and civil society.

THE STENO DIABETES CENTRES UNITE AROUND A NEW VISION: LESS DIABETES, MORE LIFE

The five Steno Diabetes Centres in Denmark have developed a new vision to be implemented in the period 2028-2035. The vision includes three main points:

1

Mission no. 1: “Treatment” – better treatment, fewer complications

We want to ensure that everyone with type 1 and type 2 diabetes receives treatment of excellent quality. The treatment must be individual, ensure equality in health, and be coherent across the entire treatment course. The treatment must prevent complications and reduce excess mortality.

2

Mission no. 2: “Life” – a full and meaningful life with diabetes

High-quality treatment should lead to more well-being and higher quality of life. Tailored offerings that fit into everyday life should ensure individual autonomy and that everyone receives the right help – especially those who traditionally have not received the right support or are hard to reach.

3

Mission no. 3: “Prevention” – prevention of diabetes in all phases of life

We will reverse the trend of new cases of diabetes in Denmark by preventing the disease in all phases of life. This should be achieved through targeted prevention that also contributes to reducing inequality and by strengthening early detection, addressing the underlying causes of diabetes.

Steno Diabetes Centres are preparing a new and joint grant application

The vision is developed on the basis of the preparation by the five Danish Steno Diabetes Centres in 2025 of an evaluation of their own efforts for the Novo Nordisk Foundation, which in 2017 entered into grant

agreements with the five Danish regions to establish a Steno Diabetes Centre in each region. The foundation's funding expires at the end of the period 2027-2029 depending on the individual centre's grant basis. The Danish Steno Diabetes Centres are preparing a joint grant application for a new grant period for 2028-2035.



Collaboration between the seven Steno Diabetes Centres in the Kingdom of Denmark

The management from all Steno Diabetes Centres, including Greenland and the Faroe Islands, gathered in the autumn to discuss quality development in diabetes treatment. From left: Magnus T. Jensen (Steno Diabetes Center Copenhagen), Jan Erik Henriksen (Steno Diabetes Center Odense), Poul Erik Jakobsen (Steno

Diabetes Center North Jutland), Andreas Rudkøbing (Steno Diabetes Center Zealand), Marit Eika Jørgensen (Steno Diabetes Center Greenland), Troels Krarup Hansen (Steno Diabetes Center Aarhus) and Birna Mohr Joensen (Steno Diabetes Center Faroe Islands).

Photo: Jakob Hugaard Christiansen

FOLKEMØDE (DANISH DEMOCRACY FESTIVAL): THE DICE ARE CAST

The Steno Diabetes Centres hosted three joint events at Folkemødet on Bornholm.

One of the debates was called "The Great Chronic Care Package Game: Which patients win the game?" Who gets which packages and can everyone win when playing for patient rights?

Together with moderator Tine Gøtzsche and the debate panel, the packages were opened and the contents examined.

The two other joint debates were "The Dilemma solvers open the chronic care packages". It included, among other things, how to balance standardised package courses and individual patient needs.

The debate "User Involvement for all – Utopia or necessity?" examined whether user involvement risks favouring citizens with many resources while vulnerable individuals are left behind. From time to time, there were examples of how vulnerable citizens can help create change.

CEO of Steno Diabetes Center Copenhagen, Magnus T. Jensen, participated in a debate on health data, where the question was: Can data make us healthy? "Yes," replied Magnus T. Jensen, whose message is that data plays a crucial role in ensuring that we have a coherent healthcare system of high quality for the benefit of all.

Picture to the right: Moderator Tine Gøtzsche throws a die to CEO Troels Krarup Hansen, Steno Diabetes Center Aarhus.

Picture bottom left: PhD student Majken Lillholm Pico spoke on the Research Stage about the importance of considering the whole family in relation to prevention. Photo: Simon Klein-Knudsen.

Picture bottom right: User involvement – is it utopia?, was one of the questions asked in one of the debates. Photo: Nils Meilvang.





Photo: Jakob Haugaard Christiansen



Steno TVÆRS: Together for Primary and eHealth Care

With the Healthcare Reform, more tasks are moved closer to the citizens, and new demands are placed on the quality of prevention and treatment of chronic disease. But how do we best work together across sectors to improve citizens' health – especially citizens that we do not succeed in reaching today? This is what the Steno TVÆRS partnership will investigate.

