NIHR | Devices for Dignity MedTech Co-operative

Activity Report

1 January 2018 - 31 March 2019

Specialists in developing medical technologies
for people with long-term conditions

Contents

Our Partners

NHS Partners

Sheffield Teaching Hospitals NHS Foundation Trust

The Leeds Teaching Hospital NHS Trust

Manchester University NHS Foundation Trust

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Barnsley Hospital NHS Foundation Trust

Sheffield Children's NHS Foundation Trust

University and Industry Partners

The University Of Sheffield.

UNIVERSITY OF LEEDS

Sheffield Hallam University

Coventry University

TRUSTECH
THE NHS INNOVATION EXPERTS

medipex
healthcare innovation hub

Front cover : Sheffield by night. NIHR Devices for Dignity MedTech Co-operative is hosted by Sheffield Teaching Hospitals NHS Foundation Trust, with a national remit to catalyse technology development within the NHS and care environment, for patient benefit.

Overview of our activities 2018-2019

Clinical Director Professor Wendy Tindale OBE

On 1 January 2018 our tenure as one of the NIHR's MedTech and In vitro diagnostics Co-operatives (MICs) began, building upon our ten years as a Healthcare Technology Co-operative. This transition has seen us bring new clinical and cross-cutting themes into our programme of activities, which will enable us to bring benefit to a wider range of patients during and beyond the five years of our programme.

Our focus for 2018 to 2022 is on assisting people in 'Living my life well for longer' through the development of healthcare and digital technologies, and the clinical and care services into which they are integrated.

On page 4 of this activity report you can see an infographic of our track record; this however reflects only the very surface of the work that we undertake, and the extent of our influence and activities. In addition to the headline figures, our expertise increasingly brings great value to medtech development through influencing new health and care policies and guidelines, network development, planning, and facilitation and enablement, as well as our more tangible medtech development services. The NHS's Long Term Plan was launched in early 2019 and this has become a focal point around which we orient ourselves, thereby aligning our technologies with the evolving NHS and care environments. Our close ties with our local Integrated Care System (ICS), national funding bodies, and the National Institute for Health and Care Excellence (NICE) help ensure that our drive for quality technology development is in step with and influencing emerging and up-to-date healthcare practices. At a more practical level, close associations with our existing networks, the other MICs, and the Academic Health Science Networks (AHSNs) enable us to rapidly engage with relevant players in technology development or clinical settings.

We are lucky to be in the privileged position of being able to use our connections to effectively respond to patient needs by creating tools to enable better and more dignified futures for the communities we serve.

As ever, I would like to extend my thanks to all members of the D4D network for their ongoing dedication and consistency in pursuing the development of 'better' medtech solutions. We are excited to see what the success of the next few years of our programme will look like for the people who will ultimately use our technologies.

Professor Wendy Tindale OBE

Clinical Director, NIHR Devices for Dignity MedTech Co-operative

Consultant Clinical Scientist

Scientific and Innovation Director,
Sheffield Teaching Hospitals
NHS Foundation Trust

Our aims for 2018 - 22

Short term:
Identify the highest priority patient needs across our focus areas with the greatest potential impact, and translate these needs into detailed technology design plans.

Medium term:
Use the plans to create new technologies and treatments in partnership with patients and businesses to help people manage their conditions.

Long term:
Deliver effective, usable technologies for people with different combinations of illnesses, empowering them to live more independently and safely, requiring fewer hospital stays or visits, and when check-ups or treatments are needed, enable these to take place closer to home.

Our Technology Development Themes

Renal Technologies	Diabetes	Long-Term Neurological Conditions
Human Factors		
Rehabilitation Technologies		
Assistive Technologies and Connected Healthcare		
Medtech Innovation		
Impact and Integration		

How are we performing?

