Study Protocol

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DARWIN EU® - Characterisation of pregnancies identified through the PeriNet pregnancy algorithm

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LIST OF ABBREVIATIONS

Acronyms/terms	Description
AB	Abortion
APGAR	Appearance, Pulse, Grimace, Activity, and Respiration
ATC	Anatomical Therapeutic Chemical
BMI	Body Mass Index
CC	Coordination Centre
CDM	Common Data Model
CIPH	Croatian Institute of Public Health
COVID-19	Coronavirus disease 2019
DARWIN EU®	Data Analysis and Real-World Interrogation Network
DELIV	Delivery record present but not classified as LB/SB
DKMA	Danish Medicines Agency
DK-DHR	Danish Data Health Registries
DRE	Digital Research Environment
DTZ	Data Transfer Zone
ECT	Ectopic pregnancy
EHR	Electronic Health Records
EMA	European Medicines Agency
ENCePP	European Network of Centres for Pharmacoepidemiology and Pharmacovigilance
Erasmus MC	Erasmus University Medical Center
EU	European Union
EUPAS	EU Post-Authorisation Studies Register
FinOMOP-THL	Finnish Care Register for Health Care
GDPR	General Data Protection Regulation
GP	General Practitioner
HELLP	Haemolysis, Elevated Liver enzymes, and Low Platelet count
HIV	Human Immunodeficiency Virus
ICD	International Classification of Diseases
IDIAPJGol	Fundació Institut Universitari per a la recerca a l'Atenció Primària de Salut Jordi Gol i Gurina
IPCI	Integrated Primary Care Information
InGef	InGef - Institute for Applied Health Research Berlin GmbH
InGef RDB	InGef Research Database
IRB	Institutional Review Board
max	Maximum value
min	Minimum value
MBR	Medical Birth Registry

Acronyms/terms	Description
MBRN	Medical Birth Registry of Norway
N	Total number of individuals
NAJS	Croatian National Public Health Information System
NLHR	Norwegian Linked Health Registry data
LB	Livebirth
OMOP	Observational Medical Outcomes Partnership
PET	Perinatal Expansion Table
PED	Pregnancy end date
PREG	Pregnancy inferred from gestational evidence without a usable outcome anchor
q25	Quartile 25
q75	Quartile 75
RxNorm	Medical prescription normalised
SA	Miscarriage
SB	Stillbirth
SD	Standard deviation
SIDIAP	The Information System for Research in Primary Care
SNOMED	Systematized Nomenclature of Medicine
Tdap	Tetanus, Diphtheria, & Pertussis
TORCH	Toxoplasmosis, Other, Rubella, Cytomegalovirus, Herpes Simplex Virus
UiO	University of Oslo
WHO	World Health Organization

1. ABSTRACT

Rationale

The DARWIN EU® PeriNet study evaluated and optimised an existing pregnancy algorithm in 15 data sources with pregnancy-related data from the DARWIN EU® Data Network and resulted in the development of the *PregnancyIdentifier* R package. Outputs confirm that the network may support pregnancy episode identification at scale, but performance varied across data sources and further algorithm optimisation is still needed. A characterisation of pregnancies identified through this algorithm is needed to support assessment of the feasibility of future studies on pregnancy and perinatal health within the DARWIN EU® Data Network.

Objectives

To characterise pregnancy episodes identified using the pregnancy algorithm (*PregnancyIdentifier* R package) output generated as part of the PeriNet study, following the application of exclusion criteria/data cleaning rules.

The specific objectives of this study are:

1. To describe pregnancy episodes in terms of gestational length, pregnancy outcome, mode of delivery, and number of pregnancy episodes with mother-child linkage.
2. To describe time trends in the number of pregnancy episodes, pregnancy outcomes, mode of delivery, and number of pregnancy episodes with mother-child linkage.
3. To characterise individuals with a pregnancy episode in terms of demographics, baseline comorbidities, health-related behaviours, medication use, pregnancy complications, and pregnancy outcomes.
4. To characterise infants with mother-child linkage in terms of birth-related characteristics, early-life factors, and duration of follow-up, restricted to those linked to a pregnancy episode identified using the pregnancy algorithm.

Methods

A cohort study including:

- A characterisation of pregnancy episodes overall and over time (Objective 1 and 2).
- A characterisation of pregnancy episodes, focusing on characteristics of pregnant individuals (Objective 3).
- A characterisation of infants with mother-child linkage, restricted to those that could be linked to a recorded pregnancy episode (Objective 4).

Population

For Objectives 1, 2, and 3, all pregnancy episodes recorded from 2010 to one year before the end of data availability in females aged 12–55 years will be included. For Objective 4, all infants with mother-child born from 2010 to the end of data availability with mother-child linkage and an associated pregnancy episode identified using the pregnancy algorithm will be included.

Variables

Objective 1: gestational length; pregnancy outcomes; mode of delivery; number of pregnancies with mother-child linkage.

Objective 2: number of pregnancy episodes; pregnancy outcomes; mode of delivery; number of pregnancies with mother-child linkage; calendar year.

Objective 3: demographics; pregnancy outcomes; health-related behaviours; baseline comorbidities (before pregnancy); pregnancy complications (during pregnancy and up to 90 days after pregnancy end); medication used; large-scale characterisation based on conditions and medications at ingredient level.

Objective 4: demographics; gestational age; birth weight; Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) score; small for gestational age; breastfeeding; congenital malformations; mortality.

Data sources

Croatian National Public Health Information System (NAJS); Danish Data Health Registries (DK-DHR); Finnish Care Register for Health Care (FinOMOP-THL); InGef Research Database (InGef RDB); Norwegian Linked Health Registry data (NLHR); The Information System for Research in Primary Care (SIDIAP); Integrated Primary Care Information (IPCI). Objective 4 will only be conducted in DK-DHR, NAJS, NLHR and SIDIAP.

Statistical analyses

Characteristics will be summarised using counts and percentages for categorical variables, and median with interquartile range for continuous variables.

For Objective 1, the number of included pregnancies, overall, by pregnancy outcomes, and mode of delivery, will be reported. For Objective 2, the number of pregnancies, pregnancy outcomes, mode of delivery, and number of pregnancies with mother-child linkage will be reported by calendar year. Objective 3 will focus on the characterisation of individuals with included pregnancy episodes. Objective 4 will focus on the characterisation of infants with mother-child linkage and an associated pregnancy episode in terms of birth-related characteristics, early-life factors, and duration of follow-up.

2. MILESTONES

Study milestones and deliverables	Planned dates*
Final Study Protocol	17 November 2026
Creation of Analytical code	November/December 2026
Execution of Analytical Code on the data	January 2027
Draft Study Report	February/March2027
Final Study Report	April 2027

*Planned dates are dependent on obtaining approval from the internal review boards of the data sources, code execution by the data sources, and deliverable review cycles.

3. RATIONALE AND BACKGROUND

Reliable identification and characterisation of pregnancy episodes, pregnant individuals, and infants are essential for post-authorisation evidence generation and safety monitoring.[1] The DARWIN EU® PeriNet study Objective 4 characterised pregnancy episodes, birth parents, and infants in data sources with information mapped to the Perinatal Expansion Table (PET).[2] However, data sources containing pregnancy-related information that was not mapped to the PET were not included in this characterisation.[3] Consequently, the characteristics of their pregnancy population remains less well described.

PeriNet Objective 2 evaluated and initially optimised an existing pregnancy algorithm across 15 DARWIN EU[â] data sources.[4, 5] This resulted in the development of the *PregnancyIdentifier* R package, which aims to support the standardised identification and construction of pregnancy episodes in data mapped to the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM). The algorithm provides a basis for extending pregnancy episodes identification to data sources without information mapped to the PET.[6]

This study will extend the characterisation conducted in PeriNet Objective 4 to pregnancy episodes identified using the *PregnancyIdentifier* algorithm after applying prespecified cleaning rules. This characterisation will potentially generate information to support feasibility assessments for pregnancy studies in additional data sources.

4. OBJECTIVES

To characterise pregnancy episodes identified using the pregnancy algorithm (*PregnancyIdentifier* R package) output generated as part of the PeriNet study, following the application of exclusion criteria/data cleaning rules.

The specific objectives of this study are:

1. To describe pregnancy episodes in terms of gestational length, pregnancy outcome, mode of delivery, and number of pregnancy episodes with mother-child linkage.
2. To describe time trends in the number of pregnancy episodes, pregnancy outcomes, mode of delivery, and number of pregnancy episodes with mother-child linkage.
3. To characterise individuals with a pregnancy episode in terms of demographics, baseline comorbidities, health-related behaviours, medication use, pregnancy complications, and pregnancy outcomes.

4. To characterise infants with mother-child linkage in terms of birth-related characteristics, early-life factors, and duration of follow-up, restricted to those linked to a pregnancy episode identified using the pregnancy algorithm.

5. RESEARCH METHODS

5.1. Study design

A cohort study will be conducted using routinely collected health data from 7 data sources from 7 countries across Europe. The study will comprise:

- A characterisation of pregnancy episodes, overall and over time (Objective 1 and 2).
- A characterisation of pregnancy episodes, focusing on the characteristics of pregnant individuals (Objective 3).
- A characterisation of infants with mother-child linkage, restricted to those that could be linked to a recorded pregnancy episode. (Objective 4).

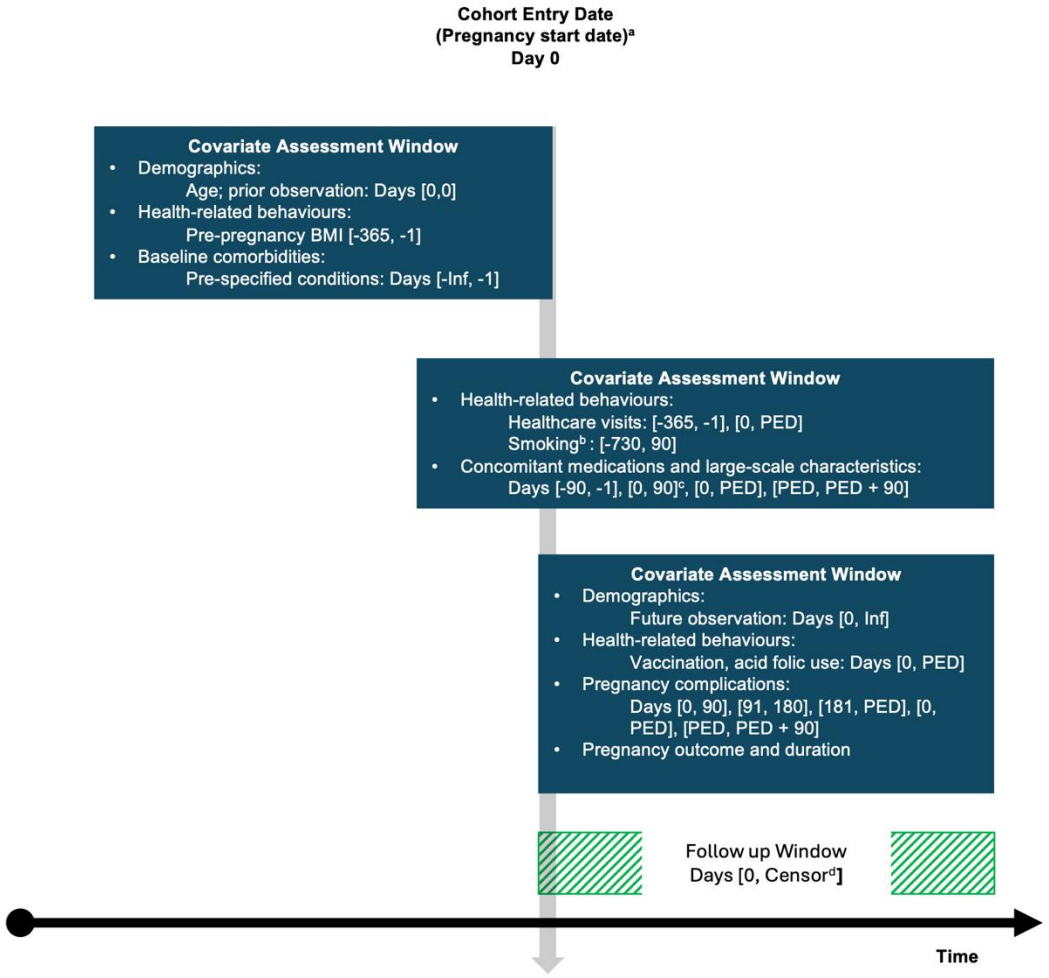


Figure 1a. Graphical depiction of the study design for Objectives 1, 2, and 3.

a. Cohort entry date will be defined as the date of pregnancy start. The source population will include pregnant individuals, aged 12–55 years at pregnancy start.
b. Assessment windows: 2 years prior to pregnancy start and up to 90 days after [-730, 90].
c. The time window [0, 90] days will be applied to medications only.
d. Defined as the earliest of 90 days after pregnancy end, loss to follow-up, death, or end of the observation period (the latest available data), whichever occurs first.

BMI: Body Mass Index; PED: Pregnancy end date.

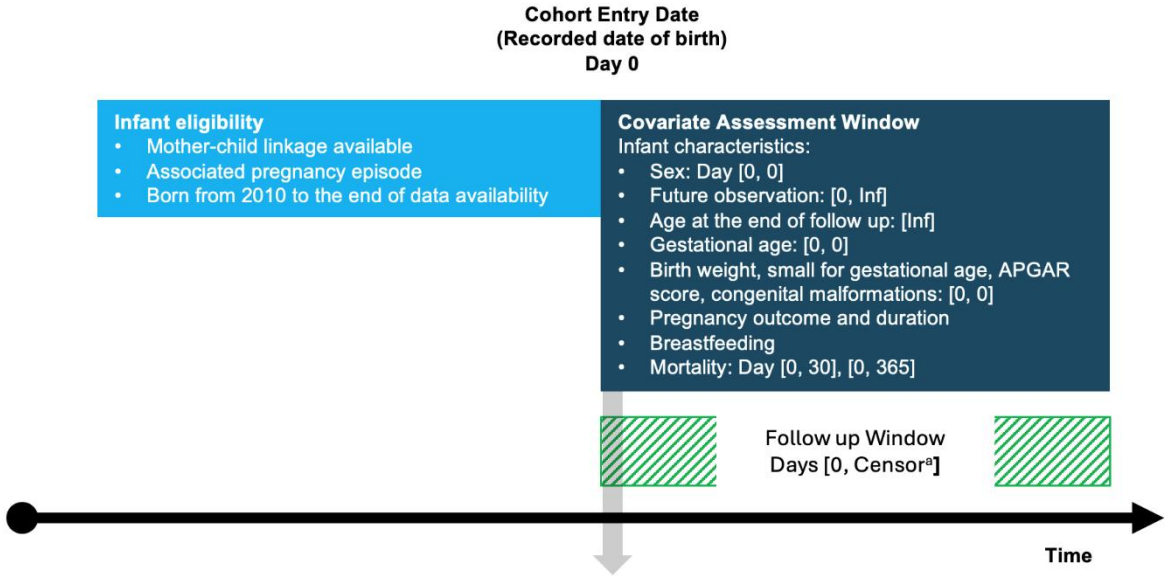


Figure 1b. Graphical depiction of the study design for Objective 4.

a. Defined as loss to follow-up, death, or end of observation period (the latest available data), whatever occurs first.

5.2. Follow-up

Analyses for Objectives 1, 2, and 3 will be conducted at the pregnancy episode level, while analyses for Objective 4 will be conducted at the infant level.

For Objectives 1, 2, and 3, follow-up will begin at the pregnancy start date inferred using *PregnancyIdentifier* (**Figure 1a**).[6] The algorithm estimates pregnancy start using recorded gestational age or pregnancy-related concepts indicating a gestational timing range. Where no start estimate can be obtained from this evidence, pregnancy start is back-calculated using an outcome-specific maximum gestational duration. The pregnancy end date (PED) is selected from the dates produced by the pregnancy algorithm according to rules based on pregnancy outcome classification and temporal agreement. These dates are based on recorded pregnancy outcomes where available; otherwise, they may reflect the last gestational or pregnancy-related evidence within the episode when no pregnancy outcome or vital status is identified. Follow-up will end at the earliest of 90 days after the inferred PED, loss to follow-up, death, or the end of the observation period. Individuals may contribute to multiple pregnancy episodes during the study period, provided each episode meets the specified eligibility criteria.

For Objective 4, infants with mother-child linkage and an associated pregnancy episode will be characterised. Follow-up will start on the infant's recorded date of birth (index date; Figure 1b) and end at loss to follow-up, death, the end of the observation period, or the end of data availability, whichever occurs first.

Birth-related characteristics will be assessed at the index date, and early-life factors will be assessed within their specified windows. Duration of observable follow-up and age at the end of follow-up will also be summarised. Mortality will be assessed within 30 and 365 days after birth, subject to available follow-up.