The partnership is based in Halsnæs Municipality, where many citizens live with chronic diseases such as type 2 diabetes, COPD, and heart disease. Because of the geographical distances to the GP, the municipal health services, and the hospitals, some citizens find it more difficult to get the right help.

In addition to Halsnæs Municipality and Steno Diabetes Center Copenhagen, the partnership consists of Nordsjællands Hospital, general practice, the Health Innovation Center of Southern Denmark, and the non-profit housing organisation Lejerbo Frederiksværk.



At the Capital Region's management conference, the Steno TVÆRS partnership presented their work. The head of health promotion and research Ulla Toft from the Department of Prevention, Health Promotion and Community Care at Steno is seen in the picture.

Professional contributions to authorities on health reform and the Public Health Act

- The Steno Diabetes Centres have jointly sought influence on the professional implementation of the health reform. There has been dialogue with national players about need-based pathways at the outpatient clinics as input for the operational restructuring under the Outpatient Clinic of the Future (Fremtidens Ambulatorium) and the contents of upcoming chronic care packages.
- In the autumn, the Ministry of the Interior and Health invited the Steno Diabetes Centres to provide input for the upcoming Public Health Act and subsequently to send specific recommendations for the wording of national goals.
- Steno Diabetes Center Copenhagen has been invited for meetings in the Ministry of Industry, Business and Financial Affairs and the Danish Competition and Consumer Authority to provide professional input in connection with proposals for new legislation on the prohibition of marketing of unhealthy food and beverages targeting children.

Tool helps with prevention

A data-driven model called Our Healthy Community will now help municipalities promote prevention and health among their citizens. The model has been developed and tested together with the Centre for Clinical Research and Prevention and Aalborg University, the municipalities of Rødovre, Hjørring, Høje-Taastrup, and Frederikshavn as well as the Capital Region and the North Denmark Region. Examples of initiatives are bridging activities between school and leisure time that support children participating in leisure activities, involvement of young people in urban development, and a public meeting between politicians and young people on youth well-being in a municipality. The tools developed to support the data-driven, cross-sectoral, and systematic work with prevention will be made available to other municipalities. The tools can also be used in the upcoming "model municipalities", which is a new initiative in the Department of Prevention, Health Promotion and Community Care.



The joy of football can make men healthier

Men generally do not want to deal with health – unless their own football team invites them to do so. This is the assumption by the five Danish Steno Diabetes Centres, which in 2025 have enhanced their joint effort for men's health through the Men's Health Programme, which is now continued under the name Play It Forward. A striking example that professional sports clubs can break down the barriers men experience when it comes to participating in health offers is AGF Walks. Here, men who are AGF fans go for weekly walks. The initiative shows how football clubs can serve as strong arenas for health promotion. Play It Forward will now expand this model to more professional clubs nationally. Steno Diabetes Center Copenhagen contributes with professional knowledge about prevention, behavioural change, and partnership development.

Initiative to get children and young people to drink more water

Three out of four children and adolescents drink more soft drinks, squash drinks, and energy drinks than recommended instead of water. Half of the 13-20-year-olds are even heavy consumers. Therefore, Steno Diabetes Center Copenhagen has entered into a new partnership to get children and adolescents to prefer tap water over drinks filled with sugar. Together with Madkulturen, Steno is in charge of the project, which has been established on the initiative of the Centre for Childhood Health. Together, the parties will, among other things, map access to

drinking water in schools and leisure environments and establish water stations as part of a series of national pilot projects, including in schools and sports centres. Steno will help develop the initiative and contribute with knowledge and experience from other system-oriented prevention projects. The other partners in the collaboration are DANVA (Danish Water and Wastewater Association), FGU Danmark (Preparatory Basic Education), the Danish Vocational and Technical School Students Union (EEO), the Association of Danish Pupils, the Danish Veterinary, Food, Agriculture and Fisheries Agency and KL (Local Government Denmark).



