



Activity Report

2019 - 2021

NIHR Devices for Dignity MedTech Co-operative (NIHR D4D) is a member of the National Institute for Health Research (NIHR) MedTech and In Vitro Diagnostics Co-operative (MIC) network.

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Contents

Foreword	04-05
How we work	06
Meet the team	07
Our themes	08
○ Long-term Neurological Conditions	09
● Diabetes	10
● Renal Technologies	11
● Rehabilitation Technologies	12
● Assistive Technologies and Connected Healthcare	13
● Human Factors	14
● MedTech Innovation	15
Patient and public involvement and engagement (PPIE)	16-17
Starworks, The NIHR Child Prosthetics Network	18-19
Healthcare Science Innovation Fellowships Programme	20
Events	21
Collaborations and networks	22-23
Working with industry	24-25
Publications	26
Find us online	27

Foreword

What a couple of years these have been! We would never have expected in early 2020 that we would be living through a global pandemic and dealing with the consequences of this, on so many levels. For Devices for Dignity, being based in the NHS has many advantages, but it did mean that many of our collaborating teams and key researchers were diverted to frontline duties during the pandemic, and with the national research effort rightly focused on supporting vaccine trials, a lot of projects were put on pause.

Despite these challenges, Devices for Dignity has continued to deliver and thrive, adapting to working remotely with our national partners, and exceeding our annual objectives. We have increased our understanding about patient groups who are vulnerable to the long-term impact of COVID and, collaboratively, we have identified new unmet needs for people living with long COVID and/or multiple long-term conditions where technology could play a role in improving care.

We have seen what can be achieved through partnerships between industry, academia, healthcare and patients and the public in vaccine development – this has further strengthened our belief in collaboration being at the core of successful medtech innovation, and we've shared many of our highlights within this report.

We were delighted that the **Sheffield Adaptive Patterned Electrical Stimulation (SHAPES) project** was awarded a £1.2m NIHR Invention for Innovation grant to develop a new therapy for stroke rehabilitation.

Despite restrictions on meeting face to face, we have kept patient and public involvement (PPI) at the core of medical technology development, most notably using 3D prototype modelling for **SHAPES** for co-design with stroke survivors, adopting creative approaches to remote filming

for **Neurocare KnowHow**, and building a new partnership with the Israac Somali Community Association for **Cognospeak**.

The **Starworks Child Prosthetics Network** continues to go from strength to strength and we welcomed our new Starworks Ambassadors. Our 6 funded projects have been successful in a variety of ways, successful commercialisation and funding awards, and joining forces with new partners to collaborate, all of which involve children, young people and families at the heart of technology development.


We launched the **Healthcare Science Innovation Fellowship Programme** in collaboration with the Office of the Chief Scientific Officer for NHS England and Improvement (CSO) and the National School of Healthcare Science (NSHCS) and were pleased to welcome our inaugural Fellows earlier this year. Building on the success of the pilot programme, more healthcare scientists will have the opportunity to develop their innovation skills as Fellows in 2022/23.

Our industry partners also encountered challenges due to COVID, however there have been many commercial successes. The **ICU App** was released on the iOS App Store to enhance communication for patients in intensive care, and the **Quanta Dialysis Technologies SC+** renal replacement technology was deployed for severely ill COVID patients. We were also proud to see the **Dysphagia eLearning Programme** launched for national use by the NHS and social care for improved management of dysphagia.

I hope you enjoy reading about our achievements – thank you to the Devices for Dignity team and our partners for your hard work in such difficult circumstances. Thanks also to all health and care professionals for your dedication to the people you care for, to our industry collaborators for your

continued creativity and to our funders for their continued support and engagement.

We are optimistic about the next two years and look forward to continuing and new successful partnerships which will deliver technologies to our patients and to frontline health and care. As always, we will ensure that we remain aligned with national priorities and with a core focus on dignity and independence across the life course.



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



How we work

Hosted within the NHS, **D4D** works with national collaborative networks (involving patients, carers, health professionals, industry, charities, and academia) to catalyse and co-create technology-dependent interventions for chronic health conditions typically associated with loss of dignity and independence.

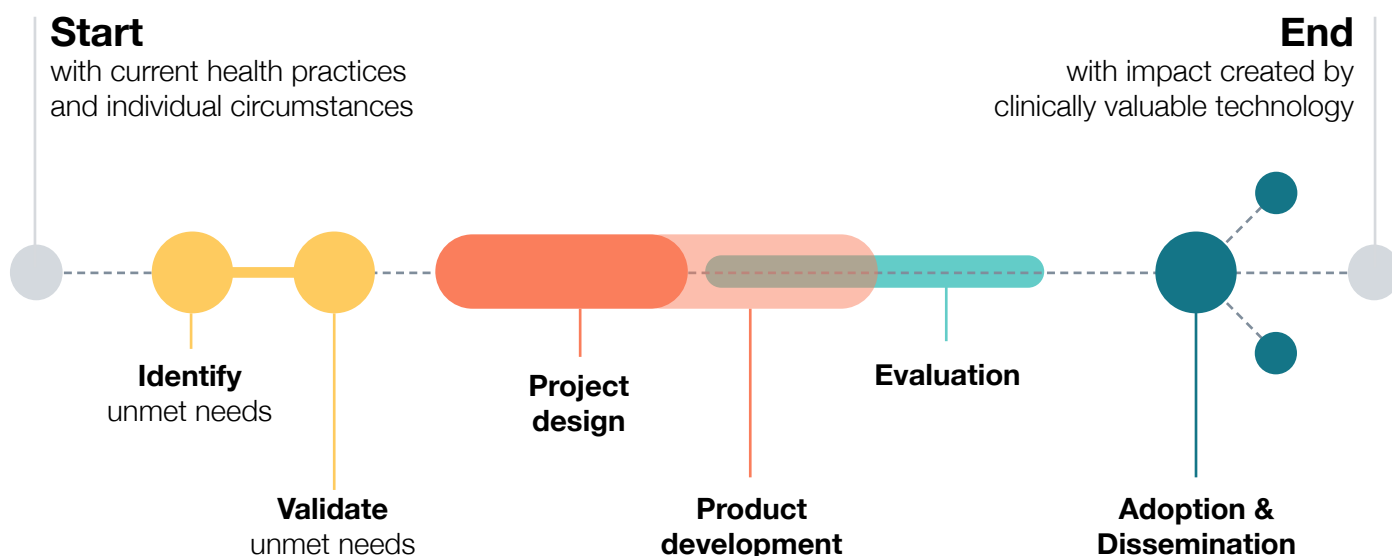
Driven by unmet needs, we collaborate with people living with long term conditions, across the full life course from children and young people to older adults, at every stage of the innovation pathway. We bring our expertise in medtech innovation to partnerships where we believe the development effectively addresses real patient need, and is aligned with our strategic themes. This means we are able to:

