

# Health and Social Care Institute NEWS

Issue Five 2014



## Health and Social Care Institute:

- conducts applied research with real clinical and social impact
- synthesises and evaluates evidence
- translates evidence into policy and practice

# Foreword from the Director

This edition of the newsletter highlights the applied nature of much of our health and social care research, across both of our major strands of work on public health and on rehabilitation sciences.

**Professor Janet Shucksmith  
Assistant Dean (Research)**



A significant part of the portfolio of work in rehabilitation sciences focuses on the management of painful and disabling conditions, and this is well illustrated in this edition by articles looking at a significant new trial for treatment of frozen shoulder and at a range of studies using imaginative new methods which focus on understanding the patient experience of pain and look at how this might be managed. We are pleased to be able to highlight the work of one of our significant clinical collaborators, Professor Amar Rangan. Working closely with practice partners is key to our understanding of how we can ensure that academic work address real problems and can be put quickly to use, and so is central to our commitment to build impact from our work.

The Centre for Health and Social Evaluation (CHASE), which is embedded within the Institute, was designed as a 'close to practice' research and evaluation group. Working collaboratively with our practice partners, it is well attuned to turning real life problems into

researchable questions and designs. Many, but not all, of the projects tackled relate to issues about implementation, and research can pin down the detail of whether an intervention or initiative is working equally well for all of the target group – both the study of maternal obesity pathways and the compliance study undertaken on the Healthy Heart Checks programme described in this issue exemplify this well. Other studies have a more exploratory focus – the project on immunisation incentives highlighted here is a case in point.

Across the Institute we have a strong belief in models of working and research designs which allow rapid feedback into the implementation process and clinical setting. This is research with rather than on our policy and practice partners, and has value for us as part of the general commitment to knowledge exchange within the Institute.

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# FroST: a major UK trial set to compare standard treatments for frozen shoulder



Dr Nigel Hanchard, Reader in Musculoskeletal Rehabilitation is the lead author of the national physiotherapy guidelines and a co-applicant on the successful funding bid. He said, 'Now we will be able to properly compare the three most-used treatment approaches to refractory frozen shoulder in the NHS - not only in terms of their clinical outcomes, but also their cost-effectiveness. The importance of this study really can't be overstated.'

UK-FroST commences in October 2014 and will run for five years.

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**Frozen shoulder is common among working-aged people, causing pain and stiffness and impairing function and quality of life. When a frozen shoulder is unresponsive to simple measures, there is the option of physiotherapy or an operating theatre procedure. Two different operating theatre procedures are often used to treat the condition. However, the lack of evidence from good quality comparative trials means that it is unclear whether either procedure is better than the other, or whether either is better than evidence-based physiotherapy. A national team headed by HSCI's visiting professor Amar Rangan (see spotlight on page 10) has been awarded £1.7 million to answer these questions in the UK Frozen Shoulder Trial (UK-FroST).**

This randomised controlled trial, funded by the National Institute for Health Research (NIHR) Health Technology Assessment (HTA) programme and managed by

York Clinical Trials Unit, will ultimately include 25 clinical centres across the UK.

UK-Frost aims to recruit 500 patients, who will be randomly allocated into one of three groups, and followed up for twelve months. Patients in the intervention groups will receive one of the two common operating theatre procedures. One of these procedures is controlled manipulation of the shoulder under a general anaesthetic. This is done on a day case basis, and aims to restore mobility to the shoulder by stretching and tearing tight surrounding tissues. A steroid injection is given into the joint straight afterwards, to reduce any pain and inflammation. The other procedure is keyhole surgery to release the tight tissues around the joint, followed by manipulation of the shoulder under anaesthetic to consolidate the release. In the trial, both operating theatre procedures will be followed by standard aftercare. Patients in the control group will receive evidence-based physiotherapy (including a steroid injection into the shoulder joint) based on national guidelines.



## Winston Churchill memorial trust fellowship awarded to Dr Sharon Hamilton

**Dr Sharon Hamilton, Reader in Nursing, has been awarded a Winston Churchill Memorial Trust Fellowship. Each year the Winston Churchill Memorial Trust (WCMT) awards travelling fellowship grants in a range of fields, to carry out research overseas and bring the learning back to the UK.**

This prestigious award will enable Sharon to travel to Australia to research the Australian approach to reducing unnecessary deaths in acute hospitals. She will travel to Sydney to meet with the head of the Australian Commission on Safety and Quality in Health Care and will then visit hospitals in Sydney, Melbourne and Perth to see first-hand how Australian clinical staff approach the issue of patient safety.

