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Cochrane Back Review Group

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Medical historians may label the emergence of Evidence-Based Medicine (EBM) as the most important event in the final decade of the twentieth century. Systematic reviews are at the core of evidence-based practice as they provide the foundation for good clinical practice guidelines. Many clinical guidelines on the treatment of back pain have been published,¹ although not all deserve the label of “evidence-based.” Are systematic reviews—and EBM—miracles or minefields? Only historians will know for sure. Our tentative answer would be “yes” on both: they are a miracle *and* a minefield. Nonetheless, very few people will disagree that it would be useful to have a series of high quality systematic reviews covering the available evidence on the entire range of interventions for spinal disorders. This is exactly what the Cochrane Back Review Group is trying to do. In this editorial, we update some information about the Cochrane Collaboration and its Back Review Group, including a short description of the current state of the art. Second, we will outline the most important challenges for the Back Review Group, and finally, we will briefly comment on some possible future developments.

■ Cochrane Collaboration

Our 1997 *Spine* editorial² introduced the Cochrane Collaboration (<http://www.cochrane.org>), active since 1992 as an international organization with the ambitious aim to: 1) identify all Randomized Controlled Trials (RCTs) on health care interventions; 2) summarize the evidence in clinically meaningful systemic reviews; and 3) update these reviews when new evidence comes along. Currently, 50 Collaborative Review Groups are doing this work, which is published in The Cochrane Library, available on CD-ROM or accessible through the Internet, with four new issues per year. Issue 1, 2003 contains over 350,000 RCTs in the Cochrane Central Register of Controlled Trials (CENTRAL), 1596 completed reviews and 1200 protocols (reviews in progress).

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■ Cochrane Back Review Group

One of these Collaborative Review Groups is the Cochrane Back Review Group. The scope of the Back Review Group encompasses the prevention and treatment of neck pain, back pain, and other spinal disorders, with the exception of inflammatory diseases and fractures. In the Cochrane Library,³ the Back Review Group has 23 completed reviews (18 on back and 5 on neck interventions) and 8 protocols (Table 1). Most reviews deal with non-specific low back pain, and clearly, not all spinal disorders are equally well-represented. The Back Review Group functions much like paper journals, with a few important exceptions.

Our guidelines for authors can be found in the Cochrane Library⁴ and on our Web site.⁵ Unlike a journal article, authors preregister the title of the Cochrane review they wish to produce. Once the title is approved, they have 6 months to submit a protocol. Protocols are peer-reviewed and published in the Cochrane Library. Completed reviews are expected within 12 months of protocol approval, and after the usual peer-review process, they are published in the Cochrane Library. Authors are expected to update their review annually, either by incorporating new eligible evidence, or by indicating that the literature has been searched and no new evidence was identified. By prior agreement, *Spine* provides authors the opportunity to publish their new or substantially updated Cochrane reviews. As of February 2003, this has resulted in the publication of 16 Back Review Group reviews in *Spine*.

■ Quality Control

The methodology of systematic reviews is evolving rapidly. The state of the art is described in the Cochrane Reviewers Handbook.⁶ During the Second Forum for Primary Care Research on Low Back Pain in The Hague, a workshop was organized to discuss specific method guidelines for the Back Review Group. This resulted in the publication of a paper in *Spine* that has been our methodological compass for the last 5 years and the framework for 24 completed Cochrane Reviews.⁷ The guidelines consist of mandatory minimum criteria and optional recommendations, which are also contained in our editorial checklist for assessing protocols and reviews. During a meeting preceding the Fifth Forum for Primary Care Research on Low Back Pain in Montreal, the Editorial Board started a process that resulted in the updated method guidelines, which are published in the current issue of *Spine*.⁸ This will be the Back Review Group methodological yardstick for years to come.