Photo: Danish School Sports / Johnny Anthon Wichmann

Movement should be part of the school day

The work to promote movement in schools has been strengthened through participation in the national partnership for sports and movement in a school context. Steno contributes with professional knowledge about prevention, health promotion and implementation of whole-school approaches, and Steno collaborates closely with, among others, Danish School Sports,

the Association of Danish Pupils, and research environments to develop models that make daily movement an integrated part of the school day. Steno's role is to ensure that the solutions are evidence-based and scalable across municipalities and to support practice-oriented initiatives that strengthen the well-being and health of children and adolescents.

Network focused on the health of social and healthcare assistant and helper students

The national network for health promotion in vocational training programmes has had two well-attended meetings. The network brings together over 35 different national players, including municipalities, research environments, and interest groups.

The aim of the network is to strengthen collaboration on how to make health promotion a more integrated part of the schools' practice and support students' well-being and learning environment. The network is run by researchers from System-Oriented Prevention at Steno Diabetes Center Copenhagen and has recently focused particularly on the work with the health of social and healthcare assistant and helper students.

Data help boost students' health

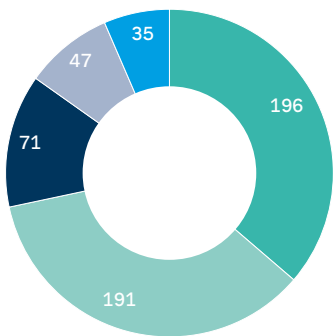
Six vocational schools in Denmark are now implementing systematic and data-driven initiatives to increase students' well-being and health. Steno Diabetes Center Copenhagen has supported the schools' capacity building, for example by facilitating interdisciplinary collaboration and establishing structures that make health promotion an integrated part of the schools' organisation.

The final evaluation of the data-driven health promotion initiative shows that local solutions, based on the schools' own needs and resources, can enhance the schools' capacity to handle work with health and well-being.

Operation

Several employees were recognized for their efforts in the form of awards and grants. Employee well-being is high. The same goes for patient satisfaction.

Employees broken down on departments



- Department of Clinical and Translational Research (142.5 FTEs)
 - Department of Diabetes Care (169.3 FTEs)
 - Department of Prevention, Health Promotion and Community Care (59.2 FTEs)
 - Executive secretariat, Communication and Media, Evidence and Quality Improvement (41.8 FTEs)
 - Department of Prevention, Health Promotion and Community Care (30.5 FTEs)
- In total 443 FTEs, 540 employees**, including 9 clinical professors affiliated with the Faculty of Health and Medical Sciences at the Department of Clinical Medicine at the University of Copenhagen.

90% of users at Steno are either very or extremely satisfied with their treatment. This was evident from this year's National Survey of Patient Reported Experiences (LUP) from the Centre for Patient Involvement (Center for Patientinddragelse).

According to the survey, employee satisfaction was also the highest among employees at hospitals in the Capital Region. This was evident from this year's APV report (workplace assessment).

Financial framework

Expenditure-based accounts

Million DKK	Budget 2025	Accounts 2025	Deviation
Regional framework*	269.8	257.1	12.7
Grant from the Novo Nordisk Foundation	204.5	172.6	31.9

Funding from other external grant providers**

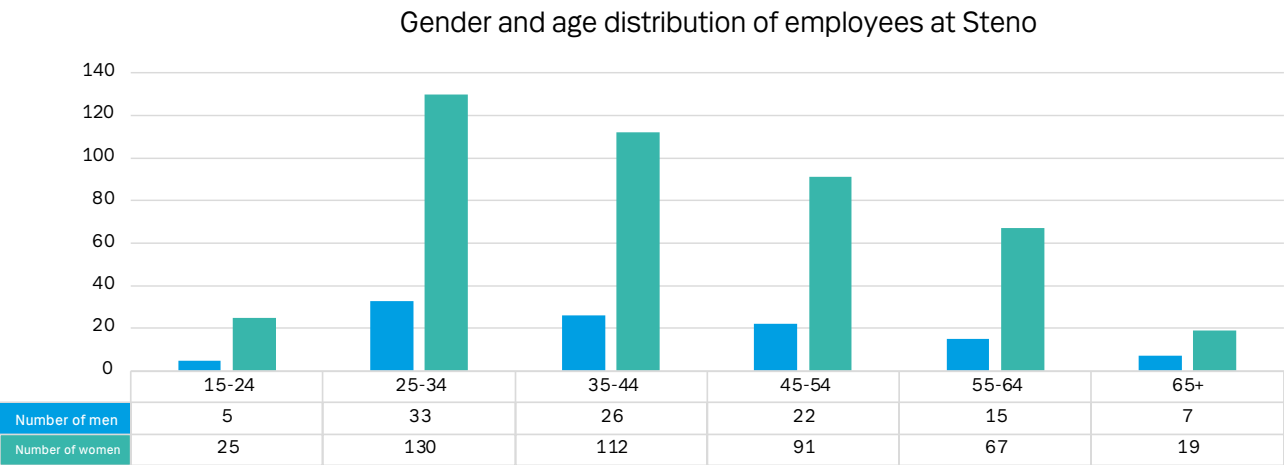
Million DKK	Consumption 2025	Grant 2025-2028	Of which: New grants in 2025
Steno Diabetes Center Copenhagen in total	108.5	466.5	194.6

