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Thank you	UU

OVER 85 YEARS OF DIABETES RESEARCH STEPPING CLOSER TO ENDING THE HARM

When it comes to diabetes research, it's often the small steps that matter most. Discoveries that add up, one by one, until suddenly a breakthrough changes everything.

For more than 85 years, we've been at the forefront of driving forward diabetes research. Funding passionate scientists who work tirelessly in their collective effort to make new discoveries that move us one step closer to ending the harm caused by diabetes.

With over 5 million people in the UK now living with diabetes, and millions more at risk of developing type 2, our work has never been more urgent.

But thanks to your support, step by step, our research has and is transforming the lives of everyone affected by diabetes in the UK.

As this year marks 100 years since Charles Banting and John Macleod won a Nobel Prize for their life-saving discovery of insulin, we want to celebrate all we've achieved. The game-changing innovations you've made possible and all the exciting discoveries that lie ahead.

Join us as we look back over 85 years, sharing stories from our researchers as well as hearing from people whose lives have been changed by the pioneering research you've helped fund. We know this report only scratches the surface, and we look forward to sharing more with you as we step closer to new breakthroughs.

This is a celebration, but it's also a rallying call. Now more than ever, we need research to help us tackle health inequalities and make sure all people with diabetes can live well for longer with their condition. We won't rest until we can prevent and cure diabetes.

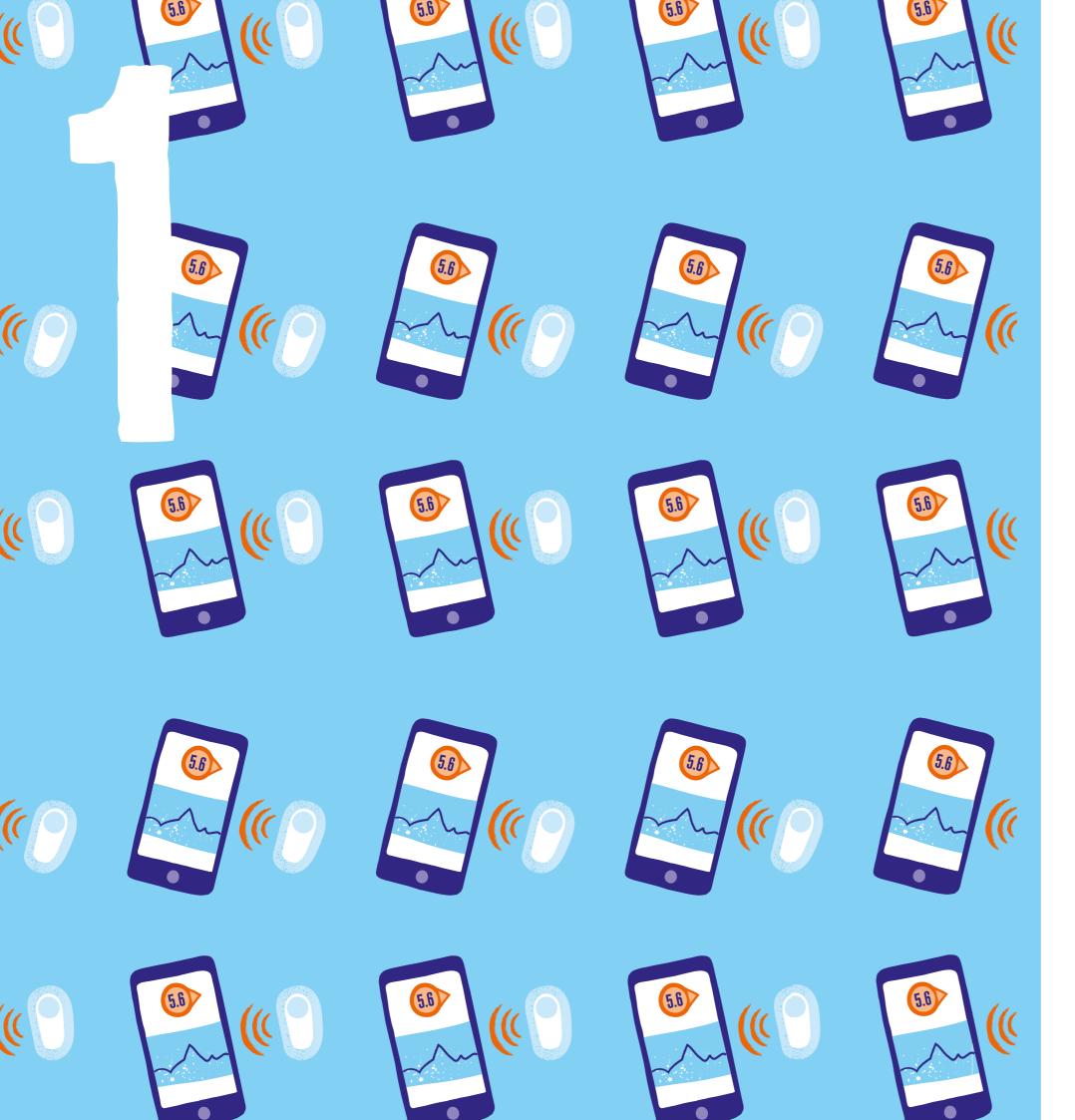
We have more research to do and it's your continuing support that makes this possible.

So, thank you for being part of our fight for a world where diabetes can do no harm.

Dr Elizabeth Robertson

Director of Research





There are no days off from diabetes. So, we're working to make living with it easier.

We know it can be the everyday things that make the most difference to people living with diabetes.

Tracking your sugar levels using a phone or device, getting the right support or having the latest technology to take away some of the day-to-day stress of managing diabetes 24/7.

Listening to what matters to people with diabetes and funding research to make it happen is changing lives for the better.

Your support helps make all this possible.

LIVING WELL WITH DIABETES

AT A GLANCE

LIVING WELL WITH DIABETES

Better care to prevent and manage

What we've made happen

Funded the

Funded the



Now and next

Finding better ways to prevent, identify and treat

issues and distress in people with diabetes.





Showed FLASH TECHNOLOGY can transform lives.

Funded the





Better care and support so people can

IMPROVING ACCESS

to diabetes technologies for everyone who could benefit.



in diabetes risk, care and health outcomes.

into the NHS.



Helped people with rare forms of diabetes get the

WE FUNDED THE FIRST INSULIN PEN

Glass syringes, steel needles, drawing insulin up from a vial – that's what injecting insulin looked like in the 1970s.



THE CHALLENGE

Injecting insulin was fiddly, impractical and painful.



OUR RESEARCH

Developed the first insulin pen.



ITS IMPACT

Revolutionised how people inject insulin.



NOW AND NEXT

Tackling inequalities in access to diabetes technology.

With a young daughter with type 1 diabetes, Dr Sheila Reith understood the difficulties of injecting insulin and wanted to make it easier. She teamed up with Dr John Ireland and Dr John Paton to develop a prototype insulin pen, which would inject insulin with the push of a button. But to prove its effectiveness, they needed more pens, and to test them in a large trial.

They turned to us to help.

We funded 100 prototype pens, 5,000 insulin cartridges and supported a trial to get feedback from people with diabetes on the device. By 1983, the world's first insulin pen – Penject – became available.

