Devices for Dignity
Healthcare Technology
Co-operative

NHS
National Institute for
Health Research

Annual Report 2014/15

Delivering innovative technology solutions to support people with long-term conditions, preserving their dignity and independence

Our Partners

NHS Partners

Sheffield Teaching Hospitals NHS Foundation Trust

Barnsley Hospital NHS Foundation Trust

North Bristol NHS Trust

The Leeds Teaching Hospitals NHS Trust

Sheffield Children's NHS Foundation Trust

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Central Manchester University Hospitals NHS Foundation Trust

University Partners

The University of Sheffield

Sheffield Hallam University

University of Cambridge

Coventry University

Charity Partner

Bladder and Bowel Foundation

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An overview of 2014/15

Clinical Director's comments

2014/15 has been the busiest year yet for the NIHR Devices for Dignity HTC. Our Core Team has expanded, giving us the opportunity to scale up our activities, including starting 22 new projects.

Importantly, this growth has taken place at an ideal time to allow us to expand our patient engagement activities, and plan our innovative event, 'My Dignity Means: A Patient-led Event'. Whilst the involvement of patients, carers and the public has always been an integral part of our approach, during 2014/15 we took this a step further and worked with the public to enable their input into our future strategy.

Another area of expansion has has been around our Paediatric Technologies theme. Issues faced by children with long-term conditions and their carers cannot always be resolved by using or adapting technologies that were initially developed for adults. Within the Paediatric Technologies theme our Technology Innovation Transforming Child Health (TITCH) consortium was funded by the NIHR and three Academic Health Science Networks during 2014/15, allowing us to establish a wider paediatric consortium with new partner organisations. The consortium will provide a platform for the essential multi-stakeholder relationships required to ensure that the very best products are developed and commercialised for the benefit of children and families.

During 2013/14 we managed a Small Business Research Initiative for the development of technology solutions for kidney care, the funding for which was provided by the Department of Health. Of the 14 projects that initially received funding, six were selected during 2014/15 for further funded development. We continue to work with the teams and have strong hopes that these projects will lead to technologies that will enter the market and deliver real value to patients. You can read more about the product teams that were funded for the next phase of development on pages 10-11.

We would like to thank our funders, partner organisations, patients and collaborators for the ongoing support and input that they provide to our programme. We are very proud of these relationships as they come from an alignment of ideals - we are all working towards the same goal of improving personalised patient outcomes, independence, and dignity.

Professor Wendy Tindale OBE
Clinical Director, NIHR Devices for Dignity HTC, Consultant Clinical Scientist and Scientific Director, Sheffield Teaching Hospitals NHS Foundation Trust

In 2014-15:

We worked on **46** active projects

We started **22** new projects

We leveraged additional funding of **£7,384,283**

Visibility, engagement and dissemination

- **12** publications
- **10** posters
- **68** conference presentations or sessions chaired
- **3** product launch workshops
- **4** short films
- **1** exhibition
- **5** newsletters

Patients, Carers and the Public

1 patient-led event in prepa

655 responses to independence and dignity survey

92% of project portfolio included Public and Patient Involvement (PPI) activities

100% of PPI participants felt comfortable and listened to in participating in a project

over **80%** were extremely likely to want to get involved in further research in the future

We have been contacted by more than **75** patients who are interested in our neck collar even before it has undergone clinical evaluation

Working with others

- Join projects were started with **7** other NIHR organisations
- **5** joint funding opportunities
- **2** clinical trials
- We received **43** enquiries for new product development
- **23** Non Disclosure Agreements

We worked with **83** companies:

- **59** were Small and Medium-sized Enterprises (SMEs)
- **53** were SMEs based in UK
- **90%** of projects have or are seeking active industry involvement

Dignity: it's important to all of us

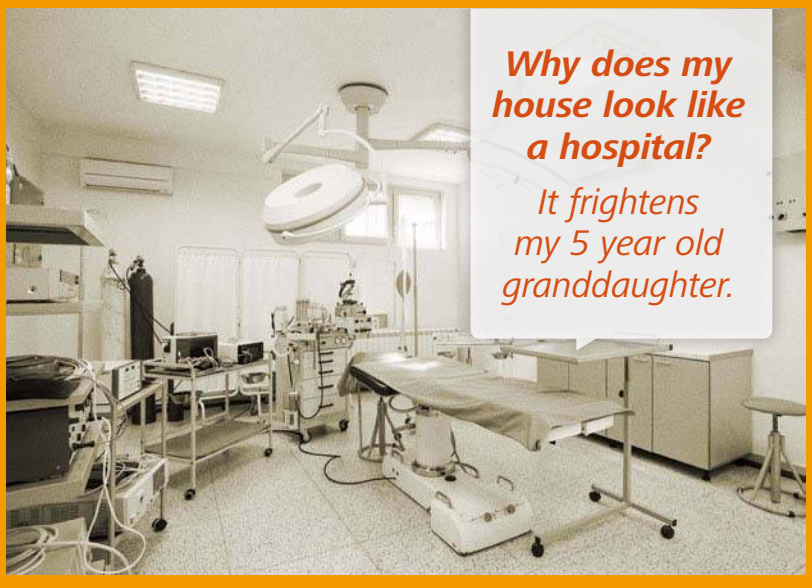
Since our inception in 2008, NIHR Devices for Dignity HTC has been driven by the core aim of maintaining or improving peoples' independence and dignity. In our recent Independence and Dignity Survey, responders told us how they would improve the devices they used. Many of the responses focussed not just on how effective their devices were clinically, but also on how discrete they were, whether they could be personalised for taste, age or cultural preferences, and whether they could use it by themselves without needing assistance from other people.

