Institution: Keele University

Unit of Assessment: A2

a. Context In addition to producing world-leading research on the course, impact, prognosis, and primary care management of musculoskeletal conditions, we work closely with local, national and international stakeholders, to ensure our research influences health policy and improves service provision, clinical practice and patient outcomes. Musculoskeletal pain represents a major global burden of disease and there is international recognition of the urgent need to identify clinically and cost effective treatments. We aim to achieve a fundamental shift in the understanding and management of musculoskeletal pain and arthritis, away from a focus on disease categories, into targeted and more holistic management of pain and the associated problems which patients identify as important. We aim to help clinicians and patients to be more effective in managing those symptoms through attention to prognosis, stratified care and supported self-management. Our influence in advancing health policy and practice in our field has been recognised through the Queen's Anniversary Prize for *Pioneering the early prevention and treatment of chronic pain.*

b. Approach to impact

We have **dedicated mechanisms** in place to identify and promote aspects of our research that can be incorporated into clinical practice and commissioning plans, and we invest in supporting roll-out into practice of the practical tools and treatment approaches which our research has demonstrated to be effective. **Dziedzic,** one of our senior academics and **NICE Fellow** leads our **Research Implementation Strategy**, supported by a dedicated **Manager** (Duffy), an **NIHR Knowledge Mobilisation Fellow** (Stevenson) and two **GP Research Fellows** (Somerville, Cooper). This group works closely with our Research Institute's Executive Team (**Hay, Hughes, Foster, Mallen, Peat, van der Windt, Chew Graham)** and our international collaborators in the US, Europe and Australia, to formulate our research implementation plans and to identify the research outputs that lend themselves to rapid translation and implementation by health providers.

c. Strategy and plans

UK examples of our research impact have drawn on our strong links with Clinical Commissioning Groups (CCGs), supported by their Locally Enhanced Services schemes, the UK Quality, Innovation, Productivity and Prevention (QIPP and CQUIN) Programmes and other national Knowledge Transfer initiatives. In the US, the Patient Centered Outcomes Research Institute (http://www.pcori.org/) is evaluating implementation of STarTBack in Group Health. Our **Intellectual Property (IP) Rights** policy, shared with our collaborators and NHS partners, supports early identification of IP to be disseminated into clinical practice. Our IP is made freely and openly available for use by healthcare providers. We invest in developing our IP into products that can be easily adapted into routine clinical practice. Examples include clinical assessment tools, Patient Reported Outcome Measures and clinician training packages on new interventions. We have supported national and international uptake of our research through our website, presentations at conferences for healthcare providers and professional groups, and participation in guideline groups. We have embedded our STarTBack screening tool within UK GPs' computerised consultation systems, developed a web-based calculator and smart phone App to support use of our STarTBack screening tool in clinical practice, and produced professional DVDs to support clinician training on stratified care treatments for low back pain. Our strong **Academic / NHS Healthcare Provider Links**, formalised through the **Primary Care Musculoskeletal Research Consortium** (1998 – present) is the cornerstone to our achieving impact. The Consortium's lead NHS partner, North Staffordshire CCG, holds our research contracts with the National Institute of Health Research (NIHR: £14,051,000, 2008 – 2013). Joint accountability to the University and to the NHS for our research and dissemination of its results is managed through **Hay** (Director of the Research Institute) and Hughes (Co-Director of the Research Institute; Director of the Consortium; Director of the Central England Primary Care Research Network). The Consortium Board includes Director-level members from the CCGs, Community Health Trusts, Public Health and Primary Care Research Network in Staffordshire and South Cheshire. The Board reviews our research priorities annually, to ensure these are important, feasible and useful to patients, clinical practitioners, healthcare providers, and policy makers. The Consortium Board also reviews our research implementation plans, and evaluates our research impact, as measured by the extent to which our research has influenced guidelines and service redesign locally, nationally and internationally. Finally, the Board oversees clinician participation in the delivery of our research, seeing this activity as a strong platform to encourage early adoption of research. All Physiotherapy centres and 83%

