

Translating evidence into patient information

- challenges and possible solutions when extracting and presenting the results of Cochrane reviews



Claire Glenton¹, Underland V¹, Kho M, Pennick V, Oxman A. ¹

¹Norwegian Knowledge Centre for the Health Services

www.backinfo.no

BackInfo's goal

- To develop patient information based on Cochrane reviews about the effects of back pain treatment



The screenshot shows the BackInfo website homepage. At the top, there is a navigation bar with the "BackInfo" logo and links for "Home", "About BackInfo", "Glossary", "Links", and "Norsk". Below the navigation bar, the main content area is divided into two columns. The left column has a heading "Treatment" and a sub-heading "What does the research say?". The right column features a large illustration of a person with a target on their back, holding a bow and arrow, symbolizing the goal of providing reliable information. To the left of this illustration, there is a green exclamation mark icon followed by the text: "BackInfo's goal is to present reliable information about back pain treatments that is relevant and accessible to people suffering from back pain." Below this, there is a red 'X' icon followed by the text: "BackInfo does not make recommendations about treatments". At the bottom of the right column, there is a list of collaborating organizations: "The Norwegian Health Services Research Centre", "The Norwegian Back Pain Association", "The Norwegian Back Pain Network", and "The Cochrane Collaboration Back Review Group". At the very bottom of the page, there is a footer with the text: "Last updated 23.05.2005 - Email: admin@rvqinfo.no".

BackInfo

[Home](#) | [About BackInfo](#) | [Glossary](#) | [Links](#) | [Norsk](#)

Treatment
What does the research say?

What does research say about the effects of back pain treatments? [Read more...](#)

! BackInfo's goal is to present reliable information about back pain treatments that is relevant and accessible to people suffering from back pain.

X BackInfo does not make recommendations about treatments

BackInfo is a collaboration between
[The Norwegian Health Services Research Centre](#)
[The Norwegian Back Pain Association](#)
[The Norwegian Back Pain Network](#)
[The Cochrane Collaboration Back Review Group](#)

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Objectives

To describe the challenges we encountered when extracting and presenting information from Cochrane reviews according to the principles of:

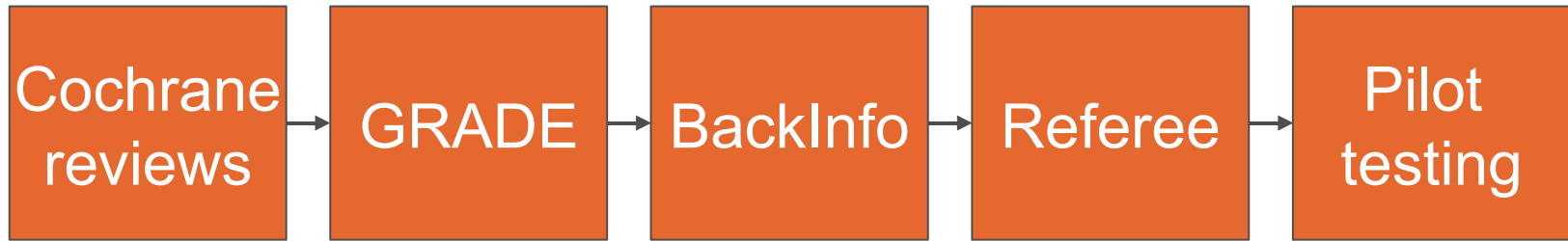
- relevance
 - consistency
 - ease of understanding
-
- To describe the implications of these challenges for review authors and review groups

Who we are



- International, multidisciplinary team of researchers and health care practitioners
- Norwegian Knowledge Centre for the Health Services/NbNCC
- Norwegian Back Pain Association
- The Cochrane Back Group

What did we do?