Regardless of peoples' conditions, disabilities, or how far people have progressed through their recovery or re-ablement, we appreciate the impact that being able to control their own lives can have on a person's dignity and wellbeing. We value the involvement of people with lived experience of long-term conditions and their carers as partners in our projects, alongside clinicians, researchers, designers, charities and industry partners. By building such partnerships we can ensure that the healthcare technology solutions that we develop maintain or promote people's dignity - and by extension their wellbeing - at the same time as addressing their clinical needs.

"My neck started to ache a lot if I had gone on a long journey. This is the collar that I was given to wear, and I hate it. Absolutely hate it. When I'm wearing it I feel like an Egyptian mummy. For it to give me enough support I've got to have really tight. And when it's tight I feel like I'm choking in it. Also you can't communicate with people properly because your head is all stiff, and when you're in a conversation you want to turn your head."

- Moya

Patient participant in the Head Up project, describing her experiences of using a previous neck collar. The Head Up project has developed a re-designed neck collar. Read more on page 19.



An image derived from our Independence and Dignity survey, and displayed during our event 'My Dignity Means; A Patient-led Event'. Read more about our patient engagement activities on pages 8-9.

Our areas of expertise

Within NIHR Devices for Dignity HTC we work towards technology solutions to unmet needs within health areas where we have significant clinical expertise and knowledge of existing products. We have well-developed networks of experts who are able to influence, inform and support our projects.

We focus on four areas that are commonly associated with poor patient experience through loss of dignity and independence:

- Urinary Continence Management
- Renal Technologies
- Assistive and Rehabilitative Technologies
- Paediatric Technologies

Urinary Continence Management

Urinary incontinence affects around a quarter of the population. It has a devastating effect on quality of life and can result in loss of employment and social isolation. It is the second most common reason for older people moving into care. Devices play a major role in prevention, alleviation of symptoms and, importantly, in management of continence where drugs or surgery are inappropriate or have failed, and are vital to restore independence.

Renal Technologies

New technologies will benefit those with advanced kidney disease (costing 2% of NHS budget) and the increasing numbers with chronic kidney disease (CKD) - the overall prevalence is 14% of the UK population. CKD increases markedly with age - it affects over a quarter of those over 65 years. In those whose CKD has progressed to the need for dialysis, 80% report significant reductions in quality of life due to reduced independence caused by reliance upon restrictive technology.

Assistive and Rehabilitative Technologies

There are over 11 million people with a limiting long-term condition, impairment or disability in the UK. The prevalence of disability rises with age (~6% of children, 15% of working age adults, 45% aged over 65). New technologies (e.g. communication aids, dysphagia treatments, restorative rehabilitation technologies) will benefit those living with or recovering from physical, communication or other disabilities.

Paediatric Technologies

Medical devices designed for adults are often unsuitable for children, and are associated with problems such as poor fit, discomfort, low acceptability, and poor adherence. Our Paediatric Theme develops technologies designed to meet the specific needs of children living with long-term conditions, and their carers.

Our approach to technology development

NIHR Devices for Dignity HTC develops technology solutions to unmet clinical needs. We build bespoke collaborative project teams for each project, dependent upon what each project needs. We undertake projects at any of the following stages:

Recognise

People can approach us with details of what they think is missing from their care, to which there may be a technology solution. Alternatively, people may approach us from academia, industry or the NHS to speak to us about a need that they have recognised. Sometimes people approach us with solutions already in mind, but here is no need to do this - we can work towards this.

For more information about recent advances in the Head Up project, and partners, see page 19.

Validate

After a clinical need has been identified, we work with patients, charities, scientists, engineers, healthcare professionals, intellectual property specialists, and others who work in the same area to independently validate the need. We also work with these groups to define exactly what the unmet need is.

Develop

Once we know exactly what the problem is we can start exploring creative approaches to addressing the problem, and produce a prototype.

Typical funding sources include the NIHR research funding streams such as the Invention for Innovation (i4i) Programme, Health Technology Assessment (HTA) funding, and the Wellcome Trust.

“When developing a medical device it’s important to understand all the user needs at the outset to increase the likelihood of getting the design right the first time. The considerations are simple to write down: Why is it needed and who will pay for it? Who will use it? What is it intended to do and what difference will it make? Where, when and how often will it be used? The questions are not always easy to answer but the most important, having satisfied the ‘why’, is - who will use it? The device design needs to be as inclusive as possible to maximise its benefits for people with different conditions and capabilities.”

Dr Avril McCarthy
MedTech Lead, NIHR Devices for Dignity HTC

Evaluate

Having developed a prototype, we then move towards evaluating how it can work in clinical practice and as part of people's daily lives. We may develop the prototype further based on how the solution works.

This evaluation helps us to obtain the right evidence that we need in order to achieve the vital CE mark, and to provide the information needed by clinical departments and NHS purchasers to enable the device to be used in clinical practice.

