

CDM Inspection report for the fdzformatnew database

Package Version: 1.2.4

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# General Information

The goal of the inspection report is to provide insight into the completeness, transparency and quality of the performed Extraction Transform, and Load (ETL) process and the readiness of the data source to be onboarded in the data network to participate in research studies.

## Contact Details

Fill in the table below

| **items** | **answers** |
| --- | --- |
| Data Partner |  |
| Database fullname | fdzformat |
| Database acronym | HDL examlple data 1 |
| Contact Person | Melissa Finster |
| Email | [Melissa.finster@mevis.fraunhofer.de](mailto:Melissa.finster@mevis.fraunhofer.de) |

# ETL Development General

This section describes the ETL development steps and discusses the quality control steps performed by the SME

## ETL Documentation

https://github.com/FraunhoferMEVIS/ETLfromHDLtoOMOP/tree/main/WhiteRabbit\_Documentation

## Record counts data tables

Table 1. Shows the number of records in all clinical data tables

| TABLENAME | COUNT | N\_PERSONS |
| --- | --- | --- |
| cost | 48,048,000 | NA |
| observation | 35,758,734 | 6,863,000 |
| visit\_occurrence | 13,728,000 | 6,863,000 |
| condition\_occurrence | 12,422,894 | 6,806,789 |
| drug\_exposure | 6,864,000 | 6,863,000 |
| payer\_plan\_period | 6,864,000 | 6,863,000 |
| observation\_period | 6,863,000 | 6,863,000 |
| person | 6,863,000 | 6,863,000 |
| procedure\_occurrence | 3,461,788 | 3,439,024 |
| death | 3,431,500 | 3,431,500 |
| location | 17,280 | NA |
| measurement | 12,342 | 6,864 |
| provider | 0 | NA |
| specimen | 0 | 0 |
| dose\_era | 0 | 0 |
| device\_exposure | 0 | 0 |
| visit\_detail | 0 | 0 |
| drug\_era | 0 | 0 |
| condition\_era | 0 | 0 |
| care\_site | 0 | NA |
| note | 0 | 0 |

Query executed in 69.55 secs

## Data density plots

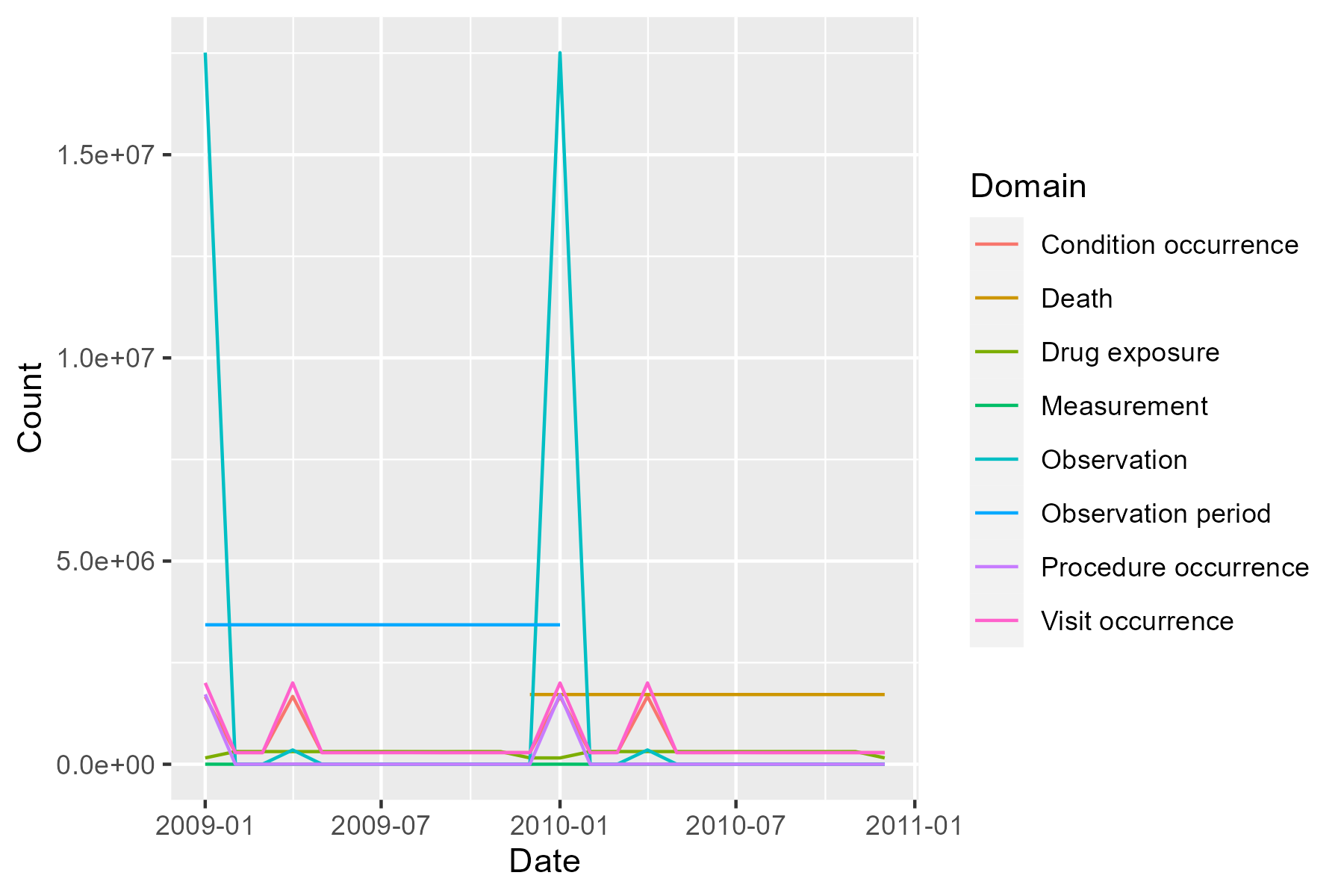


Figure 1. Total record count over time per data domain



Figure 2. Number of records per person over time per data domain

## Distinct concepts per person

Table 2. Shows the number of distinct concepts per person for all data domains

| Domain | Min | P10 | P25 | MEDIAN | P75 | P90 | Max |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Observation | 1 | 1 | 1 | 1 | 1 | 2 | 4 |
| Drug exposure | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Condition occurrence | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| Measurement | 1 | 1 | 1 | 1 | 1 | 1 | 2 |

