

# Delivery of the Comprehensive Multi-Disciplinary Combined Physical and Psychological Programme of the National Low Back and Radicular Pain Pathway in England and Wales: where do we stand?

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## Abstract

**Objectives** This survey study aimed to map the current provision of the Comprehensive Multi-Disciplinary Combined Physical and Psychological Programme of the National Low Back and Radicular Pain Pathway in England and Wales.

**Design** Online Survey.

**Setting** England and Wales.

**Participants** In total there were 66 respondents; 18 Trusts provided a full data set for their programmes - one delivered in Wales and 17 in England.

**Results** All programmes met the core criteria for CPPP laid out in the Pathway but there was great variation in many key areas of content, outcome data collected, structure and delivery mode and staffing.

**Discussion** The variation seen reflects a non-standard quality and nature of care across England and Wales. This likely reflects the absence of detail to inform NHS Commissioning in the corresponding NICE Guidelines, which in turn arises from the paucity of robust, pragmatic, evidence of efficacy and effectiveness of different models of CPPP.

**Conclusions** Robust, pragmatic, evaluation of CPPP service provision is required to inform NHS Commissioning and bring best care to all. A standard 'data dictionary' of outcomes would facilitate cross-site comparison and enable ongoing monitoring of provision across sites.

## Contribution of the Paper

- Variation occurs in virtually all aspects and elements of CPPP provision across sites in England and Wales.
- There is no agreed set of outcome measures for CPPP services.
- Robust evaluation of provision and a standard data dictionary of outcomes are required to resolve the 'post-code' lottery.

## Keywords

Low Back Pain, Chronic Pain, Pain Management

## Introduction

Back pain is the leading cause of disability in the UK, with approximately 2,313 cases per 100,000 population (1). Over 2.5 million people in the UK are now economically inactive due to long-term sickness, including close to 1 million with low back or neck pain as the leading cause (2). Once back pain becomes chronic, healthcare costs double compared to matched controls (3). Primary care alone spent ~£3.5 billion on back pain in 2020 (4). If work absence exceeds one

month, return-to-work chances drop significantly, especially beyond six months (5). The majority of costs incur treating those with chronic, disabling back pain (6), despite evidence that early intervention often prevents chronicity (5).

The National Low Back and Radicular Pain Pathway (7) was developed to: standardise care (eliminate 'post-code' lottery variance) and, assessment (to better target timely interventions), positioning a Combined

Physical and Psychological Programme (CPPP) as a core intervention to minimise chronicity (8). CPPPs are designed to reactivate those at highest risk of long-term disability with supervised exercise, cognitive-behavioural strategies to address unhelpful beliefs and behaviours, training in work-related activities, coping strategies, and self-management as core components. NICE and Cochrane reviews (8,9) support the efficacy and cost-effectiveness of CPPP (as do recent trials (10-13)). Current NICE guidelines (8), however, do not quantify or detail the core components nor key elements such as the duration, setting, or mode of delivery. Our evaluation of a 100-hour, two-week residential CPPP, remains the only published real world evaluation of an NHS CPPP service (14) and did show high patient satisfaction and significant clinical improvements. However, in many regions, commissioning of CPPP has been limited, largely due to the lack of evidence defining the best value structure and content (14), leaving commissioners uncertain about what they should be funding.

CPPP, as defined by the NICE Guidelines and the Pathway document, comprises a variety of components: supervised exercise; addressing unhelpful beliefs and behaviours (using Cognitive Behavioural principles); training in work and occupation related activities, coping strategies and self-management skills. The efficacy and effectiveness of the individual components of CPPP and some combinations of those are supported by the evidence reviews undertaken for the NICE clinical guidelines (8,15), and the related Cochrane Review (9), on which the Pathway and CPPP were recommended. In those reviews the varied interventions, support and management strategies to be included in CPPP demonstrated cost effectiveness and clinically significant improvements in disability and quality of life, which persist into the long term (16, 17, 18). The evidence base for components included in CPPP has been reinforced and supported by three RCTs (10, 11, 12) a pilot RCT (13), and one comparative (but non RCT) study (19) since the last publication date included in those reviews. The only published study of CPPP – as a whole and as delivered in practice – is previous work by several of the current authors evaluating the 100 hour 2 week residential CPPP in the North of England Back Pain Pathway (14, 20). We found clinically relevant improvements in physical and psychological function; pain; and quality of life; alongside high levels of patient acceptability and satisfaction (14, 20).

