

# Occupational advice to help people return to work following lower limb arthroplasty: the OPAL intervention mapping study

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**Declared competing interests of authors:** Paul Baker was a member of the National Institute for Health and Care Excellence (NICE) guideline committee (CG157: hip, knee and shoulder replacement clinical guideline) (2018–2020). He is also a member of the NICE Quality Assurance Committee (2019 to present), is a HTA Commissioning panel member (Panel B) (2019 to present) and a Royal College of Surgeons Specialty Lead for Orthopaedics (2019 to present). Avril Drummond is a member of the Health Education England/National Institute for Health Research (NIHR) Integrated Clinical Academic Programme Clinical Lectureship and Senior Clinical Lectureship Review Panel (2018 to present). Catriona McDaid is a member of the NIHR Health Technology Assessment (HTA) and Efficacy and Mechanism Evaluation (EME) Editorial Board (2017 to present). Catherine Hewitt is a member of the HTA Commissioning Board (2015 to present). Louise Thomson was a member of the NICE Public Health Advisory Committee on Workplace Health: long-term sickness absence and capability to work (NICE Guideline number 146) (2018–19).

Amar Rangan is an NIHR grant holder [Partial Rotator Cuff Tear Repair (PRO CURE) trial, NIHR HTA project 128043 (co-investigator), subject to Department of Health and Social Care contracting; UKFROST, NIHR HTA project 13/26/01 (chief investigator); ProFHER) trial, NIHR HTA project 06/404/53 (chief investigator); HUSH trial, NIHR HTA project 127817 (co-investigator); Patch Augmented Rotator Cuff Surgery (PARCS) feasibility study, NIHR HTA project 15/103 (co-investigator); treatment of first time anterior shoulder dislocation, Clinical Practice Research Datalink analysis, NIHR HTA project 14/160/01 (co-investigator); SWIFFT, NIHR HTA project 11/36/37 (co-investigator); DRAFFT Trial, NIHR HTA project 08/116/97 (co-investigator); PRESTO feasibility study, NIHR HTA project 15/154/07 (mentor to chief investigator); and evidence synthesis on the frozen shoulder NIHR HTA project 09/13/02 (co-investigator)] and an Orthopaedic Research UK (London, UK) research grant holder, and research and educational grants were provided to his institution from DePuy Synthes [Raynham, MA, USA; a Johnson & Johnson (New Brunswick, NJ, USA) company].

**Disclaimer:** This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

Published September 2020

DOI: 10.3310/hta24450

## Scientific summary

### The OPAL intervention mapping study

Health Technology Assessment 2020; Vol. 24: No. 45

DOI: 10.3310/hta24450

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## Scientific summary

This section uses material reproduced from Baker *et al.* [Baker P, Coole C, Drummond A, McDaid C, Khan S, Thomson L, *et al.* Development of an occupational advice intervention for patients undergoing lower limb arthroplasty (the OPAL study). *BMC Health Serv Res* 2018;**18**:504]. This is an Open Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) license, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited. See: <https://creativecommons.org/licenses/by/4.0/>. The text below includes minor additions and formatting changes to the original text.

### Background

Hip and knee replacements are regularly carried out for patients who work. There is little evidence about these patients' needs and the factors influencing their return to work. There is a paucity of guidance to help patients return to work after surgery and a need for structured occupational advice to enable them to return safely and effectively. There is variation in the occupational advice provided as part of standard care, and the content, format and delivery of this information is poorly understood. The appropriateness of individual return-to-work outcomes for use as primary outcome measures in research is currently unclear.

### Objectives

The Occupational advice for Patients undergoing Arthroplasty of the Lower limb (OPAL) study had nine objectives:

1. to evaluate the specific needs of the population of patients who are in work and intend to return to work following hip or knee replacement
2. to establish how individual patients return to work; the role of fit notes, clinical and workplace-based interventions; and how specific job demands influence workplace disability and productivity
3. to establish what evidence is currently available relating to return-to-work/occupational advice interventions following elective surgical procedures
4. to understand the barriers preventing return to work that need to be addressed by an occupational advice intervention
5. to determine current models of delivering occupational advice, the nature and extent of the advice offered and how tools to facilitate return to work are being currently used
6. to define a suitable measure of return to work through systematic review and evaluation of specific measures of activity, social participation and including specific validated workplace questionnaires
7. to construct a multistakeholder intervention development group to inform the design and establish the necessary components of an evidence-based occupational advice intervention initiated prior to elective lower limb joint replacement
8. to develop and manualise a multidisciplinary occupational advice intervention tailored to the needs of this patient group
9. to test the acceptability, practicality and feasibility and potential cost of delivering the manualised intervention within current care frameworks and as a potential trial intervention.

