

Joint HKBU-Wuhan Workshop on Meta-analysis and Evidence-based Medicine

Date: 06 December 2016 (Tuesday)

Time: 14:00 – 17:20

Venue: FSC 1217, Fong Shu Chuen Library
Ho Sin Hang Campus
Hong Kong Baptist University

Xiantao Zeng (Zhongnan Hospital of Wuhan University), 14:00-14:30

Title: How to choose and translate research topics on the basis of clinical practice

Abstract: In the era of evidence-based medicine (EBM), the "evidence" is the core for decision-making to support best healthcare and resource allocation. Beyond doubt, to generate trustable and useful evidence, how to choose a good and significant research topic based on and relevant to clinical practice and application, is a key issue and also the challenge for clinicians and medical investigators. In this presentation, I would like to share my experience and thoughts, from the perspective of a healthcare professional, in terms of how to choose an appropriate and feasible topic, how to translate conceptions and ideas to answerable questions and valuable findings. After the presentation, I would like to discuss on the possibility of cooperation between our two teams in the future.

Xiang Wan (Hong Kong Baptist University), 14:30-15:00

Title: IGESS: A Statistical Approach to Integrating Individual Level Genotype Data and Summary Statistics in Genome Wide Association Studies

Abstract: Recent genome-wide association studies (GWAS) suggests that a complex phenotype is often affected by many variants with small effects, known as "polygenicity". Tens of thousands of samples are often required to ensure statistical power of identifying these variants with small effects. In this study, we propose a statistical approach, IGESS, to increasing statistical power of identifying risk variants and improving accuracy of risk prediction by integrating individual level genotype data and summary statistics. An efficient algorithm based on variational inference is developed to handle genome-wide-scale analysis. Through comprehensive simulation studies, we demonstrated the advantages of IGESS over the methods which take either individual level data or summary statistics data as input. We applied IGESS to perform integrative analysis of Crohn's Disease from WTCCC and summary statistics from other studies. IGESS was able to significantly increase statistical power of identifying risk variants and improve risk prediction accuracy.

Xiaohong Yin (Zhongnan Hospital of Wuhan University), 15:00-15:30

Title: Basics of meta-analysis

Abstract: In this presentation, I would like to summarize the elementary flow of conducting a meta-analysis to synthesize medical evidence, along with an illustrated example. I will address some fundamental questions including (1) what is meta-analysis? (2) why is meta-analysis important? (3) when can we conduct a meta-analysis? and (4) which effect measure should we choose? I will also introduce the key steps in conducting a meta-analysis. Specifically, we need to construct a database to tabulate summary data, check for heterogeneity and perform a meta-analysis, evaluate the impact of study quality on results, explore the potential for publication bias, and interpret the results and draw conclusions.

Break: 15:30-15:50

Chao Zhang (Taihe Hospital of Hubei University of Medicine), 15:50-16:20

Title: An introduction to the methodology in network meta-analysis

Abstract: Indirect comparisons between interventions have been frequently conducted in meta-analytic studies during the last few years. The increasing need to compare more than two alternative treatments and classify them according to their relative effectiveness or safety has underpinned the rapid development of network meta-analysis (NMA). NMA has become one of the important sources of evidence in evidence-based medical, and evidence from NMA is essential in evidence-based decision-making. This lecture will include the following content: the history of NMA, the introduction of methodology and software, the GRADE system applied NMA.

Xiangyu Meng (Zhongnan Hospital of Wuhan University), 16:20-16:50

Title: Reconstructing IPD for TTE outcomes for secondary analysis of medical data

Abstract: Original study reports on time-to-event (TTE) outcomes generally focus on median time to event and hazard ratio. In this paper, we introduce an approach to recreating individual patient data (IPD) for TTE outcomes, based upon digitized Kaplan-Meier curve, number of subjects at risk at given time points and total number of events occurred during the entire follow-up, utilizing the statistical software R as the analysis environment.

Dehui Luo (Hong Kong Baptist University), 16:50-17:20

Title: Optimally estimating the sample mean from the sample size, median, mid-range and/or mid-quartile range

Abstract: Meta-analysis is a statistical technique widely used in evidence-based medicine for analytically combining the findings from independent clinical trials to provide an overall estimation of a treatment effectiveness. The sample mean and standard deviation are two commonly used statistics in meta-analysis but some trials use the median, the minimum and maximum values, or sometimes the first and third quartiles to report the results. To pool results in a consistent format, researchers need to transform those information back to the sample mean and standard deviation. Our work is to develop the optimal estimation of the sample mean for meta-analysis from both theoretical and empirical perspectives. Our proposed estimators not only improve the existing ones significantly but also share the same virtue of the simplicity. Finally, I would also like to present our current work on developing a pre-test for symmetry to help researchers select appropriate data to conduct meta-analysis.

- All interested are welcome -

For further information, please visit
<http://www.math.hkbu.edu.hk/src/workshop/HKBU-Wuhan-Dec16.pdf>,
or call 3411-2347.