The Pathway was set up to address variation in treatment (7) by detailing a structured route for the management of low-back and radicular pain. NHS England's Improvement Framework on MSK conditions reflects the importance of reducing variance and improving availability of evidence based CPPP across the country (21). The 2009 NICE Guideline (15) recommended a 100 hour, in-patient CPPP. The current 2016 guideline (8) continues to recommend CPPP but doesn't stipulate a set duration, location nor mode of delivery. There are no previously published studies on how CPPP is being delivered in the UK with regards to key elements like accessibility, content, and delivery methods. This study captured detailed information on how CPPP is being delivered to identify the level and variability of provision in the UK.

## **Methods**

### *Ethical Approval*

The R&D Depts of Sheffield Teaching Hospitals and University Hospitals Birmingham NHS Foundation Trusts confirmed that R&D Permission and HRA Approval were not required. Ethical Clearance was obtained from Teesside University REF 17390.

### *Aims*

To present the range of access to and delivery models of CPPP across the UK. To compare key elements of delivery with the original model proposed in the National Low Back and Radicular Pain Pathway (7).

### *Setting*

NHS Trusts across the UK

### *Survey tool*

Online survey, hosted as a google doc, open for data collection between 12/12/22 and 30/06/23 with follow up data accuracy checks undertaken until Sep 2024.

### *Data Collection*

An invitation to take part and the URL to the survey were posted to the News Page of the National Spinal Network's (NSN) website which is open to 174 active members and non-members and was viewed by 128 unique viewers. The NSN is an established special interest group and member of the UKSpine Societies Board (UKSSB). NSN has multidisciplinary membership throughout the UK including clinicians involved in back pain management ... primarily physiotherapists but

also pain physicians, researchers, osteopaths, and nurses. 121 members of NSN were also contacted by e-mail and invited to take part – 78 receipts of opening the mail were logged and 26 people ‘clicked through’ to the survey. 23 regional NSN representatives also promoted the survey within their local region. The survey was publicised through the NSN twitter (X) site and the link was ‘clicked’ 59 times.

### *Analysis*

Key elements of the delivery models used were collated and aggregated using descriptive statistics to show the range and variance.

### **Results**

In total there were 66 respondents; 24 said there was no CPPP service in their area (six saying there was a specialist service that did not meet the criteria to be CPPP, two specifically said that a psychological component was missing, two specified it was a ‘resourcing issue’, three were planning to introduce a CPPP service and one stated there was a service that had closed due to ‘poor uptake’), six said there was a service but they could not refer to it and 17 said there was a service which they could refer to. Eighteen said they were involved in the provision of a CPPP. A full data set was obtained for each of those 18 separate programmes - one delivered in Wales and 17 in England.

### *Programme location and leadership*

17 of the programmes are delivered in an out-patient setting with one delivered as a residential programme in a hotel. The residential programme and five of the out-patient services operated on a *rolling basis* (with patients entering throughout the programme), while the others (12) had blocks of sessions with defined entrance and exit dates (with all patients commencing and ending on the same date). Of the block delivery programmes the number of times they run ranged from three to over four per annum, with the mode and median both being over four (9, 75%).

Leadership of nine (50%) of the programmes was by a Specialist Physiotherapist, four (22%) by the Clinical Lead of Pain Services (profession not stated), three (17%) by a non-specialist Physiotherapist, one (6%) by a Specialist (Chronic Pain) GP and one by a Specialist Physiotherapist with the title of Programme Manager.

### *Patient entry*

Patients were most commonly identified for entry into the programme by clinical judgement alone (8, 44%), via STarT Back score (2, 11%), with six (33%) using a mixture of STarT Back and clinical judgement. One added a mixture of (unspecified) questionnaires. The remaining programme used pre-assessment by a Physiotherapist, a Clinical Psychologist and an Occupational Therapist.

### *Patient throughput (capacity)*

The maximum number of participants included, per programme, ranged from six or less to over 15, with the Mode and Median both being 11-15 (10, 56%). The minimum number of participants included ranged from two to over eight, with the Mode and Median both being six (6, 33%).

### *Staffing*

Distribution of staff mix, across programmes, is presented in Figure 1 as number and Figure 2 as a percentage.

