

Critical Appraisal Skills Programme (CASP)

making sense of evidence

11 questions to help you make sense of a case control study

How to use this appraisal tool

Three broad issues need to be considered when appraising a case control study:

- **Are the results of the study valid?**
- **What are the results?**
- **Will the results help locally?**

The 11 questions on the following pages are designed to help you think about these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

There is a fair degree of overlap between several of the questions.

You are asked to record a “yes”, “no” or “can’t tell” to most of the questions.

A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

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A/ Are the results of the study valid?

Screening Questions

1. Did the study address a clearly focused Issue? Yes Can't tell No

A question can be focused in terms of:

- *the population studied*
- *the risk factors studied*
- *whether the study tried to detect a beneficial or harmful effect?*

-
2. Did the authors use an appropriate Method to answer their question? Yes Can't tell No

Consider:

- *is a case control study an appropriate way of answering the question under the circumstances? (is the outcome rare or harmful?)*
- *did it address the study question?*

Is it worth continuing?

Detailed Questions

3. Were the cases recruited in an acceptable way? Yes Can't tell No

HINT: We are looking for selection bias which might compromise the validity of the findings:

- *Are the cases defined precisely?*
- *Were the cases representative of a defined population (geographically and/or temporally)?*
- *Was there an established reliable system for selecting all the cases?*
- *Are they incident or prevalent?*
- *Is there something special about the cases?*
- *Is the time frame of the study relevant to the disease/exposure?*
- *Was there a sufficient number of cases selected?*
- *Was there a power calculation?*

4. Were the controls selected in an acceptable way?

Yes Can't tell No

HINT: We are looking for selection bias which might compromise the generalisability of the findings:

- *Were the controls representative of a defined population (geographically and/or temporally)?*
- *Was there something special about the controls?*
- *Was the non-response high? Could non-respondents be different in any way?*
- *Are they matched, population based or randomly selected?*
- *Was there a sufficient number of controls selected?*

5. Was the exposure accurately measured to minimise bias?

Yes Can't tell No

HINT: We are looking for measurement, recall or classification bias:

- *Was the exposure clearly defined and accurately measured?*
- *Did the authors use subjective or objective measurements?*
- *Do the measures truly reflect what they are supposed to measure? (have they been validated?)*
- *Were the measurement methods similar in cases and controls?*
- *Did the study incorporate blinding where feasible?*
- *Is the temporal relation correct? (does the exposure of interest precede the outcome?)*

.....

6. A. What confounding factors have the authors accounted for?

List the other ones you think might be important, that the authors missed
(genetic, environmental and socio-economic)

B. Have the authors taken account of the potential confounding factors in the design and/or in their analysis?

Yes Can't tell No

HINT: Look for restriction in design, and techniques, e.g. modeling, stratified-, regression-, or sensitivity analysis to correct, control or adjust for confounding factors.

B/ What are the results?

.....

7. What are the results of this study?

Consider:

- *What are the bottom line results?*
- *Is the analysis appropriate to the design?*
- *How strong is the association between exposure and outcome (look at the odds ratio)?*
- *Are the results adjusted for confounding and might confounding still explain the association?*
- *Has adjustment made a big difference to The OR ??*

.....

8. How precise are the results?

How precise is the estimate of risk?

Consider:

- *Size of the P-value*
- *Size of the confidence intervals*
- *Have the authors considered all the important variables?*
- *How was the effect of subjects refusing to participate evaluated?*

9. Do you believe the results?

Yes

No

Consider:

- *Big effect is hard to ignore!*
- *Can it be due to chance, bias or confounding?*
- *Are the design and methods of this study sufficiently flawed to make the results unreliable?*
- *Consider Bradford Hills criteria (e.g. time sequence, dose-response gradient, strength, biological plausibility)*

Is it worth continuing?

C/ Will the results help me locally?

10. Can the results be applied to the local population?

Yes

Can't tell

No

Consider whether:

- *The subjects covered in the study could be sufficiently different from your population to cause concern.*
- *Your local setting is likely to differ much from that of the study.*
- *Can you estimate the local benefits and harms?*

11. Do the results of this study fit with other available evidence?

Yes

Can't tell

No

HINT: Consider all the available evidence from RCTs, systematic reviews, cohort studies and case-control studies as well for consistency.

One observational study rarely provides sufficiently robust evidence to recommend changes to clinical practice or within health policy decision making. However, for certain questions observational studies provide the only evidence. Recommendations from observational studies are always stronger when supported by other evidence.