## Methods

A six-stage intervention mapping approach was employed. Stages 1–3 addressed objectives 1–6 by gathering data on current practice and barriers to change; stages 1–3 also provided a theoretical framework for intervention development. Stages 4–6 addressed objectives 7–9.

### *Intervention mapping stage 1: needs assessment*

Intervention mapping stage 1 established the rationale for an occupational advice intervention within the target population by evaluating the discrepancy between current and desired practice.

It included the following complementary workstreams:

- Rapid evidence synthesis – review of existing quantitative and qualitative evidence on occupational advice interventions for people undergoing elective surgery. Review of systematic reviews evaluating occupational advice interventions supporting return to work for individuals with chronic musculoskeletal problems.
- Prospective cohort study – participants undergoing hip or knee replacement, working in the 6 months prior to surgery, were prospectively recruited from four NHS sites. Questionnaire assessment at baseline, 8 weeks and 16 weeks (and 24 weeks for a subset of participants) was undertaken and measured patient characteristics, employment details, workplace assessments, functional outcomes, health utility measures, expectations of recovery, and rates and timing of return to work after surgery. Questionnaire data were summarised using descriptive statistics. Logistic regression models were used to predict early return to work (within 6 weeks) using preoperative, operative and postoperative characteristics. Health economic analyses were conducted using estimates of health-care resource use, time spent delivering return-to-work advice, health-related quality-of-life measures and productivity loss.
- National survey of practice – a web-based survey of current practice was sent to hospital orthopaedic departments in England, Wales, Scotland and Northern Ireland.
- Patient interviews – interviews were conducted with a subset of patients from the cohort study approximately 16 weeks post surgery. A framework approach was used to design semistructured interviews and analyse data. Thematic analysis reflected an essentialist/realist perspective, reporting on the experiences, meanings and reality of the participants.
- Stakeholder interviews – patient interviews were supplemented by qualitative data from semistructured stakeholder interviews. Employer, surgeon, general practitioner, allied health professional and nurse interviews were conducted.

Information from these workstreams was used to create a logic model of the problem. Behavioural and environmental factors were mapped to specific theory- and evidence-based factors and determinants to provide an overview of the problem and a framework to address it.

### *Intervention mapping stage 2: identify intended outcomes and performance objectives*

Stage 2 specified who and/or what needed to change in order for patients to make a successful return to work following hip/knee replacement. A matrix of performance objectives for key stakeholder groups was constructed.

### *Intervention mapping stage 3: selecting theory-based methods and practical strategies*

Stage 3 generated a list of possible intervention components matched to each performance objective/determinant.

### *Intervention mapping stage 4: development of intervention components*

Stage 4 developed specific tailored tools and materials to facilitate the intervention. To refine these components, a multistakeholder intervention development group was created to reach agreement

about the design, content, delivery, format and timing of the proposed occupational advice intervention. To facilitate this process, a modified three-round Delphi consensus process was employed.

### **Intervention mapping stage 5: adoption and implementation plan**

Stage 5 developed an implementation and adoption strategy. It focused on the delivery of the intervention within the realities of the NHS. To facilitate the implementation and adoption of the intervention, education and training materials were developed for each of the staff groups involved in its delivery.

### **Intervention mapping stage 6: evaluation plan and feasibility testing**

The final stage evaluated the intervention by assessing four complementary aspects of its delivery and performance:

1. intervention fidelity
2. intervention quality
3. feasibility data
4. economic data.

Feasibility testing involved a further cohort study, including health economic analyses, and patient and stakeholder interviews.