5.3. Study population with inclusion and exclusion criteria

For Objectives 1, 2, and 3, the study population will consist of individuals with a recorded pregnancy episode. Individuals may contribute multiple episodes if more than one pregnancy is recorded during the study period.

Inclusion criteria:

- Females aged 12–55 years at pregnancy start (i.e. index date).
- Pregnancy starting in the period of 01/01/2010 (or start of data availability, if later) to 1 year before the end of data availability.

Exclusion criteria/cleaning rules:

- Episodes lasting less than 1 day or >308 days (44 weeks), regardless of the recorded pregnancy outcome.
- Pregnancy end date before the start date, regardless of the recorded pregnancy outcome.
- Exact duplicates with the same individual identifier, pregnancy end date, and pregnancy outcome will be retained only once.
- Overlapping pregnancies (episodes belonging to the same individual sharing at least one calendar day). The episode with the later start date will be excluded.
- Maternal age will be assessed at pregnancy start using the age range defined in the study eligibility criteria. No additional age restrictions will be applied.

For Objective 4, the study population will consist of infants with mother-child linkage, restricted to those that could be linked to a recorded pregnancy episode identified using the pregnancy algorithm.

Inclusion criteria

- All infants with mother-child linkage born between 01/01/2010 (or start of data availability, if later) to end of data availability.

Exclusion criteria

- Infants that could not be linked to a pregnancy episode.

5.4. Study setting and data sources

This study will be conducted using routinely collected data from 7 data sources from the DARWIN EU® Network of Data Partners from 7 European countries (**Table 1**). All data were *a priori* mapped to the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM).

Table 1. Data sources.

Country	Name of data source	Healthcare setting	Type of data	Number of active individuals[1]	Calendar period covered by each data source	Contributing to
Croatia	Croatian National Public Health Information System (NAJS)	Primary, secondary (outpatient and inpatient) care	Registry	4.3M	2014–2025	All Objectives
Denmark	Danish Data Health Registries (DK-DHR)	Secondary (outpatient and inpatient) care	Registry	5.98M	1995–2025	All Objectives

Country	Name of data source	Healthcare setting	Type of data	Number of active individuals[1]	Calendar period covered by each data source	Contributing to
Finland	Finnish Care Register for Health Care (FinOMOP-THL)	Primary, secondary (outpatient and inpatient) care	Registry	5.70M	2011–2024	Objectives 1, 2, 3
Germany	InGef Research Database (InGef RDB)	Primary, secondary (outpatient and inpatient) care	Claims data	7.43M	2016–2025	Objectives 1, 2, 3
Norway	Norwegian Linked Health Registry data (NLHR)	Primary care (incl. outpatient specialists); (diagnosis and dispensed prescriptions) Secondary care (diagnosis)	Registry	5.55M	2018–2023	All Objectives*
Spain	The Information System for Research in Primary Care (SIDIAP)	Primary care, inpatient care	EHR	5.95M	2006–2023	All Objectives*
The Netherlands	Integrated Primary Care Information (IPCI)	Primary care	EHR	1.32M	2006–2025	Objectives 1, 2, 3

EHR: Electronic health records. * Infant characterisation was already performed in this data source as part of PeriNet Objective 4.
[1] Defined as the maximum number of individuals in observation in the last 6 months of data.

Data sources selection

These data sources fulfil the criteria required in terms of data quality, completeness, timeliness, and representativeness for a characterisation study while covering different regions of Europe (**Annex IV**). Selection was restricted to data sources who participated in PeriNet Objective 2. SIDIAP and NLHR, which also participated in PeriNet Objective 4, were included to enable comparison with the previous pregnancy characterisation results.

5.5. Study period

The study period will be from 01/01/2010 (or data availability start, if later) to one year prior to the end of data availability. In NLHR, data are available starting in 2018, and all objectives will include data from that point forward.

5.6. Variables

5.6.1. Covariates, including confounders, effect modifiers, and other variables

The covariates for each objective are as follows:

Objective 1:

- Gestational length (in days)
- Pregnancy outcomes: LB: livebirth; SA: miscarriage; SB: stillbirth; AB: abortion; DELIV: delivery record present but not classified as LB or SB; ECT: ectopic pregnancy; PREG: pregnancy inferred from gestational evidence without a usable outcome anchor.
- Mode of delivery (Vaginal; Caesarean section)
- Number of pregnancies with mother-child linkage

Objective 2:

- Number of pregnancy episodes
- Pregnancy outcomes (as in Objective 1)
- Number of pregnancies with mother-child linkage
- Mode of delivery (as in Objective 1)
- Calendar year

Objective 3:

- Demographics at index date (i.e. pregnancy start): age; age groups: 12–24; 25–34; 35–44; 45–55
- Prior and future observation (i.e. data visibility before and after index date)
- Pregnancy outcomes (as in Objective 1)
- Gestational length (in days)
- Health-related behaviours:
    - Smoking: 2 years prior to pregnancy start and up to 90 days after [-730, 90]
    - Alcohol misuse: 2 years before pregnancy start [-730, 0]
    - Pre-pregnancy Body Mass Index (BMI) [-365, -1]
    - Healthcare visits, assessed in days: [-365, -1], [0, pregnancy end]
    - Vaccination during pregnancy, assessed: [0, pregnancy end]
        - Coronavirus disease 2019 (COVID-19)
        - Influenza
        - Tetanus, Diphtheria, & Pertussis (Tdap)
    - Folic acid use, assessed: [0, pregnancy end]
- Baseline comorbidities (assessment window, in days: [-inf, -1])
    - Anxiety
    - Asthma

  - Cancer (any malignancy)
  - Chronic kidney disease
  - Chronic liver disease
  - Diabetes mellitus
  - Epilepsy/seizures
  - Essential hypertension
  - Heart disease (excluding hypertension)
  - Human Immunodeficiency Virus (HIV) infection
  - Inflammatory auto-immune diseases of the intestine (composite of coeliac disease and inflammatory bowel disease)
  - Mood disorders (composite of depression and bipolar disorders)
  - Obesity
  - Thyroid disorders
- Pregnancy complications, assessed in days: [0, pregnancy end], [pregnancy end, 90 days after pregnancy end]. Additional assessment windows: [0, 90], [91, 180], [181, pregnancy end]
  - Antepartum Haemorrhage
  - Eclampsia
  - Ectopic pregnancy
  - Gestational diabetes
  - Haemolysis, Elevated Liver enzymes, and Low Platelet count (HELLP) Syndrome
  - Maternal death
  - Pre-eclampsia
  - Pre-term labour
  - Postpartum haemorrhage
  - TORCH (toxoplasmosis, others, rubella, cytomegalovirus, herpes simplex) infection. Others will include syphilis, chickenpox, and Zika virus.
- Concomitant medications:
  - Medications will be assessed using Anatomical Therapeutic Chemical (ATC) Classification System, using 3rd level groups (i.e. pharmacological subgroups)
  - Assessment window, in days: [-90, -1], [0,90], [0, pregnancy end], [pregnancy end, pregnancy end + 90 days]
- Large-scale characterisation:
  - Conditions and medications (assessed at ingredient-level)
  - Assessment window, in days: [-90, -1], [0,90] (for medications only), [0, pregnancy end], [pregnancy end, pregnancy end + 90 days].

A summary of the covariates and time windows assessment that will be used for characterisation can be found in **Table 2**. All baseline comorbidities, pregnancy complications, and vaccinations will be identified

using concept sets. Preliminary concept sets used for the identification of these comorbidities are described in **Annex III**. These definitions are built upon PeriNet study Objectives 2 and 4.[3, 4] Pre-term birth and maternal death will be defined based on the time of recording of events. Pre-term birth will be defined as a live birth occurring before week 37 of pregnancy. Maternal death will be defined as a recorded death occurring during pregnancy or within 90 days following the end of pregnancy.

For large-scale characterisation, all comorbidities and medications recorded in the data source within the pre-defined time windows will be considered. To facilitate the recording of study results, only those most frequently reported will be described in the main report. All results will be available in an interactive dashboard.

Objective 4:

Covariates for infants with mother-child linkage will include:

- Sex
- Age at the end of follow-up
- Future observation (i.e. data visibility after index date)
- Gestational age
- Birth weight
- Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) score obtained 5 minutes after birth
- Small for gestational age
- Breastfeeding (where available)
- Congenital malformations
- Mortality (i.e. death occurring 0 to 30 and 0 to 365 relatives to the index date)

Table 2. Covariates included in the characterisation of pregnant individuals.

Characteristic	Details	Type of variable	Assessment window[1]	Code type	Diagnosis position
Demographics	Age	Numerical	[0, 0]	N/A	N/A
	Age groups (12–24; 25–34; 35–44; 45–55 years)	Categorical	[0, 0]	N/A	N/A
	Prior and future observation (i.e. data visibility)	Numerical	[-Inf, 0]; [0, Inf]	N/A	N/A
Health-related behaviours	Smoking[2]	Categorical	[-730, 90]	SNOMED	N/A
	Pre-pregnancy BMI	Numerical	[-365, -1]	SNOMED	N/A
	Health visits	Numerical	[-365, -1], [0, PED]	SNOMED	N/A
	Vaccination (COVID-19, Influenza, Tdap)	Binary	[0, PED]	RxNorm	N/A
	Folic acid use[3]	Binary	[0, PED]	RxNorm	N/A
Baseline comorbidities	Pre-specified comorbidities[4]	Binary	[-Inf, -1]	SNOMED	Any
Concomitant medications	Medications before and during pregnancy (assessed using the ATC 3rd level classification system)	Binary	[-90, -1], [0, 90], [0, PED], [PED + 90]	RxNorm	N/A

Characteristic	Details	Type of variable	Assessment window[1]	Code type	Diagnosis position
Large-scale characterisation	Conditions	Binary	[-90, -1], [0, PED], [PED, PED + 90]	SNOMED	Any
	Medications (assessed at ingredient-level)	Binary	[-90, -1], [0, 90], [0, PED], [PED, PED + 90]	RxNorm	N/A
Pregnancy complications	Pre-specified pregnancy complications[5]	Binary	[0, PED], [PED, PED + 90]	SNOMED	Any
Pregnancy outcomes	Pre-specified outcomes[6]	Categorical	N/A	SNOMED	N/A

ATC: Anatomical Therapeutic Chemical; COVID-19: coronavirus disease 2019; Inf: all available data; N/A: not applicable; PED: Pregnancy end date; RxNorm: Medical prescription normalised; SNOMED: Systematized Nomenclature of Medicine; Tdap: Tetanus, Diphtheria, & Pertussis; BMI: body mass index.
[1] Relative to the index date, in days.
[2] Differences in data availability and the timing of recording of smoking relative to pregnancy are expected across data sources. The specific categories used to define smoking status will be determined during study implementation.
[3]This will be obtained assessing drug records containing folic acid (RxNorm codes).
[4]Based on concept sets. These will include anxiety, alcohol misuse, asthma, cancer (any malignancy), chronic kidney disease, chronic liver disease, diabetes mellitus, epilepsy/seizures, essential hypertension, heart disease (excluding hypertension), human immunodeficiency virus infection, inflammatory auto-immune diseases of the intestine, mood disorders, obesity, thyroid disorders.
[5]Based on concept sets. These will include antepartum haemorrhage, eclampsia, ectopic pregnancy, gestational diabetes, HELLP syndrome, maternal death, pre-eclampsia, pre-term labour, postpartum haemorrhage, TORCH (toxoplasmosis, others, rubella, cytomegalovirus, herpes simplex) infections. Pre-term labour will be defined as a live birth occurring before 37 completed weeks of gestation. Maternal death will be defined as a recorded death occurring during pregnancy or within 90 days following the end of pregnancy.
[6]Livebirth (LB), miscarriage (SA); stillbirth (SB); abortion (AB); delivery record present but not classified as LB/SB (DELIV); ectopic pregnancy (ECT); pregnancy inferred from gestational evidence without a usable outcome anchor (PREG).

Table 3. Covariates included in the characterisation of infants with mother-child linkage.

Characteristic	Details	Type of variable	Assessment window	Code type	Diagnosis position
Infant characteristics	Sex	Binary	[0, 0]	N/A	N/A
	Age at the end of follow up	Numerical	End of follow up or available data	N/A	N/A
	Future observation	Numerical	[0, Inf]	N/A	N/A
	Gestational age	Numerical	[0, 0]	N/A	N/A
	Birth weight	Numerical	[0, 0]	As recorded in the infant table, or as recorded in the data[1]	N/A
	APGAR score (5 minutes)	Numerical	[0, 0]	As recorded in the infant table, or as recorded in the data[1]	N/A
	Small for gestational age	Categorical	[0, 0]	As recorded in the infant table, or as recorded in the data[1]	N/A
	Breastfeeding[2]	Categorical	As recorded in the data	As recorded in the data[2]	N/A
	Congenital malformations	Categorical	[0, 0]	As recorded in the infant table, or as recorded in the data[1]	N/A

Characteristic	Details	Type of variable	Assessment window	Code type	Diagnosis position
	Mortality	Categorical	[0, 30], [0, 365]	As recorded in the data[3]	Any

N/A: Not applicable; Inf: All available data; APGAR: Appearance, Pulse, Grimace, Activity, and Respiration.
[1] This information will be obtained from the Infant Table. If not available, we will derive this information from other records, depending on data availability. For some variables, the time windows used for assessment might be adapted if needed (e.g. congenital malformations).
[2] This information will be obtained, where available, from observation/measurement records, depending on data availability. The specific categories used to define breastfeeding will be determined during the study implementation.
[3] Mortality will be defined as a recorded death occurring 0 to 30 and 0 to 365 days relative to index date.

5.7. Study size

No sample size will be calculated, as this is a characterisation study which will not test a specific hypothesis.

5.8. Analysis

5.8.1. Federated network analyses

All analyses will be conducted separately for each data source and will be carried out in a federated manner, allowing analyses to be run locally without sharing individuals' data.

Before sharing the study package, test runs of the analytics will be performed on a subset of the data sources, and quality control checks will be performed. After all the tests are passed (see **Annex IV**), the final package will be released in a version-controlled study repository for execution against all the participating data sources.

5.8.2. Data privacy protection

The data partners will locally execute the analytics against the OMOP CDM in R Studio and review and approve the default aggregated results. They will then be made available to the Principal Investigators and study team in a secure online repository of the Data Transfer Zone (DTZ). All results will be locked and timestamped for reproducibility and transparency. The study results of all data sources will be checked, after which they are made available to the team, and the Study Dissemination Phase can start. All analyses will be conducted separately for each data source and will be carried out in a federated manner, allowing analyses to be run locally without sharing patient-level data. Cell counts <5 will be suppressed when reporting results to comply with the data source's privacy protection regulations.

5.8.3. Statistical model specification and assumptions of the analytical approach considered

All analyses will be performed using OMOP CDM data. The R packages *PregnancyIdentifier*, *CohortCharacteristics*, and *PatientProfiles* will be used to identify and characterise pregnancy episodes and individuals of interest.[7, 8] The R package *CodelistGenerator* will be used to generate ATC based codes list for medication use, and *IncidencePrevalence* will be used to obtain counts of covariates of interest over time.[9] All packages were developed by DARWIN EU®.

The list of pre-specified covariates which will be described, along with the windows for assessment, is specified in **Section 5.6.1**. Characteristics will be summarised using counts and percentages for categorical variables, and medians with interquartile range for continuous variables.

In Objective 1, the number of included pregnancies, overall, by pregnancy outcomes, and mode of delivery, will be reported. For Objective 2, the number of pregnancies, pregnancy outcomes, mode of delivery, and number of pregnancies with mother-child linkage will be reported by calendar year. Objectives 3 will focus on the characterisation of individuals with pregnancy episodes. Objective 4 will characterise infants with mother-child linkage, restricted to those that could be linked to a pregnancy episode.

Analyses for all objectives will be conducted using available data without imputation. For covariates where a value is expected (i.e. all covariates reported in the PeriNet study), the number of missing observations will be reported.

5.8.4. Output

Output will consist of a PDF report, including an executive summary and the following tables and figures.

Objective 1 and Objective 2

- Table 1. Number of pregnancy episodes included in the study, by data source.
- Table 2. Descriptive statistics of pregnancy episodes.
- Figure 1. Number of pregnancy episodes starting in each calendar year, by data source.
- Figure 2. Number of pregnancy episodes starting in each calendar year, by pregnancy outcome and data source.
- Figure 3. Number of pregnancy episodes starting in each calendar year, by mode of delivery and data source.

Objective 3

- Table 3. Demographics and health-related behaviours of pregnant individuals, assessed at pregnancy episode level.
- Table 4. Baseline comorbidities of pregnant individuals prior to pregnancy start, assessed at pregnancy episode level.
- Table 5. Characteristics of pregnant individuals in terms of gestational length, pregnancy outcomes, and complications, assessed at pregnancy episode level.
- Table 6. Top 10 pharmacological subgroups used during pregnancy.
- Table 7. Top 10 conditions (%) identified through large-scale characterisation during pregnancy.
- Table 8. Top 10 ingredients (%) identified through large-scale characterisation during pregnancy.