CRITICAL APPRAISAL SKILLS PROGRAMME

making sense of evidence

12 questions to help you make sense of a cohort study

General comments

- Three broad issues need to be considered when appraising a cohort study.

Are the results of the study valid?

What are the results?

Will the results help locally?

The 12 questions on the following pages are designed to help you think about these issues systematically.

- The first two questions are screening questions and can be answered quickly. If the answer to those two is "yes", it is worth proceeding with the remaining questions.
- There is a fair degree of overlap between several of the questions.
- You are asked to record a "yes", "no" or "can't tell" to most of the questions.
- A number of italicised hints are given after each question. These are designed to remind you why the question is important. There will not be time in the small groups to answer them all in detail!

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A/ Are the results of the study valid?

Screening Questions

<p>1 Did the study address a clearly focused issue?</p> <p><i>HINT: A question can be focused in terms of:</i></p> <ul style="list-style-type: none">- the population studied- the risk factors studied- the outcomes considered- is it clear whether the study tried to detect a beneficial or harmful effect?	<p>Yes</p> <input type="checkbox"/>	<p>Can't tell</p> <input type="checkbox"/>	<p>No</p> <input type="checkbox"/>
<p>2 Did the authors use an appropriate method to answer their question?</p> <p><i>HINT: Consider</i></p> <ul style="list-style-type: none">- Is a cohort study a good way of answering the question under the circumstances?- Did it address the study question?	<p>Yes</p> <input type="checkbox"/>	<p>Can't tell</p> <input type="checkbox"/>	<p>No</p> <input type="checkbox"/>

Is it worth continuing?

Detailed Questions

<p>3 Was the cohort recruited in an acceptable way?</p> <p><i>HINT: We are looking for selection bias which might compromise the generalisability of the findings:</i></p> <ul style="list-style-type: none">- Was the cohort representative of a defined population?- Was there something special about the cohort?- Was everybody included who should have been included?	<p>Yes</p> <input type="checkbox"/>	<p>Can't tell</p> <input type="checkbox"/>	<p>No</p> <input type="checkbox"/>
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<p>4. Was the exposure accurately measured to minimize bias?</p> <p><i>HINT: We are looking for measurement or classification bias:</i></p> <ul style="list-style-type: none"> - Did they use subjective or objective measurements? - Do the measures truly reflect what you want them to (have they been validated)? - Were all the subjects classified into exposure groups using the same procedure? 	<p>Yes <input type="checkbox"/></p> <p>Can't tell <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>5. Was the outcome accurately measured to minimize bias?</p> <p><i>HINT: We are looking for measurement or classification bias:</i></p> <ul style="list-style-type: none"> - Did they use subjective or objective measurements? - Do the measures truly reflect what you want them to (have they been validated)? - Has a reliable <u>system</u> been established for detecting all the cases (for measuring disease occurrence)? - Were the measurement methods similar in the different groups? - Were the subjects and/or the outcome assessor blinded to exposure (does this matter)? 	<p>Yes <input type="checkbox"/></p> <p>Can't tell <input type="checkbox"/></p> <p>No <input type="checkbox"/></p>
<p>6. A. Have the authors identified all important confounding factors? List the ones you think might be important, that the authors missed.</p> <p>B. Have they taken account of the confounding factors in the design and/or analysis?</p> <p><i>HINT:</i></p> <ul style="list-style-type: none"> - Look for restriction in design, and techniques eg modelling, stratified-, regression-, or sensitivity analysis to correct, control or adjust for confounding factors 	<p>Yes <input type="checkbox"/></p> <p>Can't tell <input type="checkbox"/></p> <p>No <input type="checkbox"/></p> <p>Yes <input type="checkbox"/></p> <p>Can't tell <input type="checkbox"/></p> <p>No <input type="checkbox"/></p> <p>List:</p>

<p>7. A. Was the follow up of subjects complete enough?</p> <p>B. Was the follow up of subjects long enough?</p> <p><i>HINT:</i></p> <ul style="list-style-type: none"> - The good or bad effects should have had long enough to reveal themselves -The persons that are lost to follow-up may have different outcomes than those available for assessment - In an open or dynamic cohort, was there anything special about the outcome of the people leaving, or the exposure of the people entering the cohort? 	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 33%;">Yes</td> <td style="text-align: center; width: 33%;">Can't tell</td> <td style="text-align: center; width: 33%;">No</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr><td colspan="3"> </td></tr> <tr> <td style="text-align: center;">Yes</td> <td style="text-align: center;">Can't tell</td> <td style="text-align: center;">No</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Yes	Can't tell	No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				Yes	Can't tell	No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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B/ What are the results?

