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THE FUTURE OF DIABETES CARE

THE EXPERT VIEW

This report has been developed by Abbott to mark ten years since the launch of FreeStyle Libre, its world-leading continuous glucose monitoring technology that has helped revolutionise the treatment of diabetes. This report looks at the next decade of diabetes care, the trends that may shape how people will manage the condition and what needs to be done to ensure everyone can access further advances in care.

The number of adults living with diabetes will rise from 537 million[1] in 2021 to more than 1.3 billion in 2050[2]. For the past ten years, teams of doctors, patient groups, researchers and industry leaders have worked to revolutionise diabetes care with the arrival of new technologies, medicines and insulin delivery systems. So, what will the next decade hold? Abbott commissioned Thinks, a research consultancy, to ask key opinion leaders (KOLs) within the diabetes industry, including academics, advocacy groups, policymakers, and healthcare professionals for their views. Their insights are contained throughout this report.

INTRODUCTION

The progress in the treatment of diabetes is one of the great success stories of humankind. The earliest known mention of the condition can be traced back as far as Ancient Egypt (around 1550 BC). Papyrus has been discovered that describes a condition that causes excessive urination, thirst and weight loss – something we would now call Type 1 diabetes. The earliest distinction between Type 1 and Type 2 diabetes was made around 2,000 years ago, likely in India and China. However, it would not be until 1776 when an English physician, Matthew Dobson, undertook research that would ultimately prove that people with diabetes had some form of problem with the pancreas.

Fast-forward to 1921 and Frederick Banting and Charles Best discovered insulin, confirming that it could be used to treat diabetes. A year later, 14-year-old Leonard Thompson became the first person to be injected with insulin.

Progress in the treatment of diabetes was vital, as the number of people living with the condition would soon grow exponentially. In 1980, approximately 108 million people lived with the disease[3], rising to around 537 million in 2021. Estimates suggest this could rise to 1.3 billion by 2050[2].

A DECADE OF PROGRESS

The past ten years have seen rapid improvement in the management of diabetes, particularly in Type 1 diabetes. Prior to the introduction of continuous glucose monitors (CGMs) like FreeStyle Libre, people would be forced to test their glucose levels manually by sticking their finger – sometimes up to 10 times a day - to test a drop of blood. This was painful, only measured blood glucose at a single point in time and meant carrying around a device and multiple test strips, which some people found embarrassing to do in public or the workplace.

CGMs mean that a person's glucose is measured constantly, without the need for fingersticks. A small sensor, worn in the skin, transmits the latest readings via Bluetooth to the user's smartphone and other devices like readers and pumps. People with diabetes get the data they need to manage their diabetes and take any necessary action, in a way that suits them and allows them to live life to the fullest. Millions of people around the world now wear a CGM, with over six million people using the FreeStyle Libre technology.

Progress in diabetes management can also be attributed to advancements in connected technology with the emergence of connected insulin pens and hybrid closed-loop systems, also known as automated insulin delivery systems (AIDs). AIDs connect a CGM, an insulin pump and a mobile algorithm to create a smart, automated process to deliver the right amount of insulin based on real-time glucose data from the CGM. This removes the guesswork of insulin dosing.

Insulin therapy is a critical management tool for people living with Type 1 diabetes whose bodies cannot make insulin. Some people with Type 2 diabetes are also prescribed insulin therapy to keep their glucose levels within a healthy range.

Alongside the advancements in diabetes technology, significant progress has also been made in medical therapies, including GLP-1 agonists. These medicines can lower blood sugar levels and improve weight loss, both important factors in the treatment of Type 2 diabetes[7].

Away from medical interventions, the rise in social media has meant it has never been easier to learn more about diabetes and connect with others within the community. With Type 1 diabetes in particular, the online community is highly active, and members constantly share their experiences with each other to improve understanding and drive progress.

Given consistent improvements in technology, investment in research and development and a hyper-connected world, it is likely that the next ten years of diabetes care will see even more progress in combatting this increasingly prevalent disease.

TRENDS FOR THE NEXT 10 YEARS

BETTER, TOGETHER - CONNECTED CARE

One of the hallmarks of high-quality healthcare is connectivity. For a person with diabetes navigating a healthcare system, this means that their doctor has their notes from the nurse, the staff in the hospital have spoken with those in primary care and the individual can see their records and access prescriptions from their phone.

One major trend will be greater access to **AIDs.** Experts pointed to the potential impact that **artificial intelligence** (AI) could have on enhancing hybrid closed-loop systems, with greater accuracy and higher personalisation to deliver tighter glycaemic control – potentially getting us closer to a fully closed-loop system or an artificial pancreas. Fully closed-loop systems, unlike hybrid systems, are designed to automate all insulin delivery without requiring any user input for mealtime boluses.

> *"AI will play a crucial role in the future of diabetes care. Integrating AI into diabetes management will enhance the way we analyse and utilise patient data, ultimately improving care outcomes."*
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> - *Healthcare Professional and Academic, Spain*

Improvements in **connectivity between the various devices** that people can use to treat their diabetes will bring significant benefits. Sensors, insulin pumps and connected insulin pens that can talk to each other seamlessly will further reduce the burden of making constant judgement calls on treatment. The availability of richer, more actionable insights has the ability to improve health outcomes and, in the case of Type 2 diabetes, could lead to more people being able to put the condition into remission.

IT'S ALL ABOUT YOU - PERSONALISED CARE

Despite the name, there is no 'one type' of diabetes. In 2024, there are more than 537 million people with diabetes, each with their own story, experiences, and treatment needs. Like in other areas of healthcare, the development of solutions that are tailored to the individual are proving to be remarkably effective. In cancer, personalised immunotherapies use an individual's immune system to identify, control and kill the cancerous cells.