Typical partners include the NIHR Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) and Comprehensive Research Networks (CRNs).

"Evaluation is the stage at which a wider group of patients are asked to try the device or technology. Feedback is really important - we need to know whether the device is clinically effective and acceptable to patients, carers and healthcare staff, or whether we should make further changes. A thorough evaluation provides evidence as to whether our solution is a good solution for real-world clinical use."

Liz Pryde
Project Manager, NIHR Devices for Dignity HTC

"Commercialisation is a vital part of our projects; it is essential to making the devices and technologies that we develop available within the NHS. By working closely with carefully chosen industry partners who share our values, we can establish partnerships that are beneficial to patients, the NHS, and the economy"

Oliver Wells
Commercial Director
Devices for Dignity Ltd.

Commercialise

When a project first comes to the HTC, our approach is to identify and work collaboratively with industry partners who have existing expertise, manufacture and supply chains, such that once we have obtained a CE mark, the device can be licensed, produced, and supplied. We are also able to work directly with companies that approach us at any stage of our process, whether to develop evidence to obtain a CE mark, or to seek clinical and patient expertise, or to obtain research funding to trial their device within the NHS.

Our commercialisation activities are undertaken through our commercial arm, Devices for Dignity Ltd.

Recent successfully commercialised devices include CARLA, a communication device developed with Jabbla. For more information see page 18.

A year of patient engagement and collaboration

2014/15 has been an exciting year for our programme. Whilst we have always included carers and people with long-term conditions in our project teams wherever possible, during 2014/15 we have expanded our range of activities to include larger scale patient engagement. This included our Independence and Dignity Survey, and the planning of an innovative patient-led event, at which patients and carers shared their experience, and joined discussions to help us identify potential clinical and strategic priorities.

Independence and Dignity Survey

In collaboration with a team of expert patients, and with input from the Dignity Council, we created our Independence and Dignity Survey. The survey was designed such that patients could tell us what is important to them in their everyday lives. In doing so, it offered people the opportunity to influence future care developments, both through helping to identify specific issues with certain existing devices, and through identifying areas that NIHR Devices for Dignity HTC could explore. By the time the survey closed in early May, and thanks to the support of a range of charities and support organisations, we had received a staggering 655 responses, containing very useful detailed information.

Many thanks to all the respondents.

My Dignity Means: a patient-led event

On 2 June 2015 we held our long-awaited event, *My Dignity Means: A Patient-led Event*. This event built upon the information that people kindly submitted through the survey, and provided NIHR Devices for Dignity HTC with some interesting new directions to explore.

We will release a report on the survey and event in the Autumn of 2015.

We would like to thank the following groups for their efforts in helping us to reach members of the public:

- The Bladder and Bowel Foundation
- The British Kidney Patients Association
- INVOLVE
- Marie Curie Cancer Care
- Sheffield Cancer Mafia
- We Love Life

Particular thanks go to Parkinson's UK and Vasculitis UK, whose members provided an excellent breadth of information about themselves and their lives.

We would also like to thank all the individuals and other organisations that helped circulate the survey on our behalf through Twitter, and more traditional means.

Over **92%** of our projects included PPI activities

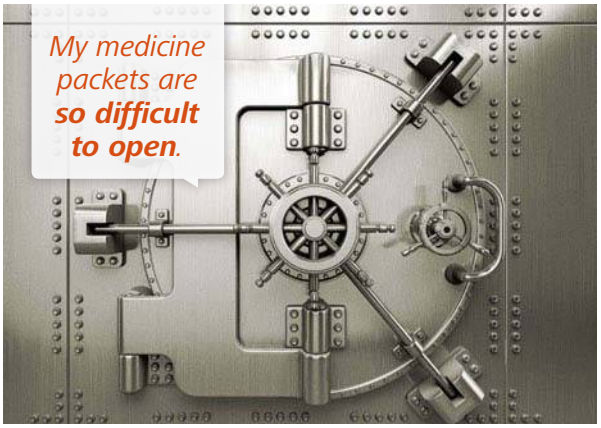
Patient and Public Involvement in our projects

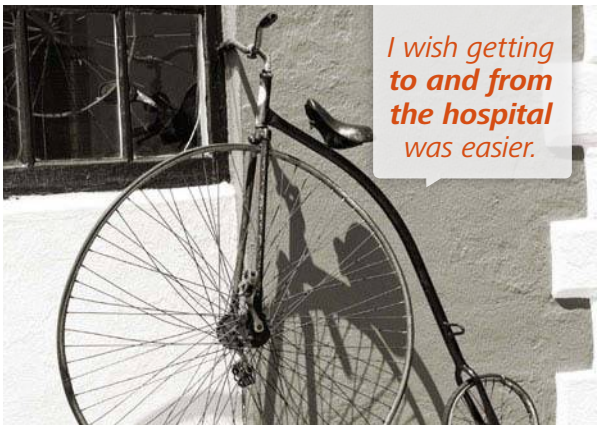
During 2014/15 we contacted members of the public who have previously been involved in our projects to find out about their experiences of working with us, and to see whether we could raise our standards, and the experiences of future patient partners, even further.