* The deviation includes 8.5 million DKK for the establishment of an auditorium in 2026.
** At the turn of the year, there were 275 active external research projects.



The largest employee group at Steno is women aged 25 to 34 years. Many are biomedical analysts and employed at Steno Laboratory.

Staff composition





Julie Christine Egelund Stenvang, Regitze Aubrey Pais, Anne Timm and Magnus T. Jensen at the grant presentation. Photo: Tine Bernsen

THREE GRANTS AWARDED FROM THE STENO FORSKNINGSFOND

Steno's first doctor, Hans Christian Hagedorn, is behind Steno's research grants.

Steno Forskningsfond was founded in 1938 by Steno's first medical doctor, Hans Christian Hagedorn, with the primary aim of supporting medical research at Steno Diabetes Hospital. Steno Forskningsfond was established on the basis of, among other things, Hagedorn's own inherited funds. Three researchers received grants in 2025:

1

Medical doctor **Julie Christine Egelund Stenvang** (left in the picture) received 929,860 DKK for a PhD project on the population overview called Steno Detektor, which aims to help tailor diabetes treatment to the users' individual needs.

2

Post-doc, PhD **Regitze Anne Saubrey Pals** (second from the right next to CEO Magnus T. Jensen) received 450,000 DKK for a project on the involvement of relatives of adults with type 1 diabetes in the treatment

3

Post-doc, PhD **Anne Timm** (second from the left) received 349,148 DKK for the project "Play It Forward" (see also page 44), which, in collaboration with a number of football clubs, aims to enhance men's health.

AWARDS

Several employees received distinguished recognition for their efforts in 2025.



Photo:
Tine Bernsen

Project Manager **Sanne Kellebjerg Korndal** received Steno's employee award, The Golden Apple. The award is given to employees who have made a significant contribution to strengthening collaboration, well-being, collegiality, teamwork, and a holistic approach across Steno for the benefit of users and colleagues. Sanne was nominated for the award by her colleagues and chosen as the recipient of the award by Steno's employee committee. The award includes a diploma and a sculpture, The Golden Apple, which is a kind of travelling trophy.

Head of research, consultant **Peter Rossing** received the Hagedorn Prize.

Consultant and PhD **Katrine Bagge Hansen** received the DES Prize from the Danish Diabetes and Endocrine Academy for, among other things, her many years of delivering high professionalism and integrity in the development of national treatment guidelines for type 2 diabetes.



Photo:
Nils Meilvang

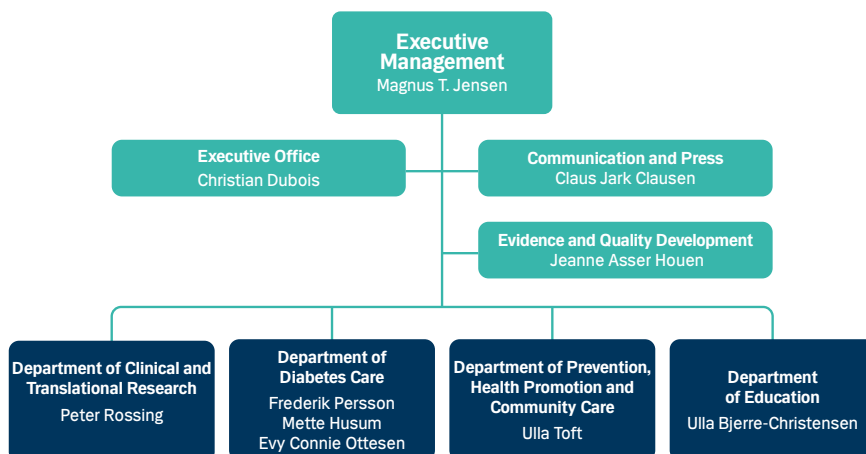
Doctor, PhD and post-doc **Anna Korsgaard** received the Diabetes Association's research grant of 600,000 DKK. The money will be used for a research project to investigate the significance of various patches and adhesive materials for contact dermatitis in connection with diabetes equipment. Also pictured is the chairman of the Diabetes Association, Jørgen Andersen.

