

# Generating an OHDSI OMOP Data Model from HCSRNs VDW

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# Introduction

- OHDSI (pronounced “Odyssey”) OMOP
- Why Generate OHDSI OMOP from your VDW
- The VDW Data Translation Process
- Implementing your Translation Scripts Locally

# OHDSI (pronounced “Odyssey”) OMOP Common Data Model

- What is the OHDSI OMOP Common Data Model?
  - A Common Data Model is a published data model that researchers can implement at their sites
  - Keeps their data secure
  - Allows them to share their code
    - Just like the VDW!
- The Book of OHDSI is a great place to start learning about OHDSI OMOP.

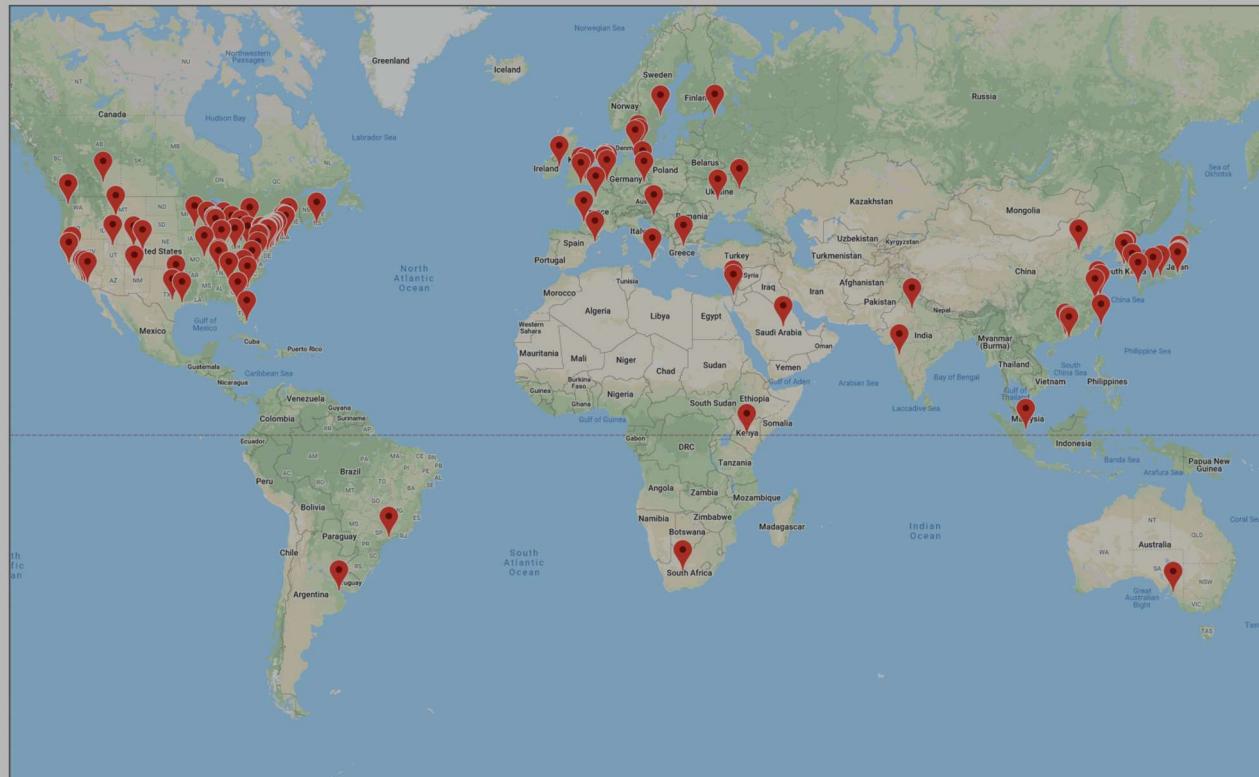
# Why Generate the OHDSI OMOP From Your VDW

Why is it important that the HCSRN sites be able to generate the OHDSI OMOP CDM?

- Expanding Scientific Collaboration
- Financial Support

## Used in Projects Around the World

The OHDSI OMOP Common Data Model is used in collaborative healthcare research projects internationally.



