Effectiveness of strategies for implementing evidence-based recommendations for the management of low back pain: protocol for a systematic review and meta-analysis

Keywords: Implementation strategies; low back pain; clinical practice guidelines; systematic review; meta-analysis

BACKGROUND

Globally, low back pain is highly prevalent and a leading cause of disability.[1] Clinical practice guidelines serve as important resources to improve the quality of care for low back pain by synthesising and appraising existing evidence and providing recommendations for evidence-informed management options.[2-4] However, a time lag exists in the translation of evidence into practice.[5] In many cases, the management of low back pain is inconsistent with evidence-based recommendations.[6]

Many guidelines present similar recommendations for managing low back pain, including providing advice/education, discouraging routine use of imaging, or reducing use/reliance on analgesics, like opioids.[6-8] Such recommendations are informed by evidence showing that advice/education can provide short-term improvements for the management of low back pain.[9] Similarly, substantial overuse of imaging for low back pain is frequent and may prolong recovery in patients with non-specific low back pain.[10, 11] Further, guidelines are moving away from a focus on analgesics to non-analgesic treatments, due to the limited evidence on efficacy and risk of harm associated with many analgesic treatments.[6, 12-16]

Despite the consistency of what guidelines recommend as evidence-based care for low back pain, there is huge variation in care provided in practice. To facilitate the practice of cares which guidelines recommend, active implementation strategies are required to encourage uptake, bridge the gap between evidence and clinical practice and improve the process of care and patient outcomes.[17-21] Previous research has shown that implementation strategies developed by guideline producers may increase the uptake of clinical practice guidelines.[22] However, for low back pain, the current evidence to support the effectiveness of guideline implementation strategies is limited and results of systematic reviews are inconsistent.[4, 17, 23-28] Considering that

guideline implementation is a rapidly evolving research area, and that a number of important studies examining the implementation of evidence-based recommendations for the management of low back pain have been published since the last systematic review on this topic in 2022,[21, 27, 29, 30] an up-to-date systematic review is warranted.

The aim of our systematic review is to comprehensively evaluate the effectiveness of strategies for implementing evidence-based recommendations for providing advice/education, discouraging routine use of imaging, and/or reducing use/reliance of analgesics for the management of low back pain.

METHODS

Our systematic review will be performed in accordance with the *Cochrane Handbook for Systematic Reviews of Interventions version 6.3 (updated February 2022)*[31] and methods proposed by the Cochrane Effective Practice and Organisation of Care (EPOC) group. The results will be reported in accordance with *the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.*[32]

Registration

The review will be registered in the PROSPERO database.

Anticipated or actual start date

1st September 2023

Anticipated completion date

1st September 2024

Review question

What is the effectiveness of implementation strategies employed for facilitating the uptake of evidence-based recommendations of providing advice/education, discouraging routine use of imaging, and/or reducing the use/reliance of analgesics for the management of low back pain?

Searches

A comprehensive literature search will be performed in the following electronic databases from inception to the current date: MEDLINE (Via Ovid), Embase (Via Ovid), Cumulative Index to Nursing and Allied Health Literature (CINAHL) (EBSCO), Cochrane Central Register of Controlled Trials (CENTRAL) and Physiotherapy Evidence Database (PEDro). See the profile of databases in Appendix 1.

Our search strategies contain three aspects, including:

- the search filter of randomised controlled trials published by the Cochrane Collaboration,[33]
- a combination of index terms and phrases on low back pain developed by the Cochrane Back and Neck Group in January 2013,[34]
- a combination of index terms and phrases on searching guideline implementation from a Cochrane systematic review.[17]

We have consulted the librarian in the University of Sydney's library to develop the search strategy. The search strategy was initially constructed in the Medline database (via Ovid), and then modified for other databases. Details of search strategies for each database are available in the Appendix 2.