1 January 2018 - 31 March 2019

£5.5 million Leveraged additional funding to support technology development

75 collaboration requests

45 projects undertaken

18 new projects started

Our track record

Since 2008

£36.9 million Leveraged additional funding to support technology development

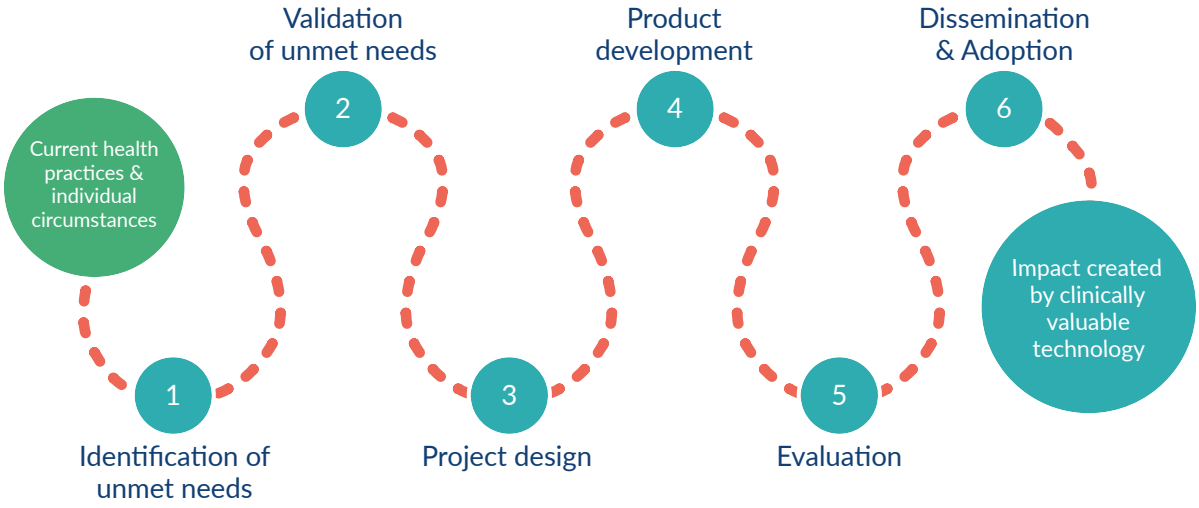
500 project enquiries

450 organisations engaged with

120 projects undertaken

20 new products brought to market

How we work to support innovation in medtech



Working collaboratively with patients, clinicians, academics and industry has always been at the core of our concept, and all are vital in ensuring that patients can receive the full benefit of medical technologies and technology-dependent clinical services.

We bring our expertise in medtech innovation to partnerships where we believe the development effectively addresses real patient need, and is aligned with our strategic direction. This means we are able to:

- Ensure that developing innovations address a real health need.
- De-risk innovative projects.
- Identify and address barriers to medtech development and adoption.
- Identify the best people and organisations to work with.
- Reduce timescales to market.
- Help businesses to get more from their R&D investments.

In cases where our expert networks find that proposals are strongly aligned with areas of the highest clinical priority and have strong and demonstrable patient pull, we may provide aspects of our expertise on a pro bono basis.

Our services are tailored to meet individual product development needs

D4D is experienced in developing innovative products and services, and is uniquely positioned to access clinical and patient expertise to provide meaningful knowledge, tailored recommendations, and facilitation to technology development projects by offering:

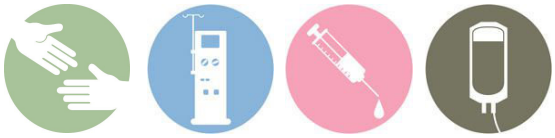
- Project oversight and direction.
- Establishment of project teams including clinical, patient, academic, engineering and design partners as required.
- Concept validation and scoping of clinical 'fit'.
- Clinical evidence planning, from proof of concept to large scale trials.
- Regulatory guidance and strategy development.
- Patient and public involvement and engagement.
- Dissemination planning.
- Support with funding applications.
- Market analysis including proof of market.
- Exploitation strategy development
- Adoption and implementation planning,
- Relationship building and signposting within the NHS, and health and technology sectors.

Projects in progress

Early Detection of papilloedema and diabetic retinopathy (New project)

The UK Vision Strategy recognises 50% sight loss as preventable. Successful detection of eye diseases at an early stage could prevent or reduce further serious damage and complications. Papilloedema is the swelling of the optic nerve, which can press against the brain, and can cause death. Diabetic retinopathy is one of the leading preventable causes of blindness in the world, providing a massive economic burden on both developed and developing countries worldwide. We were awarded £100k of Innovate UK funding to develop a smartphone-based solution that will use an optical lens attached to the camera to carry out a full ophthalmologist-guided examination, as well as image the back of a patient's eye to detect papilloedema and diabetic retinopathy.