For Objective 3, conditions and medications will be described using different pre-specified time windows. In the main report, we will include results for the time window covering pregnancy (i.e. [0, pregnancy end]), except for baseline comorbidities ([-Inf, -1]). Relevant additional results will be presented in the annex, while all other outputs will be made available through an interactive dashboard (Shiny App), which will include all study results.

Objective 4

- Table 9. Characteristics of infants with mother-child linkage.

MOCK Table 1. Number of pregnancy episodes included in the study, by data source.

NAJS	Records, N	Individuals, N	Excluded records, N	Excluded individuals, N
Qualifying initial records[1]				
In observation at pregnancy start and end				
Pregnancies with plausible durations				
Pregnancies with conflicting dates				

	Records, N	Individuals, N	Excluded records, N	Excluded individuals, N
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				
DK-DHR				
Qualifying initial records[1]				
In observation at pregnancy start and end				
Pregnancies with plausible durations				
Pregnancies with conflicting dates				
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				
FinOMOP-THL				
Qualifying initial records[1]				
In observation at pregnancy start and end				
Pregnancies with plausible durations				
Pregnancies with conflicting dates				
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				
InGef RDB				
Qualifying initial records[1]				
In observation at pregnancy start and end				
Pregnancies with plausible durations				
Pregnancies with conflicting dates				
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				
NLHR				
In observation at pregnancy start and end				
Pregnancies with plausible durations				

	Records, N	Individuals, N	Excluded records, N	Excluded individuals, N
Pregnancies with conflicting dates				
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				
SIDIAP				
Qualifying initial records[1]				
In observation at pregnancy start and end				
Pregnancies with plausible durations				
Pregnancies with conflicting dates				
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				
IPCI				
Qualifying initial records[1]				
In observation at pregnancy start and end				
Pregnancies with plausible durations				
Pregnancies with conflicting dates				
Pregnancy start between 01/01/2010 and 1 year before end of data availability				
Pregnancies with <365 days of prior observation				
Duplicated records				
Age 12–55 at index date				

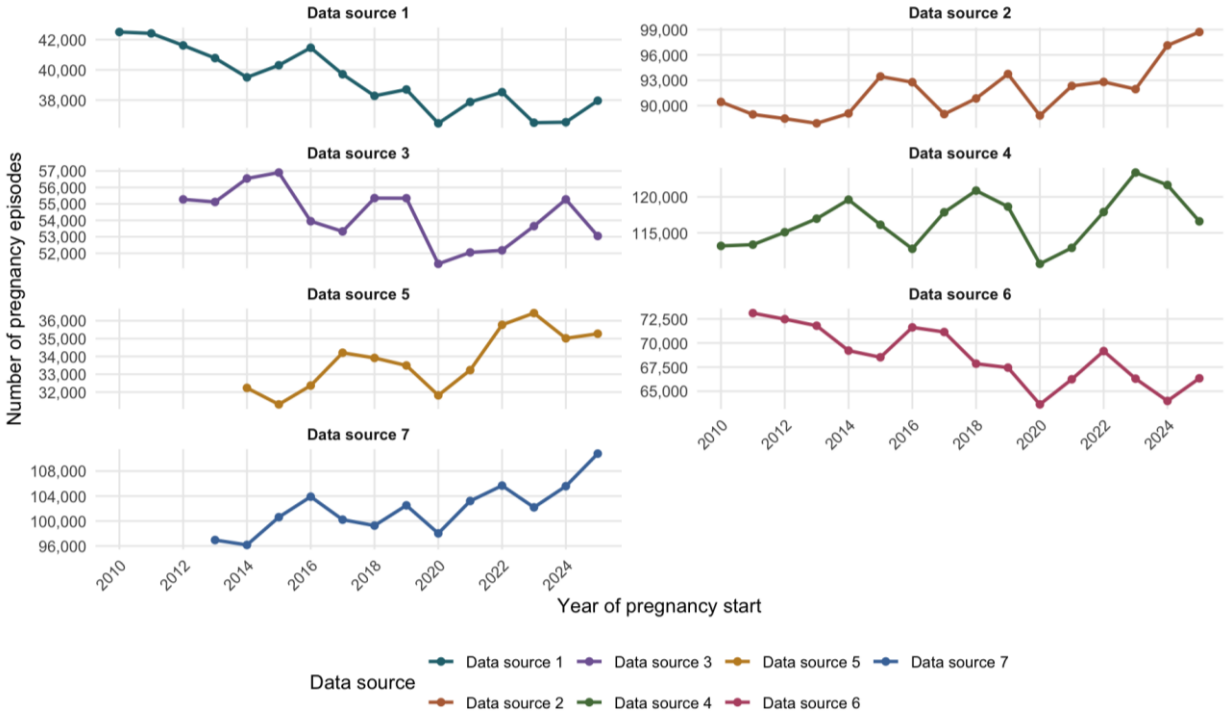
[1] Pregnancy episodes identified using the *PregnancyIdentifier* R package.
N: total number of individuals; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 2. Descriptive statistics of pregnancy episodes.

	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Number of pregnancies							
Number of pregnant individuals							
Gestational length (days), median [min; q25–q75; max]							

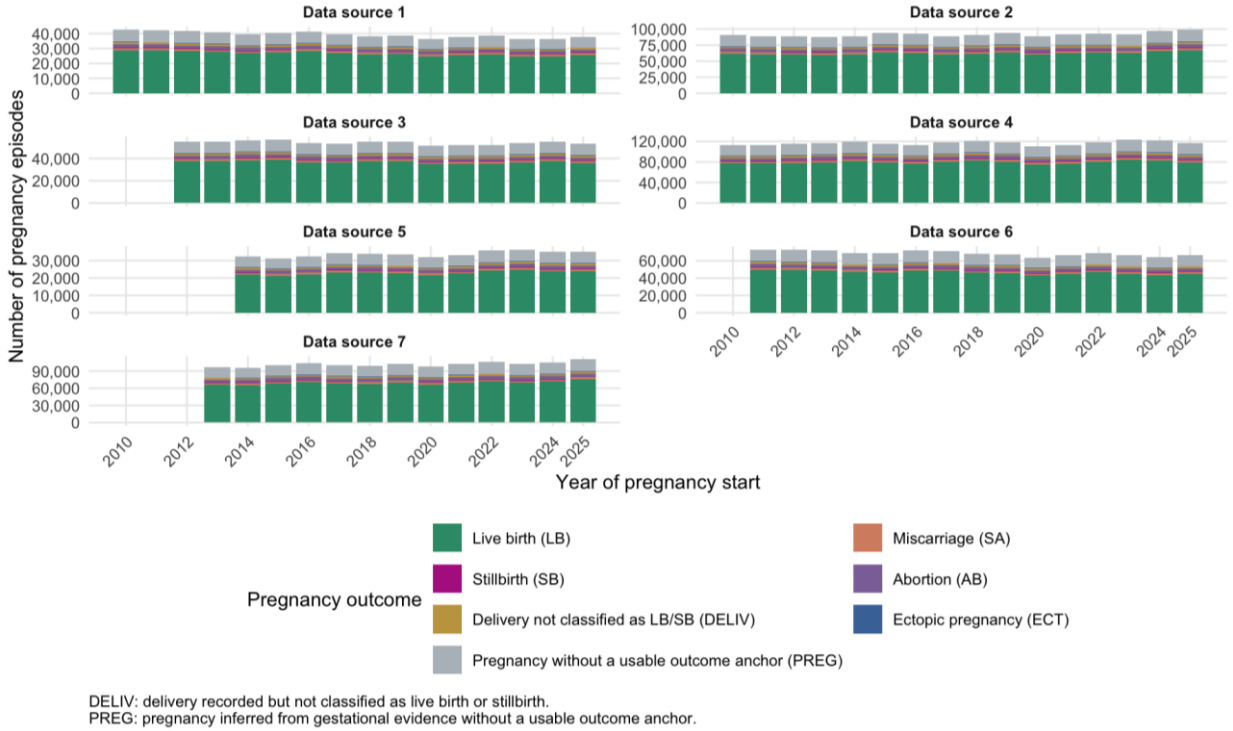
	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Pregnancy outcome, N (%)							
- LB							
- SB							
- AB							
- SA							
- DELIV							
- ECT							
- PREG							
Mode of delivery, N (%)							
- Vaginal							
- Caesarean section							

LB: live birth outcome anchors the episode end; SB: stillbirth; AB: abortion; SA: miscarriage (spontaneous abortion); DELIV: delivery record present but not classified as LB/SB; ECT: ectopic pregnancy; PREG: pregnancy inferred from gestational evidence without a usable outcome anchor (or outcome evidence was deemed implausible).
N: total number of individuals; max: maximum value, min: minimum value; q25: quartile 25; q75: quartile 75; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

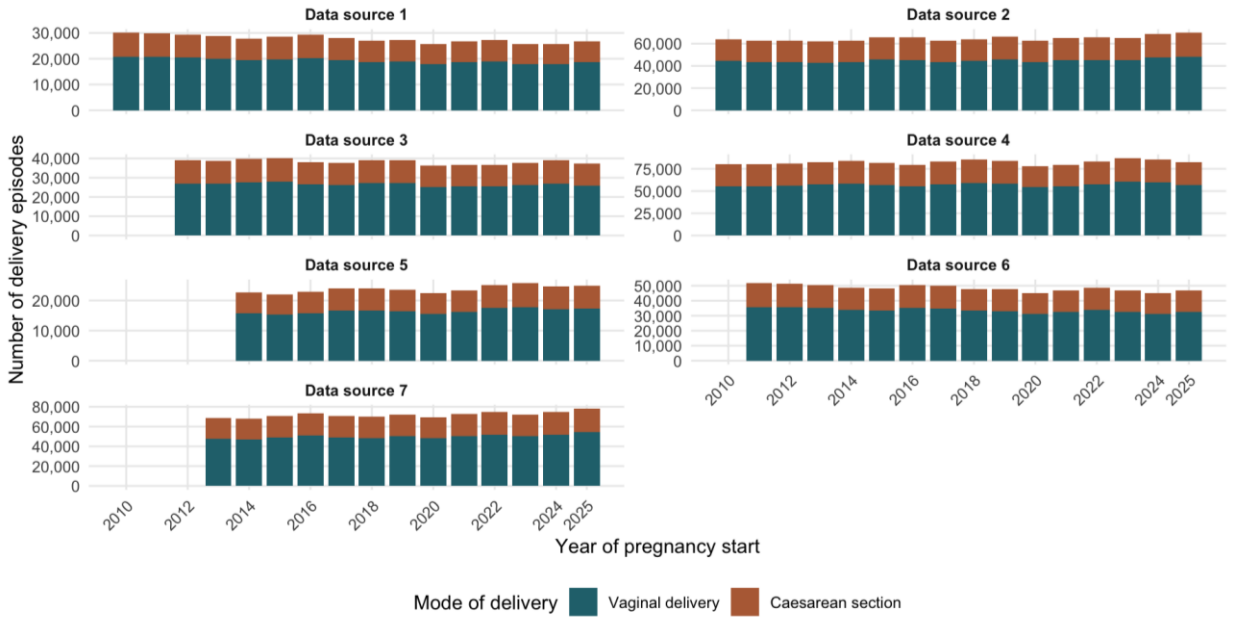


MOCK Figure 1. Number of pregnancy episodes starting in each calendar year, by data source.

Counts will represent pregnancy episodes, not unique individuals; an individual may contribute more than one episode.



MOCK Figure 2. Number of pregnancy episodes starting in each calendar year, by pregnancy outcome and data source.



MOCK Figure 3. Number of pregnancy episodes starting in each calendar year by mode of delivery and data source.

MOCK Table 3. Demographics and health-related behaviours of pregnant individuals, assessed at pregnancy episode level.

	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Number of individuals							
Age, median [min; q25–q75; max]							
Age group, N (%)							
- 12–24 years							
- 25–34 years							
- 35–44 years							
- 45–55 years							
Prior observation, median [min; q25–q75; max]							
Future observation, median [min; q25–q75; max]							
Health-related behaviours							
Smoking							
- Current smoker							
- Never smoker							
Pre-pregnancy BMI, mean (SD)							
Health visits, median [min; q25–q75; max]							
- In the year prior to pregnancy							
- During pregnancy							
Vaccinations during pregnancy, N (%)							
- Coronavirus disease 2019 (COVID-19)							
- Tetanus, Diphtheria, & Pertussis (Tdap)							
- Influenza							
Folic acid use, N (%)							

N: total number of individuals; SD: standard deviation; max: maximum value; min: minimum value; q25: quartile 25; q75: quartile 75; BMI: body mass index; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 4. Baseline comorbidities of pregnant individuals prior to pregnancy start, assessed at pregnancy episode level.

	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Anxiety, N (%)							
Alcohol misuse, N (%)							
Asthma, N (%)							
Cancer (any malignancy), N (%)							
Chronic Kidney disease, N (%)							

N: total number of individuals; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 5. Characteristics of pregnant individuals in terms of gestational length, pregnancy outcomes, and complications, assessed at pregnancy episode level.

	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Gestational length [min; q25–q75; max]							
Pregnancy outcome, N (%)							
- LB							
- SB							
- AB							
- SA							
- DELIV							
- ECT							
- PREG							
Pregnancy complications, N (%)							
- Gestational diabetes							
- Pre-term birth							

LB: live birth outcome anchors the episode end; SB: stillbirth; AB: abortion; SA: miscarriage (spontaneous abortion); DELIV: delivery record present but not classified as LB/SB; ECT: ectopic pregnancy; PREG: pregnancy inferred from gestational evidence without a usable outcome anchor (or outcome evidence was deemed implausible).
N: total number of individuals; max: maximum value, min: minimum value; q25: quartile 25; q75: quartile 75; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 6. Top 10 pharmacological subgroups used during pregnancy.

Ranking	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Top 1, N (%)							
Top 2, N (%)							
…							

N: total number of individuals; %: percentage; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 7. Top 10 conditions (%) identified through large-scale characterisation during pregnancy.

Ranking	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Top 1, N (%)							
Top 2, N (%)							
…							

N: total number of individuals; %: percentage; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 8. Top 10 ingredients (%) identified through large-scale characterisation during pregnancy.

Ranking	NAJS	DK-DHR	FinOMOP-THL	InGef RDB	NLHR	SIDIAP	IPCI
Top 1, N (%)							
Top 2, N (%)							
..							

N: total number of individuals; %: percentage; NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; FinOMOP-THL: Finnish Care Register for Health Care; InGef RDB: InGef Research Database; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.

MOCK Table 9. Characteristics of infants with mother-child linkage.

	NAJS	DK-DHR	NHLR	SIDIAP
Infants with mother-child linkage and a linked pregnancy episode, N				
Pregnant individuals, N (%)				
Age at the end of follow up, median [min; q25 – q75; max]				
Future observation, median [min; q25 – q75; max]				
Gestational age, median [min; q25 – q75; max]				
Birth weight, gram, median [min; q25 – q75; max]				

	NAJS	DK-DHR	NHLR	SIDIAP
APGAR score (5 minutes), median [min; q25 – q75; max]				
Small for gestational age, yes (%)				
Breastfeeding, yes (%)				
Congenital malformations, yes (%)				
Mortality [0, 30 days], N (%)				
Mortality [0, 365 days], N (%)				

N: total number of individuals; max: maximum value, min: minimum value; q25: quartile 25; q75: quartile 75.
[a] Matching requires the infant's birth date to equal the linked mother's pregnancy end date. Percentages are calculated among infants eligible for matching; report this denominator separately if it differs from the total number of infants.
NAJS: Croatian National Public Health Information System; DK-DHR: Danish Data Health Registries; NLHR: Norwegian Linked Health Registry data; SIDIAP: The Information System for Research in Primary Care; IPCI: Integrated Primary Care Information.
APGAR: Appearance, Pulse, Grimace, Activity, and Respiration.

5.9. Evidence synthesis

Results from analyses described in **Section 5.8.3** will be presented separately for each data source. No meta-analysis of results will be conducted.

6. STRENGTHS AND LIMITATIONS

This study will extend the pregnancy characterisation conducted in the PeriNet study Objective 4 to seven DARWIN EU® Data Sources using the *PregnancyIdentifier* algorithm developed within PeriNet Objective 2.[4-6] A key strength is the inclusion of data sources with pregnancy-related information that is not currently mapped to the PET. The application of a common algorithm to data mapped to the OMOP CDM will support standardised identification and construction of pregnancy episodes. Infant characterisation will also be conducted where mother-child linkage is available. The inclusion of data sources who participated in PeriNet Objective 4 will enable comparison with the previous characterisation performed as part of PeriNet Objective 4.