# Vocabulary Mapping

## Vocabularies

Vocabulary version: v5.0 23-JAN-23

Table 3. The vocabularies available in the CDM with concept count. Note that this does not reflect which concepts are actually used in the clinical CDM tables. S=Standard, C=Classification and '-'=Non-standard

| ID | NAME | VERSION | S | C | - |
| --- | --- | --- | --- | --- | --- |
| ABMS | Provider Specialty (American Board of Medical Specialties) | 2018-06-26 ABMS | 85 | 0 | 13 |
| ATC | WHO Anatomic Therapeutic Chemical Classification | RxNorm 20210907 | 0 | 6,509 | 231 |
| CDM | OMOP Common DataModel | CDM v6.0.0 | 1,045 | 0 | 0 |
| CMS Place of Service | Place of Service Codes for Professional Claims (CMS) | 2009-01-11 | 51 | 0 | 9 |
| Cohort Type | OMOP Cohort Type | NA | 0 | 0 | 1 |
| Concept Class | OMOP Concept Class | NA | 0 | 0 | 416 |
| Condition Status | OMOP Condition Status | NA | 22 | 0 | 0 |
| Condition Type | OMOP Condition Occurrence Type | NA | 0 | 0 | 118 |
| Cost | OMOP Cost | NA | 51 | 0 | 0 |
| Cost Type | OMOP Cost Type | NA | 0 | 0 | 8 |
| CPT4 | Current Procedural Terminology version 4 (AMA) | 2022 Release | 11,909 | 3,559 | 1,454 |
| Currency | International Currency Symbol (ISO 4217) | 2008 | 180 | 0 | 0 |
| Death Type | OMOP Death Type | NA | 0 | 0 | 14 |
| Device Type | OMOP Device Type | NA | 0 | 0 | 4 |
| Domain | OMOP Domain | NA | 0 | 0 | 65 |
| Drug Type | OMOP Drug Exposure Type | NA | 0 | 0 | 16 |
| EBM | German Uniform Assessment Standard (EBM) | NA | 0 | 0 | 3,614 |
| Episode | OMOP Episode | Episode 20201014 | 14 | 0 | 4 |
| Ethnicity | OMOP Ethnicity | NA | 2 | 0 | 0 |
| Gender | OMOP Gender | NA | 2 | 0 | 3 |
| HCPCS | Healthcare Common Procedure Coding System (CMS) | 20221001 Alpha Numeric HCPCS File | 8,461 | 0 | 2,808 |
| ICD10CM | International Classification of Diseases, Tenth Revision, Clinical Modification (NCHS) | ICD10CM FY2023 code descriptions | 0 | 0 | 98,583 |
| ICD10GM | International Classification of Diseases, Tenth Revision, German Edition | ICD10GM 2022 | 0 | 0 | 17,213 |
| ICD9CM | International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 1 and 2 (NCHS) | ICD9CM v32 master descriptions | 0 | 0 | 17,564 |
| ICD9Proc | International Classification of Diseases, Ninth Revision, Clinical Modification, Volume 3 (NCHS) | ICD9CM v32 master descriptions | 2,223 | 0 | 2,434 |
| Insured days | Forschungsdatenzentrum (DE) Insured days | 2023-03-21 | 0 | 0 | 6 |
| KGV-SV Fachgruppen | Professional groups Insured days | 2023-05-03 | 0 | 0 | 73 |
| Korean Revenue Code | Korean Revenue Code (KNHIS) | NA | 7 | 0 | 0 |
| Language | OMOP Language | Language 20221030 | 1 | 0 | 0 |
| LOINC | Logical Observation Identifiers Names and Codes (Regenstrief Institute) | LOINC 2.73 | 113,893 | 49,168 | 102,015 |
| Meas Type | OMOP Measurement Type | NA | 0 | 0 | 12 |
| Medicare Specialty | Medicare provider/supplier specialty codes (CMS) | 2018-06-26 Specialty | 112 | 0 | 8 |
| Metadata | OMOP Metadata | NA | 1 | 0 | 1 |
| NDC | National Drug Code (FDA and manufacturers) | NDC 20230122 | 11,403 | 0 | 1,126,729 |
| None | OMOP Standardized Vocabularies | v5.0 23-JAN-23 | 0 | 0 | 1 |
| Note Type | OMOP Note Type | NA | 0 | 0 | 10 |
| NUCC | National Uniform Claim Committee Health Care Provider Taxonomy Code Set (NUCC) | 2018-06-26 NUCC | 674 | 0 | 181 |
| Observation Type | OMOP Observation Type | NA | 0 | 0 | 29 |
| Obs Period Type | OMOP Observation Period Type | NA | 0 | 0 | 6 |
| OMOP Extension | OMOP Extension (OHDSI) | OMOP Extension 20230110 | 1,187 | 0 | 53 |
| OPS | Operations and Procedures Classification (OPS) | OPS Version 2022 | 0 | 0 | 42,959 |
| OSM | OpenStreetMap (OSMF) | OSM Release 2019-02-21 | 203,339 | 0 | 0 |
| Plan | OMOP Health Plan | NA | 11 | 0 | 0 |
| Plan Stop Reason | OMOP Plan Stop Reason | NA | 13 | 0 | 0 |
| Procedure Type | OMOP Procedure Occurrence Type | NA | 0 | 0 | 97 |
| Race | Race and Ethnicity Code Set (USBC) | Version 1.0 | 50 | 0 | 3 |
| Relationship | OMOP Relationship | NA | 14 | 0 | 698 |
| Revenue Code | UB04/CMS1450 Revenue Codes (CMS) | 2010 Release | 538 | 0 | 0 |
| RxNorm | RxNorm (NLM) | RxNorm 20230103 | 149,993 | 35,341 | 119,532 |
| RxNorm Extension | OMOP RxNorm Extension | RxNorm Extension 2023-01-16 | 1,834,465 | 0 | 275,964 |
| SNOMED | Systematic Nomenclature of Medicine - Clinical Terms (IHTSDO) | 2021-07-31 SNOMED CT International Edition; 2021-09-01 SNOMED CT US Edition; 2021-11-24 SNOMED CT UK Edition | 538,283 | 0 | 516,652 |
| SOPT | Source of Payment Typology (PHDSC) | SOPT Version 9.2 | 162 | 0 | 6 |
| SPL | Structured Product Labeling (FDA) | NDC 20230122 | 0 | 626,507 | 14,948 |
| Sponsor | OMOP Sponsor | NA | 6 | 0 | 0 |
| Type Concept | OMOP Type Concept | Type Concept 20221030 | 80 | 0 | 0 |
| UB04 Point of Origin | UB04 Claim Source Inpatient Admission Code (CMS) | NA | 0 | 0 | 23 |
| UB04 Pri Typ of Adm | UB04 Claim Inpatient Admission Type Code (CMS) | NA | 6 | 0 | 0 |
| UB04 Pt dis status | UB04 Patient Discharge Status Code (CMS) | NA | 0 | 0 | 55 |
| UB04 Typ bill | UB04 Type of Bill - Institutional (USHIK) | NA | 4 | 0 | 294 |
| UCUM | Unified Code for Units of Measure (Regenstrief Institute) | Version 1.8.2 | 1,029 | 0 | 89 |
| US Census | Census regions of the United States (USCB) | US Census 2017 Release | 13 | 0 | 0 |
| Visit | OMOP Visit | Visit 20211216 | 19 | 0 | 0 |
| Visit Type | OMOP Visit Type | NA | 0 | 0 | 18 |
| Vocabulary | OMOP Vocabulary | NA | 0 | 0 | 143 |

