Introduction to Joint Modelling of Longitudinal and Time-to-Event data: a CPD module

Course overview

Real world datasets often include both longitudinal data (data repeatedly measured over time) and time-to-event data (the time until a specified event occurs). Often healthcare and research questions involve both longitudinal and time-to-event data. Analysis of both data types simultaneously requires use of joint models for longitudinal and time-to-event data (joint models). This course aims to provide grounding in the statistical concepts and methods for the simultaneous or joint analysis of longitudinal and time-to-event data. Course participants will also learn to apply these methods using R software and find out how to interpret their results. Course participants are requested to have access to a computer with R pre-installed so that they can take part in the R computer practicals.

Who should attend? Is it right for me?

This course is aimed at health and research professionals and postdoctoral students. It is suitable for those who have some background knowledge of longitudinal and time-to-event data (for example, through attending the Department of Health Data Science's "Introduction to Survival Analysis" and "Introduction to Longitudinal Data Analysis" courses). Some experience in R (for example, through the Department of Health Data Science's "Introduction to R") course would also be beneficial.

What will delegates learn?

By the end of this course delegates will:

- Be able to use various statistical methods to simultaneously summarise and analyse joint longitudinal and time-to-event data
- Have an appreciation of how to analyse joint data and interpret their results
- Have an understanding of how to use the R statistical software in this analysis

What does the course cover?

- Introduction to joint longitudinal and time-to-event data, including why and where it should be used
- Data visualisation techniques for joint data
- Modelling of joint longitudinal and time-to-event data, and interpretation of results
- Predictions from joint modelling
- Introduction to R software packages for joint modelling

Timetable

Time	Session
9.30-10:15	Introduction to joint data, and data visualisation **(recorded video)**
10:15-10:30	Introduction to joint data, and data visualisation R practical **Independent working with Live Q&A – TEAMS link to be provided**
10:30-11:30	Standard joint models **(recorded video)**
11.30-11.45	**BREAK**
11:45-12:30	Standard joint models R practical **Independent working with Live Q&A – TEAMS link to be provided**
12.30-13.30	**BREAK**
13:30-14:30	Interpretation of joint model fits **(recorded video)**
14:30-15:00	Prediction from joint model fits **(recorded video)**
15.00-15.15	**BREAK**
15:15-16:00	Prediction from joint model fits R practical **Independent working with Live Q&A – TEAMS link to be provided**
16:00-16:30	Examples of joint model applications **(recorded video)**
16.30-17.00	**Close with Live Q&A – TEAMS link to be provided**

To find out more

Contact Dr Maria Sudell in the Department of Health Data Science: mesudell@liverpool.ac.uk.

Alternatively, visit the department's website at https://www.liverpool.ac.uk/population-health/about/healthdatascience/.