



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



臺北醫學大學
TAIPEI MEDICAL UNIVERSITY

OHDSI Taiwan's History (2020.09-2021.12)

1st APAC Steering Committee Meeting



2020.09



OHDSI Transnational Cooperation Project (antihypertensive drugs)

2020.10

Complete OHDSI OMOP CDM Establish OHDSI Taiwan Chapter

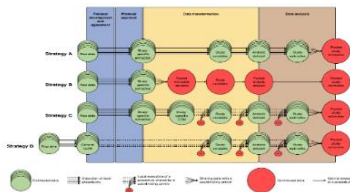


2020.12

2020.09



TMUCRD – OHDSI OMOP CDM (meetings & courses)



2020.10

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



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

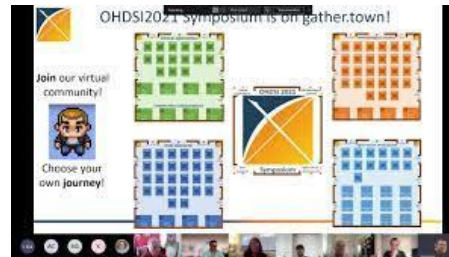
OHDSI Taiwan's History (2021.01-2021.12)

1st APAC Community Call



2021.01

2021 OHDSI Global Symposium (virtually)



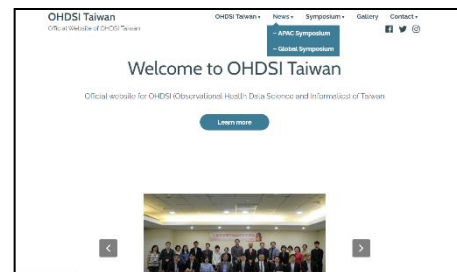
2021.09

2021 OHDSI APAC Symposium (virtually)



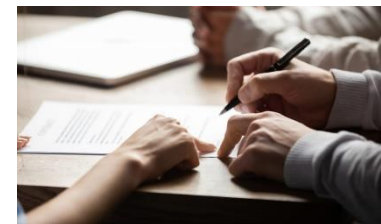
2020.11

2021.03



OHDSI Taiwan Chapter Website (the 1st version)

2020.10



Apply to the Taiwan government to establish OHDSI Taiwan Society

OHDSI Taiwan's History (2022.01-2022.11)

**Preparatory committee for
OHDSI Taiwan Society**



31 members

2022.03

**OHDSI Taiwan Society established
& 1st Core Committee Election**



2022.08

**2022 OHDSI APAC Symposium
in Taiwan (Hybrid)**



2022.11

2022.05



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

2022.10



**2022 OHDSI Global Symposium
(in Person)**

Previous Publications with OHDSI (1/5)

2015/08

MEDINFO 2015: eHealth-enabled Health

I.N. Sarkar et al. (Eds.)

© 2015 IMIA and IOS Press.

This article is published online with Open Access by IOS Press and distributed under the terms of the Creative Commons Attribution Non-Commercial License.

doi:10.3233/978-1-61499-564-7-574

Observational Health Data Sciences and Informatics (OHDSI): Opportunities for Observational Researchers

George Hripcsak^a, Jon D. Duke^b, Nigam H. Shah^c, Christian G. Reich^d, Vojtech Huser^e, Martijn J. Schuemie^{f,g}, Marc A. Suchard^h, Rae Woong Parkⁱ, Ian Chi Kei Wong^j, Peter R. Rijnbeek^j, Johan van der Lei^j, Nicole Pratt^k, G. Niklas Norén^l, Yu-Chuan Li^m, Paul E. Stangⁿ, David Madigan^o, Patrick B. Ryan^g

^a *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 Biomathematics & Dept. of Human Genetics, David Geffen School of Medicine, Uni. 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 (CoMST), Taipei Medical University, Taipei, Taiwan*

ⁿ *Department of Statistics, Columbia University, New York, NY, USA*

Previous Publications with OHDSI (2/5)

2017/09

Journal of the American Medical Informatics Association, 25(3), 2018, 275–288

doi: 10.1093/jamia/ocx105

Advance Access Publication Date: 28 September 2017

Research and Applications



INFORMATICS PROFESSIONALS LEADING THE WAY.