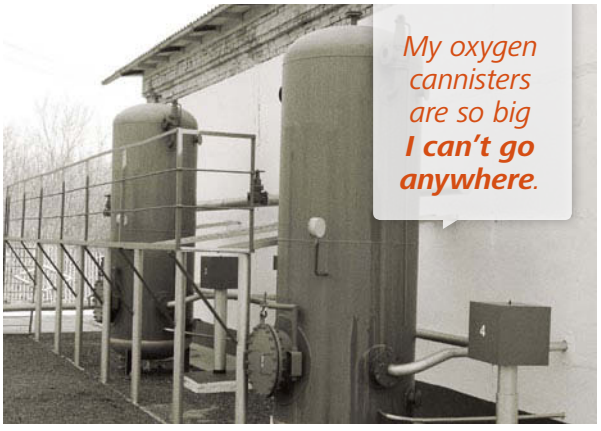
Our findings:

- 100% 'felt comfortable' and 'felt listened to' in participating in a project
- Over 50% of respondents felt that they had 'had an impact on the project'; the remaining respondents felt that they had 'maybe' had an impact on the project.
- Over 80% of respondents were 'extremely likely' to want to get involved in further research in the future.

As a consequence of the feedback we received, we have adapted our PPI process, such that we will now ask all participants to comment upon their experiences. Importantly, we will ensure that PPI participants are kept up to date about the behind-the-scenes progress of projects, even after their active involvement has ended.







SBRI Kidney Care competition

In 2013, NIHR Devices for Dignity HTC partnered with the Department of Health to run a Small Business Research Initiative (SBRI) competition in Kidney care.

This competition was focused on giving businesses the opportunity to develop ideas and technologies that could prevent kidney disease, allow earlier diagnosis, and give patients with kidney failure greater independence, enabling treatment closer to home.

In Oct 2014, our Phase 1 winners completed their proof of concept phase with 12 teams making significant progress towards creating new technologies to support people living with Kidney Disease.

It was a very difficult challenge but eventually six teams were selected to progress to Phase 2.

Our Phase 2 winners:

NIRI, Leeds

The need: With the demand for renal transplantation being significantly higher than organ availability there is a need for transplantation of blood group incompatible organs.

The unmet need: Currently, patients due to undergo transplants with blood group incompatible organs receive, on average, two weeks of antibody removal treatment prior to their transplantation. These treatments are expensive and often have to be planned around dialysis treatment. Many patients experience prolonged hospital stays.

The solution: An inexpensive system for antibody removal which can be used simultaneously with haemodialysis, leading to reduced treatment time and less time spent in hospital.

www.nonwovens-innovation.com

> “Competitions such as this help the development of cutting-edge technologies which will make a real difference to NHS kidney patients. The UK is fast becoming the world leader in 21st century bio-medicine and life science, driving innovation and supporting small businesses to grow.”
>
> **George Freeman** - Life Sciences Minister

365 Response, Wakefield

The need: Patients dialysing in a dialysis unit need to get to and from their place of treatment in the pre-defined time slot allocated to them. Many people in this situation cannot transport themselves, or have special needs that require ambulance transport.

The unmet need: Under current hospital transport practises dialysis patients spend a large part of the three days a week they dialyse either travelling or waiting for transport, which has significant implications on their quality of life. The delay in arrival for their treatment can also affect the length of their treatment and the smooth running of dialysis units.

The solution: A personalised transport app-based booking system, designed around patients’ needs, to provide them with control over their transport and to minimise delays.

www.365response.org

Patientrack, Somerset with Western Sussex NHS Trust

The need: Acute Kidney Injury (AKI) is a potentially preventable and reversible condition that frequently complicates hospital admission, and is associated with significant mortality and morbidity. There is a need for early identification of clinical signs and symptoms of development of AKI.

The unmet need: Education, awareness and culture change in both early diagnosis and response pathways for the management of AKI have led to improved outcomes. The area of unmet need is the identification of individuals at risk of AKI even before AKI develops to allow early treatment and prevention.

The solution: An automated information technology system to calculate the risk for developing AKI using the patient's laboratory results and clinical parameters such as blood pressure. The system alerts clinical teams of at-risk individuals so that they can quickly be provided with the right care.

www.patientrack.com

IF Sensing Ltd, Manchester

The need: Many kidney patients require frequent monitoring of their creatinine levels.

The unmet need: To improve patient self-monitoring, patients would benefit from a point of care device that is both safe to use, and minimally invasive.

The solution: A device allowing monitoring of kidney function at home using a simple, bloodless, pain-free reading of creatinine levels.

www.ifsensing.com

Atlantis Healthcare, London

The need: The diagnosis of chronic kidney disease (CKD) is a life changing event. For many it's the start of a journey that can lead to renal replacement therapy and life-long dependence on the healthcare system. Difficulties in coping with the demands of the illness and treatment can lead to problems with adherence and adverse health outcomes.

The unmet need: Many patients with CKD have difficulty managing aspects of their care, in particular adherence to blood pressure medicines and lifestyle changes, and currently there is a lack of effective, evidence-based adherence support for these patients

The solution: Develop an online support programme using health-psychology based interventions to improve self-management in order to delay disease progression.

www.atlantishealthcare.com

Microsensor Ltd, Manchester

The need: For patients receiving peritoneal dialysis the most frequent complication leading to admission is peritoneal infection. The severity of infections has a lasting impact on the peritoneal membrane and its ability to be used for dialysis. This can lead to treatment failure.