Query executed in 5.44 secs

## Table counts

Table 4. Shows the number of records in all vocabulary tables

| TABLENAME | COUNT |
| --- | --- |
| concept\_class | 418 |
| relationship | 690 |
| concept | 5,945,608 |
| concept\_synonym | 2,101,511 |
| vocabulary | 64 |
| domain | 50 |
| concept\_ancestor | 70,537,715 |
| drug\_strength | 2,936,738 |
| concept\_relationship | 46,843,676 |

Query executed in 23.31 secs

## Mapping Completeness

Table 5. Shows the percentage of codes that are mapped to the standardized vocabularies as well as the percentage of records.

| Domain | #Codes Source | #Codes Mapped | %Codes Mapped | #Records Source | #Records Mapped | %Records Mapped |
| --- | --- | --- | --- | --- | --- | --- |
| Condition | 34,622 | 6,334 | 18.3% | 12,422,894 | 2,421,782 | 19.5% |
| Condition status | 6 | 5 | 83.3% | 12,422,894 | 11,042,042 | 88.9% |
| Death cause | 0 | NA | NA | NA | NA | NA |
| Device | 0 | NA | NA | NA | NA | NA |
| Drug | 3,432,000 | 0 | 0% | 6,864,000 | 0 | 0% |
| Measurement | 35 | 35 | 100% | 12,342 | 12,342 | 100% |
| Measurement unit | 0 | NA | NA | NA | NA | NA |
| Measurement value | 0 | NA | NA | NA | NA | NA |
| Observation | 28,665 | 28,664 | 100.0% | 35,758,734 | 1,438,734 | 4.0% |
| Observation unit | 0 | NA | NA | NA | NA | NA |
| Observation value | 0 | NA | NA | NA | NA | NA |
| Procedure | 79 | 79 | 100% | 3,461,788 | 3,461,788 | 100% |
| Provider Specialty | 0 | NA | NA | NA | NA | NA |
| Specimen | 0 | NA | NA | NA | NA | NA |
| Visit | 3 | 2 | 66.7% | 13,728,000 | 10,296,000 | 75.0% |

Query executed in 41.75 secs

## Drug Mappings

Table 6. The level of the drug mappings

| Class | #Records | #Patients | #Codes |
| --- | --- | --- | --- |
|  |  |  |  |

Query executed in 2.25 secs

## Unmapped Codes

Table 7 omitted because no unmapped drugs were found.

Query executed in 42.40 secs

Table 8. Top 25 of unmapped conditions. Counts are rounded up to the nearest hundred.

| # | Source Value | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | A550 | 600 | 300 |
| 2 | X9204 | 600 | 300 |
| 3 | U2309 | 600 | 300 |
| 4 | F7204 | 600 | 300 |
| 5 | Q8507 | 600 | 300 |
| 6 | T3707 | 600 | 300 |
| 7 | Q090 | 600 | 300 |
| 8 | G342 | 600 | 300 |
| 9 | X9202 | 600 | 300 |
| 10 | J1307 | 600 | 300 |
| 11 | Q4602 | 600 | 300 |
| 12 | R122 | 600 | 300 |
| 13 | Y110 | 600 | 300 |
| 14 | B3107 | 600 | 300 |
| 15 | O840 | 600 | 300 |
| 16 | H5909 | 600 | 300 |
| 17 | W765 | 600 | 300 |
| 18 | P5202 | 600 | 300 |
| 19 | Y9909 | 600 | 300 |
| 20 | Q1309 | 600 | 300 |
| 21 | I075 | 600 | 300 |
| 22 | S9904 | 600 | 300 |
| 23 | P3309 | 600 | 300 |
| 24 | U235 | 600 | 300 |
| 25 | V546 | 600 | 300 |

Query executed in 32.39 secs

Table 9 omitted because no unmapped measurements were found.

Query executed in 0.10 secs

Table 10. All 1 unmapped observations. Counts are rounded up to the nearest hundred.

| # | Source Value | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | NA | 34,320,000 | 6,863,000 |

Query executed in 47.83 secs

Table 11 omitted because no unmapped procedures were found.

Query executed in 0.13 secs

Table 12 omitted because no unmapped devices were found.

