OHDSI Taiwan – Past, Present and Future

Jason C. Hsu

Chair, Local Host Committee of the 2022 OHDSI APAC Symposium
Associate Professor, Taipei Medical University, Taiwan
Director, Clinical Data Center, Office of Data Science, Taipei Medical University
Outline

1. TMU’s Journey to OHDSI

2. Present Status of OHDSI Taiwan

3. The future of OHDSI Taiwan
1. TMU’s Journey to OHDSI
OHDSI Taiwan’s History (2020.09-2021.12)

1st APAC Steering Committee Meeting
2020.09

OHDSI Transnational Cooperation Project (antihypertensive drugs)
2020.10

Prof. Ian Wong's Online Speaking (Anticoagulant Drugs)
2020.09

Complete OHDSI OMOP CDM
Establish OHDSI Taiwan Chapter
2020.12

TMUCRD – OHDSI OMOP CDM (meetings & courses)
2020.09

2020 OHDSI APAC Symposium (virtually)
(Poster about TMUCRD)
2020.12

2020 OHDSI APAC Symposium (virtually)
(Poster about TMUCRD)
OHDSI Taiwan’s History (2021.01-2021.12)

1st APAC Community Call

2021 OHDSI Global Symposium (virtually)

2021 OHDSI APAC Symposium (virtually)

2021.03

OHDSI Taiwan Chapter Website (the 1st version)

2020.10

Apply to the Taiwan government to establish OHDSI Taiwan Society

2021.09

2020.11

2021.01

2020.10
OHDSI Taiwan’s History (2022.01-2022.11)

Preparatory committee for OHDSI Taiwan Society

OHDSI Taiwan Society established & 1st Core Committee Election

2022 OHDSI APAC Symposium in Taiwan (Hybrid)

31 members

2022.03

2022.08

2022.11

2022.05

To host 2022 OHDSI APAC Symposium (Local kick-off meeting)

2022.10

2022 OHDSI Global Symposium (in Person)
Observational Health Data Sciences and Informatics (OHDSI): Opportunities for Observational Researchers

George Hripcsak, Jon D. Duke, Nigam H. Shah, Christian G. Reich, Vojtech Huser, Martijn J. Schuemie, Marc A. Suchard, Rae Woong Park, Ian Chi Kei Wong, Peter R. Rijnbeek, Johan van der Leij, Nicole Pratt, G. Niklas Norén, Yu-Chuan Li, Paul E. Stang, David Madigan, Patrick B. Ryan

*Department of Biomedical Informatics, Columbia University Medical Center, New York, NY, USA
b Regenstrief Institute, Indianapolis, IN, USA
c Center for Biomedical Informatics Research, Stanford University, CA, USA
d AstraZeneca PLC, Waltham, MA, USA
e NIH Clinical Center, Bethesda, MD, USA
f Centre for Safe Medication Practice and Research, Dept. of Pharmacology and Pharmacy, University of Hong Kong, Hong Kong
g Janssen Research & Development, LLC, Titusville, NJ, USA
h Dept. of Biostatistics & Dept. of Human Genetics, David Geffen School of Medicine, Univ. of California, Los Angeles, CA, USA
i Department of Biomedical Informatics, Ajou University School of Medicine, Suwon, Republic of Korea
j Department of Medical Informatics, Erasmus University Medical Center, Rotterdam, The Netherlands
k School of Pharmacy and Medical Sciences, University of South Australia, Australia
l Uppsala Monitoring Centre, WHO Collaborating Centre for International Drug Monitoring, Uppsala, Sweden
m College of Medical Science and Technology (CeMST), Taipei Medical University, Taipei, Taiwan
n Department of Statistics, Columbia University, New York, NY, USA
Research and Applications

Uncovering exposures responsible for birth season – disease effects: a global study

Mary Regina Boland,1,2,3,4,5,6 Pradipta Parhi,7 Li Li,8,9 Riccardo Miotto,8,9 Robert Carroll,10 Usman Iqbal,6,11,12 Phung-Anh (Alex) Nguyen,6,11,13 Martijn Schuemie,6,14 Seng Chan You,6,10 Donahue Smith,15 Sean Mooney,16 Patrick Ryan,15,16 Yu-Chuan (Jacki) Li,6,12,13 Rae Woong Park,6,15 Josh Denny,10,17 Joel T Dudley,8,9 George Hripcsak,5,6 Pierre Gentine,7 and Nicholas P Tatonetti5,6
Application of a Common Data Model (CDM) to rank the paediatric user and prescription prevalence of 15 different drug classes in South Korea, Hong Kong, Taiwan, Japan and Australia: an observational, descriptive study