Shared Haemodialysis Care (Near Completion)



Shared Haemodialysis Care means working with patients in partnership to engage them in their own treatment. It encourages patients to take an interest in helping themselves- promoting a more positive feeling towards their dialysis.

The SHARE HD project, funded by the Health Foundation, ran a study across 12 sites in the UK, and recruited 587 patients. Its aim was to support patients receiving haemodialysis (HD) treatment in hospital to be more independent and confident in participating in aspects of their own haemodialysis care. More information is available on the project website.

https://www.shareddialysis-care.org.uk/

Neurocare KnowHow (Early Stage)

Neurocare KnowHow

Part of our Long-Term Neurological Conditions theme, this project has been awarded funding from Neurocare at Sheffield Hospitals Charity.

Working with service users and professional carers, this project will develop online learning and bitesize support tools to improve the ability of carers to provide quality care for people who live with long-term neurological conditions. We are partnering with regular collaborators Optical Jukebox, a company that makes documentaries and specialises in collaborative, user-led health methodologies, and Ammba, who are leading development of the digital education training platform.

http://opticaljukebox.org/

VocaTempo (Commercialised)

This product has been developed to recognise the speech of children with severe speech impairments and who cannot normally be understood, and to 'speak' a clear version of the message they wish to communicate. The company that led this development, Therapy Box Ltd, obtained Small Business Research Initiative (SBRI) funding to develop this app, which was launched in 2018 following a successful clinical evaluation, and is available through Google Play and the Apple App Store. We are now exploring ways to support adoption and spread for this technology.

https://therapy-box.co.uk/vocatempo

Digital technologies

CONNECT
(New project)

Deciding whether or not to have a treatment that has side-effects can be difficult for patients. In good decision-making processes, doctors and patients work together to think about the risks and benefits of each treatment, with the patient then choosing their way forwards. Decision aids can assist in decision making as they help doctors and patients to work together. We have undertaken a proof of market study for a particular heart health condition, and a digital decision aid is now under development in collaboration with the University of Huddersfield.

Artificial Intelligence for smart SLEep log and analysis (AISLE)
(Early Stage)

There are only a few specialist paediatric sleep centres in the UK despite increasing demand for sleep disorder evaluations. This project is working with healthcare specialists, patients, and their families to improve the evaluation of sleep disorders in children such that clinical assessments can be made as accurately and efficiently as possible. Clinical diagnoses and decision making will be supported by the development of two technical elements: A user-friendly app to aid data collection and an artificial intelligence algorithm that provides detailed of sleep-wake patterns

This project is a collaboration between D4D, Sheffield Children's NHS Foundation Trust, the NIHR Children and Young People MedTech Co-operative, and Sheffield Hallam University.

REACT to RED
(Near Completion)

The cost of treating pressure ulcers is estimated at between £1.4-2.1 billion per year for the NHS. Guidelines and literature state that early identification is vital in pressure ulcer prevention, so REACT to RED has been developed to promote prevention rather than leave people at risk of ulcers. REACT to RED is a resource for care homes and other providers.

D4D, in collaboration with Sheffield Teaching Hospitals NHS Foundation Trust and NHS England North have developed an app as a part of the REACT to RED training pack. The app will be launched in 2019 and made available to download for Android and iOS devices.

Innovation Manager
(Commercialised)

Innovation Manager is a cloud knowledge management system, developed and fine-tuned by technical experts within the D4D team. It is an effective tool for supporting productive collaboration for healthcare technology innovation within the NHS; existing research management tools are not always easily adaptable to rapidly moving and highly collaborative innovation projects and reporting.

Whilst this was initially developed for in house use, we are now in discussion for this system and its technical support to be used in other NHS organisations.

Activity Highlights

www.devicesfordignity.org.uk

0114 271 2159

@Devices4Dignity

NIHR Devices for Dignity MedTech Co-operative is in receipt of funding from the National Institute for Health Research (NIHR) MedTech and In vitro diagnostics Co-operative programme. The views expressed are those of the author(s) and not necessarily those of the NIHR, the Department of Health and Social Care, or Sheffield Teaching Hospitals NHS Foundation Trust.