- Ensure that developing innovations have a strong, demonstrable market pull.
- Build effective partnerships with patients and the public. *'No technology for me, without me'*
- 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 investment.

Our **services** are tailored to meet individual product development needs. D4D is uniquely positioned to access clinical and patient expertise to provide tailored recommendations to technology development projects, 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.



Meet the team

D4D has a **multidisciplinary core team** hosted at **Sheffield Teaching Hospitals NHS Foundation Trust**. Members of the team come from a range of backgrounds – healthcare, research, management, charity, technology, industry – and work together with expert networks to make D4D projects a reality.



Prof Wendy Tindale

Clinical Director



Liz Pryde

Programme Manager



Nathaniel Mills

Paediatric
Programme Manager



Dr Avril McCarthy

MedTech Lead



Lise Sproson

PPIE Lead



Dr Kathy Jeays-Ward

NHS Innovation Lead



Dr Angel Jimenez-Aranda

Digital Health Lead



Philippa Takhar

Business Development Manager



Abigail Needham

Project Manager



Amir Dean

Project Manager



Kirsty Kassim

Programme Administrator

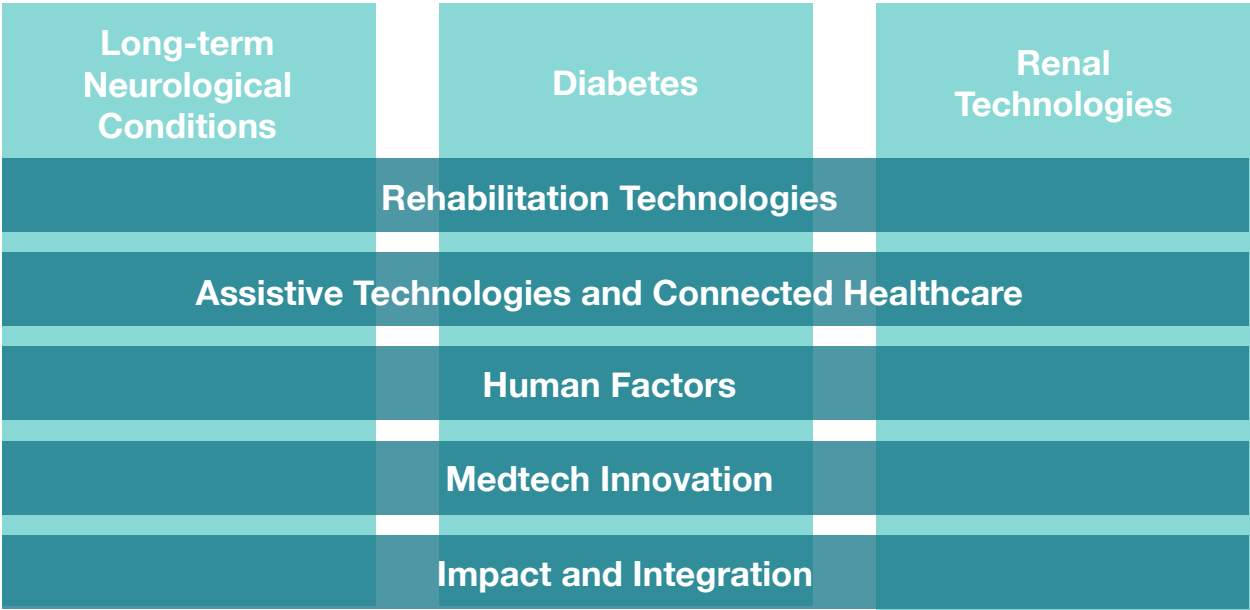


David Coyle

Patient Partnership Lead

Our themes

Devices for Dignity works across **three clinical themes**, which are supported by our **cross-cutting themes**.



Highlights across our themes

● Long-term Neurological Conditions	09
● Diabetes	10
● Renal Technologies	11
● Rehabilitation Technologies	12
● Assistive Technologies and Connected Healthcare	13
● Human Factors	14
● MedTech Innovation	15