Table 1. Scope of the Back Review Group With Indication of Reviews and Protocols in the Cochrane Library, Issue 1, 2003

Cervical spine
Radiculomyelopathy (liaison with Neuromuscular Disease Group)
Review: surgery for cervical radiculomyelopathy
Cervical disc disease
Whiplash associated disorder diseases (liaison with Injuries Group)
Review: conservative treatment for whiplash
Mechanical neck pain
Review: multidisciplinary biopsychosocial rehabilitation for neck and shoulder pain among working age adults
Review (withdrawn): patient education for mechanical neck disorders
Review (withdrawn): physical medicine modalities for mechanical neck disorders
Protocol (withdrawn): drug therapy for mechanical neck disorders
Protocol (withdrawn): manual therapy for mechanical neck disorders
Brachial plexus
Cervicobrachial neuralgia
Thoracic outlet syndrome (liaison with neuromuscular disease group)
Thoracic spine
Lumbar spine
Lumbar disc disease
Review: Surgery for lumbar disc prolapse
Review: Rehabilitation after lumbar disc surgery
Spinal stenosis
Facet joint syndrome
Radiculopathy (sciatica) (liaison with Neuromuscular Disease Group)
Lumbar spondylosis
Review: Surgery for degenerative lumbar spondylosis
Lumbar spondylolisthesis
Myofascial low back pain
Nonspecific low back pain
Review: acupuncture for low back pain
Review: advice to stay active as a single treatment for low back pain and sciatica
Review: back schools for non-specific low back pain
Review: bed rest for acute low back pain and sciatica
Review: behavioural treatment for chronic low back pain
Review: exercise therapy for low back
Review: injection therapy for subacute and chronic benign low back pain
Review: lumbar supports for prevention and treatment of low back pain
Review: massage for low back pain
Review: multidisciplinary biopsychosocial rehabilitation for chronic low back pain
Review: multidisciplinary biopsychosocial rehabilitation for subacute low back pain among working age adults
Review: nonsteroidal anti-inflammatory drugs for low back pain
Review: radiofrequency denervation for neck and back pain
Review: transcutaneous electrical nerve stimulation (TENS) for chronic low back pain
Review: work conditioning, work hardening and functional restoration for workers with back and neck pain
Protocol: antidepressants for nonspecific low back pain
Protocol: neuroreflexotherapy for nonspecific low back pain
Protocol: patient education for low back pain
Protocol: prolotherapy for chronic low back pain
Protocol: spinal manipulation for low back pain
Protocol: traction for low back pain with or without radiating symptoms
Backache in pregnancy (liaison with the Pregnancy and Childbirth Group)
Failed back surgery syndrome
Spina bifida oculata
Non-specific Localisation
Spinal deformities
Infectious diseases
Tumors and infiltrative lesions of the spine (Liaison with the cochrane cancer network)

The update describes the compliance of current reviews and protocols with the 1997 criteria, as well as the concordance between the Cochrane Reviewers Handbook and the 1997 criteria. Furthermore, new methodological evidence and lessons learned from the past 5 years have been integrated into the updated guidelines. In addition to being methodologically sound, being current is also an essential factor to consider if a Cochrane Review is to be accepted as valid. In some ways, the updating of reviews is the Achilles heel of the Cochrane Collaboration, and the Back Review Group is no exception. Currently, 16 out of the 21 full reviews are due for updating, with 10 of these in various stages of activity. During the life of the Back Review Group, we have withdrawn three reviews because the authors were not in a position to update as needed. As part of our quality improvement efforts, the Back Review Group is striving for better adherence to our timelines—by both the editorial board and reviewers. This includes the updating of reviews. Although we realize that this is essentially an unexciting and voluntary activity that has to compete with many other tasks, we strongly believe that it is important, and as resources allow, the coordinator helps reviewers to identify and obtain new relevant references for their reviews.