According to suggestions of the Cochrane Effective Practice and Organization of Care (EPOC) group,[35] grey literature will be retrieved through the OpenGrey (https://opengrey.eu/) and the Grey Literature Report (http://www.greylit.org/library/search). We will additionally search for completed or ongoing trials through the International Clinical Trials Registry Platform (ICTRP) (http://www.who.int/ictrp/en/). Forward and backward citations will be searched using the SCOPUS database.[36]

Condition or domain being studied

Low back pain

Participants/population

Any study implementing predetermined guideline-consistent recommendations (see 'Intervention' below) for low back pain, targeting one or more of the following groups:

- healthcare providers treating patients with low back pain (e.g. doctors, nurses and physiotherapists),
- health systems (e.g. clinics or hospitals).

Studies with mixed populations will be accepted if the population includes any of the above participants. 'Mixed populations' include studies which evaluate implementation strategies to other groups (e.g. patients) in addition to the groups above, but not to other groups alone, or studies which evaluate implementation strategies in a range of conditions including low back pain, as along as the guideline recommendations being implemented are consistent with those that are of interest to the current review (see 'intervention' below).

Studies will be excluded if they exclusively target populations with specific causes of low back pain, including pregnancy, diagnosis of a malignancy, infection, spinal fracture, cauda equine syndrome, and ankylosing spondylitis. We will also exclude studies that only include trainee or student health professionals.

Intervention

We will include studies that use strategies to increase the uptake of the following guideline-consistent recommendations (Those recommendations are about adopting or discouraging the care) for the management of low back pain:

- providing advice/education, that is defined as any information (e.g. self-management advice)

given by a healthcare provider to improve the management of low back pain,[6, 9]
- discouraging routine use of imaging (e.g. routine referral to magnetic resonance imaging (MRI), X-ray and other imaging),[11]
- reducing use and/or reliance on analgesics (e.g. opioids, non-steroidal anti-inflammatory drugs (NSAIDs), paracetamol, antidepressants, anticonvulsants and muscle relaxants) considering the limited efficacy and the risk of adverse effects.[12]

Studies will be considered eligible even if the included studies do not directly reference any specific guidelines, as long as the recommendation implemented is consistent with one or more of the above three recommendations. Implementation strategies will be grouped by a taxonomy developed by the EPOC group[37] or by consensus of the authorship team if the EPOC taxonomy is not applicable to a particular study.

Comparator(s)/control

There is no restriction on the type of control group, which may include no implementation strategy, passive guideline dissemination strategy (e.g. dissemination of the guideline by mail or printed educational materials), or other strategies that are different from those implemented in the intervention group.

Types of studies to be included

We will include randomised controlled trials of any type, for example, individual or cluster randomisation, and stepped wedge designs. Non-randomised trials or other interrupted time series designs are ineligible.

There will be no language or publication restrictions. Studies containing insufficient details, such as conference abstracts, will be excluded if no further details are available after attempts to contact study authors. If further information about the study is needed, we will contact the study's corresponding authors. Each corresponding author will get a maximum of two emails asking for a response. If there is no response to the initial email after seven days, we will send a follow-up email. Studies will be disqualified for lacking sufficient details if their authors don't reply within seven days of the second email.[38]

Context

Studies just on self-management will be excluded.

Main outcome(s)

We will use guideline adherence as the primary outcome, which will be measured by the care provided, i.e. rates of patient receipt of health education/advice, imaging requests (including total imaging requests and requests for MRI, X-ray and other imaging, and inappropriate imaging requests if available), and analgesic prescription, dispensation or consumption.

We are interested in the short-, medium- and long-term adoption and sustainability of the implementation strategies and would like to assess to what extent care providers continue to implement guideline-consistent recommendations at different time points after the implementation period. So, we will group the outcome data into three-time points of data extraction and analysis: short-term (≤ 3 months), medium-term (> 3 months but < 12 months), and long-term (≥ 12 months). If multiple time points are available in an included study, we will use the time that is closest to 3 months and 6 months for short- and medium-outcomes and will use the longest available time point for the long-term outcome. The result of the medium term will be reported as the primary time point.

Additional outcome(s)

Additional outcomes will include:

- Clinical provider's intention to behave in a manner consistent with the guideline's recommendations, i.e. recommendation-consistent knowledge and beliefs.
- Patient-reported outcomes in pain intensity and disability. Those outcomes can be measured by any self-reported scales.
- Any adverse events as defined by each study.