All programmes involved a physiotherapist and 16 (89%) involved at least one other health professional. Of the other Health Professionals involved, seven (39%) were Physiotherapy assistants, six (33%) included a Pain Nurse, six (33%) a Clinical Psychologist, (4, 22%) an Occupational therapist, three (15%) a Consultant Physician, and two (11%) for each of Psychology Assistant, High Intensity CBT therapist, Consultant in pain management, Counsellor and Ergonomist. One (5%) for each of a GP, a Junior Doctor, a Senior Psychologist, Dietician, Pharmacist, Pain Specialist Physio and Medical Imaging/Anatomist. Only one programme (the residential in a Hotel service) included all the staff options listed in the questionnaire.

### *Duration and Content*

The total clinical hours in the programmes ranged from under 10 to over 50, with the Mode being under 10 and the Median being 16-20. The number of sessions offered ranged from 4-6 to over 12, with the Mode and the Median both being 4-6. The duration of each session offered ranged from 60 to over 181 minutes, with the Mode being 60 minutes and the Median being 91-120. The frequency of sessions per week ranged from one to five, with the Mode and Median both being one.

All programmes included pain education, pacing, advice on managing setbacks, information on the benefits of exercise, exercise sessions, and relaxation. Goal setting was offered by 17 (94%), medication/support for reducing medication by 16 (89%), sleep hygiene was included by 15 (83%), problem solving and work/occupations related

activities were included by 13 (72%) and 'Other' activities were included by eight (44%). Of the eight that reported including 'other' activities the themes identified were specifics of pain education with stress management, anatomy and diagnosis and myth education also listed. Virtual platforms were used in seven (39%) programmes.

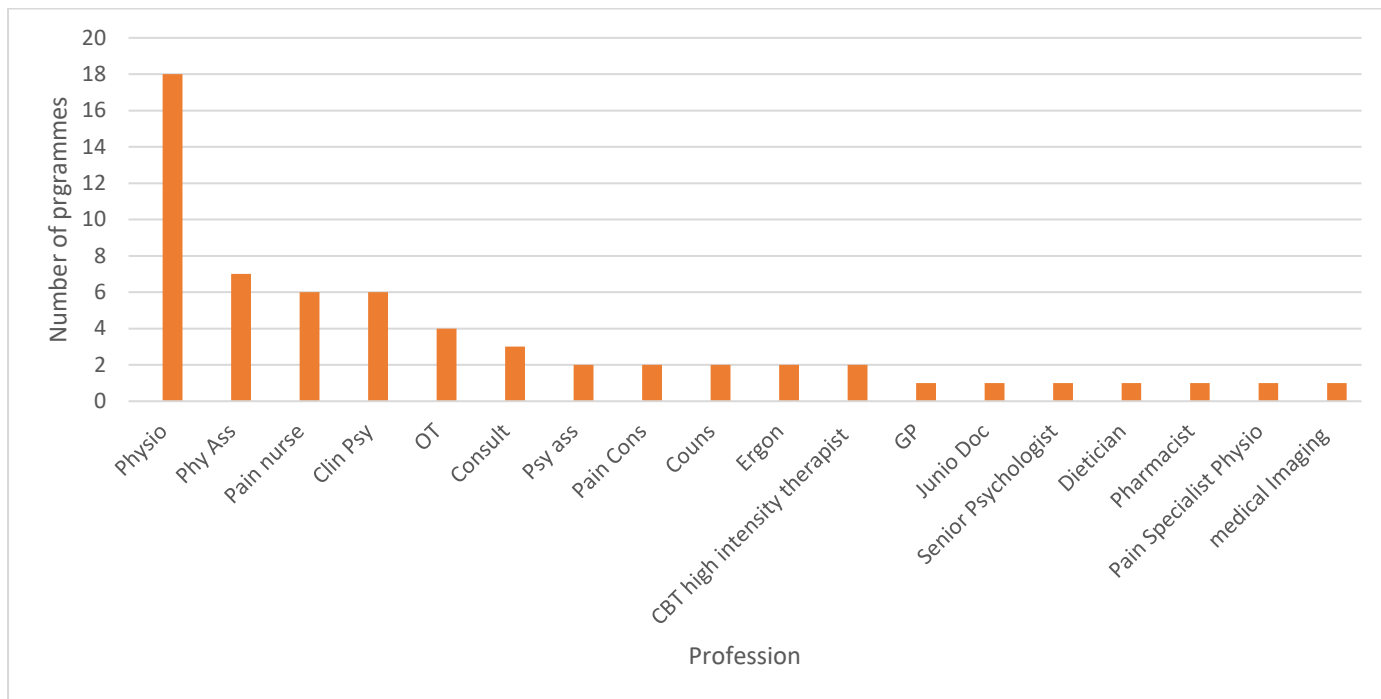


Figure 1: Staff distribution across programmes.

