Background

• The impact of COVID-19 on the healthcare system is substantial
• Resilience of healthcare system would vary across systems, regions, and countries.
• The COVID-19 pandemic can increase or decrease certain healthcare uses or conditions, but the effect would vary across time points.
• Systematic assessment of temporal pattern of healthcare use for diverse conditions is required.
Background: Previous OHDSI work

• CHARYBDIS: Characterizing Health Associated Risks, and Your Baseline Disease In SARS-COV-2
  – 1) Describe the baseline demographics, clinical characteristics, treatments, symptoms and outcomes of interest among individuals with COVID-19 overall and stratified by sex, age and specific comorbidities
  – 2) Describe characteristics and outcomes of influenza patients between September 2017 and April 2018 compared to the COVID-19 population
Aims

• Identification of the temporal change in healthcare use across the pre- and post-COVID-19 era including:
  – The incidence of certain conditions (e.g. hypertension)
  – The prevalence of certain conditions (e.g. hypertension)
  – Use of certain care/services (e.g. prescribing antihypertensive drugs)

• Identification of temporal causality between COVID-19 and epidemiological changes of target diseases
  – Does COVID-19 change the incidence, prevalence of certain conditions or treatment pattern of diseases?
  – If so, would it have an impact on future burden of healthcare system?
Benchmark research: Acute effect of COVID-19

- Data source: UK CPRD (13% of UK population)
- Method: Interrupted time-series analysis
- Target: Condition
  - Diabetic emergency
  - Mental health conditions
  - Acute respiratory events
  - Acute cardiovascular events
  - Acute alcohol-related event

Mafi et al., JAMA, 2022
Use of repurposed and adjuvant drugs in hospital patients with COVID-19: multinational network cohort study

Benchmark research: Trends in the treatments for COVID-19

- Data source: OHDSI network
- Method: Calculating numbers
- Target: treatments for COVID-19 including hydroxychloroquine

Prats-UrIBE et al., BMJ, 2021
Analytic Plan

• The number of incidence, prevalence, and the counts will be aggregated for digital phenotypes (aka. Cohort) monthly before and after COVID-19

• Later, the temporal pattern can be analyzed by using statistical methods such as interrupted times series regression
(hidden?) Aims

- Bring more researchers to OHDSI (esp. those in APAC region)
- Let them lead OHDSI studies

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Leader</th>
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<tbody>
<tr>
<td>Australia</td>
<td>Nicole</td>
<td>Residential care/Nursing home care: Visit categories</td>
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<td>Japan</td>
<td>Eri Matsuki; Prof Hiramatsu</td>
<td>Hematologic disease</td>
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<td>Korea</td>
<td>Chan; Yongjae Lee</td>
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<td>Yizhi, Mornin</td>
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<td>Korea</td>
<td>Jaehwa Jung</td>
<td>Allergic disease in children</td>
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### Dedicated ATLAS for this study on GCP

#### ATLAS

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[http://34.148.35.102/#/home](http://34.148.35.102/#/home)
Heritage of Phenotype Phebruary

28 Days, 28 Phenotypes

Phenotype Phebruary

Join The Conversations!

https://www.ohdsi.org/phenotype-phebruary/
The results from the pilot study: CHAPTER-DM
led by Singaporean team (Yizhi Dong, Mornin Feng Mengling)

- Sharp decline in the incidence of **DM** in the Australia LPD in 2020
  - Less evident in the Japan claims
- Rebound of **DM** incidence in 2021 in the Australia LPD
The results from the pilot study: CHAPTER-Hematology led by Japanese team (Eri Matsuki)

• Sharp decline in the incidence of multiple myeloma in both Australia and Japan
The results from the pilot study: CHAPTER-CVD
led by Korean team (Seng Chan You)

- Sharp decline in the incidence of hypertension, AMI, and HF in the Australia LPD in 2020
  - This trend is less evident in the Japan claims
- Rebound of incidence of cardiovascular diseases in 2021 in the Australia LPD
Plans

• Create the skeleton package for CHAPTER study
  – Based on CohortIncidence Package
    • https://github.com/OHDSI/CohortIncidence
  – Need to modify the package to calculate monthly incidence

• Bring more researchers and let them create more cohorts of interest

• Call for data partners

• Thanks to the OHDSI and IQVIA team for coordinating this project
Thank You for your time