Low Back Pain: The Time to Become Invested in Clinical Practice Guidelines Is Now

Rob A.B. Oostendorp, Peter A. Huijbregts

Low back pain (LBP) is a problem with significant personal and societal impacts. Although it is often suggested that LBP spontaneously resolves within 1 month in 90% of patients, epidemiological research into the natural history of LBP has in fact reported continued pain in 42%–75% of patients at 1 year and recurrence in 44%–78% of patients.¹ Research into functional recovery is plagued by the use of diverse endpoints, including return to work, cessation of care seeking, and pre-set improvements on functional outcome measures. Estimates of the economic costs of LBP also differ widely based on study methodology; however, we do know that the financial impact is substantial and that indirect costs associated with lost wages and reduced productivity greatly exceed direct costs, including medical costs. A systematic review of LBP cost of illness in the United States and internationally found that the costs of physiotherapy are equal to inpatient costs (17%) and exceed all other direct health care-related costs, including—perhaps surprisingly to some—pharmaceutical expenses (13%).² Yet physical therapy assessment and management of patients with LBP are characterized by notable practice variations and include a great number of interventions not supported by research evidence.³ In part, this is likely a result of the various and often contradictory—or, at best, non-complementary—paradigms of LBP and diagnostic classification models in use in clinical practice today.^{4–12}

Clinical practice guidelines (CPGs) are developed using a synthesis of research evidence, expert consensus, and patients' perspectives and have the potential to positively affect practice variation and the level of research-based content in clinical practice. Ideally, clinicians should be guided by current best evidence, which should minimize the use of interventions that are ineffective, costly, or even harmful. In 1990, the Royal Dutch Society for Physical Therapy implemented a quality-assurance

programme that to date has resulted in the publication of 18 CPGs, most of which are also available online in English.¹³ Two of these guidelines discuss the assessment and management of patients with LBP.^{14,15} Increasingly, inter-professional guidelines are also being developed to guide the management of patients with LBP.^{16–21} The World Confederation for Physical Therapy has acknowledged the importance of CPGs and has made their development and implementation a priority. However, CPGs are based on several levels of evidence, ranging from expert opinion through systematic reviews of longitudinal and transverse studies and non-controlled trials to randomized controlled trials, and thus are also subject to methodological concerns. For instance, uncritical pooling of heterogeneous trials has in the past led to misleading conclusions on the effectiveness of exercise therapy for patients with chronic LBP.²² Reflecting the substantial number of existing CPGs and the rapidly increasing body of knowledge with regard to guideline development, the AGREE (Appraisal of Guidelines, Research and Evaluation) collaboration has published an instrument designed to aid both methodological quality assessment and the development of guidelines.^{23,24}

Despite the lofty intentions outlined above, however, research has consistently shown low compliance with CPG recommendations in physical therapy and other health professions.^{2,25–27} Passive dissemination of information, including publication, presentation at conferences, and even profession-wide distribution, is the most common approach used by researchers, professional associations, and governmental agencies, but this implementation strategy is generally ineffective and at best produces only small changes in clinical practice.²⁸ Multifaceted interventions and interactive educational meetings are consistently more effective.^{28–30} The use of specific implementation strategies based on, for instance, the theoretical framework of Rogers' Innovation Decision Process and the barriers to CPG implementation perceived by physiotherapists shows promise as a more effective way to implement CPGs.³¹

Rob A.B. Oostendorp, PT, MPT, PhD: Emeritus Professor of Allied Health Sciences, Radboud University Nijmegen Medical Centre, Scientific Institute for Quality of Healthcare, Nijmegen, The Netherlands; Emeritus Professor of Manual Therapy, Free University of Brussels, Faculty of Medicine and Pharmacology, Department of Rehabilitation and Physiotherapy, Brussels, Belgium.

Peter A. Huijbregts, PT, MSc, MHSc, DPT, FAAOMPT, FCAMT: Assistant Professor, University of St. Augustine for Health Sciences, St. Augustine, Florida, USA; Consultant Physiotherapist, Shelbourne Physiotherapy Clinic, Victoria, British Columbia.