1. We extracted information from 18 Cochrane reviews
2. We evaluated the quality of the data using GRADE (a standardised approach to assessing quality of review data)
3. We used the GRADE evidence profiles to develop standardised information
4. We asked review authors and Norwegian clinicians to referee the information
5. We pilot tested the information among back pain sufferers

BackInfo's contents - treatment information

BackInfo presents information about 22 treatments for back pain

- What is the treatment?
- When is it used?
- What happens before, during, after treatment?
- Side effects

BackInfo

| Home | About BackInfo | Glossary | Links | Norsk

Treatment
What does the research say?
Which information is relevant for me?
Acupuncture
Back school
Bed rest/staying active
Bio-psycho-social rehab
Cognitive-behavioural treatment
Disc surgery
Exercise
Injections
Lumbar support belts
Manipulation
Massage
Muscle relaxants
Neuroreflexotherapy
NSAIDs
Prolotherapy
Radiofrequency
TENS
Treatment in pregnancy

What are NSAIDs?

Non-steroidal anti-inflammatory drugs (NSAIDs) are drugs taken by mouth to reduce mild to moderate aches and pains.

NSAIDs may have a direct effect on pain (an analgesic effect) as well as an indirect effect through reducing stiffness, swelling, and inflammation (an anti-inflammatory effect).

There are many different types of NSAIDs. Some of these require a prescription. In a number of countries NSAIDs such as aspirin, ibuprofen and naproxen are available without a prescription.

When are NSAIDs used?

NSAIDs are sometimes used by people with mild to moderate back pain.

NSAIDs are also used to treat other types of pain, stiffness or inflammation, including arthritis, tendinitis, bursitis, sprains or other injuries, menstrual cramps and headache, and to treat fever.

People with asthma should show caution since NSAIDs can aggravate asthma attacks. People who have or who have had kidney disease or ulcers should consult a doctor before taking NSAIDs.

How are NSAIDs used?

NSAIDs can be taken as needed when you are in pain, or they can be taken regularly for a period of time to keep pain away.

To avoid stomach problems, people are advised to take NSAIDs with food or a glass of milk, and to avoid drinking alcohol while taking NSAIDs.

NSAIDs
[What are NSAIDs?](#)
Research on the effect of NSAIDs
[NSAIDs](#)

BackInfo's contents - effect of treatment

BackInfo

| Home | About BackInfo | Glossary | Links | Norsk

Treatment
 What does the research say?
 Which information is relevant for me?
 Acupuncture
 Back school
 Bed rest/staying active
 Bio-psycho-social rehab
 Cognitive-behavioural treatment
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 Manipulation
 Massage
 Muscle relaxants
 Neuroreflexotherapy
NSAIDs
 Prolotherapy
 Radiofrequency
 TENS
 Treatment in pregnancy

NSAIDs for acute low back pain with or without pain down the leg

For people who have [acute low back pain](#) with or without [pain down the leg](#), research has compared NSAIDs with [placebo](#). This research shows the following:

Improvement
 After two - 14 days, 49 out of 100 people who had used NSAIDs had improved, compared to 37 out of 100 people who had used [placebo](#).

Use of additional pain medication
 At the end of treatment, 39 out of 100 people who had used NSAIDs were using additional pain medication, compared to 49 out of 100 people who had used [placebo](#).

Side effects
 Side effects including abdominal pain, diarrhea, edema, dry mouth, rash, dizziness, headache, and tiredness were measured in the trials. At the end of treatment, 16 out of 100 people who had used NSAIDs experienced one or more of these side effects, compared to 14 out of 100 people who had used [placebo](#).

See this information presented in the [Table of results](#)

This information is based on:
 Eight [randomised trials](#) with 1501 participants. The participants had had low back pain for less than four weeks. Some of them also had [pain down the leg](#). Some of them also had [lumbar disc herniation](#).

The trials compared different dosages and brands of NSAID tablets with [placebo](#) tablets.

These trials were included in the following [systematic review](#).