OXFORD

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,^{6,15} Donahue Smith,¹⁶ Sean Mooney,¹⁶ Patrick Ryan,^{5,6,14} Yu-Chuan (Jack) 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 Tatonetti^{5,6}




Previous Publications with OHDSI (3/5)

2020/01

Open access

Original research

BMJ Open 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 ¹, Ian Chi Kei Wong,^{1,2} Kenneth KC Man ^{1,2}, Nicole L Pratt,³ Rae Woong Park,⁴ Soo-Yeon Cho,⁴ Yu-Chuan (Jack) Li,^{5,6,7,8} Usman Iqbal,^{9,10} Phung-Anh Alex Nguyen,⁶ Martijn Schuemie ^{11,12}

Previous Publications with OHDSI (4/5)

2020/10

Hypertension Medication Utilization and Outcomes

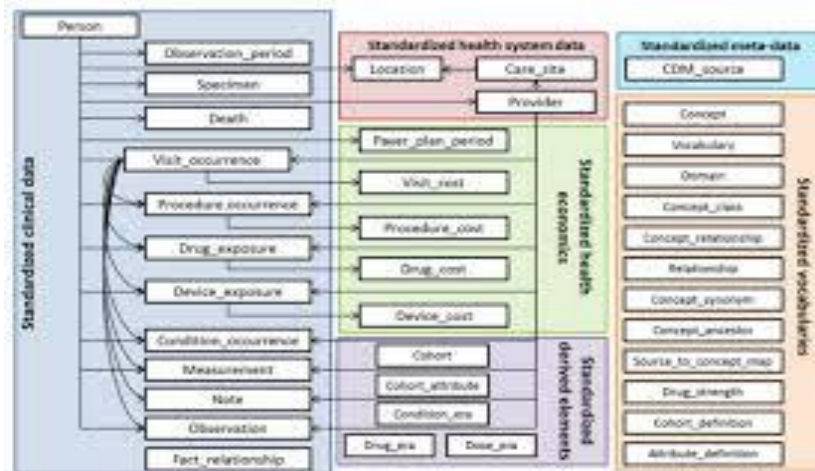
11 databases from 8 countries (2020 OHDSI Symposium)



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

Yuan Lu^{1,2}, Jing Li^{1,3}, Sang Youl Rhee^{1,4}, Hua Xu^{1,5}, Nicole Pratt^{1,6}, Seng Chan You^{1,7}, Mui Van Zandt^{1,3}, Mengling Feng^{1,8}, Lei Liu^{1,9}, Ian Chi Kei Wong^{1,10}, Rae Woong Park^{1,7}, Jiyoung Hwang^{1,7}, Tatsuo Hiramatsu^{1,11}, Usman Iqbal^{1,12}, Yu-Chuan Li^{1,13}, Min-Huei Hsu^{1,13}, Christian Reich^{1,3}

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; ⁶ Quality Use of Medicines and Pharmacy Research Centre, University of South Australia, Adelaide, South Australia, Australia; ⁷ Department of Biomedical Informatics, Ajiou University School of Medicine, Suwon, Korea; ⁸ Saw Swee Hock School of Public Health, National University Health System, National University of Singapore, Singapore; ⁹ Shanghai Medical College of Fudan University, Shanghai, China; ¹⁰ Centre for Safe Medication Practice and Research, Department of Pharmacology and Pharmacy, The University of Hong Kong, Hong Kong Special Administrative Region, China; ¹¹ Innovation & Research Support Center, International University of Health and Welfare (IUHW), Tokyo, Japan; ¹² College of Public Health, Taipei Medical University, Taipei City, Taiwan; ¹³ College of Public Health, Taipei Medical University, Taipei City, Taiwan



Results

We have designed 12 cohorts to be 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.

Cohort#	1st Drug	2nd Drug	APAC Data Sources														
			Australia	Korea	Singapore	China	Taiwan	Japan	QVIA Australia*	SPDRN SWSLHD*	Ajou Univ*	QIMC*	SG KTPH*	SG NUH*	Heart - Jiangsu*	TMUCRD*	JMDC
1	ACE/ARB	CCB	4,425	432	1,215	147	257	439									
2	CCB	ACE/ARB	1,418	145	1,497	191	217	133									
3	ACE/ARB	Diuretic	2,304	189	474	12	19	31									
4	Diuretic	ACE/ARB	368	-	154	2	8	7									
5	ACE/ARB	B-blocker	1,200	180	392	45	177	144									
6	B-blocker	ACE/ARB	705	27	380	94	154	124									
7	CCB	Diuretic	72	-	209	15	14	6									
8	Diuretic	CCB	53	-	139	6	5	7									
9	CCB	B-blocker	199	-	414	217	106	101									
10	B-blocker	CCB	163	1	614	194	130	213									
11	Diuretic	B-blocker	28	-	43	5	3	8									
12	B-blocker	Diuretic	27	-	51	10	6	7									

* committed data sources
ACEI: angiotensin-converting enzyme inhibitor; ARB: angiotensin receptor blocker; CCB: calcium channel blocker; B-blocker: beta-blocker.