Results from PeriNet Objective 2 showed heterogeneity across data sources in the quality of the derived pregnancy episodes. As a gold standard is not consistently available across Real-World Data sources, the evaluation relied on plausibility, internal consistency, and clinical completeness checks implemented across data sources. In this study, cleaning rules will be applied before characterisation to exclude inferred episodes that are known to be unreliable due to e.g. implausible lengths or overlapping episodes. However, PeriNet Objective 2 recognised these limitations, and further development work is being performed. Cleaning episodes may remove genuine pregnancies, but similarly, may allow some erroneous episodes to remain. The population described will therefore depend on the cleaning criteria applied, and different data sources may be impacted differently due to differences in their quality patterns for this specific algorithm. The results of the characterisation will therefore be informative to understand plausibility in light of using the current version of the algorithm together with cleaning criteria.

Uncertainty in the pregnancy start and end date is a limitation of routinely collected data, irrespective of the identification method, but its extent depends on the availability and quality of information and the approach used to estimate dates. For *PregnancyIdentifier*, limited gestational timing evidence may lead to reliance on outcome-specific back-calculations assumptions. This may affect the assignment of comorbidities and medications records to pre-pregnancy or pregnancy assessment windows.

The algorithm applies generic rules across data sources and does not incorporate source-specific prioritisation hierarchies. It may therefore be unable to reproduce local approaches that prioritise registry information and supplement it with other healthcare records, such as the approach used in NLHR to populate PET.

Finally, the study period will begin in 2010, subject to data availability in each data source. Differences in observation periods and changes in population coverage or recording practices may influence annual pregnancy counts and outcome distribution. Time trends will therefore be interpreted in the context of the period of data availability in each data source.

7. REFERENCES

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4.EU D. DARWIN EU® - PeriNet OBJECTIVE 2 Optimising and validating OMOP pregnancy algorithms for data sources with pregnancy-related data within the DARWIN EU® Data Network 2026.

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8. ANNEXES

ANNEX I. Description of the Study Team

Study team role	Names	Organisation
Principal Investigator	Cindy Porras	Erasmus MC
Co-Principal Investigator	Talita Duarte-Salles Rana Jajou	Erasmus MC
Data Scientist	Arianna Alamshahi Maarten van Kessel Ger Inberg Cesar Barbosa Cristiana Di Tullio Peter Rijnbeek	Erasmus MC
Clinical Domain Expert	Talita Duarte-Salles Aniek Markus	Erasmus MC
Study Manager	Natasha Yefimenko	Erasmus MC
Data source	**Names**	**Data Partner Organisation***
Croatian National Public Health Information System (NAJS)	Marko Čavlina Anamaria Jurčević Antea Jezidžić Ivan Pristaš Jakov Vuković Željka Draušnik Irena Barišić Karlo Pintarić	Croatian Institute of Public Health (CIPH)
Danish Data Health Registries (DK-DHR)	Elvira Bräuner Susanne Bruun Charlotte Wessel Skovlund	Danish Medicines Agency (DKMA)
Finnish Care Register for Health Care (FinOMOP-THL)	Laura Salonen Toni Lehtonen Petteri Hovi Gustav Klingstedt Terhi Kilpi	FinOMOP
InGef Research Database (InGef RDB)	Annika Vivirito Alexander Harms Vukašin Višković	InGef - Institute for Applied Health Research Berlin GmbH (InGef)
Norwegian Linked Health Registry data (NLHR)	Saeed Hayati Petrica Ioan Olteanu Hedvig Nordeng	University of Oslo (UiO)

The Information System for Research in Primary Care (SIDIAP)	Elena Roel Laura Granés Andrea Pistillo	Fundació Institut Universitari per a la recerca a l'Atenció Primària de Salut Jordi Gol i Gurina (IDIAPJGol)
Integrated Primary Care Information (IPCI)	Marcel de Wilde Tineke De Ben - van der Poel Katia Verhamme	Erasmus University Medical Center (EMC)

*Data Partners do not have an investigator role. The role of the Data Partners is to execute analytical code and review and approve outputs using their expert knowledge about their respective data sources.

ANNEX II. Protocol Amendments

None

ANNEX III. Description of the data sources

Croatia: Croatian National Public Health Information System (NAJS)

1. Data source identification

Croatian National Public Health Information System (NAJS)
Croatia

2. Data partner

Croatian Institute of Public Health (CIPH)
Department of Data Science and Analytics

3. Coverage and timespan

Data collection since: 1998
Extent: Nation-wide.
Geographic coverage covers whole Croatia, with various levels of resolution for different registries. Current estimates for the population in Croatia will be available at: https://podaci.dzs.hr/hr/podaci/stanovnistvo/procjena-stanovnistva/ for each year.
The total and active person-count in the NAJS data is larger than the current population of Croatia. This is explained by: a) the person table includes deceased and all previously insured people, b) there is no information about insurance ending, c) healthcare is also used by individuals with dual citizenship from neighbouring countries It is known that a lot of individuals emigrated (300k–400k) and were not included in the last population census but still are in the NAJS database. There is also an influx of immigrant workers who are insured and registered but were not included in the census.

4. Healthcare setting and type of data

Primary care – General Practitioner, and secondary care – specialists (ambulatory or hospital outpatient care), and hospital inpatient care.
For both inpatient and outpatient setting diagnoses, medication, procedures, and measurements are captured. The year of availability of information depends on the setting:
• 2014–2025 for biochemical lab tests in primary care from EHR patients records (measurements with results)
• 2015–2025 for primary care data from EHR patient records (conditions, procedures, and drug prescriptions)
• 2015–2024 for inpatient hospital data from EHR administrative records (conditions, procedures, measurements without results and drug administrations)
• 2016–2025 for health risk assessment data entered by GPs (measurements with results: height, weight…)
• 2016–2022 for secondary conciliatory care data from EHR administrative records (conditions, procedures, measurements without results, and drug administrations)
• 2016–2022 for emergency care data from EHR patient records (conditions)
• 2017–2025 for hospital records from registry data (conditions and procedures)
• 2020–2025 for vaccination data from EHR patient records

5. Data collection process

Inpatient hospital electronic health records, and Inpatient hospital billing systems, and Registries, and Other.
Data is entered by clinicians at healthcare contact, then combined by CIPH into the NAJS database and integrated with registries for public health purposes.

6. General representativeness

The data is collected from the evidence of public health records collected for public health purposes, as the majority of health care in Croatia is public and under single health insurance provider. Personal details are collected to a better extent for insured individuals compared to uninsured patients, who are excluded in the ETL process.

7. Data content and source coding

Medication prescriptions are recorded with ATC codes with an additional 3-digit code denoting the package.
• Diagnoses with ICD10 codes (Australian modification).
• Procedures with local source codes.
• Lab results with local source codes.

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5 and the OMOP standard vocabularies. The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.
Records from 2017 include insured patients with reliable IDs. Uninsured patients do not have reliable IDs. For example, if a patient changed their status from insured to uninsured, or vice versa, they could be counted several times, as could tracking records from before 2017 and after. By using the unique personal identifier for Croatian citizens, it can be checked and verified.

9. Quality control (data source specific)

There is a network of registry personnel (leaders, administrators, coders, sources) working on data coverage and other quality dimensions. An analytical team routinely checks for erroneous entries in hospital records, removing double entries, false dates, and overlapping stays. Entries without enough data or with obviously erroneous dates from primary care analysis are excluded.

10. Linkage

The national death registry is updated yearly, with a one-year lag, but individual death information (just the date) is updated daily, without the cause of death or any other additional details. Primary care is updated weekly and hospital level care monthly. Specific registries are included in NAJS (e.g. diabetes registry), where inclusion criteria vary across these registries.

11. Vital status

NAJS is linked to the national death registry.

12. Limitations

Hospital data is available from 2017 onwards. This is often used as start of data collection, while laboratory and GP data has been captured since before then (since 2014 and 2015 respectively).
Drug duration is often not available, and set to 1 day for administration and 30 days for prescription.
Some vital signs, such as blood pressure measurements, are coming from a preventive in GP that is usually done yearly. This means that these measurements do not represent the patient's longitudinal journey.
Hospital discharge summaries are currently not captured in NAJS. Hospital drug administration data is less reliable than prescription data from primary care, with some drugs (monoclonal antibodies/precision medicine drugs) which require additional approval not being recorded at all.

13. Main references

No main reference provided.

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/1111155
Website: https://www.hzjz.hr/nacionalni-javnozdravstveni-informacijski-sustav-najs/

Denmark: Danish Data Health Registries (DK-DHR)

1. Data source identification

Danish Data Health Registries (DK-DHR)
Denmark

2. Data partner

Danish Medicines Agency (DKMA)
Data & Data Analysis (DAD)

3. Coverage and timespan

Data collection since: 1995
Extent: Nation-wide.
The data is representative of the entire Danish population.

4. Healthcare setting and type of data

Community pharmacists, and secondary care – specialists (ambulatory or hospital outpatient care), and hospital inpatient care.
The following data elements are collected: diagnosis (including rare diseases and pregnancy data), hospital admissions, discharge and ICU data, Cause of death, Drug prescriptions, dispensing, vaccination and contraception, Procedures (surgical and non-surgical hospital), and Sociodemographic information (sex and age only).

5. Data collection process

Outpatient electronic health records, and Inpatient hospital electronic health records, and Registries, and Other.
All causes of deaths, all retrieved drug prescriptions, all records of vaccinations, all hospital inpatient and outpatients contacts (including disease diagnoses and hospital surgical and non-surgical procedures), histologically confirmed incident cancers for the entire Danish population from 01/01/1995 onwards. Laboratory test results are available for the entire population from 01/01/2008 onwards.

6. General representativeness

The data is representative of the entire Danish population. Healthcare is free in Denmark, so we do not expect any bias in data collection based on socio-economic status.

7. Data content and source coding

Diagnoses and causes of death are collected using the ICD-10 vocabulary. ATC and RxNorm are used for Drugs. SNOMED codes are used for Procedures.

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5 and the OMOP standard vocabularies. The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.
Patients have unique identifiers used to link datasets.

9. Quality control (data source specific)

The data we have received relating to nationwide Danish Health Data registries offer an opportunity for large-scale, population-based studies with several advantages:
1) Their large size improves the precision of estimates and enables the study of rare exposures and outcomes with long-term latency

2) Inclusion of nearly all individuals in the target population ensures that the data reflect routine clinical care and all clinical segments of the source population
3) Data are collected independently of each research study, thus minimising certain types of bias, e.g. non-response, and the influence from attention to the research question on the diagnostic process.
Before the source data is sent to us, the Danish Health Data Authority runs and does comprehensive checks of the registry table data validity of the variables, breaks in data, changes in variable coding, missingness, etc. We perform checks of missingness/completeness in relation to requested variables. In essence, we are receiving a dump of a mirror of the data that is controlled by the SDS. The documentation performed by SDS is available online, in Danish primarily https://www.esundhed.dk/Dokumentation (all variables), but also in English
https://sundhedsdatastyrelsen.dk/da/english/health_data_and_registers/national_health_registers

10. Linkage

There is no linkage in this data source.

11. Vital status

The Cause of Death registry (DAR) is used, the cause of death is collected using ICD-10 codes.

12. Limitations

• Lifestyle factors (such as smoking status and weight) are only complete for pregnant women. In the Medical Birth registry (MBR) smoking and BMI are recorded at the first antenatal visit, during pregnancy.

• Stillborn children will not have any records in our CDM. This means that e.g. birth weight and birth length of stillborn children is not recorded. It also affects linkage.

• There is no information on key socio-economic status (SES) factors, such as occupation, education, and income.

• In Denmark, folic acid is mainly purchased over the counter, so dispensing registry data will substantially underestimate its use. The same limitation applies to other over-the-counter medicines, such as paracetamol. Pertussis vaccination during pregnancy was introduced in Denmark in late 2019, so its absence in earlier years and subsequent uptake reflect vaccination policy rather than data quality.

• Patient contacts in primary care (visits to the GP) are not included. Consequently, the incidence of chronic diseases, such as Type 2 Diabetes (T2D) and asthma, must be determined using drug prescriptions as a proxy.

13. Main references

Schmidt M, Schmidt SAJ, Adelborg K, Sundbøll J, Laugesen K, Ehrenstein V, Sørensen HT "The Danish health care system and epidemiological research: from health care contacts to database records." Clinical epidemiology (2019): 31372058

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/1111217
Website: https://sundhedsdatastyrelsen.dk/da/english/health_data_and_registers/healthdatadenmark

Finland: Finnish Care Register for Health Care (FinOMOP-THL)

1. Data source identification

Finnish Care Register for Health Care (FinOMOP-THL)
Finland

2. Data partner

FinOMOP (FinOMOP)
The Department of Data and Analytics

3. Coverage and timespan

Data collection since: 2015
Extent: Nation-wide.
The CDM population comprises all individuals having been alive and residing in Finland since the beginning of 2011.

4. Healthcare setting and type of data

Primary care – General Practitioner, and primary care specialists (e.g. paediatricians), and secondary care – specialists (ambulatory or hospital outpatient care), and hospital inpatient care, and other (specify).
THL maintains health registers that cover both public and private, primary, and specialised inpatient, urgent and outpatient health care encounters in Finland. The entire public sector and private inpatient encounters since 2015 have been included in the OMOP CDM release, while private outpatient encounters, including occupational care, are included since 2020.
Since 1998, the Care Register for Health Care (TerveysHilmo) has covered both public outpatient and inpatient specialized care and private inpatient care.
Since 2009, the Finnish National Vaccination Register has covered all vaccinations from the public sector and from a large part of private vaccination providers, with the data coverage from both sections being very good to complete from 2020 onwards.
Since 2011, the Register of Primary Health Care Visits (AvoHilmo) has covered public primary care. Since 2020, the register has also covered private outpatient care and occupational care.
In addition, the CDM also contains positive COVID-19 test results from the Finnish National Infectious Diseases Register. The register itself covers all laboratory confirmations for around 70 specific microbes from 1995 onwards, but only COVID-19 has currently been mapped to the CDM.
The CDM also includes prescription records from multiple different sources. Both Care Register for Health Care and Register of Primary Health Care Visits contain very basic prescription data recorded during health care encounters that include just the ATC-code and trade name of medication. More comprehensive prescription data from Kanta Prescription Centre, maintained by Social Insurance Institution of Finland (Kela), has been integrated into the CDM since its 2024 release. The Kanta Prescription records are based electronic prescriptions, which were adopted by most public health care providers in 2010 and by most private providers by 2017.

5. Data collection process

Outpatient electronic health records, and Inpatient hospital electronic health records, and Registries.
Data is entered by clinicians upon healthcare contact and processed by THL (Kela in the case of Kanta Prescription Centre).

6. General representativeness

The THL data has national coverage and is therefore well representative of the Finnish population. Using the complete population as a basis for the person table also serves to facilitate calculations on a population level, e.g. incidence rates.

7. Data content and source coding

The following coding systems have been OMOP-mapped, typically to a good level of completeness: ICD10fi Finnish Extension, ICPC-2, ATC, Toimenpideluokitus (procedure classification adapted from the Nordic Classification of Surgical Procedures (NCSP)), Terveydenhuollon erikoisalat (Hilmo specific provider speciality), Rokotustapa (AR/YDIN National classification for vaccine administration), Tupakointistatus (AR/YDIN National classification for smoking status). Vaccinations are identified on product level based on batch number, trade name, vaccine title, and ATC-code. This is mapped on brand and type in the OMOP CDM.

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5 and the OMOP standard vocabularies. The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.
Each patient in THL has a unique identifier.

9. Quality control (data source specific)

The source data collection undergoes a structural and semantic validation before entry into the source database. Additionally, some coded variables undergo quality assessment against the respective code systems post entry into the database. The source registers are also assessed for completeness and coverage, with the aim of improving future collection in the areas where data is lacking.

10. Linkage

THL is already a linkage of multiple Finnish registries (see above).

11. Vital status

The National Population registry data forms the basis for forming the patient population. This ensures an up-to-date location (municipality of residence) of patients, as well as complete death occurrences (although not the cause of death).

12. Limitations

All drug records in the CDM are currently based on prescriptions. Kanta Prescription Centre also includes information on drug dispensings, but these have not currently been converted into OMOP CDM. Depending on the type of the medication, a single prescription can be for up to two years dosage of the drug. This means a patient can have up to two-year breaks between observations while actively using the drug. Observation of a prescription also does not mean that the patient necessarily bought or used the medication.
The CDM does not currently have meaningful end dates or days of supply for drug exposure. This information is not available for Care Register for Health Care or Register of Primary Health Care Visits, and for Kanta Prescription Centre it is only available in unstructured, free-form format that has not been converted into OMOP CDM.
The source system for prescription drug data can lag behind the other registries.
Some vital signs, like height and weight measurements, are recorded even if the person has not been actually measured, just that the measurement is deemed relevant to the condition or its treatment. This may lead to duplicate measurements as the value from previous visit might be taken. Not all private health care records are covered for the CDM's entire follow-up time from 2011 onwards. For Register of Primary Health Care Visits and Finnish National Vaccination Register, records from private health care have been available from 2020 onwards. For Kanta Prescription Centre, the coverage of private health care records has been good from 2017 onwards. The inclusion of private health care mainly presents itself as an increase in the number of observations, meaning that it has to be accounted for when interpreting any time series data from the CDM.