## Federal Grants Standardize Around the OHDSI OMOP

- Precision Medicine Initiative: \$130,000,000
- 21st Century Cures Act: \$1,800,000,000 over 7 years

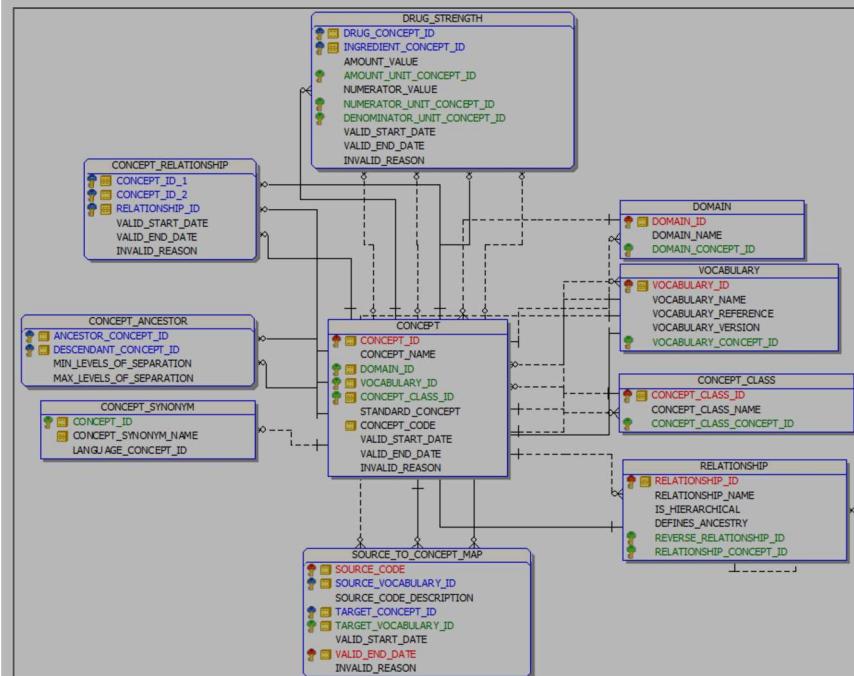
## VDW Data Translation Process

- The Translation of Mapped Codes
- The Translation of Data

# Translating Codes

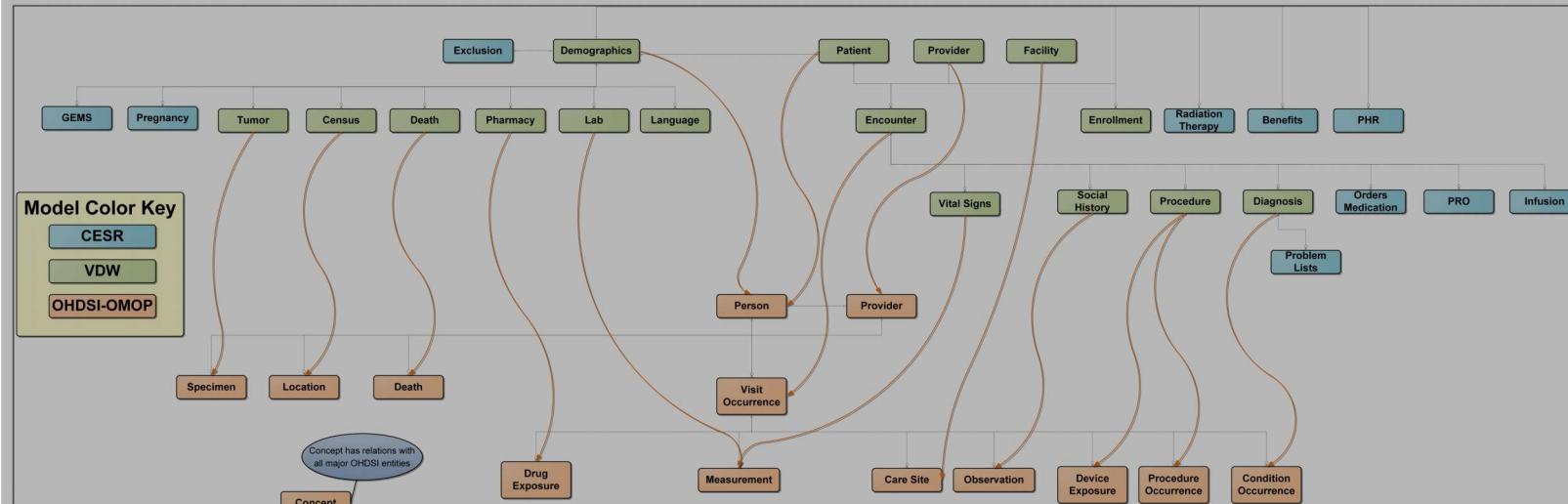
The OHDSI OMOP Vocabularies provide a sane approach to UMLS.

