Evidence-Based Medicine Resources

Relevance to clinical setting / Reduction of bias

Meta-analysis

Cochrane Database of Systematic Reviews

ACP Journal Club

PubMed (MEDLINE) – "AND" *meta-analysis* into your search. This will pick up *Meta-Analysis* as a MeSH term and as a publication type.

Systematic review

Cochrane Database of Systematic Reviews / ACP Journal Club

PubMed (MEDLINE) – Use the "Find Systematic Reviews" filter under Clinical Queries, or "AND" *systematic[sb]* into your search. (Note: the systematic reviews subset includes meta-analyses.)

Randomized controlled trial

ACP Journal Club / Cochrane Central Register of Controlled Trials (CCTR)

PubMed (MEDLINE) – Use the "Therapy" filter under Clinical Queries, or "AND" *randomized controlled trial* into your search. This will pick up *Randomized Controlled Trials* as a MeSH term and *Randomized Controlled Trial* as a publication type.

Cohort study

PubMed (MEDLINE) – "AND" *cohort study* into your search. This will pick up the MeSH term *Cohort Studies* and the more specific MeSH terms *Follow Up Studies, Longitudinal Studies,* and *Prospective Studies* under it.
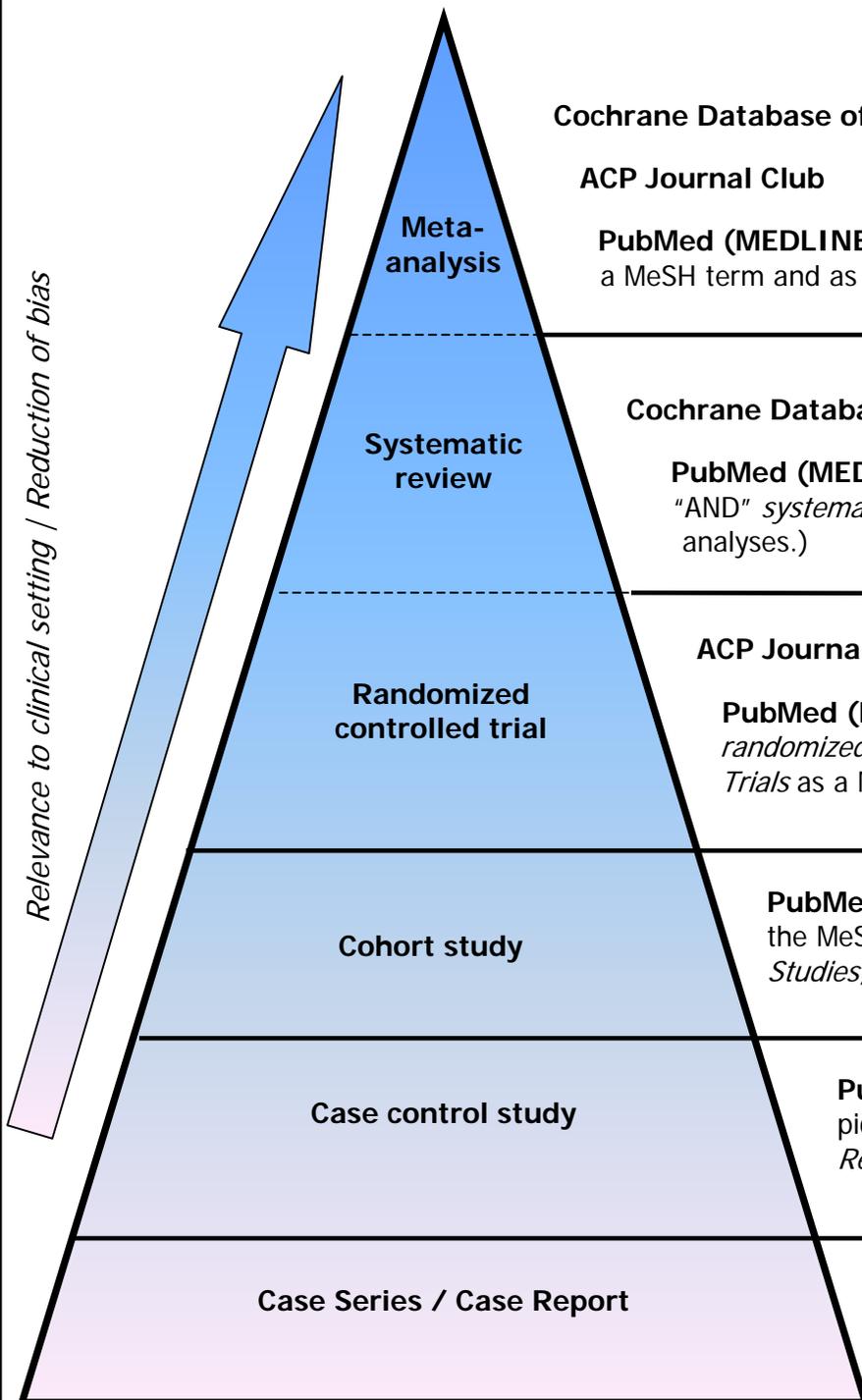
Case control study