Query executed in 0.11 secs

Table 13. All 1 unmapped visits. Counts are rounded up to the nearest hundred.

| # | Source Value | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | 0 | 3,432,000 | 3,431,500 |

Query executed in 6.11 secs

## Mapped Codes

Table 14 omitted because no mapped drugs were found.

Query executed in 1.51 secs

Table 15. Top 25 of mapped conditions. Counts are rounded up to the nearest hundred.

| # | Concept Name | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | Finding related to pregnancy | 45,200 | 25,000 |
| 2 | Disorder of upper arm | 8,300 | 4,500 |
| 3 | Poisoning by drug AND/OR medicinal substance | 6,500 | 3,600 |
| 4 | Infection due to resistant bacteria | 5,800 | 3,300 |
| 5 | Abnormal finding on evaluation procedure | 5,400 | 3,000 |
| 6 | Dislocations/sprains/strains | 5,200 | 2,900 |
| 7 | Fetal condition affecting obstetrical care of mother | 5,200 | 2,900 |
| 8 | Cerebrovascular disease | 4,800 | 2,600 |
| 9 | Pregnancy with abortive outcome | 4,200 | 2,400 |
| 10 | Muscle and tendon injury | 4,100 | 2,200 |
| 11 | Disorder of joint of ankle and/or foot | 3,800 | 2,200 |
| 12 | Acquired absence of organ | 3,800 | 2,200 |
| 13 | Arthropathy associated with another disorder | 3,700 | 2,100 |
| 14 | Disorder of lower leg | 3,700 | 2,100 |
| 15 | Staphylococcal arthritis | 3,500 | 1,900 |
| 16 | Disorder of sacrum | 3,500 | 2,000 |
| 17 | Juvenile osteochondrosis of spine | 3,500 | 1,900 |
| 18 | Disorder of free lower limb | 3,500 | 1,900 |
| 19 | Gouty arthropathy | 3,400 | 1,900 |
| 20 | Disorder of forearm | 3,400 | 1,900 |
| 21 | Purulent myositis | 3,300 | 1,900 |
| 22 | Postmeningococcal arthritis | 3,300 | 1,800 |
| 23 | Arthropathy | 3,300 | 1,900 |
| 24 | Gonococcal bursitis | 3,300 | 1,800 |
| 25 | Disorder of lumbar spine | 3,300 | 1,800 |

Query executed in 10.63 secs

Table 16. Top 25 of mapped measurements. Counts are rounded up to the nearest hundred.

| # | Concept Name | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | Screening for disorder | 1,300 | 800 |
| 2 | HIV CDC stage finding | 1,300 | 800 |
| 3 | Barthel index | 1,000 | 600 |
| 4 | Antenatal screening | 1,000 | 600 |
| 5 | Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) | 600 | 300 |
| 6 | Screening for cancer | 500 | 300 |
| 7 | Albumin measurement | 500 | 300 |
| 8 | Hematology screening test | 500 | 300 |
| 9 | Screening for malignant neoplasm of prostate | 500 | 300 |
| 10 | Alpha-1-Fetoprotein measurement, amniotic fluid | 500 | 300 |
| 11 | Antenatal screening for isoimmunization | 500 | 300 |
| 12 | In vivo test of hypersensitivity | 500 | 300 |
| 13 | Screening for malignant neoplasm of breast | 500 | 300 |
| 14 | Screening for malignant neoplasm of stomach | 500 | 300 |
| 15 | Fetal chromosomal abnormality screening | 500 | 300 |
| 16 | Antibody titer measurement | 400 | 300 |
| 17 | Blood pressure taking | 400 | 200 |
| 18 | Immunology laboratory test | 400 | 200 |
| 19 | Serum/plasma protein test | 400 | 200 |
| 20 | Blood test | 400 | 200 |
| 21 | Enzyme measurement | 400 | 200 |
| 22 | Antenatal screening for malformation | 400 | 200 |
| 23 | Screening for malignant neoplasm of intestinal tract | 200 | 100 |
| 24 | Screening for cardiovascular system disease | 200 | 100 |
| 25 | Globulin measurement | 200 | 100 |

Query executed in 0.17 secs

Table 17. Top 25 of mapped observations. Counts are rounded up to the nearest hundred.

| # | Concept Name | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | Disorder excluded | 1,372,800 | 1,372,600 |
| 2 | History of event | 11,400 | 6,500 |
| 3 | Follow-up encounter | 3,200 | 1,800 |
| 4 | Family history of clinical finding | 2,100 | 1,200 |
| 5 | Allergy to substance | 1,800 | 1,000 |
| 6 | Requires vaccination | 1,800 | 1,000 |
| 7 | Aftercare | 1,700 | 1,000 |
| 8 | Patient encounter procedure | 1,300 | 800 |
| 9 | On waiting list for organ transplant | 1,000 | 600 |
| 10 | Body mass index 40+ - severely obese | 1,000 | 600 |
| 11 | Need for personal care assistance | 1,000 | 600 |
| 12 | Requires polio vaccination | 900 | 500 |
| 13 | Tobacco user | 900 | 500 |
| 14 | Exposure to communicable disease | 800 | 500 |
| 15 | Family history of cancer | 800 | 500 |
| 16 | Donor for medical or surgical procedure | 800 | 500 |
| 17 | Blood donor | 600 | 400 |
| 18 | Mandibular implant in situ | 600 | 300 |
| 19 | Eye donor for corneal transplant | 600 | 300 |
| 20 | Very low level of personal hygiene | 600 | 300 |
| 21 | Accident due to cold of man-made origin | 600 | 300 |
| 22 | Allergy to drug | 600 | 300 |
| 23 | Antenatal care of elderly primigravida | 600 | 300 |
| 24 | Cardiac rehabilitation | 600 | 300 |
| 25 | Death from direct obstetric cause occurring more than 42 days but less than one year after delivery | 600 | 300 |

Query executed in 7.15 secs

Table 18. Top 25 of mapped procedures. Counts are rounded up to the nearest hundred.

