OHDSI Australia

Nicole Pratt

www.ohdsi-australia.org
Data

• #jointhejourney @AusOHDSI

Scope

Community

Focus/Action

Research

Future

Data

13 databases

Data Audit

Clinical registries

Data-linkage

ETL Workgroup

Australian Specific Vocabularies

Governance & Network studies

2023

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2023

“Opportunities to harmonise jurisdictional data and associated metadata” Dougie Boyle, University of Melbourne

Github: OHDSI/AustraliaChapter

EMR to OMOP Project (3 use cases)

Rosetta Project

Indigenous status Health Equity Workgroup

TELEMuS

Medicine use in paediatrics

APAC Symposium!
<table>
<thead>
<tr>
<th>Data Partner</th>
<th>Type of Data</th>
<th>Number of unique Patient</th>
<th>Provenance</th>
<th>Progress</th>
<th>Data Platform</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical Benefits Scheme 10% extract</td>
<td>Administrative Claims</td>
<td>2.5M</td>
<td>National</td>
<td>Complete</td>
<td>PostgreSQL</td>
<td>Nicole Pratt</td>
</tr>
<tr>
<td>Primary Care GP data (Patron)</td>
<td>Primary care EMR</td>
<td>2.2M</td>
<td>Victoria</td>
<td>Complete</td>
<td>MSSQL</td>
<td>Dougie Boyle</td>
</tr>
<tr>
<td>AU-ePBRN (Australian Electronic practice based research network)</td>
<td>Primary are EHR</td>
<td>1.1M</td>
<td>New South Wales</td>
<td>Complete</td>
<td>SQL Server</td>
<td>Jittendra Jonnagaddala</td>
</tr>
<tr>
<td>Sydney Local Health District (LHD)</td>
<td>Hospital EHR</td>
<td>1M</td>
<td>New South Wales</td>
<td>Complete</td>
<td>PostgreSQL</td>
<td>Angus Ritchie</td>
</tr>
<tr>
<td>Royal Melbourne Hospital and Western Health. Hospital Admissions</td>
<td>Hospital EMR</td>
<td>685k</td>
<td>Victoria</td>
<td>In progress (First draft complete)</td>
<td>MSSQL</td>
<td>Rachel Hayhurst</td>
</tr>
<tr>
<td>NPS MedicineWise</td>
<td>Primary care EMR</td>
<td>1.2M</td>
<td>National</td>
<td>In progress</td>
<td>Postgres</td>
<td>Roger Ward</td>
</tr>
<tr>
<td>University of Queensland - Queensland Health</td>
<td>Hospital EHR (Cerner)</td>
<td>&gt;5M</td>
<td>Queensland</td>
<td>In progress</td>
<td>MSSQL</td>
<td>Roger Ward</td>
</tr>
<tr>
<td>Austin Health</td>
<td>Hospital EHR (Cerner)</td>
<td>500k (approx.)</td>
<td>Victoria</td>
<td>In progress (early)</td>
<td>MSSQL</td>
<td>Roger Ward</td>
</tr>
<tr>
<td>Department of Veterans Affairs</td>
<td>Administrative Claims</td>
<td>&gt;180,000 (current population)</td>
<td>National</td>
<td>In progress</td>
<td>PostgreSQL</td>
<td>Nicole Pratt</td>
</tr>
<tr>
<td>South Western Sydney LHD</td>
<td>Cancer EMR</td>
<td>80,000 (current population)</td>
<td>NSW</td>
<td>New sites being onboarded 2023.</td>
<td>PostgreSQL</td>
<td>Georgie Kennedy</td>
</tr>
<tr>
<td>AOA National Joint Replacement Registry</td>
<td>Registry</td>
<td>1.15M</td>
<td>National</td>
<td>In progress</td>
<td>PostgreSQL</td>
<td>Nicole Pratt</td>
</tr>
<tr>
<td>Sydney Childrens Hospital</td>
<td>Hospital EHR</td>
<td>TBA</td>
<td>NSW</td>
<td>Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melbourne Childrens Hospital</td>
<td>Hospital EHR</td>
<td>TBA</td>
<td>Victoria</td>
<td>Planning</td>
<td></td>
<td></td>
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</tbody>
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### #jointhejourney @AusOHDSI