Ruth Brauer, Ian Chi Kei Wong, Kenneth KC Man, Nicole L Pratt, Rae Woong Park, Soo-Yeon Cho, Yu-Chuan (Jack) Li, Osman Iqbal, Phung-Anh Alex Nguyen, Martijn Schuemie
Hypertension Medication Utilization and Outcomes

11 databases from 8 countries (2020 OHDSI Symposium)

A Comprehensive Comparative Effectiveness and Safety Study of the Second Antihypertensive Agent after Monotherapy at scale using the OHDSI AP Network

Yuan Lu1, Bing Lin1, Song Wook Ahn2, Rui Xu3, Nicole Pruzitsky1, Sung Chul You1, Mal Van Zandt1, Mengling Fang1, Lei Wu1, Ian Chi Ke Wong1,2, Ruobing Yang2,3, Xiuwen Xin1,2, Hoi Hing Hui4, Maxine Ha1,1, Christian Reich1,5

1 Observational Health Data Sciences and Informatics, New York, USA; 2 Center for Outcomes Research & Evaluation (CORE), Yale University, New Haven, CT, USA; 3 Real World Solutions, IQVIA, Durham, NC, USA; 4 Kyung Hee University Medical Center, Seoul, Korea; 5 School of Biomedical Informatics, The University of Texas Health Science Center at Houston, Houston, TX, USA

Objective: Use of Medicines and Pharmacy Research Centre, University of South Australia, Adelaide, South Australia, Australia

Department of Biomedical Informatics, Aga Khan University School of Medicine, Sawan, Korea

New York School of Public Health, National University Health System, National University of Singapore, Singapore 6 Shanghai Medical College of Fudan University, Shanghai, China

Purpose: To identify the use of second antihypertensive agents after monotherapy at scale using the Observational Health Data Sciences and Informatics (OHDSI)

Methods: We analyzed data from 11 databases across 8 countries, including Korea, Japan, Singapore, and the United States. We identified patients with hypertension who started monotherapy with valsartan, losartan, ramipril, or enalapril, and then added a second antihypertensive agent.

Results: We identified 12 cohorts based on the different combinations of the four main antihypertensive agents as the first-step feasibility study. Below are the results from the committed APAC data sources:

<table>
<thead>
<tr>
<th>Cohort</th>
<th>First Agent</th>
<th>Second Agent</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>valsartan</td>
<td>losartan</td>
<td>1234 cases</td>
<td></td>
</tr>
<tr>
<td>valsartan</td>
<td>ramipril</td>
<td>9876 cases</td>
<td></td>
</tr>
<tr>
<td>valsartan</td>
<td>enalapril</td>
<td>5432 cases</td>
<td></td>
</tr>
<tr>
<td>losartan</td>
<td>ramipril</td>
<td>4567 cases</td>
<td></td>
</tr>
<tr>
<td>losartan</td>
<td>enalapril</td>
<td>3214 cases</td>
<td></td>
</tr>
<tr>
<td>ramipril</td>
<td>enalapril</td>
<td>2134 cases</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions: The combination of valsartan and losartan was most common, followed by losartan and ramipril, and ramipril and enalapril. Further analysis is needed to understand the effectiveness and safety of these combinations.
2022/03

Original Investigation | Cardiology

Analysis of Dual Combination Therapies Used in Treatment of Hypertension in a Multinational Cohort

Yuan Lu, ScD; Mai Van Zandt, BS; Yun Liu, PhD; Jing Li, MS; Xiaolin Wang, MS; Yong Chen, PhD; Zhengfeng Chen, MBBS, MMed; Jaehyeong Cho, PhD; Steemanne Raj Dorjee, PhD; Mengling Feng, PhD; Min-Huei Hsu, MD, PhD; Jason C. Hsu, PhD; Usman Iqbal, PharmD, MBA, PhD; Jhendra Janagaddala, PhD; Yu-Chuan Li, MD, PhD; Shuen-Teng Liaw, MBBS, PhD; Hong-Seok Lim, MD, PhD; Kee-Yuan Ngiam, MBBS, MMed; Phung-Anh Nguyen, PhD; Ruey Wong Park, MD, PhD; Nicole Pratt, PhD; Christian Reich, MD, PhD; Sang Youl Ree, MD; Selva Muthu Kumaran Sathappan, MSc; Seo Jeong Shin, PhD; Hui Xing Tan, MTech; Senq-Chun You, MD, PhD; Xin Zhang, MS; Harlan M. Krumholz, MD, SM; Marc A. Suchard, MD; PhD; Hua Xu, PhD

Abstract

IMPORANCE  More than 1 billion adults have hypertension globally, of whom 70% cannot achieve their hypertension control goal with monotherapy alone. Data are lacking on clinical use patterns of dual combination therapies prescribed to patients who escalate from monotherapy.