| # | Concept Name | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | Dialysis procedure | 3,432,200 | 3,431,600 |
| 2 | Fitting procedure | 1,900 | 1,000 |
| 3 | Preventive procedure | 1,800 | 1,000 |
| 4 | Adjustment of implant | 1,700 | 900 |
| 5 | Attention to device, anastomosis AND/OR stoma | 1,600 | 900 |
| 6 | Surgical procedure | 1,300 | 800 |
| 7 | Medical examination for suspected condition | 1,300 | 800 |
| 8 | Analysis of electronic device used in cardiovascular system | 1,000 | 600 |
| 9 | Reproductive care management | 900 | 600 |
| 10 | General examination of patient | 900 | 500 |
| 11 | Specialized medical examination | 800 | 500 |
| 12 | Contraception care management | 800 | 500 |
| 13 | Fitting of prosthesis | 700 | 400 |
| 14 | Postnatal maternal examination | 700 | 400 |
| 15 | Child examination | 600 | 300 |
| 16 | Ophthalmic examination and evaluation | 600 | 300 |
| 17 | Genetic counseling | 600 | 300 |
| 18 | Hearing examination | 600 | 300 |
| 19 | Reversal of sterilization | 600 | 300 |
| 20 | Examination for suspected mental disorder | 600 | 300 |
| 21 | Examination for suspected tuberculosis | 600 | 300 |
| 22 | Pretransplant evaluation of donor | 500 | 300 |
| 23 | Examination for suspected cardiovascular disease | 500 | 300 |
| 24 | Examination for injuries | 500 | 300 |
| 25 | Prophylactic immunotherapy | 500 | 300 |

Query executed in 6.44 secs

Table 19 omitted because no mapped devices were found.

Query executed in 0.11 secs

Table 20. All 2 mapped visits. Counts are rounded up to the nearest hundred.

| # | Concept Name | #Records | #Subjects |
| --- | --- | --- | --- |
| 1 | Outpatient Hospital | 6,864,000 | 6,863,000 |
| 2 | Outpatient Visit | 3,432,000 | 3,431,500 |

Query executed in 20.11 secs

## Source to concept map

Note that the full source\_to\_concept\_map table is added in the results.zip

Table 21. Source to concept map breakdown

| SOURCE\_VOCABULARY\_ID | TARGET\_VOCABULARY\_ID | COUNT |
| --- | --- | --- |
|  |  |  |

Query executed in 0.17 secs

Note that the full source\_to\_concept\_map table is added in the results.zip

# Technical Infrastructure

## CDM Source Table

Table 22. cdm\_source table content

| field |  |  |
| --- | --- | --- |
| CDM\_SOURCE\_NAME |  | HDL\_format1 |
| CDM\_SOURCE\_ABBREVIATION |  | MEVIS\_format1 |
| CDM\_HOLDER |  | MEVIS |
| SOURCE\_DESCRIPTION |  | HDL\_format1 |
| SOURCE\_DOCUMENTATION\_REFERENCE |  | https://github.com/FDZ-Gesundheit/datensatzbeschreibung\_fdz\_gesundheit |
| CDM\_ETL\_REFERENCE |  | https://github.com/FraunhoferMEVIS/ETLfromHDLtoOMOP/ |
| SOURCE\_RELEASE\_DATE |  | 2024-06-04 |
| CDM\_RELEASE\_DATE |  | 2024-09-13 |
| CDM\_VERSION |  | v5.4 |
| CDM\_VERSION\_CONCEPT\_ID |  | 756265 |
| VOCABULARY\_VERSION |  | v5.0 23-JAN-23 |

## HADES packages

Table 23. Versions of all installed HADES R packages

| Package | Version |
| --- | --- |
| DatabaseConnector | 6.1.0 |
| ParallelLogger | 3.3.0 |
| ROhdsiWebApi | 1.3.3 |
| SqlRender | 1.15.0 |

Missing HADES packages: CohortMethod, SelfControlledCaseSeries, SelfControlledCohort, EvidenceSynthesis, PatientLevelPrediction, EnsemblePatientLevelPrediction, Capr, CirceR, CohortGenerator, PhenotypeLibrary, EmpiricalCalibration, MethodEvaluation, CohortDiagnostics, Andromeda, BigKnn, Cyclops, Eunomia, FeatureExtraction, Hydra, OhdsiSharing

## System Information

Installed R version: R version 4.2.3 (2023-03-15 ucrt)

System CPU vendor: GenuineIntel

System CPU model: 11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz

System CPU number of cores: 8

System RAM: 34.07 GB

DBMS: postgresql

WebAPI version: unknown

## Vocabulary Query Performance

The number of 'Maps To' relations is equal to 4372361. This query was executed in 19.96 secs

