

Appendix 1: Adopted SIGN Checklist for PEROSH Clearinghouse

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|  | | Methodology Checklist 1: Systematic Reviews and Meta-analyses | |
| Study identification <i>(Include author, title, year of publication, journal title, pages)</i> | | | |
| Guideline topic: | | Key Question No: | |
| Checklist completed by: | | | |
| Section 1: Internal validity | | | |
| <i>In a well conducted systematic review</i> | | In this study this criterion is: | |
| 1.1 | The study addresses an appropriate and clearly focused question. | Well covered Adequately addressed Poorly addressed | Not addressed Not reported Not applicable |
| 1.2 | A description of the methodology used is included. | Well covered Adequately addressed Poorly addressed | Not addressed Not reported Not applicable |
| 1.3 | The literature search is sufficiently rigorous to identify all the relevant studies. | Well covered Adequately addressed Poorly addressed | Not addressed Not reported Not applicable |
| 1.4 | Study quality is assessed and taken into account. | Well covered Adequately addressed Poorly addressed | Not addressed Not reported Not applicable |
| 1.5 | There are enough similarities between the studies selected to make combining them reasonable. | Well covered Adequately addressed Poorly addressed | Not addressed Not reported Not applicable |
| SECTION 2: OVERALL ASSESSMENT OF THE STUDY | | | |
| 2.1 | <i>How well was the study done to minimise bias?</i> Code ++, +, or – | | |
| 2.2 | If coded as +, or – what is the likely direction in which bias might affect the study results? | | |

SECTION 3: DESCRIPTION OF THE STUDY Please print answers clearly

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|-----|--|---------------------|--------------|--------|
| 3.1 | What types of study are included in the review? <i>(Highlight all that apply)</i> | RCT Case-control | CCT Other | Cohort |
| 3.2 | How does this review help to answer your key question? <i>Summarise the main conclusions of the review and how it relates to the relevant key question. Comment on any particular strengths or weaknesses of the review as a source of evidence for a guideline produced for the NHS in Scotland.</i> | | | |



SIGN 50: A guideline developers' handbook

Notes on the use of Methodology Checklist 1: Systematic Reviews and Meta-analyses

Section 1 identifies the study, the reviewer, the guideline for which the paper is being considered as evidence, and the key question(s) it is expected to address. The reviewer is asked to consider a series of aspects of study design and to make a judgement as to how well the current study meets each criterion. Each relates to an aspect of methodology that research has shown to be likely to influence the conclusions of a study.

For each question in this section you should use one of the following to indicate how well it has been addressed in the study:

- Well covered
- Adequately addressed
- Poorly addressed
- Not addressed (*i.e. not mentioned, or indicates that this aspect of study design was ignored*)
- Not reported (*i.e. mentioned, but insufficient detail to allow assessment to be made*)
- Not applicable.

1.1 The study addresses an appropriate and clearly focused question.

Unless a clear and well defined question is specified in the report of the review, it will be difficult to assess how well it has met its objectives or how relevant it is to the question you are trying to answer on the basis of the conclusions.

1.2 A description of the methodology used is included.

One of the key distinctions between a systematic review and a general review is the systematic methodology used. A systematic review should include a detailed description of the methods used to identify and evaluate individual studies. If this description is not present, it is not possible to make a thorough evaluation of the quality of the review, and **it should be rejected as a source of Level 1 evidence**. (Though it may be useable as Level 4 evidence, if no better evidence can be found.)

1.3 The literature search is sufficiently rigorous to identify all the relevant studies.

A systematic review based on a limited literature search – e.g. one limited to Medline only – is likely to be heavily biased. A well conducted review should as a minimum look at Embase and Medline, and from the late 1990s onward, the Cochrane Library. Any indication that hand searching of key journals, or follow up of reference lists of included studies were carried out in addition to electronic database searches can be taken as evidence of a well conducted review.

1.4 Study quality is assessed and taken into account.

A well conducted systematic review should have used clear criteria to assess whether individual studies had been well conducted before deciding whether to include or exclude them. If there is no indication of such an assessment, the

individual papers included in the review must be obtained and their methodology evaluated.

1.5 *There are enough similarities between the studies selected to make combining them reasonable.*

Studies covered by a systematic review should be selected using clear inclusion criteria. These criteria should include, either implicitly or explicitly, the question of whether the selected studies can legitimately be compared. It should be clearly ascertained, for example, that the populations covered by the studies are comparable; that the methods used in the investigations are the same; that the outcome measures are comparable; and the variability in effect sizes between studies is not greater than would be expected by chance alone.