Professor **Mikael Rydén** received the Camillo Golgi Prize, awarded by the European Association for the Study of Diabetes (EASD).

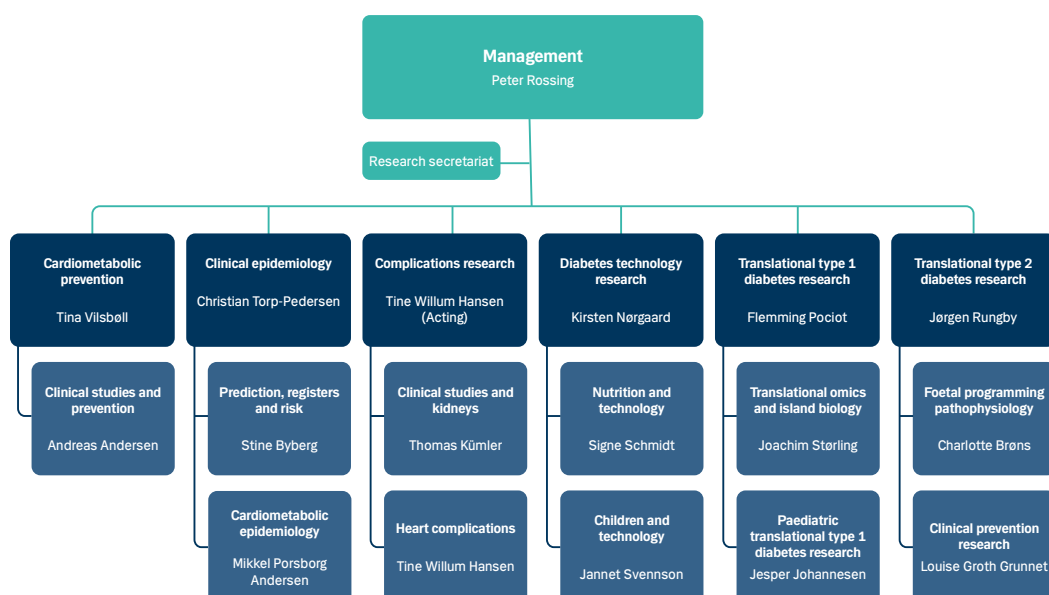
Consultant **Pernille Holmager** received the FYEN Prize, awarded by the Association of Junior Endocrinologists (Foreningen af Yngre Endokrinologer) to a person who has made an extra effort for the junior doctors.

Organisation

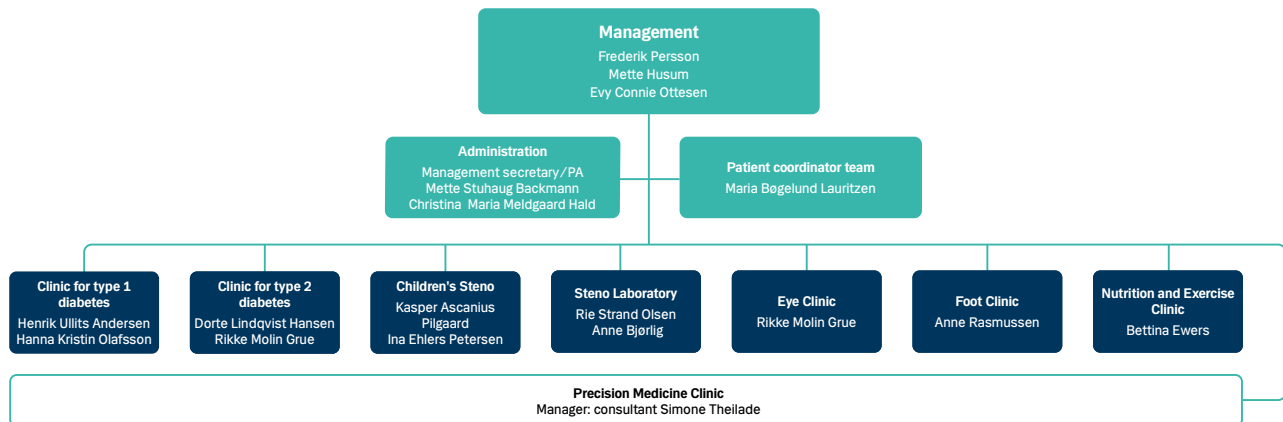
The units Communication and Media and Evidence and Quality Development are new branches in Steno's organisation.



