Malaysian Association of Clinical Biochemists

Hands-on course on multivariate statistical data analyses for clinical research with Kiyoshi Ichihara.

This seminar will introduce an all-purpose visual statistical software. It was first released in 1990 and has long been used in Japan with stepwise improvement up to the the current 7th version. It features

- visualization of datasets with built-in autographic capability,
- 3D-datasheet with changeable data-view,
- easy-to-use statistical interfaces, which cover all the necessary statistical functions required for clinical research.

Limited Seats Available!!

Participants are limited to 40 pax

7th September 2023

Venue

Universiti Malaya Medical Centre
Jln Profesor Diraja Ungku Aziz, Seksyen 13,
50603 Petaling Jaya, Selangor

Registration Fee

Free Registration

Dr. Kiyoshi Ichihara, MD & PhD, is an emeritus professor of Yamaguchi University since 2016, and remains fully active in academic research as a senior researcher of the university. He has been in the field of laboratory medicine and clinical chemistry since graduation from Yamaguchi University Medical School in 1975. He has been publishing 161 original papers in international journals, on topics of clinical endocrinology and immunoassays for the first 16 years, then on theories and methodologies for derivation of reference intervals (RIs) and laboratory quality controls. He is an author of popular statistical textbooks and soft wares (StatFlex) in Japan since 1990 with his expertise in biostatistics and computer-programming. He contributed to international scientific activities as a member of Committee on Plasma Protein (2003-8), as a chair of IFCC Committee on Reference Intervals and Decision Limits (2010-15), and the Scientific Committee of Asia-Pacific Federation of Clinical Biochemistry (APFCB) (2007-16). He has been coordinating a global multicenter study on reference values involving 19 countries since 2011. His most recent research is development of AI-based derivation of reference intervals from routine laboratory database.

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MACB WORKSHOP

Hands-on course on multivariate statistical data analyses for clinical research with Kiyoshi Ichihara.

In the seminar, the basic theory on how MRA or MLRA can solve biases by disentangling between-parameter complexities. For clear understanding, multiple real-world example datasets will be provided for practicum. The visualization function and 3D-datasheet capability of StatFlex will facilitate understanding of the theory and practical utility of MRA and MLRA. The latter will be often used for datasets obtained from a case-control study that aims at finding a parameter useful for the diagnosis. As a special case, when only single diagnostic parameter is involved in the analysis, univariate logistic regression analysis is equivalent to the so-called ROC analysis. Therefore, theory and practice on ROC analysis will proceed those of MLRA for ease of understanding.

About the Workshop

Using the software as a practical tool, this seminar will provide an introductory course on multivariate analyses. We will cover two most frequently used techniques called multiple regression analysis (MRA) and multiple logistic regression analysis (MLRA). They are frequently used to clarify relationships among parameters in datasets obtained from observational studies. Because of complexities among the relationships, analytical biased called “confounding” and “interaction” are inevitable

Topics

Installation and introduction of the software (StatFlex Ver 7 in English) (60 mins)

- The scheme of the software as a tool for data-science
- Functions and user-interface designs specific to StatFlex

Statistical framework of clinical research (60 mins)

- Experimental study vs. observational study
- Bias in clinical research: confounding and interaction

Multiple regression analyses (120 mins)

- Univariate vs. multivariate regression
- How to interpret the regression coefficient
- How to select explanatory variables (forward selection vs. backward elimination)
- Measures to cope with influential data and multicollinearity

Diagnostic utility of clinical/laboratory measures (60 mins)

- Design of the case-control study
- Specificity/Sensitivity, likelihood vs odds ratio, and ROC analysis
- How to determine cutoff value

Multivariate logistic regression analysis (60 mins)

- Univariate vs multivariate logistic regression
- How to interpret the regression coefficient: odds ratio
- How to predict the probability of belonging to the disease

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REGISTER NOW!