Previous Publications with OHDSI (5/5)

2022/03

JAMA Network | **Open**

(IF=13.353)



Original Investigation | Cardiology

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

Yuan Lu, ScD; Mui Van Zandt, BS; Yun Liu, PhD; Jing Li, MS; Xialin Wang, MS; Yong Chen, PhD; Zhengfeng Chen, MBBS, MMed; Jaehyeong Cho, PhD; Sreemaneesha Raaj Dorajoo, PhD; Mengling Feng, PhD; Min-Huei Hsu, MD, PhD; Jason C. Hsu, PhD; Usman Iqbal, PharmD, MBA, PhD; Jitendra Jonnagaddala, PhD; Yu-Chuan Li, MD, PhD; Siaw-Teng Liaw, MBBS, PhD; Hong-Seok Lim, MD, PhD; Kee Yuan Ngiam, MBBS, MMed; Phung-Anh Nguyen, PhD; Rae Woong Park, MD, PhD; Nicole Pratt, PhD; Christian Reich, MD, PhD; Sang Youl Rhee, MD; Selva Muthu Kumaran Sathappan, MSc; Seo Jeong Shin, PhD; Hui Xing Tan, MTEch; Seng Chan You, MD, PhD; Xin Zhang, MS; Harlan M. Krumholz, MD, SM; Marc A. Suchard, MD, PhD; Hua Xu, PhD

Abstract

IMPORTANCE 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 118 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

2. Present Status of OHDSI Taiwan



OHDSI Taiwan Society's New Website



<https://ohdsi-taiwan.com/>



OHDSI TAIWAN

News

Review

Links



OHDSI Taiwan Core Committee Members



一、第一屆理事

職稱	姓名	現職
理事長	許明暉	臺北醫學大學大數據科技與管理研究所教授
常務理事	徐之昇	臺北醫學大學國際生技醫療管理博士學位學程副教授
常務理事	宋昇峯	嘉義基督教醫院神經內科主治醫師兼醫學研究部主任
理事	陳天心	基隆長庚醫院生物統計中心副主任
理事	阮逢英	臺北醫學大學數據處臨床數據中心助理研究員
理事	蘇秀悅	臺北醫學大學附設醫院營養室主任
理事	蘇千田	臺北醫學大學附設醫院職醫科主任
理事	張祐剛	童綜合醫院醫學研究部副主任
理事	蕭志忠	天主教靈醫會醫療財團法人羅東聖母醫院教研副院長
候補理事	吳孟晃	臺北醫學大學附設醫院骨科部脊椎骨科科主任
候補理事	張資昊	臺北醫學大學醫療資訊所教授兼資訊處資訊長
候補理事	楊曜旭	嘉義長庚紀念醫院健康資訊暨流行病學研究室主任

二、第一屆監事

職稱	姓名	現職
常務監事	施俊明	臺北醫學大學附設醫院內科部心臟內科主治醫師
監事	李岡遠	臺北醫學大學醫學系教授兼研發長
監事	劉如濟	雙和醫院教學副院長
候補監事	黃群耀	臺北醫學大學附設醫院內科部部主任

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**

Join International Research Projects

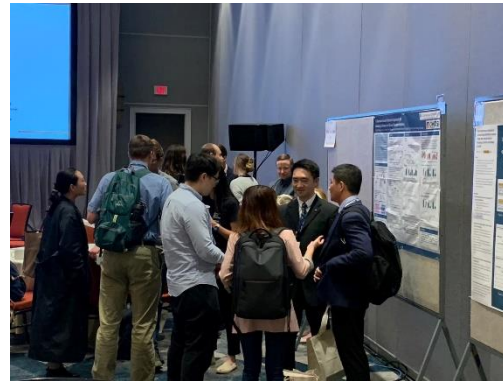
Global

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

APAC

N	Study Title	Study Owners
1	Characterization of non-communicable disease across the pre- and post- COVID-19 era	Seng Chan You
2	Comparison of mortality, morbidities & healthcare resources utilization between patients with and without a diagnosis of COVID-19	Celine Chui, Shirley Li, Eric Wan
3	Real world safety of treatments for multiple sclerosis	Nicole Pratt
4	Quality assessment of CDM databases across the OHDSI-AP network	Chungsoo Kim

Taiwan team shared 9 abstracts at the 2022 OHDSI Global Symposium and APAC Symposium