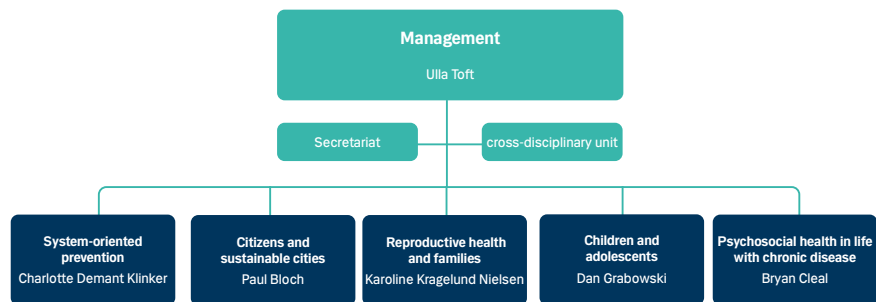
Department of Clinical and Translational Research



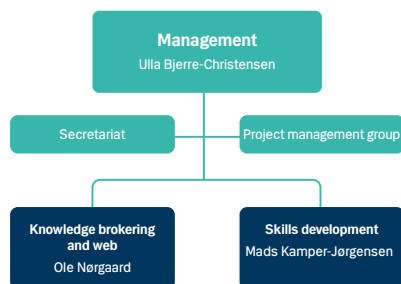
Department of Diabetes Care



Department of Prevention, Health Promotion and Community Care



Department of Education



Board

Erik Jylling, Executive Medical Officer in the Capital Region, Chairman of the Board

Niels Würger Hansen, CEO Herlev and Gentofte Hospital

Bente Stallknecht, Dean at the Faculty of Health and Medical Sciences at the University of Copenhagen

Per Bennetsen, Managing Director, Health and Care Administration, City of Copenhagen.

Stig Sonne-Larsen, General Practitioner

Marie-Louise Hartoft-Nielsen, Vice President of the Novo Nordisk Foundation

Trine Riis, appointed user representative

Christian Collin, appointed user representative

Anne Rasmussen, leading podiatrist at Steno Diabetes Center Copenhagen, employee representative

Quality indicators

ADULTS

More and more people have a different diabetes diagnosis than type 1 and type 2 diabetes.

Demography

Indicator	2025	2024	Goal (DDiD)*
Number of persons with diabetes	11,640	11,087	
Persons with type 1 diabetes	6,447 (55.4%)	6,119 (55.2%)	
Persons with type 2 diabetes	4,308 (37%)	4,269 (38.5%)	
Persons with other forms of diabetes**	885 (7.6%)	699 (6.3%)	
Patient pathways (number, including telephone and video consultations)	45,040	46,121	
Gender distribution (number, % of all adults)			
Men	6,513(56%)	6,277 (56.6%)	
Women	5,127(44%)	4,810 (43.4%)	
Average age (years)	53.4	53.9	
Body mass index (kg/m2)			
Persons with type 1 diabetes	26.1	26.1	
Persons with type 2 diabetes	29.4	29.4	
Duration of diabetes (median)			
Persons with type 1 diabetes	21	24	
Persons with type 2 diabetes	19	18	

