

Biostatistical Analysis in Epidemiological Research

1st – 2nd October 2015

Faculty of Medicine, "Lucian Blaga" University of Sibiu

Invited speakers:

Willi Sauerbrei - "Research in the health sciences needs improvement – on statistical methods as one relevant component and progress through recent initiatives" and "Recognizing Differential Subgroups Treatment Effects: Problems and Solutions in Modelling Continuous Covariates"

Marius Mărușteri - "Common and Less Common Errors in Epidemiological Research"

Course Evaluation

Prepared by Anca Vitcu

The foundation of the lecture "**Research in the health sciences needs improvement – on statistical methods as one relevant component and progress through recent initiatives**" proposed by prof. Sauerbrei was built on a set of key methodological issues in medical science regarding design, analysis and reporting phases. A broad collection of papers which mirror these deficiencies was cited and explained with examples from different areas involving comparisons in the theoretical models and their effects in particular real-world problems. The approach helped to illustrate the ground on which the need of coherent guidelines for different areas and levels of statistical knowledge to improve the situation burst out. A selection of current initiatives involving remarkable teams of experienced statisticians strongly documented with their aims, sound actions and outcomes including recommendations for some of them was presented, among which STRATOS. Structured as an international network of experts, designed as a courageous vision, STRATOS lays important cornerstones for new ideas researches come up with in the support of a tremendous call in the improvement of health research. It was a very well-designed presentation, an outstanding lecture thoroughly documented.

The second topic envisaged by prof. Sauerbrei was the "**Recognizing Differential Subgroups Treatment Effects: Problems and Solutions in Modelling Continuous Covariates**". The purpose of the lecture was to cover the main aspects of the complex issues on modelling of continuous covariates by using fractional polynomials (MFP) and the extension to the inclusion of interactions between predictors (MFPI). The methodological complications related to identifying and modelling interactions with continuous variables were clustered around a sequence of practical examples considered in a way accessible to an audience familiar and unfamiliar alike with the subject.

An alternative approach, STEPP was also considered.

The lecture closed with the presentation of the ICEM study, a novel meta-analysis combining continuous treatment effect functions (TEF) derived by MFPI method independently in a number of RCTs with the aim to avoid categorization-based subgroup analyses and evaluate the interaction among TEF and continuous baseline patient traits.

This second lecture was a summary of the work developed by prof. Sauerbrei and prof. Royston built on a bright logic which can be easily followed.

The ISCB event held in Sibiu also included a presentation of prof. Măruți on the "**Common and Less Common Errors in Epidemiological Research**" specifically addressed to the biased reporting, integrity and ethics reflected in several well-known journals. The lecture addressed those involved in epidemiological studies focusing on the most important mistakes that can occur in this area, both in terms of design as well as in scientific findings. In addition, the presentation aimed to reveal the significant number of mistakes of this kind present in the mainstream publications recorded in major databases. Some of serious scientometric pitfalls which epidemic spread in the academic evaluation system were as well discussed. A very well articulated analysis, an excellent presentation equally useful to researches, students and members of the academic board.

Final conclusions

All in all, the ISCB event held in Sibiu, at the Faculty of Medicine (ULBS), during 1st-2nd October 2015, addressed to an audience composed of biostatisticians and medical researchers, PhD. students and members of the academic community endowed more or less with decision-making influence, was appreciated as remarkable. It was that sort of happening from which you have a lot of things to learn from. A sequence of lectures which we strongly recommend to be included in the list of ISCB short-courses.

The colleagues who were not able to participate at the discussions received the complete documentation, were briefed on the main issues of the topics, and in their turn expressed their opinion about the information received. The evaluation of the ISCB event in its entirety is presented in table below:

	Content	Examples	Documentation	Discussions
No. participants	42	42	42	41
Average evaluation score *)	4.7	4.6	4.7	4.5

*) 5 – Excellent, 4 – Very good, 3 – Good, 2 – Satisfactory, 1 – Poor

- 26 of 41 participants asserted that their **expectations** were **met**, 15 considered them **exceeded**;
- the length of the course was considered correct by all the participants and strongly recommended.

Organizing Committee (ISCB-RNG):

Elisabeta Antonescu (Faculty of Medicine, "Lucian Blaga" University, Sibiu), Member

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