Regression Models
as a Tool in Medical Research

A web based distance learning course
February 19, 2015 – September 10, 2015

Aim: The participants should become familiar with the basic concepts and techniques in using regression models in medical research. They should be enabled to perform analyses of their own data, and to interpret, communicate and publish the results. They should also understand the basic potentials and limitations in using regression models and get some inspiration for a more effective and a more understandable use of regression models.

Target group: Postgraduate students and young researchers from the health sciences and related fields who want to work with regression models in their own research or wish to understand regression model based analyses found in the literature.

Topics covered: The basic interpretation and use of regression coefficients - Effect estimates, confidence intervals and p-values - Classical regression, logistic regression, Cox regression - Creating meaningful tables and graphs from a regression analysis - Adjusting for confounding - Categorical and ordinal covariates - Common pitfalls: Causality vs. association, relevance vs. significance, statistical models vs. real world models - Which variables should be in my model? - Sample selection and sample size - Effect modification and interactions - Non-linear effects and transformations - Constructing risk scores and predictors - The impact of measurement error and incomplete data - Comparing regression coefficients - Modern techniques: Robust inference, clustered data, longitudinal data - Alternatives to regression modelling.

All topics will be illustrated by examples from various fields of medical research like prognostic studies, epidemiological risk factor studies, experimental studies, diagnostic studies and observational studies.

Prerequisites: Only some basic knowledge of statistical terms like mean, p-value and confidence interval is required. Practical exercises will be based on the statistical package Stata.

Registration fee: Self-paying: 400 EURO (450 EURO including a 1 year Stata-license). Academic institutions / non-profit organizations: 600 EURO (650 EURO including a 1 year Stata-license). Commercial sector: 900 EURO (1000 EURO including a 1 year Stata-license).
For further information see the course home page at the International School of Quantitative Research:

https://www.isqr.uni-freiburg.de/regression-models-as-a-tool-in-medical-research-2015