Data extraction (selection and coding)

All retrieved records will be imported into Covidence in which the screening and data management will be conducted. Duplicates will be removed after the importation. Two reviewers will independently screen by title and abstract, then by full text. For extracting data, all reports from the same study will be linked together. Final decisions and disagreements on study inclusion will be made and solved after discussion between the review authors.

The modified EPOC data extraction form will be tailored as our data extraction tool.[35] One of the included studies will be used for the initial pilot testing of the data extraction form. Each study's data will be independently extracted by two reviewers. Discussion among review authors will be used to settle any disputes.

The following information will be extracted from included studies:

- Study characteristics: including design of the study (e.g. parallel, unequal, cluster, crossover, or stepped wedge), first author, year of publication, country of origin, funding source, language and clinical setting.
- Participants: including population description, sample size, the total number of participants randomised, age, sex, the severity of illness/symptom, co-morbidities, duration of intervention, and other management received (additional to study intervention).
- Intervention (information on the implementation strategies of the intervention group): including types and number of strategies that are implemented in the study, details of the implementation strategies, including determinant, format (written, electronic or verbal), mode (Internet-based or face-to-face), strategy provider, and recommendations that the strategies implement (providing advice/education, discouraging routine use of imaging, and/or reducing the use/reliance of analgesics for the management of low back pain).
- Comparator intervention (information on the implementation strategies of the comparator group): details of the intervention of the comparator group, including type, number and details of implementation strategies if available.
- Data on the effectiveness of the implementation strategies: including guideline adherence rate at different follow-up time points, results of knowledge and belief, pain intensity, disability, and the number of adverse events.

Risk of bias (quality) assessment

All the included studies will be accessed for risk of bias by the Cochrane risk-of-bias method (RoB 1) for randomised trials by two reviewers authors independently.[39] We will resolve disagreements during the assessment by discussion among the two review authors independently, then, if necessary, arbitration by a third, independent reviewer. Six domains will be used to evaluate studies for bias, with each domain's overall risk of bias being rated as either high, moderate, or low:

- sequence generation,
- concealment of allocation,
- blinded or objective assessment of main outcome(s),
- incomplete outcome data,
- selective outcome reporting,
- other potential sources of bias.

We will assess the certainty of the evidence with the Grading of Recommendations Assessment, Development and Evaluation (GRADE)[40] approach. Two independent reviewers will rate the certainty of the evidence according to the quality of the evidence (downgrading when the criterion for the criteria is not satisfactorily met) based on considerations of five domains using the below criteria:[41]

- Risk of bias: downgrade by one level if more than 25% of participants are in studies considered at high risk of bias (i.e. 2 or more out of 6 Cochrane ROB domains are judged as being high-risk).
- Inconsistency: Inconsistency will be downgraded by one level if heterogeneity is large (I^2 statistic value >50%, representing potentially substantial heterogeneity and/or visual inspection on a forest plot).
- Indirectness: Indirectness will be present if the question of effectiveness of implementation strategies used to implement the evidence-based recommendations of providing advice/education, discouraging routine use of imaging, or reducing the use/reliance of analgesics for the management of low back pain in this systematic review differs from the available evidence regarding either the population, intervention, comparator, or an outcome in the included randomised trial/s. The quality of evidence will be downgraded by one level if indirectness is present in either area of population, intervention, comparator or outcomes.

However, as most studies which display indirectness will be excluded during the screening process, we do not expect indirectness to be present in the included studies.

- Imprecision: we will downgrade the certainty of evidence by one level if any of the below reasons exist:
  - The total population size is less than 400 for continuous outcomes or when dichotomous outcomes have less than 300 events.[42]
  - If the 95% confidence intervals include the possibility of a small or no effect and appreciable benefit or harm. e.g. For dichotomous outcomes of rates, we will follow the suggested threshold for appreciable benefit and harm (relative risk of under 0.75 or over 1.25). For continuous outcomes of pain intensity and disability, we will consider a between-group difference of less than 5 out of 100 points on a 100-point scale to be a small difference, and a between-group difference of greater than 10 out of 100 points to be an appreciable benefit. Therefore, if the 95% confidence interval contains values less than 5 and greater than 10, it will be considered imprecise. If the 95% confidence interval contains values less than 0.2 or greater than 0.5 standard mean difference (SMD) it will be considered imprecise.
  - The threshold to determine a worthwhile effect for the rate of guideline adherence at the primary follow-up time point will be determined after a review of the data and considering practical factors such as indications.
- Publication bias: The quality of evidence will be downgraded by one level if a funnel plot can be constructed and suggested publication bias is present.

