

Determining LOEs & SORs

Using the Center for Evidence-Based Medicine (CEBM) information below, locate the article's type of study in the column headings (top row of table on pg. 2.) Within that column, identify the specifics of the study to determine the **Level of Evidence** (Step 1, Step 2, etc.) Each article referenced will have its own LOE.

The **Strength of Recommendation** is determined based upon the LOEs of the articles used to determine the Evidence-Based Answer. This is also termed **Grading the Evidence**. Strength of Recommendation Taxonomy (SORT) is described in the small chart on pg. 4 and flow chart on pg. 5.

Abbreviations:

RCT = Randomized Control Trial, **CCS** = Case Controlled Study, **CS** = Cohort Study, **SR** = Systematic Review

Definitions:

Disease-oriented outcomes: These outcomes include intermediate, histopathologic, physiologic, or surrogate results (eg, blood sugar, blood pressure, flow rate, coronary plaque thickness) that may or may not reflect improvements in patient outcomes.

Patient-oriented outcomes: These are outcomes that matter to patients and help them live longer or better lives, including reduced morbidity, mortality, or symptoms, improved quality of life, or lower cost.

Level of evidence: The validity of an individual study is based on an assessment of its study design. According to some methodologies, 6 levels of evidence can refer not only to individual studies but also to the quality of evidence from multiple studies about a specific question or the quality of evidence supporting a clinical intervention. For simplicity and consistency in this proposal, we use the term level of evidence to refer to individual studies.

Strength of recommendation: The strength (or grade) of a recommendation for clinical practice is based on a body of evidence (typically more than 1 study). This approach takes into account the level of evidence of individual studies, the type of outcomes measured by these studies (patient-oriented or disease-oriented), the number, consistency, and coherence of the evidence as a whole, and the relationship between benefits, harms, and costs.

Practice guideline (evidence-based): These guidelines are recommendations for practice that involve a comprehensive search of the literature, an evaluation of the quality of individual studies, and recommendation grades that reflect the quality of the supporting evidence. All search, critical appraisal, and grading methods should be described explicitly and be replicable by similarly skilled authors.

Practice guideline (consensus): Consensus guidelines are recommendations for practice based on expert opinions that typically do not include a systematic search, an assessment of the quality of individual studies, or a system to label the strength of recommendations explicitly.

Research evidence: This evidence is presented in publications of original research, involving collection of original data or the systematic review of other original research publications. It does not include editorials, opinion pieces, or review articles (other than systematic reviews or meta-analyses).

Review article: A nonsystematic overview of a topic is a review article. In most cases, it is not based on an exhaustive, structured review of the literature and does not evaluate the quality of included studies systematically.

Systematic reviews and meta-analyses: A systematic review is a critical assessment of existing evidence that addresses a focused clinical question, includes a comprehensive literature search, appraises the quality of studies, and reports results in a systematic manner. If the studies report comparable quantitative data and have a low degree of variation in their findings, a meta-analysis can be performed to derive a summary estimate of effect.

Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step 1 (Level 1*)	Step 2 (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5*)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample**	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and Blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor" or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy? (Prognosis)	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case-control studies, or poor quality prognostic cohort study**	n/a
Does this intervention help? (Treatment Benefits)	Systematic review of randomized trials or n-of-1 trials	Randomized trial or observational study with dramatic effect	Non-randomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the COMMON harms? (Treatment Harms)	Systematic review of randomized trials, systematic review of nested case-control studies, n-of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	Individual randomized trial or (exceptionally) observational study with dramatic effect	Non-randomized controlled cohort/follow-up study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or n-of-1 trial	Randomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non-randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning

* Level may be graded down on the basis of study quality, imprecision, indirectness (study PICO does not match questions PICO), because of inconsistency between studies, or because the absolute effect size is very small; Level may be graded up if there is a large or very large effect size.