Address correspondence to Prof. dr. R.A.B. Oostendorp, Radboud University Nijmegen Medical Centre, Scientific Institute for Quality of Healthcare (IQ healthcare), PO Box 9011, 114 IQ healthcare, 6500 HB Nijmegen, The Netherlands; E-mail: r.oostendorp@iq.umcn.nl.

Table 1 Individual Quality Indicators per Step of the Process of Care, Level of Evidence, and Mean Percentages of Adherence for the Entire Therapeutic Process and for Individual Steps in Patients with Low Back Pain ($n = 145$)³⁹

	Level of Evidence*	% Adherence (SD)
Entire therapeutic process		67.2 (8.6)
Phases of therapeutic process / individual steps (no. of indicators)		
Diagnostic phase		
1. Referral (1)	IV	2.2 (14.7)
2. History taking (7)	II–IV	60.5 (10.1)
3. Patient profile (2)	II–IV	99.3 (6.0)
4. Physical examination objectives (1)	IV	32.8 (47.1)
5. Physical examination (1)	II–IV	45.5 (50.0)
6. Analysis and evaluation (3)	III–IV	91.3 (14.6)
Treatment phase		
7. Treatment plan (2)	III	47.5 (33.4)
8. Treatment (2)	I–IV	55.1 (38.0)
9. Re-evaluation (4)	IV	88.1 (19.9)
10. Discharge (2)	IV	73.4 (31.5)

* Level I = systematic review or >2 high-quality randomized controlled trials (RCTs); Level II = 2 high-quality RCTs; Level III = high-quality non-controlled study; Level IV = expert opinion

Evaluation is the next necessary step following CPG development and implementation. Central to CPG evaluation are measures called quality indicators (QIs), which indicate the quality of patient care delivered and must therefore be relevant to important aspects of such care.³² These indicators can be classified as *structure*, *process*, or *outcome* indicators.^{33–35} *Structure indicators* focus on clinical organization and available resources, whereas *process indicators* deal with the process of care and *outcome indicators* are concerned with treatment outcome. QIs are derived from research data on optimal patient care (preferably guideline-driven indicators based on CPG recommendations), supplemented by experts' clinical experience in a structured, iterated consensus rating procedure for deriving indicators from a CPG and also by patients' perspectives.³⁶ It is important that QIs meet quality requirements such as relevance, feasibility, reliability, and validity.³⁶ QIs are scored as percentages (yielding possible scores for quality of care ranging from 0 to 100), with the number of times a quality indicator has been met (e.g., assessment of yellow flags in history taking) as the numerator and the number of patients assessed—in this case, for LBP—as the denominator.

QIs can serve multiple purposes. Percentage scores on process indicators can provide information on CPG adherence that is relevant to implementation strategies and research. The nature of a possible relationship between process and outcome indicators may provide worthwhile information on the effectiveness and efficiency of the care process, and specifically the impact of clinical practice according to CPG recommendations, as is relevant in evaluation research. To date the number

of evaluation studies examining a possible relationship between guideline adherence and outcomes has been limited,³⁷ and previous studies on patients with LBP have used a limited number of QIs.^{25,26,38} More recently, Rutten et al. used 25 QIs in a study of 145 patients with LBP treated by physical therapists.³⁹ They found mean overall guideline adherence of 67.2%, meaning that, on average, therapists adhered to CPG recommendations for nearly 17 of 25 QIs per patient. Adherence ranged from 2.2% to 99.3% for the individual steps of the diagnostic process, and from 47.5% to 88.1% for the individual steps of the therapeutic process (see Table 1). Perhaps more relevant is the authors' finding that greater CPG adherence was related not only to an increased treatment effect with respect to physical functioning but also to decreased use of care, indicating increased efficiency of guideline-based clinical practice.³⁹