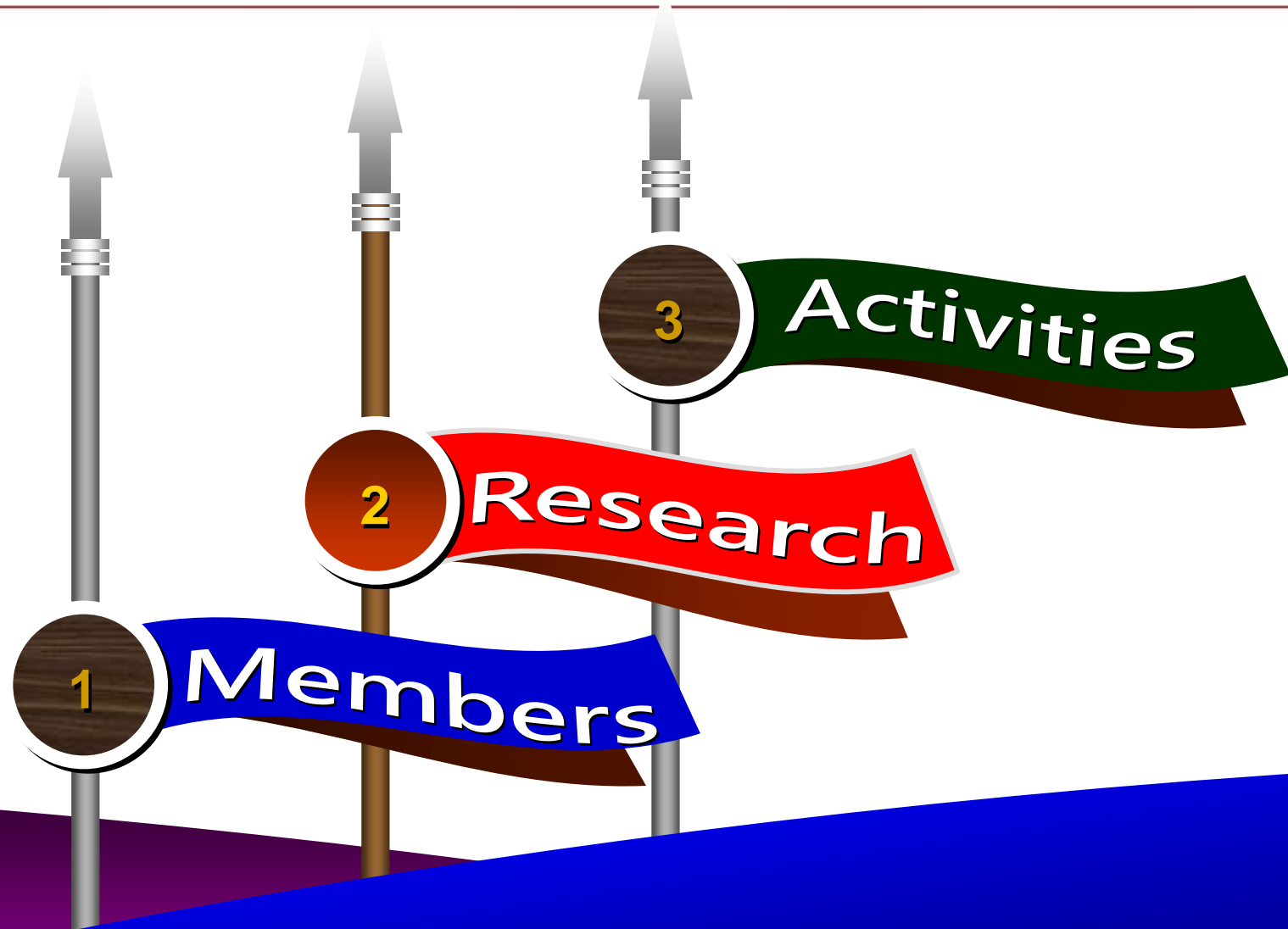
Collage of 9 abstracts presented by the Taiwan team:

- Development of Machine Learning models for Cancer Survival among Lung cancer patients with Tyrosine Kinase Inhibitors (TKI) treatment**
 Authors: Jen-Chieh Chen, Phung-Anh Nguyen, Hsin-Tzeng Tsai, Chih-Lin Chen, Chih-Tsun Chang, Yao-Huei Chang, Cheng-Yu Chen, Taipei Medical University, Taiwan.
- Development of Lung Cancer Survival Prediction Models Based on Real-world Data and Machine Learning**
 Authors: Jen-Chieh Chen, Phung-Anh Nguyen, Hsin-Tzeng Tsai, Chih-Lin Chen, Chih-Tsun Chang, Yao-Huei Chang, Cheng-Yu Chen, Taipei Medical University, Taiwan.
- Machine Learning to Predict the Ischemic Stroke among Type 2 Diabetes Mellitus Patients using Taipei Medical University Clinical Research Database**
 Authors: Hsiang-Yi Hsu, Hsiang-Yi Hsu, Hsiang-Yi Hsu, Taipei Medical University, Taiwan.
- Analysis of Influencing Factors of Mortality in COVID-19 Patients: A Retrospective Cohort Study**
 Authors: Da-Wei Chang, Phung-Anh Nguyen, Cheng-Yu Chen, Chih-Tsun Chang, Hsin-Tzeng Tsai, Jen-Chieh Chen, Taipei Medical University, Taiwan.
- Development of Breast Cancer Survival Prediction Models Based on Real-world Data and Machine Learning**
 Authors: Jen-Chieh Chen, Phung-Anh Nguyen, Hsin-Tzeng Tsai, Chih-Lin Chen, Chih-Tsun Chang, Yao-Huei Chang, Cheng-Yu Chen, Taipei Medical University, Taiwan.
- Machine Learning to Predict the Ischemic Stroke among Type 2 Diabetes Mellitus Patients using Taipei Medical University Clinical Research Database**
 Authors: Hsiang-Yi Hsu, Hsiang-Yi Hsu, Hsiang-Yi Hsu, Taipei Medical University, Taiwan.
- Post-Stroke Prediction on Cognitive Impairment Development: A Machine Learning Approach**
 Authors: Hsiang-Yi Hsu, Hsiang-Yi Hsu, Hsiang-Yi Hsu, Taipei Medical University, Taiwan.
- Development of Lung Cancer Survival Prediction Models Based on Real-world Data and Machine Learning**
 Authors: Jen-Chieh Chen, Phung-Anh Nguyen, Hsin-Tzeng Tsai, Chih-Lin Chen, Chih-Tsun Chang, Yao-Huei Chang, Cheng-Yu Chen, Taipei Medical University, Taiwan.
- Analysis of Influencing Factors of Mortality in COVID-19 Patients: A Retrospective Cohort Study**
 Authors: Da-Wei Chang, Phung-Anh Nguyen, Cheng-Yu Chen, Chih-Tsun Chang, Hsin-Tzeng Tsai, Jen-Chieh Chen, Taipei Medical University, Taiwan.