Theme Lead:
Prof Chris McDermott

Deputy Theme Lead:
Dr Dan Blackburn

Long-term Neurological Conditions

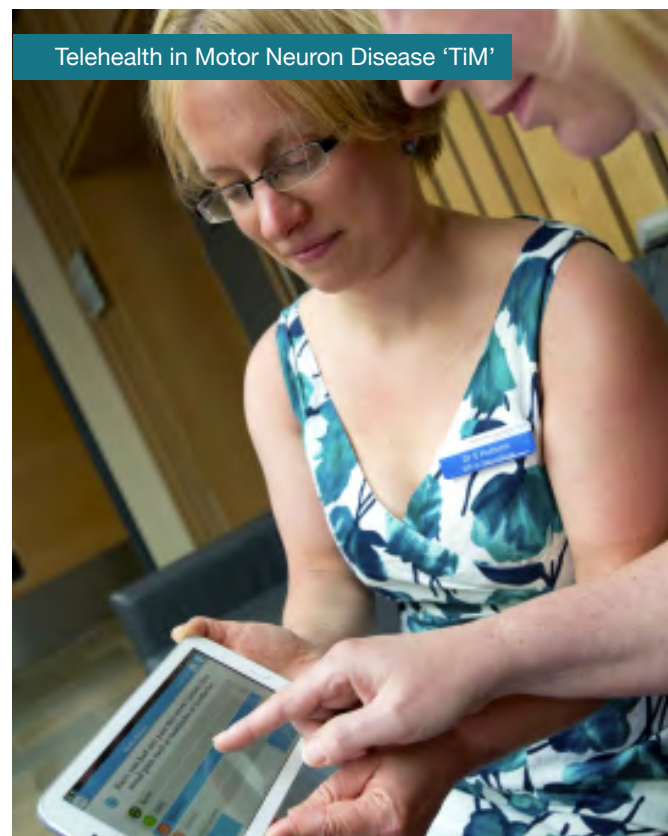
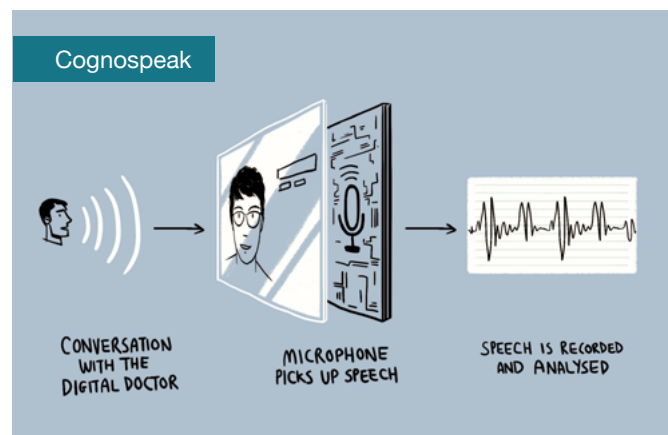
There are an estimated 16.5 million people living in the UK with a long-term neurological condition (Neurological Alliance, 2019). People with neurological conditions are reported to have the lowest health-related quality of life of any long-term condition.

(NHS England, 2019)

This theme aims to develop technology to support living well with dignity, maximise function and independence, and the ability to self-manage conditions.

Highlights

- + The **Neurocare KnowHow** project was awarded VocTech Seed 2020 funding by Ufi VocTech Trust and Sheffield NIHR Biomedical Research Centre, to co-design an online learning platform for carers to develop specialist skills for caring for people with neurodegenerative conditions.
- + Partnership working with University of Sheffield, Sheffield Teaching Hospitals NHS Foundation Trust, Therapy Box, and the Israac Somali Community Association has advanced technical development of **Cognospeak** a digital tool for early and accurate detection and monitoring of cognitive impairment, using automatic analysis of conversations between patients and an on-screen avatar.
- + **Telehealth in Motor Neuron Disease 'TiM'** a novel system to increase communication between people with MND, their caregivers, and healthcare professionals to support self-management, was implemented as a clinical service in MND centres in Sheffield, Edinburgh, Norfolk and Dublin. The project is led by the University of Sheffield, working in partnership with the Sheffield MND Care and Research Centre, Advanced Digital Innovation (ADI UK) and funders MND Scotland.





Theme Lead:
Prof Simon Heller

Diabetes

Deputy Theme Leads:
Dr Dinesh Selvarajah & Dr Jackie Elliott

One in 15 people in the UK have diabetes, including 1 million with Type-2 who haven't yet been diagnosed (Diabetes UK, 2021). Health complications are common with diabetes contributing to risk of strokes, lower extremity amputations, eye disease and kidney failure.
(Diabetes UK, 2019)

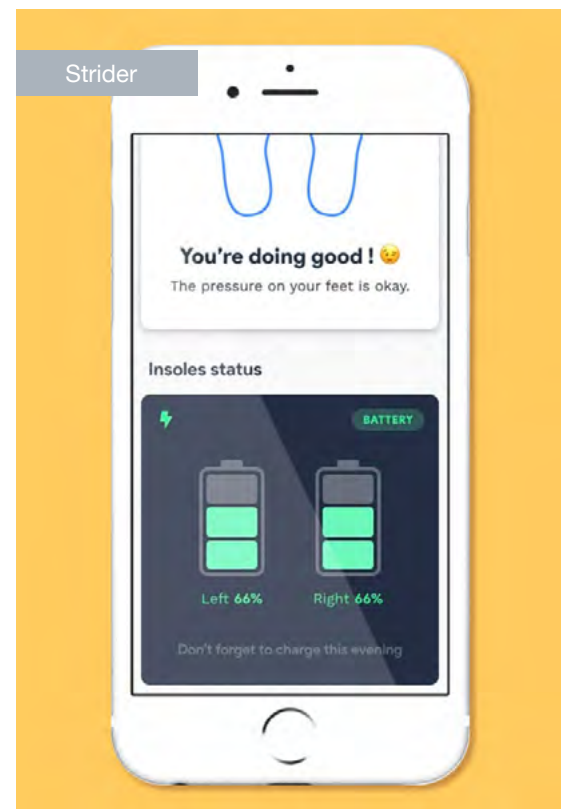
This theme focuses on the barriers to technology adoption, and technology development to support more successful and empowered self-management to prevent disease complications.

Highlights

- + Sheffield Hospital Charity Research funding supported a collaboration between D4D, Sheffield Teaching Hospitals, University of Sheffield and Sheffield Hallam University to develop a tool to provide self-management support to people with Type 1 Diabetes - **DAFNEBot**. D4D has led stakeholder engagement to gain a deep understanding of user needs, explore expectations of artificial intelligence solutions, and inform prototype design requirements.

- The **Strider** project, a new collaboration with FeetMe and Sheffield Teaching Hospitals NHS Foundation Trust to develop smart pressure sensing shoe insoles to expedite healing of diabetic foot ulcers through behaviour change. D4D has worked with patient groups to inform the technology functionality and co-design of the technology user interface.