We will assess the overall certainty of evidence for all outcomes using the GRADE[40] approach which categorises the certainty of evidence according to five levels:

- High certainty evidence: there are consistent findings among at least 75% of randomised controlled trials with low risk of bias, consistent, direct and precise data and no known or suspected publication biases. Further research is unlikely to change either the estimate or our confidence in the results.
- Moderate certainty evidence: one of the domains is not met. Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

- Low certainty evidence: two of the domains are not met. Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
- Very low certainty evidence: three of the domains are not met. We are very uncertain about the results.
- No evidence: no randomised controlled trials are identified that addressed this outcome.

We will perform the assessment using the GRADEpro software (https://www.gradepro.org/).

Strategy for data synthesis

Each study's characteristics, such as its design, participants and interventions will be reported descriptively. All results will be summarized into three overarching categories of recommendations described above and their implementation strategies.

If studies are sufficiently homogeneous, we will conduct a meta-analysis using the the random effect model with the RevMan 5.4 software to determine the effectiveness of the strategies. Sources of between-study heterogeneity will be examined by sensitivity analyses if the statistical heterogeneity is large (if $I^2 \geq 50\%$).[43] If the meta-analysis cannot be conducted due to high clinical heterogeneity between studies, a narrative synthesis will be undertaken according to EPOC's *Synthesising Results When It Does Not Make Sense To Do A Meta-Analysis*.[44]

Analysis of subgroups or subsets

None

FUNDING SOURCES/SPONSORS

None.

CONFLICTS OF INTEREST

None.

COLLABORATORS

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DISSEMINATION PLANS

The review will be published in an academic peer reviewed journal.

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Appendix 1: Profile of the databases

- MEDLINE (Via Ovid): the National Library of Medicine's (NLM) premier bibliographic database that contains more than 29 million references to journal articles in life sciences with a concentration on biomedicine.[1]
- Embase (Via Ovid): a medical literature database.[2]
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) (EBSCO): a database on nursing and allied health literature.[3]
- Cochrane Central Register of Controlled Trials (CENTRAL): a collection of databases covering evidence-based healthcare.[4]
- Physiotherapy Evidence Database (PEDro): a database for physiotherapy trials with validity and quality.[5]

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Appendix 2: Search strategies

Medline (Via Ovid)

1. randomized controlled trial.pt.
2. controlled clinical trial.pt.
3. randomized.ab.
4. placebo.ab.
5. drug therapy.fs.
6. randomly.ab.
7. trial.ab.
8. groups.ab.
9. control group.ab.
10. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9
11. exp animals/ not humans.sh.
12. 10 not 11
13. dorsalgia.ti,ab.
14. exp Back Pain/
15. back pain.tw.
16. backache.ti,ab.
17. exp Low Back Pain/
18. (lumbar adj pain).ti,ab.
19. coccyx.ti,ab.
20. coccydynia.ti,ab.
21. sciatica.ti,ab.
22. sciatic neuropathy/
23. spondylosis.ti,ab.
24. lumbago.ti,ab.
25. back disorder$.ti,ab.
26. (Lumbosacral adj3 spine).ti,ab.
27. 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26
28. Guideline Adherence/
29. Health Plan Implementation/
30. Practice Guidelines as Topic/
31. evidence-based practice/ or evidence-based medicine/ or evidence-based nursing/ or evidence-based pharmacy practice/
32. (Feedback/) adj5 (guideline* or guidance or standard* or pathway* or evidence or theor* or module* or adopt* or knowledge* or research*).ti,ab,hw
33. (exp medical audit/) adj5 (guideline* or guidance or standard* or pathway* or evidence or theor* or module* or adopt* or knowledge* or research*).ti,ab,hw
34. (exp Managed Care Programs/) adj5 (guideline* or guidance or standard* or pathway* or evidence or theor* or module* or adopt* or knowledge* or research*).ti,ab,hw
35. (practice adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)).ti,ab.
36. (clinical adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)).ti,ab.
37. (translat* adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)).ti,ab.

