Swiss Epidemiology Winter School 2019

Prognostic Research: Concepts and Models

January 21st – 23rd, 2019

Faculty	**Prof. Margaret May** Population Health Sciences, Bristol Medical School, University of Bristol, United Kingdom **Prof. Matthias Egger** Institute of Social and Preventive Medicine (ISPM), University of Bern, Switzerland
Venue	**CH – 3823 Wengen | SWITZERLAND** Bühlstube (see map on http://www.epi-winterschool.org/hotels)
Description	Prognosis is the probability that a specific event will occur in the future. Prognostic research is fundamental to clinical decision making, healthcare policy, and discovering new approaches to patient management. In this course we describe the basic concepts used to develop, validate, and implement a prognostic model in clinical practice and discuss how a web-based calculator might be constructed to give a useful decision-making tool. In addition we consider the reporting and impact of prognostic models and how the quality of prognostic research might be improved in order that prognostic information may be translated into clinically useful decision tools. In the statistical sessions we will guide you through the main steps in prognostic modelling. As well as using Cox and simple parametric survival models, you will be introduced to flexible parametric survival models in Stata as a powerful tool for fitting prognostic data. We will present methods to select prognostic variables and investigate their form with fractional polynomials, compare and choose candidate models using information criteria, and validate the chosen model. We will use splines to model prognostic factors whose effect varies over follow up time and will investigate interactions between predictors. Although statistical theory will be discussed in the lectures, the emphasis will be on practical application of the statistical methods. The practicals will give you experience of selecting prognostic factors and assessing them, choosing between different models, and fitting and validating a prognostic model.
Objectives	• By the end of this course participants will have: • An understanding of different types of prognostic research • An understanding of how prognosis is used in clinical decision making and in discovering new approaches to managing patients • Practical experience of analysing and assessing potential prognostic factors • Practical experience of developing and validating a prognostic model • An understanding of the quality of prognostic research and how it can be improved

Contact:
University of Bern | Institute of Social and Preventive Medicine
Mittelstrasse 43
3012 Bern | Switzerland
www.epi-winterschool.org | winterschool@ispm.unibe.ch

Target audience

The course is aimed at statisticians and clinical epidemiologists interested in prognostic modelling. There will be a mixture of lectures, group exercises and Stata practicals. The practicals assume a good working knowledge of Stata and some experience of standard survival analysis, for example, using the Cox or Weibull model.

Outline

The course will run over three days and consist of lectures, group work and computer practical sessions. We start early in the morning with a review of the previous day. During the extended break in the afternoon participants review course materials, catch up on emails or go skiing. We reconvene at 16.30 pm for the computer sessions.

Monday, January 21st (8:00 – 12:00 | 16:30 – 18:30)

- Welcome and introduction to the course. What is (and is not) prognostic research?
- Introducing different types of prognostic research and concepts
- Implementation of prognostic models on the web
- Statistical methods for identifying and using prognostic factors
- Modelling non-linear associations with fractional polynomials

Tuesday, January 22nd (8:00 – 12:00 | 16:30 – 18:30)

- Cox and parametric survival models and their use in prognostic modelling
- Introduction to flexible parametric survival models
- Reporting and impact of prognostic models
- Critical appraisal of the reporting of a prognostic model

Wednesday, January 23rd (8:00 – 12:00 | 16:30 – 18:30)

- Developing a prognostic model
- Interactions and time varying effects of prognostic factors
- Evaluating and validating a prognostic model
- Systematic reviews of prognostic research
-

Credits

1.0 ECTS

To bring along

Students should bring their own portable computers. A course license for Stata® will be available, to be installed before arrival. University of Bern IT staff onsite can provide help upon request per e-mail (it@ispm.unibe.ch)

Course fee

SSPH+ students:	CHF 0 *)
Academic:	CHF 900
Industry:	CHF 2000

*) except students from University of Geneva (cohort 4) and Lucerne

Registration

You can register on the Winter School website www.epi-winterschool.org.

Accomodation

Participants must book their accommodations themselves. Please see our recommendations on www.epi-winterschool.org/hotels for special prices.

Contact:
University of Bern | Institute of Social and Preventive Medicine
Mittelstrasse 43
3012 Bern | Switzerland
www.epi-winterschool.org | winterschool@ispm.unibe.ch