3. The future of OHDSI Taiwan

OHDSI Taiwan's 3 Goals in 2023



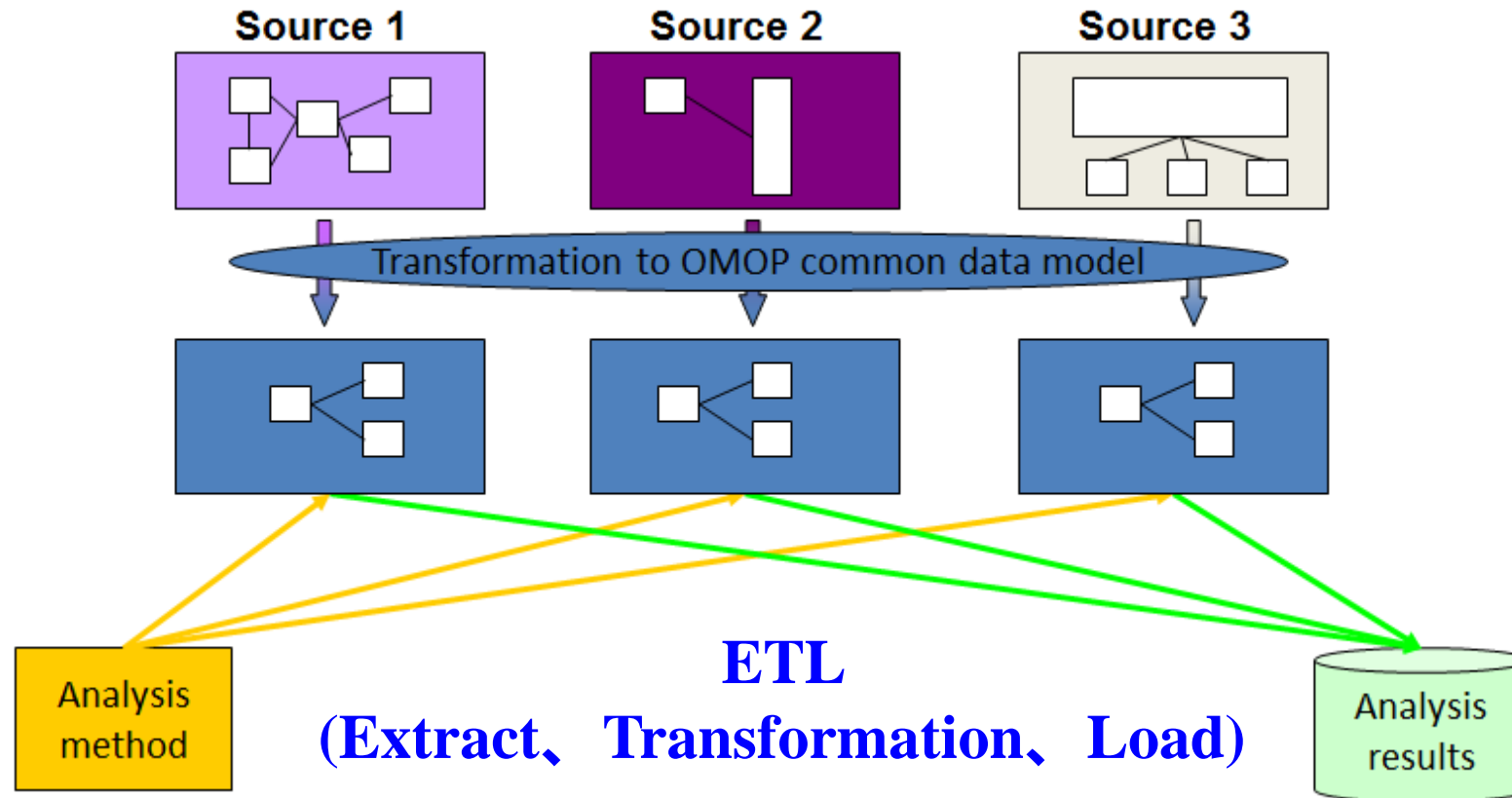
OHDSI Taiwan Platform



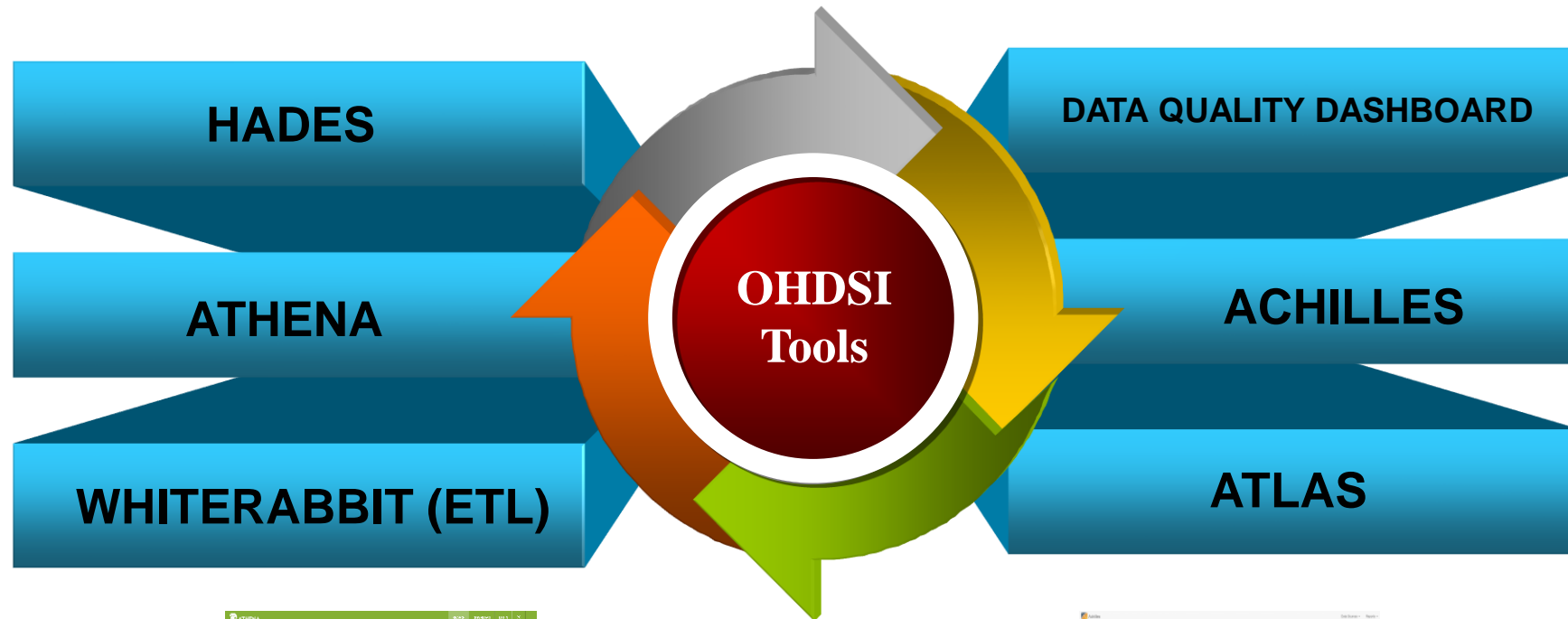
~ Provide high-quality data value-added services ~