## Achilles Query Performance

Table 24. Execution time of queries of the Achilles R-Package

| ID | NAME | DURATION |
| --- | --- | --- |
| 0 | Source name | 7.57 |
| 1 | Number of persons | 2.98 |
| 2 | Number of persons by gender | 4.47 |
| 3 | Number of persons by year of birth | 7.92 |
| 4 | Number of persons by race | 8.08 |
| 5 | Number of persons by ethnicity | 7.68 |
| 7 | Number of persons with invalid provider\_id | 2.1 |
| 8 | Number of persons with invalid location\_id | 1.04 |
| 9 | Number of persons with invalid care\_site\_id | 0.59 |
| 10 | Number of all persons by year of birth by gender | 7.51 |
| 11 | Number of non-deceased persons by year of birth by gender | 9.34 |
| 12 | Number of persons by race and ethnicity | 8.56 |
| 101 | Number of persons by age, with age at first observation period | 7.42 |
| 102 | Number of persons by gender by age, with age at first observation period | 6.6 |
| 108 | Number of persons by length of observation period, in 30d increments | 30.39 |
| 109 | Number of persons with continuous observation in each year | 50.96 |
| 110 | Number of persons with continuous observation in each month | 39.04 |
| 111 | Number of persons by observation period start month | 15.1 |
| 112 | Number of persons by observation period end month | 16.95 |
| 113 | Number of persons by number of observation periods | 10.97 |
| 114 | Number of persons with observation period before year-of-birth | 9.66 |
| 115 | Number of persons with observation period end < observation period start | 0.44 |
| 116 | Number of persons with at least one day of observation in each year by gender and age decile | 47.46 |
| 118 | Number of observation periods with invalid person\_id | 8.32 |
| 119 | Number of observation period records by period\_type\_concept\_id | 1.06 |
| 200 | Number of persons with at least one visit occurrence, by visit\_concept\_id | 25.82 |
| 201 | Number of visit occurrence records, by visit\_concept\_id | 12.44 |
| 202 | Number of persons by visit occurrence start month, by visit\_concept\_id | 33.6 |
| 204 | Number of persons with at least one visit occurrence, by visit\_concept\_id by calendar year by gender by age decile | 59.59 |
| 207 | Number of visit records with invalid person\_id | 9.05 |
| 209 | Number of visit records with invalid care\_site\_id | 0.95 |
| 210 | Number of visit\_occurrence records outside a valid observation period | 10.65 |
| 211 | Number of visit records with end date < start date | 0.87 |
| 212 | Number of persons with at least one visit occurrence, by calendar year by gender by age decile | 46.08 |
| 220 | Number of visit occurrence records by visit occurrence start month | 15.32 |
| 221 | Number of persons by visit start year | 28.48 |
| 225 | Number of visit\_occurrence records by visit\_source\_concept\_id | 11.77 |
| 230 | Number of visit\_occurrence records inside valid observation period | 11.48 |
| 231 | Proportion of people with at least one visit\_occurrence record outside a valid observation period | 19.91 |
| 232 | Proportion of visit\_occurrence records outside a valid observation period | 10.3 |
| 300 | Number of providers | 0.03 |
| 301 | Number of providers by specialty concept\_id | 0.02 |
| 303 | Number of providers records by specialty\_concept\_id and visit\_concept\_id | 0.14 |
| 325 | Number of provider records by specialty\_source\_concept\_id | 0.04 |
| 400 | Number of persons with at least one condition occurrence, by condition\_concept\_id | 23.5 |
| 401 | Number of condition occurrence records, by condition\_concept\_id | 12.04 |
| 402 | Number of persons by condition occurrence start month, by condition\_concept\_id | 30.73 |
| 404 | Number of persons with at least one condition occurrence, by condition\_concept\_id by calendar year by gender by age decile | 54.53 |
| 405 | Number of condition occurrence records, by condition\_concept\_id by condition\_type\_concept\_id | 12.43 |
| 409 | Number of condition occurrence records with invalid person\_id | 9.5 |
| 410 | Number of condition occurrence records outside valid observation period | 10.43 |
| 411 | Number of condition occurrence records with end date < start date | 0.83 |
| 412 | Number of condition occurrence records with invalid provider\_id | 0.87 |
| 413 | Number of condition occurrence records with invalid visit\_id | 17.08 |
| 414 | Number of condition occurrence records, by condition\_status\_concept\_id | 11.62 |
| 415 | Number of condition occurrence records, by condition\_type\_concept\_id | 11.27 |
| 416 | Number of condition occurrence records, by condition\_status\_concept\_id, condition\_type\_concept\_id | 11.73 |
| 420 | Number of condition occurrence records by condition occurrence start month | 14.27 |
| 425 | Number of condition\_occurrence records by condition\_source\_concept\_id | 11.8 |
| 424 | Number of distinct people with co-occurring condition\_occurrence condition\_concept\_id pairs | 4.98 |
| 430 | Number of condition\_occurrence records inside a valid observation period | 10.78 |
| 431 | Proportion of people with at least one condition\_occurrence record outside a valid observation period | 18.2 |
| 432 | Proportion of condition\_occurrence records outside a valid observation period | 10.31 |
| 500 | Number of persons with death, by cause\_concept\_id | 8.36 |
| 501 | Number of records of death, by cause\_concept\_id | 5.72 |
| 502 | Number of persons by death month | 10.17 |
| 504 | Number of persons with a death, by calendar year by gender by age decile | 22.84 |
| 505 | Number of death records, by death\_type\_concept\_id | 5.59 |
| 509 | Number of death records with invalid person\_id | 7.57 |
| 510 | Number of death records outside valid observation period | 7.93 |
| 525 | Number of death records by cause\_source\_concept\_id | 0.53 |
| 530 | Number of death records inside a valid observation period | 5.13 |
| 531 | Proportion of people with at least one death record outside a valid observation period | 8.79 |
| 532 | Proportion of death records that occur outside a valid observation period | 7.59 |
| 600 | Number of persons with at least one procedure occurrence, by procedure\_concept\_id | 8.62 |
| 601 | Number of procedure occurrence records, by procedure\_concept\_id | 5.82 |
| 602 | Number of persons by procedure occurrence start month, by procedure\_concept\_id | 10.56 |
| 604 | Number of persons with at least one procedure occurrence, by procedure\_concept\_id by calendar year by gender by age decile | 22.29 |
| 605 | Number of procedure occurrence records, by procedure\_concept\_id by procedure\_type\_concept\_id | 5.94 |
