
# SYMPOSIA ABSTRACTS/SUMMARIES

## *SUNDAY 28 OCTOBER 2018, 10:15-11:45*

### SYMPOSIUM 1: REAL WORLD EVIDENCE OR CLINICAL TRIALS? WHICH SHOULD I BELIEVE?

Much is made of the fact that pharmacoepidemiology studies often produce different results to those from randomised clinical trials (RCTs) of the same medicines. Some people contend that bias and confounding mean that results from observational studies cannot be trusted. Others argue that the RCT population is too restricted and too homogenous to provide meaningful results about how the medicine will perform in real life. They also argue that medicine practiced in the centres of excellence which typically perform CTs may be very different from that practiced in areas far from these centres.

Regulators are interested in RCTs to understand whether the new medicine has efficacy, whilst health technology assessment bodies, payers, physicians and patients want to know how the medicine will perform in real life. But the Real World Evidence requires Real World Use, so decisions are often made on the basis of less than ideal or complete evidence.

This symposium will look at different aspects of the problem from three different viewpoints followed by a panel discussion.

## *SUNDAY 28 OCTOBER 2018, 13:30-15:00*

### SYMPOSIUM 2: THE NEW ADVANCEMENTS, STRENGTH AND LIMITATIONS ON OBSERVATIONAL DRUG EFFECT STUDIES BASED ON LARGE HEALTHCARE DATABASES

On December 8, 2016, the New England Journal of Medicine published a sounding board on Real World Evidence (RWE) by the US Food and Drug Administration (FDA) leadership (Sherman, R.E. et al. Real-world evidence — What is it and what can it tell us?, N. Engl. J. Med. 375, 2293–2297, December 8, 2016). While the value of RWE based on nonrandomized observational studies was appreciated, the authors expressed concerns on the quality of data sources and the ability of methodologies to control for confounding.

This symposium will focus on the following aspects

- With the application of propensity score methodology and analytic techniques, non-randomized observational study is able to consistently generate valid effect estimates when benchmarked against results expected from RCTs. In a big data setting, new technologies including machine learning are valuable in identifying potential confounding variables to be included in propensity score models.
- The rapidly evolving technologies, such as probabilistic data linkage and machine learning, supporting linkage across multiple sources of information including claims, registries, EMRs and biobanks, greatly broaden data sources and improve data quality.
- The use of multiple imputation with chained equations in combination with other analytic techniques, e.g., marginal structure model (MSM), have improved the way we deal with incomplete or missing data on important confounding variables and improved adjustment of confounding in time-dependent covariates.
- Novel methods such as instrumental variable analyses may help in the context of unmeasured confounding, however, ongoing work is required to explore their application in medication safety research.
- Finally, sensitivity analyses can help researchers understand the robustness of results just as such analyses play a role in RCTs.

## *SUNDAY 28 OCTOBER 2018, 15:30-17:00*

### SYMPOSIUM 3: HETEROGENEITY AND VALIDITY IN NATIONAL AND INTERNATIONAL MULTI-DATABASES PHARMACOEPIDEMIOLOGIC STUDIES (MPES): LESSONS LEARNED IN NORTH AMERICA, EUROPE AND ASIA

Multi-Database pharmacoepidemiologic studies (MPES) provide opportunities to assess safety and effectiveness with greater statistical power within a country or across multiple countries. However, substantial heterogeneity among databases might exist due to technical differences in coding and recording across databases and/or cultural, genetic, behavioural and healthcare system/policy differences across regions, populations, and countries. This is one of the biggest challenges in MPES and how investigators deal with the heterogeneity affects the validity of results from MPES. Four presenters will address these topics and the session will end with panel discussion to bring participants toward consensus on the best practices for MPES regarding validity issues and dealing with heterogeneity among countries.

## *MONDAY 29 OCTOBER 2018, 08:30-10:00*

### MULTI-NATIONAL PHARMACOEPIDEMIOLOGY STUDY IN THE ASIA-PACIFIC REGION: THE APPLICATION OF DISTRIBUTED NETWORK APPROACH IN THE ASPEN

The Asian Pharmacoepidemiology Network (AsPEN) has been established for 10 years. We have developed a data research network of over 8 different Asian countries covering over 1.7 billion patients. AsPEN provides not only a platform for multi-database pharmacoepidemiologic studies but also the unique opportunity for researchers to share and to learn from other AsPEN members. The way forward is still full of challenges.

The AsPEN applied a “modified” distributed network approach in conducting multi-national pharmacoepidemiological studies. The approach consists of the following components:

1. Distributed Network: Raw data are located in the individual sites throughout the study and only summarised results and/or tables will be sent to the coordinating centre.
2. Common data structure/model: Data with the common structure are prepared by the individual study sites under the instruction of the coordinating centre that in charge of the individual study. Data structure could be unique to the individual study and may differ between different studies. A universal common data model based on the OMOP common data model framework has been built in some AsPEN sites, in which the sites had transformed the raw data into a standardised data structure.
3. Single analytic programme: A single analytic programme will be developed by the coordinating centre. The script will be circulated to the participating sites. Each site will then run the same script on the data with common structure to yield summarised results. Results from all sites will be sent to the coordinating centre and will be pooled and analysed.

## *MONDAY 29 OCTOBER 2018, 13:15-14:45*

### SYMPOSIUM 4: OPPORTUNITIES OF PHARMACOEPIDEMIOLOGISTS IN PRECISION MEDICINE IN CHINA

As the continuous and follow up discussion from ACPE10 and Toronto ISPE mid-year meeting, this workshop will provide opportunities for ISPE members to gain additional insights on precision medicine and its application in pharmacoepidemiology research, and discuss on the unique opportunities, resources, and challenges in China and Asia. The differences in disease burden in Asia compared to western world are likely to be very closely associated with genetics (in additional to environmental exposure), and hence precision medicine will become ever more important.

China provides unique opportunities for precision medicine research, including a varied geography and a large population presenting with many different diseases, both common and rare. There are several large cohort studies have been collecting genetic materials or information, and more and more researchers start banking biological samples for future research. However, the application of precision medicine in pharmacoepidemiology is still limited.

***MONDAY 29 OCTOBER 2018, 15:15-16:40***

## SYMPOSIUM 5: REAL WORLD DATA AND REAL WORLD EVIDENCE FOR EVALUATING DRUG SAFETY AND EFFECTIVENESS: EVOLUTION, DEVELOPMENT, AND PERSPECTIVE IN CHINA, JAPAN, AND US

Using real world data (RWD) to generate evidence for assessing usage and benefits/risks of a medical product has significant public health impact and is therefore one of the important challenges facing the regulators, pharmaceutical industry, and the public. In the past 10 years, several important initiatives at national level in China, Japan, and US have been launched to actively monitor the safety of marketed medical products using RWD. Newly developed national active surveillance systems, emerging electronic healthcare data sources, novel methods for RWD extraction and analysis, and innovative data linkage and network collaborations have provided not only new opportunities for post-approval pharmacovigilance, but also great national resources and lessons learnt for generating evidence in supporting effectiveness and patient centric research.

This symposium will initially set out the rationale and importance of using real world data and real world evidence for evaluating drug effectiveness and safety from the perspective of regulator in China. Then experienced regulatory and academic research groups will describe specific initiatives/projects in active drug safety surveillance and other areas, their applications, regulatory impact, as well lessons learnt from the implementations. The moderators will facilitate an interactive discussion with the audience exploring the feasibility, applications, perspectives, and challenges in such work.