38. (chang* adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework* or behavio*)).ti,ab.
39. (implement* adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework* or program* or research*)).ti,ab.
40. (guideline* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
41. (guidance adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
42. (recommendation* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
43. (standard? adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
44. (pathway? adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
45. (protocol? adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
46. (evidence adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat* or (education* program*))).ti,ab.
47. (theor* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
48. (intervention* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).ti,ab.
49. 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48
50. 15 and 30 and 52
51. limit 50 to dt=18600101-20230901 [January 1st, 1860 to September 1st, 2023]
52. limit 50 to rd=18600101-20230901 [January 1st, 1860 to September 1st, 2023]
53. 51 or 52

Embase (via Ovid)

1. randomized controlled trial/
2. controlled clinical trial/
3. 1 or 2
4. random$.ti,ab.
5. randomization/
6. intermethod comparison/
7. placebo.ti,ab.

8. (compare or compared or comparison).ti.
9. ((evaluated or evaluate or evaluating or assessed or assess) and (compare or compared or comparing or comparison)).ab.
10. (open adj label).ti,ab.
11. ((double or single or doubly or singly) adj (blind or blinded or blindly)).ti,ab.
12. double blind procedure/
13. parallel group$1.ti,ab.
14. (crossover or cross over).ti,ab.
15. ((assign$ or match or matched or allocation) adj5 (alternate or group$1 or intervention$1 or patient$1 or subject$1 or participant$1)).ti,ab.
16. (assigned or allocated).ti,ab.
17. (controlled adj7 (study or design or trial)).ti,ab.
18. (volunteer or volunteers).ti,ab.
19. human experiment/
20. trial.ti.
21. 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20
22. 21 not 3
23. (random$ adj sampl$ adj7 ((cross section$) or questionnaire$1 or survey$ or database$1)).ti,ab. not (comparative study/or controlled study/or randomi?ed controlled.ti,ab. or randomly assigned.ti,ab.)
24. Cross-sectional study/not (randomized controlled trial/or controlled clinical study/or controlled study/or randomi?ed controlled.ti,ab. or control group$1.ti,ab.)
25. (((case adj control$) and random$) not randomi?ed controlled).ti,ab.
26. (Systematic review not (trial or study)).ti.
27. (nonrandom$ not random$).ti,ab.
28. (Random field$).ti,ab.
29. (random cluster adj3 sampl$).ti,ab.
30. (review.ab. and review.pt.) not trial.ti.
31. (we searched).ab. and (review.ti. or review.pt.)
32. (update review).ab.
33. (databases adj4 searched).ab.
34. (rat or rats or mouse or mice or swine or porcine or murine or sheep or lambs or pigs or piglets or rabbit or rabbits or cat or cats or dog or dogs or cattle or bovine or monkey or monkeys or trout or marmoset$1).ti. and animal experiment/
35. Animal experiment/not (human experiment/or human/)
36. 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35
37. 22 not 36
38. dorsalgia.mp.
39. back pain.mp.
40. exp BACK PAIN/
41. exp LOW BACK PAIN/
42. exp BACKACHE/
43. (lumbar adj pain).mp.
44. coccyx.mp.
45. coccydynia.mp.
46. sciatica.mp.
47. exp ISCHIALGIA/
48. spondylosis.mp.
49. lumbago.mp.

50. back disorder$.ti,ab.
51. (Lumbosacral adj3 spine).mp.
52. 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51
53. Guideline Adherence/
54. Health Plan Implementation/
55. Practice Guidelines as Topic/
56. evidence-based practice/ or evidence-based medicine/ or evidence-based nursing/ or evidence-based pharmacy practice/
57. (Feedback/) adj5 (guideline* or guidance or standard* or pathway* or evidence or theor* or module* or adopt* or knowledge* or research*).mp.
58. (exp medical audit/) adj5 (guideline* or guidance or standard* or pathway* or evidence or theor* or module* or adopt* or knowledge* or research*).mp.
59. (exp Managed Care Programs/) adj5 (guideline* or guidance or standard* or pathway* or evidence or theor* or module* or adopt* or knowledge* or research*).mp.
60. (practice adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)).mp.
61. (clinical adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)).mp.
62. (translat* adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)).mp.
63. (chang* adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework* or behavio*)).mp.
64. (implement* adj3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework* or program* or research*)).mp.
65. (guideline* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
66. (guidance adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
67. (recommendation* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
68. (standard? adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
69. (pathway? adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
70. (protocol? adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
71. (evidence adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat* or (education* program*))).mp.