13. Main references

Häkkinen, Pirjo; Mölläri, Kaisa; Saukkonen, Sanna-Mari; Väyrynen, Riikka; Mielikäinen, Lasse; Järvelin, Jutta "Hilmo - Sosiaali- ja terveydenhuollon hoitoilmoitus 2020 : Määrittelyt ja ohjeistus : Voimassa 1.1.2020 alkaen" Terveyden ja hyvinvoinnin laitos (2019):

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/1111187;https://catalogues.ema.europa.eu/data-source/1111191
Website: https://thl.fi/en/statistics-and-data/data-and-services/register-descriptions;https://www.kanta.fi/en/research-and-knowledge-management

Germany: InGef Research Database (InGef RDB)

1. Data source identification

InGef Research Database (InGef RDB)
Germany

2. Data partner

Institute for Applied Health Research Berlin GmbH (InGef)

3. Coverage and timespan

Data collection since: 2016
Extent: Nation-wide.
The Research Database contains approximately 10.5 million insured persons from 50 of the 94 statutory health insurances in Germany (as of Oct 2025).
All individuals in the research database are included in the OMOP CDM.
Due to data protection laws for personal data in Germany, only the last 10 years of data are available in the RDB and thus in the OMOP CDM.

4. Healthcare setting and type of data

Primary care – General Practitioner, and community pharmacists, and primary care specialists (e.g. paediatricians), and secondary care – specialists (ambulatory or hospital outpatient care), and hospital inpatient care, and claims data.
InGef is a research service provider within the German statutory health insurance system. In general, the data in the RDB reflects most of the health services paid for by the statutory health insurances. In the OMOP CDM, the health services are reduced to primary and secondary care. This means that treatments by GPs and specialists (e.g. paediatricians), prescription medicines dispensed by pharmacies, hospital inpatient and outpatient care, as well as information about all insured individuals are included.
The following data elements are presented in the OMOP CDM: demographic information, diagnoses, procedures, dispensing drugs and advanced therapy medicinal products, reimbursed hospital-administered drugs (ingredient level), vaccinations, pregnancy data (via diagnoses and procedures) and contraception.

5. Data collection process

Insurance/administrative claims.
In Germany, data exchange between medical service providers and statutory health insurances is organized via central data collection centers. In addition to receiving and forwarding data, these centers also store data and provide access to third parties under strict regulations in data warehouses. The RDB contains selected, condensed, and anonymized information from one of these data warehouses.
Data sovereignty remains with the individual health insurance companies.

6. General representativeness

The RDB covers about 11% of the German population and is comparable to the German population in terms of the distribution of age and sex. Most health insurances that contribute to the RDB have nationwide coverage, meaning that the database covers all regions of Germany.
Since almost all services covered by statutory health insurances are specified in national legislation, healthcare provision all over Germany is well represented in the RDB. Additionally, in Germany it is very common to stay with the same health insurance throughout life, which results in a good longitudinal coverage over the entire period of 10 years.

7. Data content and source coding

The coding in the research database complies with national classification and coding rules in Germany. Diagnoses are coded according to ICD-10-GM. Inpatient and outpatient surgeries or procedures are recorded as OPS codes (German classification of Operations and Procedures). The dispensing of drugs in pharmacies is recorded using the PZN (pharmaceutical registration number). For drugs that miss a PZN-to-RxNorm mapping, the ATC code is used instead. In some cases, dispensed drugs can be coded using OPS codes (e.g. in hospitals) or EBM codes (fee schedule for outpatient treatments).

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5.4 and the OMOP standard vocabularies (SNOMED, RxNorm, LOINC). The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.

9. Quality control (data source specific)

The data transmitted by healthcare providers complies with the standardized requirements and formats of the Association of Statutory Health Insurances (GKV-SV). Before being imported into the research database, the data elements are checked for data format, completeness, and plausibility.
After each update of the research database, various counts are compared with the previous update to verify completeness.
Due to the anonymity of the database, direct validation of the data (e.g. using medical records as the gold standard) is not possible.

10. Linkage

Due to the anonymization of the source data, linkage is not possible.

11. Vital status

The date of death is recorded as the last day of the quarter in which the death occurred (i.e. 30/31st of Mar/Jun/Sept/Dec) as reported to the health insurance (no linkage to death registry). The cause of death is not available.

12. Limitations

Ambulatory diagnoses and procedures are summarised in the source on a quarterly basis. Both are mapped to the observation table with the date set to the last day of the respective quarter (i.e. 30/31st of Mar/Jun/Sept/Dec) and the concept “History of event within 3 months” (observation_concept_id 1340222), with the actual diagnosis or procedure concept_id recorded in the field “value_as_concept_id”.
There is no vocabulary for the German pharmaceutical product codes (PZN). A direct source-to-standard-mapping has been done manually by InGef but is incomplete. The drug exposure duration is unknown. Following OMOP conventions, the end date is always set to dispensing date + 29.
Outpatient and inpatient procedures are recorded as OPS codes (German Procedure Classification), for which the vocabulary is incomplete.
Drugs mostly contain pharmacy-dispensed drugs. We generally do not have records of drugs administered by a healthcare professional as part of a treatment (inpatient as well as outpatient. An exception are drugs that hospitals bill separately using OPS procedures, for example expensive treatments.

13. Main references

Alibone M, Ludwig M, Obermüller D, Pawlowska-Phelan D, Norris R, Jacob J "Representativeness and external comparability of the InGef research database for epidemiological studies in Germany." BMC health services research (2026): 42316175

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/1111207
Website: https://www.ingef.de/en/

Norway: Norwegian Linked Health Registry data (NLHR)

1. Data source identification

Norwegian Linked Health Registry data (NLHR)
Norway

2. Data partner

University of Oslo (UiO)
Faculty of Mathematics and Natural Science – Department of Pharmacy

3. Coverage and timespan

Data collection since: 2008
Extent: Nation-wide.
Norway has a universal public health care system, consisting of primary and specialist health care services covering a population of approximately 5.4 million inhabitants.

4. Healthcare setting and type of data

Primary care – General Practitioner, and primary care specialists (e.g. paediatricians), and secondary care – specialists (ambulatory or hospital outpatient care), and hospital inpatient care.
The following registries are included: the Medical Birth Registry of Norway (MBRN), the Norwegian Prescription Registry (NorPD), the Norwegian Patient Registry (NPR), Norway Control and Payment of Health Reimbursement (KUHR), the Norwegian Surveillance System for Communicable Diseases (MSIS), the Norwegian Immunisation Registry (SYSVAK), the National Death Registry, and the National Registry (NR).

5. Data collection process

Registries.
Many population-based health registries were established in the 1960s, with use of unique personal identifiers facilitating linkage between registries. Data in these health registries are used for health analysis, health statistics, improving the quality of healthcare, research, administration, and emergency preparedness.

6. General representativeness

The NLHR data covers the full Norwegian population.

7. Data content and source coding

NPR: ICD-10 for diagnosis, ATC and some special codes for drug use, Norwegian codes for clinical procedures (surgery (NCSP), medicine (NCMP) and diagnostic imaging, image-guided intervention, and nuclear medicine (NCRP)). KUHR: ICD-10 and ICPC-2 and ICPC-2B for diagnosis/procedure. NorPD: ATC. SYSVAK and MSIS: national classifications. MBRN: custom classifications by questionnaires (incl. check box variables in Maternity health care card)

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5 and the OMOP standard vocabularies. The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.
Linkage between the registries was facilitated using project-specific person IDs generated from unique personal identification assigned at birth or immigration for all legal residents in Norway.

9. Quality control (data source specific)

In-house data quality checks of rates of common conditions, drug exposures, and outcomes. We compare obtained rates with official national statistics (e.g. birth statistics, yearly rates of drug dispensing, and diagnosis by age and gender). We also review missing data and outliers and inform registry holders of any unusual patterns.

10. Linkage

The NLHR is, by definition, a linkage of datasets. Helsedata.no is one central portal to apply for 11 national health registries, including all the registries that have been mapped to the OMOP CDM.

11. Vital status

The national death registry is linked.

12. Limitations

(i) Diagnostic codes in the secondary care are limited to the comprehensive list requested from the registries. The list of codes will be revised annually with each data delivery.
(ii) ICD-10 codes vary in granularity, ranging from 2-character to full-length codes. The granularity of data will be revised annually with each data delivery
(iii) Drug dispensations to outpatients are included; however, over-the-counter (OTC) medications are not captured in the data. Only a few selected expensive drugs given in hospital, are included.
(iv) The NLHR comprises the following core datasets:
• Primary care data: covers the period from 2008 to 2023
• Hospital (secondary care) data, and drug prescription and vaccination data: cover the period from 2018 to 2023
The observation period is defined as follows:
• Observation_period_start_date: the later of 2008 or the individual's birth date
• Observation_period_end_date: the earlier of the individual's death date or the end of 2023
Immigration and emigration data are also considered when determining the observation period. While most individuals have a single continuous observation period, a small number have two non-overlapping periods. These differing coverage periods across datasets can affect study outcomes. For example, when analysing hospital-diagnosed conditions, the prevalence appears low from 2008 to 2018, with a sharp increase in incidence in 2018.

13. Main references

Trinh NT, Houghtaling J, Bernal FL, Hayati S, Maglanoc LA, Lupattelli A, Halvorsen L, Nordeng HM "Harmonizing Norwegian registries onto OMOP common data model: Mapping challenges and opportunities for pregnancy and COVID-19 research." International journal of medical informatics (2024): 39153282

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/1000000409
Website: https://www.mn.uio.no/farmasi/english/research/groups/pharma-safe/

Spain: The Information System for Research in Primary Care (SIDIAP)

1. Data source identification

The Information System for Research in Primary Care (SIDIAP)
Catalunya, Spain

2. Data partner

Fundació Institut Universitari per a la recerca a l'Atenció Primària de Salut Jordi Gol i Gurina (IDIAPJGol)

3. Coverage and timespan

Data collection since: 2006
Extent: Regional.
SIDIAP is a database of primary care electronic health records of the population of Catalonia, North-East Spain. It contains pseudo-anonymised records of more than 8 million people, of which 6.1 million are active as of 2022, representing around 76% of the Catalan population.

4. Healthcare setting and type of data

Primary care – General Practitioner, and hospital inpatient care.
SIDIAP captured data includes routine visits, socio-demographics, diagnoses, laboratory tests, drugs (prescribed and dispensed), referrals, sick leaves, and lifestyle information.

5. Data collection process

Outpatient electronic health records, and Inpatient hospital electronic health records.
Data is entered by primary care physicians upon healthcare contact, supplemented with hospital discharge records. The Institut Catala de la Salut (Catalan Health Institute) is the data controller.

6. General representativeness

It was previously shown that the captured SIDIAP population is highly representative of the entire Catalan region in terms of geographic, age, and sex distributions.

7. Data content and source coding

SIDIAP data covers all services that occur at the Primary Care Centres, as well as support services, such as sexual and reproductive health or home end-of-life care.
Drugs are coded in ATC-WHO terminology in the source data.
Health outcomes are captured in ICD-10CM codes.
The SIDIAP contains all laboratory tests and results performed in primary health centres.
Demographics, geographical, as well as socio-economic factors are recorded for each patient.

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5 and the OMOP standard vocabularies. The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.
A patient has a unique id, also upon changing practice or re-registration.

9. Quality control (data source specific)

Internal and external validation processes are carried out to determine the data quality of the SIDIAP information at each data update.
These include stratifying the data by geographical regions and year in order to identify differences in data collection that need to be harmonized (e.g. recording of specific information under different codes).
The measurement units of variables measuring one characteristic are also homogenized (e.g.

transformation of the data from every laboratory that measures haemoglobin to grams per decilitre). Visual inspection of all data included in the database by week is also conducted, allowing one to see temporal patterns in the registry of a certain variable. With this information, the SIDIAP team can issue recommendations to researchers about the most common variable(s) where certain information is recorded (e.g. there are several variables with information concerning the women's menopausal status and with these visual inspection tools the SIDIAP team can inform the researchers about which related variables have the largest number of records and could be more helpful to capture menopause). Data availability (longitudinally and reliability), plausibility (range checks and unusual values), and consistency are inspected through visualisation tools. In addition, before accessing the data for a requested project, research teams have access to a quality-control report. This document contains counts, years, percentiles, maximums and minimums, incidences, and prevalence of the data requested for the project, allowing detection of inconsistencies in the data extraction prior to data delivery.
External validation processes of the SIDIAP database mainly include assessing the data recorded in SIDIAP through linkage to external gold standard data sources, by analysing free text, or by sending questionnaires to health professionals.

10. Linkage

SIDIAP is linked to a hospital discharge database, pharmacy dispensation, and primary care laboratories. It can also be linked to other registries in Catalonia on a project-by-project basis.

11. Vital status

Mortality is fully captured in SIDIAP. The cause of death is not available, but can be linked to the Spanish death registry on a project-by-project basis.

12. Limitations

The SIDIAP data is not representative of individuals not using public primary care, and conditions that are usually followed by specialist care might not be properly captured. In addition, there is limited information on lifestyle variables. Patients are followed until Death or when transferring to another primary health care centre that does not contribute to SIDIAP.

13. Main references

Recalde M, Rodríguez C, Burn E, Far M, García D, Carrere-Molina J, Benítez M, Moleras A, Pistillo A, Bolíbar B, Aragón M, Duarte-Salles T "Data Resource Profile: The Information System for Research in Primary Care (SIDIAP)." International journal of epidemiology (2022): 35415748

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/50190
Website: https://www.sidiap.org/index.php/en

The Netherlands: Integrated Primary Care Information (IPCI)

1. Data source identification

Integrated Primary Care Information (IPCI)
the Netherlands

2. Data partner

Erasmus University Medical Center (EMC)
Department of Medical Informatics

3. Coverage and timespan

Data collection since: 2006
Extent: Nation-wide.
IPCI is a Dutch database that contains patient records from 2006 onwards.
However, it mainly covers the central part of the country, including the most densely populated area (the 'Randstad') and non-urban areas.
IPCI contains information on all patients registered with GPs responsible for non-emergency care and referrals. A patient is registered at birth or at first encounter with the GP.

4. Healthcare setting and type of data

Primary care – General Practitioner.
Data is collected from primary care EHR. This includes demographic information, complaints and symptoms, diagnoses, laboratory test results, lifestyle factors (in limited amount), and correspondence with secondary care, such as referral and discharge letters.

5. Data collection process

Outpatient electronic health records.
Data is entered into the EHR system by the GPs, during or after the visit. The patient dossiers are collected by Erasmus MC data managers and combined in one harmonized database. Several checks are done on this database to ensure correct data processing. Persons can have dossiers at multiple GPs.

6. General representativeness

More than 99% of the Dutch population has health insurance, and almost all citizens are registered with a general practitioner. Over 12 months, around 78% of the population has at least one contact with their GP. IPCI included around 350 GP practices out of around 5000 in the country (~ 7%). The demographic composition of the IPCI population mirrors that of the general Dutch population in terms of age and sex.

7. Data content and source coding

Dutch GPs use mainly Dutch standard codes, like ICPC-1 and Diagnostische Bepalingen maintained by NHG. And for therapy the G-Standard is used, maintained by ZIndex.

8. Data Harmonisation

The data has been mapped to the OMOP CDM v5 and the OMOP standard vocabularies. The format, structural and semantic conformance has been verified upon onboarding into the DARWIN EU® data network.
Patients can be registered under different IDs, but since a patient can only be registered at one GP at a time, the observations periods will not overlap.

9. Quality control (data source specific)

Prior to each data release, extensive quality control steps are performed, e.g. comparison of patient characteristics between practices, and checks to identify abnormal temporal data patterns in practices. For each practice, around 200 quality indicators are obtained. Of these indicators, a quarter refer to population characteristics, e.g. number of birth and mortalities relative to practice size, temporal consistency. The other indicators are based on medical data, e.g. distribution of measurement values, frequencies of diagnoses and procedures relative to age, completeness of data. The indicators are combined in a couple of quality scores for each practice. For these scores, cut-off values for acceptable quality have been defined. Practices with a score below a cut-off are excluded for research. This approach has shown to be very important, for example to check if data from practices that just joined the database are at an acceptable level of quality. The details of the approach, like the cut-off values for acceptance, are based on years of experience. In addition, trends are compared with the previous database release.
Extensive quality control steps are performed before each data release. These include comparing patient characteristics between practices and checks to identify abnormal temporal data patterns in practices. Additional checks include over 200 indicators related to population characteristics (e.g. reliability of birth and mortality rates) and medical data (e.g. availability of durations of prescriptions and completeness of laboratory results). Records of low quality are excluded from the database.