<p>8. What are the results of this study?</p> <p><i>HINT:</i></p> <ul style="list-style-type: none"> - What are the bottom line results? - Have they reported the rate or the proportion between the exposed/unexposed, the ratio/the rate difference? - How strong is the association between exposure and outcome (RR,)? - What is the absolute risk reduction (ARR)? 	<p>9. How precise are the results?</p> <p style="text-align: center;">How precise is the estimate of the risk?</p> <p><i>HINT:</i></p> <ul style="list-style-type: none"> - Size of the confidence intervals 															
<p>10. Do you believe the results?</p> <p><i>HINT:</i></p> <ul style="list-style-type: none"> - Big effect is hard to ignore! - Can it be due to bias, chance or confounding? - Are the design and methods of this study sufficiently flawed to make the results unreliable? - Consider Bradford Hills criteria (eg time sequence, dose-response gradient, biological plausibility, consistency). 	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 33%;">Yes</td> <td style="text-align: center; width: 33%;">Can't tell</td> <td style="text-align: center; width: 33%;">No</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="3"><hr/></td> </tr> <tr> <td colspan="3"><hr/></td> </tr> <tr> <td colspan="3"><hr/></td> </tr> </table>	Yes	Can't tell	No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<hr/>			<hr/>			<hr/>		
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C/ Will the results help me locally?

<p>11. Can the results be applied to the local population?</p> <p><i>HINT: Consider whether</i></p> <ul style="list-style-type: none">- The subjects covered in the study could be sufficiently different from your population to cause concern.- Your local setting is likely to differ much from that of the study- Can you quantify the local benefits and harms?	<p>Yes</p> <p><input type="checkbox"/></p>	<p>Can't tell</p> <p><input type="checkbox"/></p>	<p>No</p> <p><input type="checkbox"/></p>
<p>12. Do the results of this study fit with other available evidence?</p>	<p>Yes</p> <p><input type="checkbox"/></p>	<p>Can't tell</p> <p><input type="checkbox"/></p>	<p>No</p> <p><input type="checkbox"/></p>

One observational study rarely provides sufficiently robust evidence to recommend changes to clinical practice or within health policy decision making.

However, for certain questions observational studies provide the only evidence.

Recommendations from observational studies are always stronger when supported by other evidence.

Critical Appraisal Skills Programme (CASP)

making sense of evidence

12 questions to help you make sense of a diagnostic test study

How to use this appraisal tool

Three broad issues need to be considered when appraising a diagnostic test:

- **Are the results of the study valid?**
- **What are the results?**
- **Will the results help me and my patients/population?**

The 12 questions on the following pages are designed to help you think through these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

You are asked to record a “yes”, “no” or “can’t tell” to most of the questions.

A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

The 12 questions are adapted from Jaesche R, Guyatt GH, Sackett DL, Users' guides to the medical literature, VI. How to use an article about a diagnostic test. JAMA 1994; 271 (5): 389-391

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A/ Are the results of the study valid?

Screening Questions

1. Was there a clear question for the study to address? Yes Can't tell No

A question should include information about:

- the population
- the test
- the setting
- the outcomes

-
2. Was there a comparison with an appropriate reference standard? Yes Can't tell No

HINT: Is this reference test(s) the best available indicator in the circumstances?

Is it worth continuing?

Detailed Questions

3. Did all patients get the diagnostic test and the reference standard? Yes Can't tell No

Consider:

- Were both received regardless of the Results of the test of interest?
- Check the 2 x 2 table (Verification bias)

-
4. Could the results of the test of interest have been influenced by the results of the reference standard? Yes Can't tell No

Consider:

- Was there blinding?
- Were the tests performed independently? (Review bias)

.....

5. Is the disease status of the tested population clearly described?

Yes Can't tell No

Consider:

- *Presenting symptoms*
- *Disease stage or severity*
- *Co-morbidity*
- *Differential diagnoses*
(Spectrum bias)

.....

6. Were the methods for performing the test Described in sufficient detail?

Yes Can't tell No

HINT: Was a protocol followed?

Is it worth continuing?

B/If so, what are the results?

.....

7. What are the results?

Consider:

- *Are the sensitivity and specificity and/or likelihood ratios presented?*
- *Are the results presented in such a way that we can work them out?*

.....

