

<b>Institution: Teesside University</b>
<b>Unit of Assessment: 3; Allied Health Professions, Dentistry, Nursing and Pharmacy</b>
<b>a. Context</b>

We work collaboratively with clinical and practice colleagues to **narrow the gap between knowledge translation and impact**, placing strong reliance on the synthesis of best evidence to drive intervention development and evaluation. This approach has led to **significant impacts with substantial reach**, with examples highlighting a **spread of influence at local, regional, national, and international levels**. The main non-academic audiences benefiting from our research are clinicians and policy makers within the NHS and beyond, commissioners within local authority public health departments and Clinical Commissioning Groups, along with health and well-being policy partners and senior decision-makers. We focus on delivering impact in a variety of ways, including **evidence-based solutions to problems identified in practice**. The Table below illustrates the 'types and range' of our impacts.

Impact	Type	Audience
Cluster of changes to regional NHS healthcare pathways and practice*	Change to clinical guidelines/ practice	Policy makers, Clinicians, patients
Medikidz comic book	Product	Clinicians, patients, families
Pain Garden: an online interactive application providing feedback to people with chronic pain	Product	Patients, clinicians
PAS Spider (online tool for self-managing pain)	Product	Patients
Recommendations* for monitoring community tooth decay programmes and for increasing fluoride in school milk	Change to guidelines/ policy/ practice	World Health Organisation/ National Fluoridated Milk Advisory Group
New recommendations for treatment of contracted (frozen) shoulder*	New clinical guideline	Chartered Society of Physiotherapy, Physiotherapists
StepJockey Stair Climbing App and smart signs	Product	Individuals, businesses
Contribution to human papillomavirus immunisation programme materials	New Public Health guidelines	NHS Scotland
Delivery of NHS Health Checks	Change in policy	Middlesbrough Primary Care Trust, pharmacies

**\*Included as one of our submitted case studies**

Our research is organised under our twin strands of rehabilitation sciences and public health. Two of the impacts from the Table above are unpacked briefly below. Our evaluation of the delivery of NHS Health Checks across the Tees Valley (*BMC Health Services Research* 11: 222, 2011) revealed that delivery through community pharmacies is complex, requiring meticulous planning, and potentially incurring higher than expected costs. The research evidence was rapidly translated into changes to policy and practice. These changes included increased after-hours training for pharmacy counter assistants in point-of-care testing; increased funding for pharmacies to account for different VAT arrangements to General Practitioners; and a three-pronged approach by the Primary Care Trust to advertising and promoting the NHS Health Checks (local radio, personalised mailings to low-uptake General Practices, and mass mailings across the Tees Valley with vignettes tailored to the demographics of the area). In rehabilitation sciences, **Professor Denis Martin** led Teesside's contribution to a large collaboration exploring chronic pain in older people in a Medical Research Council funded Lifelong Health and Wellbeing project (£1.2m, 2010-2013; Engaging with older people and their carers to develop and deliver interventions for the self-management of chronic pain). **Our specific role in this project was to translate evidence into usable products that would help the research make a difference**. These knowledge transfer activities led to a number of notable outputs including **Medikidz Explain Chronic Pain** – a comic book for children and younger people (Target age 8-15 years) that explains chronic pain in adults (2012; ISBN: 9781906935863). In this case currently **the impact is contribution to the development of a new product that has been commercialised and recommended for use**, with the ultimate goal of patient benefit.

## Impact template (REF3a)



**We provided the research evidence and story outline and then worked with Medikidz to distil technical information to a simple, informative message.** The comic book - *What's Up with Moira's Grandad? Medikidz Explain Chronic Pain* - portrays a typical scenario involving a child not understanding why their grandparent has suddenly cancelled time they had planned to spend with them. In the story the child is taken on a journey through the human body, with **the Medikidz superheroes explaining chronic pain and how it impacts on someone's life.** The conclusion shows the child with a better understanding of their grandparent's situation. The comic is currently being distributed to clinics nationwide.

### b. Approach to impact

Our approach was founded on the **co-production of knowledge**, with an emphasis on *practice-based evidence* leading to *evidence-based practice*. Since 2006 our collaboration with clinical colleagues in the North East NHS has resulted in high-quality research evidence that was rapidly translated into significant impact with substantial reach across the region. The main audience for the impacts (NHS clinicians and decision makers) initially presented research questions based on problems faced in routine clinical practice. We then designed and executed the studies together, resulting in the **very rapid translation of the findings into key changes to healthcare pathways and clinical practice** in the clinician-patient encounter. Staff in our unit were supported and enabled to plan and achieve impact from their research. This process was facilitated through our core membership of and substantial contribution to **Fuse, the Centre for Translational Research in Public Health**, which is a Public Health Centre of Excellence funded by the UK Clinical Research Collaboration. In 2011, we appointed **Rushmer** as Professor of Knowledge Exchange and Public Health to oversee our impact-related activities. Within Fuse, **Rushmer** also leads the programme of work in **Translational Research**. The Canadian Institute for Health Research's conceptualisation of 'push', 'pull' and 'exchange' mechanisms informed our approach theoretically. **'Push'** is the dissemination of existing research findings to relevant stakeholders; **'pull'** enables stakeholders to access existing research; and **'exchange'** facilitates the sharing of experiences, needs and expectations of research agendas. In 2009, Fuse formed two groups to raise awareness, push research findings, and to address wider opportunities to build collaborative relationships: the **Communications** group (initially chaired by **Shucksmith**) and the **Knowledge Exchange** group (chaired by **Rushmer**). In addition, Teesside hosts the Fuse Knowledge Exchange hub and leads the Fuse Knowledge Exchange seminar series. Our approach was also informed by our 2009 evaluation of the local authority-led **Research to Reality** initiative, leading to **Rushmer et al.** securing an **NIHR Health Services and Delivery Research** programme grant on the use of evidence in public planning and commissioning (£300K, 2011-13).

