Erasmus MC
Universitair Medisch Centrum Rotterdam

Xpert Clinic

Handtherapie·NL

Data science in a day:

An introduction to analyzing real-world clinical data in hand and wrist disorders

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Erasmus MC, University Medical Center Rotterdam, the Netherlands

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Content

In this one-day, hands-on course for clinicians working in the field of hand and wrist disorders, we will provide you with basic insight in research methods, data processing, and analytic tools for big data on hand and wrist disorders. After introductory lessons, in small groups, you develop your own research questions and, using a unique dataset of more than 60.000 patients and a number of data science tools, answer these questions with the help of experienced data scientists.

In healthcare, there is an increasing presence of digital data, comprising patient outcomes collected in daily clinical care. These 'big data' can be extremely valuable for answering clinical questions on, for example, the expected outcome of specific treatments, the influence of patient- and disease characteristics on outcome, the effect of different treatments in similar patients, or the effect of a change in treatment policy.

While big data are widely accepted as potentially very valuable, using them for answering clinical questions can be challenging and requires a different approach than more experimental, small-scale, single-question clinical studies. Specific knowledge on the strengths and weaknesses of using real-world clinical data and on the specific research methodology is needed. In addition, analyzing large data sets with real-world clinical data requires modern tools and specific statistical analyses to provide valid answers to clinical questions.

Teaching goals:

- To understand the concept of big data in health care and specifically big data on hand and wrist disorders;
- To onderstand the strengths and weaknesses of using real-world clinical data compared to experimental data, such as data from randomized controlled trials
- To understand the common problems in analyzing big data sets, such as missing data and selection bias, and the main tools to handle these;
- To understand the basic principles of comparative effectiveness and prediction modeling research with clinical data;
- To know how to translate a general clinical question into a specific, answerable research question;
- To understand the research steps needed to answer specific research questions using large real-world clinical data using programming languages such as R.

What is the target audience for this course?
This course is primarily aimed at clinicians interested in learning about how big data can be used to answer clinical questions. However, clinicians from other fields, researchers, and policymakers can also participate. Because of the small scale working group format, professionals with varying levels of expertise in research methods, statistical analysis, and data science can participate and expand their knowledge on this topic.

Preparation
Although not obligatory, we will provide participants with reading material and instructional videos on basic statistical concepts and analysis tools that will be used during the course. Participants will be asked to suggest clinical questions related to hand and wrist disorders to be answered when routinely collected outcome data are available.

Core Faculty
Ruud Selles, Harm Slijper, Robbert Wouters, Mark van der Oest, Lisa Hoogendam, Joris Teunissen, and Jaimy Koopman.

Registration
Registration fee first edition: €50,- (future editions will be more expensive). Please register **here**.
Accreditation will be requested at KNMG, Keurmerk Fysiotherapie and others when needed.