- VDW standard codes are stored in the translation software
- OHDSI OMOP standard codes are stored externally in the OHDSI Athena application



# The Translation Process

In broad terms most of the VDW entities have a corresponding OHDSI OMOP entity.



## SAS Scripts to Translate Your Local VDW Into OMOP

What you'll need to translate your VDW into OHDSI OMOP is:

- An implementation of the HCSRNs VDW
- Membership in OHDSI
- The KPWHRI HCSRNs-VDW to OHDSI OMOP SAS translation scripts
- Download OHDSI OMOP CDM and Vocabulary Data

## An HCSRNs VDW Common Data Model

This SAS translation script requires an HCSRNs VDW data model at your site.

- Here is where you can find information about the **VDW Common Data Model**
- HCSRNs membership includes access to a large collection of SAS quality assurance scripts

## Membership in OHDSI

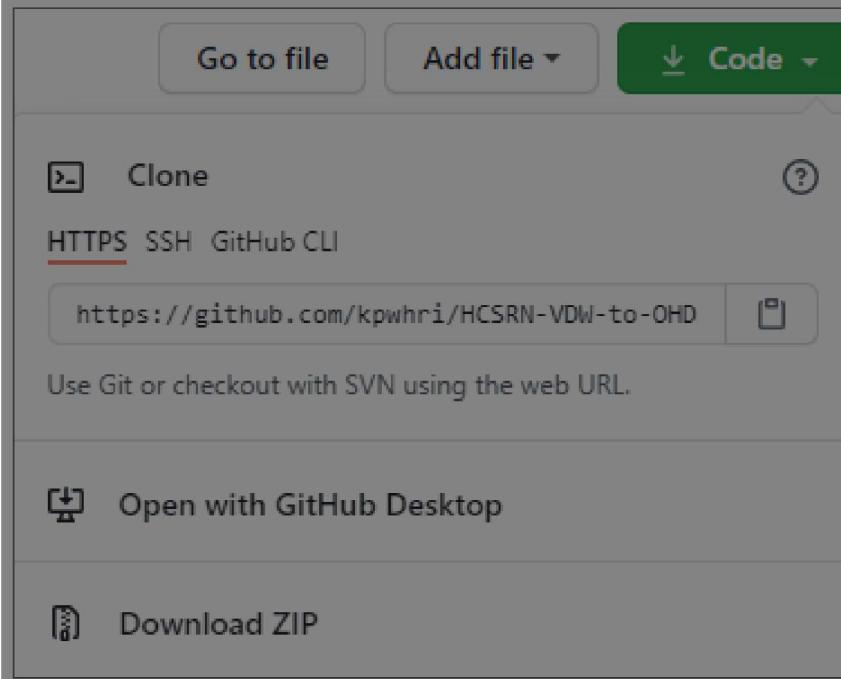
Find information on how to become a member in [The Book of OHDSI](#)

- Becoming a member of the OHDSI group will provide you access to a large collection of Open Source tools and data sets
- Among those OHDSI tools you will find
  - [OHDSI Atlas](#) queries your OMOP common data model and saves cohort definitions
    - Many of the cohorts defined in the [Phenotype Knowledge Base \(PheKB\)](#) are produced by the OHDSI Atlas Application
  - [OHDSI Athena](#) is an application that provides access to the OHDSI OMOP standard vocabularies

## The HCSRNs VDW-to-OHDSI-OMOP

You can clone or download the scripts from [VDW to OMOP GitHub](#) webpage

- These SAS scripts are published as Open Source software
- They are freely available to anyone who is interested
- The best of both worlds
- Let's work together to expand these scripts to meet your needs





