

<b>Institution: University of Salford</b>		
<b>Unit of Assessment: 3</b>		
<b>Title of case study: Improving assessment, treatment and self-management for people with arthritis</b>		
<b>Period when the underpinning research was undertaken: January 2012 – December 2020</b>		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Dr Yeliz Prior	Senior Research Fellow in Rheumatology	October 2011 – Present
Prof. Alison Hammond	Professor of Rheumatology Rehabilitation	July 2007 – Present
<b>Period when the claimed impact occurred: January 2014 – December 2020</b>		
<b>Is this case study continued from a case study submitted in 2014? N</b>		
<b>1. Summary of the impact</b>		
<p>Affecting approximately 10,000,000 people in the UK, arthritis is a leading cause of pain and disability in daily activities and at work. In order to reduce the burden on the NHS, growing pressure is being placed on individuals and society to self-manage this long-term condition. In response, Salford's research team designed, developed and tested a suite of arthritis-specific clinical assessments to unravel the myriad ways in which this condition can affect individuals so that tailored self-management strategies could be devised. Innovative treatments were developed and tested for their clinical efficacy and cost-effectiveness, as well as ease of implementation in the NHS. Findings were utilised to inform treatment policy, guidelines and clinical practice changes. This has led to improvements in rehabilitation services for people with arthritis, an upskilling of health professionals in rheumatology and cost savings across the NHS.</p>		
<b>2. Underpinning research</b>		
<p>Timely assessment and interventions are key to preventing disability from arthritis. Researchers at Salford addressed the gap in the use of Patient Reported Outcome Measures (PROMs) in clinical assessment and evidence-based treatments of the difficulties people with arthritis experience during daily activities and at work. There was a particular focus on hand pain and loss of function due to chronic pain and fatigue, since this prevents participation in daily life and paid work. Our research findings underpinning the impact of these studies are grouped across five themes:</p>		
<b>2.1. Changes in arthritis glove use leading to savings for the NHS</b>		
<p>Arthritis (compression) gloves are commonly provided in the NHS to people with inflammatory arthritis. These apply pressure and warmth, relieving hand pain and stiffness and improving hand function. However, there was little evidence to support their use. A National Institute for Health Research (NIHR)-funded multi-centred randomised controlled trial (RCT) was carried out at Salford (2014 – 2018) to test effectiveness, in terms of use and cost, of the commonly used arthritis gloves against control (placebo) gloves. Findings showed that arthritis gloves had higher costs but comparable benefits to control gloves. At a cost of GBP83,700 to gain one quality-adjusted life year (QALY), they were judged not to be cost-effective [3.1].</p>		
<b>2.2. Standardisation of PROMs in rheumatology to aid clinical assessment and evaluation</b>		
<p>Clinicians' understanding of the effect of arthritis and its treatment on patients' daily lives is poor. PROMs assess the quality of care delivered to NHS patients from the patient perspective. NHS therapists are encouraged to utilise standardised, validated PROMs to assess their patients,</p>		

devise a treatment programme through shared decision making and evaluate their interventions more precisely. Within rheumatology, there was a gap in valid and reliable PROMs to enable this. We developed a suite of PROMs for a British population of adults with arthritis to aid clinical assessment. Testing the use of these PROMs across multiple rheumatic and musculoskeletal conditions showed they are easy to complete, valid, reliable and comprehensive. Therefore, they were recommended for clinical and research use to assess upper limb functioning and participation in daily activities and at work [3.2, 3.3].

### 2.3. NHS prioritisation of patients' arthritis-related work problems

Arthritis leads to work disability, sickness leave and loss of productivity at work. We developed and tested the effectiveness, in terms of application and cost, of a brief work rehabilitation intervention delivered through a multi-centred pilot RCT. The project demonstrated that job retention work rehabilitation helps people with arthritis to stay in employment and can be cost-effective. As a result, it is a credible and acceptable intervention to provide in the NHS for people with arthritis who have concerns about continuing to work in the future [3.4].