■ Coverage of the Field

Table 1 strongly suggests that the Back Review Group reviews do not yet cover all clinically relevant questions about the efficacy of interventions within our scope. This challenge has at least three related aspects. First, our Specialized Trials Registry, which is accessible in the Cochrane Library with the search term SR-BACK, currently contains 1065 RCTs and Controlled Clinical Trials (CCTs), but is probably still not complete. Randomized controlled trials and CCTs in the Specialized Trials Registry have been identified by hand searching relevant journals, regularly electronically searching relevant databases, screening references of existing guidelines for the management of back and neck pain, and entering the references from our completed reviews. The Back Review Group is currently registered to hand search: *American Journal of Orthopedics*, *European Spine Journal*, *Journal of Back and Musculoskeletal Rehabilitation*, *Orthopedic Review*, *Journal of Spinal Disorders*, *Seminars in Spine Surgery*, *Spine*, and the *Spine Journal*. Our efforts at hand searching *Spine* are current, and we are slowly starting to search the others as resources allow. Second, not all identified RCTs and CCTs that fit within the scope of the Back Review Group have been included in a Cochrane review. Our plans are to tag these references with study design and intervention, and to group them together clinically. The next step will be to find international teams who are willing to complete Cochrane reviews on these clusters of “orphan trials.” Third, there may be clinically relevant questions within the scope of the Back Review Group for which there are no Cochrane reviews, because the research at issue has

not been conducted. We believe that the Back Review Group should identify these gaps in the literature and bring them to the attention of the research community, health care authorities and funding agencies.

■ Promoting Accessibility

Not all health care professionals and policy makers fully appreciate the importance of Cochrane Reviews. Some may not have even heard of the Cochrane Collaboration. Consequently, visibility, accessibility, and relevance are important components of the Collaboration's mission. This holds equally true for the Back Review Group's audience. There are a number of strategies that help move this vision along. We do believe that the publications in *Spine* are an important mode of dissemination that helps reach our clinical audience. The 8 members of the Editorial Board, our Founding Editor Emeritus (Alf Nachemson), the 13 first authors, and 89 coauthors of Cochrane Reviews within our scope resemble an impressive list of "who's who in back pain research." The addition of two consumers to our team has helped ensure that our work is relevant and accessible for consumers. The Cochrane Library is available for subscribers only, although there is now sponsored access in several countries (Australia, England, Wales, Finland, Ireland and Norway) with the provision of free access, upon application, for developing countries. However, the abstracts of all reviews and a consumer summary of some reviews are available without charge on <http://www.cochrane.org> and <http://www.cochraneconsumer.com>,⁹ respectively. The abstracts of our current reviews can also be accessed free of charge from the Back Review Group on <http://www.cochrane.iwh.on.ca>. To enhance accessibility for consumers, the Cochrane Consumer Network also produces "Hot Topics," including one on "Rest and exercise for lower back pain" (February 2002),⁹ based on six of our Reviews.

Working closely with the Knowledge Transfer & Exchange Department at the Institute for Work & Health, the Back Review Group has developed and disseminated a number of review-based products. Results from Cochrane Back Group reviews are summarized for publication in *Linkages*¹⁰ and in a number of clinical journals. When a Cochrane Review is published in *Spine*, a news release is distributed to selected media outlets, thereby raising the profile of the Back Review Group, its products, and its reviewers.

But there is still room for improvement in the accessibility, readability, and standardization of our reviews. Copyediting can improve the readability of the reviews. To this end, the Back Review Group is pleased to be participating in a pilot initiative within the Cochrane Collaboration, whereby we are availing ourselves of the services of external copyeditors. Standardization, especially in the presentation of qualitative conclusions, needs more focus.¹¹ The framing of conclusions is another Collaboration-wide Quality Improvement initiative. For the Back Review Group's part, the updated

method guidelines⁸ propose a uniform taxonomy for levels of evidence. Because of the nature of much of the LBP research, synthesis of the evidence and drawing of conclusions can become rather complex when the RCTs included in a review can only partly be statistically pooled.¹²