NSAIDs
[What are NSAIDs?](#)
 Research on the effect of NSAIDs
[NSAIDs](#)

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| Home | About BackInfo | Glossary | Links | Norsk

NSAIDs for acute low back pain with or without pain down the leg

What was measured?	NSAIDs	In favour of	Placebo	Quality of the evidence
Improvement after 2 - 14 days	49 out of 100	←	37 out of 100	+++
Additional pain medication at end of treatment	39 out of 100	←	49 out of 100	+++
Side effects at end of treatment	16 out of 100	↔	14 out of 100	+++

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- Information in text and table
- Information provided about each outcome
- Glossary links

Main challenges

1. Large numbers of comparisons and outcomes
2. Variations in the manner in which effect was measured and presented
3. Missing information about side effects

1. Large amounts of data: Comparisons

204 comparisons included in 18 reviews

Comparisons not comparing treatment versus placebo/no treatment/usual care excluded

Comparisons excluded because of no studies or insufficient data

Comparisons split because they had merged different populations

44 comparisons presented in BackInfo

1. Large amounts of data: Outcomes

300 outcomes
in the 44 included comparisons

Outcomes tied to side-effects included

Surrogate outcomes excluded
(e.g.finger-toe distance)

Patient-measured rather than
surgeon-measured outcomes chosen
when both were measured

Outcomes with vague or no specified
measurement timepoint excluded

Where outcomes were measured at
different time points
a selection was made

Outcomes evaluated by GRADE to be
"very low quality" excluded

137 outcomes presented in BackInfo

2. Variations in the measurement and presentation of effect

The Cochrane reviews used:

Relative risk

Relative risk reduction

Qualitative presentations

Odds ratios

Weighted Mean Difference

Standard Mean Difference

Numbers Needed to Treat

Percentages

The evidence suggests that:

- Some presentation types bias treatment decisions (RRR)
- Qualitative presentations interpreted differently by different people
- Event rates are easier to understand than probabilities

How did we present effect - dichotomous outcomes

For dichotomous outcomes we translated results into proportions:

Cochrane:

“The pooled Relative Risk for global improvement after 2- 14 days was 0.79 (0.69, 0.91)”



BackInfo:

“After two -14 days, 49 out of 100 people who had used NSAIDs had improved, compared to 37 out of 100 people who had used placebo.”

How did we present effect - continuous outcomes

For continuous outcomes (apart from days) we used standardised phrases.

Cochrane:

Studies showed small differences in functional status
[Weighted Mean Difference (on a 0-100 scale) 6.0 (95% CI: 1.5, 10.5)]
in favour of staying active compared to advice to stay in bed.

BackInfo:

“The people who were advised to stay active were, on average, slightly more able to perform everyday activities than the people who were advised to stay in bed.”

NB! Qualitative presentations interpreted differently by different people.

Negative or positive framing?

Should we present the number of people that experienced a desired effect or that did not experience a desired effect? For instance:

- *Less than moderate sleep improvement/sleep improvement*
- *Pain/pain relief*

Cochrane reviews used both negative and positive framing for the same outcomes.

Implications:

- Negative framing led to misunderstandings among readers
- Difficult to compare outcomes when differently framed

Negative or positive framing?

BackInfo rules of thumb:

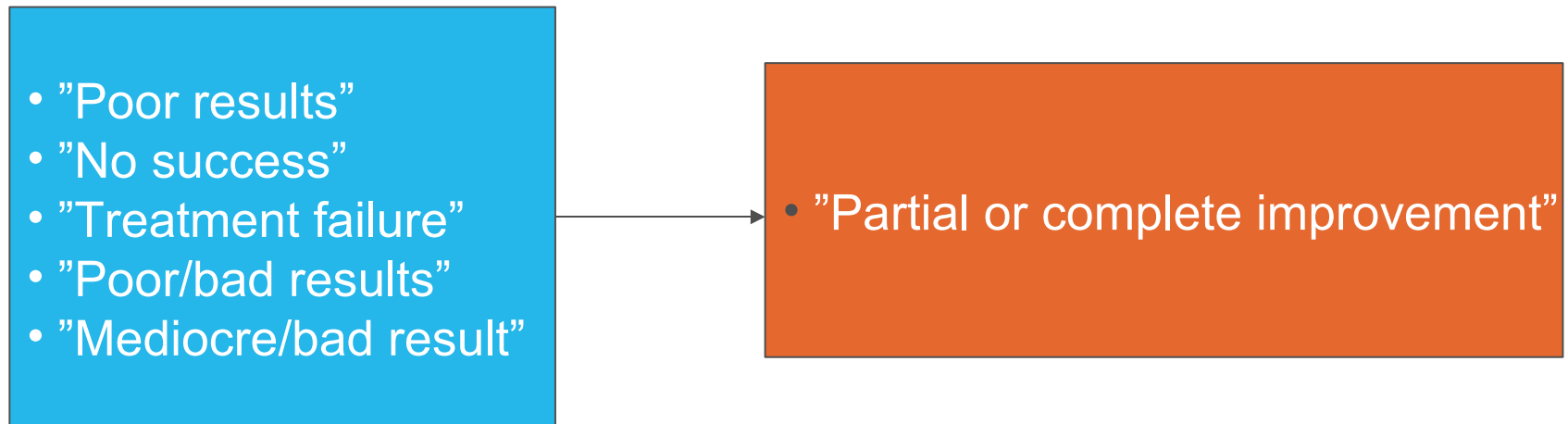
- Positive framing when the aim is to improve the patient's condition (for instance, pain and function)
- Negative framing when the aim is to avoid a worsening (for instance, side effects, relapses)