Sharon will also spend time at Edith Cowan University in Perth with a Professor who specialises in patient safety. On her return to Teesside University she will ensure that the learning is shared with clinical colleagues locally and across the UK – sharing the learning is a key responsibility of all WCMT Fellows.



Above: Dr Sharon Hamilton

## StepJockey



StepJockey is a new idea that has been developed with Small Business Research Initiative funding. The intention is to improve people's energy expenditure by mapping and labelling steps and staircases with calorie burn information.

StepJockey is grounded in behavioural economics and design ideas and aims to nudge people into weight management by seamlessly building physical activity into everyday life, encouraging people to use stairs, rather than taking the easy option with the lift. The programme uses crowdsourcing to build a database of calorie counts for different stair climbs and enables the user to label stairs with smart posters which display calorie rating, and QR tags to facilitate smart phone tracking via an associated app. Dr Louisa Ells, Reader in Public Health and Obesity, was advisor to the project team during the development of the programme and is now working with Alan Batterham, Professor in Exercise Science, to validate the algorithm that StepJockey uses to calculate the energy expenditure associated with stair climbing.

This research is particularly important given the lack of recent, high quality studies measuring real-world energy expenditure for stair climbing. Louisa and Alan therefore aim to measure the physical activity energy expenditure associated with climbing stairs in a representative sample of an urban population, to check that the StepJockey stair climbing equations work for both men and women, and to alter the existing algorithm as necessary, to take into account other important variables.

[www.stepjockey.com](http://www.stepjockey.com)

## Healthy Lifestyles in pregnancy and beyond



**Maternal obesity rates in the UK are rising, more so in the North East of England than across the UK as a whole. Maternal obesity is associated with a number of health risks to mother and infant, and has implications for healthcare resources. A local trust is tackling these risks with maternal obesity treatment pathways, which CHASE has evaluated.**

The pathways provide both clinical intervention and weight management support for women who are classified as obese, based on a body mass index (BMI) of 30 or above, at the beginning of their pregnancy. Three pathways are in place based on the degree of obesity. Women on the high pathway receive the most intensive intervention, including the options of extra growth scans, and attendance at a healthy lifestyles clinic which includes specialist dietetics advice. Women on the lower pathways receive weight management support and advice by their usual midwife.

Professor Janet Shucksmith and Sarah Dinsdale, a Research Associate in HSCI, have recently completed an evaluation of these pathways called *Healthy lifestyles in pregnancy and beyond*. Their study, commissioned by the Public Health team at Middlesbrough Council, involved

interviewing 24 new mums who had been on the pathways during their pregnancy. The findings indicated that there were positive aspects of the pathways and that they were having an encouraging impact among some women. But more could be done to help a wider group of women benefit from the intervention. In particular, there were clear differences between the highest pathway and the lower two in terms of awareness of being on a pathway, understanding the implications this had for pregnancy, and the amount of diet and activity advice received. This last point is important because, in the absence of specific advice in relation to lifestyle changes, women reported apprehension about making any specific changes.

There were also clear gaps in the postnatal advice and support relating to weight management across pathways.

Women recalled how they would have welcomed this at appropriate times, and told the research team about services and support they would like to fit in with the complexities of their lives. Women also provided important insights into the approach that healthcare professionals should use when discussing their weight, often welcoming weight-related discussion when this was done in a tactful manner which recognised their own knowledge and current lifestyle. The term obese was perceived negatively, with women preferring healthcare professionals to use the terms BMI or overweight, which seem less judgemental.

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As a result of this evaluation a number of changes are occurring. Sarah Dinsdale has provided input to a steering group aimed at service redesign for women on the lower pathways, and to the Middlesbrough Redcar and Cleveland Task and Finish Group for Maternal Obesity for feedback into strategy development for maternal and infant health. There are plans for a new antenatal lifestyle service to be set up for women on the lower pathways. Women will also be given more direct information about postnatal support, which will give mums an opportunity to meet up again after their babies are born. Training has also been identified as a priority to help midwives discuss weight with women.