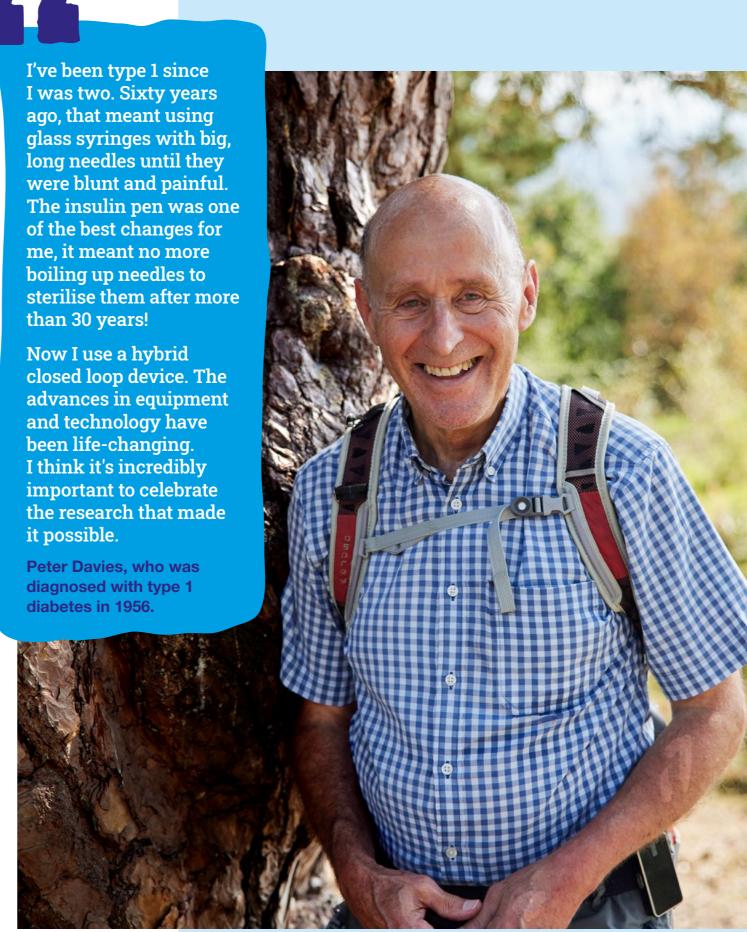
It has since inspired new and improved insulin pens, making life easier for the millions of people who take insulin.

And we haven't stopped since. We backed innovative ideas – like the artificial pancreas – pushing the boundaries of insulin treatment even further.

Today, our research is ensuring these advances benefit even more people. Professor May Ng is leading vital research to find and address unfair inequalities that exist in access to diabetes technology, so everyone can get the tools they need to live well with diabetes.







WE MADE CHECKING BLOOD SUGARS SIMPLER

A urine test and a science experiment! That's what checking blood sugar levels involved 50 years ago. Now it takes a few seconds and can be done anywhere.

In the 1980s, we supported Professor Anthony Turner to take blood sugar testing technology available in the lab into people's pockets.

"My Diabetes UK funding allowed me to establish a world-leading team and drive the entire field forward," explains Professor Turner.

THE CHALLENGE

Checking blood sugar levels in urine was complicated and not always accurate.



OUR RESEARCH

Developed the first electrochemical handheld blood glucose meter.



A quick, simple and more accurate way to check blood sugars on the move.



NOW AND NEXT

Backing next-generation tech to see sugar levels minuteby-minute.

By 1987, his work with colleagues led to the launch of the world's first handheld electrochemical blood glucose meter, using new technology.

It changed how people with diabetes manage their condition, meaning people could see their blood sugar levels in a few seconds, anywhere, anytime.

The next steps

Our research continues to drive forward innovations in diabetes technology. In 2018, we funded the world's first clinical trial of flash glucose monitoring. Using a sensor attached to the skin, this technology lets people see what their sugar levels are doing minute-byminute and alerts them when they're too high or low. All without having to prick their fingers.

The results confirmed that Flash radically improves blood sugar levels and quality of life for people living with type 1 diabetes.

New NHS guidance soon followed, recommending Flash or other continuous glucose monitors, also known as CGM, for everyone with type 1 and some people with type 2 diabetes.





In 2023
0 / 0
of people with





in the UK
were using
next-generation
blood sugar
monitoring
technology.



WE'RE HELPING PEOPLE MANAGE THEIR TYPE 1

Life with type 1 diabetes is complicated. Too much insulin means low blood sugar levels and hypos. Too little means high blood sugar levels and hypers.



THE CHALLENGE

Living with diabetes day-in, dayout is difficult and demanding.



OUR RESEARCH

Developed diabetes education courses.



ITS IMPACT

People build the skills and confidence to live well with diabetes.



NOW AND NEXT

Researching ways to improve emotional and psychological support.



By 2023, almost
60,000 PEOPLE
with type 1 diabetes
had completed a
DAFNE course.

With most people living with type 1 diabetes usually seeing a healthcare professional only once or twice a year, the full-time job of thinking like a pancreas falls to them or the person caring for them.

Researchers Dr Sue Roberts and Professors Simon Heller and Stephanie Amiel knew how important it was to give people with type 1 diabetes the tools to self-manage their condition.

In 2000, with our funding, they developed and tested a life-changing education course, Dose Adjustment for Normal Eating, known as DAFNE.

DAFNE helps people learn to adjust their insulin doses depending on what they eat, their activity level, illness and the many other factors that can affect blood sugars.

The first trial showed DAFNE reduced average blood sugar (HbA1c) levels by 10mmol/mol (1%), and people who went on the course had fewer and less serious hypos. People also said DAFNE helped them feel less anxious and stressed managing their diabetes, which helped improve their quality of life.

With such positive results, we successfully campaigned for DAFNE to be delivered nationwide. Education courses have since been developed for people living with type 2 diabetes, and everyone in the UK with diabetes should be offered the chance to attend a course.



But we know living with the relentlessness of diabetes isn't just about managing physical health, so we're also funding research to help people manage their psychological wellbeing, including:

- Developing an education programme addressing the emotional and social issues affecting young people with type 1 diabetes.
- Understanding and preventing diabetes stigma.
- Exploring ways to help people with diabetes and disordered eating.



DESMOND-ID

In 2012 we supported
Dr Lawrence Taggart to develop
a programme tailored for people
living with learning disability
and type 2 diabetes and their
carers, called DESMOND-ID.
The programme is now being
tested in a large clinical trial.
If the outcomes are positive,
it could become standard care
across the UK.



WE'RE MAKING THE ARTIFICIAL PANCREAS A REALITY

Having type 1 diabetes means having to think like a pancreas 24/7. Working out the amount of insulin you need depending on what you eat, what you're doing and how you're feeling. It's a constant juggling act every minute of every day.



THE CHALLENGE

Managing type 1 diabetes is a relentless juggling act.



OUR RESEARCH

Pioneered the first artificial pancreas and invested in decades of research to improve it.



ITS IMPACT

Reduced the burden of managing diabetes and improved blood sugar levels.



NOW AND NEXT

Next generation insulins to take the artificial pancreas up a gear. The idea of creating an artificial pancreas has existed since the 1960s, and we've been pioneering research into this technology since the beginning.

In 1977, we funded the UK's first artificial pancreas. Professor Sir George Alberti used the technology to manage blood sugar levels in people with type 1 diabetes during surgery and childbirth.

A year later, we funded his team to test the first insulin pump. His research showed it helped people with type 1 to improve their blood sugar levels and led to the first pumps becoming available in 1985.

Now tens of thousands of people use insulin pumps to manage their diabetes.

But it doesn't stop there.

In 2007, we backed a trial by Professor Roman Hovorka to test the impact of people using the artificial pancreas – also known as a hybrid closed loop – in their everyday lives. Those taking part spent 14% more time with their blood sugar levels in target range,



proving the technology could transform the management of type 1 for the better.

And we supported a decade of world-first studies to develop and test the technology for pregnancy, led by Professor Helen Murphy. The research showed the artificial pancreas was safe and could help pregnant women with type 1 diabetes better manage their blood sugar levels throughout pregnancy, resulting in safer births and healthy babies.

In 2023, thanks to our research, the NHS published new guidelines recommending thousands of people with type 1 diabetes should have access to this technology.

Now we want people with type 2 to benefit from this technology too. That's why we funded Professor Hovorka's trial in 2018, which showed it could help people with type 2 in hospital spend 25% more time with blood sugars in target range.

To get us closer to a day where no-one living with diabetes must think like their pancreas, the Type 1 Diabetes Grand Challenge is focusing on next-generation insulins. Insulins that respond more quickly to rising blood sugars after a meal and bring us closer to a true fully closed loop artificial pancreas.