## HCSRNs VDW Code Sets

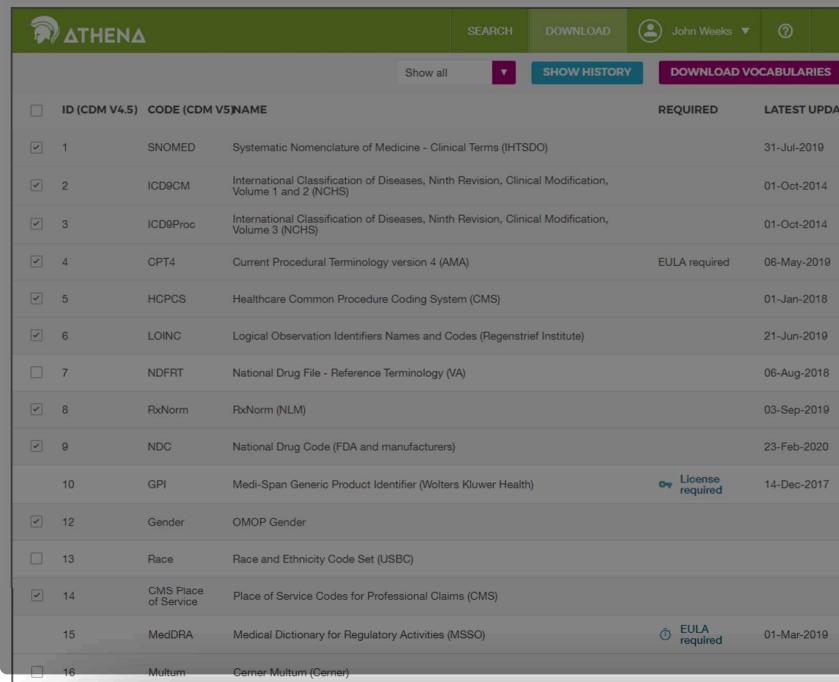
- The SAS scripts include all of the standard codes and their descriptions that are unique to the HCSRNs VDW.
- During run time the scripts will generate a set of tables that map from the standard codes in your VDW to the OHDSI OMOP codes.

The HCSRNs VDW Standard Codes include their descriptions, type and subject area source:

<b>Code</b>	<b>Code Description</b>	<b>Code Type</b>	<b>Code Source</b>
F	Female	SEX_ADMIN	DEMOGRAPHICS
GLU_F	Blood Sugar Fasting	TEST_TYPE	LAB_RESULTS

# The OHDSI OMOP Vocabulary Data

- Download the OHDSI OMOP Vocabulary by going to [the OHDSI Athena website](#)
- Extract the OHDSI OMOP Vocabulary CSV files into the "omop\_vocab" folder



The screenshot shows the OHDSI Athena interface. At the top, there's a navigation bar with a logo, a search bar, download options, and a user profile. Below the navigation is a table listing various vocabularies:

ID (CDM V4.5)	CODE (CDM V5) NAME	REQUIRED	LATEST UPDATE
1	SNOMED	Systematic Nomenclature of Medicine - Clinical Terms (IHTSDO)	31-Jul-2019
2	ICD9CM	International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 1 and 2 (NCHS)	01-Oct-2014
3	ICD9Proc	International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 3 (NCHS)	01-Oct-2014
4	CPT4	Current Procedural Terminology version 4 (AMA)	EULA required
5	HCPSCS	Healthcare Common Procedure Coding System (CMS)	01-Jan-2018
6	LOINC	Logical Observation Identifiers Names and Codes (Regenstrief Institute)	21-Jun-2019
7	NDFRT	National Drug File - Reference Terminology (VA)	06-Aug-2018
8	RxNorm	RxNorm (NLM)	03-Sep-2019
9	NDC	National Drug Code (FDA and manufacturers)	23-Feb-2020
10	GPI	Medi-Span Generic Product Identifier (Wolters Kluwer Health)	 License required
12	Gender	OMOP Gender	
13	Race	Race and Ethnicity Code Set (USBC)	
14	CMS Place of Service	Place of Service Codes for Professional Claims (CMS)	
15	MedDRA	Medical Dictionary for Regulatory Activities (MSSO)	 EULA required
16	Multum	Cerner Multum (Cerner)	01-Mar-2019

## Final Thoughts

- This project includes VDW standard codes and code management SAS scripts
- This project is a work in progress AND you can be a part of that progress
- Our SAS scripts assume a full VDW implementation
  - You may have to modify scripts to meet the needs of your site
- Your feedback will help mature and harden the scripts for all of our users

Thank you for watching this presentation.

my email address is: **John.M.Weeks@kp.org**

## List of URLs Referenced in Presentation

The URL for producing the **OHDSI OMOP** data model from the **HCSRNs VDW**:

- <https://github.com/kpwhri/HCSRNs-VDW-to-OHDSI-OMOP>

The URL for The Book of OHDSI is:

- <https://ohdsi.github.io/TheBookOfOhdsi/TheBookOfOhdsi.pdf>

The URL for information about HCSRNs Virtual Data Warehouse is:

- <http://www.hcsrn.org/en/Tools%20&%20Materials/VDW/>

The URL for the Atlas Demo is:

- <http://www.ohdsi.org/web/atlas>

The URL for the Athena Vocabularies application is:

- <https://athena.ohdsi.org/vocabulary/list>

The URL for the Phenotype Knowledge Base (PheKB) is:

- <https://phekb.org/phenotypes>