of the GP practices in our area research active. The Consortium underpins clinical and patient engagement in all aspects of our research. Each of our research programmes has a Clinical Advisory group, where local clinicians (drawn from Consortium member bodies) and international collaborators help to shape our research ideas and study designs, ensuring that we address issues that are important and relevant to the NHS, that clinical insights are appropriately incorporated, and that the research design is feasible to be carried out within routine clinical practice. Over 500 clinicians in our region have engaged in our research projects, receiving training in research methods and delivering the usual care and experimental arms of our trials. This level of participation in our research helps individual clinicians to gain new knowledge and insights and to incorporate these research-driven approaches into their own practice. Lessons learned whilst delivering our research projects are incorporated into local service improvements. Since 2003, the Consortium has supported Evidence-Based Practice groups for GPs and AHPs, which aim to integrate best evidence into clinical practice by supporting these clinicians to carry out systematic searches and critical appraisal of evidence to address clinically important questions. Outputs include clinical bottom lines and simple clinical algorithms to define and support delivery of best practice (http://www.keele.ac.uk/ebp/mrfgroup/). Where gaps in evidence have been identified our EBP groups have helped develop new trial proposals. An example of this is our current NIHR trial of treatment for shoulder impingement (SUPPORT). Our international research reputation, and our commitment to ensuring our research findings influence delivery of health services and improve patient outcome, led to our involvement in developing the West Midlands **Academic Health Sciences Network** (AHSN). The Keele research group (Croft, Hughes, Dziedzic) are leading the Long Term Conditions and Integrated Care themes within the AHSN, which will adopt national roll-out of stratified care for low back pain (STarTBack) and management of OA (MOSAICS) as its exemplar case studies.

Influencing local, national and international policy and healthcare practice: Building on our track record of developing research-led innovative local services for musculoskeletal pain and back pain (which were cited as best practice examples in the Department of Health's Musculoskeletal Framework for the UK; 2006), we have worked with local clinicians to develop **a new community-based chronic pain management** service (the IMPACT service). The IMPACT service was cited by Dame Carole Black (National Director for Health and Work) in presentations on her 2010 report "Working for a Healthier Tomorrow" as the only model she has seen nationally which provided an integrated approach to address mental health and musculoskeletal problems among patients in order to reduce long term sickness absence in this group. In 2013, the IMPACT service won the Health Service Journal's National Care Integration award for pain management. Internationally, we have supported roll-out of STarTBack, (stratified care for spinal pain), which has been adopted in at least 85 clinical organisations across the UK and Europe, Canada and the US and Australia.

We support and encourage our staff, through providing protected time and input from our systematic reviewers, to be panel members or invited experts in **national and international guideline and advisory groups**. Our research is regularly cited in national, European, and international guidelines for OA diagnosis and management, including NICE OA (Jinks, Jordan (2008), Dziedzic (2008 and 2013), Porcheret (2013)), Depression (Chew-Graham 2009), and Back Pain guidelines (2008). Peat was a member of the EULAR Task Force on Diagnosis of Knee OA (2008); Croft, Mallen and Porcheret work with NICE to develop and test indicators to be included in a Quality and Outcomes Framework for Rheumatoid Arthritis and Osteoarthritis; Dziedzic was a member of the EULAR task force on diagnosis of Hand OA (2009); Mallen is a member of the EULAR guideline groups on Non-pharmacological treatments for OA and the EULAR / ACR PolyMyalgia Rheumatica guideline groups; Roddy and Mallen are members of the EULAR diagnosis and management guideline groups on Gout[1]. Results from our trials have also been incorporated into national clinical guidance (Map of Medicine), Clinical Evidence, Cochrane and BMJ reviews to inform best clinical practice for the management of back, neck, tennis elbow, shoulder and knee pain (Binder 2006; Green et al., 2001; Mallen et al., 2006; Scott & Kowalcyczuk, 2007; Fransen et al. 2008; Roddy et al. 2013; Uthman et al. 2013). As Arthritis Research UK Primary Care Centre-of-Excellence, we support the charity to highlight the **implications for health policy** of the prevalence and impact of arthritis on individuals, on health services and on society.

---

[1] National Collaborating Centre for Chronic Conditions 2008; Savigny et al., 2009); OMERACT/OARSI guidelines for hip and knee OA (Zhang et al., 2007), European League Against Rheumatism for knee and hand OA, and gout (EULAR) (Zhang et al., 2007, 2009, 2010); ARMA Standards of Care for OA (ARMA, 2004) and Back Pain (ARMA, 2004).

