



Prerequisites

There are no prerequisites for this course.

Contents

Learning goals: To identify the historical figures and events that played a role in the evolution of epidemiology and public health; define epidemiology and explain its goals; and list the key features and uses of descriptive and analytical epidemiology.

Learning goals: To distinguish the different types of data; explain how to construct a frequency distribution; calculate and interpret the measures of central location: mode, median, and arithmetic mean; demonstrate how to apply the most appropriate measure of central location for a frequency distribution; and apply and interpret four measures of spread: range, interquartile range, standard deviation, and confidence interval (for mean).

Learning goals: To learn how to calculate and interpret the measures of disease occurrence: proportion, ratio and rate, prevalence and incidence proportion, incidence rate, and attack rate. A brief workshop (exercises and discussion) will help the students apply the lesson content.



Learning goals: This workshop (consisting of several exercises and discussion) aims to help the students apply the content of the previous lessons.

Learning goals: To explain the concepts of sample, population, and statistical inference; describe the practical procedures for hypothesis testing; discuss the types of statistical errors; and learn the basic parametric and non-parametric statistical methods used in medical research: one-sample t-test and sign test, two-sample t-test and two-sample Wilcoxon rank-sum (Mann-Whitney) test, paired t-test and matched-pairs Wilcoxon signed-rank test, chi squared test, as well as the correlation and linear regression analyses.

Learning goals: To define bias (systematic error); differentiate between the three types of bias: selection bias, misclassification/information bias, and confounding; identify the common sources of bias, and which types of studies are prone to which types of bias; distinguish between an association and a causal relationship; and describe and apply the Hill's criteria for judgment of causality.

Learning goals: To discuss which types of diseases are appropriate for screening; define, calculate and interpret the sensitivity, specificity, positive predictive value and negative predictive value of a screening test; and explain how the predictive value is influenced by prevalence of disease. A brief workshop (exercises and discussion) will help the students apply the lesson content.

Learning goals: To discuss the main concepts of systematic reviews and meta-analyses; explain how to interpret their results; and apply to a patient scenario.

Learning goals: To familiarize with current methodologic approaches for the guidance of clinical practice, discuss the OCEBM (Oxford Centre for Evidence-Based Medicine) Levels of Evidence that can be used by clinicians to find the likely best evidence and answer clinical questions quickly, and the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system for developing clinical practice guidelines.

Learning goals: To discuss the practical steps to develop a research protocol, and elements to address in a clinical trial protocol.

Learning goals: To discuss how to write a research paper for publication in a medical journal, how to submit an article for publication, and some practical tips for publishing.

Learning goals: To discuss ethics in research; focus on the moral principles that researchers must follow in clinical research; highlight the importance of ethical publishing; and outline the definitions of misconduct.