PubMed (MEDLINE) – "AND" *case control study* into your search. This will pick up the MeSH term *Case-Control Studies* and the more specific MeSH term *Retrospective Studies* under it.

Case Series / Case Report

PubMed (MEDLINE) – "AND" *case report* into your search. This will pick up *Case Reports* as a publication type.

COMMON TYPES OF QUESTIONS:

Therapy -- how to select treatments to offer patients that do more good than harm and that are worth the efforts and costs of using them

Diagnostic Test -- how to select and interpret diagnostic tests, in order to confirm or exclude a diagnosis, based on considering their specificity, sensitivity, likelihood ratios, expense, safety, etc.

Prognosis -- how to estimate the patient's likely clinical course over time and anticipate likely complications of disease

Harm/Etiology -- how to identify causes for disease (including iatrogenic forms)

Prevention -- how to reduce the chance of disease by identifying and modifying risk factors and how to diagnose early by screening

Cost-Analysis -- how to compare the cost and consequences of different treatments and tests

Type of Study	Suggested best type of Study
Therapy	RCT (Randomized Controlled Trial)
Diagnosis Test	prospective, blind comparison to a gold standard
Prognosis	cohort study > case control > case series
Etiology/Harm	RCT> cohort > case control > case series
Prevention	RCT > cohort study > case control
Cost-analysis	economic analysis

Note: Questions of therapy and prevention, which can best be answered by an RCT, can also be answered by a meta-analysis or systematic review.

TYPES OF STUDY DESIGNS:

A **Meta-analysis** takes a systematic review one step further by combining all the results using accepted statistical methodology.

Systematic Reviews usually focuses on a specific clinical question and conducts an extensive literature search to identify studies with sound methodology. The studies are reviewed, assessed, and the results summarized according to the predetermined criteria of the review question.

Randomized, controlled clinical trials. A prospective, analytical, experimental study using primary data generated in the clinical environment. Individuals similar at the beginning are randomly allocated to two or more groups (treatment and control) and the outcomes of the groups are compared after sufficient follow-up time.

A study that shows the efficacy of a diagnostic test is called a **prospective, blind comparison to a gold standard study**. This is a controlled trial that looks at patients with varying degrees of an illness and administers both diagnostic tests -- the test under investigation and the "gold standard" test -- to *all* of the patients in the study.

Cohort studies identify a large population who already has a specific exposure or treatment, follows them over time (prospective), and compares outcomes with another group that has not been affected by the exposure or treatment being studied. Cohort studies are observational and not as reliable as randomized controlled studies, since the two groups may differ in ways other than in the variable under study.

Case control studies are studies in which patients who already have a specific condition or outcome are compared with people who do not. Researchers look back in time (retrospective) to identify possible exposures. They often rely on medical records and patient recall for data collection. These types of studies are often less reliable than randomized controlled trials and cohort studies because showing a statistical relationship does not mean than one factor necessarily caused the other.

Case series and **Case reports** consist of collections of reports on the treatment of individual patients or a report on a single patient. Because they are reports of cases and use no control groups with which to compare outcomes, they have no statistical validity.