- Collaboration with University of Sheffield and K-Now Ltd on an + **Innovate UK-funded feasibility study** to test the application of a novel integrated system of smartphone technology, machine learning and telehealth for routine diabetic retinopathy screening.





Renal Technologies

Theme Lead:
Prof Sandip Mitra

Kidney disease has a devastating impact of patients' health, wellbeing and functional ability. Kidney disease results in frequent hospital admissions and attendances, and high pre-disposition to infections and other diseases – approximately 30% of chronic kidney disease (CKD) and dialysis patients also have diabetes. CKD affects around 3 million people in the UK.

(Kidney Care UK, 2021)

This theme aims to add 'life to years' for people living with kidney failure through independence, empowerment and dignity for people of all ages across the life-course of kidney disease.

Highlights

- + The **Patient Perspectives** project analysis showed demographic splits in uptake of home haemodialysis and areas for treatment/service improvements around patient involvement in care management.
- + Recruitment concluded for the **BISTRO** trial – this first ever multi-centre randomised controlled trial funded by the NIHR Health Technology Assessment programme, will determine the value of bioimpedance technology measurements for patient outcomes and improving fluid balance management in kidney patients.
- + D4D have partnered with Christie Cancer Research UK and AstraZeneca on the **iDecide** project. Kidney impaired patients with cancer are denied cancer treatments due to low kidney function, concerning and frustrating patients and being associated with suboptimal outcomes. Through this project we are establishing a new field of Nephro-Oncology in the UK which can promote understanding and development of evidenced technology solutions to allow kidney patients to access cancer treatments safely.





Rehabilitation Technologies

Theme Lead:
Prof Rory O'Connor

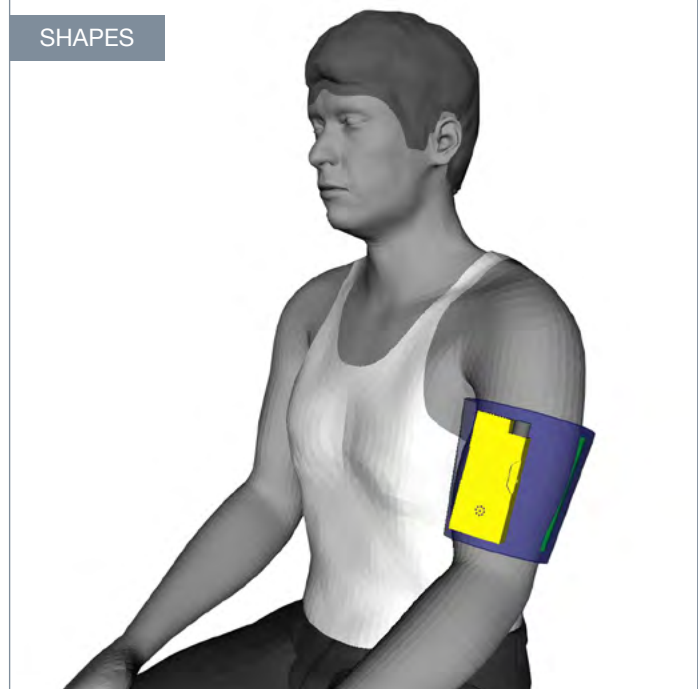
Rehabilitation is a complex problem-solving clinical intervention that facilitates independence and improves quality of life. With an increasing ageing population, predicted to double in size by 2050 (ONS, 2018), there is a demonstrable need to develop technologies to empower users.

This theme aims to maximise participation in society of people living with long-term conditions, enabling them to live in their own homes independently and with dignity.

Highlights

- + The **Sheffield Adaptive Patterned Electrical Stimulation (SHAPES)** project was awarded NIHR i4i funding of £1.2M to develop a new therapy for post-stroke arm muscle stiffness for self/shared management of stroke rehabilitation. SHAPES draws on expertise from multiple D4D Themes - clinical from the Rehabilitation and Long Term Neurological Conditions themes, regulatory and quality from the MedTech theme, and usability design from the Human Factors theme. Led by the Clinical Engineering team at Sheffield Teaching Hospitals NHS Foundation Trust, partners include School of Health and Related Research (ScHARR), University of Sheffield, Coventry University, Barnsley NHS Foundation Trust, and Medipex Ltd with industry expertise from Daletech Electronics Ltd, the Centre for Process Innovation (CPI) and Talarmade Ltd
- + D4D supported JT Rehab to develop the **S-Press** device, designed to assist rehabilitation and prevent de-conditioning in frail elderly and stroke patients. D4D led patient and carer consultation and product design feedback, and provided regulatory, infection control and feasibility study ethics guidance.

SHAPES



JT Rehab Strength Press





Assistive Technologies & Connected Healthcare

Theme Lead:
Prof Mark Hawley

Deputy Theme Lead:
Prof Luc de Witte

Over 11 million people in the UK living with a limiting long term illness, impairment or disability.

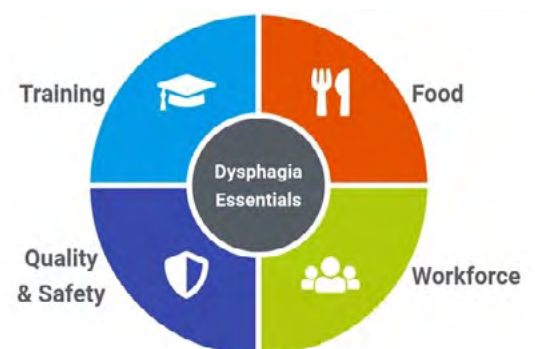
This theme aims to make a significant and lasting contribution to the role of technology to support health, quality of life and independence of people in their own homes and communities, with an emphasis on communication aid technologies.