72. (theor* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
73. (intervention* adj5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)).mp.
74. 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73
75. 37 and 52 and 74
76. limit 75 to "remove medline records"
77. limit 76 to dd=18830101-20230901 [January 1st, 1883 to September 1st, 2023]
78. limit 76 to rd=18830101-20230901 [January 1st, 1883 to September 1st, 2023]
79. 77 or 78

CINAHL

S1 MH randomized controlled trials
S2 MH double-blind studies
S3 MH single-blind studies
S4 MH random assignment
S5 MH pretest-posttest design
S6 MH cluster sample
S7 TI (randomised OR randomized)
S8 AB (random*)
S9 TI (trial)
S10 MH (sample size) AND AB (assigned OR allocated OR control)
S11 MH (placebos)
S12 PT (randomized controlled trial)
S13 AB (control W5 group)
S14 MH (crossover design) OR MH (comparative studies)
S15 AB (cluster W3 RCT)
S16 MH animals+
S17 MH (animal studies)
S18 TI (animal model*)
S19 S16 OR S17 OR S18
S20 MH (human)
S21 S19 NOT S20
S22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15
S23 S22 NOT S21
S24 TI dorsalgia OR AB dorsalgia
S25 (MH "Back Pain+")
S26 (MH "Low Back Pain")
S27 TI "Back Pain" OR AB "Back Pain"
S28 TI backache OR AB backache
S29 TI lumbar W1 pain OR AB lumbar W1 pain
S30 TI lumbar N5 pain OR AB lumbar N5 pain
S31 S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30
S32 (MH "Coccyx")
S33 (MH "Sciatica")
S34 TI sciatica OR AB sciatica

S35 TI coccyx OR AB coccyx
S36 TI coccydynia OR AB coccydynia
S37 TI back disorder* OR AB back disorder*
S38 (MH "Lumbar Vertebrae")
S39 TI lumbar N2 vertebra OR AB lumbar N2 vertebra
S40 TI Lumbosacral N3 spine OR AB Lumbosacral N3 spine
S41 S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40
S42 (MH "Thoracic Vertebrae")
S43 (MH "Spondylolisthesis") OR (MH "Spondylolysis")
S44 TI lumbago OR AB lumbago
S45 S42 OR S43 OR S44
S46 S31 OR S41 OR S45
S47 (MH "Guideline Adherence")
S48 (MH "Practice Guidelines")
S49 (MH "Medical Practice, Evidence-Based")
S50 (TI Feedback OR AB Feedback) N5((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI standard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (TI module* OR AB module*) OR (TI "adopt*" OR AB "adopt*") OR (TI knowledge* OR AB knowledge*) OR (TI research* OR AB research*))
S51 (TI "medical audit" OR AB "medical audit") N5 ((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI standard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (TI module* OR AB module*) OR (TI "adopt*" OR AB "adopt*") OR (TI knowledge* OR AB knowledge*) OR (TI research* OR AB research*))
S52 ((TI "Managed Care Programs" OR AB "Managed Care Programs")) N5 ((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI standard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (TI module* OR AB module*) OR (TI adopt* OR AB adopt*) OR (TI knowledge* OR AB knowledge*) OR (TI research* OR AB research*))
S53 ((TI practice OR AB practice) N3
((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI stand ard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI protocol* OR A B protocol*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (TI module* OR AB module*) OR (TI tool* OR AB tool*) OR (TI knowledge* OR A B knowledge*) OR (TI framework* OR AB framework*)))
S54 ((TI clinical OR AB clinical) N3
((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI stand ard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI protocol* OR A B protocol*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (TI module* OR AB module*) OR (TI tool* OR AB tool*) OR (TI knowledge* OR A B knowledge*) OR (TI framework* OR AB framework*)))
S55 ((TI translat* OR AB translat*) N3
((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI stand ard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI protocol* OR A B protocol*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (TI module* OR AB module*) OR (TI tool* OR AB tool*) OR (TI knowledge* OR A B knowledge*) OR (TI framework* OR AB framework*)))