In diabetes, it is hoped that the next ten years will see a rise in the use of glucose responsive insulin (GRI), often known as **'smart insulin'**. GRI automatically responds to an individual's blood sugar fluctuations, just like the insulin-producing cells in a person without diabetes. The smart insulin would keep blood sugar levels steady during the day, reducing the risk of hypoglycaemic or hyperglycaemic shocks.

> *"There are new insulins coming on the market. So instead of a daily basal insulin, there's weekly and two weekly basals. A smart insulin would circulate around your body and adjust itself automatically based on your glucose levels."*
>
> - *Healthcare Professional and Academic, Ireland*

The increased use of vast amounts of data, made possible by connected technology, will also allow researchers to better understand nuances in how **different people are affected by diabetes**. We know that people from South Asian, Black African and African Caribbean backgrounds are at higher risk of developing Type 2 diabetes. As the use of continuous and connected technologies increases, it is hoped that we will gather more data on the differences in how these communities respond to certain treatments and interventions. In doing so, we can optimise care for people from at-risk backgrounds and improve representation in clinical progress.

A CONCERNING TREND - THE URGENCY OF TYPE 2 DIABETES

The significant progress in the management of diabetes, particularly among people with Type 1 diabetes should be welcomed. However, in celebrating these accomplishments, we must not take our eyes off a greater and growing challenge. Hundreds of millions more people will be diagnosed with Type 2 diabetes in the next ten years and significant challenges exist in the treatment of this condition. The dramatic surge in numbers has been attributed to a combination of factors, including lifestyle changes, urbanisation and changing food environments.

Experts believe that within this discourse, genetic risk factors for Type 2 diabetes are under-acknowledged, despite their importance in determining disease expression. This has led to a perception among wider society that people are 'to blame' for developing the condition. Leading healthcare professionals note that these misunderstandings exist even among people living with Type 2 diabetes.

"Many individuals with Type 1 diabetes are not responsible for their condition. Similarly, Type 2 diabetes often results from a combination of genetic and societal factors."

- *Healthcare Professional and Academic, Ireland*

There is reason for hope however, including with existing treatments and interventions. GLP-1 agonists have been proven to improve the management of diabetes, by reducing blood sugar levels and encouraging weight loss. However, recent studies have shown that **GLP-1s, when used alongside CGM systems, can be even more effective than using a GLP-1 alone**[4]. Real-world studies have shown that, when used in combination, CGMs and GLP-1s can lead to a greater improvement in the reduction and maintenance of glucose levels.

"We can personalise treatments according to the patient's profile. Is there a renal or cardiac risk? Is the patient overweight? It's extremely important for a doctor to characterise what's best for his patient, both in terms of behaviour change and treatment."

- *Healthcare Professional, France*

Experts believe that **more holistic support is needed** for people with Type 2 diabetes, and those at risk of developing the condition. They believe providing support frameworks with a focus on weight management integrated with mental health support, behavioural support, and education will be crucial. While they note that attempts to provide this support have been made, for example the UK's National Diabetes Prevention Programme, there is a desire for greater commitment on the part of policymakers and more funding to maximise the chances of success.

Experts are wary of the fact that the focus for treating Type 2 diabetes continues to be reactive, i.e. addressing the symptoms and comorbidities, rather than slowing or stopping the progression at the **prediabetic phase**. They are particularly concerned that people with Type 2 diabetes are given access to tools such as **CGMs too late**. They are convinced that if these interventions were available earlier, health outcomes for people with prediabetes would improve significantly, perhaps to the point that many of them would not develop the condition at all[8].

THE MARVEL OF MEDICINE - ADVANCES IN THERAPIES

If recent history has proved anything, it is to not underestimate the power of science and innovation to change lives for the better. In addition to all the other developments outlined in this report, advances in medicines and therapies continue at an impressive speed.

Over the course of the next decade, we may see progress in the use of stem-cell therapy for Type 1 and Type 2 diabetes. The science involves using **stem cells** to replace insulin-producing beta cells, to significantly improve the body's ability to manage blood sugar levels and greatly reduce the need for insulin injections[5]. Studies are currently in very early stages, but if successful, cell replacement therapy would represent a major milestone in the treatment of diabetes.

For many decades, the aim for those treating Type 2 diabetes was effective management – ensuring the individual could manage their blood glucose levels effectively and avoid hypoglycaemic or hyperglycaemic events. However, the ability of interventions including GLP-1 agonists to lower blood sugar levels and increase weight loss, means that some are suggesting a new goal – **total remission**. Importantly, such a goal would need to be achieved alongside other interventions, like the use of CGMs, improved education and lifestyle changes[6]. More research is still needed, including on the optimal interventions that could help a patient achieve and maintain remission, but the fact

that it has emerged as a potential new target is indicative of the quality of the tools we now have to tackle diabetes. The next ten years will be a test of how effectively we are able to deploy them.

> *"Diabetes care is going to be one of the most interesting areas of technological and clinical change over the coming years."*
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> - *Charity, UK*

CONCLUSION

There is reason to be optimistic for further advances in the next ten years of diabetes care. The past decade has shown that if we harness the power of technology, put people first and work together, we can achieve great things.

However, we will only deliver this if we remain laser-focused and refuse to accept that the job is done. Rates of Type 2 diabetes are going to continue to soar to levels previously unimagined. Higher numbers mean a greater burden on already overstretched health systems. Rates of inequality in access to high-quality care are significant. Preconceptions about Type 2 diabetes and societal judgements on people who live with it cannot be allowed to stand in the way of progress.

What is undoubtedly true, however, is the strength of resolve for all those involved in the fight. The challenges ahead are daunting, but with partnership, innovation and access, there is nothing we cannot achieve.

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