■ Broadening the Scope

We end by presenting some visions of the future, ignoring for the moment the fact that current funding of the Back Review Group is very limited and does not allow us to appreciably broaden the scope of activities. In an ideal world, three related domains of relevant expansion would deserve priority: 1) from reviews to clinical guidelines and practice; 2) from reviews of interventions to etiological, diagnostic, or prognostic reviews; and 3) towards a focus on methodological research. The first vision is based on the fact that Cochrane reviews are meant to be used as a basis for the development of evidence-based clinical guidelines. We could fill a register on our Web site with references to clinical guidelines on topics within the scope of the Back Review Group (Table 1). The next step would be to look for concordant recommendations among guidelines and reviews that focus on the same clinical topic. Of even more interest as research questions are the sources of discrepancies in the recommendations of similar guidelines, a determination of the strength of evidence from our reviews on the disputed issues, and finally, an identification of the need for new systematic reviews or RCTs.

The second vision arises from the insight that systematic reviews on the efficacy of preventive and therapeutic interventions can never provide an adequate basis for clinical guidelines. We clearly need additional systematic reviews of etiological, diagnostic, and prognostic studies. Only then can the guidelines hope to offer an evidence-based answer to the "Holy Grail"-type of questions, such as "which interventions are most effective for which patients?" and "what are the most important (preventable) predictors of chronicity?" Currently, in order to minimize bias, most Cochrane Reviews synthesize the data from RCTs that examine the efficacy of interventions. In some circumstances, the inclusion of non-randomized studies⁸ help to increase the relevance of the findings of a review; in others, it may be deemed important to carry out a review of non-randomized studies in the absence of RCTs. The difficulty for reviewers is how to ensure that this is not done at the expense of introducing unacceptable bias to the review. The aim of the Cochrane Non-Randomized Studies Methods Group¹³ is to make recommendations about when and how to include non-randomized studies in systematic reviews of health care interventions. In preparation for the potential broadening of focus, the Back Group could start by compiling a database of systematic etiological, diagnostic and prognostic reviews, and the method guidelines that will have to be developed for these types of systematic reviews.¹⁴

The third and final vision concerns methodological research. To a certain extent, the Back Review Group is already active in this field, and the updated method guidelines⁸ are an example of this work. However, many important methodological questions remain unanswered; for example, we have only a fragmentary insight into which methodological characteristics matter most within the scope of the Back Review Group. Similarly, we know very little about what determines the overall conclusion of reviews claiming to answer the same question.¹⁵ We have seen a rather extreme example with spinal manipulation, for which there are many more reviews than RCTs.¹⁶ One can also wonder whether publication bias is an important issue in our field, or which publications are citing the Back Review Group reviews, and whether these citations are appropriate and correct.

Finally, 10 years of reviewing and summarizing RCTs through the Cochrane Back Review Group initiative have highlighted several issues that need to be addressed for future trials. Current trials are heterogeneous in their design, there are wide variations in the outcomes used to assess patients' improvement, and there are important differences in the author's interpretation of what is a clinically meaningful change in these outcomes. This makes it difficult to interpret the results of individual trials, but even more so to summarize results across trials. The back research community will need to agree on a core set of measures to use across all trials and on criteria to define when a patient has reached a clinically meaningful response to an intervention.

We are indebted to all the dedicated people who support us in our far-from-finished tasks, but we still need a lot of help. Please do not hesitate to contact us if you would like to volunteer to hand search, peer-review manuscripts, or to contribute to reviews. Please visit us at <http://www.cochrane.iwh.on.ca> and contact our BRG coordinator at cochrane@iwh.on.ca.

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The Editorial Board of the Back Review Group: co-editors: C. Bombardier, MD, FRCP; L.M. Bouter, PhD;

other members: R. A. Deyo, MD, MPH; P. G. Shekelle, MD, MPH; R. A. de Bie, PhD; G. Waddell, DSc, MD, FRCS; F. Guillemin, MD, PhD; and James N. Weinstein, DO, MS.

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