

Thursday 25 July 2024

09:00-12:30 Mini Symposium 2 (Room 2)

STRengthening Analytical Thinking for Observational Studies (STRATOS) initiative – recent progress and foci for the future

Organizers: Willi Sauerbrei and Els Goetghebeur in collaboration with the STRATOS Steering Group

On six foci for the future of STRATOS

Sauerbrei W, Carpenter J, Abrahamowicz M, van Geloven N, Gustafson P, Huebner M, Keogh R, Shaw P, Goetghebeur E for the STRATOS initiative

In this talk we discuss foci for the next 3 years of STRATOS research with the hope that further colleagues may support the initiative. More details were recently published (Carpenter et al, 2023, Biometric Bulletin 40(4), 7-9; available on the website)

Future foci

1. Simulation studies. Simulation studies are key tools for validating and comparing statistical methods, and hence critical to the development of evidence-based statistical guidance. STRATOS will maintain a focus on simulation studies and prioritize improving their methodology over the coming years.
2. Open science. The importance of open science is evident, but it is an extremely broad topic, and still in its infancy. For some challenges we will work on accessible guidance for making research more transparent, reproducible and hence credible.
3. Initial Data analysis (IDA). The 'Initial data analysis' TG3 aims to improve awareness of IDA as a critical component of the research process, and develop guidance on conducting IDA in a systematic, reproducible manner. Some issues will be discussed in the talk by CO Schmidt.
4. Machine learning (ML) enhanced statistical methods. While ML methodologies promise quick automated data driven answers to many questions, it is obvious that both ML and established statistical methodologies have their specific strengths and weaknesses. Each could benefit from the insights offered by the other. How to do that best and when is not obvious. We plan to identify the ML enhanced statistical methods that are most important for different TG's, and systematically assess their properties in realistic settings.
5. Estimands in observational data analysis. The term 'estimand' essentially refers to what is being estimated and for whom. In the trials context, the ICH E9 addendum (ICH, 2019) formally defines it in terms of five components which make for clear targets and more transparent reporting. The insights and benefits which the estimands framework is bringing to trials research are equally needed in observational studies, where much of the relevant methodological expertise was originally developed. This topic is discussed in a parallel mini-symposium with a contribution from a STRATOS project.

6. More guidance for researchers with limited statistical knowledge and experience From the beginning, STRATOS highlighted that many methodological developments are not implemented in practice. Lack of guidance on practical issues is presumed to be an important hurdle. Researchers with only basic statistical knowledge and limited experience in using statistical methodology need much more help

proportional hazards model