- **Data**
  - 13 databases
  - Data Audit
  - Clinical registries
  - Data-linkage
  - ETL Workgroup
  - Australian Specific Vocabularies
  - Governance & Network studies

- **Scope**
  - 4 Primary Care EMR
  - 6 Secondary Care EMR
  - 2 Claims
  - 1 Registry + Linked claims

- **Community**
  - Github: OHDSI/AustraliaChapter
  - "Opportunities to harmonise jurisdictional data and associated metadata" Dougie Boyle, University of Melbourne

- **Focus/Action**
  - EMR to OMOP Project (3 use cases)
  - Rosetta Project
  - Indigenous status Health Equity Workgroup
  - TELEMuS
  - Medicine use in paediatrics

- **Research**
  - APAC Symposium!
"We propose an extract, transform, load (ETL) framework that is metadata-driven and generic across source datasets. The ETL framework uses a new data manipulation language (DML) that organizes SQL snippets in YAML. Our framework includes a compiler that converts YAML files with mapping logic into an ETL script"
OHDSI Australia Focus 2022
ETL Workgroup Meeting May 2022

• Communication between groups working in the area
  – New GitHub site for sharing and attribution of work
  – Create OHDSI Australia Forum

• Coordinated sharing of mappings
  – Australian Specific Mapping (Terminology)
    • Australian Classification of Health Interventions (ACHI) codes
    • Medicare Benefits Schedule (MBS) service codes
    • PBS > AMT > RxNorm
  
  – Hospital EMR Platforms
    • CERNER to OMOP
    • EPIC to OMOP

https://github.com/OHDSI/AustraliaChapter

Licensing Issues

discussions with Singapore

Singapore
OHDSI Australia Focus 2023

Tuesday
18th Oct
2022
@12pm
AEST

A Research Governance Model for OMOP Datasets
#jointhejourney @AusOHDSI

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**Scope**

- EMR to OMOP Project (3 use cases)
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**Focus/Action**

- Australian Specific Vocabularies
- Governance & Network studies

**Research**

- Rosetta Project
- Indigenous status Health Equity Workgroup

**Future**

- APAC Symposium!

**2023**

- Primary Care EMR
- Secondary Care EMR
- Claims
- Registry + Linked claims
Exploration into Commonly Used Drugs in Pediatric Populations and the Risk of Asthma with Antibiotics: A Multi-site, Population-based Descriptive and Cohort Study

Chin-Yao Shen, Eunsun Lim, Han Eol Jeong, Jun Ni Ho, Zixuan Wang

Mentors: Nam-Kyong Choi, Nicole Pratt
Methods

• **Study Design**
  • Retrospective descriptive, cross-sectional study

• **Updated Analysis of a Previous Study**
  • January 2009 - December 2013

• **Study Population**
  • Pediatric patients of age <19 years
  • Grouped into 3 age groups (<2, 2 – 11, 12 – 19 years)

• **Study Period**
  • Start date: latest of 1 Jan 2008 or start of observation
  • End date: earliest of 31 Dec 2019, end of observation, or date child turned 19 years of age

• **Exposure**
  • Analgesics, antimicrobial agents/anti-infectives, adrenergic agents, anticlotting/antifibrinolytic agents, cardiovascular medicines, diuretics, dermatological medicines, gastrointestinal medicines, ear, nose and throat medicines, antihistamines, mucolytics, antitusssives, corticosteroids, medicines for diabetes, medicines for endocrine disorders, immunomodulators and antineoplastics, medicines for mental and behavioral disorders, psychotherapeutic agents, central nervous system stimulants, anticonvulsants/antiepileptics, contraceptives
Results from Previous Study

- Highest prevalence in the first year of life

<table>
<thead>
<tr>
<th>Country</th>
<th>0-5 years</th>
<th>5-10 years</th>
<th>10-15 years</th>
<th>15-20 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: User prevalence by therapeutic level (prevalence per 1000 persons) and age in an inpatient setting. NSAID, non-steroidal anti-inflammatory drug.
Results from Previous Study

Prevalence 50-75%, but not much difference between genders.
Results from Previous Study