10. Linkage

Linkage requires additional approval steps and needs to be assessed on a case-by-case basis. IPCI is not routinely linked with other databases.

11. Vital status

Vital status (death date and cause) is collected based on GP records.

12. Limitations

The main limitation comes with the fact that IPCI is limited to GP records, and although it contains information on referrals and discharge letters, it may not fully capture specific hospital information. Capture of oral contraceptives in IPCI is incomplete. The first prescription is recorded within the patient's medical file but not the subsequent prescriptions. If you want to use IPCI data for research questions on oral contraceptives, you can do that but then you need to select those GPs that use MEDICOM as software system (where you have prescribing and dispensing). However, of hormone substitution therapy, the information on prescribing is COMPLETE. IPCI does not include coded/detailed data about medications/procedures/test results from the hospital or other care-providers.

13. Main references

de Ridder MAJ, de Wilde M, de Ben C, Leyba AR, Mosseveld BMT, Verhamme KMC, van der Lei J, Rijnbeek PR "Data Resource Profile: The Integrated Primary Care Information (IPCI) database, The Netherlands." International journal of epidemiology (2022): 35182144

14. Link to HMA-EMA catalogue and data source webpage

HMA-EMA Catalogue entry: https://catalogues.ema.europa.eu/data-source/42618
Website: http://www.ipci.nl

ANNEX IV. Fitness for use assessment

Croatian National Public Health Information System (NAJS)

NAJS will be included in this study because it is a primary, secondary, and hospital data source that has data on pregnancy.

Data availability in NAJS began in 2014; however, data owners recommended its use starting in 2017, when data is considered of sufficient quality for research purposes. The date of the most recent data extraction (as of October 2026) is 2025. The median length of the observation period is 3640 days (IQR: 3110–3740).

NAJS has blanket Institutional Review Board (IRB) approval for studies conducted via the DARWIN EU® Data Network.

Danish Data Health Registries (DK-DHR)

DK-DHR will be included in this study because it is a registry-based data source that includes secondary and hospital care (including emergency room visits) health data, with partially mapped pregnancy data. Births, procedures (including caesarean procedures), and diagnoses are already mapped from the patient registry. DK-DHR v2026 contains the full MBR mapping in EPISODE/EPISODE_EVENT, with mother–child linkage in FACT_RELATIONSHIP.

Data availability began in 1995, and the date of the most recent data extraction (as of October 2026) is 2025. The median length of the observation period is 7920 days (IQR: 2610–10,900).

DK-DHR has umbrella IRB approval for studies conducted via the DARWIN EU® Data Network.

Finnish Care Register for Health Care (FinOMOP-THL)

FinOMOP-THL will be included in this study because it is a registry-based data source including private and public, primary, secondary, and hospital health data, with unmapped pregnancy data.

Moreover, data availability and follow-up are considered sufficient for this study. Data availability began in 2011, and the date of most recent data extraction (as of October 2026) is 2024. The median length of the observation period is 4020 days (IQR: 4020–5030).

IRB approval for FinOMOP-THL is estimated to take <3 months.

InGef Research Database (InGef RDB)

InGef RDB will be included in this study because it is a claims data source including primary, secondary, and hospital care data, with unmapped pregnancy-related information.

Data availability and follow-up in InGef RDB are considered sufficient for this study. Data availability for InGef RDB includes the last 10 years (by law), and the date of the most recent data extraction (as of October 2026) is in 2025. The median length of the observation period is 3560 days (IQR: 1400–3650).

InGef has blanket IRB approval for studies conducted via DARWIN EU® Data Network.

The Norwegian Linked Health Registry data (NLHR)

NLHR will be included in this study because it is a registry data source that has information on pregnancy. There are study-specific limitations present in NLHR, namely that while notifications of pregnancies and pregnancy outcomes are mandatory in Norway for all pregnancies past gestational week 12, those dated before may be missed. However, the UiO Pregnancy algorithm improves the detection and dating of early non-live pregnancy outcomes that would have gone unnoticed if relying solely on the medical birth registry information by linking the Medical Birth Registry of Norway (MBRN) records with hospital and primary care records. This database has 2 available CDMs, which are: The Medical Birth Registry of Norway (MBRN) (NLHR@ University of Oslo (UiO): PERINATAL CDM) and NLHR (NLHR@UiO CDM dataset). Both CDMs use

the UiO pregnancy algorithm and cover the entire Norwegian population. However, they have different source populations, based on the data source that provides the linkage IDs (MBRN versus national registry) and the data period covered. This study will be use NLHR@UiO.

The IRB approval process for NLHR is estimated to take 4 weeks.

The Information System for Research on Primary Care (SIDIAP)

SIDIAP will be included in this study because it contains detailed pregnancy information from reproductive health clinics in primary care.

Data availability in SIDIAP is considered sufficient for this study, as data collection began in 2006, and the most recent data extraction date (as of October 2026) is June 2023. The median length of the observation period is 5,670 days (IQR: 2,220–6,390).

In SIDIAP, voluntary pregnancy losses may be underreported. Additionally, data does not include data from private care settings.

The IRB approval process for SIDIAP is estimated to take <3 months.

Integrated Primary Care Information (IPCI)

IPCI will be included in this study because it is a primary care data source with mapped pregnancy data.

Moreover, data availability and follow-up are considered sufficient for this study. Data availability began in 2006, and the date of the most recent data extraction (as of October 2026) is 2024. The median length of the observation period is 1730 days (IQR: 791–3070).

IRB approval for IPCI is estimated to take <1 month.

ANNEX V. Operational and reporting considerations

DATA MANAGEMENT

All data sources have previously mapped their data to the OMOP common data model. The analytic code for this study will be written in R and will use standardised analytics, wherever possible. Each data partner will execute the study code against their data source containing patient-level data and then return the results (csv files), which will only contain aggregated data. The results from each of the contributing data sources will then be combined in tables and figures for the study report.

Data storage and protection

For this study, data sources will process personal data from individuals that is collected in national/regional electronic health record data sources.

All data sources used in this study are already used for pharmaco-epidemiological research and have a well-developed mechanism to ensure that European and local regulations regarding ethical use of the data and adequate privacy control are adhered to. In agreement with these regulations, rather than combining person level data and only performing a central analysis, local analyses will be run, which generate non-identifiable aggregate summary results.

The output files are stored in the DARWIN EU® Digital Research Environment (DRE). These output files do not contain any data that allow identification of subjects included in the study. The DRE implements further security measures to ensure a high level of stored data protection to comply with the local implementation of the General Data Protection Regulation (GDPR) (EU) 679/2016 in the various member states.

QUALITY CONTROL

Data source quality control

When defining drug cohorts, non-systemic products will be excluded from the list of included codes summarised on the ingredient level.

When defining cohorts for indications, a systematic search of possible codes for inclusion will be identified using the *CodelistGenerator* R package (https://github.com/darwin-eu/CodelistGenerator). This package allows the user to define a search strategy and will use this to query the vocabulary tables of the OMOP common data model so as to find potentially relevant codes. In addition, the *CohortDiagnostics* (https://github.com/OHDSI/CohortDiagnostics) R package will be run, if needed, to assess the use of different codes across the data sources contributing to the study and identify any codes potentially omitted in error.

The study code will be based on DARWIN EU® R packages: *IncidencePrevalence, DrugUtilisation* to characterise the drug use, and *CohortCharacteristics* to characterise the cohort by indication. These packages will include numerous automated unit tests to ensure the validity of the codes, alongside software peer review and user testing. The R package will be made publicly available via GitHub.

PLANS FOR DISSEMINATING AND COMMUNICATING STUDY RESULTS

A PDF report including an executive summary, and the specified tables and/or figures will be submitted to EMA by the DARWIN EU® CC upon completion of the study.

An interactive dashboard incorporating all the results (tables and figures) will be provided alongside the PDF report. The full set of underlying aggregated data used in the dashboard will also be made available, if requested.

8.1. ANNEX VI. List of stand-alone documents

Table S1. Preliminary list of conditions definitions.

Alcohol misuse:

Concept ID	Concept name
4338024	Absinthe addiction
433753	Alcohol abuse
435243	Alcohol dependence
45757131	Alcohol dependence in childbirth
45757093	Alcohol dependence in pregnancy
4218106	Alcoholism
44788303	Alcohol misuse enhanced service completed
44788279	Alcohol misuse enhanced services administration
439005	Chronic alcoholism in remission
436953	Continuous chronic alcoholism
378726	Dementia associated with alcoholism
4275257	Detoxication psychiatric therapy for alcoholism
435532	Episodic chronic alcoholism
37017329	Mild alcohol dependence
37018356	Moderate alcohol dependence
4152165	Nondependent alcohol abuse
435534	Nondependent alcohol abuse, continuous
440685	Nondependent alcohol abuse, episodic
441276	Nondependent alcohol abuse in remission
4109691	Persistent alcohol abuse
37017563	Severe alcohol dependence

Anxiety:

Concept ID	Concept name
4102965	Acute fugue state due to acute stress reaction
4099956	Acute panic state due to acute stress reaction
4100536	Acute post-trauma stress state
40486521	Acute posttraumatic stress disorder following military combat
4103567	Acute situational disturbance
440083	Acute stress disorder
4102966	Acute stupor state due to acute stress reaction
4321835	Agoraphobia
439786	Agoraphobia with panic attacks

Concept ID	Concept name
4189538	Agoraphobia without history of panic disorder
4029005	Agoraphobia without history of panic disorder with limited symptom attacks
4219627	Agoraphobia without history of panic disorder without limited symptom attacks
4219044	Amphetamine-induced anxiety disorder
442077	Anxiety disorder
37109206	Anxiety disorder caused by drug
4199892	Anxiety disorder due to a general medical condition
3171318	Anxiety disorder due to brain injury
45757095	Anxiety disorder in mother complicating childbirth
4242095	Anxiety disorder of adolescence
433178	Anxiety disorder of childhood OR adolescence
4288011	Anxiety hyperventilation
4236021	Avoidant disorder of adolescence
4242704	Avoidant disorder of childhood OR adolescence
4033049	Bromisodrophobia
443414	Chronic post-traumatic stress disorder
44783184	Chronic post-traumatic stress disorder following military combat
4138454	Chronic stress disorder
4247433	Combat fatigue
40484109	Complex posttraumatic stress disorder
4103278	Compulsive neurosis
40486886	Delayed posttraumatic stress disorder following military combat
4009184	Dream anxiety disorder
1340251	Exacerbation of anxiety disorder
1340414	Exacerbation of obsessional neurosis
1340434	Exacerbation of phobic disorder
434613	Generalized anxiety disorder
4268775	Generalized social phobia
37109052	Mild major depressive disorder co-occurrent with anxiety single episode
4338031	Mixed anxiety and depressive disorder
37109053	Moderate major depressive disorder co-occurrent with anxiety single episode
4178928	Nightmares associated with chronic post-traumatic stress disorder
4098320	Obsessional neurosis
37110440	Obsessive compulsive disorder caused by cocaine
37110473	Obsessive compulsive disorder caused by psychoactive substance
42538593	Obsessive compulsive disorder caused by stimulant

Concept ID	Concept name
42538739	Obsessive compulsive disorder caused by synthetic cathinone
440374	Obsessive-compulsive disorder
4024443	Occupation-related stress disorder
37109942	Olfactory reference disorder
436074	Panic disorder
4147466	Panic disorder with agoraphobia
4233250	Panic disorder with agoraphobia AND mild panic attacks
4217601	Panic disorder with agoraphobia AND moderate panic attacks
4245974	Panic disorder with agoraphobia AND panic attacks in full remission
4273699	Panic disorder with agoraphobia AND panic attacks in partial remission
4204708	Panic disorder with agoraphobia AND severe panic attacks
4297987	Panic disorder with agoraphobia, agoraphobic avoidance in full remission AND mild panic attacks
4338662	Panic disorder with agoraphobia, agoraphobic avoidance in full remission AND moderate panic attacks
4002897	Panic disorder with agoraphobia, agoraphobic avoidance in full remission AND panic attacks in full remission
4008568	Panic disorder with agoraphobia, agoraphobic avoidance in full remission AND panic attacks in partial remission
4143602	Panic disorder with agoraphobia, agoraphobic avoidance in full remission AND severe panic attacks
4136518	Panic disorder with agoraphobia, agoraphobic avoidance in partial remission AND mild panic attacks
4137120	Panic disorder with agoraphobia, agoraphobic avoidance in partial remission AND moderate panic attacks
4329036	Panic disorder with agoraphobia, agoraphobic avoidance in partial remission AND panic attacks in full remission
4135202	Panic disorder with agoraphobia, agoraphobic avoidance in partial remission AND panic attacks in partial remission
4006459	Panic disorder with agoraphobia, agoraphobic avoidance in partial remission AND severe panic attacks
4270890	Panic disorder with agoraphobia, mild agoraphobic avoidance AND mild panic attacks
4175779	Panic disorder with agoraphobia, mild agoraphobic avoidance AND moderate panic attacks
4085666	Panic disorder with agoraphobia, mild agoraphobic avoidance AND panic attacks in full remission
4177015	Panic disorder with agoraphobia, mild agoraphobic avoidance AND panic attacks in partial remission
4054913	Panic disorder with agoraphobia, mild agoraphobic avoidance AND severe panic attacks
4171336	Panic disorder with agoraphobia, moderate agoraphobic avoidance AND mild panic attacks
4220989	Panic disorder with agoraphobia, moderate agoraphobic avoidance AND moderate panic attacks
4272328	Panic disorder with agoraphobia, moderate agoraphobic avoidance AND panic attacks in full remission
4298550	Panic disorder with agoraphobia, moderate agoraphobic avoidance AND panic attacks in partial remission
4307664	Panic disorder with agoraphobia, moderate agoraphobic avoidance AND severe panic attacks
4109930	Panic disorder with agoraphobia, severe agoraphobic avoidance AND mild panic attacks
4146608	Panic disorder with agoraphobia, severe agoraphobic avoidance AND moderate panic attacks
4243153	Panic disorder with agoraphobia, severe agoraphobic avoidance AND panic attacks in full remission
4252417	Panic disorder with agoraphobia, severe agoraphobic avoidance AND panic attacks in partial remission
4246992	Panic disorder with agoraphobia, severe agoraphobic avoidance AND severe panic attacks

Concept ID	Concept name
4211231	Panic disorder without agoraphobia
4218624	Panic disorder without agoraphobia with mild panic attacks
4277739	Panic disorder without agoraphobia with moderate panic attacks
4221253	Panic disorder without agoraphobia with panic attacks in full remission
4205119	Panic disorder without agoraphobia with panic attacks in partial remission
4182119	Panic disorder without agoraphobia with severe panic attacks
44790897	Paruresis
4304010	Phobic disorder
4238682	Physical AND emotional exhaustion state
436676	Posttraumatic stress disorder
4202389	Posttraumatic stress disorder, delayed onset
436390	Psychogenic rumination
35615154	Recurrent major depressive disorder co-occurrent with anxiety in full remission
35615155	Recurrent major depressive disorder in partial remission co-occurrent with anxiety
35615151	Recurrent mild major depressive disorder co-occurrent with anxiety
35615153	Recurrent moderate major depressive disorder co-occurrent with anxiety
35615152	Recurrent severe major depressive disorder co-occurrent with anxiety
434628	Separation anxiety
37109054	Severe major depressive disorder co-occurrent with anxiety single episode
4088141	Shell shock
4182847	Simple phobia
3189734	Situational anxiety
440690	Social phobia
4103275	Social phobia, fear of eating in public
4103276	Social phobia, fear of public speaking
4103277	Social phobia, fear of public washing
44792465	Stranger anxiety
432600	Stress reaction causing mixed disturbance of emotion and conduct
4033046	Syphilophobia
4033937	Venereophobia

Asthma:

Concept ID	Concept name
257581	Acute asthma
45769441	Acute exacerbation of allergic asthma
46273452	Acute exacerbation of asthma co-occurrent with allergic rhinitis
40481763	Acute exacerbation of chronic asthmatic bronchitis