8. How sure are we about these results?

Consider:

- *Could they have occurred by chance?*
- *Are there confidence limits?*
- *What are they?*

C/ Will the results help me and my patients/population?

(Consider whether you are primarily interested in the impact on a population or individual level)

**9. Can the results be applied to your patients/
the population of interest?**

Yes Can't tell No

HINT: Do you think you patients / population are so different from those in the study that the results cannot be applied? Such as age, sex, ethnicity and spectrum bias.

**10. Can the test be applied to your patient
or population of interest?**

Yes Can't tell No

Consider:

- *Think of resources and opportunity costs*
- *Level and availability of expertise required to interpret the tests*
- *Current practice and availability of services*

**11. Were all outcomes important to the
Individual or population considered?**

Yes Can't tell No

Consider:

- *Will the knowledge of the test result improve patient wellbeing*
- *Will the knowledge of the test result lead to a change in patient management?*

12. What would be the impact of using this test on your patients/population?

Critical Appraisal Skills Programme (CASP)

making sense of evidence

10 questions to help you make sense of economic evaluations

How to use this appraisal tool

Three broad issues need to be considered when appraising an economic evaluation:

- **Is the economic evaluation likely to be usable?**
- **How were costs and consequences assessed and compared?**
- **Will the results help in purchasing services for local people?**

The 10 questions on the following pages are designed to help you think about these issues systematically.

The first three questions are screening questions and can be answered quickly. If the answer to all is “yes”, it is worth proceeding with the remaining questions.

There is a fair degree of overlap between several of the questions.

You are asked to record a “yes”, “no” or “can’t tell” to most of the questions.

Record your reasons for your answers in the spaces provided.

The 10 questions are adapted from Drummond MF, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes. Oxford: Oxford University Press, 1987.

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A/ Is the economic evaluation likely to be usable?

Screening Questions

1. Was a well-defined question posed?

Yes Can't tell No

HINT: Is it clear what the authors are trying to achieve?

2. Was a comprehensive description of the competing alternatives given?

Yes Can't tell No

HINT: Can you tell who did what to whom, where and how often?

3. Does the paper provide evidence that the programme would be effective (i.e. would the programme do more harm than good)?

Yes Can't tell No

HINT: Consider if an RCT was used; if not, consider how strong the evidence was.

Is it worth continuing?

B/ How were consequences and costs assessed and compared?

Detailed Questions

4. Were all important and relevant resource use and health outcome consequences for each alternative:

A) identified?

Yes Can't tell No

HINT: Consider what perspective(s) was/were taken

B) measured accurately in appropriate units prior to evaluation

Yes Can't tell No

HINT: Appropriate units may be hours of nursing time, number of physician visits, years-of-life gained, etc.

C) valued credibility?

Yes Can't tell No

HINT: Have opportunity costs been considered?

5. Were resource use and health outcomes consequences adjusted for different times at which they occurred (discounting)?

Yes Can't tell No

6. Was an incremental analysis of the consequences and costs of alternatives performed?

Yes Can't tell No

.....
7. Was an adequate sensitivity analysis performed?

Yes Can't tell No

HINT: Consider if all the main areas of uncertainty were considered

C/ Will the results help in purchasing for local people?

.....
8. Did the presentation and discussion of the results include enough of the issues that are required to inform a purchasing decision?

Yes Can't tell No

.....
9. Were the conclusions of the evaluation justified by the evidence presented?

Yes Can't tell No

.....
10. Can the results be applied to the local population?

Yes Can't tell No

Consider whether:

- *The patients covered by the review could be sufficiently different to your population to cause concern*
- *Your local setting is likely to differ much from that of the review*

Critical Appraisal Skills Programme (CASP)

making sense of evidence

10 questions to help you make sense of qualitative research

This assessment tool has been developed for those unfamiliar with qualitative research and its theoretical perspectives. This tool presents a number of questions that deal very broadly with some of the principles or assumptions that characterise qualitative research. It is *not a definitive guide* and extensive further reading is recommended.

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of qualitative research:

- **Rigour: has a thorough and appropriate approach been applied to key research methods in the study?**
- **Credibility: are the findings well presented and meaningful?**
- **Relevance: how useful are the findings to you and your organisation?**

The 10 questions on the following pages are designed to help you think about these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

A number of italicised prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

The 10 questions have been developed by the national CASP collaboration for qualitative methodologies.