# Persistent musculoskeletal pain tackled

Persistent musculoskeletal pain conditions such as low back pain are common in the UK. They are responsible for much disability and suffering and cost the UK economy billions of pounds annually. Dr Cormac Ryan and Professor Denis Martin, with clinical collaborators and international academic colleagues, are undertaking a programme of work to improve our understanding of persistent pain's underlying pathology and to research the efficacy of new treatments.

In collaboration with European colleagues and James Cook University Hospital (JCUH) Middlesbrough, Cormac and Denis are currently undertaking a clinical trial on the effectiveness of TENS (transcutaneous electrical nerve stimulation) for people with upper limb complex regional pain syndrome. In this debilitating syndrome, the painful limb becomes dissociated from the brain's image of it, perhaps by a mechanism akin to the limb neglect experienced by some stroke sufferers. The result is a vicious cycle of reducing function and increasing pain. Cormac and Denis hypothesise that if TENS is applied to the neglected limb over a number of



weeks it may help to normalise the link between the limb and the brain's image of the limb, reducing the pain. TENS units are cheap, simple to use and well-suited to self-management, so this study, funded by the British Association of Hand Therapists, may point the way to a really practical intervention for this intransigent condition.

Central to the success of novel interventions like this is good patient education. Helping people to understand the neurophysiology underlying their painful condition is important for empowering them to engage in their own care, and might facilitate adherence to treatment and, ultimately, lead to better clinical outcomes. Dr Ryan said, 'We recently published a review article identifying pain neurophysiology education as a clinically effective education for patients with persistent pain. However, we were acutely aware that no-one knew if patients who underwent this education really changed their understanding of pain. To investigate this we carried out interviews with patients after they received the education and found that, while their theoretical knowledge of pain neurophysiology had increased, they were unable to relate that information back to themselves. This may be limiting the effectiveness of the education.' In collaboration with James Cook University Hospital (JCUH) Cormac and Denis are now investigating this further in a study funded by the Chartered Society of Physiotherapy. They aim to identify potential ways in which the education might be modified to help patients apply the information to themselves and in doing so perhaps enhance the education's clinical effectiveness.

These studies seek new ways of understanding and treating persistent pain in the clinical setting. But it is also important to look at the wider issue of how pain may affect public health. A recent study published by Cormac and Denis, in collaboration with colleagues from the USA, involving the secondary analysis of data from the Health Survey for



*Above: Dr Cormac Ryan*



*Above: Professor Denis Martin*

England, identified a link between persistent musculoskeletal pain and cardiovascular disease and investigated potential reasons for the link. Similar work is being undertaken to understand the relationship between persistent pain and obesity. The programme of work suggests that pain may be a risk factor for metabolic conditions. Thus, good management of pain is not just important from the perspective of improved pain and functioning for the individual, but should also be viewed as an important step in preventing metabolic conditions such as cardiovascular disease. It is hoped that this work will raise the profile of persistent musculoskeletal pain within the UK's public health agenda.

# CHASE informs end of life care



*Left to right: Dr Alex Nicholson and Sister Yvonne Taylor (South Tees Hospitals Foundation Trust) and Sue Jones (CHASE)*

CHASE researchers are experienced in end of life issues, and work with and interview dying people, their carers and the healthcare professionals involved in their treatment and support. CHASE studies focus on people and places across the whole end of life continuum, from public health initiatives through to hospital and hospice-based palliative care.

Conducted at a time when the dying may be burdened by their symptoms and their carers may be emotionally and psychologically distressed, much of this research is ethically sensitive. And yet there is a growing body of evidence showing that both the dying and their carers would like to be involved in end of life research studies, so that their experiences can help shape services and make a difference for people in the future.

At the heart of CHASE studies is the experience of those at the end of life and their carers. The findings are quickly translated into local service improvements. A recent example comes from an evaluation of a new end of life discharge sister role at South Tees Hospitals Foundation Trust. Macmillan Cancer Support had funded the new role

at the Trust in response to national data showing that many people at the end of life are hospitalised without any clinical need, and that, given the choice, they would rather be at home. The key aim of the new post was to support clinical staff to co-ordinate a rapid and timely discharge for those who wished to leave the acute hospital environment.