Highlights

- + Developed in partnership with Health Education England, Specialist Pharmacy Service, Sheffield Teaching Hospitals NHS Foundation Trust, Royal College of Speech and Language Therapists, and clinical experts - the **Dysphagia eLearning programme** was launched nationally for use by the NHS and social care to increase capabilities in the management of dysphagia.
- + **VocaTempo**, using new advances in speech recognition to create a voice-based augmentative and alternative communication aid for dysarthric speakers, became available on the iOS AppStore and was shortlisted for a number of awards - demonstrating the value of collaboration between Barnsley Hospital NHS Foundation Trust, University of Sheffield, Therapy Box and D4D.
- + The **ICU App** a communication aid for use in Intensive Care with patients who are temporarily unable to speak because of a tracheotomy, was released on the iOS App Store during the Covid-19 pandemic. Developed in partnership with Barnsley Hospital's Assistive Technology Team, Imperial College's Helix Centre, and HMA Digital, and people who have lived through this experience on ICU, the app is part of a 'toolkit' of communication resources.



VocaTempo



Dysphagia eLearning Programme



Human Factors

Theme Lead:
Prof Louise Moody

“No technology for me without me” Since 2008, D4D has successfully demonstrated the value of a user-centred and inclusive design approach.

This theme aims to extend learning to a wider integration of psychological and emotional elements to ensure the effective use of emerging technologies and impact successful self-management of long-term conditions.

Highlights

- + Abbeyfield Research Foundation funded a collaboration with Coventry University to identify **enablers and barriers to the use of digital technology** for self-management of long-term conditions by older adults in three clinical areas - chronic kidney disease, diabetes and dementia. Outcomes of the project will form recommendations for practitioners and technology developers to guide the design and prescription of technology to older adults.
- + The 3-year **Horizon 2020 MATUROLIFE** project – putting creative design at the heart of assistive technology development for urban living. Materials science knowledge gained through the collaboration is informing active project design and development across the D4D portfolio.
- + Research by the University of Huddersfield into the informed consent process for coronary angioplasty led to collaboration with D4D to co-design a novel digital decision aid – **CONNECT**. Support from the Grow MedTech programme has enabled engagement with patients and healthcare professionals at Mid Yorkshire and Calderdale Trust to investigate behaviours and the role of digital tools in the decision-making process.



CONNECT



MedTech Innovation

Theme Lead:
Dr Avril McCarthy

This cross-cutting theme provides the technical and regulatory oversight to D4D projects. With proven demand from industry for increased access to regulatory and technical expertise, and the significant changes and revised UK medtech regulatory framework, this theme builds upon D4D's track record, networks and expertise in medtech innovation to embed engineering, regulatory and quality management expertise across the D4D project portfolio.

Highlights

- + The **emPOWER** consortium, involving leading Engineering Centres at the Universities of Bristol, University College London and Imperial College, was awarded £6M in EPSRC Transformative Healthcare 2050 funding. This 5-year project will deliver cutting-edge research in inter-disciplinary areas relevant to muscle implant technology focussing initially on new treatments for bladder dysfunction, adding new knowledge to the long-term neurological conditions and rehabilitation themes.
- + The **Non-Invasive Ventilation (NIV)** collaboration, explored the use of innovative 3D assessment and manufacturing technologies to optimise non-invasive ventilation mask fit. Led by Sheffield Children's Hospital NHS Foundation Trust, with the 3DLab and Clinical Engineering department of Sheffield Teaching Hospitals NHS Foundation Trust and ACES team at Sheffield Hallam University, D4D's regulatory, commercialisation and project management expertise, has supported national engagement to plan implementation in future service pathways.
- + Awarded NIHR i4i funding to **'QUICK'** to develop a novel point-of-care device to detect and classify urinary tract infections (UTIs) to support rapid and specific diagnosis. The project is led by North Bristol NHS Trust, with the University of Bristol, University of Western England, NIHR Community Healthcare MIC and NIHR Devices for Dignity MIC as collaboration partners.

Non-Invasive Ventilation



'QUICK' UTI Device



Patient and public involvement and engagement (PPIE)

Working Together

D4D has built a partnership with **ISRAAC** to make **Cognospeak** accessible, usable and acceptable to the Somali community. This partnership to explore cultural issues around dementia, access to services, perceptions of AI and health technology has benefited from the expertise of the Israac team, with plans to recruit a Somali Research Champion, co-produce a range of multimedia study resources and invest in developing city-wide relationships for future research collaboration.

People with lived experience of stroke validated the need for improved treatment options for reduction of upper arm spasticity – the driver for the **SHAPES project**. They provided trial design feedback and identified key improvement requirements for the usability and tolerability of a novel electrical stimulation device, and will be co-designing aphasia-friendly study information materials and patient outcome measures, and supporting iterative co-design of the device.

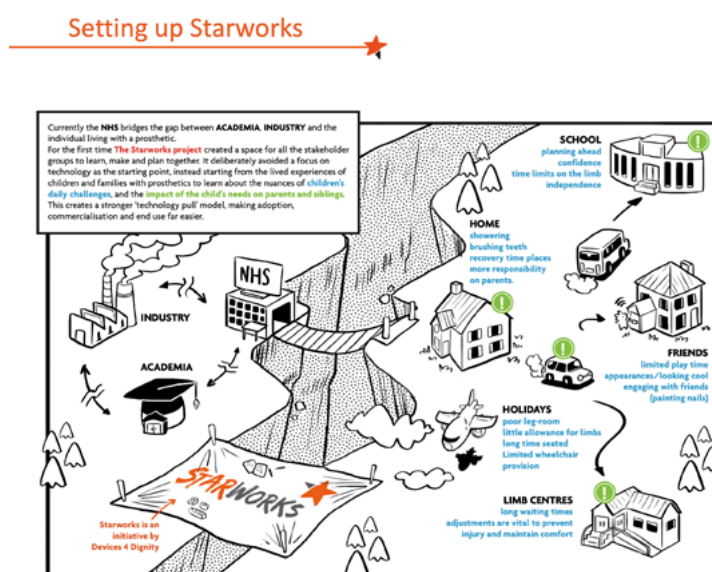
Inclusive Opportunities

Older adults and people with dementia are frequently under-represented in research, particularly in medtech development. D4D have designed and delivered the approach to patient and public involvement for the UKRI ISCF Healthy Aging project **“Understanding Older Adult Driving Behaviour”**. Older adults and people with dementia have been supported to participate in online focus groups to discuss their views on use of in-car telemetry to assess driver safety, using creative approaches to pre-meeting resources and supporting digital participation.