| 609 | Number of procedure occurrence records with invalid person\_id | 7.56 |
| 610 | Number of procedure occurrence records outside valid observation period | 7.91 |
| 612 | Number of procedure occurrence records with invalid provider\_id | 0.3 |
| 613 | Number of procedure occurrence records with invalid visit\_id | 2.49 |
| 620 | Number of procedure occurrence records by procedure occurrence start month | 6.57 |
| 625 | Number of procedure\_occurrence records by procedure\_source\_concept\_id | 5.93 |
| 624 | Number of distinct people with co-occurring procedure\_occurrence procedure\_concept\_id pairs | 4.25 |
| 630 | Number of procedure\_occurrence records inside a valid observation period | 5.32 |
| 631 | Proportion of people with at least one procedure\_occurrence record outside a valid observation period | 9.36 |
| 632 | Proportion of procedure\_occurrence records outside a valid observation period | 8.09 |
| 691 | Percentage of total persons that have at least x procedures | 9.71 |
| 700 | Number of persons with at least one drug exposure, by drug\_concept\_id | 15.2 |
| 701 | Number of drug exposure records, by drug\_concept\_id | 9.52 |
| 702 | Number of persons by drug exposure start month, by drug\_concept\_id | 20.08 |
| 704 | Number of persons with at least one drug exposure, by drug\_concept\_id by calendar year by gender by age decile | 35.84 |
| 705 | Number of drug exposure records, by drug\_concept\_id by drug\_type\_concept\_id | 9.97 |
| 709 | Number of drug exposure records with invalid person\_id | 8.46 |
| 710 | Number of drug exposure records outside valid observation period | 8.95 |
| 711 | Number of drug exposure records with end date < start date | 0.59 |
| 712 | Number of drug exposure records with invalid provider\_id | 0.64 |
| 713 | Number of drug exposure records with invalid visit\_id | 0.03 |
| 720 | Number of drug exposure records by drug exposure start month | 11.31 |
| 725 | Number of drug\_exposure records by drug\_source\_concept\_id | 9.55 |
| 724 | Number of distinct people with co-occurring drug\_exposure drug\_concept\_id pairs | 0.49 |
| 730 | Number of drug\_exposure records inside a valid observation period | 8.95 |
| 731 | Proportion of people with at least one drug\_exposure record outside a valid observation period | 11.96 |
| 732 | Proportion of drug\_exposure records outside a valid observation period | 9.23 |
| 791 | Percentage of total persons that have at least x drug exposures | 18.12 |
| 800 | Number of persons with at least one observation occurrence, by observation\_concept\_id | 51.6 |
| 801 | Number of observation occurrence records, by observation\_concept\_id | 18.18 |
| 802 | Number of persons by observation occurrence start month, by observation\_concept\_id | 1.18 |
| 804 | Number of persons with at least one observation occurrence, by observation\_concept\_id by calendar year by gender by age decile | 2.23 |
| 805 | Number of observation occurrence records, by observation\_concept\_id by observation\_type\_concept\_id | 18.31 |
| 807 | Number of observation occurrence records, by observation\_concept\_id and unit\_concept\_id | 19.12 |
| 809 | Number of observation records with invalid person\_id | 13.74 |
| 810 | Number of observation records outside valid observation period | 15.15 |
| 812 | Number of observation records with invalid provider\_id | 2.37 |
| 813 | Number of observation records with invalid visit\_id | 17.21 |
| 814 | Number of observation records with no value (numeric, string, or concept) | 2.29 |
| 820 | Number of observation records by observation start month | 26.75 |
| 822 | Number of observation records, by observation\_concept\_id and value\_as\_concept\_id | 18.37 |
| 823 | Number of observation records, by observation\_concept\_id and qualifier\_concept\_id | 18.47 |
| 824 | Number of distinct people with co-occurring observation observation\_concept\_id pairs | 3.65 |
| 825 | Number of observation records by observation\_source\_concept\_id | 18.33 |
| 826 | Number of observation records by value\_as\_concept\_id | 17.53 |
| 827 | Number of observation records by unit\_concept\_id | 17.54 |
| 830 | Number of observation records inside a valid observation period | 16.14 |
| 831 | Proportion of people with at least one observation record outside a valid observation period | 43.2 |
| 832 | Proportion of observation records outside a valid observation period | 15.68 |
| 891 | Percentage of total persons that have at least x observations | 34.91 |
| 900 | Number of persons with at least one drug era, by drug\_concept\_id | 0.07 |
| 901 | Number of drug era records, by drug\_concept\_id | 0.03 |
| 902 | Number of persons by drug era start month, by drug\_concept\_id | 0.03 |
| 904 | Number of persons with at least one drug era, by drug\_concept\_id by calendar year by gender by age decile | 0.04 |
| 908 | Number of drug eras without valid person | 0.03 |
| 910 | Number of drug\_era records outside valid observation period | 0.03 |
| 911 | Number of drug eras with end date < start date | 0.03 |
| 920 | Number of drug era records by drug era start month | 0.03 |
| 930 | Number of drug\_era records inside a valid observation period | 0.03 |
| 931 | Proportion of people with at least one drug\_era record outside a valid observation period | 0.03 |
| 932 | Proportion of drug\_era records outside a valid observation period | 0.04 |
| 1,000 | Number of persons with at least one condition era, by condition\_concept\_id | 0.07 |
| 1,001 | Number of condition era records, by condition\_concept\_id | 0.04 |
| 1,002 | Number of persons by condition era start month, by condition\_concept\_id | 0.03 |
| 1,004 | Number of persons with at least one condition era, by condition\_concept\_id by calendar year by gender by age decile | 0.03 |
| 1,008 | Number of condition eras without valid person | 0.04 |
| 1,010 | Number of condition\_era records outside a valid observation period | 0.03 |
| 1,011 | Number of condition eras with end date < start date | 0.03 |
| 1,020 | Number of condition era records by condition era start month | 0.03 |
| 1,030 | Number of condition\_era records inside a valid observation period | 0.03 |
| 1,031 | Proportion of people with at least one condition\_era record outside a valid observation period | 0.13 |
| 1,032 | Proportion of condition\_era records outside a valid observation period | 0.04 |
| 1,100 | Number of persons by location 3-digit zip | 12.72 |
| 1,101 | Number of persons by location state | 12.21 |
| 1,102 | Number of care sites by location 3-digit zip | 0.03 |