### 2.4. Improving clinical outcomes and patient satisfaction for people with fibromyalgia

Fibromyalgia affects one in 20 people in the UK, but it is more common among people who have Rheumatoid Arthritis (RA). This often leads to difficulties in treating arthritis. Clinical guidelines recommend non-pharmacological treatment modalities, as there is no scientific evidence to support effective medical treatment. However, access to non-pharmacological therapies are limited in the NHS. We designed a 6-week evidence-based Fibromyalgia Self-Management Education (FAME) Group Programme for people with fibromyalgia and trained specialist occupational therapists to deliver this standardised programme over two years. Following the adoption of this programme across two hospital sites, a Service Evaluation of the programme was conducted at the Mid Cheshire Hospitals NHS Trust. Findings showed significant improvements on chronic widespread pain, fatigue, mood management and self-efficacy of the patients who attended [3.5].

### 2.5. Increasing access to self-management through ePROMs and online technologies

Patient information and education have been shown to improve pain and self-efficacy while increasing overall quality of life in people with arthritis. Informed patients are better able to distinguish and manage symptoms, use treatments effectively, access required services, manage work and cope better with the psychological impact of their conditions. Electronic PROMs (ePROMs) are online questionnaires which ask patients to self-rate their health status. However, existing ePROMs in rheumatology for rehabilitation (e.g. daily living activities and work assessments) were either not scientifically validated or not freely accessible to the general population of people with rheumatic and musculoskeletal diseases (RMDs) or health professionals (e.g. occupational therapists/physiotherapists in rheumatology departments) unless their Trust subscribed to costly systems. Even existing ePROMs were limited to treatment duration, whereas self-management of long-term conditions requires life-long management. Helped by Public and Patient Involvement (PPIE), we developed and tested the usability and acceptability of an online self-management platform ([mskhub.com](http://mskhub.com)) for people with arthritis to help them access valid and reliable self-assessment using Salford's suite of ePROMs to provide tailored self-management advice and online patient education programmes [3.6].

## 3. References to the research

**3.1. Hammond A, Prior Y, et al. (2018).** The effects of arthritis gloves on hand pain in people with rheumatoid or inflammatory arthritis: a randomised controlled trial (A-GLOVES TRIAL), *Annals of the Rheumatic Diseases* 77:2, pp. 222-223. <http://dx.doi.org/10.1136/annrheumdis-2018-eular.3524>

*Funded by an NIHR Research for Patient Benefit grant (20031) for GBP325,000. The conference abstract was awarded the EULAR HPR (Health Professionals in Rheumatology) research prize at EULAR 2018.*

**3.2. Hammond A, Tennant A, Tyson SF, Nordenskiöld U, Hawkins R, Prior Y. (2015).** The reliability and validity of the English version of the Evaluation of Daily Activity Questionnaire for

people with rheumatoid arthritis, *Rheumatology* (Oxford), 54(9), pp. 1605-1615.

<https://doi.org/10.1093/rheumatology/kev008>

*This paper presents independent research funded by a Versus Arthritis (formerly known as Arthritis Research UK) grant (18497) for GBP51,915 (REF2)*

**3.3. Prior Y**, Tenant A, Tyson S, Kjekken, I, **Hammond A.** (2018) Measure of activity performance in the hand (MAP-Hand) questionnaire: linguistic validation, cultural adaptation and psychometric testing in people with rheumatoid arthritis in the UK, *BMC Musculoskeletal Disorders*, 19:275. <https://doi.org/10.1186/s12891-018-2177-5>

*This paper presents independent research funded by a Versus Arthritis grant (20031) for GBP80,342 and United Kingdom Occupational Therapy Research Foundation for GBP84,753. NHS service support costs were secured from the Greater Manchester Comprehensive Local Research Network (Lead CLRN) (REF2)*