In 2023, the NHS published new guidelines recommending thousands of people with type 1 diabetes should have access to this technology.





WE'RE GETTING PEOPLE THE RIGHT DIAGNOSIS

It's not always easy to identify which type of diabetes someone has. But misdiagnosis can lead to the wrong treatments and poorer outcomes. So, getting it right is critical.





OUR RESEARCH

Discovered how to identify the different types of diabetes.



ITS IMPACT

More people get the right diabetes diagnosis and appropriate care.



NOW AND NEXT

Developing diagnosis 'calculators' to make diagnoses even more accurate.

In the 1990s, little was known about rare forms of diabetes caused by mutations in a single gene. These are known as monogenic diabetes. Too often, people were misdiagnosed with the more common type 1 or type 2 diabetes.

In 1995, we supported the first research projects in the then-new Exeter Genetics Lab. This led to the discovery of the genetic basis of different types of monogenic diabetes, as well as how to test and treat these conditions.

A key discovery found certain forms of monogenic diabetes didn't need to be treated with insulin, meaning people could stop insulin injections and have much safer blood sugar levels.

Today this lab is a world-class genetic testing facility helping thousands of people with rare forms of diabetes get the right diagnosis and treatment.

In 2021, genetic testing for monogenic diabetes became available on the NHS.



It was like a living hell before Jack got the right diagnosis. We were constantly monitoring him 24 hours a day – we didn't sleep. Within just a few weeks of switching treatment, it became obvious that Jack's blood sugar levels were really stable. He stopped collapsing and he suddenly started smiling and laughing. If it wasn't for Diabetes UK and those incredible researchers, I'm sure that Jack wouldn't be here. For us, it really was a miracle.

Emma, whose son Jack has diabetes caused by a mistake in a single gene.



Telling the difference between more common types of diabetes, like type 1 and type 2, can also be difficult, especially in older adults. But our research has been key here too. We helped Exeter researchers develop a cheaper, more accurate way to measure C-peptide – a molecule our body makes when it produces insulin. By measuring it, we can tell how much insulin someone's pancreas is making. People with type 1 have very low C-peptide levels, whereas people with type 2 have higher levels. These tests are now available in nearly every hospital in the UK. And our research has shown how C-peptide testing is helping prevent misdiagnosis. Today, we're funding research to develop more accurate diagnosis 'calculators'. These combine biological and health information to predict which type of diabetes someone has, helping doctors make the correct diagnosis right from the start. Our discoveries and work to train thousands of healthcare professionals has helped ensure people with monogenic diabetes are correctly identified and treated. It's so rewarding to see the progress in recognition and awareness of monogenic diabetes over the past 25+ years and to see the real benefit this has for patients and their families.

Professor Maggie Shepherd (left), University of Exeter, winner of the 2023 Aster Guardians Global Nursing Award

for her transformative work in monogenic diabetes.



Every week, diabetes leads to more than 184 amputations, 770 strokes, 590 heart attacks and 2,300 cases of heart failure.

And sadly, too many cases lead to premature death.

So, we're committed to funding research that will reduce and prevent the risk of complications for everyone living with diabetes.

AVOIDING DIABETES COMPLICATIONS

AT A GLANCE

AVOIDING COMPLICATIONS

What we've made happen

Pioneered eye screening



Showed managing

of heart attacks and strokes for millions living with diabetes.

Set up the UK's first diabetes foot clinic and AMPUTATIONS.

Now and next

to stop complications.

for all people with diabetes.



Innovations to better predict who's most at risk of and to

CATCH COMPLICATIONS EARLIER.

TAILORED CARE

to help those most at risk avoid complications.

WE'VE IMPROVED CARE AND LOWERED THE RISK OF COMPLICATIONS

A 20-year study we supported showed that keeping blood sugar and blood pressure levels within a target range was key to managing diabetes and avoiding complications.



THE CHALLENGE

Too many people develop preventable diabetes complications.



OUR RESEARCH

Discovered for the first time that managing blood sugar levels and blood pressure slashes the risk of complications.

ITS IMPACT



Transformed the care people with diabetes receive to reduce their risk of complications, meaning more people can live longer, healthier lives.



NOW AND NEXT

Driving forward new discoveries in care to help reduce complications.

Today we take this knowledge for granted. But it wasn't until 1998, when the results from a landmark clinical trial, the UK Prospective Diabetes Study (UKPDS), were shared that diabetes care changed for good.

The results were groundbreaking – showing that keeping blood sugar and blood pressure levels within a target range could dramatically reduce the risk of kidney disease, heart attacks and premature death in people with type 2 diabetes. Another study showed the same was true for people with type 1 diabetes.

Today our researchers are still searching for discoveries to improve diabetes care and guidelines.

Like Dr Claire Meek – she's investigating if new dietary advice for pregnant women with gestational diabetes can reduce complications during pregnancy and birth. And in the long run, reduce the risk of type 2 diabetes for mothers and their babies.

Or Professor Naveed Sattar, who has been exploring how the coronavirus pandemic affected people's risk of developing diabetes-related complications. This will help us work out what needs to be done to improve diabetes care and minimise these risks.







By identifying where there are unfair differences in diabetes care and understanding how to address these, we can begin to tackle the unacceptable health inequalities that exist for people from ethnic minority backgrounds and those experiencing poverty.

For example, we're funding Dr Sophie Eastwood to research which type 2 diabetes medications work best for South Asian and Black people and explore disparities in access. In 2021, she found people of South Asian and African or African Caribbean ethnicity with type 2 are less likely to be prescribed potentially life-saving statins than White people.



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THROUGH RESEARCH INTO BETTER CARE

WE'RE TACKLING SIGHT LOSS

Diabetes was once the leading cause of sight loss among working-age people in the UK. Thanks to research we funded, it isn't any more.

Professor Roy Taylor was shocked by the level of sight loss in people with diabetes in Newcastle – especially in young people. So, with our funding, he pioneered the use of a new type of retinal camera.



THE CHALLENGE

Diabetes was the leading cause of sight loss in the UK.



OUR RESEARCH

Developed a better way to screen for early signs of eye damage.



ITS IMPACT

Led to a nationwide eye screening programme and reduced sight loss.



NOW AND NEXT

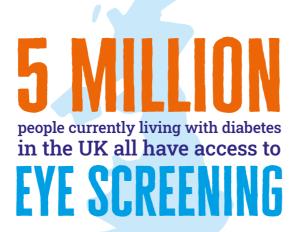
Supporting cutting-edge ideas to find new and improved treatments to stop eye damage.

Set up in the back of a second-hand ambulance, he visited diabetes clinics around Newcastle to detect sight-threatening diabetic eye disease, known as retinopathy. He hoped catching this early could prevent sight loss.

It proved more practical and effective than existing screening methods. So, we helped him expand his fleet of mobile screening units across the UK to show it worked on a bigger scale.

His success led us to campaign for a national eye screening programme for people with diabetes, which was rolled out in 2002.

Now the 5 million people currently living with diabetes in the UK all have access to eye screening.





We've got more in our sights

Our researchers are working tirelessly to make sure sight loss is a diabetes complication of the past.

Take Dr Paul Neditru who's exploring how artificial intelligence can be used to predict who is at high risk of retinopathy and how quickly it will get worse, so people can get the right care earlier on.

But improved screening can only take us so far, and there's still an urgent need for treatments to prevent or reverse the damage.

That's why we're funding scientists - like Dr Judith Lecher – to test cutting-edge new ideas in the lab. She's investigating if a protein can be used to repair and protect damaged cells in the eye, to slow the progress of retinopathy in its earliest stages.

We campaigned for a national

EYE SCREENING **PROGRAMME**

for people with diabetes which was rolled out in

2002



HLA

When I was appointed as a consultant in 1985. I was caring for two women under the age of 21 who were blind due to diabetes. There were four other young people in our clinic similarly affected.