Support & Learning

A Cochrane **‘Co-production in Action’ webinar**, was co-designed by Nathaniel Mills, Dr Gemma Wheeler, Ollie Bauert, and his Mum, Carly. Each shared their experiences of engaging in the STARWORKS project and the webinar illustrated practical application of the INVOLVE Co-production key principles.

D4D has been approached by **EUPATI (European Patient Training Academy)** and by **EPSRC (Engineering & Physical Sciences Research Council)** to advise on PPIE and to help create learning resources for their membership.





People with lived experience and their carers have been at the centre of the **Neurocare KnowHow**, project - a co-designed online learning platform for carers to develop specialist skills for caring for people with neurodegenerative conditions. Our collaborators have shared their expertise at co-design workshops to guide the learning experience and participated in remote filming to create digital storytelling resources. Care home teams, personal assistants and home care workers have formed an expert testing group of the prototype.

Governance

Kidney Patient Involvement Network (KPIN), co-chaired by D4D's Patient Partnership Lead, David Coyle, was a test site for the UK Standards for Public Involvement in Research with two case studies published in their Implementation Stories handbook. David is a member of the strategic PPI/E Reference Group for NIHR Evaluation Trials & Studies Coordinating Centre (NETSCC), and an Executive Trustee of the National Kidney Federation (NKF) charity.



Starworks

The NIHR Child Prosthetics Network

Starworks has become the “go-to” network for prosthetics innovation for children and young people.

D4D are proud to host this young people’s prosthetic research collaboration which, by utilising D4D’s expert methodology, brings children and their families together with key opinion leaders from the NHS, industry, clinical academia and leading national research centres with capabilities in child prosthetics.

The Network aims to increase research across the system in order to accelerate the translation of new inventions and developments in child prosthetics into everyday use. This initiative is centred on the needs of children and their families as well as the NHS and ensures there is the ideal balance of ‘clinical pull’ and ‘technical push’ to create an energetic environment in which to innovate and to partner with industry.



Proof of Concept Funding

Following an initial multi-stakeholder needs assessment, and a series of creative, collaborative ‘sandpit events’ the Starworks Network launched a call for proof of concept funding to develop the seeds of ideas germinated through this exciting collaboration, with children and families at the centre of co-design. 10 projects were funded which has led to:

- Collaborations between partners
- Further large scale funding from Innovate UK
- Commercialisation
- Publications on the diverse nature of developing new innovations for children with limb loss
- Shared learning for the growing Starworks Expert Network.



The Starworks Network is managed by NIHR Devices for Dignity MedTech Cooperative and supported by Lab4Living, Limbpower charity and NIHR Children and Young People MedTech Cooperative.

For more information visit: <https://www.starworks-innovation.org.uk/>

Starworks Ambassador Network

Some of the incredible children and young people that have been key to the Starworks Network have become our **Starworks Ambassadors** - a community of 22 children and young people who use prosthetics, and their siblings. It's important that these voices are heard to make sure research and innovation in this area is responding to the real, day-to-day challenges of life with prosthetics. Our ambassadors help us do that by supporting researchers and working with them to create and develop new and innovative technologies for children with limb loss

“As a family with a limb different child using prosthesis, we have benefitted greatly from the Starworks programme. The exciting family focus groups and sandpits gave us a chance to meet professionals but more importantly feel heard. It was interesting to find out about the advances in technology and what may be available for our children as they grow up. The Starworks Ambassador initiative has been proactive and helped us to feel part of decisions that are being made both for children today and in the future. It's been great to meet the team at various events over the years and we hope that Starworks continues for the benefit of all families”

– Carly Bauert (Mum to Ollie 14)



Starworks Expert Network

One of the aims of Starworks is to increase research and raise awareness across the system in order to accelerate the translation of new inventions and developments in child prosthetics into everyday use. To achieve this it is crucial to engage experts from key stakeholder groups, and facilitate mutual learning between them. The Starworks expert network has members from diverse backgrounds such as NHS prosthetists, academics in material science, engineers, experts in co-design and SMEs.

Healthcare Science Innovation Fellowships Programme

D4D is the delivery partner for the national **Healthcare Science Innovation Fellowships Programme** in collaboration with the **Office of the Chief Scientific Officer for NHS England and Improvement (CSO)** and the **National School of Healthcare Science (NSHCS)**.

The pilot programme has been designed in recognition of the significant potential for the healthcare scientist workforce to play a key role in optimising the use of appropriate technologies in future healthcare provision and establishing a culture of innovation.

The programme focuses on innovations that support people living with and beyond cancer, aligning with D4D's focus on long-term conditions and the impact of co-morbidities on determining appropriate technologies to optimise quality of life. This programme is an opportunity for Innovation Fellows to:

- Undertake a technology innovation project, supported by a bursary, mentoring and access to specialist expert networks
- Access bespoke project-based learning resources, applying the D4D methodology, in order to gain knowledge, skills and confidence for the development of new technologies, and to lead future innovation projects.