Key for Figures 1&2: Phy Ass = Physiotherapy Assistant, Clin Psy = Clinical Psychologist, OT = Occupational Therapist, Consult = Consultant, Psy Ass = Psychology Assistant, Pain Cons = Pain Consultant, Couns = Counsellor, Ergon = Ergonomist

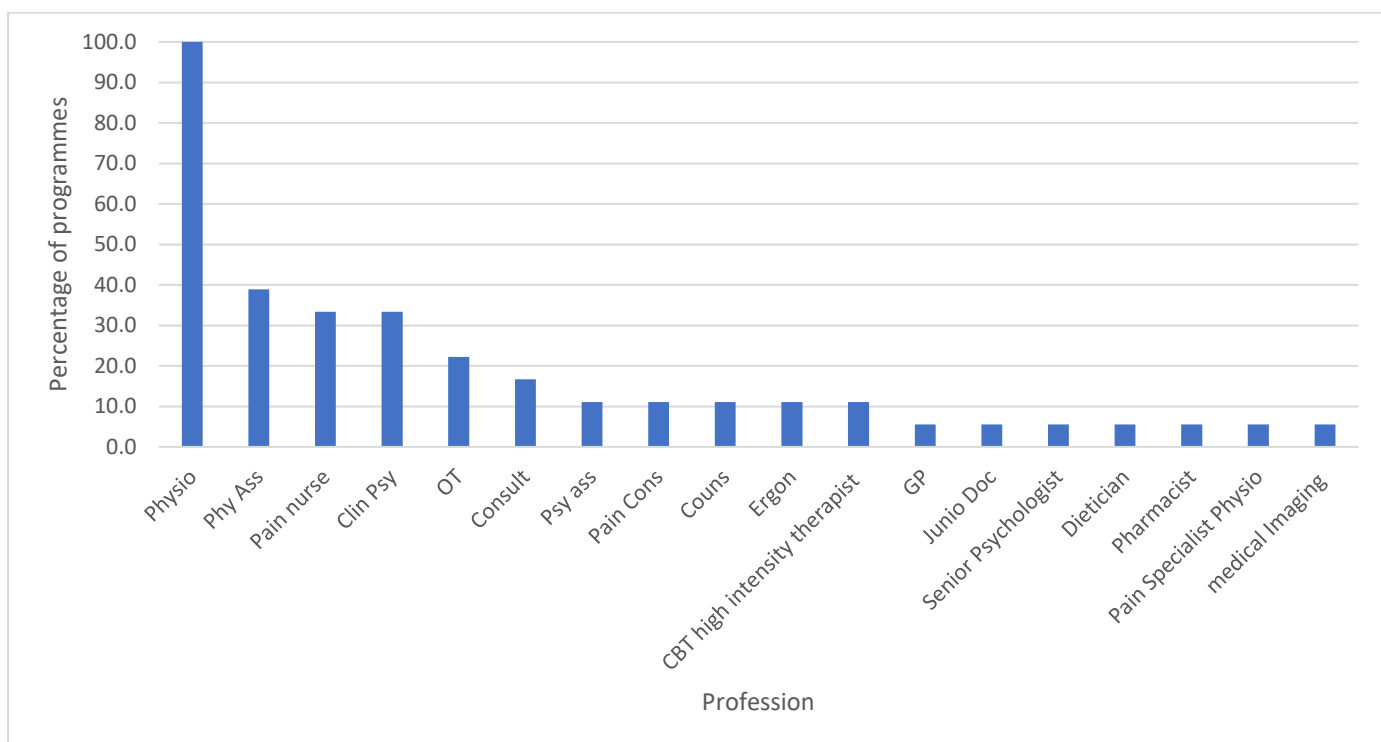


Figure 2: Staff distribution across programmes

Acceptance and Commitment Therapy (ACT) was defined as the approach used by eight (44%) respondents, Cognitive Behavioural Therapy (CBT) was used by seven (39%), the remaining three reported using Mindfulness (1, 5%), Compassion Focus Therapy one and either Mindfulness or CBT, dependent on patient response, one.