**3.4. Hammond A**, O'Brien R, Woodbridge S, Bradshaw L, **Prior Y**, Radford K, Culley J, Whitham D, Pilikottil-Jacob, R. (2017) Job retention vocational rehabilitation for employed people with inflammatory arthritis (WORK-IA): a feasibility randomized controlled trial, *BMC Musculoskeletal Disorders*, 18:315. <https://doi.org/10.1186/s12891-017-1671-5>

*This project was funded by a Versus Arthritis grant (19396) for GBP262,732 and endorsed by the Clinical Studies Group for Inflammatory Arthritis (Chair: Prof John Isaacs). NHS service support costs were secured from the Greater Manchester CLRN (Lead CLRN) (REF2)*

**3.5. Corless L**, Ching A, Mayana K, Walker N, **Prior Y** (2019) Occupational therapy-led fibromyalgia self-management education group programme: patients' perspectives, *Rheumatology*, Volume 58, Issue Supplement 3, April 2019, kez106.051, <https://doi.org/10.1093/rheumatology/kez106.051>

*This paper presents independent service evaluation funded by Versus Arthritis Nurse and Allied Health Professionals Career Development Scheme (MSK Interns) for GBP1,500 and Council of Allied Health Professions Research Initiative for GBP1,000.*

**3.6. Prior Y**, Sammut L, Vasilica C (2018) Development of an online self-management platform for people with rheumatic and musculoskeletal conditions (MSKHUB.COM), *Annals of the Rheumatic Diseases*, 77:2, pp. 132-133. <http://dx.doi.org/10.1136/annrheumdis-2018-eular.7164>  
*This paper presents independent research funded by the Logres Trust for GBP10,000.*

#### 4. Details of the impact

##### 4.1. Changes in arthritis glove use leading to savings for the NHS

Salford's award-winning randomised clinical trial [3.1] demonstrated that the costlier Isotoner arthritis gloves (the commonest type in the UK), provided by therapists to one in three patients with RA and Early Inflammatory Arthritis in the NHS, were no more effective than the cheaper placebo versions, which did not apply any compression. This meant that therapists could instead recommend that patients try warm, fingerless gloves with Lycra, available on the high street, to gain the same benefit as arthritis/compression gloves previously provided by the NHS.

These findings led to **immediate clinical practice changes** across the 17 NHS Trusts who took part in the study, as well as provision of more **patient education and promotion of hand exercises** instead of gloves prescription, and ultimately resulted in **savings on the cost of stocking and prescribing these specialist gloves** within Trusts [5.1]. The changes have been **incorporated within the advice** given for arthritis gloves at the Royal College of Occupational Therapists' Hand and Wrist Orthoses for Adults with Rheumatological Conditions Practice Guidelines (2<sup>nd</sup> edition) [5.2], which governs all relevant occupational therapy practice across the UK. **Changes to the prescription of arthritis gloves** were also acknowledged in the *Oxford Handbook of Musculoskeletal Nursing* (2<sup>nd</sup> edition), with reference made to the A-Gloves study findings [5.2. p. 588]. This handbook is an essential companion for all nurses and allied health professionals seeking the latest evidence-based treatments for patients with rheumatic and musculoskeletal conditions. Specialist clinical training programmes in rheumatology, which certify all qualified health professionals in rheumatology across Europe through the British Society of Rheumatology (BSR) and European League Against Rheumatism (EULAR) also **changed the advice provided on the use of arthritis gloves** to inform specialists that the efficacy of this treatment is not supported [5.2]. This recommendation was also **incorporated into the online self-management course app 'My Arthritis'** developed by the National

Rheumatoid Arthritis Society (NRAS) and social enterprise Ampersand Health, freely available to anyone with inflammatory conditions looking for self-management advice [5.2].

