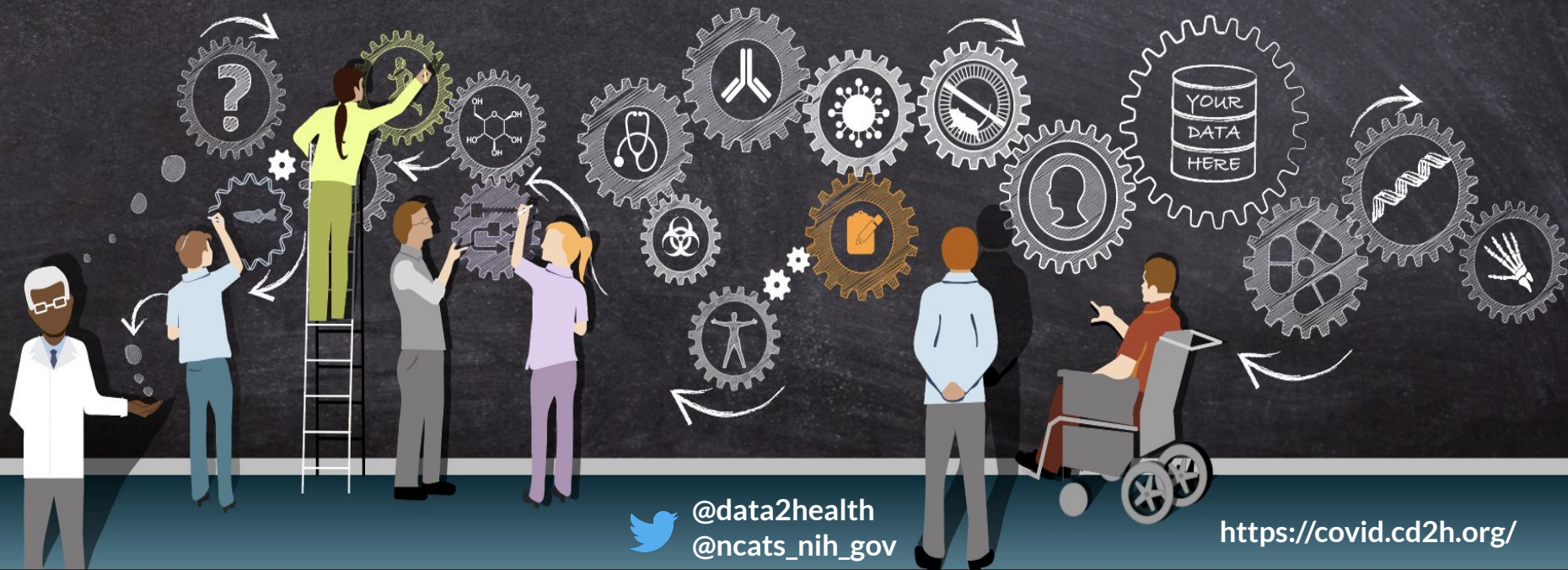


Concept Sets

Education and Training Domain Team Short Course, Spring 2024

Shawn O'Neil, CU Anschutz



 @data2health
@ncats_nih_gov

<https://covid.cd2h.org/>

Example OMOP table: condition_occurrence

“Concept” columns encode the ‘what’...

| | | | | | | | | | | |
|--|---|-----------------------------------|--|-----------------------------------|---|-----------------------------------|---|-----------------------------------|-------------------------------------|--|
| <div><div></div>condition_occurrence</div> | | | | | Showing 300 of 971k rows | | 21 columns | | <div><div></div>Search column</div> | |
| | <div><div>person_id</div><div>Integer</div></div> | <div><div></div><div></div></div> | <div><div>condition_concept_id</div><div>Integer</div></div> | <div><div></div><div></div></div> | <div><div>condition_source_value</div><div>Long</div></div> | <div><div></div><div></div></div> | <div><div>condition_source_concept_id</div><div>Integer</div></div> | <div><div></div><div></div></div> | | |
| | | | | | | | | | | |