### Table 4: Most commonly used drugs per custom-defined drug class, per country, in an inpatient setting

<table>
<thead>
<tr>
<th>Drug class</th>
<th>Drug name</th>
<th>Number per 1000 users</th>
<th>Drug name</th>
<th>Number per 1000 users</th>
<th>Drug name</th>
<th>Number per 1000 users</th>
<th>Drug name</th>
<th>Number per 1000 users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics</td>
<td>Ceftriaxone</td>
<td>27.02</td>
<td>Amoxicillin</td>
<td>34.08</td>
<td>Cefazolin</td>
<td>10.09</td>
<td>Cefazolin</td>
<td>15.17</td>
</tr>
<tr>
<td></td>
<td>Roxithromycin</td>
<td>19.03</td>
<td>Gentamicin sulfate</td>
<td>18.09</td>
<td>Ampicillin</td>
<td>9.2</td>
<td>Amoxicillin</td>
<td>10.9</td>
</tr>
<tr>
<td></td>
<td>Cefotaxime</td>
<td>17.11</td>
<td>Penicillin G</td>
<td>14.33</td>
<td>Sulbactam</td>
<td>5.56</td>
<td>Gentamicin Sulfate</td>
<td>8.79</td>
</tr>
<tr>
<td></td>
<td>Ofloxacin</td>
<td>16.84</td>
<td>Cefuroxime</td>
<td>12.72</td>
<td>Clarithromycin</td>
<td>5.25</td>
<td>Ampicillin</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Clarithromycin</td>
<td>10.9</td>
<td>Ampicillin</td>
<td>12.4</td>
<td>Cefcapene</td>
<td>4.61</td>
<td>Cephalaxin</td>
<td>6.64</td>
</tr>
</tbody>
</table>

prevalence varies across countries/regions and the type of antibiotic used

### Table 5: Most commonly used drugs per custom-defined drug class, per country, in an ambulatory setting

<table>
<thead>
<tr>
<th>Drug class</th>
<th>Drug name</th>
<th>Number per 1000 users</th>
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<th>Number per 1000 users</th>
<th>Drug name</th>
<th>Number per 1000 users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics</td>
<td>Clarithromycin</td>
<td>112.34</td>
<td>Amoxicillin</td>
<td>443.86</td>
<td>Amoxicillin</td>
<td>506.88</td>
</tr>
<tr>
<td></td>
<td>Gentamicin</td>
<td>109.87</td>
<td>Cephalaxin</td>
<td>276.72</td>
<td>Cephalaxin</td>
<td>279.23</td>
</tr>
<tr>
<td></td>
<td>Cefcapene</td>
<td>84.12</td>
<td>Sulfamethoxazole</td>
<td>217.87</td>
<td>Chloramphenicol</td>
<td>148.45</td>
</tr>
<tr>
<td></td>
<td>Gentamicin sulfate</td>
<td>73.38</td>
<td>Erythromycin</td>
<td>170.63</td>
<td>Erythromycin</td>
<td>147.04</td>
</tr>
<tr>
<td></td>
<td>Ofloxacin</td>
<td>72.45</td>
<td>Clindamycin</td>
<td>168.23</td>
<td>Cefaclor</td>
<td>116.35</td>
</tr>
</tbody>
</table>
Study 2: Analytic Cohort Study

Antibiotics Exposure and Risk of Childhood Asthma

Is there an association between the duration of antibiotic exposure in the first year of life and the development of asthma in children prior to age 6?
Expected Outcomes

- Provide recent, real-world evidence on commonly used medications, with particular focus on antibiotics, during childhood across Asian and Caucasian populations.

- Provide data on the use of antibiotics during early childhood and the possible subsequent risk of developing childhood conditions such as asthma.
  - This study may serve as an example for investigating into other childhood onset diseases based on medicine exposures in the first year of life

- Help clinicians and guideline writers in their decision-making to guide a safer and appropriate use of antibiotics during a period that warrants careful attention in this patient population.
"Opportunities to harmonise jurisdictional data and associated metadata" Dougie Boyle, University of Melbourne

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OHDSI APAC Symposium 2023
Save the date!

Email nicole.pratt@unisa.edu.au

Plan

Tutorial (TBD: 13th July)

Symposium (TBD: 14th July)

Parallel Session (14th July)

Oncology Workgroup Meeting
Georgina.kennedy@unsw.edu.au

Email nicole.pratt@unisa.edu.au
Thank you!

www.ohdsi-australia.org