OMOP Common Data Model



OHDSI Software and Tools

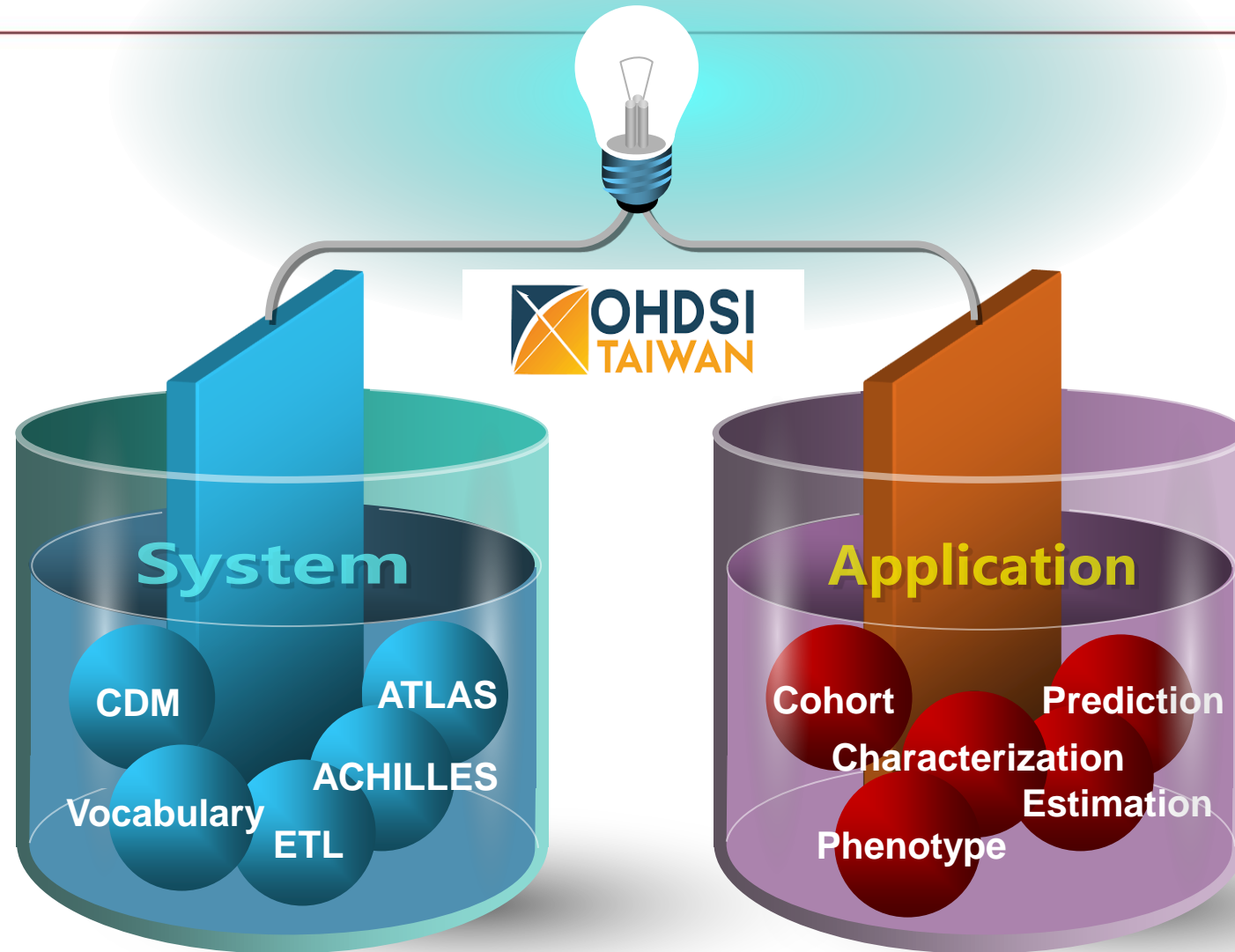


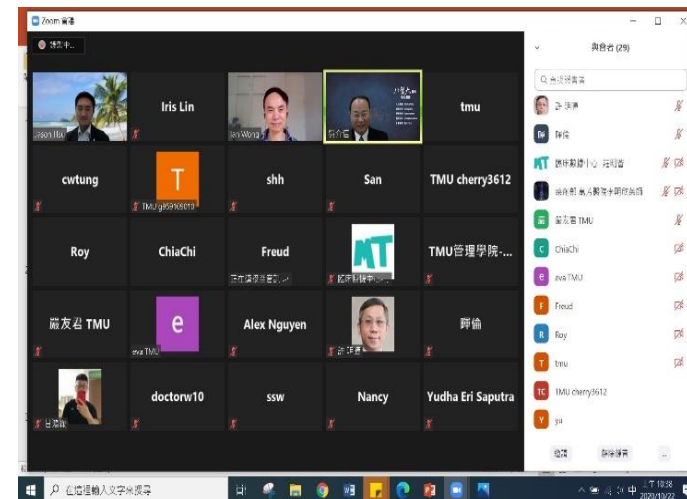
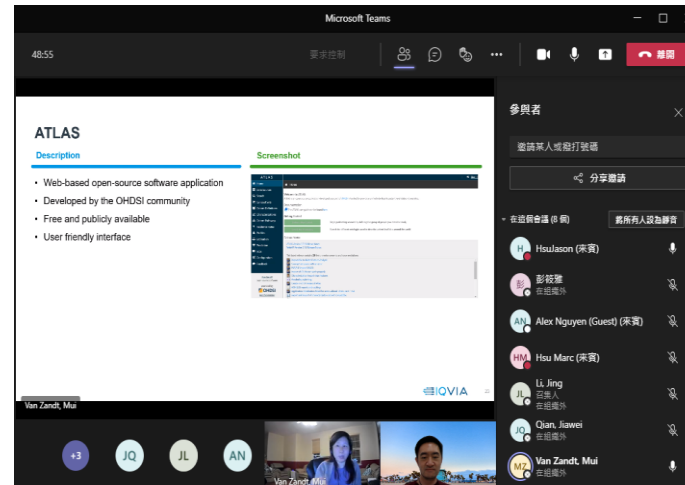
This section displays several screenshots and diagrams related to OHDSI tools and data quality assessment.

