

Self-Paced Research Skills Module
(Edited September 2, 2016)

The ability to conduct effective clinical simulation research requires several skills including the familiarity with the principles of epidemiology and the fundamentals of statistical analysis.

Expected Learning Outcomes:

At the end of this course, the learner will be able to:

1. Define epidemiology.
2. Define a proportion.
3. Define and contrast incidence proportion (risk) with incidence rate.
4. List the most common epidemiologic study designs, and their strengths and limitations.
5. Calculate and interpret common measures of association such as the odds ratio, risk ratio, and the rate ratio.
6. Distinguish between random error and systematic error.
7. Appreciate that chance, bias, and/or confounding, rather than truth, can be the explanation of a study result.
8. Use p values and confidence intervals to determine if a result is statistically significant.
9. Perform a stratified analysis; that is, use stratification to control for a confounder.
10. Define effect-measure modification (known as effect modification or interaction to some scientists).
11. Interpret parameter estimates from linear regression and logistic regression models.

Text: *Epidemiology: An Introduction*, 2nd edition, by Kenneth J. Rothman, Oxford University Press, 2012.

Session	Lecture	Reading assignment/chapter in text by Rothman
1	Scientific inference	Chapters 1 through 3
2	Measures of disease frequency	4
3	Measures of effect	4
4	Cross-sectional studies	5
5	Case-control studies	5
6	Cohort studies	5
7	Clinical trials	Pages 242-249
8	Bias	7
9	P-values and confidence intervals	8
10	Stratified analysis	10
11	Linear and logistic regression	12