With contributions from PPIE leads:

- Prof Ade Adebajo MBE
- David Coyle
- Lynn Laidlaw

And partner organisations:

- National Institute for Health & Care Excellence (NICE)
- MHRA
- Coventry University
- University Hospitals Bristol
- NIHR Surgical MIC
- NIHR CYPMedTech MIC
- HMA Digital
- Lab4Living (Sheffield Hallam University)
- Sheffield Teaching Hospitals NHS Foundations Trust
- GrowMedTech

2021/2022 Innovation Fellows:



Darren Hart

Clinical Scientist at the Royal United Hospitals Bath NHS Foundation Trust



Maighread Ireland

Design Engineer at Addenbrookes Hospital, Cambridge University Hospitals NHS Foundation Trust



Muhammed Hussain Nawaz

Specialist Biomedical Scientist at Barts Health NHS Trust



James Osborne

Senior Clinical Biochemist at Bolton NHS Foundation Trust

Events

Devices for Dignity participate in a range of events to build relationships across networks. These events include workshops, patient and public focus groups, showcases, and conferences.

Our aim is to catalyse partnerships, identify and validate unmet needs and disseminate the latest developments and research findings.



D4D hosted a national **Unmet Needs in Diabetes Event** in partnership with Yorkshire & Humber AHSN, leading to participation in the Diabetes UK Unmet Needs event, and working with partners to catalyse projects in priority themes – supporting the newly-diagnosed, accurate monitoring of blood sugar levels, mental health and maintaining motivation in self-management, and engaging in physical activity.



D4D has hosted a range of online co-design workshops, involving patients and their families and carers, to develop projects across the portfolio.



As co-founders of TITCH, D4D were invited to showcase paediatric innovations at the **Child Health Technology Conference (CHT2021)** in March 2021, sharing expertise and case studies with national networks.



D4D partnered with Medilink East Midlands in 2020, to host an industry-focused webinar to catalyse projects for unmet needs for long-term neurological conditions.



D4D has had a presence at key network events including UK Kidney Week 2020 and exhibiting alongside NIHR partners at MedConnect North, the NIHR SME Roadshow, and the SEHTA MedTech Expo 2020



D4D joined the Dragon's Den panel at the GrowMedTech Conference 2019, awarding seed-funding to early stage innovation projects



D4D partnered with the Northern Health Science Alliance (NHSA) and UK Israel Tech Hub to engage with SMEs at the **Dangoor HealthTech Challenge**.



Collaborations and networks

D4D collaborates with partners from across the national medtech innovation ecosystem, including our partners in the [NIHR MedTech & in-vitro diagnostic Co-operative Network](#), contributing expertise to networks and project-specific collaborations.

We work closely with **The Clinical Research and Innovation Office** a partnership between our host organisation, Sheffield Teaching Hospitals NHS Foundation Trust, and the University of Sheffield. These organisations are key partners across our project portfolio, striving to solve health and care's greatest challenges through teaching and research.



We promote regional medtech expertise to an international audience working with the **Northern Health Science Alliance (NHSA)** as part of a North of England collective.



D4D MedTech Theme Lead, Dr McCarthy, provides expertise as an active member of the **NICE Medical Technologies Advisory Committee**.

D4D hosts the **TITCH network** in partnership with **NIHR CYPMedTech** - a unique vehicle with dedicated paediatric focus and capabilities to signpost SMEs to the MIC network relevant to their speciality. Paediatric Programme Manager, Nathaniel Mills, works within D4D and NIHR CYPMedTech MIC enabling knowledge/organisational learning to be shared and a platform for paediatric innovation across all D4D themes.

TITCH
Technology Innovation
Transforming Child Health

Our LTNC Theme Lead, Professor McDermott is Deputy Director of the **NIHR Sheffield Biomedical Research Centre**, contributing to the effective collaborative activity across both organisations.



D4D has close links with the **MHRA** who have advised on a range of projects, including software modules for diabetes self-management and prosthetics-related devices.

D4D collaborates in two EPSRC Healthcare Technologies New Challenges Network Plus grants; the **“Bridging the Gap”** Network led by University of Durham and the **“Disability Inclusive Transformative Technology (DITO)” Network** led by Kings College London.

Our MedTech cross-cutting theme consolidates links to **NHS clinical engineering centres**, leading **Academic Centres of Excellence**, and **EPSRC/University biomedical engineering groups**.

We work in partnership with the national **AHSN Network**, including joint activity with **Yorkshire & Humber AHSN** to collaborate on industry-led projects, engage with the **South Yorkshire & Bassetlaw ICS Innovation Hub**.



Working with industry

Devices for Dignity value industry as key stakeholders across our project portfolio – bringing technical and commercialisation expertise to collaborations.

D4D is collaborating with the University of Sheffield, **The Floom Ltd**, and patient groups to develop a medical device using advanced telematics supporting assessments for older drivers with Mild Cognitive Impairment (MCI) and Parkinson's. This project was successfully awarded UKRI ISCF Healthy Ageing Catalyst and University of Sheffield Knowledge Exchange funding.

Industry are key Starworks stakeholders, with innovative SMEs involved in projects (**Cambridge Prosthetics, Ability Matters, Intelligent Sensing**), NIHR i4i funded activity to improve myoelectric hand prosthesis functioning, primarily for children, working with the University of Salford, Newcastle University and manufacturer **COVI**,