Example OMOP table: condition_occurrence

“Concept” columns encode the ‘what’...

notice the naming convention!

| condition_occurrence | | | | Showing 300 of 971k rows | | 21 columns | 🔍 Search column |
|----------------------|----------------------|---------------------------------|--------------------------------|--------------------------|--|--|-----------------|
| | person_id Integer | condition_concept_id Integer | condition_source_value Long | | | condition_source_concept_id Integer | |

Pneumonia, unspecified

ICD10: J18.9

condition_source_value

Pneumonia, unspecified

ICD10: J18.9



condition_source_value

Pneumonia, unspecified

ICD10: J18.9

OMOP: 1415307



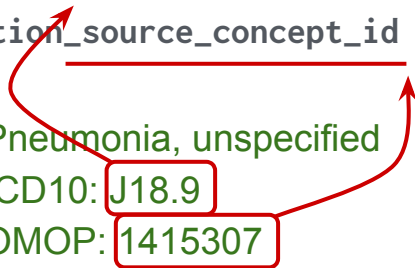
condition_source_value

condition_source_concept_id

Pneumonia, unspecified

ICD10: J18.9

OMOP: 1415307



condition_source_value

condition_source_concept_id

Pneumonia, unspecified

ICD10: J18.9

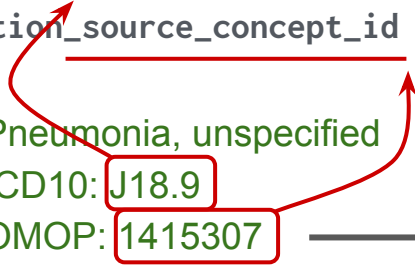
OMOP: 1415307

Maps to standard

Pneumonia

SNOMED: 233604007

OMOP: 255848



condition_source_value

condition_source_concept_id

Pneumonia, unspecified

ICD10: J18.9

OMOP: 1415307

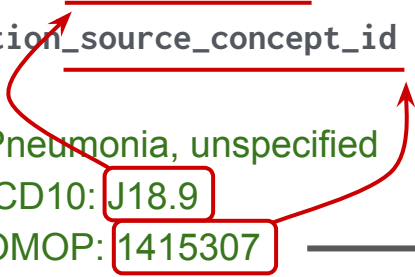
Maps to standard

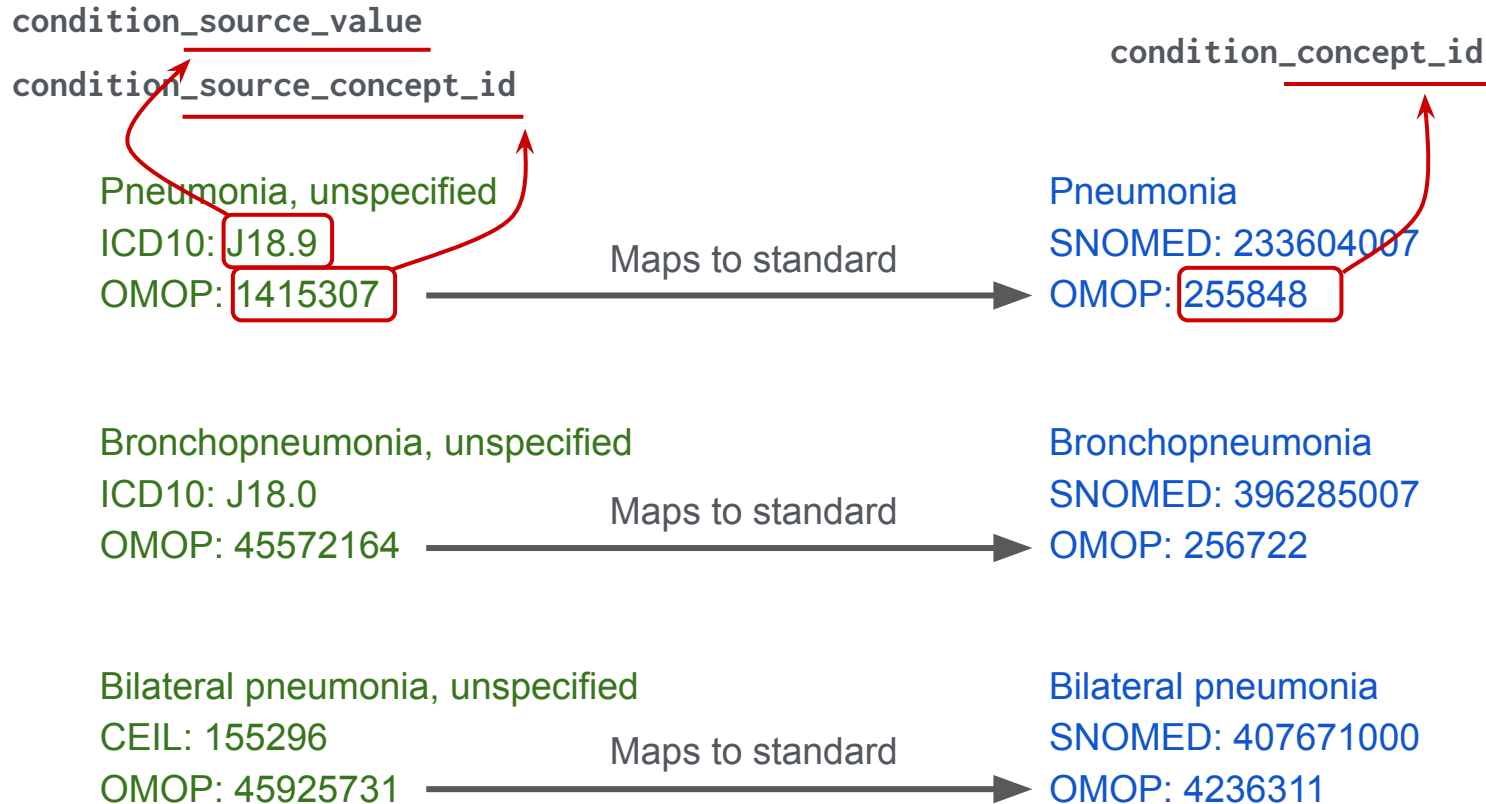
condition_concept_id