Concept ID	Concept name
43530693	Acute exacerbation of chronic obstructive airways disease with asthma
37159957	Acute exacerbation of intermittent allergic asthma
45773005	Acute exacerbation of intrinsic asthma
37159958	Acute exacerbation of moderate persistent allergic asthma
36684328	Acute severe exacerbation of allergic asthma
45769438	Acute severe exacerbation of asthma
46269767	Acute severe exacerbation of asthma co-occurrent with allergic rhinitis
45769442	Acute severe exacerbation of immunoglobin E-mediated allergic asthma
45769443	Acute severe exacerbation of intrinsic asthma
46274124	Acute severe exacerbation of mild persistent allergic asthma
46269777	Acute severe exacerbation of mild persistent allergic asthma co-occurrent with allergic rhinitis
45769352	Acute severe exacerbation of mild persistent asthma
46273462	Acute severe exacerbation of moderate persistent allergic asthma
45769351	Acute severe exacerbation of moderate persistent asthma
46269785	Acute severe exacerbation of moderate persistent asthma co-occurrent with allergic rhinitis
46274059	Acute severe exacerbation of severe persistent allergic asthma
45769350	Acute severe exacerbation of severe persistent asthma
46269771	Acute severe exacerbation of severe persistent asthma co-occurrent with allergic rhinitis
37116845	Acute severe refractory exacerbation of asthma
4191479	Allergic asthma
45766728	Allergic asthma due to Dermatophagoides farinae
45766727	Allergic asthma due to Dermatophagoides pteronyssinus
4271333	Allergic asthma without status asthmaticus
46269801	Aspirin exacerbated respiratory disease
4250128	Aspirin-induced asthma
317009	Asthma
4211530	Asthma caused by wood dust
46274062	Asthma-chronic obstructive pulmonary disease overlap syndrome
45772073	Asthma in mother complicating childbirth
42535716	Asthma in pregnancy
4235703	Asthma management
44783610	Asthma self management
4233784	Asthmatic bronchitis
252942	Asthmatic pulmonary eosinophilia
43530745	Asthma with irreversible airway obstruction
4206340	Asthma without status asthmaticus
4143474	Bakers' asthma

Concept ID	Concept name
4075237	Brittle asthma
4225553	Cheese-makers' asthma
4245676	Chemical-induced asthma
4051466	Childhood asthma
256448	Chronic asthmatic bronchitis
44810117	Chronic asthma with fixed airflow obstruction
46269802	Chronic obstructive asthma co-occurrent with acute exacerbation of asthma
4119300	Colophony asthma
313236	Cough variant asthma
4120262	Cryptogenic pulmonary eosinophilia
4217558	Detergent asthma
4244339	Drug-induced asthma
42538744	Exacerbation of allergic asthma
36684335	Exacerbation of allergic asthma due to infection
1340255	Exacerbation of asthma
4138760	Exacerbation of intermittent asthma
45768911	Exacerbation of mild persistent asthma
45772937	Exacerbation of moderate persistent asthma
45768912	Exacerbation of severe persistent asthma
443801	Exercise-induced asthma
4123253	Hay fever with asthma
312950	IgE-mediated allergic asthma
761844	Inhaled steroid-dependent asthma
37310241	Intermittent allergic asthma
4141978	Intermittent asthma
46270030	Intermittent asthma co-occurrent with allergic rhinitis
46270322	Intermittent asthma uncontrolled
4145497	Intrinsic asthma
252658	Intrinsic asthma without status asthmaticus
4225554	Isocyanate induced asthma
4119298	Late onset asthma
35609846	Life threatening acute exacerbation of allergic asthma
42536207	Life threatening acute exacerbation of asthma
35609847	Life threatening acute exacerbation of intrinsic asthma
4057952	Meat-wrappers' asthma
4155468	Mild asthma
4146581	Mild intermittent asthma

Concept ID	Concept name
46269776	Mild persistent allergic asthma
4143828	Mild persistent asthma
46270029	Mild persistent asthma co-occurrent with allergic rhinitis
4022592	Millers' asthma
4110051	Mixed asthma
42536208	Moderate acute exacerbation of asthma
4155469	Moderate asthma
46269784	Moderate persistent allergic asthma
4142738	Moderate persistent asthma
46273454	Moderate persistent asthma co-occurrent with allergic rhinitis
37206717	Near fatal asthma
4309833	Non-IgE mediated allergic asthma
4155470	Occasional asthma
4212099	Occupational asthma
37109103	Oral steroid-dependent asthma
764677	Persistent asthma
2108536	Persistent asthma, preferred long term control medication or an acceptable alternative treatment, prescribed (NMA-No Measure Associated)
764949	Persistent asthma, well controlled
4232595	Platinum asthma
4080516	Printers' asthma
4279553	Pulmonary eosinophilia
40483397	Seasonal asthma
4152913	Severe asthma
37208352	Severe asthma with fungal sensitisation
37108580	Severe controlled persistent asthma
46269770	Severe persistent allergic asthma
4145356	Severe persistent asthma
46270028	Severe persistent asthma co-occurrent with allergic rhinitis
37108581	Severe uncontrolled persistent asthma
4277596	Simple pulmonary eosinophilia
46273635	Steroid dependent asthma
4120261	Sulfite-induced asthma
4301938	Tea-makers' asthma
3661412	Thunderstorm asthma
4081994	Tropical pulmonary eosinophilia
42539549	Uncomplicated allergic asthma

Concept ID	Concept name
45768910	Uncomplicated asthma
45768963	Uncomplicated mild persistent asthma
45768964	Uncomplicated moderate persistent asthma
42536649	Uncomplicated non-allergic asthma
45768965	Uncomplicated severe persistent asthma
4245292	Weavers' cough
257581	Acute asthma
45769441	Acute exacerbation of allergic asthma
46273452	Acute exacerbation of asthma co-occurrent with allergic rhinitis
40481763	Acute exacerbation of chronic asthmatic bronchitis
43530693	Acute exacerbation of chronic obstructive airways disease with asthma
37159957	Acute exacerbation of intermittent allergic asthma
45773005	Acute exacerbation of intrinsic asthma
37159958	Acute exacerbation of moderate persistent allergic asthma
36684328	Acute severe exacerbation of allergic asthma
45769438	Acute severe exacerbation of asthma
46269767	Acute severe exacerbation of asthma co-occurrent with allergic rhinitis
45769442	Acute severe exacerbation of immunoglobin E-mediated allergic asthma
45769443	Acute severe exacerbation of intrinsic asthma
46274124	Acute severe exacerbation of mild persistent allergic asthma
46269777	Acute severe exacerbation of mild persistent allergic asthma co-occurrent with allergic rhinitis
45769352	Acute severe exacerbation of mild persistent asthma
46273462	Acute severe exacerbation of moderate persistent allergic asthma
45769351	Acute severe exacerbation of moderate persistent asthma
46269785	Acute severe exacerbation of moderate persistent asthma co-occurrent with allergic rhinitis
46274059	Acute severe exacerbation of severe persistent allergic asthma
45769350	Acute severe exacerbation of severe persistent asthma
46269771	Acute severe exacerbation of severe persistent asthma co-occurrent with allergic rhinitis
37116845	Acute severe refractory exacerbation of asthma
4191479	Allergic asthma
45766728	Allergic asthma due to Dermatophagoides farinae
45766727	Allergic asthma due to Dermatophagoides pteronyssinus
4271333	Allergic asthma without status asthmaticus
46269801	Aspirin exacerbated respiratory disease
4250128	Aspirin-induced asthma
317009	Asthma
4211530	Asthma caused by wood dust

Concept ID	Concept name
46274062	Asthma-chronic obstructive pulmonary disease overlap syndrome
45772073	Asthma in mother complicating childbirth
42535716	Asthma in pregnancy
4235703	Asthma management
44783610	Asthma self management
4233784	Asthmatic bronchitis
252942	Asthmatic pulmonary eosinophilia
43530745	Asthma with irreversible airway obstruction
4206340	Asthma without status asthmaticus
4143474	Bakers' asthma
4075237	Brittle asthma
4225553	Cheese-makers' asthma
4245676	Chemical-induced asthma
4051466	Childhood asthma
256448	Chronic asthmatic bronchitis
44810117	Chronic asthma with fixed airflow obstruction
46269802	Chronic obstructive asthma co-occurrent with acute exacerbation of asthma
4119300	Colophony asthma
313236	Cough variant asthma
4120262	Cryptogenic pulmonary eosinophilia
4217558	Detergent asthma
4244339	Drug-induced asthma
42538744	Exacerbation of allergic asthma
36684335	Exacerbation of allergic asthma due to infection
1340255	Exacerbation of asthma
4138760	Exacerbation of intermittent asthma
45768911	Exacerbation of mild persistent asthma
45772937	Exacerbation of moderate persistent asthma
45768912	Exacerbation of severe persistent asthma
443801	Exercise-induced asthma
4123253	Hay fever with asthma
312950	IgE-mediated allergic asthma
761844	Inhaled steroid-dependent asthma
37310241	Intermittent allergic asthma
4141978	Intermittent asthma
46270030	Intermittent asthma co-occurrent with allergic rhinitis
46270322	Intermittent asthma uncontrolled

Concept ID	Concept name
4145497	Intrinsic asthma
252658	Intrinsic asthma without status asthmaticus
4225554	Isocyanate induced asthma
4119298	Late onset asthma
35609846	Life threatening acute exacerbation of allergic asthma
42536207	Life threatening acute exacerbation of asthma
35609847	Life threatening acute exacerbation of intrinsic asthma
4057952	Meat-wrappers' asthma
4155468	Mild asthma
4146581	Mild intermittent asthma
46269776	Mild persistent allergic asthma
4143828	Mild persistent asthma
46270029	Mild persistent asthma co-occurrent with allergic rhinitis
4022592	Millers' asthma
4110051	Mixed asthma
42536208	Moderate acute exacerbation of asthma
4155469	Moderate asthma
46269784	Moderate persistent allergic asthma
4142738	Moderate persistent asthma
46273454	Moderate persistent asthma co-occurrent with allergic rhinitis
37206717	Near fatal asthma
4309833	Non-IgE mediated allergic asthma
4155470	Occasional asthma
4212099	Occupational asthma
37109103	Oral steroid-dependent asthma
764677	Persistent asthma
2108536	Persistent asthma, preferred long term control medication or an acceptable alternative treatment, prescribed (NMA-No Measure Associated)
764949	Persistent asthma, well controlled
4232595	Platinum asthma
4080516	Printers' asthma
4279553	Pulmonary eosinophilia
40483397	Seasonal asthma
4152913	Severe asthma
37208352	Severe asthma with fungal sensitisation
37108580	Severe controlled persistent asthma
46269770	Severe persistent allergic asthma

Concept ID	Concept name
4145356	Severe persistent asthma
46270028	Severe persistent asthma co-occurrent with allergic rhinitis
37108581	Severe uncontrolled persistent asthma
4277596	Simple pulmonary eosinophilia
46273635	Steroid dependent asthma
4120261	Sulfite-induced asthma
4301938	Tea-makers' asthma
3661412	Thunderstorm asthma
4081994	Tropical pulmonary eosinophilia
42539549	Uncomplicated allergic asthma
45768910	Uncomplicated asthma
4245292	Weavers' cough

Inflammatory auto-immune diseases of the intestine:

Concept ID[1]	Concept name
194992	Celiac disease
4074815	Inflammatory bowel disease
201606	Crohn's disease
81893	Ulcerative colitis

[1]All descendants included.

Cancer (any malignancy):

Concept ID[1]	Concept name
443392	Malignant neoplastic disease

[1]All descendants included.

Chronic liver disease:

Concept ID[1]	Concept name
4212540	Chronic liver disease

[1]All descendants included.

Chronic kidney disease:

Concept ID	Concept name
193782	End-stage renal disease
197921	Renal osteodystrophy
198185	Chronic renal failure
443597	Chronic kidney disease stage 3
443601	Chronic kidney disease stage 2
443611	Chronic kidney disease stage 5

Concept ID	Concept name
443612	Chronic kidney disease stage 4
443614	Chronic kidney disease stage 1
443961	Anemia of chronic renal failure
601161	Chronic kidney disease stage 1 due to drug induced diabetes mellitus
601162	Chronic kidney disease stage 2 due to drug induced diabetes mellitus
601163	Chronic kidney disease stage 3 due to drug induced diabetes mellitus
601164	Chronic kidney disease stage 4 due to drug induced diabetes mellitus
601165	Chronic kidney disease stage 5 due to drug induced diabetes mellitus
601166	End stage renal disease on dialysis due to drug induced diabetes mellitus
619679	Chronic kidney disease with osteoporosis
619681	Renal osteodystrophy with high bone turnover
619682	Renal osteodystrophy with normal bone turnover
619683	Renal osteodystrophy with low bone turnover
760850	Benign hypertensive heart disease and chronic renal disease stage 5
762000	Benign hypertensive heart disease and chronic renal disease stage 2
762001	Benign hypertensive heart disease and chronic renal disease stage 3
762033	Malignant hypertensive heart disease and chronic renal disease stage 3
762034	Malignant hypertensive heart disease and chronic renal disease stage 4
762973	Hypertensive end stage renal disease
764011	Benign hypertensive heart disease and chronic renal disease
765535	Benign hypertensive heart disease and chronic renal disease stage 1
765536	Benign hypertensive heart disease and chronic renal disease stage 4
1340282	Exacerbation of chronic renal failure
4030520	End stage renal failure on dialysis
4125970	End stage renal failure with renal transplant
4128067	Acute-on-chronic renal failure
4128200	End stage renal failure untreated by renal replacement therapy
4322556	Chronic progressive renal failure
36716184	Chronic kidney disease following donor nephrectomy
36716455	Chronic kidney disease due to traumatic loss of kidney
36716947	Chronic renal insufficiency
36717349	Chronic kidney disease due to systemic infection
36717534	Chronic kidney disease following excision of renal neoplasm
37017104	Chronic kidney disease mineral and bone disorder
37017813	Chronic kidney disease stage 5 on dialysis
37018761	Chronic kidney disease stage 5 with transplant
37018886	End stage renal disease due to hypertension

Concept ID	Concept name
37019193	Anemia co-occurrent and due to chronic kidney disease stage 3
42872405	Anemia, pre-end stage renal disease on erythropoietin protocol
43020437	Malignant hypertensive chronic kidney disease stage 5
43020455	Malignant hypertensive end stage renal disease
43020456	Malignant hypertensive chronic kidney disease stage 3
43020457	Malignant hypertensive chronic kidney disease stage 4
43021835	Hypertensive heart AND chronic kidney disease stage 3
43021836	Hypertensive heart AND chronic kidney disease stage 2
43021852	Malignant hypertensive chronic kidney disease
43021853	Malignant hypertensive chronic kidney disease stage 1
43021854	Malignant hypertensive chronic kidney disease stage 2
43021864	Malignant hypertensive end stage renal disease on dialysis
43531559	Chronic kidney disease stage 1 due to type 2 diabetes mellitus
43531562	Chronic kidney disease stage 5 due to type 2 diabetes mellitus
43531566	Chronic kidney disease stage 2 due to type 2 diabetes mellitus
43531577	Chronic kidney disease stage 4 due to type 2 diabetes mellitus
43531578	Chronic kidney disease due to type 2 diabetes mellitus
43531653	Chronic kidney disease stage 3 due to type 2 diabetes mellitus
44782429	Chronic kidney disease due to hypertension
44782689	Chronic kidney disease stage 4 due to hypertension
44782690	Chronic kidney disease stage 5 due to hypertension
44782691	Chronic kidney disease stage 3 due to hypertension
44782692	Chronic kidney disease stage 2 due to hypertension
44782703	Chronic kidney disease stage 1 due to hypertension
44782717	End stage renal disease on dialysis due to hypertension
44784621	Hypertensive heart and chronic kidney disease
44784637	Hypertensive heart AND chronic kidney disease on dialysis
44784638	Hypertensive heart AND chronic kidney disease stage 5
44784639	Hypertensive heart AND chronic kidney disease stage 4
44784640	Hypertensive heart AND chronic kidney disease stage 1
44792226	Chronic kidney disease stage 1 with proteinuria
44792227	Chronic kidney disease stage 1 without proteinuria
44792228	Chronic kidney disease stage 2 with proteinuria
44792229	Chronic kidney disease stage 2 without proteinuria
44792230	Chronic kidney disease stage 3 with proteinuria
44792231	Chronic kidney disease stage 3 without proteinuria
44792232	Chronic kidney disease stage 3A with proteinuria