All programmes included both an Exercise component and Group discussions. The duration of exercise components ranged from under 30 to over 60 minutes, with the Mode and Median being under 30 (50%). Only one programme reported doing over 60 minutes (5%). The most common form of exercise session delivery was circuits (13, 72%) with the remainder being individualised exercise. Group discussions ranged in duration from 30 minutes or less, to 120 minutes or more, with the Mode and Median being under 30, and one lasting over 120 minutes (5%).

#### *Outcome measures*

All programmes used at least one outcome measure. Pain self-efficacy was the most frequently used (15, 83%). The great majority of respondents also used a Psychological Score (12, 72%). Ten (56%) used Assessment/review of patient-specific goals and ten (56%) Numerical Pain Score. Eight used a quality-of-life measure such as EQ5D (44%), six (33%) a Back Pain specific disability score (e.g. Oswestry Disability Index), five (28%), decrease in pain medication use, and one (5%) each used the number referred for specialist Pain management input or Surgical Review. Six (33%) respondents selected the 'Other' option with four (22%) going on to state the use of the Arthritis Musculoskeletal Health Questionnaire (22), two (11%) the Pain Catastrophizing Scale (23), two the Patient Health Questionnaire (24), two the Pain Self-Efficacy Questionnaire (25), two the Generalized Anxiety Disorder 7 (26), and one (5%) each for Hospital Anxiety and Depression Scale (27) and the Tampa Scale of Kinesiophobia (28).

#### **Discussion**

The results of this survey reveal considerable variability in the provision of CPPP across NHS Sites in England and Wales. Variability is evident in many key aspects of provision e.g. in terms of duration, content, and staffing. This is perhaps to be expected, given the absence of specific guidance, on these aspects, in the

NICE Guideline NG59 (8). While this study was neither designed as, nor is it presented as, an Audit, the National Low Back and Radicular Pain Pathway (7) does include statements on specific content, and remains (in the absence of specific details in NG59) the key resource on the detail of content and structure of CPPP Programmes.

The Pathway defines CPPP as being, '... *always multidisciplinary ...*'. All but three of the sites reported here included at least one health professional, other than a Physiotherapist (all sites included a Physiotherapist). The Median number of professions contributing to the programmes was 2.5 with the Mode being 2. There was (as in most of the parameters recorded) one outlier programme where 12 different professionals contributed; without that site the Median drops to two. The NG59 development committee, however, noted that *multidisciplinary* refers primarily to the mix of programme content. As a result, these low Median values do not necessarily reflect deviation from recommendation. The Pathway document lays out an extensive list of both *Essential competences* and *Essential Skills*, for those delivering CPPP. Further detailed data would be required to evaluate how well those programmes with fewer staff contributing, are meeting those.

The Pathway document recommends CPPP for those who have, *significant psychosocial obstacles to recovery, significant back pain related disability and have difficulty returning to or maintaining in work*. Entry criteria used by the respondents here were most often cited as clinical judgement alone (8, 44%). Some objective measures of pain and disability (e.g. STarT Back score 2, 11% and six (33%) STarT Back and clinical judgement) were employed. One site used pre-assessment by a Physiotherapist, a Clinical Psychologist and an Occupational Therapist. Further detailed data would be required to make any definitive judgement if the three criteria of significance - 1) obstacles, 2) pain related disability and 3) work issues - are being adequately assessed prior to entry.

The Pathway states CPPP should include, '... *intensive physical and psychological elements, using cognitive behavioural principles throughout the programme*'. One key difficulty, however, is *What does intensive mean*, and hence *What quantifiable parameters offer*

*the best intensity classification?* If one chose the total number of clinical contact hours, the range here is from under 10 to over 50 (Mode under 10, Median 16-20). If choosing number of sessions range is 4-6 to over 12 (Mode and Median both 4-6), session durations, however, range from 60 to over 181 minutes (Mode 60, Median 91-120); and frequency from only one, to five, sessions each week (Mode and Median one per week). While these ranges are wide, it is notable that the measures of centrality always lie at the low end of the range, in each parameter. Hence, it would seem provision, with a few rare exceptions, would be at the low end of any *intensity scale*.

Currently it is neither clear what intensive means (and what definition may best predict patient outcome and effectiveness) nor if more *intensive* programmes of CPPP (with likely higher cost) would be associated with enhanced patient outcomes. As a result service commissioners are providing CPPP without guidance regarding clinical or cost effectiveness. This may result in patients either receiving costly interventions that are not associated with additional clinical benefit or patients receiving inadequate care.

