✪ NEW ESPACOMP WORKSHOP 2018 ✪

Data analysis for medication adherence

Dublin, Thursday, November 29th, 2018 8:45-17:30

Workshop overview: Adherence to medications is usually estimated based on three data sources: electronic monitoring (EM), electronic healthcare databases (prescription, dispensing or claims data; EHD), or self-report (SR). There are numerous options available for data processing, which make it difficult for individual researchers to select the most appropriate options for their research question and study context. Moreover, although generic methods of data processing can be adapted to adherence analyses, there are numerous specificities, which researchers need to take into account. This workshop aims to provide the theoretical structure and practical tools for researchers to select processing methods and apply them to the analysis of adherence data in a transparent and reproducible manner.

Target population: This workshop is open and adapted to researchers who are familiar with fundamental statistics and data analysis (e.g. descriptive statistics, hypothesis testing) and who are interested to estimate adherence from EM, EHD or SR.

To help preparing the workshop content and targeting their needs, participants will be asked to provide information during registration (e.g. prior training and work experience in statistics; familiarity with R & R Studio; current/recent/future work with adherence data; interest to work with your own dataset in the practice session; expectations from the workshop)

Number of workshop participants: Minimum 15, Maximum 30

Learning objectives: By the end of the workshop, participants will be able to:

(1) describe the process of adherence to medications and its components, and how they apply to different research questions and study designs

(2) explain the different measurement options available from EM, EHD and SR

(3) calculate adherence to medications from EM and EHD using an R script (R: a language and environment for statistical computing; R Foundation for Statistical Computing, Vienna, Austria) and a prepared dataset.

Program: The day will start with a theoretical overview of adherence to medications, the most common research questions and study designs in adherence research, and the different options for measuring adherence based on EM, EHD and SR. Participants will be invited to apply these concepts to several hypothetical research questions, and discuss the practical implications of the different options.

The workshop will continue with several brief demo sessions illustrating R-based data analyses with EM and EHD. Participants will be required to use the datasets and code provided to run the analyses presented on their own computers and interpret the output.

In a final practical session, participants will be invited to examine the R code and identify elements that could be adapted for similar analyses in other datasets (existing or hypothetical). The participants will be guided to sketch a data analysis plan and modify the code provided to implement it to a new analysis.

Before the workshop, participants will be asked to download R and R Studio on their personal laptops, and select a dataset from their own research to analyze during the workshop (optional).

Timing: workshop starts at 8.45 and ends at 17.30.

Facilitators:

Alexandra Dima, University Claude Bernard Lyon 1, France, is a health psychology researcher whose work and publication record focuses on adherence to medication, as well as measure development and validation. She has experience in teaching and presenting on research methods and psychometrics.

Samuel Allemann, University Claude Bernard Lyon 1, France, is a pharmacist interested in the development and evaluation of pharmacy-related personalized patient care. In the field of adherence, his research focuses on adherence to polypharmacy and the assessment of temporal adherence patterns. He is experienced in data science and in the analysis of EM and EHR in R.

Marie Schneider*, University of Geneva, Switzerland, is a pharmacist, who has implemented an interprofessional medication adherence program for chronic patients in Switzerland using electronic monitoring. Since more than 10 years, she has been working in close collaboration with Isabella Locatelli in developing statistical longitudinal models to analyse routine-based cohort EM adherence data.

Isabella Locatelli, University of Lausanne, Switzerland, is a statistician working on several methodological aspects of clinical and epidemiological studies. She has been working in collaboration with Marie Schneider on medication adherence representation and estimation using EM longitudinal data. She has large experience in teaching statistics to medical students and health researchers.

Bernard Vrijens is Chief Executive Officer at AARDEX Group and Invited Professor of Biostatistics at the University of Liège, Belgium. He currently leads a research programme investigating (a) the most common errors in dosing using a simple but robust taxonomy, (b) particular dosing errors that can jeopardise the efficacy of a drug, and (c) the optimal measurement-guided medication management

programme that can enhance adherence to medications and maintain long-term persistence.

Ira Wilson is Chair of the Department of Health Services, Policy & Practice, Professor of Health Services, Policy & Practice, and Professor of Medicine at Brown University. He has developed and validated a 3-item scale for self-report of medication adherence (implementation), but also had extensive experience working with administrative pharmacy and medical claims.

*Not present on the day

Conflict of interest: The facilitators declare no conflict of interest in relation to the content of the proposed workshop.

Preliminary schedule

8.45-9.00	Registration and welcome	
9.00-10.45	1 ¾ hrs	Introduction to adherence measurement: - ABC taxonomy - EMERGE guidelines - Adherence process: events, periods, timelines - Data sources and context factors Practical: discussion of examples of medication event histories
10.45-11.00	15 min	*Break*
11.00-12.30	1 ½ hrs	Demo Electronic Monitoring data Practical: run analysis on the example dataset provided
12.30-13.30	1 hr	*Lunch break*
13.30-15.00	1 ½ hrs	Demo Electronic Healthcare Data Practical: run analysis on the example dataset provided
15.00-15.15	15 min	*Break*
15.15-16.45	1 ½ hrs	Practical: adapt code for analyses on other datasets, problem solving and general help.
16.45-17.30	45 min	Feedback, discussion and setting individual objectives