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Screening Questions

1. Was there a clear statement of the aims of the research?

Yes

No

Consider:

- *what the goal of the research was*
 - *why it is important*
 - *its relevance*
-

2. Is a qualitative methodology appropriate?

Yes

No

Consider:

- *if the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants*
-

Is it worth continuing?

Detailed questions

.....

Appropriate research design

3. Was the research design appropriate to address the aims of the research?

Write comments here

Consider:

- *if the researcher has justified the research design (e.g. have they discussed how they decided which methods to use?)*
-

Sampling

4. Was the recruitment strategy appropriate to the aims of the research?

Write comments here

Consider:

- *if the researcher has explained how the participants were selected*
 - *if they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study*
 - *if there are any discussions around recruitment (e.g. why some people chose not to take part)*
-

.....

Data collection

5. Were the data collected in a way that addressed the research issue?

Write comments here

Consider:

- if the setting for data collection was justified
- if it is clear how data were collected (e.g. focus group, semi-structured interview etc)
- if the researcher has justified the methods chosen
- if the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, did they use a topic guide?)
- if methods were modified during the study. If so, has the researcher explained how and why?
- if the form of data is clear (e.g. tape recordings, video material, notes etc)
- if the researcher has discussed saturation of data

.....

Reflexivity (research partnership relations/recognition of researcher bias)

6. Has the relationship between researcher and participants been adequately considered?

Write comments here

Consider whether it is clear:

- if the researcher critically examined their own role, potential bias and influence during:
 - formulation of research questions
 - data collection, including sample recruitment and choice of location
- how the researcher responded to events during the study and whether they considered the implications of any changes in the research design

.....

Ethical Issues

7. Have ethical issues been taken into consideration?

Write comments here

Consider:

- if there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- if the researcher has discussed issues raised by the study (e. g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)
- if approval has been sought from the ethics committee

.....

Data Analysis

8. Was the data analysis sufficiently rigorous?

Write comments here

Consider:

- if there is an in-depth description of the analysis process
- if thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?
- whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- if sufficient data are presented to support the findings
- to what extent contradictory data are taken into account
- whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

.....

Findings

9. Is there a clear statement of findings?

Write comments here

Consider:

- if the findings are explicit
- if there is adequate discussion of the evidence both for and against the researcher's arguments
- if the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst.)
- if the findings are discussed in relation to the original research questions

.....

Value of the research

10. How valuable is the research?

Write comments here

Consider:

- if the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature?)
- if they identify new areas where research is necessary
- if the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

Critical Appraisal Skills Programme (CASP)

making sense of evidence

10 questions to help you make sense of randomised controlled trials

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a randomised controlled trial:

- **Is the trial valid?**
- **What are the results?**
- **Will the results help locally?**

The 10 questions on the following pages are designed to help you think about these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

You are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of italicised prompts are given after each question.

These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

The 10 questions are adapted from Guyatt GH, Sackett DL, and Cook DJ, Users' guides to the medical literature. II. How to use an article about therapy or prevention. *JAMA* 1993; 270 (21): 2598-2601 and *JAMA* 1994; 271(1): 59-63

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Screening Questions

1. Did the study ask a clearly-focused question?

Yes Can't tell No

Consider if the question is 'focused' in terms of:

- the population studied
- the intervention given
- the outcomes considered

2. Was this a randomised controlled trial (RCT) and was it appropriately so?

Yes Can't tell No

Consider:

- why this study was carried out as an RCT
- if this was the right research approach for the question being asked

Is it worth continuing?

Detailed Questions

3. Were participants appropriately allocated to intervention and control groups?

Yes Can't tell No

Consider:

- how participants were allocated to intervention and control groups. Was the process truly random?
- whether the method of allocation was described. Was a method used to balance the randomization, e.g. stratification?
- how the randomization schedule was generated and how a participant was allocated to a study group
- if the groups were well balanced. Are any differences between the groups at entry to the trial reported?
- if there were differences reported that might have explained any outcome(s) (confounding)

.....

**4. Were participants, staff and study personnel
'blind' to participants' study group?**

Yes Can't tell No

Consider:

- the fact that blinding is not always possible*
- if every effort was made to achieve blinding*
- if you think it matters in this study*
- the fact that we are looking for 'observer bias'*

.....

**5. Were all of the participants who entered the
trial accounted for at its conclusion?**

Yes Can't tell No

Consider:

- if any intervention-group participants got a control-group option or vice versa*
- if all participants were followed up in each study group (was there loss-to-follow-up?)*
- if all the participants' outcomes were analysed by the groups to which they were originally allocated (intention-to-treat analysis)*
- what additional information would you liked to have seen to make you feel better about this*

.....