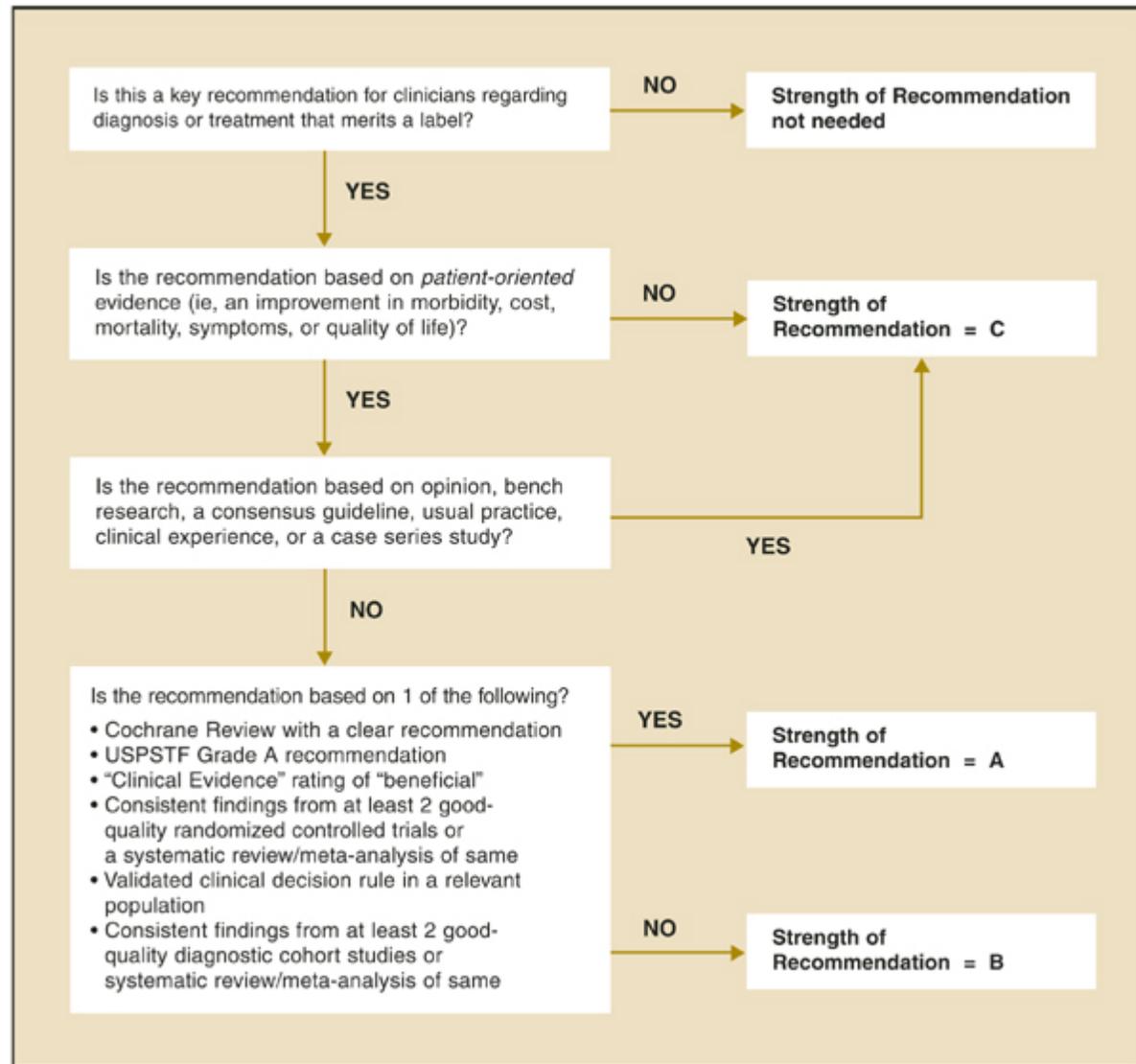
** As always, a systematic review is generally better than an individual study.

How to cite the Levels of Evidence Table

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* OCEBM Table of Evidence Working Group = Jeremy Howick, Iain Chalmers (James Lind Library), Paul Glasziou, Trish Greenhalgh, Carl Heneghan, Alessandro Liberati, Ivan Moschetti, Bob Phillips, Hazel Thornton, Olive Goddard and Mary Hodgkinson

Strength of Recommendation Taxonomy (SORT): A patient-centered approach to grading evidence in the medical literature



www.aafp.org/afp/20040201/548.html