Something had to be done to help us catch and treat retinopathy early. With the support of Diabetes UK, easier, more effective screening methods allowed us to do just that and prevent loss of sight. We subsequently showed that in the following 16 years no-one under the age of 35 lost their sight due to diabetes in the Newcastle District. We're now seeing the impact of this work on the lives of people with diabetes across the world.

Professor Roy Taylor, Newcastle University, who pioneered diabetes eye screening.



WE'RE STOPPING HEART ATTACKS AND STROKES

One in four people admitted to hospital with a heart attack, heart failure, or a stroke has diabetes.



THE CHALLENGE

Heart disease and strokes are a major cause of premature death in people with diabetes.



OUR RESEARCH

Discovered a cholesterol lowering drug, called statins, can drive down the risk of heart problems and stroke.



ITS IMPACT

Statins are used worldwide to prevent heart attacks and strokes in people with diabetes.



NUW AND NEXT

Reducing heart disease in people most at risk and harnessing data to better understand its link to diabetes. In a trial that changed diabetes care all over the world, our researchers discovered the power of a single drug to prevent heart problems.

In 2003, we funded the Collaborative Atorvastatin Diabetes Study, known as CARDS. Almost 3,000 people with type 2 diabetes took part to help us discover whether statins – a cholesterol-lowering drug – reduced their risk of experiencing a heart attack or stroke.

The research showed one statin a day reduced:

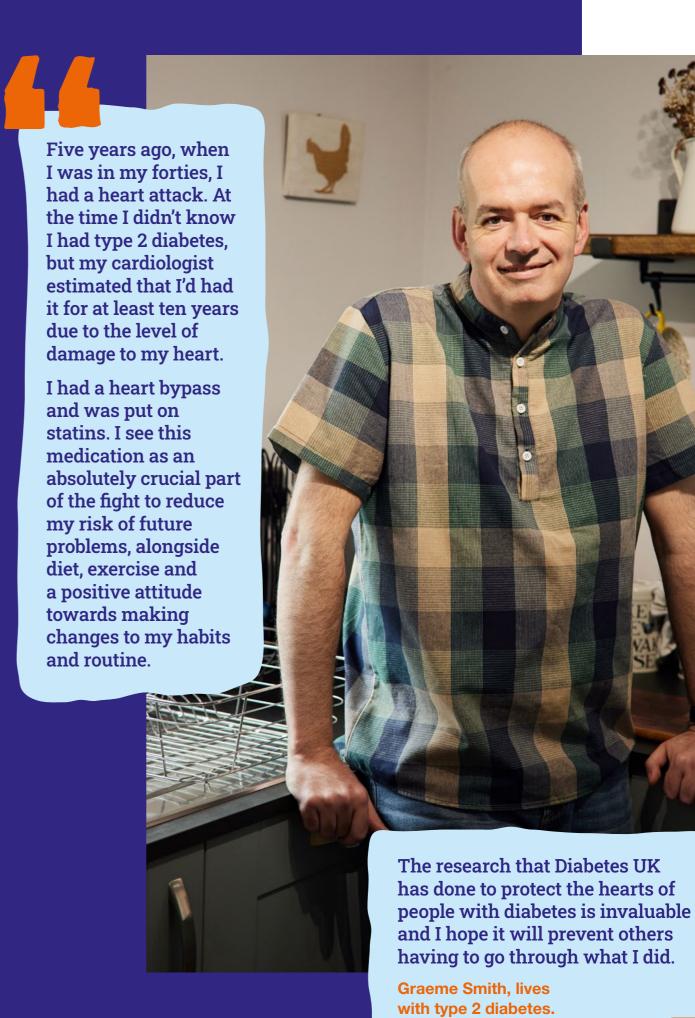
- the risk of a serious heart problem by more than a third
- the risk of stroke by almost half.

The results were so clear, the study ended two years early so everyone on the trial could benefit from the drug.

And CARDS has completely changed the way statins are used across the world.

Now we're exploring how we can reduce the risk even further

CARDS proved that investing in landmark research can bring about live-saving improvements in diabetes care. But too many people still experience diabetes-related complications, and we know that certain groups of people face an even greater risk.



We want everyone with diabetes to live a long, healthy life, an ambition that is shared by the National Institute for Health and Care Research (NIHR). Together we're funding a £2 million project led by Professor Kamlesh Khunti to develop a new healthcare package called MiFoot.

MiFoot aims to find the best way to prevent heart attacks, stroke and early death in people with type 2 diabetes and a history of foot ulcers. If effective, it will be rolled out through the NHS, helping to save more lives.

In 2022, we launched a new initiative with Health Data Research UK and the British Heart Foundation. The Diabetes Data Science Catalyst aims to make huge strides in our understanding of the link between cardiovascular diseases and diabetes. It will help researchers understand, access and connect the UK's unique collection of health databases to make discoveries that could improve the care of people with diabetes and save lives.

ONE STATIN A DAY

reduced the risk of a serious

HEART by more than a PROBLEM 1/3



WE'RE PREVENTING AMPUTATIONS

People with diabetes are over 20 times more likely to experience an amputation than the rest of the population.



THE CHALLENGE

People with diabetes are at higher risk of developing foot problems.



OUR RESEARCH

Set up the UK's first diabetes foot clinic



ITS IMPACT

Access to specialised and urgent foot care has massively reduced diabetes-related amountations.



NOW AND NEXT

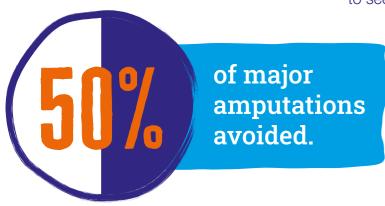
Testing new innovations and treatments to prevent foot ulcers and reverse nerve damage.

Diabetes causes more than 180 amputations in the UK every week. Many are preventable with the right care. We've been at the forefront of research to improve foot care for people with diabetes.

In 1981, we helped King's College Hospital set up the UK's first diabetes foot clinic. Bringing together the skills of podiatrists, orthotists, nurses, doctors and surgeons, to offer specialised and urgent care to people with diabetes and foot problems for the first time. Within three years, the number of major amputations halved.

And we've carried on backing fresh thinking in our search for better ways to prevent and treat foot problems.

With our funding, in 2018, Professor Neil Reeves showed that a 'smart' shoe insole system that raises an alarm if pressure to the feet reaches dangerous levels, can help prevent foot ulcers caused by diabetes by 70%. He's now building the evidence needed to see this technology rolled out on the NHS.