## **Results**

Data from intervention mapping stage 1 provided the necessary information to develop the intervention:

- Rapid evidence synthesis – four primary papers (two quantitative and two qualitative) and 17 systematic reviews were assessed. They identified six key components that were effective across previous return-to-work interventions:
  - work simulation, work hardening and job accommodation
  - contact with employer/workplace visits
  - physical exercise/therapy
  - educational programmes
  - vocational counselling and guidance
  - multidisciplinary team involvement.
- Prospective cohort study – 765 patients were screened, of whom 202 (27%) were eligible for inclusion; 154 patients consented and provided baseline data (77 hip and 77 knee patients); and 78 participants (50.6%, 37 hip and 41 knee patients) returned to work within their period of follow-up. On average, they returned at 10 weeks after surgery (range 1–27 weeks). At follow-up, almost 10% ( $n = 9$ ) of respondents who stated that they initially intended to return to work no longer planned to. Only 29% ( $n = 44$ ) of participants reported having access to occupational health services and 23% ( $n = 36$ ) stated that they received advice about return to work after surgery. Regression models failed to determine predictors of return to work within the cohort. Health economic analysis found that the mean cost associated with productivity loss prior to and following surgery was £7983 (standard deviation £4301) per participant.
- National survey of practice – responses were received from a total of 152 participants from 59 different public and private health providers, and included 78 surgeons, 20 physiotherapists, 25 occupational therapists and 25 nurse/specialist nurse/extended-scope practitioners. Only 20% ( $n = 30$ ) of health-care professionals reported that return-to-work patients were identified as a specific group in need of additional support and information during their care episode, and

- 18% ( $n = 26$ ) stated that they received additional advice and support. When advice on return to work was given, it typically was verbal ad hoc advice using generic time scales and based on the health-care provider's anecdotal experience. Overall, 78% of respondents ( $n = 116$ ) felt that an occupational advice intervention was needed.
- Patient interviews – interviews were conducted with 45 patients, comprising 20 private sector employees, 16 public-sector employees, six self-employed participants and three participants in unpaid work or carer roles. The interviews identified the following themes:
    - preoperative context
    - postoperative context
    - advice received
    - general practitioner role and fit note
    - barriers to and facilitators of return to work
    - perceptions of an occupational advice intervention.
  - Stakeholder interviews – interviews were conducted with 25 workplace representatives, 12 orthopaedic surgeons, 16 general practitioners and 12 allied health professionals/nurses. The interviews identified the following themes:
    - Workplace representatives –
      - experiences of accommodating patients undergoing hip and knee replacement in the workplace
      - barriers to and facilitators of return to work
      - perceptions regarding an occupational advice intervention.
    - Clinicians –
      - decision to have surgery and expectations of recovery
      - advising patients about work and other activities
      - barriers to and facilitators of return to work
      - perceptions regarding an occupational advice intervention.

A logic model of the problem was created based on the information gathered from the needs assessment in stage 1. Stages 2 and 3 then developed provisional performance objectives for the occupational advice intervention and selected theory-based methods and practical strategies to support their development. Determinants for the behavioural outcomes of both patients and hospital staff were examined, allowing a logic model of change to be created that illustrated the proposed causal relations between theory- and evidence-based change methods, the determinants they are expected to influence, and behavioural plus environmental outcomes that will address the health problem.

In intervention mapping stage 4, a multistakeholder intervention development group finalised the content, delivery, format and timing of the proposed occupational advice intervention. A modified three-round Delphi consensus process facilitated this process. Sixty-six stakeholders (patients, employers, surgeons, general practitioners, allied health professionals and nurses) were invited to participate. In round 1, statements relating to the content of the intervention were considered by 43 respondents. In round 2, statements relating to the delivery, format and timing of the intervention were considered by 26 participants. In round 3, the developed intervention was circulated for comments, with responses from 11 participants who constructively appraised the intervention.