S56 ((TI chang* OR AB chang*) N3
((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI stand
ard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI protocol* OR A
B protocol*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (
TI module* OR AB module*) OR (TI tool* OR AB tool*) OR (TI knowledge* OR A
B knowledge*) OR (TI framework* OR AB framework*) OR (TI behavio* OR AB b
ehavio*)))
S57 ((TI implement* OR AB implement*) N3
((TI guideline* OR AB guideline*) OR (TI guidance OR AB guidance) OR (TI stand
ard* OR AB standard*) OR (TI pathway* OR AB pathway*) OR (TI protocol* OR A
B protocol*) OR (TI evidence OR AB evidence) OR (TI theor* OR AB theor*) OR (
TI module* OR AB module*) OR (TI tool* OR AB tool*) OR (TI knowledge* OR A
B knowledge*) OR (TI framework* OR AB framework*) OR (TI program* OR AB p
rogram*) OR (TI research* OR AB research*)))
S58 ((TI guideline* OR AB guideline*) N5 ((TI implement* OR AB implement*)
OR (TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR
AB adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB
complian*) OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-
adhere*) OR (TI nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-
concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB
non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB
base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S59 ((TI guidance OR AB guidance) N5 ((TI implement* OR AB implement*) OR
(TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB
adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*)
OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI
nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR
(TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-
complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB
base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S60 ((TI recommendation* OR AB recommendation*) N5 ((TI implement* OR AB
implement*) OR (TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI
adhere* OR AB adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR
AB complian*) OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-
adhere*) OR (TI nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-
concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB
non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB
base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S61 ((TI standard# OR AB standard#) N5 ((TI implement* OR AB implement*) OR
(TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB
adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*)
OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI
nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR
(TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-
complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB
base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S62 ((TI pathway# OR AB pathway#) N5 ((TI implement* OR AB implement*) OR
(TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB
adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*)
OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI

nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S63 ((TI protocol# OR AB protocol#) N5 ((TI implement* OR AB implement*) OR (TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*) OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S64 ((TI evidence OR AB evidence) N5 ((TI implement* OR AB implement*) OR (TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*) OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*) OR ((TI "education* program*" OR AB "education* program*"))))
S65 ((TI theor* OR AB theor*) N5 ((TI implement* OR AB implement*) OR (TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*) OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S66 ((TI intervention* OR AB intervention*) N5 ((TI implement* OR AB implement*) OR (TI uptake* OR AB uptake*) OR (TI adopt* OR AB adopt*) OR (TI adhere* OR AB adhere*) OR (TI concord* OR AB concord*) OR (TI complian* OR AB complian*) OR (TI comply OR AB comply) OR (TI non-adhere* OR AB non-adhere*) OR (TI nonadhere* OR AB nonadhere*) OR (TI non-concord* OR AB non-concord*) OR (TI nonconcord* OR AB nonconcord*) OR (TI non-complian* OR AB non-complian*) OR (TI noncomplian* OR AB noncomplian*) OR (TI base* OR AB base*) OR (TI promot* OR AB promot*) OR (TI translat* OR AB translat*)))
S67 S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S56 OR S57 OR S58 OR S59 OR S60 OR S61 OR S62 OR S63 OR S64 OR S65 OR S66
S68 S23 AND S46 AND S67
S69 DT -20230901
S70 S68 AND S69

Cochrane Central Register of Controlled Trials (CENTRAL)
#1 MeSH descriptor: [Back Pain] explode all trees
#2 back pain
#3 dorsalgia
#4 backache
#5 MeSH descriptor: [Low Back Pain] explode all trees