#### 4.2. Standardisation of PROMs in rheumatology to aid clinical assessment and evaluation

PROMs are essential for clinicians to quantify the impact and severity of rheumatic diseases on patients' lives to make appropriate management decisions. However, there was a paucity in disease-specific PROMs in rheumatology and a growing need for sensitive-to-change, valid and reliable outcome measures to aid treatment plans and evaluation of rehabilitation interventions. Salford's research programme for developing and testing PROMs in rheumatology [3.3] has led to **increased use of standardised, linguistically and culturally validated, disease-specific PROMs** in rheumatology across the rheumatology rehabilitation departments in the NHS [5.3] in line with NHS evidence-based practice recommendations. As these PROMs are also made freely available for patients to access for self-assessment on mskhub.com [3.6, 5.4], this led to **more effective use of therapists' time in clinics** and the **empowerment of patients** through being involved in their own clinical assessment, described as being *'invaluable'* [5.5]. These PROMs were subsequently translated into several other languages (including German, Turkish, Czech, Swedish) for testing and have been **implemented in practice in Turkey** [5.6].

#### 4.3. NHS prioritisation of patients' arthritis-related work problems

Work problems are not traditionally discussed at clinical appointments in rheumatology. The widespread use of work assessments and interventions developed at Salford and implemented through mskhub.com showed that a brief vocational rehabilitation intervention can **help people with arthritis to stay at work** [5.3].

Training resources born from this research helped to **upskill the NHS therapy workforce to start delivering work interventions** across NHS Trusts in the UK [5.7] subsequently leading to widescale **prioritisation of arthritis-related work problems**. This development in practice led to large, national organisations (e.g. Public Health England (PHE)), professional bodies (e.g. Royal College of Occupational Therapists (RCOT)) and arthritis charities (e.g. Versus Arthritis) **changing their agendas to campaign for the NHS to prioritise work problems** in clinical assessments to help people stay employed [5.8, 5.9]. Salford researchers carried out the first phase of evaluation, which revealed that in a six-month period 487 staff were in training and there was a **statistically significant improvement in their knowledge and confidence** to talk about employment in their clinical services [5.8]. The project also had a positive impact on the Health and Work champions' personal and professional development. Work outcomes are now becoming part of **standard clinical assessment and intervention delivery in the NHS**. One of these initiatives was the PHE and RCOT-led 'Work Champions' initiative that encouraged therapists to ask work-related questions of their patients, as work outcomes were not routinely measured in rheumatology services [5.8]. The evaluation of this programme recommended the implementation of this initiative England-wide in NHS Trusts to prioritise work assessments for people with chronic and long-term conditions, including arthritis. As a result of this, **all the NHS Trusts in England are now progressing towards including work outcomes within their standard clinical assessments** [5.9].

#### 4.4. Improving clinical outcomes and patient satisfaction for people with fibromyalgia

A Service Evaluation of the Fibromyalgia Self-Management Education (FAMe) Group Programme [3.5] led to the rolling-out of the programme across two hospitals under the Mid Cheshire NHS Trust (2018 – 2020).

This programme **reduced waiting lists** (n=200+) and **improved patient and clinical outcomes** [5.3]. During the COVID-19 pandemic, chronic pain-related face-to-face services were suspended in NHS rheumatology departments across the UK. Mid Cheshire Hospitals NHS Trust subsequently digitised the FAMe Group Programme [3.5] into an **open access, online self-management education programme** (FAMe Online), hosted via mskhub.com, to **enable patients to have continued access** [5.3, 5.5, 5.10]. This led to **rapid uptake from other NHS Trusts in England** (including the Worcestershire Acute Hospitals NHS Trust and the Northern Devon Healthcare NHS Trust in the first two weeks) [5.10]. As the resource was shared through clinical networks, social media and webinars held by the British Society for Rheumatology, uptake of the online programme from community-based adults with fibromyalgia is now UK-wide.

#### 4.5. Increasing access to self-management through ePROMs and online technologies

The design and implementation of the online self-management platform mskhub.com [3.6] with PPIE and health professionals' involvement means that this system is both easy to engage with and adhere to.