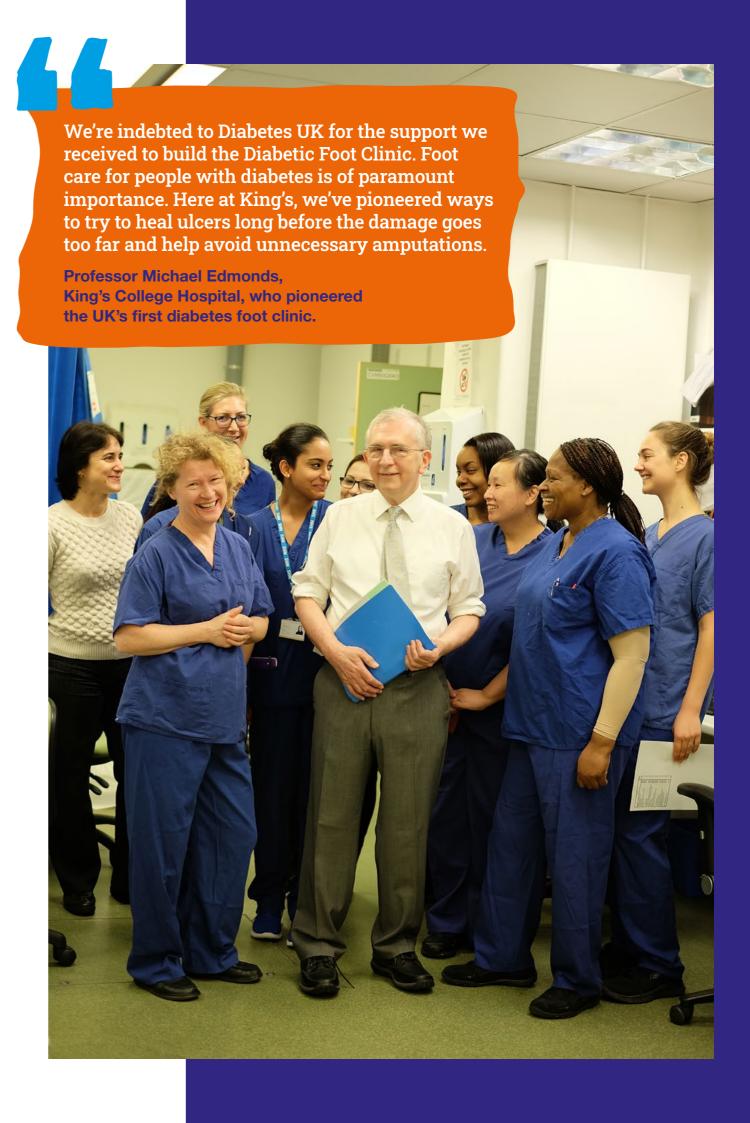






In 2022, Professor Praveen Anand's research revealed that capsaicin – the molecule that gives chillis their fiery kick – can reduce foot pain and help reverse nerve damage. Something no other treatment can currently do.







We're doing all we can to stop diabetes in its tracks.

We're working towards a cure for type 1 diabetes by finding new ways to counter the immune system's attack and replace the insulin-making cells that have been destroyed.

We're researching new ways to help people put type 2 into remission and stay there.

And we're discovering more about the mix of factors responsible for type 2 diabetes so we can detect the people most at risk, prevent it, and develop new treatments that target the root cause.

ENDING DIABETES

AT A GLANCE

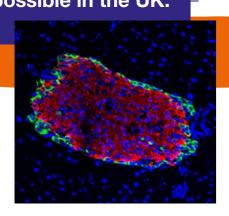
ENDING DIABETES

Finding new ways to help more people go into remission from

TYPE 2 DIABETES

What we've made happen

Made
| SLET CELL
| TRANSPLANTS
| possible in the UK.



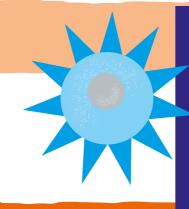
Made the UK a type 1 diabetes

IMMUNOTHERAPY RESEARCH SUPERPOWER.

Now and next

New personalised treatments that TARGET THE DRIVERS of type 2 diabetes.





NEW TYPE 1 TREATMENTS

to protect the pancreas from an immune attack and to replace insulinmaking beta cells that have been destroyed.



causing type 2 diabetes.





NEW SCREENING PROGRAMME

to find people at risk of type 1 diabetes.



Better ways to prevent type 2 diabetes in

CHILDREN AND Young People.

WE'RE GETTING CLOSER TO A CURE FOR TYPE 1

To find a cure for people with type 1 diabetes, we need to find a way to help people produce their own insulin.



THE CHALLENGE

Finding a cure for type 1 diabetes.



OUR RESEARCH

Pioneering work to transplant donor beta cells.



ITS IMPACT

Some people with type 1 diabetes can make their own insulin again for a time.



NOW AND NEXT

Growing new beta cells in the lab and looking at ways to rescue people's own beta cells.

In 2008, islet transplants became available on the NHS.

One solution is islet cell transplants. So, we've invested around £2.2 million in the last 10 years.

In 1989, Diabetes UK scientists, led by Dr Roger James and Dr Stephen Lake, developed a way to collect islets for transplant. Their method is still regarded as the gold standard today.

Soon after, we launched the UK Islet Transplant Consortium to bring together leading researchers to make sure islet transplants are available to those who could benefit the most.

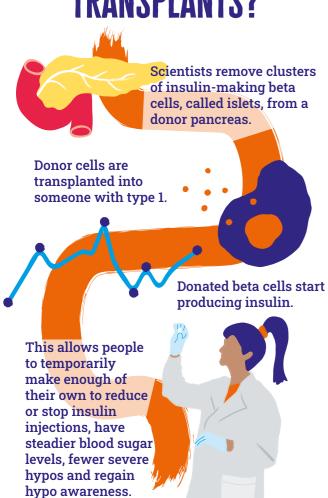
In 2005, we then funded teams at King's College London, the Royal Free Hospital and Oxford to carry out the UK's first 12 islet transplants.

Our research then established that islets could successfully be moved around the UK, to reach those who needed them. Thanks to this, by 2008, islet transplants became available on the NHS to people with type 1 with no hypo awareness and who experience severe hypos.

In 2021, our research showed islet transplants are more effective if people receive two transplants over a short period - changing how islet cell transplants are performed in the UK.







Banking more beta cells

Donor islets are scarce, which limits the number of people with type 1 diabetes who can benefit. That's why we're also investing in research to grow new beta cells in the lab.

This would give us a steady supply of cells so in the future, everyone with type 1 diabetes can benefit from transplants.

Thanks to the Type 1 Diabetes Grand Challenge, we're making major investments in research to radically improve how beta cells are grown in the lab and fast-track progress towards rescuing people's own beta cells.



since 2012. I was so keen to get involved in the field because I could see the enormous potential. Hearing from people we've treated, like Rachel, and how profoundly it can help them and transform their and their family's lives, is just incredible.

Professor Shareen Forbes, University of Edinburgh, lead physician for Scotland's islet transplant programme.

THE TYPE 1 DIABETES GRAND CHALLENGE

Launched in 2022, thanks to an incredible £50 million donation from the Steve Morgan Foundation, the Type 1 Diabetes Grand Challenge sits at the centre of our work to cure type 1 diabetes.

WHAT?

A partnership between Diabetes UK, JDRF and the Steve Morgan Foundation to invest £50 million into game-changing type 1 diabetes research.

WHY?

The goal is to develop new type 1 diabetes treatments and speed up our search for a cure that will change millions of lives worldwide.

HOW?

By bringing the world's best scientists together and stimulating innovative and ambitious research on a greater scale than ever before. This wouldn't be possible without the Steve Morgan Foundation's unparalleled £50 million gift.

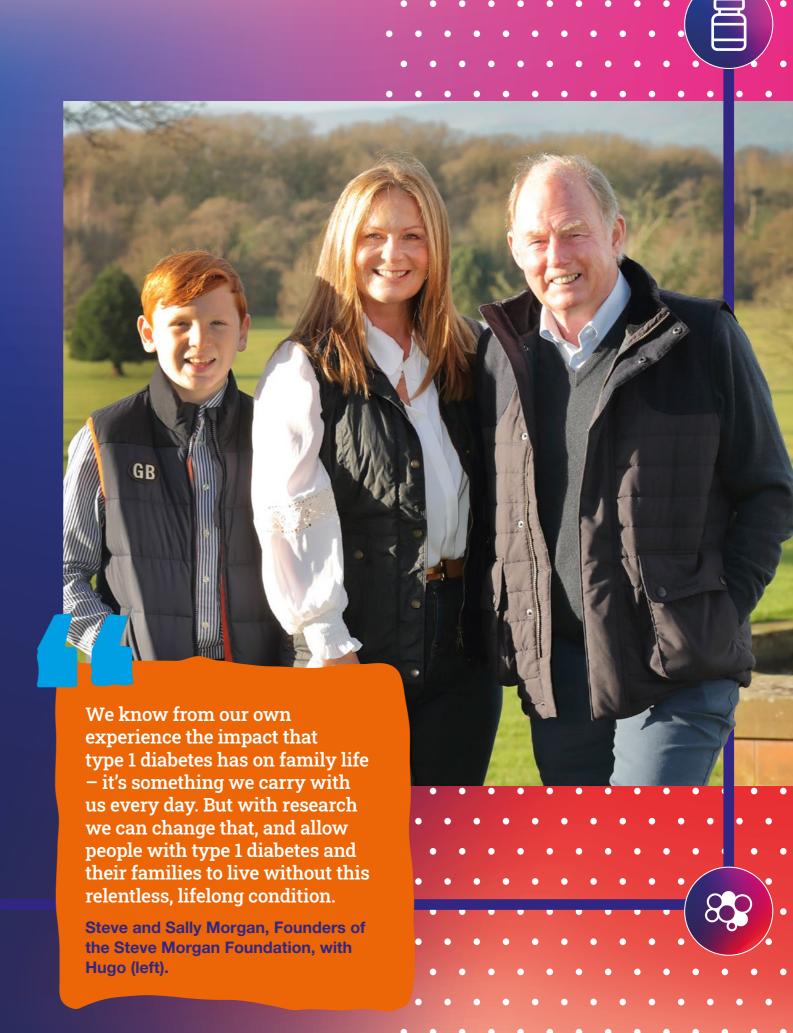
WHERE?