The unmet need: Peritoneal infections are brought to medical attention due to cloudiness of the dialysis effluent or development of symptoms. Infection is confirmed by microscopy and culture, the results of which can take 48hrs.

The solution: A point of care infection monitoring device that triggers a colour change in the event of infection can improve early identification and treatment. This will reduce the need for hospital admissions and improve peritoneal membrane survival.

www.microbiosensor.co.uk

Paediatric Technologies - D4D Junior

A new theme for 2014/5

NIHR Devices for Dignity HTC have recognised that there is a lack of innovation in healthcare technologies for children, many of which are repurposed from adult technologies, often with sub-optimal results.

Medical devices for adults are often unsuitable for children and can lead to problems such as poor fit, discomfort, low acceptability and have poor use adherence, for example urinary bags for children are often scaled down adult versions. NIHR Devices for Dignity HTC in association with Great Bear Healthcare Limited have developed leg bags that offer a more pleasant experience for young children. These are shaped like a cuddly teddy bear, with a soft smooth fabric backing, and this makes them more appealing for children.

The focus in the past has been on tackling the immediate healthcare costs related to long-term conditions and the ageing population. Investing in technology and innovation to address unmet needs specifically in child healthcare will benefit their health and wellbeing in the long-term. This will also have an impact on the long-term costs of healthcare as the child grows into adulthood.

TITCH

Technology innovation transforming child health

Using NIHR Devices for Dignity HTC's established methodology of identifying and validating unmet needs, our Paediatric Technologies theme - D4D Junior - stimulates innovation by working across sectors to address unmet needs. To achieve this aim we work alongside universities, children's hospitals, and other Healthcare Technology Co-operatives. D4D Junior focuses on independence for children with long-term conditions, and is supported by the newly formed TITCH (Technology and Innovation Transforming Child Health) network.

TITCH overall focus is around 4 key areas:

- **Evaluation** - to facilitate the evaluation of a device or technology through the expert network.
- **Collaboration** - offers the opportunity for network collaboration in the development of new technologies from validation of need to active collaboration on projects.
- **Early adopter** - TITCH can facilitate the identification of early adopter sites which may have an interest in a specific new technology.
- **Market ready** - showcases devices that have gone through the process and are now commercially available.

www.titch.org.uk

Technology Innovation Transforming Child Health

TITCH is a collaborative network that is hosted and managed by NIHR Devices for Dignity HTC.

Our partners are:

- Sheffield Children's NHS Foundation Trust
- Central Manchester University Hospitals NHS Foundation Trust
- Alder Hey Children's NHS Foundation Trust
- Great Ormond Street Hospital for Children NHS Foundation Trust
- Birmingham Children's Hospital NHS Foundation Trust

Non-NHS members include:

- Generation R (Young Person's Advisory Group of the NIHR Medicines for Children Research Network)
- Medilink Yorkshire & Humber
- TRUSTECH (the North West NHS Innovation Service)
- Sheffield Hallam University (an existing NIHR Devices for Dignity HTC academic collaborator).

TITCH also works with the Academic Health Science Networks (AHSNs) to help address the unmet needs of children through wide collaboration to support the development of early life innovation and technology within the AHSN's theme areas.

Our AHSN members are:

- Yorkshire and Humber Academic Health Science Network
- North West Coast Academic Health Science Network
- Greater Manchester Academic Health Science Network

EPSRC - NIHR Healthcare Technology Co-operative partnership awards

In 2014, the Engineering and Physical Sciences Research Council (EPSRC) set up eight new networks to enable collaborations between academia and the eight NIHR HTCs. Recognising the strong alignment between the goals of the EPSRC Healthcare Technologies theme and the NIHR HTCs, this initiative is providing the opportunity to create firm links and networks between the clinically-focussed HTCs and academic research excellence in pre-clinical Engineering and Physical Sciences, and to capitalise on the expertise of both communities in connecting with industry.

This new initiative builds on the success of partnership working on the HTC pilot programmes. It was through this collaboration in 2011, and the support of another EPSRC-initiated project called KT-EQUAL, that the very successful NIHR Devices for Dignity HTC Head Up project emerged.

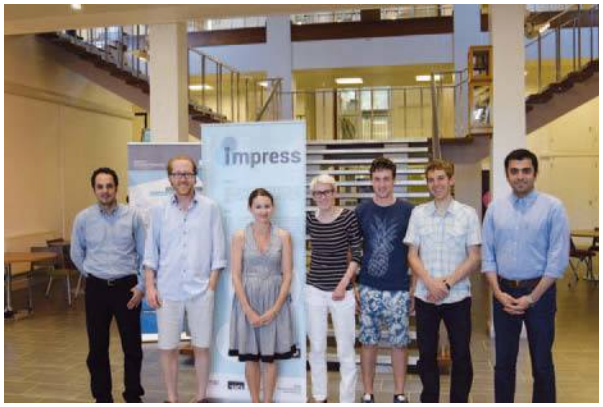
NIHR Devices for Dignity HTC team are delighted to be involved in three of these new networks:

1. IMPRESS (Incontinence Management and Prevention through Engineering and Sciences) led by University of Leeds in partnership with University College London.

