Technology and Innovation in the NHS
JDRF (Juvenile Diabetes Research Foundation)

Introduction

JDRF, the type 1 diabetes charity, funds research to cure, treat and prevent the condition. We give a voice to people with type 1 diabetes and campaign for increased focus on, and funding for, research to find the cure.

JDRF is a global organisation and the world's leading charitable funder of type 1 diabetes research. We have a presence in the UK, USA, Australia, Canada, Denmark, Israel and the Netherlands and we fund the best research wherever it is in the world, regardless of borders or boundaries.

We work with academia, industry and governments to make sure that the research we fund has the greatest possible impact on the lives of people with type 1 now and in the future. For more than 40 years JDRF has been fundamentally involved in the delivery of advances; seeking out, assessing and monitoring the best science to drive the breakthroughs and improve management of type 1 diabetes, and which will ultimately cure and prevent the condition.

Scotland has the third highest incidence of type 1 diabetes in the world yet it is home to some of the best type 1 diabetes research, with Scottish based researchers receiving £3.9 million from JDRF.

Type 1 diabetes requires intensive self-management and those with the condition must inject insulin multiple times daily to stay alive. They also have to conduct blood tests several times a day to know how much insulin to inject and when. As a result, those with type 1 diabetes are increasingly utilising new technology to support the management of their condition such as insulin pumps, flash glucose monitoring and continuous glucose monitors (CGM).

JDRF welcomes the committee’s inquiry into technology and innovation in the NHS.

What key opportunities exist for the use of technology in health and social care over the next 10 years?

Greater access to medical technologies for patients, via self-management, must be placed at the heart of any technology-focused drive by the NHS in Scotland. The costs of not doing so could be severe. For example the direct cost of type 1 diabetes care to the UK economy is £1bn, but is estimated to rise to £1.8bn by 2035. Therefore empowering patients to self-manage their condition with technology could lead to significant savings in both time and cost for the NHS.

Over the past five years, we have seen greater progress in type 1 diabetes technology than in the previous fifty. The emergence and refinement of insulin pumps, flash glucose monitoring devices and continuous glucose monitors have revolutionised the self-management of type 1 diabetes for some individuals.
However many of these technologies are out of reach for people with type 1 diabetes in Scotland.

For example, according to the *National Diabetes Insulin Pump Audit Report (2013-15)* only 12.2 per cent of all children and adults in the UK with type 1 diabetes are using an insulin pump. This figure remains lower than other countries in Europe and North America. In the US for example, it is estimated that 40 per cent of the type 1 population have a pump.

Progress has been made in Scotland with approximately 3,200 insulin pumps in use – an increase of more than 400 per cent since 2010 – however there is still more work to be done to ensure that the provision of insulin pumps is increased in Scotland.

In the area of CGM, there are a number of innovative products and devices available on the market but for a variety of reasons such technology has been slow to be adopted. The primary reason for this is that SIGN guidelines on the management of diabetes recommends that CGM ‘should not be used routinely in people with diabetes’.

Such CGM systems have been hugely popular amongst people with type 1 diabetes and initial peer-reviewed research backs up the reported benefits. However the majority of devices can only be realised through self-funding and with annual costs in the region of £1,500, this puts the system out of reach for many people.

Scotland has the opportunity to surge ahead on the provision of technology for type 1 diabetes following the Scottish Government’s announcement of a £10 million fund to increase provision of insulin pumps and CGM equipment.

Technological advancement in type 1 diabetes continues at pace, particularly around the delivery of insulin where technology such as insulin pumps continue to support those with type 1 and other revolutionary technology such as the artificial pancreas will reach the market soon.

**What actions are needed to improve the accessibility and sharing of the electronic patient record?**

The NHS in England is committed to moving to integrated electronic patient records by 2020 and Scotland, Wales and Northern Ireland have all made substantial progress towards enabling the sharing of electronic care records.

Yet Dundee-based Scottish Care Information Diabetes (SCI-Diabetes), commissioned and owned by the Scottish Government, has been providing fully integrated shared electronic patient records to support treatment of NHS Scotland patients with diabetes since 2002. Data on SCI-Diabetes can be viewed by GP practices, hospitals and patients can view their own data to support self-management of their condition.

The system is the jewel in the crown of Scotland’s fight against diabetes and has been successfully exported to the Middle East. It provides functionality for both
Primary and Secondary Care Clinicians and includes speciality modules for Paediatrics, Podiatry, Diabetes Specialist Nursing and Dietetics.

Access to the information within SCI-Diabetes, with the right safeguards in place, is a great tool for Scotland's researchers focusing on type 1 diabetes. It is vital that the resource is safeguarded and fully funded for the future.

The development of similar systems for other conditions could be a game-changer.

**What are the barriers to innovation in health and social care?**

A number of barriers have been erected that mean these technologies are not being placed in the hands of patients to help them manage their own condition and stay healthy.

In terms of technology, patients face a lack of access to structured education within the NHS on how to manage their condition, but also their technology – assuming they are one of the lucky few to have their treatment funded by the NHS. Therefore an increase in type 1 diabetes technology provision needs to be supported by an increase in access to structured education and better access for healthcare professionals to training so they can support people to use such technologies successfully. This includes an increase in more specialist staff to support people using new technologies.