

Hierarchy of Study Designs

<i>Type of Study</i>	<i>Suggested Best Type of Study Design</i>
Therapy	RCT > Cohort > Case Control > Case Series
Diagnosis	Prospective, blind comparison to a gold standard
Etiology/Harm	RCT > Cohort > Case Control > Case Series
Prognosis	Cohort Study > Case Control > Case Series
Prevention	RCT > Cohort Study > Case Control > Case Series
Clinical Exam	Prospective, blind comparison to gold standard
Cost	Economic analysis
Questions of therapy, etiology and prevention which can best be answered by a RCT can also be answered by a meta-analysis or systematic review	

Meta-analysis: a thorough examination of a number of valid studies on a topic with results combined using standard statistical methodology, as if they were from one large study.

Systematic Reviews: focus on a clinical topic and an answer to a specific question. Multiple studies are reviewed, assessed and the results summarized according to the predetermined criteria of the review question.

Randomized, controlled clinical trials: experimental projects that study the effect of a therapy on real patients. Methodologies used reduce the potential for bias (randomization and blinding) and allow for comparison between intervention groups and control groups.

Prospective, blind comparison to a gold standard study: studies that show the efficacy of a diagnostic test. 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* patients in the study group.

Cohort studies: Taking a large population and following, over time, patients with a specific condition or treatment; this group is compared with another group that has not been affected by the condition or treatment being studied. Cohort studies are observational and not as reliable as RCTs, since the two groups may differ in ways other than in the variable under study.

Case control studies: Patients who already have a specific condition are compared with people who do not. Medical records and patient recall are often used for data collection. Case control studies are less reliable than RCTs and cohort studies because showing a statistical relationship does not mean that one factor necessarily caused the other.

Case series and Case reports: Collections of reports on the treatment of individual patients or a report on a single patient. They have no statistical validity because they use no control groups with which to compare outcomes.