An interesting finding was that while all programmes did include some form of *psychological element*, by no means all used the *delivery on CBT principles* recommended in the Pathway (7). Acceptance and Commitment Therapy (ACT) was the most popular alternative, being used by eight (44%) of sites. The use of ACT has appeared *since* the Guideline and Pathway publication. The NICE Guideline (NG 193, 2021), for the assessment and management of chronic pain, despite recognising the paucity of studies, concluded that ACT was cost effective, and recommended that it should be considered. In terms of the present context though, NG193 recognised that there was equipoise in the evidence for ACT *versus* CBT. It is also wise to consider that NG193 was not specific to CLBP. As a result it is not immediately apparent what the evidence base is for this change in psychological elements of CPPP and further research is indicated.

In terms of content, the Pathway details the need for interventions that target; *work and occupation, de-medicalisation, self-reliance, coping strategies, goal setting/problem solving, pain self-management and Pharmacology advice*. All respondents here included pain education, pacing, managing setbacks, benefits of exercise, exercise sessions and relaxation. Goal setting

17 (94%), medication/support for reducing medication by 16 (89%), sleep hygiene 15 (83%), problem solving and work/occupations related activities by 13 (72%) were also included by the great majority. Eight (44%) respondents chose 'Other', thematic analysis of the open text follow up answers indicated there were variants of pain education with stress management, anatomy and diagnosis and myth education also covered. Overall the programmes surveyed here are meeting the range of interventions recommended; the crucial questions however remain - to what extent and to what effectiveness?

In terms of CPPP outcome measures, the Pathway recommends; *Return to Work or Occupation, Ability to self-manage, EQ5D, Back Specific Disability Score, and Measurement of affect*. Pain self-efficacy was the most frequently used (15, 83%) here, probably reflecting a sense that pain perception and the degree it intrudes on patient's lives, is the main underlying influence of other negative factors for patients. The great majority of respondents also used a Psychological Score (12, 72%) which could be assumed to reflect an intent to cover, at least in part elements, of *affect*. The EQ5D was only used by eight (44%) and only six (33%) use a Back Pain specific disability score.

Other measures reported here indicate considerable variation in which outcome measures respondents used. Ten (56%) used Assessment/review of patient specific goals, and Numerical Pain Score. Five (28%) measured rate of pain medication use. Six (33%) respondents selected the 'Other' option: four (22%) Musculoskeletal Health Questionnaire (22), two (11%) Pain Catastrophizing Scale (23), two Patient Health Questionnaire (24), two Pain Self-Efficacy Questionnaire (25), two the Generalized Anxiety Disorder 7 (26) and one (5%) each for Hospital Anxiety and Depression Scale (27), and the Tampa Scale of Kinesiophobia (28). While these measures are arguably logical, few bear any immediate, or direct/obvious, link to Pathway recommendations. The Pathway also states programmes should consider rates of referral back to Specialist Triage Review and then for Surgical Review/Pain Management, with a target of 0%. Only one site here, however, stated specifically measuring numbers referred back for specialist Pain management input or Surgical Review.

The outcome measures being routinely used by CPPP providers is not only (at best) loosely linked to Pathway

recommendations, but also inconsistent between sites. This removes the possibility of comparing site's efficacy or effectiveness through retrospective data analysis. The development (through consensus) of a core set of outcome measures would appear strongly merited.

#### *Study limitations*

The data set was limited to those who chose to self-report, as a result it may not have captured the full range of existing UK services. Invitations to take part were sent to sites in Scotland and Northern Ireland, but only sites in England and Wales responded; as a result the data does not fully represent the UK.

#### *Conclusions*

The key components currently included in CPPP are in keeping with NICE recommendations and the Pathway document. Delivery format, content and staffing vary widely however. Lack of, or inadequate provision/delivery of CPPP, was highlighted as a major failing of the implementation of the guidelines and rectifying that was one of the top ten recommendations of the National Spinal Taskforce 2013 (29). A robust, pragmatic, evaluation of the different ways that CPPP is delivered across the country is urgently required.

#### **Declaration of interest statement:**

The authors report there are no competing interests to declare.

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#### **Data availability statement:**

The raw data is available from authors Ryan and Martin.

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