We have produced short reports (*Musculoskeletal Matters)* http://www.keele.ac.uk/pchs/disseminatingourresearch/newslettersandresources/bulletins/ also available via Arthritis Research UK's (ARUK) communication systems, which provide easily accessible, relevant information for GPs, the primary care team, teachers, trainers and policy-makers about musculoskeletal problems in primary care (Jordan, 2009, 2010; Jinks, 2010; Foster, 2011; van der Windt, 2012; Bedson, 2013; Stevenson 2013). Topics have included GP workload, reasons for consultation, patient experience, effective management of knee pain, supporting return to work, trends in GP prescribing and getting evidence into practice. We have supported the Arthritis Research UK's policy unit to use our research data to highlight the burden of osteoarthritis in general practice and to prepare reports and recommendations on this issue, targeted specifically at Members of Parliament, and we provided the evidence for ARUK's report on the Burden of Osteoarthritis for National Arthritis week[2]. Our data highlighted osteoarthritis as a major public health priority, because of the numbers of people seeking healthcare, the health and social care costs caused by increasing disability, frailty and work-loss associated with OA, and the failure of current health services to adopt effective prevention and management strategies despite increasing evidence of effective interventions that can change patient outcome (including safe strategies to increase physical activity and support weight loss).

Influencing training of healthcare practitioners: We recognize the importance of the need to capture and incorporate key messages from our research within the educational curriculum for healthcare professionals and the training and educational packages which are provided by the Royal Colleges, professional bodies and medical charities. Members of our research group are regularly invited to take up leadership positions within their respective professional bodies, and these appointments are positively supported by our Institute, to encourage dissemination and adoption of our research. We have shaped the Royal College of General Practitioners' musculoskeletal curriculum for postgraduate training for GPs. Croft was the RCGP's musculoskeletal curriculum guardian (2007 – 2013), Chew Graham is the mental health curriculum guardian, Porcheret was the RCGP's clinical champion of osteoarthritis (2008-2011) and Chew Graham was clinical champion of mental health (2008 – 2012). We have also supported development of Arthritis Research UK's web-based information on management of common musculoskeletal conditions. Somerville is the editor of Arthritis Research UK's publication "Hands On" (which is circulated to all UK GPs and is a web-based resource commonly used by patients). Research from our Unit helped shape the contents of "Hands On" editions on OA, hand pain, neck pain, back pain and widespread pain.

Patient influence: Our **Research User Group,** of over 50 members, dedicated RUG Coordinator and Support Assistant help to maintain our focus on the patient perspective by contributing to formulating research questions, advising on methods (questionnaire design, recruitment and consent procedures) interpreting findings and dissemination strategies. Our leadership in public and patient involvement (PPI) is recognised through our contributions to INVOLVE (development of their budgeting tool for researchers, patients and clinicians), writing of PPI guidelines for applicants to the Research Foundation of the Chartered Society for Physiotherapy, for the NIHR Research Design Service West Midlands, and for the NIHR National School of Primary Care (Jinks) and funding from EULAR to establish a Research Users' learning exchange programme (ARMA, Amsterdam). Our RUG has commissioned research on patient priorities, incorporating a question "what should be the priorities for musculoskeletal research" in one of our large MRC-funded population surveys[3], and has formally evaluated the impact of patient involvement on research.[4]

d. Relationship to case studies Our success in disseminating our research findings, supporting implementation and achieving impact is underpinned by a systematic approach to developing research that can make a real difference to patients, healthcare providers and policy makers, a strategic approach to securing international collaborations and national partnerships, investment in a dedicated group of staff who can support rapid roll-out and translation of our research findings and easy access to our IP. Direct output from our research and our strategy for impact are clearly reflected in the case studies submitted with this impact template.

---

[2] Osteoarthritis in General practice: data and perspectives. Report for parliamentary reception 2 July 2013

[3] Strauss V *et al*: results from a general population survey. Rheumatology (Oxford). 2012 Nov;51(11):2075-82. doi: 10.1093/rheumatology/kes179. Epub 2012 Aug 11.

[4] Pam Carter *et al* (2013): Mobilising the experiential knowledge of clinicians, patients and carers for applied health-care research, Contemporary Social Science: Journal of the Academy of Social Sciences, DOI:10.1080/21582041.2013.767468