Section 2 relates to the overall assessment of the paper. Question 2.1 asks you to rate the methodological quality of the study, based on your responses in Section 1 and using the following coding system:

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| ++ | All or most of the criteria have been fulfilled. Where they have not been fulfilled the conclusions of the study or review are thought <u>very unlikely</u> to alter. |
| + | Some of the criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are thought <u>unlikely</u> to alter the conclusions. |
| - | Few or no criteria fulfilled. The conclusions of the study are thought <u>likely or very likely</u> to alter. |

The code allocated here, coupled with the study type, will decide the **level of evidence** that this study provides.

Question 2.2 asks you to indicate whether a review with poor or relatively poor methodology is likely to overstate or understate any effect identified.

Section 3 asks you to identify the types of study covered by the review, and to provide a brief summary of the conclusions of the review as well as your own view of its strengths and weaknesses, and how it will help to answer the key question.

Scottish Intercollegiate Guidelines Network
28 Thistle Street, Edinburgh EH2 1EN
Website address: <http://www.sign.ac.uk>

Tel. 0131-718 5090
Fax. 0131-718 5114

Web contact: duncan.service@nhs.net
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In accordance with the SIGN Checklist for systematic reviews and meta-analyses, PEROSH Clearinghouse has expanded and adopted the study quality criteria for the occupation safety and health topics which is explained as follows.

SECTION 1: INTERNAL VALIDITY

1.1 The study addresses an appropriate and clearly focused question.

(I put it into a table, so the text stays in the cells)

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|------------------------------|--|
| <u>Well covered:</u> | All specific PICO elements are there |
| <u>Adequately addressed:</u> | All PICO elements are there, but they could be more specific |
| <u>Poorly addressed:</u> | One or two PICO elements are missing e.g. no exposure terms or no outcome terms are taken into consideration |
| <u>Not addressed</u> | The study does not have a clearly PICO-based question |
| <u>Not reported</u> | |
| <u>Not applicable</u> | |

1.2 A description of the methodology used is included.

| | |
|------------------------------|---|
| <u>Well covered:</u> | Four criteria should be fulfilled: A clear description of (1) literature search with search terms, (2) inclusion and exclusion criteria, (3) quality assessment and (4) data extraction and data synthesis. |
| <u>Adequately addressed:</u> | The review fulfilled only three of the above mentioned criteria. |
| <u>Poorly addressed:</u> | The review fulfilled only one or two of the above mentioned criteria. |
| <u>Not addressed</u> | A description of the methodology was missing. |
| <u>Not reported</u> | |
| <u>Not applicable</u> | |

1.3 The literature search is sufficiently rigorous to identify all the relevant studies.

| | |
|------------------------------|--|
| <u>Well covered:</u> | The literature search was done in sufficient database/s using specific and significant search terms. Nothing essential is missing. |
| <u>Adequately addressed:</u> | The literature search was done in reasonable database/s using specific search terms but suggestions for additional terms are possible. |
| <u>Poorly addressed:</u> | Essential studies could be missed. |
| <u>Not addressed:</u> | The way the literature is searched is not there. |
| <u>Not reported:</u> | A literature search is performed but is insufficiently reported. |
| <u>Not applicable</u> | |

1.4 Study quality is assessed and taken into account.

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|------------------------------|---|
| <u>Well covered:</u> | If used, the pre-specified criteria are described and a sensitivity analysis is done to exclude studies at low quality. |
| <u>Adequately addressed:</u> | A study quality is measured but is not taken into account. |
| <u>Poorly addressed:</u> | No specific criteria are predefined. |
| <u>Not addressed</u> | Quality criteria is not there. |
| <u>Not reported</u> | |
| <u>Not applicable</u> | |

1.5 There are enough similarities between the studies selected to make combining them reasonable.

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|------------------------------|--|
| <u>Well covered:</u> | Conclusions are made only from studies with the same PICO, study design and methodology. |
| <u>Adequately addressed:</u> | Only three elements of the PICO elements are answered by the study. |
| <u>Poorly addressed:</u> | Only one or two PICO elements are answered by the study. |
| <u>Not addressed</u> | |
| <u>Not reported</u> | |
| <u>Not applicable</u> | |

2.1 How well was the study done to minimise bias?

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|----|--|
| ++ | All five criteria (1.1 – 1.5) are “well covered” or “adequately addressed” and at least two of them are “well covered” |
| + | At least three criteria are “adequately addressed” or “well covered” |
| - | Two or less criteria are only “adequately addressed” or less |