OBJECTIVE  To investigate the most common dual combinations prescribed for treatment escalation in different countries and how treatment use varies by age, sex, and history of cardiovascular disease.

DESIGN, SETTING, AND PARTICIPANTS  This cohort study used data from 11 electronic health record databases that cover 181 million patients across 8 countries and regions between January 2000 and December 2019. Included participants were adult patients (ages ≥18 years) who newly

Key Points

Question: What are the most common antihypertensive dual combinations prescribed to patients who escalate from monotherapy in clinical practice, and how do the combinations differ by country and patient demographic subgroup?

Findings: In this cohort study of 970,335 individuals from 11 large databases, 12 dual combinations of

IF=13.353
2. Present Status of OHDSI Taiwan
OHDSI Taiwan Society’s New Website

https://ohdsi-taiwan.com/
# OHDSI Taiwan Core Committee Members

## 一、第一屆理事

<table>
<thead>
<tr>
<th>職稱</th>
<th>姓名</th>
<th>現職</th>
</tr>
</thead>
<tbody>
<tr>
<td>理事長</td>
<td>謝明輝</td>
<td>臺北醫學大學大數據科技與管理研究所教授</td>
</tr>
<tr>
<td>常務理事</td>
<td>徐之昇</td>
<td>臺北醫學大學國際生技醫療管理博士學位學程副教授</td>
</tr>
<tr>
<td>常務理事</td>
<td>宋昇峯</td>
<td>喜 menos 整院神經內科主治醫師兼醫療研究部主任</td>
</tr>
<tr>
<td>理事</td>
<td>陳天心</td>
<td>基隆長庚醫院生物統計中心副主任</td>
</tr>
<tr>
<td>理事</td>
<td>阮建英</td>
<td>臺北醫學大學數據處臨床數據中心助理研究員</td>
</tr>
<tr>
<td>理事</td>
<td>林秀宜</td>
<td>臺北醫學大學附設醫院營養室主任</td>
</tr>
<tr>
<td>理事</td>
<td>蘇千田</td>
<td>臺北醫學大學附設醫院職醫科主任</td>
</tr>
<tr>
<td>理事</td>
<td>張祐剛</td>
<td>童綜合醫院醫學研究部副主任</td>
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<tr>
<td>理事</td>
<td>蕭志忠</td>
<td>天主教聖心健康醫療財團法人羅東聖母醫院教研副主任</td>
</tr>
<tr>
<td>候補理事</td>
<td>吳孟元</td>
<td>臺北醫學大學附設醫院骨科部骨科系骨科主任</td>
</tr>
<tr>
<td>候補理事</td>
<td>張資興</td>
<td>臺北醫學大學醫療資訊所教授兼資處資處處長</td>
</tr>
<tr>
<td>候補理事</td>
<td>楊曜旭</td>
<td>喜 menos 整院健康資訊暨流行病學研究室主任</td>
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## 二、第一屆監事

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<tr>
<td>常務監事</td>
<td>施俊明</td>
<td>臺北醫學大學附設醫院內科部心臟內科主治醫師</td>
</tr>
<tr>
<td>監事</td>
<td>李明遠</td>
<td>臺北醫學大學醫學系教授兼院長</td>
</tr>
<tr>
<td>監事</td>
<td>劉如濤</td>
<td>喜 menos 整院教學副院長</td>
</tr>
<tr>
<td>候補監事</td>
<td>黃群耀</td>
<td>臺北醫學大學附設醫院內科部部副主任</td>
</tr>
</tbody>
</table>
Members in OHDSI Taiwan Society Office

Marc Hsu  Jason C. Hsu  Alex PA. Nguyen  Grace Huang  Benson Cheng  Phan Thanh Phuc

Yudha E. Saputra  Maz Solie  Whitney Burton  Rachel Quynh Nguyen  Dian Tri Wiyanti  Septi Melisa  Christianus Heru Set
### Member Distribution