### c. Strategy and plans

Our approach to impact is well established and has proven effectiveness, but we shall continue to develop and refine it over the next research cycle. Initiatives begun in 2013 include the launch of **askFuse**, based at Teesside (<http://www.fuse.ac.uk/askfuse>). The askFuse service brokers access for policy and practice stakeholders to research expertise across the five North East universities and beyond, helping to build long-term research collaborations and to plan for impact. In addition, through Teesside University's Personal and Professional Development review programme, researchers are now required to identify support needs for building impact into their work, to enhance our impact culture and increase capacity. Time for working on impact is now being built into researcher and research support staff workload models and given equal priority to other commitments. We will continue to create an environment and infrastructure where innovation, creativity, and enterprise flourish and will increase the number of researchers and students engaging in knowledge exchange, commercialisation and public engagement. We are organising a regional 'health summit' (beginning late autumn 2013) to define priorities in public health needs with commissioners and policy makers. Moreover, we will maximise opportunities for impact arising

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from our new formal link (through Fuse) with the **Bronfenbrenner Center for Translational Research** at Cornell University. With respect to our evidence synthesis work to drive healthcare impact, we will be submitting an application in 2014 to become a collaborating centre for the **Joanna Briggs Institute** (JBI) - a world leader in the field of evidence-based healthcare practice. The JBI is aligned with the Cochrane Collaboration and has over 80 collaborating centres around the world. Finally, our role within Fuse has positioned us to exploit additional opportunities on the international stage. In particular, **Rushmer** has instigated a series of international **Knowledge Exchange in Public Health** conferences to bring together academics working on translational research to share methodological learning. The first of these meetings was held in Durham in 2011. The second was hosted by Tranzo, one of the academic-practice research collaborations in Holland in 2013. The third will be hosted by McMaster University, Canada, in 2015.

An illustration of our strategy is a current project in which **the research is motivated and driven by the ultimate impacts**. In 2012, the North East Ambulance Service (NEAS) approached us with a serious problem of high work absenteeism in operational ambulance personnel, due in large part to job-related musculoskeletal problems. The organisation wished to co-create an occupational fitness test to ensure that personnel were **fit for work**. The research comprises *needs analysis, test design, test validation, and roll out*. The needs analysis involved a mini-ethnography, with researchers riding on-board with the crews in multiple day and night shifts, collecting observational and objective data to characterise job demands. **The research evidence is being co-produced by our unit and the NEAS (as the end user)**, including emergency care, urgent care, rapid response, patient transport services, bariatric care, occupational health, human resources, senior management, and union representatives. **The initial planned impact is a change in employment policy** to require operational ambulance personnel to meet a minimum threshold on the test to be considered fit for work. **Additional impacts** include the development and roll out of an exercise training intervention to a) prepare for the initial fitness test and b) to increase fitness before retaking the test in those staff members not meeting the required threshold. **The spread of influence of these impacts will be substantial**; the NEAS employs over 2000 staff based at 60 stations. Our plan then involves pushing these impacts to ambulance services throughout the NHS.

### d. Relationship to case studies

Our submitted case studies all exemplify elements of our approach to achieving impact.

Case Study	Link to Approach to Impact
Changes to Healthcare Practice within the NHS: Prehabilitation, Rehabilitation, and Perioperative Care Research for Patient Benefit	The 5 impacts (new care and referral pathways and exercise recommendations in the clinical encounter) <b>resulted directly</b> from our approach of finding <i>evidence-based</i> solutions to <i>practice-based</i> problems faced by clinicians. The evidence for all 5 impacts was <b>co-created</b> by researchers from our unit and NHS clinicians and decision makers and then implemented rapidly.
Changes to national and international policy and practice in dental health	Exemplifies the <b>push, pull and exchange</b> mechanisms. 1. Based on the <b>effective promotion and accessibility</b> of her fluoride research, <b>Zohoori</b> was invited to the World Health Organisation technical group meeting to revise guidelines for monitoring community tooth decay prevention programmes. 2. Based on her research track record and its visibility, the UK National Fluoridated Milk Advisory Group <b>commissioned a study by Zohoori et al.</b> to review the amount of fluoride that should be added to school milk, resulting in a policy recommendation for an increase.
Development of national guidelines for the diagnosis, assessment and physiotherapy management of contracted (frozen) shoulder	<b>Exemplifies the push mechanism</b> , with elements of <i>pull</i> and <i>exchange</i> during the iterative development process. The authors promoted the Guidelines in the Chartered Society of Physiotherapy's e-news bulletin and <i>Physiotherapy Frontline</i> magazine. An independently peer-reviewed quick-reference summary facilitated implementation and enhanced interest in the full-text, online version. There have been > 18 K downloads, with c. 12 K of these in the UK (Teesside Research Repository data).