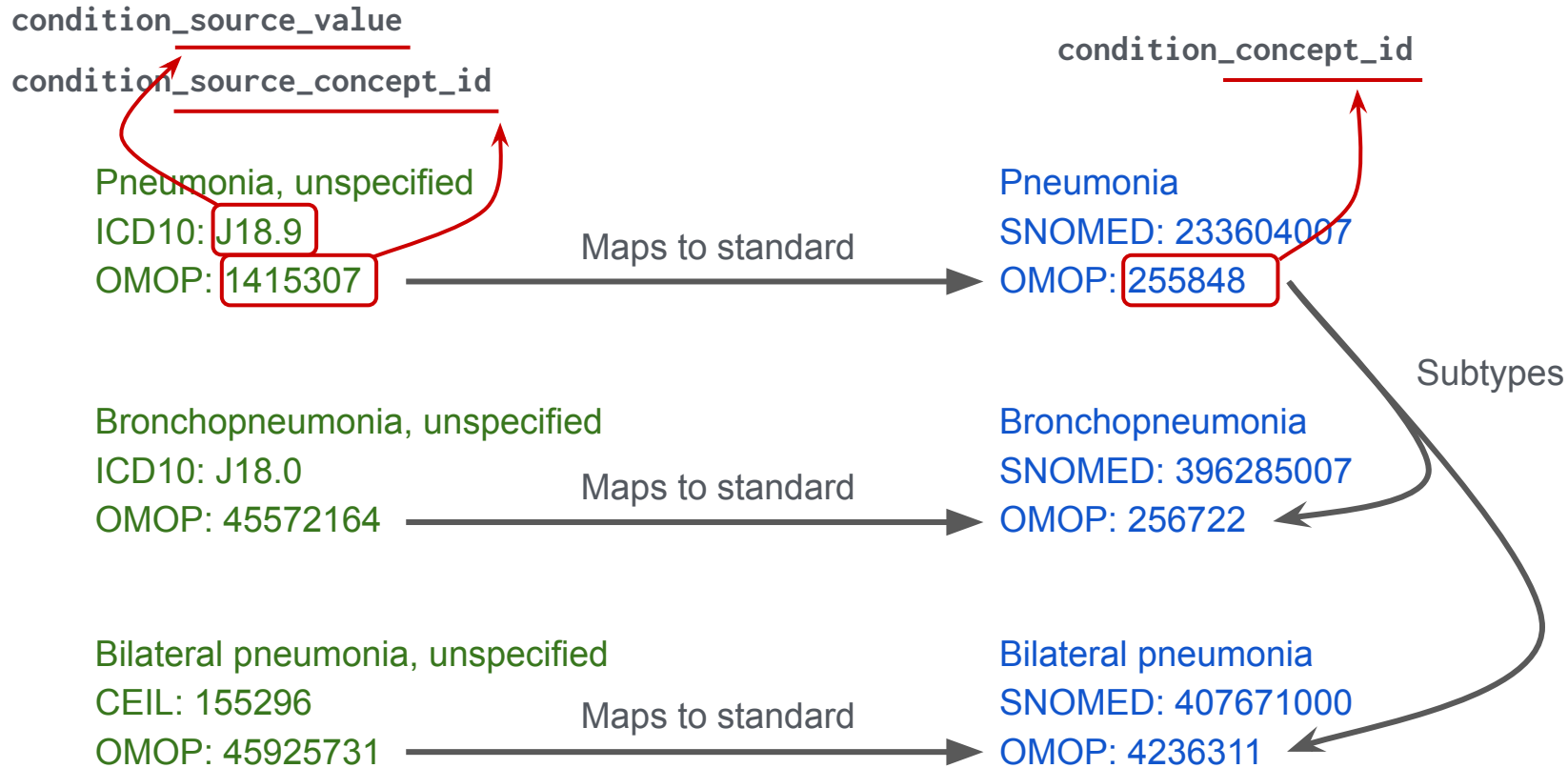
Pneumonia

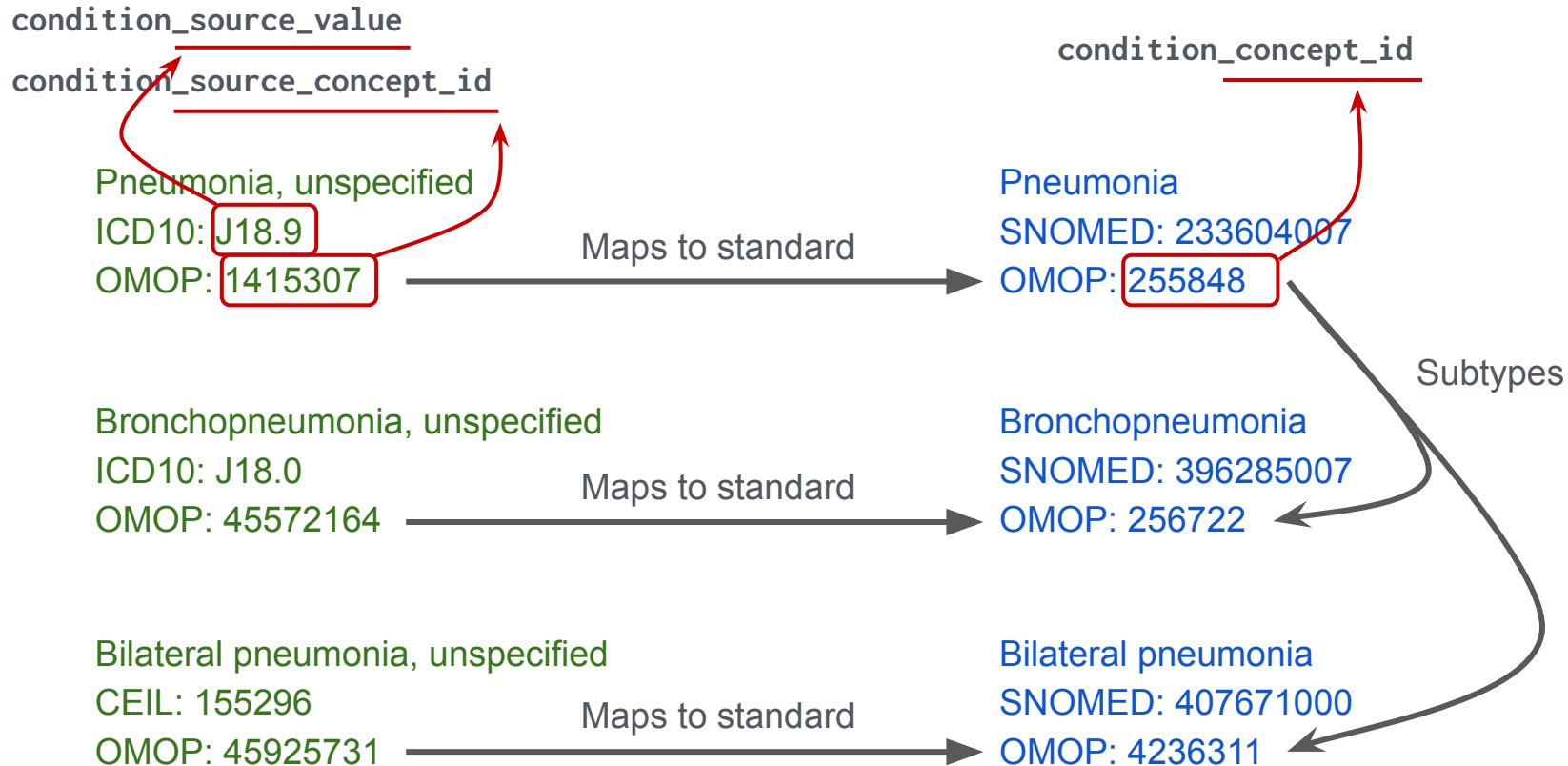
SNOMED: 233604007

OMOP: 255848









Source info: original data, not organized

Standard concepts: mapped & organized

Example OMOP table: condition_occurrence




| condition_occurrence | | | | Showing 300 of 971k rows | | 21 columns | 🔍 Search column |
|----------------------|---------|----------------------|---------|--------------------------|------|-----------------------------|-----------------|
| person_id | Integer | condition_concept_id | Integer | condition_source_value | Long | condition_source_concept_id | Integer |



Common workflow:

1. Use the hierarchy to identify standard concept_id values of interest
→ a *concept set*
2. Extract matching rows in the `concept_id` column

OHDSI / N3C OMOP Tools

- ATHENA: <https://athena.ohdsi.org>
 - Search and browse concepts and the hierarchy (fast)
- ATLAS: <https://atlas-demo.ohdsi.org>
 - Search and browse concepts and the hierarchy (slower)
 - Build and export concept sets
- N3C Concept Set Browser  Concept Set Browser
 - Browse community-created concept sets, create and import sets
- N3C concept_set_members table  Data Catalog  Clinical Data Model Resources
 - N3C concept sets are listed here for use with data