Metabolic or glycemic regulation

Indicator	2025	2024	Goal (DDiD)
Proportion of persons with diabetes with an HbA1c of ≤ 53 mmol/mol (%)			
Persons with type 1 diabetes	39.0%	37.1%	
Persons with type 2 diabetes	38.4%	41.9%	
Proportion of persons with diabetes with an HbA1c of ≤ 70 mmol/mol (%)			
Persons with type 1 diabetes	18.0%	19.0%	Maximum 25%
Persons with type 2 diabetes	22.5%	19.4%	Maximum 25%
Proportion of persons with type 2 diabetes with HbA1c ≥ 53 mmol/mol, who are not on antidiabetic treatment	0.56%	0.64%	Maximum 5%
Long-term haemoglobin - HbA1c (mmol/mol)			
Persons with type 1 diabetes	58.9%	59.5	
Persons with type 2 diabetes	59.6%	58.6%	

Lipids

Indicator	2025	2024	Goal (DDiD)
Proportion of persons over 30 years who have had their LDL cholesterol measured within the last 12 months (± 3 months)			
Persons with type 1 diabetes	88.3%	91.8%	At least 95%
Persons with type 2 diabetes	90.7%	95.8%	At least 95%
Proportion of persons with diabetes with LDL cholesterol ≤ 2.5 mmol/l			
Persons with type 1 diabetes	64.3%	66.6%	
Persons with type 2 diabetes	84.1%	85.1%	At least 90%
Proportion of persons with diabetes over 40 years with LDL cholesterol > 2.5, who are not on lipid-lowering treatment (%)			
Persons with type 1 diabetes	49.0%	51.9%	
Persons with type 2 diabetes	31.4%	32.4%	
LDL cholesterol (mmol/l)			
Persons with type 1 diabetes	2.4	2.3	
Persons with type 2 diabetes	1.8	1.8	

Hypertension

Indicator	2025	2024	Goal (DDiD)
Proportion of persons with diabetes who have had their blood pressure measured within the last 12 months (± 3 months)			
Persons with type 1 diabetes	83.0%	90.1%	At least 95%
Persons with type 2 diabetes	93.4%	96.6%	At least 95%
Proportion of persons with diabetes with blood pressure $\leq 140/90$			
Persons with type 1 diabetes	71.8%	68.9%	At least 85%
Persons with type 2 diabetes	65.0%	61.2%	At least 85%
Proportion of persons with diabetes with blood pressure $> 140/90$, who are not on antihypertensive treatment (%)			
Persons with type 1 diabetes	50.9%	51.4%	
Persons with type 2 diabetes	25.3%	24.9%	
Proportion of persons with diabetes on antihypertensive treatment (%)			
Persons with type 1 diabetes	36.8%	36.7%	
Persons with type 2 diabetes	83.1%	82.9%	
Blood pressure (systolic/diastolic - mmHg)			
Persons with type 1 diabetes	131/78	131/78	
Persons with type 2 diabetes	135/77	134/7	

Albuminuria/creatinine

Indicator	2025	2024	Goal (DDiD)
Proportion of persons with diabetes who have been tested for albuminuria within the last 12 months (± 3 months)			
Persons with type 1 diabetes	86.9%	89.7%	
Persons with type 2 diabetes	91.4%	94.1%	
Proportion of persons with diabetes with 1 U-albumin/creatinine measurement > 30, who are not on ACE inhibitor/ATII receptor antagonist treatment			
Persons with type 1 diabetes	37.9%	36.3%	Maximum 20%
Persons with type 2 diabetes	19.2%	20.6%	Maximum 20%

Eye examination

Indicator	2025	2024	Goal (DDiD)
Proportion of persons with diabetes who have had eye screening within the last 4 years (%)			
Persons with type 1 diabetes	90.8%	91.0%	
Persons with type 2 diabetes	87.2%	87.2%	
Retinopathy (no)			
Retinopathy	NA	NA	
Maculopathy	NA	NA	
Blindness prevalence (%)	NA	NA	

* DDiD: Danish Diabetes Database

** MODY or unspecified diabetes

Comments: NA = Data not available.

All data are sourced from the Danish e-health platform.