<table>
<thead>
<tr>
<th>縣市</th>
<th>單位</th>
</tr>
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<tbody>
<tr>
<td>臺北市</td>
<td>臺北醫學大學</td>
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<td></td>
<td>北醫附設醫院</td>
</tr>
<tr>
<td></td>
<td>臺北市立萬芳醫院</td>
</tr>
<tr>
<td></td>
<td>臺大醫院</td>
</tr>
<tr>
<td></td>
<td>台灣諾華股份有限公司</td>
</tr>
<tr>
<td></td>
<td>台灣阿斯特捷利康股份有限公司</td>
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<td></td>
<td>羅氏大藥廠股份有限公司</td>
</tr>
<tr>
<td>新北市</td>
<td>雙和醫院</td>
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<td>長庚醫院</td>
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<tr>
<td>基隆市</td>
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<tr>
<td>宜蘭縣</td>
<td>宜蘭羅東聖母醫院</td>
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<td>臺中市</td>
<td>童綜合醫院</td>
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<td></td>
<td>嘉義基督教醫院</td>
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<td>嘉義市</td>
<td>嘉義長庚紀念醫院</td>
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<td>奇美醫院</td>
</tr>
<tr>
<td>臺南市</td>
<td>國家衛生研究院</td>
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64 members
### Join International Research Projects

<table>
<thead>
<tr>
<th>N</th>
<th>Study Title</th>
<th>Study Owners</th>
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<tbody>
<tr>
<td>1</td>
<td>Analysis of Dual Combination Therapies Used in Treatment of Hypertension in a Multinational Cohort</td>
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<td>2</td>
<td>Comparative risk of the incident cancer between histamine-2 receptor antagonists</td>
<td>Seng Chan You</td>
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<td>3</td>
<td>Rare Endocrine Disease Common Data Model (RED-CDM)</td>
<td>Namki Hong</td>
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<td>4</td>
<td>The risk of musculoskeletal adverse outcomes after treatment with endocrine blocking treatments for breast cancer</td>
<td>Jennifer Lane</td>
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### Global

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### APAC

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<tbody>
<tr>
<td>1</td>
<td>Characterization of non-communicable disease across the pre- and post- COVID-19 era</td>
<td>Seng Chan You</td>
</tr>
<tr>
<td>2</td>
<td>Comparison of mortality, morbidity &amp; healthcare resources utilization between patients with and without a diagnosis of COVID-19</td>
<td>Celine Chui, Shirley Li, Eric Wan</td>
</tr>
<tr>
<td>3</td>
<td>Real world safety of treatments for multiple sclerosis</td>
<td>Nicole Pratt</td>
</tr>
<tr>
<td>4</td>
<td>Quality assessment of CDM databases across the OHDSI-AP network</td>
<td>Chungsoo Kim</td>
</tr>
</tbody>
</table>
Taiwan team shared 9 abstracts at the 2022 OHDSI Global Symposium and APAC Symposium
3. The future of OHDSI Taiwan
OHDSI Taiwan’s 3 Goals in 2023
OHDSI Taiwan Platform

~ Provide high-quality data value-added services ~
OMOP Common Data Model

ETL (Extract, Transformation, Load)

Analysis method

Analysis results
OHDSI Software and Tools

HADES

ATHENA

WHITERABBIT (ETL)

OXIDE

DATA QUALITY DASHBOARD

ACHILLES

ATLAS

OHDSI Tools
Two Tracks to Research

System
- CDM
- ATLAS
- ACHILLES
- Vocabulary
- ETL

Application
- Cohort
- Characterization
- Phenotype
- Prediction
- Estimation

CDM
ETL
ATLAS
ACHILLES

OHDSI TAIWAN
OHDSI Activities

Tutorials
CDM, ETL, Quality, Study-A-Thon….

Community Call
Global, Europe, APAC…

Symposium
Global, Europe, APAC…
Summary

2020: Link to OHDSI OMOP CDM and become the 6th chapter in Asia

2021: Participate in research projects, publications, and activities

2022: Establish OHDSI Taiwan Society and host OHDSI APAC Symposium

2023: Expand the membership of the Society, develop more projects and papers, and host (participate in) more activities
THANKS

Jason C. Hsu

Chair, Local Host Committee of the 2022 OHDSI APAC Symposium
Associate Professor, Taipei Medical University, Taiwan
Director, Clinical Data Center, Office of Data Science, Taipei Medical University