APPRAISING A SYSTEMATIC REVIEW OR META-ANALYSIS

DIRECTNESS	**Why is it Important**	**What to Look For**
Does the study provide a direct enough answer to your clinical question in terms of patients (P), exposure (E) and outcome (O)?	Many times, the P, E and O are not exactly the same as those studied by the authors of a paper. If this is the case, you need to decide if you can use the study results at all. The decision requires some expertise on the disease under question.	Seek the opinion of an expert (this might be you), or your colleagues.
VALIDITY	**Why is it Important**	**What to Look For**
Were the criteria for inclusion of studies appropriate?	Aside from specifying the target population, the interventions compared, and the outcomes expected, inclusion criteria in a systematic review should also specify minimum methodologic criteria, appropriate for the question being asked.	Look for inclusion criteria in the methodology section.
Was the search for eligible studies thorough?	If a lot of articles are missed, conclusions may not be valid. Missed articles are more likely to have negative results.	Look for specification of a computerized search, hand searches of relevant journals, personal communication with known researchers on a topic (including drug companies), and other methods to search for unpublished articles.
Was the validity of the included studies assessed?	The strength of conclusions from a systematic review depends on validity of the included studies.	Look for a quality scale for studies, or qualitative descriptions of the studies included.
Were the assessments of the studies reproducible?	Assessing study quality is often subjective. High agreement among authors reinforces credibility.	At least two authors should be evaluating the quality of included studies.
RESULTS	**Why is it Important**	**What to Look For**
What are the overall results of the review?	Depending on the nature of the systematic review, it may summarize effectiveness of treatment, accuracy of a test, estimates of causality, or prognosis of a disease.	Results may be summarized in tables or graphs (eg – forest plots).
Were the results similar from study to study?	When results of individual studies are too different, then there may be subtle differences in P, E, O or methodologies of the studies combined. It is quite possible that combining would be inappropriate.	Look for tests for heterogeneity. If present, authors should explain where heterogeneity is coming from, and how they plan to deal with it.
How precise were the results?	Precision gives us the best and worst scenarios in terms of effectiveness of the treatment being evaluated, accuracy of tests, prognosis of disease, or causal relationships	Look for overall 95% confidence intervals if results were combined statistically.

APPLICABILITY	**Why is it Important**	**What to Look For**
See applicability issues related to specific types of questions (therapy, diagnosis, harm or prognosis) If the overall results of the review are not directly applicable to your patient, are there credible subgroup analyses that you could use?	Sometimes, the overall results apply to a broad range of patients, and we need to decide if they apply to specific subgroups, eg - young vs. old, male vs. female, mild vs. severe, high dose vs. low dose, etc.	Differences discovered on subgroup analyses are credible if 1) they were preplanned analyses by the reviewers, 2) there aren't too many 3) subgroup differences are consistent between studies, and 4) subgroup differences are biologically plausible
INDIVIDUALIZING RESULTS	**Why is it Important**	**What to Look For**
What is the implication of study findings on your individual patient?	Studies report average results but the effect on your patient may not be average,	Strategies for individualizing results vary according to whether one is dealing with a study on therapy, diagnosis, causation or harm. Please see previous sections.