



# Best Evidence = Best Practice

## Etiology & Prognosis

Of the four clinical study categories where data-driven evidence is best found, two areas (diagnosis and therapy) are centered on the here and now – how do I know that my patient has X or now that I know my patient has X, what is the best course of action? The other two areas are etiology and prognosis and to locate good evidence in these categories, you need to look back (etiology) or forward (prognosis).

Other documents in this series point to, for example, the Randomized Controlled Trial (RCT) as the best possible clinical study to consult in looking for good evidence. While that can indeed be true for therapy and even diagnosis (comparing the effectiveness of a diagnostic tool), an RCT can be more problematic, especially in terms of ethics, in trying to determine causation or future outcomes. For example, if a researcher were to hypothesize that cigarette smoking caused lung disease, it would be unethical (and impractical) for that researcher to randomize one group to smoke for 10 years, another group to not smoke and to then compare outcomes at the conclusion.

This is why **prospective** and **retrospective** studies work well for etiological and prognostic clinical studies. They may have more variables and thus more bias than would an RCT but they are excellent at following a group of people forward or backwards in time. The clinical studies that best demonstrate prospective and retrospective investigation are the **cohort study** and the **case-control study**

**Cohort Study** = a study that examines two selected groups of individuals – one group **with** a risk factor and one group **without** – and follows the two groups forward in time to measure and determine specific outcomes.

**Case-Control Study** = a study that compares individuals that have been exposed to a risk in the past against an equal group that has **not** been exposed to the same risk. These two groups are then measured towards specific outcomes.

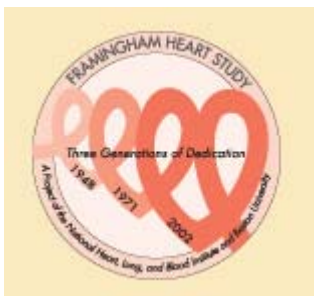
Results from **cohort studies** (and sometimes case-control studies) are often reported using **relative risk** and **odds ratios**.

**Relative Risk** = the likelihood of an exposed individual in a cohort developing a certain outcome versus the risk of an individual in the control cohort developing the same outcome.

**Odds Ratio** = a calculation showing the odds of risk between an exposed group versus a non-exposed group.

Visit this excellent site <http://tinyurl.com/5n4gvo>, hosted by the University of Alberta, for more detailed information on these two statistical calculations.

If you wish to study one of the best examples of a cohort study, look no further than the Framingham Heart Study, a cohort study that celebrated its 60<sup>th</sup> anniversary in 2008



<http://www.framinghamheartstudy.org/>