



ELSEVIER

Contents lists available at ScienceDirect

Journal of Hand Therapy

journal homepage: [www.jhandtherapy.org](http://www.jhandtherapy.org)

JHT READ FOR CREDIT ARTICLE #538.

Scientific/Clinical Article

## Complex regional pain syndrome in distal radius fractures: How to implement changes to reduce incidence and facilitate early management



Fiona Cowell Grad dip Phys, MSc<sup>a,\*</sup>, Sharon Gillespie Grad dip Phys, MSc<sup>b</sup>,  
Graham Cheung MBChB, FRCS (Tr & Orth)<sup>c</sup>, Daniel Brown FRCS (Tr & Orth), MA (Clin Ed)<sup>c</sup>

<sup>a</sup> Extended Scope Physiotherapist in Trauma Management, Therapies Department, Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, England, UK

<sup>b</sup> Clinical Physiotherapy Specialist Upper Limb, Therapies Department, Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, England, UK

<sup>c</sup> Consultant Orthopaedic Surgeon, Department of Orthopedics, Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, England, UK

### ARTICLE INFO

#### Article history:

Received 6 November 2017

Received in revised form

29 January 2018

Accepted 30 January 2018

#### Keywords:

Complex regional pain syndrome

CRPS

Prevention

### ABSTRACT

**Study Design:** Implementation paper.

**Introduction:** Complex regional pain syndrome (CRPS) is relatively a common condition in the distal radius fracture (DRF) population with the effects resulting in many sufferers experiencing persistent pain and impairment 2 to 6 years after onset. Prevention is desirable as there is no known proven cure.

**Purpose of the Study:** This study demonstrates how knowledge about CRPS and its prevention generated through iterative studies can be translated into practice in the workplace and how an interdisciplinary community of practice with therapists at the core can effect change.

**Methods:** A series of practice changes were introduced including a patient information leaflet, a local gold standard for care of DRF, education for staff regarding risk factors and early warning signs of CRPS, and simple patient and staff visual aids.

**Results:** The incidence of CRPS was reduced from 25% to 1% in the DRF population at the study site, and collaborative care pathways were ingrained onto the working culture.

**Discussion:** The process of learning together fostered the development of an interdisciplinary team with therapists acting as CRPS champions. Interdisciplinary team reflective practice facilitated simple but effective interventions, which reduced the incidence of CRPS in DRF population locally. It is not yet known whether this is transferable.

**Conclusions:** Simple interventions can have a significant impact on the incidence of CRPS in a community of practice where a culture of team reflection and shared learning occurs.

© 2018 Hanley & Belfus, an imprint of Elsevier Inc. All rights reserved.

### Introduction

Complex regional pain syndrome (CRPS) type I and II is relatively a common condition that can develop in the distal radius fracture (DRF) population with incidence reported in up to 25% of DRF.<sup>1–3</sup> Approximately 15%–36% of CRPS sufferers experience persistent pain and impairment 2 to 6 years after onset.<sup>4,5</sup> CRPS can be resistant to therapies, and its management is challenging for clinicians. Prevention is desirable particularly as there is as yet no known proven cure.<sup>6</sup>

Team-based care is recognized as essential in the management of established CRPS.<sup>6</sup> In our interprofessional team context (see

**Methods**), we had observed the volume of patients presenting with CRPS after DRF in the fracture clinic and the difficulty in managing this condition effectively. We hypothesized that the incidence might be reduced with attention to detail in fracture management and by raising awareness of staff working closely with this patient group to the risk factors, signs and symptoms, and early warning signs for CRPS.

To support clinicians and researchers seeking to enact practice changes and the implementation of best evidence into practice, a knowledge-to-action framework has been proposed by Graham et al (Fig. 1).<sup>7</sup> This framework highlights an iterative and ongoing cycle that incorporates: (1) local or context-specific identification of a knowledge or practice gap, (2) synthesis of evidence and creation of knowledge tools to address the gaps, (3) implementation of tailored strategies, and (4) evaluation and monitoring of outcomes to ensure change is achieved and sustained.<sup>8</sup> This process may

\* Corresponding author. Therapies Department, Royal Liverpool and Broadgreen Hospitals NHS Trust (RLBUHT), Prescot Street, Liverpool L7 8XP, UK.

E-mail address: [fiona.cowell@rlbuht.nhs.uk](mailto:fiona.cowell@rlbuht.nhs.uk) (F. Cowell).

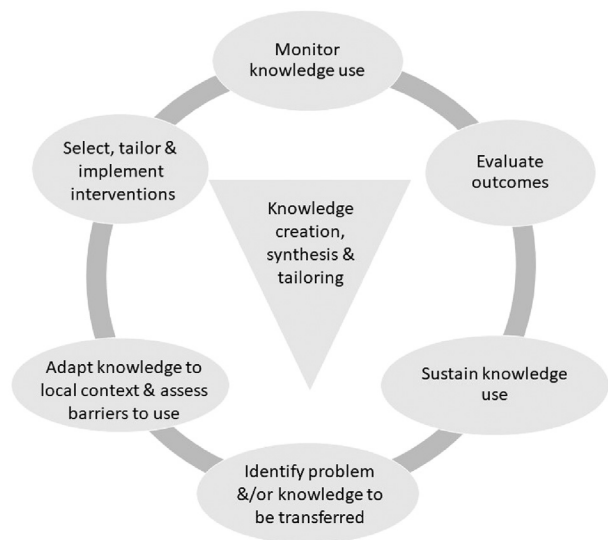


Fig. 1. The knowledge-to-action framework. Adapted from Graham et al, 2006.<sup>7</sup>

employ multiple strategies to support behavior change at any stage of the cycle. Common implementation strategies include establishing a local “site champion” to serve as a change agent, use of reminders, and audit with feedback to measure and maintain the impact of the desired changes.<sup>9</sup>