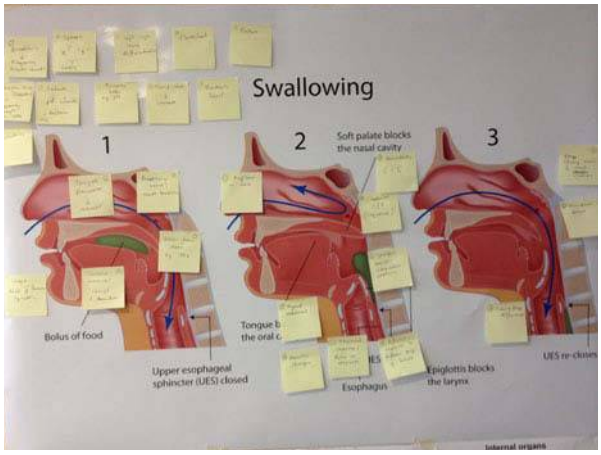
Aim: The aim of the network is to bring about a radical change in the research and development activities in incontinence technologies through engaging some of the UK's top scientists and engineers and alerting them to the rich suite of challenges that could transform the lives of millions of sufferers

NIHR Devices for Dignity HTC's scientists and clinicians have been involved in 'unmet needs' interviews describing some of the most challenging needs within the field, innovation workshops, judging proof-of concept competitions, and jointly exploring new developments in catheter design.

www.impress-network.com



EPSRC
Engineering and Physical Sciences Research Council



2. The Medical Devices and Vulnerable Skin Network led by the University of Southampton and Kings College London.

Aim: The network has been created to assemble the technological expertise required to address the incidence of chronic wounds arising from interventional medical devices.

NIHR Devices for Dignity HTC has started a collaborative project within the network to design and develop an improved female urinal. In addition, the expertise from this network is adding value to an ongoing project within our HTC to develop safe and effective non-invasive ventilation masks for children.

www.southampton.ac.uk/mdvsn

3. Promoting Real Independence through Design Expertise (PRIDE) led by The University of Cambridge, in partnership with University College London, Loughborough University and the Royal College of Art

Aim: this network of design researchers and healthcare technology specialists will carry out a series of design-led pilot projects to explore solutions to care and independence challenges, to encourage innovation in order to find radical new ways of using technologies to allow sustainable patient independence while maintaining clinical quality, safety and patient and carer experience while reducing costs

NIHR Devices for Dignity HTC has worked with PRIDE to progress the high-priority unmet clinical needs that resulted from our HTC's 'priority setting' work in dysphagia (swallowing difficulty), which was carried out in 2013. A creative 'sandpit' event was held in Cambridge to look at methods for 'bedside assessment of swallowing', and the resulting ideas are now progressing.

Projects

ELAROS 24/7

ELAROS 24/7 has been created by clinicians in collaboration with patients, and provides an innovative new way of carrying out initial assessment, diagnosis and triaging of patients with lower urinary tract symptoms (LUTS). The ELAROS 24/7 service has also been designed to care for patients who require long-term management and monitoring of their symptoms. An important aspect of this innovative service is that it can also be used to efficiently and effectively determine how well patients respond to different treatment regimes.

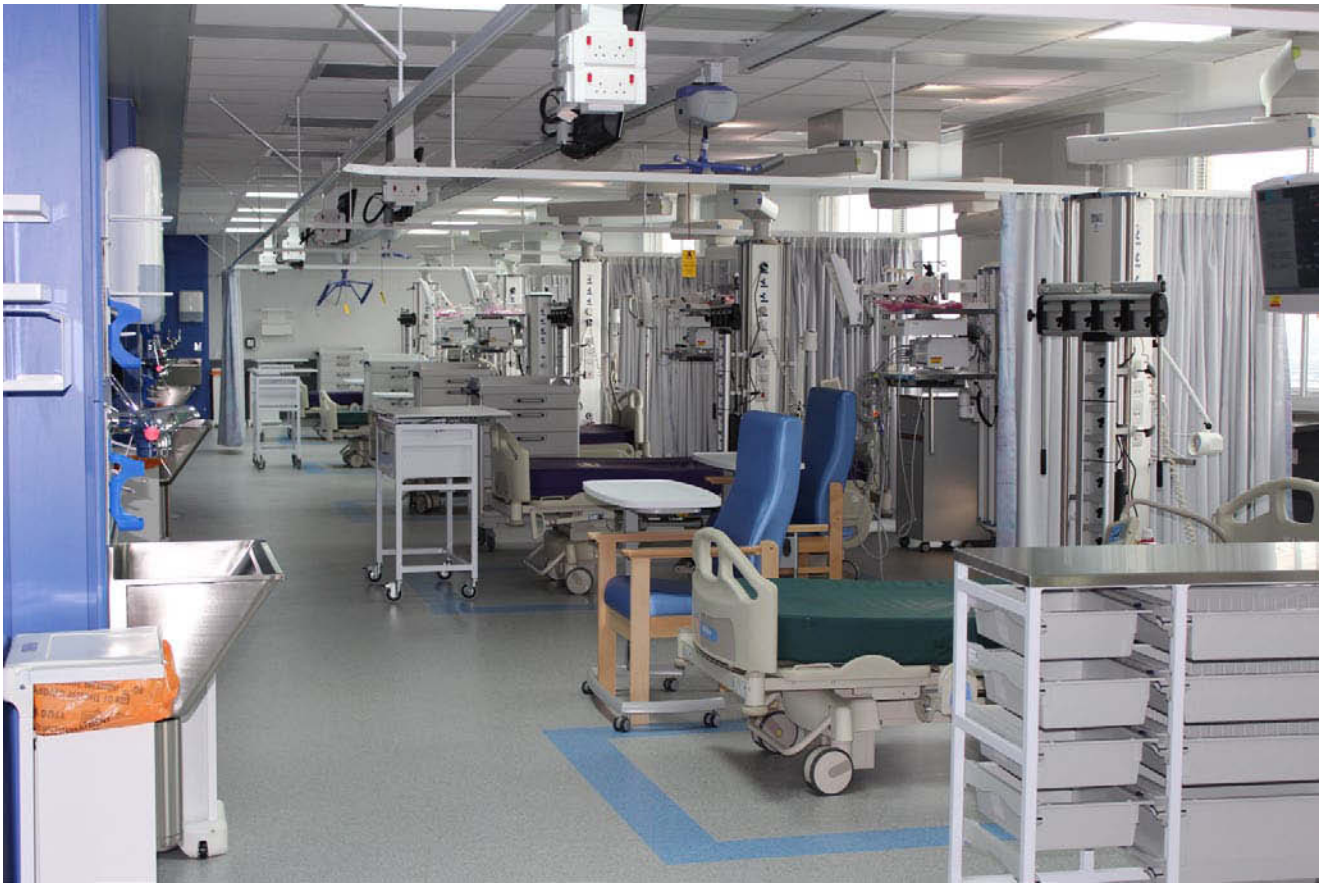
ELAROS 24/7 includes an electronic bladder diary and a clinical web portal. The service components include a handheld device, information and software that have been designed to be integrated with GPs' existing practices, specialist continence providers, community health organisations and acute trusts. NIHR Devices for Dignity HTC has provided clinical and regulatory expertise in developing this device and components, as well as testing how usable the system is.