The funds are being invested in three research areas that hold the most promise to transform the lives of people with type 1 diabetes.

- Treatments that deal with the root causes of type 1.
- Treatments to replace or rescue insulin-making beta cells.
- Next generation quicker and smarter insulins.







WE'RE PUTTING TYPE 2 DIABETES INTO REMISSION

A type 2 diabetes diagnosis once meant the start of a lifelong journey of learning to live with a serious condition, but our research changed what's possible.



THE CHALLENGE

Turning back the clock on a type 2 diabetes diagnosis.



OUR RESEARCH

Showed that it's possible for some people to put their type 2 diabetes into remission.



ITS IMPACT

More people can look forward to a life free from type 2 diabetes.



NUW AND NEXT

Testing other approaches to remission so more people with type 2 can get there and stay there.

Our remission research journey started in 2008, when we funded a study led by Professor Roy Taylor to test if a low-calorie diet could help people living with overweight or obesity put their type 2 diabetes into remission.

WHAT IS TYPE 2 DIABETES REMISSION

Remission in people with type 2 diabetes means that their blood sugar levels are below the diabetes range for at least three months without needing to take any glucose-lowering medications.

Elsewhere, Professor Mike Lean began researching the benefits of a low-calorie diet programme that could be delivered in a GP setting to help people lose weight and keep it off.

After exciting results, we asked Professors Lean and Taylor to team up to design a weight management programme to help people with type 2 diabetes go into remission and stay there. We awarded them our biggest-ever research grant – over £3 million – to test the



effectiveness of their programme in a large clinical trial, called the DiRECT study.

The first results, in 2017, sent waves of excitement through diabetes and scientific communities. Almost half – 46% – of people with type 2 who received the low-calorie weight loss programme were in remission one year later.

Results in 2023 showed that some people had stayed in remission for at least five years.

Professors Taylor and Lean found the key to remission was weight loss to reduce fat inside the liver and pancreas. This allows the organs to work as they should again to control blood sugar levels.

This led to us funding Professor Taylor's ReTUNE study, which showed a low-calorie weight loss programme could also help some people with type 2 and lower body weights lose pancreas and liver fat and go into remission.

Another study by Professor Lean focusing on South Asian people showed that weight loss to reduce liver fat was also key to putting their type 2 diabetes into remission.

Years of groundbreaking work came to a head in 2023 when NHS England announced it would roll out its DiRECT-inspired Type 2 Diabetes Path to Remission Programme across England. Giving thousands of people living with overweight or obesity and a diagnosis of type 2 diabetes the chance to put their type 2 into remission. Similar programmes are also available in Wales, Scotland and Northern Ireland.

In 2023, the NHS's Type 2 Diabetes Path to Remission programme was rolled out across England.

Finding more routes into remission

We know that a DiRECT style approach to remission isn't suitable or doesn't work for everyone with type 2 diabetes though. So, we're investing in research to find other ways to go into remission, giving more people the best chance to benefit.

This includes our NewDAWN study. Led by Professor Susan Jebb, the research team is developing a new NHS support service that will offer a range of weight loss diets. We hope it will help everyone who could benefit find an approach that suits them.

We're also working to make sure people with type 2 who aren't taking part in research or remission programmes are supported on their remission journey and have access to all the information they need.

> With the number of children and young people with type 2 diabetes rising in the UK, we urgently need to find treatments that could offer them the chance of remission too. So, we're funding Dr Pooja Sachdev to lead the first study exploring if a low-calorie weight management programme is the right approach for teenagers with type 2.



WE'RE TACKLING THE ROOT CAUSES OF TYPE 1

Type 1 diabetes happens when the immune system attacks insulin-making cells meaning the pancreas can't produce the insulin we all need to live.

In 1979, Diabetes UK scientists, led by Professor Gianfranco Bottazzo, found evidence that preventing this immune system attack could stop type 1 diabetes.



THE CHALLENGE

Stopping the immune system attack that causes type 1 diabetes.



OUR RESEARCH

Set up a network of scientists and research centres to find effective immunotherapies for type 1.



ITS IMPACT

Paved the way for immunotherapy treatments that could change the future of type 1 diabetes forever.





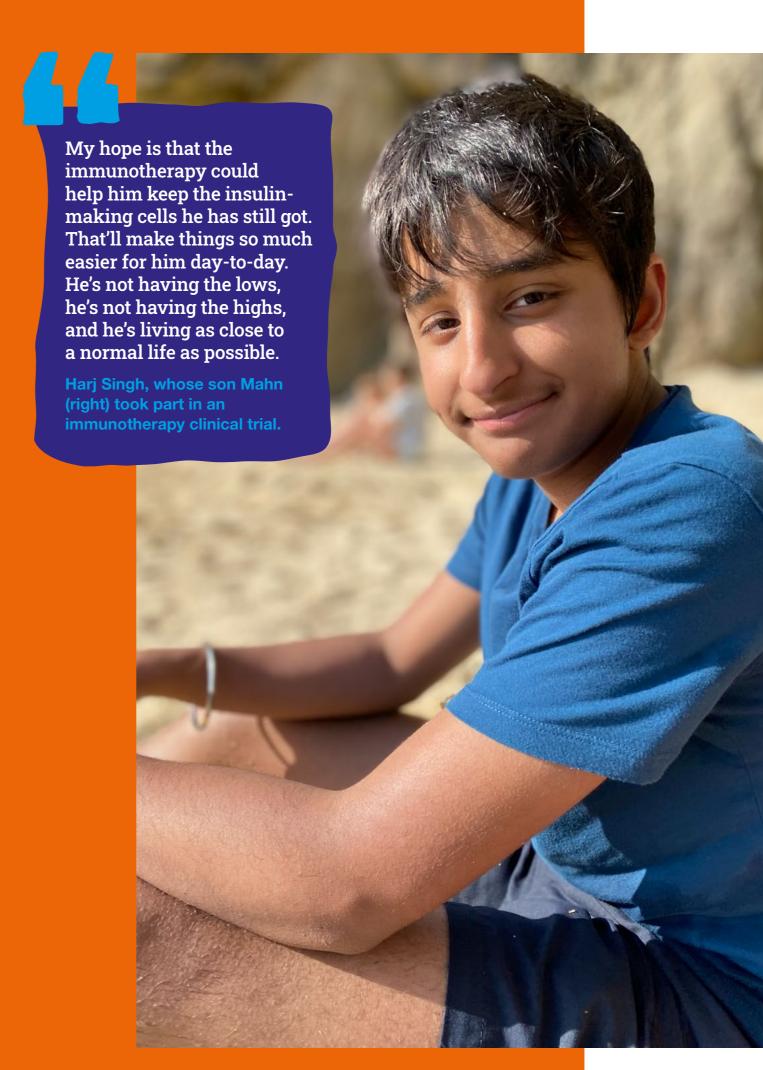
Find more immunotherapies that work for more people and understand if early screening could help us eradicate type 1 diabetes for good.

The discovery sparked work on the first treatments, known as immunotherapies, that aim to re-educate the immune system and stop it destroying insulin-making beta cells.