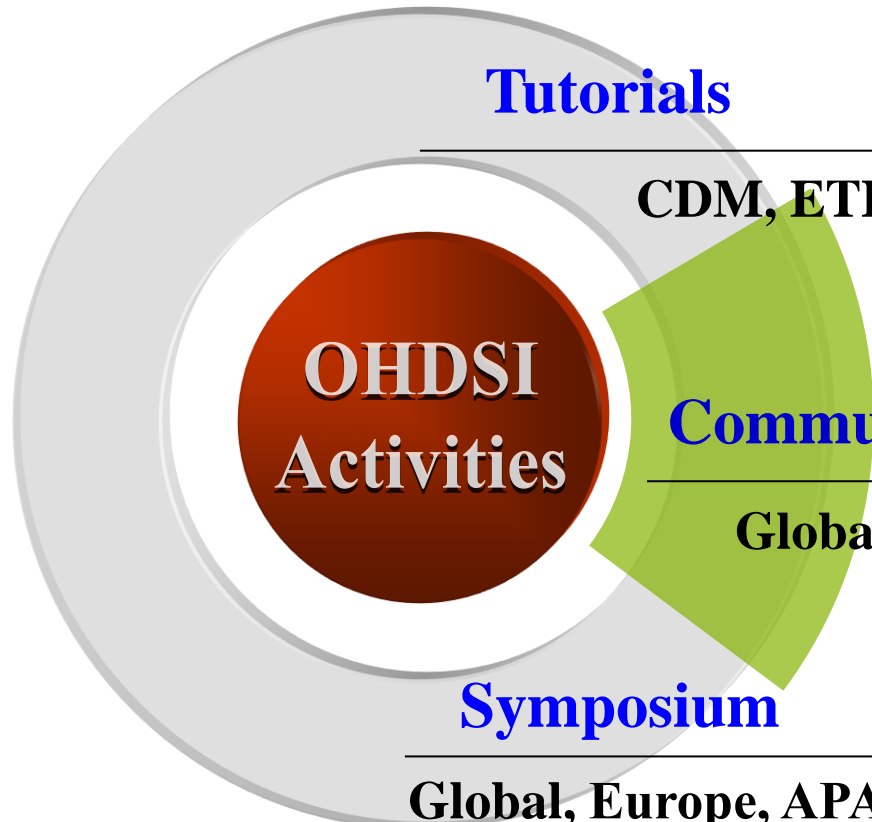
- ATHENA Screenshot:** Shows a table of data with columns for various attributes.
- WHITERABBIT (ETL) Screenshot:** Shows a table of data with columns for various attributes.
- CDMV5.3.1 Screenshot:** Shows a table of data with columns for various attributes.
- DATA QUALITY ASSESSMENT Screenshot:** Shows a table of data with columns for various attributes.
- ACHILLES Screenshot:** Shows a table of data with columns for various attributes.
- ATLAS Screenshot:** Shows a table of data with columns for various attributes.

The screenshots include various data tables and charts, such as a pie chart and a line graph, illustrating the capabilities of these tools.

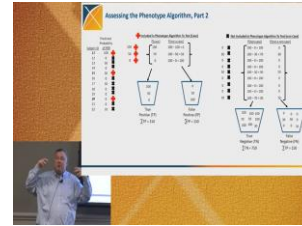
Two Tracks to Research







Tutorials



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

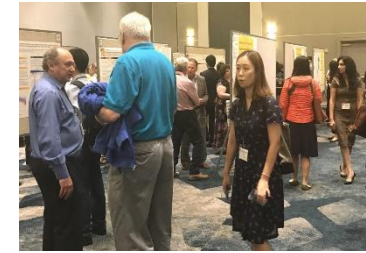
Community Call



Global, Europe, APAC...

Symposium

Global, Europe, APAC...



Summary





臺北醫學大學
TAIPEI MEDICAL UNIVERSITY



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