The palliative care team at the Trust commissioned CHASE to identify how the new service was working from the perspective of the bereaved carers and the clinical staff processing the rapid discharges from acute hospital and community services. The study was designed in two phases so that interim findings could be implemented into service and practice improvements without delay. As a result of this work, key changes were made to service organisation and delivery with the aim of improving patient and carer experiences.

CHASE has recently been commissioned to evaluate the Macmillan (Cheshire) Living Well, Dying Well Public Health Programme (CLWDW). CLWDW is an innovative approach to integrating end of life issues

into the public health agenda, and has various specific objectives which include embedding a public health approach to end of life at a local and national level, community and health professional education, resource development and developing compassionate communities models within the local area. In order to meet these objectives the programme has set up a partnership which includes membership from various key professions, the community members and volunteers. These individuals are described as champions and are carrying out various efforts within their own networks to assist the programme in achieving its objectives.

**They aim to identify potential ways in which the education might be modified to help patients apply the information to themselves and in doing so perhaps enhance the education's clinical effectiveness.**

CHASE researchers are currently interviewing champions and reviewing documents to identify good practice and potential gaps in champions' contributions, crucially informing the future development of the programme.



## Spotlight on a visiting professor

### Meet Professor Amar Rangan

Amar Rangan is a Consultant Orthopaedic Surgeon specialising in shoulder surgery, and is based at the James Cook University Hospital, Middlesbrough. Having qualified in 1989, he did his specialist surgical training in the Northern Deanery of England. He is Chairman of the Research Committee of the British Orthopaedic Association and is National Specialty Lead for Trauma & Orthopaedic (T&O) Surgical Research at the Royal College of Surgeons of England. He is Academic Representative and Research Lead at the National Specialist Advisory Committee for T&O training.

Amar has been a visiting professor since 2009, and is Course Director for the postgraduate MCh (Orth) (Master of Surgery in Orthopaedics) programme at Teesside University. In 2011 he was appointed Clinical Professor in T&O at the School of Medicine, Pharmacy and Health, Durham University.

He has a special interest in clinical effectiveness and translational research. He is Chief Investigator for the NIHR-HTA funded ProFHER trial, sponsored by Teesside University, which is a UK wide multi-centre (35 centres) randomised trial of interventions for displaced proximal humeral fractures in adults. The trial results are due to be published this year. Amar said, 'I cherish my links with the HSCI, which along with experience from the ProFHER Trial, have led to further successful grant applications, including the recent UK-FroST application, attracting substantial funding into T&O research.'

The ProFHER trial was covered in Issue One of Health and Social Care Institute News. You can read more about UK-FroST on page 3 of this issue.



*Amar Rangan is a Consultant Orthopaedic Surgeon specialising in shoulder surgery, and is based at the James Cook University Hospital, Middlesbrough.*

## Research project 'will change the world'



*Above: Professor Denis Martin*

An innovative research project to help children understand more about older relatives suffering from chronic pain has topped a survey to find '20 new ideas from UK universities that will change the world'.

The survey – commissioned as part of Universities Week 2014 – asked the general

public about the issues that they want university research to address. 30% of respondents said they wanted improved wellbeing in old age, 47% wanted better treatments for the UK's most deadly diseases, a quarter wanted technologies that would improve people's quality of life and 38% said they cared about living in cities that are safe, enjoyable places.

20 UK university research projects that hope to tackle these were highlighted as part of celebrations for Universities Week and Denis Martin, Professor of Rehabilitation at Teesside University topped the list with an innovative way of using comic book superheroes to help children understand more about older relatives suffering from chronic pain.

Working with academics from various institutions and London firm Medikidz, the comic uses superheroes to put medical information into plain words which children can understand. It can be difficult for a child to comprehend an adult's physical pain – whether through injury or illness – as there may be no visible symptoms.

