Statistics for Healthcare Professionals

Introduction

Due to the rapid increase in the development of research-based and evidence-based practice in health care during the last two decades, statistics is unanimously becoming an essential part of medical research. It plays an essential role in all stages of quantitative health care research from design to statistical analysis and interpretation. For student undertaking health care education and those practicing as professionals in health care, understanding the statistical terms used in research is of paramount importance when evaluating research studies. Professionals in healthcare are expected to increase their knowledge in statistics to be able to design research studies, make decisions, collect and analyze data from medical experiments and interpret the results of the analyses.

This intensive short-course covers the essential principles and methods required to carry out good quality health care research. Emphasis is on statistical analysis and interpretation of results. The underlying concepts of statistical analysis as well as basic and some intermediate techniques are covered. Sessions include lectures with illustrations and computer applications to real data sets using the SPSS software.

Program outcomes

The course aims to teach health care researchers and practitioners the essential elements of biostatistics. The focus is mainly on statistical analysis, interpretation and understanding of appropriate methods. All topics will be illustrated with examples from the published literature. Participants will also have the opportunity during this course to learn how to analyze many data sets using the SPSS software.

At the end of the course the participants will be able to:

- Get familiar with SPSS
- Distinguish between different type of data encountered in medical research
- Use appropriate descriptive statistics and graphical tools
- Demonstrate common hypothesis testing such as mean and proportion comparisons
- Understand the concepts of decision making such as Pvalues and confidence intervals
- Calculate and interpret performance measures for diagnostic and prognostic tools such as sensitivity, specificity, positive and negative predictive values and ROC curves
- Formulate measures of association such as absolute and relative risks and odds ratio
- Use and interpret the most common statistical models for categorical and continuous data, including linear and logistic regression
- Analyze time to event data using tools in survival analysis such as Kaplan Meir and Cox proportional hazard model
- Select appropriate statistical methods for a given research question
- Review and criticize published research

Who should attend?
The course is relevant to all health care professionals and those in the health care field, who need to understand, use and carry out health care research studies. Material covered is of an introductory and intermediate level and provides some references and foundation for more advanced techniques.

Requirement for registration
The course does not require any previous knowledge in statistics or in SPSS.