We're working towards a future where immunotherapies will be used to protect the pancreas from an immune attack. Preventing type 1 from developing in people at high risk, slowing the progress of type 1 in newly diagnosed people so they can make their own insulin for longer, and one day, forming part of a cure.

So that more people with or at risk of type 1 diabetes can access immunotherapies quicker, we invested £3.1 million to set up the Type 1 Diabetes Immunotherapy Consortium in partnership with JDRF in 2015. The consortium has:

- Set up 27 specialist research centres and expert teams across the UK to test immunotherapies in clinical trials.
- Increased how many people with type 1 can take part in clinical trials five-fold, so more trials can happen more quickly.
- Investigated how immunotherapy treatments work and who they work best for to match the right people to the right trial.



Professor Colin Dayan, co-lead of the Immunotherapy Consortium explained, "We've changed the landscape in the UK into one where we can run many more trials and recruit to them quickly. We couldn't do this before. I think this will open the floodgates to finding more drugs that work, and we'll see things take off."

Screening to stop type 1 diabetes in its tracks

To get type 1 immunotherapies to the right people, we need a way of finding those who are at risk of developing type 1 in the future.

A MILESTONE MOMENT

In 2022, the world's first type 1 immunotherapy drug, teplizumab, was approved in the US.

It can delay the onset of type 1 diabetes in people at high risk of the condition.

Now we're working with the NHS to see it approved for use in the UK and funding research into other promising immunotherapies.

In 2022, with JDRF we launched a UK-first type 1 screening trial, known as ELSA.

It's screening 20,000 children for signs in the blood that show the immune system is primed to attack the pancreas.

It will help us learn more about how a type 1 diabetes screening programme for children in the UK could work. And could lay the groundwork for routine, widespread screening moving us one step closer to preventing type 1 diabetes entirely.

In 2022, with JDRF we launched a UK-first type 1 screening trial, known as ELSA.





WE'RE LEARNING MORE ABOUT TYPE 2 DIABETES AND HOW TO PREVENT IT

Type 2 diabetes is a complex condition, and the chances of developing it depend on a mix of risk factors.



THE CHALLENGE

Type 2 diabetes is caused by a complex mix of multiple risk factors.



OUR RESEARCH

Built a picture of the genetics that underpin type 2.



ITS IMPACT

Helped us understand why some people are more likely to develop type 2.

NOW AND NEXT



Discovering more about the biological and environmental factors that drive type 2 to inform personalised treatments and prevention.

Learning more about these factors is key to working out how to prevent and cure type 2 diabetes. Our scientists have been pivotal in building this knowledge.

Professor Sir Stephen O'Rahilly made some of the first discoveries about the genetics of type 2 diabetes in the 1980s, thanks to funding we gave him at the start of his career.

Since then, we've supported him to set up his own lab, establish the Institute of Metabolic Science at the University of Cambridge and become known worldwide for his discoveries.

In 1996, we boosted efforts to find the genetic causes of type 2 by setting up the type 2 diabetes Warren Collection.

This collection of biological samples from 2,000 family members of people with type 2 diabetes has become the foundation of genetic studies into type 2. Studies using the collection have revealed hundreds of genes linked to type 2 to help pinpoint why some of us are more likely to develop the condition.



But there's much more to learn about how genetic, biological and environmental factors contribute to the development of type 2 diabetes. And today, our researchers are working to uncover more.

Like Dr Hanieh Yaghootkar, who is investigating how our genes influence where we store internal fat. In 2023, she found combinations of genes linked to higher levels of liver fat, helping us understand why some people with overweight or obesity develop type 2 diabetes and others don't.

Or Professor Martin Rutter, who showed insomnia may cause high blood sugar levels and increase the risk of developing type 2 diabetes.

And Professor Marc-Emmanuel Dumas who's finding out how the bacteria living in our gut could have a hand in the development of type 2 diabetes.

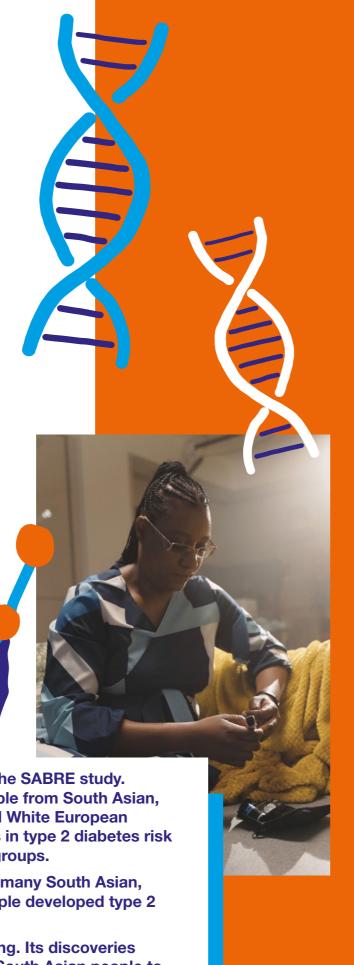
Together, these insights could unlock better ways to screen people's risk, and find new treatments to better manage type 2 or prevent it altogether.

ETHNICITY AND TYPE 2 RISK

In 1988, we provided early support for the SABRE study. It followed the health of over 4,000 people from South Asian, Black African or African Caribbean, and White European backgrounds to understand differences in type 2 diabetes risk and its drivers between certain ethnic groups.

The study revealed that by 80, twice as many South Asian, Black African or African Caribbean people developed type 2 diabetes compared to White people.

Over 30 years later, SABRE is still running. Its discoveries helped to push the need for Black and South Asian people to be screened for type 2 diabetes earlier than people from other ethnicities. This will help ensure they can be diagnosed sooner and get support to reduce their risk and prevent type 2 diabetes.

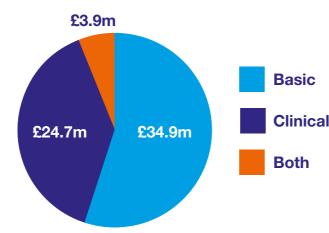




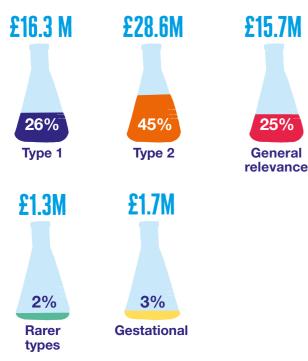
OUR SUPPORT IN NUMBERS OVER THE LAST 10 YEARS



We fund basic research to build knowledge of diabetes. While clinical research with people helps inform decisions about how to prevent, treat and cure diabetes.

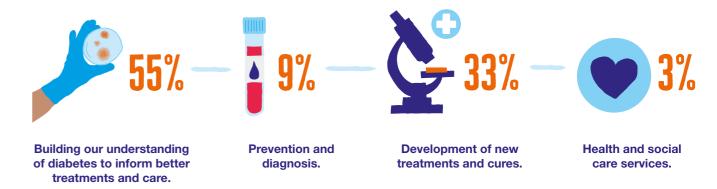


We fund research into all types of diabetes and its complications.

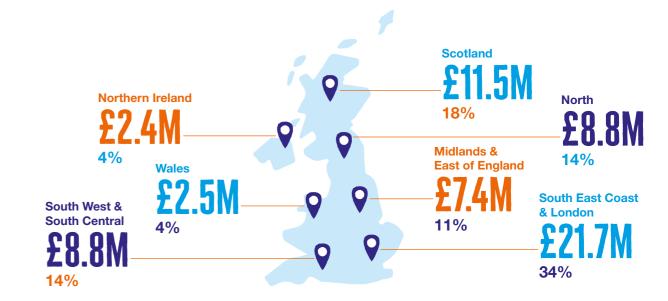


which have been used to inform other research studies over

We fund research to inform all aspects of diabetes.



We've funded research at 56 different universities and institutions across the UK.



We've invested £18.8 million in people, including...

fellowships to help lab-based scientists become diabetes research leaders.

fellowships to help doctors to flourish in their research careers.



