# Reviews and meta-analyses – Basic critical appraisal

## 1. Did the review explicitly address a focused clinical question?

The main question being addressed should be clearly stated. The exposure, such as a therapy or diagnostic test, and the outcome(s) of interest will often be expressed in terms of a simple relationship but not necessarily a PICO question. The Title, Abstract, or final paragraph of the Introduction should clearly state the question. **Did they know what type of apples they were looking for?**

This paper: Yes ☐  No ☐  Unclear ☐  
Comments:

## 2. Was the search for relevant studies described and was it adequate?

Ideally, a comprehensive search for all relevant studies in the major bibliographic databases (e.g., Medline, Cochrane, EMBASE, etc) and a search of reference lists from relevant studies, contact with experts, and conference abstracts. The search should not be limited to English language only. The Methods section should describe the search strategy and terms used. The Results section will outline the number of titles and abstracts retrieved and reviewed and the number of full-text studies retrieved. **Did they leave some apples on the tree?**

This paper: Yes ☐  No ☐  Unclear ☐  
Comments:

## 3. Was the selection of primary studies reproducible?

Ideally the authors should define transparent inclusion and exclusion criteria for the review. The Methods section should describe the inclusion and inclusion criteria for the review. The Results section will outline the number of studies included/excluded together with the reasons for exclusion. This information may be presented in a figure or flow chart. **Could you pick the same apples next time?**

This paper: Yes ☐  No ☐  Unclear ☐  
Comments:

## 4. Did they assess the quality of included studies; were they high quality?

The article should describe how the quality of each study was assessed using predetermined quality criteria. The Methods section should describe the assessment of quality and the criteria used (assessment of quality blinded to authors/title/journal is ideal). The Results section should provide information on the quality of the individual studies. **Were some of the apples rotten?**

This paper: Yes ☐  No ☐  Unclear ☐  
Comments:

## 5. Were the results of primary studies combined appropriately?

Any meta-analysis should include the same outcome measures from individual studies. The Results section should show which outcomes were combined. **Were they comparing apples with oranges?**

This paper: Yes ☐  No ☐  Unclear ☐  
Comments:

## 6. How are the results presented and is this appropriate to the data?

A systematic review can include a meta-analysis. A meta-analysis combines the results of individual studies and produces a summary estimate of the intervention effect. Results are often displayed as a ‘Forest plot’, where individual studies are represented with a black square and horizontal line corresponding to the point effect of the study (where the square sits), the size of the study (size of the square), and the 95% confidence interval (black line). A diamond at the bottom represents the pooled effect of all trials and the combined 95% CI. If the diamond does not overlap ‘1’, we know that the pooled effect is statistically significant. Corresponding figures may include Odds Ratio or Hazard Ratio with 95% confidence intervals, weight (% of total) of the studies, and the number of events/patient number for individual studies. If the results are not suitable for meta-analysis, it is also valid to present them as a table without statistical synthesis. **Did they assess the results appropriately?**

This paper: Yes ☐  No ☐  Unclear ☐  
Comments:
7. Are the benefits worth the risks?

Have the authors also addressed toxicities in the review? Have data been combined for meta-analysis of toxicities? This may be in the Results section and may include only a subset of studies where this information was available from the original publication.

| This paper: Yes ☐  No ☐  Unclear ☐ |
| Comments: |

8. Are the authors conclusions justified by the study results?

The discussion should place results into a clinical context and the authors conclusions should be justified by the study results and without bias.

| This paper: Yes ☐  No ☐  Unclear ☐ |
| Comments: |

9. Does this paper help me answer my clinical question?

Does this paper answer your clinical question, or have you changed your question to suit the available literature? How similar were the included patients to your patient or population? Would your patient have been eligible for the included clinical trials? Were these the apples you wanted to buy in the first place?

| This paper: Yes ☐  No ☐  Unclear ☐ |
| Comments: |

10. How would I clearly express the results to a colleague or my patient?

Can you extract data that helps you describe the study findings to a patient or colleague in plain English? Can you perform EBM calculations to help you do this? Can you find a Number Needed to Treat, Absolute Risk Reduction, Number Needed to Harm, Sensitivity or Specificity? How would you put this into a sentence?

| This paper: Yes ☐  No ☐  Unclear ☐ |
| EBM calculation: |
| Sentence: |