**6. Were the participants in all groups followed
up and data collected in the same way?**

Yes Can't tell No

Consider:

- if, for example, they were reviewed at the same time intervals and if they received the same amount of attention from researchers and health workers. Any differences may introduce performance bias.*

.....

**7. Did the study have enough participants to
minimise the play of chance?**

Yes Can't tell No

Consider:

- if there is a power calculation. This will estimate how many participants are needed to be reasonably sure of finding something important (if it really exists and for a given level of uncertainty about the final result).*

8. How are the results presented and what is the main result?

Consider:

- if, for example, the results are presented as a proportion of people experiencing an outcome, such as risks, or as a measurement, such as mean or median differences, or as survival curves and hazards
- how large this size of result is and how meaningful it is
- how you would sum up the bottom-line result of the trial in one sentence

9. How precise are these results?

Consider:

- if the result is precise enough to make a decision
- if a confidence interval were reported. Would your decision about whether or not to use this intervention be the same at the upper confidence limit as at the lower confidence limit?
- if a p-value is reported where confidence intervals are unavailable

10. Were all important outcomes considered so the results can be applied?

Yes Can't tell No

Consider whether:

- the people included in the trial could be different from your population in ways that would produce different results
- your local setting differs much from that of the trial
- you can provide the same treatment in your setting

Consider outcomes from the point of view of the:

- individual
- policy maker and professionals
- family/carers
- wider community

Consider whether:

- any benefit reported outweighs any harm and/or cost. If this information is not reported can it be filled in from elsewhere?
- policy or practice should change as a result of the evidence contained in this trial

Critical Appraisal Skills Programme (CASP)

making sense of evidence

10 questions to help you make sense of reviews

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a systematic review:

- **Is the study valid?**
- **What are the results?**
- **Will the results help locally?**

The 10 questions on the following pages are designed to help you think about these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

You are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of italicised prompts are given after each question.

These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

The 10 questions are adapted from Oxman AD, Cook DJ, Guyatt GH, Users' guides to the medical literature. VI. How to use an overview. JAMA 1994; 272 (17): 1367-1371

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Screening Questions

1. Did the review ask a clearly-focused question?

Yes Can't tell No

Consider if the question is 'focused' in terms of:

- the population studied
- the intervention given or exposure
- the outcomes considered

2. Did the review include the right type of study?

Yes Can't tell No

Consider if the included studies:

- address the review's question
- have an appropriate study design

Is it worth continuing?

Detailed Questions

3. Did the reviewers try to identify all relevant studies?

Yes Can't tell No

Consider:

- which bibliographic databases were used
- if there was follow-up from reference lists
- if there was personal contact with experts
- if the reviewers searched for unpublished studies
- if the reviewers searched for non-English-language studies

4. Did the reviewers assess the quality of the included studies?

Yes Can't tell No

Consider:

- if a clear, pre-determined strategy was used to determine which studies were included. Look for:
 - a scoring system
 - more than one assessor

5. If the results of the studies have been combined, was it reasonable to do so?

Yes Can't tell No

Consider whether:

- *the results of each study are clearly displayed*
- *the results were similar from study to study (look for tests of heterogeneity)*
- *the reasons for any variations in results are discussed*

6. How are the results presented and what is the main result?

Consider:

- *how the results are expressed (e.g. odds ratio, relative risk, etc.)*
- *how large this size of result is and how meaningful it is*
- *how you would sum up the bottom-line result of the review in one sentence*

7. How precise are these results?

Consider:

- *if a confidence interval were reported. Would your decision about whether or not to use this intervention be the same at the upper confidence limit as at the lower confidence limit?*
- *if a p-value is reported where confidence intervals are unavailable*

8. Can the results be applied to the local population?

Yes Can't tell No

Consider whether:

- the population sample covered by the review could be different from your population in ways that would produce different results*
- your local setting differs much from that of the review*
- you can provide the same intervention in your setting*

9. Were all important outcomes considered?

Yes Can't tell No

Consider outcomes from the point of view of the:

- individual*
- policy makers and professionals*
- family/carers*
- wider community*

10. Should policy or practice change as a result of the evidence contained in this review?

Yes Can't tell No

Consider:

- whether any benefit reported outweighs any harm and/or cost. If this information is not reported can it be filled in from elsewhere?*