The information gathered from the ELAROS 24/7 system provides an immediate diagnosis and recommended clinical action. This will reduce the need for patients to go back and forth to their GP and cuts out inappropriate and unnecessary referrals to hospitals. Once adopted into routine clinical use we anticipate the device will lead to more rapid diagnoses, which reduces anxiety for the patient as well as potentially offering quicker relief from symptoms, and may lead to savings of NHS resources.

ELAROS 24/7 helps to provide a more effective personalised service and facilitates improved compliance with NICE guidelines.

Following the successful collaboration with two NHS Innovation Hubs (Medipex and Innovations North) ELAROS 24/7 was set up as a spin-out company in 2013.

www.elaros247.org.uk



ICUapp

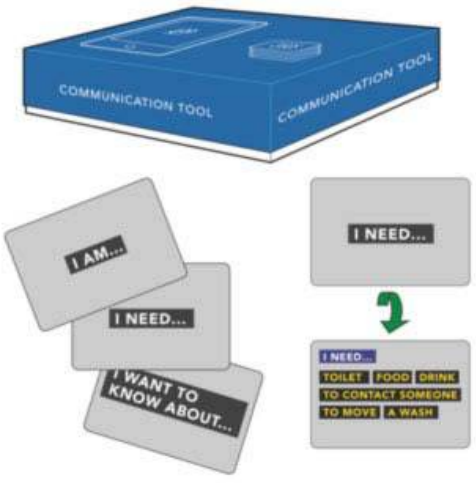
This prize-winning project is looking at the development of an Augmentative and Alternative Communication (AAC) system that can help communication between patients, families and medical staff on intensive care units, and potentially in other hospital care settings.

Tens of thousands of patients spend time on intensive care units and other high dependence units per year in the UK. It is increasingly common for patients to not be sedated whilst on a ventilator. This leaves patients conscious and aware of their own surroundings, but unable to communicate in a normal verbal manner preventing the sharing of thoughts, feelings and needs in the usual way.

Communication difficulty is the most commonly reported distressing symptom for patients receiving mechanical ventilation and is associated with frustration, and sleeplessness.

Communication impairment and difficulty are also sources of distress for family members and friends of critically ill patients.

This project is in the early stages of development, and we anticipate rapid progress over the coming year.



CARLA

The Computerised Accessible Receptive Language Assessment (CARLA) software has been designed because speech and language therapists found it difficult to get an accurate picture of a child's receptive language using tests that are currently available if the child had a physical disability and couldn't speak or point to pictures to show what they could understand.

