

S4.2

Clinical Applications of Big Data

16:15 Convention Hall C

**Biostatistics Approach to Big Data in Medical Device Development – Automatic Retinal Image Analysis as an Example***Zee B, Lee J, Chong M, Wang M, Kwok C, Lai M**Division of Biostatistics, Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong*

Advances in science and technology will bring many new treatments and diagnostics to the healthcare world. It is equally important to extend the innovation and technology advancements for disease prevention, health promotion, and health systems for prolonging life and improving quality of life in the general population. However, the healthcare demands of the public and the costs to achieve high standard from the healthcare providers are continuously increasing. Effective methods for disease prevention and monitoring would save lives and improve quality of life, reduce the risk of developing serious conditions or complications, and if appropriately utilise, it would reduce healthcare expenditure. Innovative approaches to health information management and in particular innovative disease monitoring techniques are therefore important to ensure that our healthcare services are affordable, accessible, and available both in the hospital and in the community.

In this presentation, we will discuss new biostatistics approaches and research on developments using: (1) cloud and internet computing; (2) mobile health management; (3) machine learning and predictive analytic methods; and (4) automation approach for potential applications that contribute to solving part of the public health problems. We would discuss our own projects, including some of the older projects that were not as successful due to various reasons, and also the “Automatic Retinal Image Analysis (ARIA)” method for stroke risk assessment, early dementia and other vascular related indications as a relatively more successful example. The aim of this presentation is to foster communication for more fruitful collaboration between healthcare professionals and biostatisticians.