An **increased proportion of the general population of adults with RMDs** now access self-management and patient education through mskhub.com, helping to **reduce time spent on assessments and paperwork within the NHS** as a result [5.3, 5.5, 5.10]. **Use of mskhub.com has doubled during the COVID-19 pandemic**, as increasing numbers of health professionals started signposting NHS patients to mskhub.com for remote assessment through ePROMs and self-management advice [5.3, 5.10]. By saving time spent on assessment in clinics, these ePROMs **help clinicians to spend more time with patients** on shared decision making, goal setting and evaluation of their interventions. Online self-management programmes such as the FAME Online helped approximately **500 NHS patients with fibromyalgia to access treatment remotely** during the pandemic, instead of remaining on waiting lists until the face-to-face rehabilitation programmes become available in the NHS in 2021 [5.10]. Free online training programmes and resources made available for health professionals on mskhub.com also helped them to **deliver remote work rehabilitation assessment and treatment** during the pandemic. Equally, mskhub.com is utilised by the general population of adults with arthritis and/or joint pain and problems to **prevent hospitalisation and aid self-management** [5.10].

#### 5. Sources to corroborate the impact

**5.1.** E-mail Testimonials: Leeds Teaching Hospitals NHS Trust and CCICP/MCHFT Leighton Hospital (November 2018), on cost savings to NHS Trusts (4.1)

**5.2.** Weblinks to Guideline Changes: RCOT (2<sup>nd</sup> ed) - *Hand and wrist orthoses for adults with rheumatological conditions* (June 2020); *Oxford Handbook of Musculoskeletal Nursing (2nd Edition) Oxford Handbooks in Nursing*. 'Chapter 19: Non-pharmacological therapies' (February 2020); BSR Core Skills in Rheumatology Course (Non-pharmacological management of symptoms module); EULAR Online Course for Health Professionals in Rheumatology (Non-pharmacological Treatment of Rheumatoid Arthritis module); National Rheumatoid Arthritis Society - 'My Arthritis' app, confirming clinical practice changes (4.1)

**5.3.** E-mail Testimonial: Leighton Hospital, Mid Cheshire Hospitals NHS Trust (10 December 2020), on standardised, linguistically and culturally validated PROMs (4.2), helping people stay at work (4.3), improving clinical outcomes (4.4) and remote assessment benefits (4.5)

**5.4.** MSK Hub Website: online self-management platform providing self-assessment through the digitised PROMs developed and tested at Salford. Available at: [www.mskhub.com](http://www.mskhub.com) (4.2)

**5.5.** E-mail Testimonials: patients/public mskhub.com users (17 July 2020; 12 December 2020), on the empowerment of patients (4.2), continued access for patients during pandemic (4.4) and reduced time spent on paperwork (4.5)

**5.6.** E-mail Testimonial: Marmara University, Turkey (9 October 2020), on PROMS being implemented in practice in Turkey (4.2)

**5.7.** Manual for Therapists: work assessment and intervention resource (March 2020). Available at: [www.workwelluk.org](http://www.workwelluk.org), to help upskill the therapy workforce (4.3)

**5.8.** Web Page: PHE & RCOT Work Champions Initiative - 'Is it working?' section. Available at: [www.rcot.co.uk/promoting-occupational-therapy/health-and-work-champions-promoting-health](http://www.rcot.co.uk/promoting-occupational-therapy/health-and-work-champions-promoting-health), on the NHS prioritisation of patients' arthritis-related work problems (4.3)

**5.9.** Web Page: Versus Arthritis's work agenda. Available at: <https://www.versusarthritis.org/policy/our-policy-positions/employment-and-work/>, on the NHS prioritisation of patients' arthritis-related work problems (4.3)

**5.10.** Web Page: FAME Programme. Available at: [www.mskhub.com/fame-online](http://www.mskhub.com/fame-online) and associated testimonies, on improving outcomes for those with fibromyalgia (4.4) and increasing access to self-management (4.5)