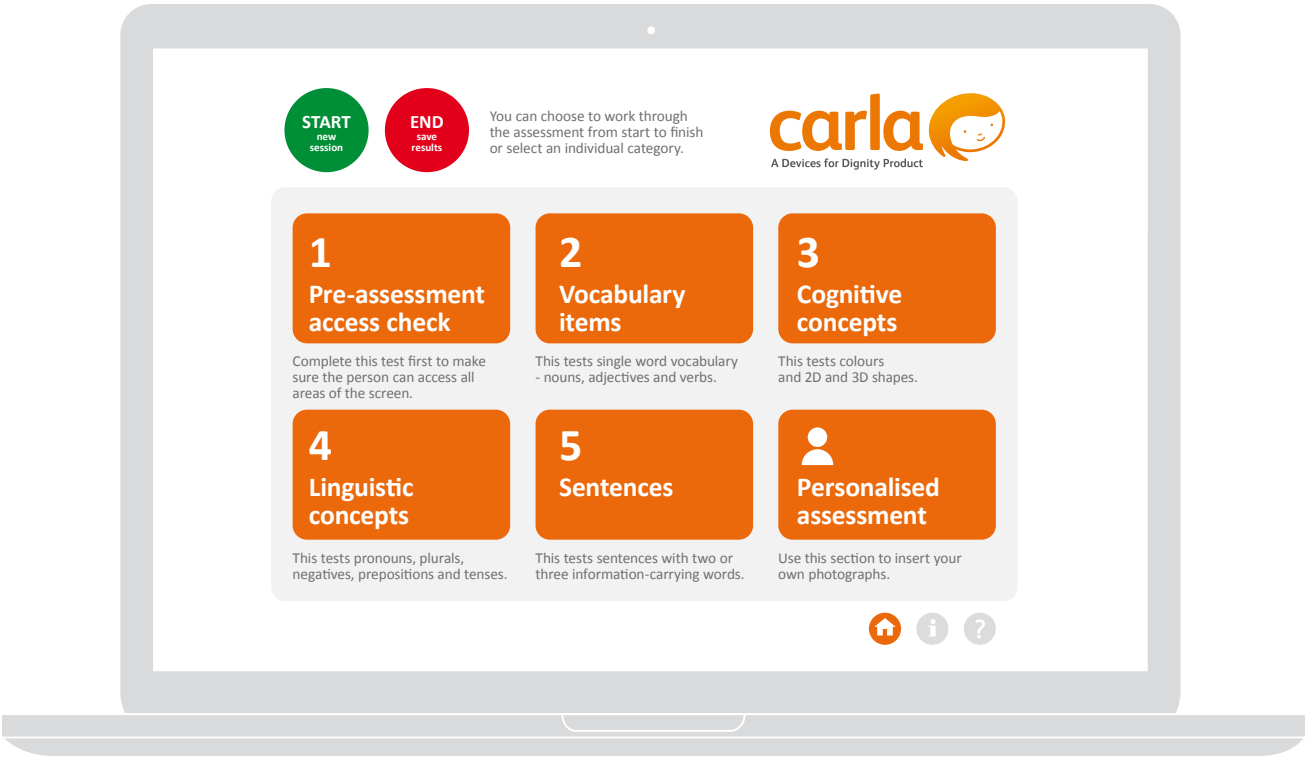
Incorporating eye gaze tracking, mouse pointers and switch scanning options, the CARLA software is the first assessment of its kind to combine all these features into a single software package so that speech and language therapists can use these methods to accurately record a child's receptive language level.

As a result of having a more accurate picture of these children's ability to understand language, the software will make it easier for speech and language therapists to target their therapy at an appropriate level. This could make a significant difference in terms of their educational outcomes and ensuring the appropriate language support is put in place.

The software, which has been designed for children with physical disability, also has the potential to help children with sensory or attention difficulties and adults with communication disabilities such as those with learning difficulties, dementia or aphasia.

The software is initially available for use by speech and language therapists and teachers, and can be purchased from www.techness.co.uk/carla

The technology has been developed by NIHR Devices for Dignity HTC and Barnsley Hospital's Assistive Technology team in partnership with Jabbla, a Belgian technology company.



“It looks like an item of clothing and you could wear a scarf over it or something.”

Head Up

The Head Up project is a collaboration between the University of Sheffield, Sheffield Hallam University and NIHR Devices for Dignity HTC, and has seen the development and production of a Class 1 CE-marked neck orthosis medical device (collar) for patients with neck muscle weakness.

People with motor neuron disease (MND) are currently offered a neck orthosis (collar) to help with neck weakness. However, patients often find the collars to be inadequate, so we worked with patients, healthcare professionals and designers to produce a new prototype, the Sheffield Support Snood, which would be more acceptable to patients.

A pilot study was conducted on 20 patients over the period of one month. Patients using the snood reported an improved range of movement, better support, more flexible use, and improved appearance and comfort. Armed with the results of the pilot study the team embarked on several design cycles with both users and designers to improve the original design.

Following the pilot study and the iterative design stages a larger study was required to provide more clinical evidence to address the route to market questions raised by manufacturers, and also to gather more user feedback on the new and improved design.

“I love the idea that you can adjust it in lots of different ways because obviously you know different weaknesses.”

© Nigel Barker Photography

“I think it’s more supportive in the right places.”

“It’s a lot more comfortable. With the collar on I get no pain at all.”

Further funding was secured from both NIHR i4i and the MND Association and this has allowed us to set up a larger clinical evaluation of 150 participants from 11 sites across the UK and Ireland. The study has been eagerly awaited by healthcare professionals and users alike and will recruit both MND patients and patients with other neurological conditions where neck muscle weakness is problematic. Recruitment will commence in October 2015.

Throughout the lifecycle of the project the team has worked closely with the commercial sector. We expect that by the end of the clinical evaluation process a licence deal will have been made, leading to the Snood becoming commercially available.

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