| 1,103 | Number of care sites by location state | 0.03 |
| 1,200 | Number of persons by place of service | 0.6 |
| 1,201 | Number of visits by place of service | 0.87 |
| 1,202 | Number of care sites by place of service | 0.03 |
| 1,203 | Number of visits by place of service discharge type | 1.1 |
| 1,300 | Number of persons with at least one visit detail, by visit\_detail\_concept\_id | 0.07 |
| 1,301 | Number of visit detail records, by visit\_detail\_concept\_id | 0.03 |
| 1,302 | Number of persons by visit detail start month, by visit\_detail\_concept\_id | 0.03 |
| 1,304 | Number of persons with at least one visit detail, by visit\_detail\_concept\_id by calendar year by gender by age decile | 0.03 |
| 1,307 | Number of visit records with invalid person\_id | 0.05 |
| 1,309 | Number of visit\_detail records with invalid care\_site\_id | 0.03 |
| 1,310 | Number of visit\_detail records outside a valid observation period | 0.03 |
| 1,311 | Number of visit\_detail records with end date < start date | 0.03 |
| 1,312 | Number of persons with at least one visit detail, by calendar year by gender by age decile | 0.03 |
| 1,320 | Number of visit detail records by visit detail start month | 0.03 |
| 1,321 | Number of persons by visit start year | 0.03 |
| 1,325 | Number of visit\_detail records by visit\_detail\_source\_concept\_id | 0.03 |
| 1,326 | Number of records by domain by visit\_detail\_concept\_id | 11.07 |
| 1,330 | Number of visit\_detail records inside a valid observation period | 0.06 |
| 1,331 | Proportion of people with at least one visit\_detail record outside a valid observation period | 0.03 |
| 1,332 | Proportion of visit\_detail records outside a valid observation period | 0.03 |
| 1,408 | Number of persons by length of payer plan period, in 30d increments | 31.4 |
| 1,409 | Number of persons with continuous payer plan in each year | 28.93 |
| 1,410 | Number of persons with continuous payer plan in each month | 49.22 |
| 1,411 | Number of persons by payer plan period start month | 19.14 |
| 1,412 | Number of persons by payer plan period end month | 19.54 |
| 1,413 | Number of persons by number of payer plan periods | 13.74 |
| 1,414 | Number of persons with payer plan period before year-of-birth | 9.29 |
| 1,415 | Number of persons with payer plan period end < payer plan period start | 0.43 |
| 1,425 | Number of payer\_plan\_period records by payer\_source\_concept\_id | 0.85 |
| 1,610 | Number of records by revenue\_code\_concept\_id | 2.34 |
| 1,800 | Number of persons with at least one measurement occurrence, by measurement\_concept\_id | 0.48 |
| 1,801 | Number of measurement occurrence records, by measurement\_concept\_id | 0.1 |
| 1,802 | Number of persons by measurement occurrence start month, by measurement\_concept\_id | 0.12 |
| 1,804 | Number of persons with at least one mesurement occurrence, by measurement\_concept\_id by calendar year by gender by age decile | 0.27 |
| 1,805 | Number of measurement occurrence records, by measurement\_concept\_id by measurement\_type\_concept\_id | 0.11 |
| 1,807 | Number of measurement occurrence records, by measurement\_concept\_id and unit\_concept\_id | 0.11 |
| 1,809 | Number of measurement records with invalid person\_id | 0.13 |
| 1,810 | Number of measurement records outside valid observation period | 0.13 |
| 1,811 | Number of measurement records with a valid value (with a mapped, non-null value\_as\_number) | 0.03 |
| 1,812 | Number of measurement records with invalid provider\_id | 0.03 |
| 1,813 | Number of measurement records with invalid visit\_id | 0.34 |
| 1,814 | Number of measurement records with no value (numeric, string, or concept) | 0.16 |
| 1,818 | Number of measurement records below/within/above normal range, by measurement\_concept\_id and unit\_concept\_id | 0.07 |
| 1,819 | Number of measurement records, by measurement\_concept\_id, with a valid value (with a mapped, non-null value\_as\_number) | 0.03 |
| 1,820 | Number of measurement records by measurement start month | 0.15 |
| 1,821 | Number of measurement records with no numeric value | 0.04 |
| 1,822 | Number of measurement records, by measurement\_concept\_id and value\_as\_concept\_id | 0.13 |
| 1,823 | Number of measurement records, by measurement\_concept\_id and operator\_concept\_id | 0.1 |
| 1,824 | Number of distinct people with co-occurring measurement measurement\_concept\_id pairs | 0.05 |
| 1,825 | Number of measurement records by measurement\_source\_concept\_id | 0.1 |
| 1,826 | Number of measurement records by value\_as\_concept\_id | 0.11 |
| 1,827 | Number of measurement records by unit\_concept\_id | 0.11 |
| 1,830 | Number of visit\_detail records inside a valid observation period | 0.09 |
| 1,831 | Proportion of people with at least one measurement record outside a valid observation period | 0.08 |
| 1,832 | Proportion of measurement records outside a valid observation period | 0.12 |
| 1,833 | Proportion of measurement records inside a valid observation period and without a value | 0.16 |
| 1,891 | Percentage of total persons that have at least x measurements | 0.11 |
| 1,900 | Source values mapped to concept\_id 0 by table, by column, by source\_value | 1.44 |
| 2,003 | Number of patients with at least 1 Visit | 20.18 |
| 2,004 | Number of distinct patients that overlap between specific domains | 21.28 |
| 2,100 | Number of persons with at least one device exposure, by device\_concept\_id | 0.09 |
| 2,101 | Number of device exposure records, by device\_concept\_id | 0.03 |
| 2,102 | Number of persons by device records start month, by device\_concept\_id | 0.05 |
| 2,104 | Number of persons with at least one device exposure, by device\_concept\_id by calendar year by gender by age decile | 0.07 |
| 2,105 | Number of device exposure records, by device\_concept\_id by device\_type\_concept\_id | 0.03 |
| 2,110 | Number of device\_exposure records outside valid observation period | 0.04 |
| 2,125 | Number of device\_exposure records by device\_source\_concept\_id | 0.04 |
| 2,130 | Number of device\_exposure records inside a valid observation period | 0.15 |
| 2,131 | Proportion of people with at least one device\_exposure record outside a valid observation period | 0.06 |
| 2,132 | Proportion of device\_exposure records outside a valid observation period | 0.07 |
| 2,191 | Percentage of total persons that have at least x device exposures | 0.03 |
| 2,200 | Number of persons with at least one note by note\_type\_concept\_id | 0.08 |
| 2,201 | Number of note records, by note\_type\_concept\_id | 0.03 |

Query executed in 0.25 secs