Foot examination

Indicator	Value 2025	Value 2024	Goal (DDiD)
Proportion of persons with diabetes who have had a foot examination within the last 12 months (± 3 months) (%)			
Persons with type 1 diabetes	44.5%	59.0%	
Persons with type 2 diabetes	65.4%	78.4%	
Proportion of persons with diabetes who have undergone amputation within the last 12 months (± 3 months)	0.45%	0.48%	

Smoking

Indicator	Value 2025	Value 2024	Goal (DDiD)
Number of daily smokers (%)			
Persons with type 1 diabetes	14.6%	16.3%	
Persons with type 2 diabetes	18.4%	17.3%	

CHILDREN

Blood glucose control among children has significantly improved in the last year.

Demography

Indicator	2025	2024	Goal (DDiD)*
Number of children with diabetes (number)			
Children with type 1 diabetes	843	829	
Children with type 2 diabetes ***	12	19	
Children with another diabetes type **	49	56	
Patient pathways (number of completed appointments, including phone and video consultations, excluding appointments with bioanalyst)	3,227	3,862	
Gender distribution (number)			
Boys	478	466	
Girls	426	438	
Average age (years)	12.4	12.3	
Body mass index (kg/m²)	20.8	20.4	
Duration of diabetes (median) (years)	5.9	5.6	

Albuminuria/Creatinine

Indicator	2025	2024	Goal (DDiD)
Proportion of children with diabetes who have been tested for urinary albuminuria according to current guidelines (at the ages of 14 and 17)	75.5%	77.0%	At least 95%

Eye examination

Indicator	2025	2024	Goal (DDiD)
Proportion of children who have undergone eye screening within the last 36 months (at the ages of 14 and 17)	60.9%	65.9%	At least 80%
Retinopathy			
Proportion of screened children in whom no retinopathy changes were observed	NA	NA	
Prevalence of the different degrees of retinopathy (0,1,2,3,4) and maculopathy (yes/no)	NA	NA	

Metabolic or glycemc regulation

Indicator	2025	2024	Goal (DDiD)
Proportion of children with type 1 diabetes with an HbA1c of ≤ 53 mmol/mol (%)	59.9%	48.8%	At least 40%
Proportion of children with type 1 diabetes with an HbA1c of ≥ 70 mmol/mol (%)	5.8%	9.2%	Less than 20%
Long-term haemoglobin - HbA1c average (mmol/mol)	52.8	55.6	

Hypertension

Indicator	2025	2024	Goal (DDiD)
Proportion of children with diabetes who have their blood pressure measured at least once a year	75.1%	52.5%	
Blood pressure (systolic/diastolic - mmHg)			
Children with type 1 diabetes	112/67	112/68	

Other

Indicator	2025	2024	Goal (DDiD)
Proportion of children who have been screened for coeliac disease up to 1 year after the diabetes diagnosis	91.1%	88.3%	
Proportion of children who have had a TSH test for metabolic disorder up to 1 year after the diabetes diagnosis	97.0%	91.7%	
Proportion of children who have a BMI SDS (Body Mass Index Standard Deviation Score) of plus 2	18.0%	16.0%	

* DDiD: Danish Diabetes Database

** MODY or unspecified diabetes

*** Adolescents who have just turned 18 or whose medical record has not been closed at BerneUngeSteno can still be enrolled with the children's unit without being registered there.

Comments: NA = Data not available.

All data are sourced from the Danish e-health platform.



Visitor record at Open Hospital event

There was hard pedalling on Steno's exercise bike when Steno set a visitor record with approximately 400 children and adults at the Open Hospital event. The bike powers a blender to make smoothies, and active and healthy living was generally the focus of all activities. Guests were inspired by green meals, and they could have their blood glucose, cholesterol, and blood pressure measured. Many gained insight into the research at Steno, and it was also possible to measure both nerve function in the feet and have a brain scan.

Photo: Nils Meilvang



Editors

Journalist Helen H. Heidemann

Design and layout

Graphic designer, MD, Morten Petersen, ReflektDesign

Photos

Photo journalist Lizette Kabré, unless otherwise stated

Print

Frederiksberg Printing House A/S

March 2026



Steno Diabetes Center Copenhagen

Borgmester Ib Juuls Vej 83
2730 Herlev
Telephone: 39 68 08 00
Email: sdcc-fp-stenoinfo@regionh.dk
www.sdcc.dk



Find us here on Face-
book, LinkedIn and our
website sdcc.dk