Although the outcomes of the knowledge translation intervention undertaken at our site have previously been published,<sup>10</sup> the purpose of this article is to describe in detail the process of implementing practice changes to support CRPS prevention following DRF, as a case report for others seeking to undertake similar endeavors. Secondly, we describe the role of the interdisciplinary team of therapists and the evolution of a community of practice (CoP) in these knowledge translation activities.

## Methods and results

### Setting

The study site is a university teaching hospital in England serving an adult population of 484,578 of which 86% are White British.<sup>11</sup> The fracture clinic at the study site is a trauma orthopedic clinic, which offers 10 clinic sessions weekly from Monday to Friday with each clinic staffed by dedicated staff: a consultant orthopedic surgeon (varying each clinic day according to subspecialism); extended scope physiotherapists in trauma management; nursing staff, and plaster technicians. In addition, there are rotational junior grade physiotherapists and orthopedic training grade medical staff working within the clinics. For 2 sessions a week (the hand and wrist subspecialist fracture clinics), additional static clinical specialist hand therapists are present: one of which is a physiotherapist and the other is an occupational therapist. The dedicated therapist roles have existed for over 17 years. The therapists work interprofessionally and are responsible for injury assessment and management from initial presentation to orthopedics through to discharge from orthopedics under the clinical supervision of orthopedic consultants. They provide an additional link between the rehabilitation outpatient department and the orthopedic department, which is seen as a particular strength of the unit. The roles are fully embedded into clinical practice in the unit and act as the static core that enables the therapists to serve as “site champions” to support local knowledge translation and facilitate currency of evidence-based practice across the wider team of subspecialties within the orthopedic trauma teams.

### Defining the problem

A simple local knowledge audit was undertaken in 2004 involving a questionnaire survey to all therapists in outpatient therapies and fracture clinic, nurses, plaster technicians, and medical staff in fracture clinic. This ascertained that clinicians of all professional backgrounds and grades working in rehabilitation programs and fracture clinic had an inconsistent knowledge of CRPS and the current evidence for practice. This included both identification of significant signs and symptoms, and therapies that might be helpful. An initial clinical audit established the incidence of CRPS in the local DRF population at 25%<sup>10</sup> and replicated the strong correlation between tight and over-flexed casts and the incidence of CRPS reported by others.<sup>2</sup>

### Adapting and implementing knowledge in the local context

Based on the results of the initial clinical audit, the therapist team decided to modify our patient information leaflet. The amendments encouraged patients to take action on tight, restrictive, and over-flexed casts and to encourage swelling control and light normal functional activities (Appendix 1 patient information leaflet DRF). Formal staff education consisting of lectures to the wider multidisciplinary team at hospital grand rounds, the local hand therapies, and fracture clinic team at seminars and workshops and the creation of multidisciplinary team training packages including guidelines and PowerPoint presentations. Informal education in the form of case-based tutorials in fracture clinic and rehabilitation programs raised awareness of these risk factors and helped to start develop a culture of vigilance and attention to detail with cast management. To further educate and engage staff on a daily basis, CRPS diagnostic criteria and care pathways were displayed in a prominent place at the staff base in fracture clinic.

### Initial audit and feedback

A repeat audit established a reduction in the incidence of CRPS in DRF from 25% to 10% locally and resulted in the production of a local gold standard for the management of DRF which was displayed in poster format in clinical areas for staff support<sup>10</sup> (Table 1).

### Secondary audit and feedback

An apparent surge in the incidence of CRPS after DRF in January 2010 prompted a case note review of all DRF against the local gold standard and highlighted the difficulties in maintaining the gold standard of care during times of work load pressure. In particular,

Table 1

Local gold standard of care for patients presenting with DRF at RLBHHT

1. Do not immobilize DRF excessively or unnecessarily.
2. Ensure casts are well fitting and comfortable, avoiding over flexion, sharp edges and ensuring there is no restriction to MCPJs.
3. Encourage hourly full-range composite grip/release exercises to control swelling in elevation.
4. Encourage light function and attention to limb while in plaster.
5. All verbal information given is to be supported with a patient information leaflet.
6. All advice given is to be recorded in patient notes.
7. Patients reporting tight/overflexed and/or restrictive cast should always have their cast changed.
8. Patients requesting repeated change of cast or reporting “claustrophobia in cast” to trigger immediate referral to specialist physiotherapist within the fracture clinic.

DRF = distal radius fracture; RLBHHT = Royal Liverpool and Broadgreen Hospitals NHS Trust; MCPJ = metacarpophalangeal joint.

Download English Version:

<https://daneshyari.com/en/article/8589960>

Download Persian Version:

<https://daneshyari.com/article/8589960>

[Daneshyari.com](https://daneshyari.com)