ISPM Institute of Social and Preventive Medicine
BIHAM Berner Institut für Hausarztmedizin
CTU Clinical Trials Unit

UNIVERSITÄT BERN

The Bern Lectures

**Peter Jüni** is a Professor of Medicine and Clinical Trials at the Clinical Trial Service Unit and Epidemiological Studies Unit (CTSU) of the Nuffield Department of Population Health at the University of Oxford. He studied medicine at the University of Bern between 1988 and 1995 and then completed specialist training in General Internal Medicine at various Swiss hospitals. Between 1999 and 2006, he was a research fellow, later a senior research fellow at the Department of Social Medicine at the University of Bristol (UK).

After his return to Switzerland, he served as founding director of the University of Bern's clinical trials unit. In 2010, he was appointed Professor of Clinical Epidemiology and later became Director of the Institute of Social and Preventive Medicine and the Institute of Primary Health Care at the University of Bern. In 2016, he was appointed Professor of Medicine and Epidemiology at the University of Toronto (Canada), was awarded a Canada Research Chair in Clinical Epidemiology of Chronic Diseases and became Director of the Applied Health Research Centre. Between 2020 and 2022, he served as Scientific Director of the Ontario COVID-19 Science Advisory Table, advising Ontario's government and informing the public.

Peter's work has focused on methodological issues and on clinical trials and meta-analyses on the management of cardiovascular and musculoskeletal disorders. He has had leading roles in major cardiovascular trials, including FAME 2 and MATRIX, and co-authored several European guidelines on the management of cardiovascular disease and diabetes. He contributed to more than 500 papers and has been recognised as a highly cited researcher by the Institute for Scientific Information since 2015.

# «Bayesian methods for clinical trials: useful or just a distraction?»

In recent years, there has been a shift from frequentist statistical methods towards the application of Bayesian statistics in clinical trials, made possible by advancements in computing. The Bayes Theorem allows for the revision of prior probabilities based on current evidence, generating posterior probabilities. Markov Chain Monte Carlo (MCMC) techniques employ simulations to approximate complex integrals that are challenging to solve algebraically. Bayesian approaches offer the ability to formally incorporate multiple pieces of evidence as they accumulate over time, taking historical data into account when designing and analyzing a trial; making predictions that appropriately incorporate multiple sources of uncertainty during a trial; and planning flexible interim analyses for data monitoring to decide whether and when to stop a trial or adapt its sample size.