Of course, the question is, What is the place of CPGs in current and future clinical practice with respect to the assessment and management of patients with LBP? When contemplating the relevance of CPGs to clinical practice, we cannot but acknowledge three major limitations in such documents. Although guidelines for reporting research, most notably the Consolidated Standards of Reporting Trials (CONSORT) guidelines, require detailed reporting of interventions, only 13% of papers on LBP have reported reproducible interventions, leaving even guideline-adherent clinicians wondering which specific dosages and configurations should be applied to their patients.⁴⁰ Further, the current patient profile in clinical practice is an individual profile, whereas CPGs provide a general profile of, for example, patients with

LBP. In this context, the development and implementation, in both research and clinical practice, of the ICF core sets on LBP is an encouraging development that may begin to resolve this discrepancy between individual and general profiles to some extent.¹² Finally, it is a fact that not all CPGs are created to the same standard of methodological quality. The AGREE collaboration's methodological quality assessment tool should not only deliver greater transparency as to the quality of existing guidelines but also improve the quality of future guidelines. Despite these limitations, we see three areas of relevance with respect to the continued clinical use of and research into CPGs.

First, research into guideline implementation and adherence, comparing current practice patterns against QIs based on research evidence and CPG recommendations, not only increases transparency of care but also gives the individual clinician a reference against which to critically evaluate his or her own performance.⁴¹ Rutten et al. noted that there was no higher percentage of adherence for those steps of the care process that included QIs supported by higher levels of evidence and that the level of concordance between examination objectives and patient profile, as well as between the actual examination and examination objectives, was low.³⁹ Although this concordance between the different steps of the clinical reasoning process is relevant for the process of care, most therapists tend to follow a rather rigid standardized examination process for patients with LBP, comprising active, passive, and provocation tests (including mobility of motion segments of the spine), despite the fact that multiple reviews have noted the limited reliability of, for example, segmental mobility tests.^{42,43} Quantitative and qualitative implementation research allows critical reflection on individual decisions in the care process, but it also permits comparison to a larger group of clinicians (inter)nationally involved in the diagnosis and management of this patient group, and will thus lead to clinical practice based to a greater extent on current best evidence and sound clinical reasoning.

Second, results from CPG implementation research, especially when recommendations of CPGs are based on a high level of evidence and collecting data on a greater number of relevant QIs, need to be taken into account when updating a CPG. Although Rutten et al. found that greater adherence to guidelines was negatively related to the number of treatment sessions, they also noted that the mean number of treatment sessions for patients with acute LBP still exceeded the CPG recommendation of two to three sessions.³⁹ This finding suggests that this recommendation may be too optimistic, and this should be taken into consideration during the current revision of the CPG. Similarly, a low correlation between a particular process indicator and one or more outcome indicators may indicate that that particular process indicator is less relevant to patient outcome than previously thought,

and such findings may also lead to guideline revision. CPG development, implementation, and evaluation is a dynamic and ongoing process in which not only new relevant research information in the area of diagnosis, prognosis, and management but also findings from CPG implementation and evaluation research should be used to update guidelines regularly.

Finally, with limited societal resources allocated based on perceived efficiency or value for money, it is only a matter of time before government funding agencies and/or third-party payers begin mandating research-based management, as described in CPGs for patients with LBP, as the standard of care and the prerequisite for reimbursement of rehabilitation services. A similar situation already exists in Australia for the management of patients with whiplash-associated disorders.⁴⁴ The question now becomes whether we as a profession want to play the leading role commensurate with our expertise in determining the content and scope of such guidelines, so that we may continue to provide evidence-informed assessment and management of our patients with LBP. The alternative would be to have evidence-driven management externally imposed upon us, such that our input into what is considered relevant evidence may be much smaller than we would like. A continued research effort by physical therapists into the implementation and evaluation of guidelines for patients with LBP, the results of which are then used to improve guidelines, together with profession-wide participation in this process, may be the only way to ensure our continued ability to provide the best possible care to patients with LBP.

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