The final intervention comprised 13 patient and 20 staff performance objectives and had the following key features:

- Timing – commenced in the outpatient clinic when listed for surgery and continued until 16 weeks after surgery.
- Patient identification – all return-to-work patients identified as return-to-work patients at their initial clinic appointment. An occupational checklist facilitated identification of these patients. Information on the occupational checklist was used to aid surgical decision-making. Patients subsequently listed for surgery were signposted to the OPAL intervention resources (i.e. OPAL patient ‘return-to-work’ workbook, employer information resource, website and local return-to-work co-ordinator) by their surgical team.
- Delivery of information – all patients in work and intending to return to work after surgery were provided with the following resources:
  - The patient return-to-work workbook. This was an eight-step interactive workbook. Completion of the workbook helped patients to list and understand their current job demands, set a provisional return-to-work date, identify potential barriers and solutions to safe and appropriate return to work and develop a provisional return-to-work plan that could be shared with their employer/work colleagues. The completion was overseen by a designated return-to-work co-ordinator who was a member of the orthopaedic team.
  - The employer return-to-work information resource. This mirrored the information in the patient workbook. The patient was provided with a copy to give to their employer.
  - Signposting to the OPAL website.
- Assessment by a designated member of the orthopaedic team – all patients were contacted by a return-to-work co-ordinator prior to surgery. The return-to-work co-ordinator offered support to patients, encouraged them to complete the patient return-to-work workbook and discussed the plans they had developed. This contact took place at a minimum of 4 weeks prior to surgery.
- Support, review and escalation – the return-to-work co-ordinator offered additional support to patients based on need. A dedicated mechanism for contacting the return-to-work co-ordinator was created (telephone or e-mail), which could prompt further review and referral back into local therapy services.
- Communication – mechanisms and guidance to support communication within the hospital team, between the hospital team and primary care and between the patient and their employer, were included.
- Training – training for members of the hospital orthopaedic care team who interact with return-to-work patients to increase awareness of return-to-work issues across the orthopaedic department was provided.

To support delivery, a range of tools (e.g. occupational checklists, patient workbooks and employer information), roles (e.g. return-to-work co-ordinator) and training resources were created.

Intervention mapping stages 5 and 6 implemented and assessed the intervention within three NHS trusts. Of 147 patients screened, 35 (24%) were eligible (in work and intending to return to work after surgery) and 26 consented to participate. Baseline data were available for all 26 patients; however, follow-up data were available for only 21 patients, as two patients withdrew and three patients had their surgery transferred to another site or deferred to a later date. Adherence to the defined performance objectives was 75% for patient performance objectives and 74% for staff performance objectives. The intervention was generally well received, although the short time frame for implementation and concurrent research evaluation led to some confusion regarding its purpose and the roles and responsibilities of key staff. At 16 weeks, 10 out of the 21 respondents had returned to work, at an average of 7.4 weeks. In the case of those not back at work, the Readiness to Return to Work Scale indicated that participants wanted to get back to work, thought that it was possible and were working towards achieving it. The estimated total cost of the intervention was £70.52 per patient.

## Conclusions

The OPAL study collected a wide range of data and perspectives about return to work from a variety of stakeholders across a number of NHS sites. It provided essential relevant information about the target population and delivery of usual care, and explored outcomes of importance for this patient group. Importantly, it produced an occupational advice intervention that supports best practice through the development of an individualised return-to-work plan, which is tailored to the patients' needs and which involves them in decisions about their care. Subsequent evaluation demonstrated good rates of adherence against defined performance objectives. However, implementation and uptake of the intervention were not standardised and were limited by the study time frame. These aspects and other operational issues require further attention before the intervention is more widely adopted.

## Future work

The intervention warrants further research to assess its clinical effectiveness and cost-effectiveness to improve rates and timing of sustained return to work after surgery. This research should include the development of a robust implementation strategy to ensure that adoption is sustained.

## Study registration

This study is registered as ISRCTN27426982 and PROSPERO CRD42016045235.

## Funding

This project was funded by the National Institute for Health Research (NIHR) Health Technology Assessment programme and will be published in full in *Health Technology Assessment*; Vol. 24, No. 45. See the NIHR Journals Library website for further project information.



ISSN 1366-5278 (Print)

ISSN 2046-4924 (Online)

Impact factor: 3.370

*Health Technology Assessment* is indexed in MEDLINE, CINAHL, EMBASE, the Cochrane Library and Clarivate Analytics Science Citation Index.

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## This report

The research reported in this issue of the journal was funded by the HTA programme as project number 15/28/02. The contractual start date was in July 2016. The draft report began editorial review in April 2019 and was accepted for publication in January 2020. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors' report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health and Social Care.

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