



# Australian physiotherapists' priorities for the development of clinical prediction rules for low back pain: A qualitative study

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## Abstract

**Objective** To identify the types of clinical prediction rules (CPRs) for low back pain (LBP) that Australian physiotherapists wish to see developed and the characteristics of LBP CPRs that physiotherapists believe are important.

**Design** Qualitative study using semi-structured focus groups.

**Setting** Metropolitan and regional areas of New South Wales, Australia.

**Participants** Twenty-six physiotherapists who manage patients with LBP (77% male, 81% private practice).

**Results** Participants welcomed the development of prognostic forms of LBP CPRs. Tools that assist in identifying serious spinal pathology, likely responders to interventions, patients who are likely to experience an adverse outcome, and patients not requiring physiotherapy management were also considered useful. Participants thought that LBP CPRs should be uncomplicated, easy to remember, easy to apply, accurate and precise, and well-supported by research evidence. They should not contain an excessive number of variables, use complicated statistics, or contain variables that have no clear logical relationship to the dependent outcome. It was considered by participants that LBP CPRs need to be compatible with traditional clinical reasoning and decision-making processes, and sufficiently inclusive of a broad range of management approaches and common clinical assessment techniques.

**Conclusion** There were several identified areas of perceived need for LBP CPR development and a range of characteristics such tools need to encompass to be considered clinically meaningful and useful by physiotherapists in this study. Targeting and incorporating the needs and preferences of physiotherapists is likely to result in the development of tools for LBP with the greatest potential to positively impact clinical practice.

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## Introduction

Clinical prediction rules (CPRs) are an aid to support clinical decision-making [1]. They are generally a simple predictive tool designed to be used with individual patients [2]. Unlike other forms of decision aids, CPRs most commonly provide a clinician with the quantified probability of a patient having a certain diagnosis or achieving a particular

prognostic outcome [3]. CPRs come in many different formats and have been developed for a wide range of clinical problems. In some instances, CPRs provide an approach to stratified patient care, enabling treatments to be targeted to particular patient subgroups [4]. Over the past decade a growing number of CPRs have been developed within physiotherapy, with many relating to the management of low back pain (LBP) [5–8]. To date, such tools are remarkably diverse with little consistency in the type of clinical problems they aim to address. While the growth in the development of LBP CPRs is arguably important for the physiotherapy profession, the wide-ranging diversity in these tools may reflect a current lack of awareness about what clinicians actually want or need.

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There has been substantial dialogue in the recent physiotherapy literature regarding the appropriate methodology required to derive, validate and assess the impact of CPRs [9–14]. In contrast, there is a lack of literature about the types of problems for which CPRs should be developed or the characteristics and features they need to encompass to be considered useful by physiotherapists.

Given the substantial resources and time required to develop these tools, there is a need right from the preliminary stages of their development to ensure that CPRs will be accepted by clinicians and viewed as useful in addressing an important clinical problem [15]. Investigating and explicitly addressing clinician needs in the preliminary development of a CPR may be an important step in supporting the effective translation of CPR research evidence into clinical practice.

The aim of this study was to explore and describe the types and characteristics of LBP CPRs that are considered important by practicing physiotherapists working in the musculoskeletal field.

## Method

### Design

A qualitative descriptive method was employed to gain insight into physiotherapists' priorities for CPR development in relation to LBP. This method is intended to provide a clear description of a specific phenomenon or experience from the perspectives of research participants [16–18]. It concentrates on thematic analysis which seeks to identify common threads across participant perspectives in qualitative data [19]. Focus groups are commonly used in the early stages of product development to gain insight into the target consumers' thoughts and feelings about that product [20]. This approach is arguably well suited for exploring the needs and preferences of practising physiotherapists who are target clinical consumers of LBP CPRs. Four semi-structured focus groups, each lasting 1.5 to 2 hours and consisting of between 5 and 11 participants, were conducted across three geographic regions of New South Wales, Australia incorporating both metropolitan and regional areas. The first focus group was moderated by the third author (female, PhD, senior lecturer, experienced moderator) and the following three groups were moderated by the first author (male, B.Pty (Hons), physiotherapist, student of qualitative research methods). Groups were conducted outside of business hours to facilitate recruitment and held on a locally based university campus or in a private function centre. Ethical approval for the study was granted by the University of Newcastle's Human Research Ethics Committee.

Previous research in the field of Emergency Medicine [15,21] informed the development of a focus group schedule of questions. Participants were asked about areas of their practice with patients with LBP they thought may benefit from a CPR and the characteristics such tools require to be useful and meaningful. Clinicians were asked to share their beliefs on how LBP CPRs are most appropriately

incorporated within physiotherapy practice and about any advice they would give to researchers who were considering developing LBP CPRs. Each focus group was recorded using a digital voice recorder. The audio file from each group was transcribed and used for data analysis.

### Participants

Participants were recruited according to a purposive sampling framework [22] that would reflect the likely clinical consumers of LBP CPRs. Participants were selected according to the following characteristics: registered practising physiotherapist; working in public or private practice; having a caseload inclusive of patients with LBP; and proficiency in English. The study design deliberately included clinicians with a range of clinical experience from recent graduates to those with several decades of practice. Public listings were used to identify and recruit potentially eligible participants, in addition to an advertisement within an electronic bulletin e-mailed to all members of the Australian Physiotherapy Association.

### Data analysis

Focus group transcriptions were uploaded to NVivo (Version 9, QSR International Pty Ltd, Doncaster, Victoria, Australia) and pseudonyms were substituted for participant names and places. Transcripts were read several times by the first author and then segments of text were inductively coded. Inductive coding is data-driven and is different from deductive coding in that there is minimal attempt to interpret the data through pre-existing categories derived from the literature [23]. Clusters of basic themes with commonality were arranged into organising themes (Figs. 1 and 2) [24]. Ongoing analysis with inductive coding and the development of these thematic levels [25] occurred over the course of the focus groups. Thematic saturation [23] occurred at the fourth focus group. Organising themes were then related to the study's research questions to develop a smaller number of organising themes for each of the research questions [24]. Ongoing analysis informed a decision to include a one page

Physiotherapists' priorities for LBP CPR development	
Organising Themes	Basic Themes
Diagnosis	<ul style="list-style-type: none"> <li>Physiotherapists want LBP CPRs that enable the early and accurate identification of serious spinal pathology</li> <li>There is limited desire for the development of CPRs that facilitate the sub-classification of non-specific LBP by pathoanatomic diagnosis</li> </ul>
Intervention	<ul style="list-style-type: none"> <li>Physiotherapists want LBP CPRs that predict non-success, worsening or no need for intervention</li> <li>Physiotherapists want LBP CPRs that accurately identify likely responders to intervention</li> </ul>
Prognosis	<ul style="list-style-type: none"> <li>Physiotherapists have strong desire for LBP CPRs that accurately predict a patient's probable prognosis</li> </ul>

Fig. 1. Summary of the types of LBP CPRs physiotherapists wish to see developed.

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