

Analysis of data with non-detects

Description

Measurements below the detection limit (nondetects) are a common phenomenon in environmental and medical research. A common approach is to substitute a fraction of the detection limit for each nondetect. However, such substitution results in poor estimates of summary statistics and produces unrealistic standard errors in regression models.

The aim of the course is to provide participants with an understanding of the basic concepts in the analysis of data with nondetects. It will be demonstrated how substituting values for nondetects can ruin study results, and what can be done about it.

The course software will be R. Commands in Stata will be shortly described.

Main concepts to be covered include: estimating summary statistics with nondetects using Kaplan-Meier, ROS and maximum likelihood estimation (MLE), estimation of 95% confidence intervals, plotting data with nondetects (e.g. boxplots, probability plots), statistical tests with nondetects and regression analyses with nondetects.

Objectives

By the end of the course, participants will know the methods that can be used for analyses with data containing nondetects. They will be able to perform and evaluate own analyses of data with nondetects.

Dates

14.2.2011-16.2.2011 (15. 2. is reserved for homework)

Eligibility

The course is aimed at researchers, public health specialists and health care professionals who want to perform analyses of data with nondetects. This is an advanced statistical course. Participants should be familiar with basic statistical methods.

Course structure

This is a statistical methods course. We will follow a non-mathematical approach and focus on the practical application of the techniques on datasets from epidemiological research. The course will run over three days. On day 1 there will be interactive lectures and small computer practicals. On day 2 participants will be working on an exercise on their own or in small groups. Day 3 consists of interactive lectures and short presentations of the exercises (from day 2). Participants need to bring a laptop to the course. The statistical software R has to be installed.

Assessment

Active participation in the exercises, short presentation in workshops

Credits

1 ECTS

PhD Program Management:

Academic lead Prof. Charlotte Braun-Fahrlander
Program coordination Dr. Sina Henrichs
Administration: Nicole Bosshard

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<i>Facilitator</i>	Prof. Martin Rösli and Dr. Patrizia Frei
<i>Location</i>	Basel
<i>Course fee</i>	PhD in Public Health candidates registered with SSPH+ register free of charge Other PhD students: CHF 300.- Academics: CHF 850.-- Others: CHF 1250.—
<i>Registration</i>	Online at www.ispm-unibasel.ch/ssphplus
<i>DEADLINE</i>	15. January 2011

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