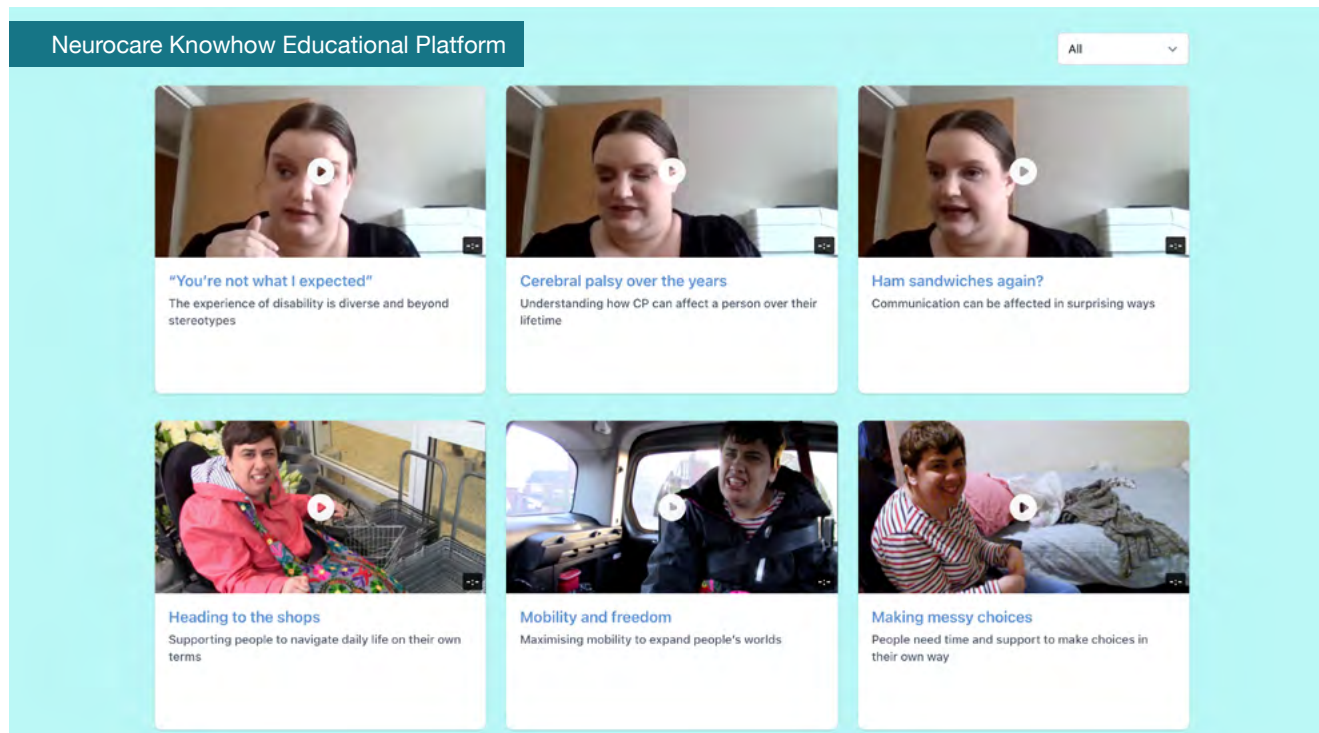
and NHS prosthetic providers (**Blatchfords, Opicare**) identifying unmet need opportunities.

Professor Sandip Mitra is a member of **Quanta's** Medical Advisory Board and supported the roll out of Quanta SC+ in response to the need for renal replacement therapy in Intensive Care Units for severely ill COVID patients.

As Industry Ambassador, **Tookie** have continued to support dissemination of D4D expertise and providing peer support to SMEs. D4D is a strategic partner for the **Sheffield Hallam University AWRC Wellbeing Accelerator** providing mentoring for health and wellbeing start-ups.

In partnership with the **Agile Ageing Alliance (AAA)** and the multi-stakeholder Neighbourhoods of the Future consortium (involving the social housing, construction and digital sector and **Microsoft**,





Cisco, and Tata Steel UK), we were shortlisted in our application to be an ISCF Healthy Ageing Trailblazer.

D4D has collaborated with **Optical Jukebox & Ammba Digital** to apply expertise in film content production and educational platform development to Neurocare Knowhow and the Healthcare Science Innovation Fellowships Programme.

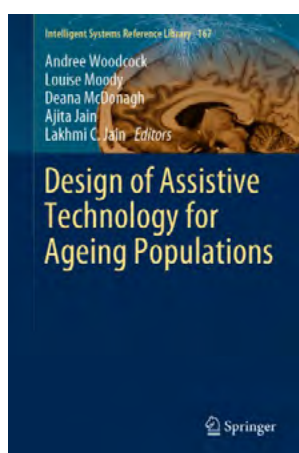
In collaboration with NIHR CYPMedTech MIC, D4D worked with **Abbott** to carry out a comprehensive stakeholder assessment of the current **Abbott FreeGo**, a portable enteral feeding pump.

D4D are the only organisation participating from the UK in the **H2020 funded European Anti-Superbugs** consortium working with industry to develop a smart ICT solution to detect the presence of resistant microorganisms.

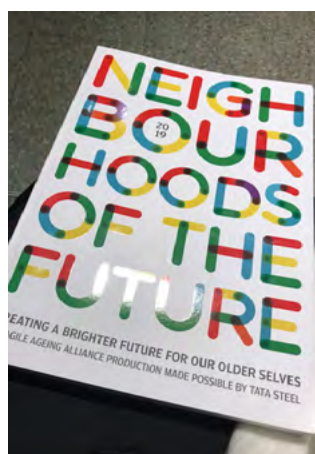


Publications

Dissemination of project findings and shared learning is a key component of Devices for Dignity's activity. We regularly author and contribute to publications, reports, conference posters and resources to advance and catalyse research and innovation thinking.



In 2019, D4D co-authored the **'Design of Assistive Technology for Ageing'** book of international design research, exploring ideas shaping technology design and sharing the D4D methodology.



D4D co-authored **'Technology for Health & Wellbeing – an NHS perspective'** in the **Agile Ageing Alliance Neighbourhoods of the Future White Paper**.



Renal Theme Lead, **Professor Mitra** has been appointed as a Strategic Advisor in the Senior Editorial Board for BMJ Innovations (BMJ Journals) to help promote dissemination of best Innovation in Healthcare globally.

D4D publications and resources are available [here](#) and include published papers in peer-reviewed journals regarding the following projects:

SHAPES

Digital
Dysphagia
Guide

Telehealth in
MND (TiM)

Non-Invasive
Ventilation
(NIV)

Head-Up

Starworks

Find us online



Find out more and view case studies at:

[**DevicesforDignity.org.uk**](https://DevicesforDignity.org.uk)



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