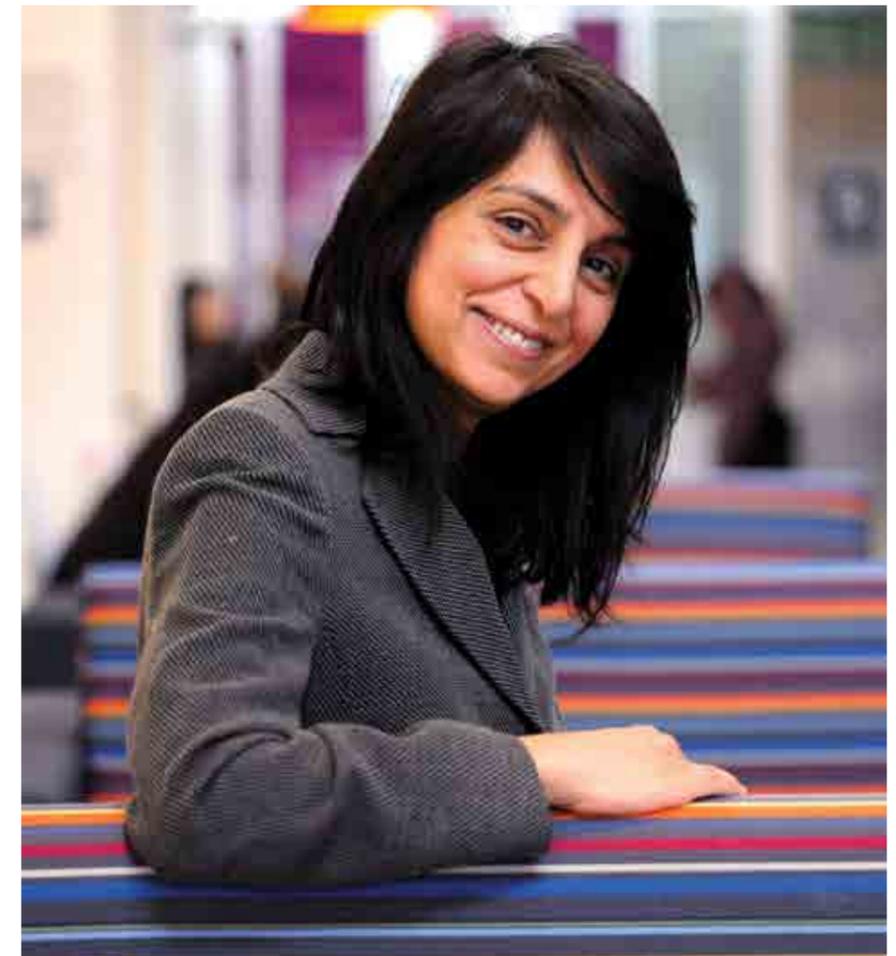
'The idea for the comic came about as we were talking to older people to find out their ideas on how to improve the lives of people living with chronic pain,' Professor Martin said. "We learned that there was a need to help grandchildren to better understand the experiences of a grandparent living with chronic pain.'

## Research to improve children's oral health

**Dr Vida Zohoori, Reader in Oral Public Health and Nutrition at HSCI, says the gap between the recommended daily intake of fluoride in children to prevent tooth decay and the level which could cause tooth mottling is too narrow. She is researching the intake, excretion and retention of fluoride in young children and babies to gain a better understanding of how to improve their oral health.**

As part of her work, Vida is leading a project looking at the retention of fluoride in babies living in fluoridated and non-fluoridated areas in the North East. She helped to run a four day workshop in Brazil in April, working with the British Council and partner universities to address priority research questions in fluoride metabolism research, and has recently returned from China where she worked on a collaborative project with Harbin Commerce University to measure the fluoride content of drinks in the country.

'The research I am undertaking here and the work I am carrying out abroad is driven by a desire to improve oral health, especially in young children,' explained Vida. 'Tooth decay is still one of the most globally prevalent chronic diseases of childhood and can have a detrimental effect on quality of life by affecting normal social roles, self-esteem, nutrition, communication and general health, causing pain, discomfort and loss of function. It also imposes a large financial burden on health care systems since its treatment is expensive, costing between 5% and 10% of total healthcare expenditure in industrialised countries and exceeding the cost of treating cardiovascular disease, cancer and osteoporosis.' She added 'Because fluoride has been



*Above: Dr Vida Zohoori*

identified as a key protective factor in the prevention and control of decay, many countries have based their oral health improvement strategies on the use of fluoride, such as fluoridated water, fluoridated milk, fluoridated salt and fluoridated toothpastes.'

In collaboration with colleagues at Newcastle University, Vida has developed a unique database that lists the fluoride content of more than

500 separate food and beverage items in order to help researchers and organisations estimate the amount of fluoride that individuals consume daily. She said, 'The database is a useful guide that has been put together over a number of years through various research projects. It will help to create a better understanding of the levels of fluoride intake in children's diets.'



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