#6 (lumbar next pain) or (coccyx) or (coccydynia) or (spondylosis)
#7 MeSH descriptor: [Spine] explode all trees
#8 MeSH descriptor: [Spinal Diseases] explode all trees
#9 (lumbago) or (discitis) or (disc near degeneration) or (disc near prolapse) or (disc near herniation)
#10 spinal fusion
#11 spinal neoplasms
#12 facet near joints
#13 MeSH descriptor: [Intervertebral Disc] explode all trees
#14 postlaminectomy
#15 arachnoiditis
#16 failed near back
#17 MeSH descriptor: [Cauda Equina] explode all trees
#18 lumbar near vertebra*
#19 spinal near stenosis
#20 slipped near (disc* or disk*)
#21 degenerat* near (disc* or disk*)
#22 stenosis near (spine or root or spinal)
#23 displace* near (disc* or disk*)
#24 prolap* near (disc* or disk*)
#25 MeSH descriptor: [Sciatic Neuropathy] explode all trees
#26 sciatic*
#27 back disorder*
#28 back near pain
#29 (Lumbosacral NEAR/3 spine)
#30 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 or #28 or #29
#31 MeSH descriptor: [Guideline Adherence] this term only
#32 MeSH descriptor: [Health Plan Implementation] this term only
#33 MeSH descriptor: [Practice Guidelines as Topic] this term only
#34 MeSH descriptor: [Evidence-Based Practice] this term only
#35 MeSH descriptor: [Evidence-Based Medicine] this term only
#36 MeSH descriptor: [Evidence-Based Nursing] this term only
#37 MeSH descriptor: [Evidence-Based Pharmacy Practice] this term only
#38 (Feedback:ti,ab,kw) NEAR/5 (guideline*:ti,ab,kw OR guidance:ti,ab,kw OR standard*:ti,ab,kw OR pathway*:ti,ab,kw OR evidence:ti,ab,kw OR theor*:ti,ab,kw OR module*:ti,ab,kw OR (adopt*):ti,ab,kw OR knowledge*:ti,ab,kw OR research*:ti,ab,kw)
#39 ("medical audit":ti,ab,kw) NEAR/5 (guideline*:ti,ab,kw OR guidance:ti,ab,kw OR standard*:ti,ab,kw OR pathway*:ti,ab,kw OR evidence:ti,ab,kw OR theor*:ti,ab,kw OR module*:ti,ab,kw OR (adopt*):ti,ab,kw OR knowledge*:ti,ab,kw OR research*:ti,ab,kw)
#40 ("Care Program*":ti,ab,kw) NEAR/5 (guideline*:ti,ab,kw OR guidance:ti,ab,kw OR standard*:ti,ab,kw OR pathway*:ti,ab,kw OR evidence:ti,ab,kw OR theor*:ti,ab,kw OR module*:ti,ab,kw OR (adopt*):ti,ab,kw OR knowledge*:ti,ab,kw OR research*:ti,ab,kw)
#41 (practice NEAR/3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)):ti,ab,kw

#42 (clinical NEAR/3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)):ti,ab,kw
#43 (translat* NEAR/3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework*)):ti,ab,kw
#44 (chang* NEAR/3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework* or behavio*)):ti,ab,kw
#45 (implement* NEAR/3 (guideline* or guidance or standard* or pathway* or protocol* or evidence or theor* or module* or tool* or knowledge* or framework* or program* or research*)):ti,ab,kw
#46 (guideline* NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#47 (guidance NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#48 (recommendation* NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#49 (standard? NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#50 (pathway? NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#51 (protocol? NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#52 (evidence NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat* or (education* program*))):ti,ab,kw
#53 (theor* NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#54 (intervention* NEAR/5 (implement* or uptake* or adopt* or adhere* or concord* or complian* or comply or non-adhere* or nonadhere* or non-concord* or nonconcord* or non-complian* or noncomplian* or base* or promot* or translat*)):ti,ab,kw
#55 #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54
#56 #30 and #55
#57 Custom date range: to 01/09/2023

Physiotherapy Evidence Database (PEDro)
Abstract & Title: guideline*

Problem: pain
Body Part: lumbar spine, sacro-iliac joint or pelvis
Subdiscipline: musculoskeletal
Method: clinical trial
Match all search terms (AND)