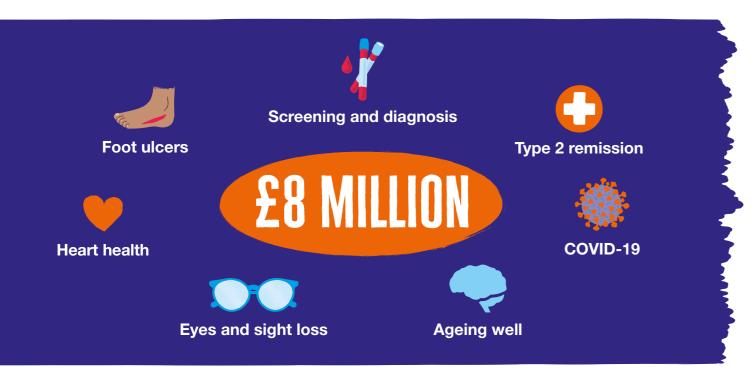
PhD students to help people take their first steps into diabetes research.



WORKING IN PARTNERSHIP

We partner with other funders to maximise investment into diabetes research.

Over the last 10 years, we've brought in an additional £8 million into diabetes research through partnerships on topics including...



... and £50 million from the Steve Morgan Foundation for game-changing research through the Type 1 Diabetes Grand Challenge.





OUR RECENT AND CURRENT PARTNERS























Pharmacy Research UK







PUTTING PEOPLE AFFECTED BY DIABETES AT THE HEART OF RESEARCH

Diabetes research can't happen without the help of people living with the condition. We put people affected by diabetes at the centre of every stage of our research to make sure each project we fund addresses the issues that matter most to them.

Involving people affected by diabetes in our research and listening to their experiences and concerns has led us to increase our activities in vital areas, such as:

- Tackling diabetes stigma.
- Preventing and treating early onset type 2 diabetes.
- Developing new approaches to putting type 2 diabetes into remission.
- Understanding how to help people age well with their diabetes.
- Preventing diabetes distress and mental health issues.
- Slowing progression of diabetes complications.
- Addressing unfair gaps in children and young people's access to diabetes tech.
- Preventing sight loss.
- Improving care for people with diabetes and eating disorders.
- Fast-tracking new treatments and cures for type 1 diabetes.

And we work hard to encourage researchers and other funders to focus on the priorities of people affected by diabetes too.



So for me it's very emotional to be part of the process of making sure researchers and policymakers are really hearing what people affected by diabetes are facing. It's about being part of a conversation, engagement, and making sure that researchers actually hear what's happening on the ground level and the experiences of friends, family and the wider community.

Parveen Khan, Expert by Experience, member of our Diabetes Research Steering Group.

By helping us pinpoint areas where more research needs to happen to improve their lives. By taking part By helping us decide in research. which research projects to fund. By advising research teams on the design How people affected and delivery of their projects. by diabetes shape our research



LOOKING AHEAD

Diabetes doesn't stop. So, neither will we.

We've transformed tech. We've reshaped care. We've saved lives. But we've still got a long way to go. We want to change more lives through research and to step even closer to a world where diabetes can do no harm.

We know there are areas of research that hold so much promise, and game-changing treatments are within touching distance. But there are gaps in research too. Areas where people living with diabetes are telling us not enough is being done to improve what matters most to them.

That's why we're committed to directing investment where it's needed most.

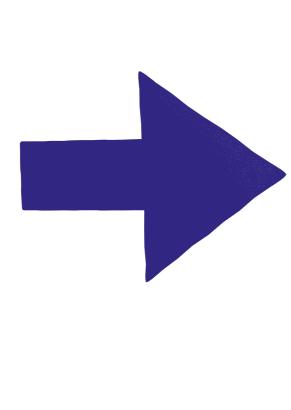
Take the Type 1 Diabetes Grand Challenge, which aims to change the course of type 1 diabetes forever by uniting the best scientific minds to supercharge bold and ambitious research in areas with the most potential to change lives.

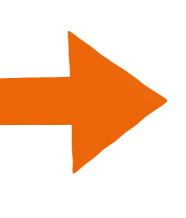
We're also calling out underfunded areas and increasing investment – like tackling health inequalities, preventing type 2 diabetes in children and young people, helping more people age well with diabetes, improving mental health support, and getting to grips with gestational diabetes.

And we're working with government and healthcare providers to fast-track discoveries into diabetes care. So that the research we fund and champion today gives us the diabetes success stories of tomorrow.

But we can only keep doing this with your continued support – whether getting involved in research or making a donation, however big or small, your support is vital.

Together we can end the harm that diabetes causes.







THANK YOU



PROFESSOR STEPHANIE AMIEI

Diabetes UK-funded researcher

"Thank you. We are very aware that without your donations there would be so much we simply couldn't do. Your money is going into research that is making a difference and improving lives."

KATIE LAMB

Lives with type 1 diabetes

"The life I'm able to live today would have been unimaginable without the tireless work of so many dedicated to the continuous progress of diabetes care. I am so grateful – you've allowed me to live a full life alongside diabetes."



VICTORIA

Lived with gestational diabetes

"We're all thankful for the continued improvements and wonderful achievements that have been made in diabetes care, all made possible from research. Everyone involved in these advances should be extremely proud. Keep it up, thank you."

The changes we've seen over the last 85 years aren't just Diabetes UK's or our scientists' achievements. They belong to everyone who supported us with their time, donations or support. You all made it happen – so thank you from everyone at Diabetes UK and beyond.

DR ANNA LONG

Diabetes UK-funded researcher

"Your support is what allows research to go forward, and that is the only way that we're going to be able to improve treatments and eventually find a cure. Research is an expensive activity. So, I really value every bake sale and every run that allows us to carry on doing what we are doing."



PROFESSOR KAMLESH KHUNTI

Diabetes UK-funded researcher

"The transformational research Diabetes
UK funds would not be possible without its
supporters. Donations like yours will help
us continue making strides in finding new
ways to treat diabetes, prevent it and protect
people from its consequences."

GRAHAM SPOONER

Lives with type 2 diabetes

"My father passed away from complications of diabetes when I was 15. I'm incredibly grateful for the work that Diabetes UK researchers have and continue to do to make sure families like mine don't have to go through this. Thank you for helping people with diabetes to live longer, healthier lives."



THANK YOU

LIS WARREN

Lives with type 1 diabetes

"I feel hugely indebted to the hundreds of scientists and researchers who have dedicated their lives to transforming diabetes care and the tools we use to help us stay safe and well. Without these advances, my diabetes would have been far more challenging to manage. I can honestly say that I owe my good health and longevity to researchers."





SARAH PARSONS

Lives with type 2 diabetes and complications

"Managing diabetes day-in-day-out is incredibly tough, and impacts my family's mental health as well as my own. Research can change lives and help future generations. So, I'm so grateful for the life-saving work Diabetes UK scientists do, as they strive for answers to unanswered questions."

PROFESSOR MAY NG OBE

Diabetes UK-funded researcher

"With your support, we have been able to push the boundaries of knowledge, explore new treatments and give hope to those living with diabetes. Investment is vital in research, and I'd like to offer my heartfelt thanks for your generosity."



PROFESSOR SIMON HELLER

Diabetes UK-funded researcher

"Research is fundamental, without it we're lost and people with diabetes will have tougher lives. So, thank you to everyone who gives to Diabetes UK and makes it possible."

ROHIT PATEL

Lives with type 2 diabetes

"As a type 2 diabetic for 20 years, I'm thankful for all the many benefits scientific research has already produced. It is awe inspiring to learn how committed diabetes scientists are to find a cure. I am convinced that this will be achieved one day."



DIABETES IS RELENTLESS SN ARE WE

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diabetes.org.uk

The British Diabetic Association operating as Diabetes UK, a charity registered in England and Wales (no. 215199) and in Scotland (no. SC039136). A company limited by guarantee registered in England and Wales with no. 00339181 and registered office at Wells Lawrence House, 126 Back Church Lane London E1 1FH. © Diabetes UK 2023. Publication date October 2023.