NB!

- Not always possible to turn results around without full insight into the scales used.

How were outcomes phrased in the reviews?

Cochrane: The same or similar outcomes phrased differently:



NB! Danger that the meaning is distorted, particularly if reviewers have already re-phrased outcomes.

3. Missing information about side effects

Cochrane reviews

- 6 out of 141 outcomes referred to side effects

BackInfo

- Additional information about possible side effects were gathered from other sources, both evidence-based (Bandolier, Therapeutics Initiative); and elsewhere.

Possible side effects and complications with RF denervation

In general, side effects are poorly documented and it is difficult to provide precise information. This is particularly true for rare but serious side effects and complications.

Because RF denervation involves the use of a needle you may experience the following after the procedure:

- Temporary pain and numbness at the injection area
- Infections in the injection area
- Bleeding. This is usually rare, but is more common for people with bleeding disorders
- Temporary loss of muscle strength in the leg on the treated side

Sources

Niemistö L, Kalso E, Malmivaara A, Seitsalo S, Hurri H. Radiofrequency denervation for neck and back pain. A systematic review of randomised controlled trials (Cochrane Review). In: The Cochrane Library, Issue 2, 2003. Oxford: Update Software. (Date of most recent substantive amendment: 05 April 2002)

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http://www.thepainmd.com/about_us_nf.html

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<http://www.lowbackpain.com/radiofrequency.htm>

Spine institute of Arizona. Facet radiofrequency denervation:
<http://www.spine.to/pages/facetrid.html>

Emory Healthcare. Radiofrequency Denervation of the Nerves to the Facet Joints:
http://www.emoryhealthcare.org/departments/pain_management/services/radiofrequency.html

Cabell Huntington Hospital. Principles and Uses of Radiofrequency Nerve Lesioning in Chronic Pain Control:
http://www.cabellhuntington.org/articles/radiofrequency_nerve_lesioning.php

Piedmont Anesthesia & Pain Consultants. Radiofrequency:
<http://www.papc.com/pm/procdets.htm>

Statens helsestilsyn: Radiofrekvensdenervering som ledd i behandling av ulike kroniske smertetilstander
<http://www.helsestilsynet.no/trykksak/radiofrekv/radiofrekvoversikt.htm>

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NB! Time-consuming, harder to keep up-to-date, and possibly unreliable.

Conclusions

We succeeded in:

- decreasing the information amount
- focusing on relevant information
- increasing comprehension

However, our methods may have led to some distortion of the original data

- Some of these problems could have been avoided if reviews had made other choices.

Recommendations

The Cochrane Collaboration could:

- develop methods for incorporating information about the likelihood of side effects
- give recommendations about the presentation of effect

Cochrane review groups could:

- standardise the framing of typical outcomes
- standardise which patient groups are merged
- agree upon standard outcomes for use across reviews

Cochrane reviewers could:

- be more critical to which outcomes are included
- increase background information about possible side effects