Concept ID	Concept name
44792249	Chronic kidney disease stage 3A without proteinuria
44792250	Chronic kidney disease stage 3B with proteinuria
44792251	Chronic kidney disease stage 3B without proteinuria
44792252	Chronic kidney disease stage 4 with proteinuria
44792253	Chronic kidney disease stage 4 without proteinuria
44792254	Chronic kidney disease stage 5 with proteinuria
44792255	Chronic kidney disease stage 5 without proteinuria
45757137	Pre-existing hypertensive heart and chronic kidney disease in mother complicating childbirth
45757139	Pre-existing hypertensive heart and chronic kidney disease in mother complicating pregnancy
45757356	Pre-existing hypertensive chronic kidney disease in mother complicating pregnancy
45757392	Hypertension concurrent and due to end stage renal disease on dialysis due to type 2 diabetes mellitus
45757393	Hypertension concurrent and due to end stage renal disease on dialysis due to type 1 diabetes mellitus
45757444	Hypertension in chronic kidney disease stage 5 due to type 2 diabetes mellitus
45757445	Hypertension in chronic kidney disease stage 4 due to type 2 diabetes mellitus
45757446	Hypertension in chronic kidney disease stage 3 due to type 2 diabetes mellitus
45757447	Hypertension in chronic kidney disease stage 2 due to type 2 diabetes mellitus
45763854	Chronic kidney disease stage 3A
45763855	Chronic kidney disease stage 3B
45768813	Anemia in end stage renal disease
45769901	Chronic kidney disease stage 2 due to type 1 diabetes mellitus
45769902	Chronic kidney disease stage 4 due to type 1 diabetes mellitus
45769903	Chronic kidney disease stage 5 due to type 1 diabetes mellitus
45769904	End stage renal disease on dialysis due to type 1 diabetes mellitus
45769906	End stage renal disease on dialysis due to type 2 diabetes mellitus
45771064	Hypertension in chronic kidney disease due to type 2 diabetes mellitus
45771067	Hypertension in chronic kidney disease due to type 1 diabetes mellitus
45771075	Chronic kidney disease stage 3 due to type 1 diabetes mellitus
45772751	Hypertension concurrent and due to end stage renal disease on dialysis
45773576	Chronic kidney disease stage 1 due to type 1 diabetes mellitus
45773688	Chronic kidney disease due to type 1 diabetes mellitus
46270353	Chronic kidney disease due to benign hypertension
46270354	Chronic kidney disease stage 1 due to benign hypertension
46270355	Chronic kidney disease stage 2 due to benign hypertension
46270356	Chronic kidney disease stage 5 due to benign hypertension
46270969	Mixed renal osteodystrophy
46271022	Chronic kidney disease
46273164	End stage renal disease due to benign hypertension

Concept ID	Concept name
46273514	Chronic kidney disease stage 4 due to benign hypertension
46273636	Chronic kidney disease stage 3 due to benign hypertension
46284566	CKD G1A1 - chronic kidney disease with glomerular filtration rate category G1 and albuminuria category A1
46284567	CKD G1A2 - chronic kidney disease with glomerular filtration rate category G1 and albuminuria category A2
46284570	CKD G1A3 - chronic kidney disease with glomerular filtration rate category G1 and albuminuria category A3
46284572	CKD G2A1 - chronic kidney disease with glomerular filtration rate category G2 and albuminuria category A1
46284575	CKD G2A3 - chronic kidney disease with glomerular filtration rate category G2 and albuminuria category A3
46284587	CKD G3aA1 - chronic kidney disease with glomerular filtration rate category G3a and albuminuria category A1
46284588	CKD G3aA3 - chronic kidney disease with glomerular filtration rate category G3a and albuminuria category A3
46284591	CKD G3bA1 - chronic kidney disease with glomerular filtration rate category G3b and albuminuria category A1
46284592	CKD G3bA2 - chronic kidney disease with glomerular filtration rate category G3b and albuminuria category A2
46284593	CKD G3bA3 - chronic kidney disease with glomerular filtration rate category G3b and albuminuria category A3
46284597	CKD G4A1 - chronic kidney disease with glomerular filtration rate category G4 and albuminuria category A1
46284598	CKD G4A2 - chronic kidney disease with glomerular filtration rate category G4 and albuminuria category A2
46284599	CKD G4A3 - chronic kidney disease with glomerular filtration rate category G4 and albuminuria category A3
46284600	CKD G5A1 - chronic kidney disease with glomerular filtration rate category G5 and albuminuria category A1
46284602	CKD G5A2 - chronic kidney disease with glomerular filtration rate category G5 and albuminuria category A2
46284603	CKD G5A3 - chronic kidney disease with glomerular filtration rate category G5 and albuminuria category A3
46286992	CKD G3aA2 - chronic kidney disease with glomerular filtration rate category G3a and albuminuria category A2
46287169	CKD G2A2 - chronic kidney disease with glomerular filtration rate category G2 and albuminuria category A2
36674698	Alport syndrome

Diabetes mellitus:

Concept ID	Concept name
36715051	Atherosclerosis, deafness, diabetes, epilepsy, nephropathy syndrome
36713275	Atypical diabetes mellitus
36715417	DEND syndrome
4129516	Diabetes-deafness syndrome maternally transmitted
201820	Diabetes mellitus
4143529	Diabetes mellitus associated with cystic fibrosis
4245270	Diabetes mellitus associated with genetic syndrome
4240589	Diabetes mellitus associated with hormonal etiology
4178452	Diabetes mellitus associated with pancreatic disease
4178790	Diabetes mellitus associated with receptor abnormality
42537681	Diabetes mellitus caused by chemical
765478	Diabetes mellitus caused by drug without complication
3178281	Diabetes mellitus complicating Cystic fibrosis

Concept ID	Concept name
4144583	Diabetes mellitus due to cystic fibrosis
43531011	Diabetes mellitus due to genetic defect in beta cell function
43531642	Diabetes mellitus due to genetic defect in insulin action
4192852	Diabetes mellitus due to insulin receptor antibodies
45757077	Diabetes mellitus due to pancreatic injury
4237068	Diabetes mellitus due to structurally abnormal insulin
4058243	Diabetes mellitus during pregnancy, childbirth and the puerperium
4235410	Diabetes mellitus induced by non-steroid drugs
4136889	Diabetes mellitus induced by non-steroid drugs without complication
45757129	Diabetes mellitus in mother complicating childbirth
194700	Diabetes mellitus in mother complicating pregnancy, childbirth AND/OR puerperium
4079850	Diabetes mellitus in neonate small for gestational age
45766050	Diabetes mellitus in remission
43531645	Diabetes mellitus, transient neonatal 1
43531019	Diabetes mellitus, transient neonatal 2
43531020	Diabetes mellitus, transient neonatal 3
37174264	Diabetes mellitus type 1 stage 1
37174265	Diabetes mellitus type 1 stage 2
37174270	Diabetes mellitus type 1 stage 3
45757674	Diabetes mellitus type 1 without retinopathy
45757474	Diabetes mellitus type 2 without retinopathy
36684827	Diabetes mellitus type 2 with periodontal disease
44793113	Diabetes mellitus with multiple complications
4008576	Diabetes mellitus without complication
42535539	Disorder of nerve co-occurrent and due to type 1 diabetes mellitus
4202383	Drug-induced diabetes mellitus
1340306	Exacerbation of diabetes mellitus
766252	Exacerbation of type 1 diabetes mellitus
766253	Exacerbation of type 2 diabetes mellitus
4084643	Extreme insulin resistance with acanthosis nigricans, hirsutism AND abnormal insulin receptors
4099741	Fibrocalculous pancreatic diabetes
37163452	Fulminant type 1 diabetes mellitus
3183244	Gestational diabetes during pregnancy
4024659	Gestational diabetes mellitus
4326434	Gestational diabetes mellitus class A1
4263902	Gestational diabetes mellitus class A2
37018765	Gestational diabetes mellitus complicating pregnancy

Concept ID	Concept name
45757124	Gestational diabetes mellitus in childbirth
37396524	Gingival disease co-occurrent with diabetes mellitus
46274096	Gingivitis co-occurrent with diabetes mellitus
4048202	Houssay's syndrome
4047906	Insulin dependent diabetes mellitus type 1A
4102018	Insulin dependent diabetes mellitus type 1B
4129524	Insulin resistance - type A
4129525	Insulin resistance - type B
4130162	Insulin treated type 2 diabetes mellitus
36717215	Intellectual disability, craniofacial dysmorphism, hypogonadism, diabetes mellitus syndrome
37162799	Intrauterine growth restriction, short stature, early adult-onset diabetes syndrome
37165632	Juvenile-onset diabetes mellitus, central and peripheral neurodegeneration syndrome
604357	Ketosis-prone diabetes mellitus
37163431	Ketosis-resistant diabetes mellitus
4145827	Latent autoimmune diabetes mellitus in adult
4006979	Leprechaunism syndrome
4131907	Lipoatrophic diabetes
44787902	Lipoatrophic diabetes mellitus without complication
4327944	Malnutrition related diabetes mellitus
4030061	Malnutrition-related diabetes mellitus - fibrocalculous
4096042	Malnutrition-related diabetes mellitus without complications
4096671	Malnutrition-related diabetes mellitus with peripheral circulatory complications
4096670	Malnutrition-related diabetes mellitus with renal complications
4166381	Maternal diabetes mellitus with hypoglycemia affecting fetus OR newborn
44792134	Maternally inherited diabetes mellitus
43531640	Maturity-onset diabetes of the young
43531006	Maturity onset diabetes of the young, type 1
43531017	Maturity-onset diabetes of the young, type 10
43531018	Maturity-onset diabetes of the young, type 11
4130164	Maturity onset diabetes of the young, type 2
43531012	Maturity-onset diabetes of the young, type 3
43531013	Maturity-onset diabetes of the young, type 4
43531014	Maturity-onset diabetes of the young, type 5
43531643	Maturity-onset diabetes of the young, type 6
43531015	Maturity-onset diabetes of the young, type 7
43531644	Maturity-onset diabetes of the young, type 8
43531016	Maturity-onset diabetes of the young, type 9

Concept ID	Concept name
4034963	Megaloblastic anemia, thiamine-responsive, with diabetes mellitus and sensorineural deafness
4034961	Muscular atrophy, ataxia, retinitis pigmentosa, and diabetes mellitus
37204818	Myopathy and diabetes mellitus
193323	Neonatal diabetes mellitus
36716258	Pancreatic hypoplasia, diabetes mellitus, congenital heart disease syndrome
43531641	Permanent neonatal diabetes mellitus
37110041	Permanent neonatal diabetes mellitus with cerebellar agenesis syndrome
4030066	Photomyoclonus, diabetes mellitus, deafness, nephropathy and cerebral dysfunction
3198118	Poorly controlled diabetes mellitus
3194119	Poorly controlled type 1 diabetes
3193274	Poorly controlled type 2 diabetes
3192767	Poorly controlled type II diabetes with circulatory disease
3194082	Poorly controlled type II diabetes with complications
3191208	Poorly controlled type II diabetes with neuropathy
3194332	Poorly controlled type II diabetes with renal complications
45757789	Postpartum gestational diabetes mellitus
40482883	Posttransplant diabetes mellitus
44793114	Pre-existing diabetes mellitus
45757079	Pre-existing diabetes mellitus in mother complicating childbirth
43531007	Pre-existing diabetes mellitus in pregnancy
4062687	Pre-existing malnutrition-related diabetes mellitus
606039	Pre-existing malnutrition-related diabetes mellitus in pregnancy
4063042	Pre-existing type 1 diabetes mellitus
43531008	Pre-existing type 1 diabetes mellitus in pregnancy
4063043	Pre-existing type 2 diabetes mellitus
43531010	Pre-existing type 2 diabetes mellitus in pregnancy
43531009	Pregnancy and type 1 diabetes mellitus
4129519	Pregnancy and type 2 diabetes mellitus
37204277	Primary microcephaly, epilepsy, permanent neonatal diabetes syndrome
37204232	Primary microcephaly, mild intellectual disability, young-onset diabetes syndrome
1340515	Progression of diabetes mellitus
4212631	Protein-deficient diabetes mellitus
4140808	Rabson-Mendenhall syndrome
195771	Secondary diabetes mellitus
4034960	Secondary endocrine diabetes mellitus
1340528	Slowly progressive insulin dependent diabetes mellitus type 1A
4099334	Steroid-induced diabetes

Concept ID	Concept name
4099653	Steroid-induced diabetes mellitus without complication
37116379	Stimmler syndrome
4129378	Transient neonatal diabetes mellitus
201254	Type 1 diabetes mellitus
4099215	Type 1 diabetes mellitus maturity onset
443412	Type 1 diabetes mellitus without complication
4099214	Type 1 diabetes mellitus with ulcer
201826	Type 2 diabetes mellitus
4230254	Type 2 diabetes mellitus in nonobese
4304377	Type 2 diabetes mellitus in obese
4193704	Type 2 diabetes mellitus without complication
4099651	Type 2 diabetes mellitus with ulcer
45766051	Type I diabetes mellitus in remission
45766052	Type II diabetes mellitus in remission
37116960	Wolfram-like syndrome
4322638	Wolfram syndrome
37168689	Wolfram syndrome type 1
37168690	Wolfram syndrome type 2
37311329	Woodhouse Sakati syndrome
4034963	Megaloblastic anemia, thiamine-responsive, with diabetes mellitus and sensorineural deafness
4034961	Muscular atrophy, ataxia, retinitis pigmentosa, and diabetes mellitus
37204818	Myopathy and diabetes mellitus
193323	Neonatal diabetes mellitus
36716258	Pancreatic hypoplasia, diabetes mellitus, congenital heart disease syndrome
43531641	Permanent neonatal diabetes mellitus
37110041	Permanent neonatal diabetes mellitus with cerebellar agenesis syndrome
4030066	Photomyoclonus, diabetes mellitus, deafness, nephropathy and cerebral dysfunction
3198118	Poorly controlled diabetes mellitus
3194119	Poorly controlled type 1 diabetes
3193274	Poorly controlled type 2 diabetes
3192767	Poorly controlled type II diabetes with circulatory disease
3194082	Poorly controlled type II diabetes with complications
3191208	Poorly controlled type II diabetes with neuropathy
3194332	Poorly controlled type II diabetes with renal complications
45757789	Postpartum gestational diabetes mellitus
40482883	Posttransplant diabetes mellitus
44793114	Pre-existing diabetes mellitus

Concept ID	Concept name
45757079	Pre-existing diabetes mellitus in mother complicating childbirth
43531007	Pre-existing diabetes mellitus in pregnancy
4062687	Pre-existing malnutrition-related diabetes mellitus
606039	Pre-existing malnutrition-related diabetes mellitus in pregnancy
4063042	Pre-existing type 1 diabetes mellitus
43531008	Pre-existing type 1 diabetes mellitus in pregnancy
4063043	Pre-existing type 2 diabetes mellitus
43531010	Pre-existing type 2 diabetes mellitus in pregnancy
43531009	Pregnancy and type 1 diabetes mellitus
4129519	Pregnancy and type 2 diabetes mellitus
37204277	Primary microcephaly, epilepsy, permanent neonatal diabetes syndrome
37204232	Primary microcephaly, mild intellectual disability, young-onset diabetes syndrome
1340515	Progression of diabetes mellitus
4212631	Protein-deficient diabetes mellitus
4140808	Rabson-Mendenhall syndrome
195771	Secondary diabetes mellitus
4034960	Secondary endocrine diabetes mellitus
1340528	Slowly progressive insulin dependent diabetes mellitus type 1A
4099334	Steroid-induced diabetes
4099653	Steroid-induced diabetes mellitus without complication
37116379	Stimmler syndrome
4129378	Transient neonatal diabetes mellitus
201254	Type 1 diabetes mellitus
4099215	Type 1 diabetes mellitus maturity onset
443412	Type 1 diabetes mellitus without complication
4099214	Type 1 diabetes mellitus with ulcer
201826	Type 2 diabetes mellitus
4230254	Type 2 diabetes mellitus in nonobese
4304377	Type 2 diabetes mellitus in obese
4193704	Type 2 diabetes mellitus without complication
4099651	Type 2 diabetes mellitus with ulcer
45766051	Type I diabetes mellitus in remission
45766052	Type II diabetes mellitus in remission
37116960	Wolfram-like syndrome
4322638	Wolfram syndrome
37168689	Wolfram syndrome type 1
37168690	Wolfram syndrome type 2

Concept ID	Concept name
37311329	Woodhouse Sakati syndrome
4099653	Steroid-induced diabetes mellitus without complication
37116379	Stimmler syndrome
4129378	Transient neonatal diabetes mellitus
201254	Type 1 diabetes mellitus
4099215	Type 1 diabetes mellitus maturity onset
443412	Type 1 diabetes mellitus without complication
4099214	Type 1 diabetes mellitus with ulcer
201826	Type 2 diabetes mellitus
4230254	Type 2 diabetes mellitus in nonobese
4304377	Type 2 diabetes mellitus in obese
4193704	Type 2 diabetes mellitus without complication
4099651	Type 2 diabetes mellitus with ulcer
45766051	Type I diabetes mellitus in remission
45766052	Type II diabetes mellitus in remission
37116960	Wolfram-like syndrome
4322638	Wolfram syndrome
37168689	Wolfram syndrome type 1
37168690	Wolfram syndrome type 2
37311329	Woodhouse Sakati syndrome

Epilepsy/Seizures:

Concept ID	Concept name
35625535	5q31.3 microdeletion syndrome
4309044	Abdominal seizure
4194232	Absence seizure
4078335	Absence seizure with atonic components
4086180	Absence seizure with automatisms
4078337	Absence seizure with autonomic components
4086179	Absence seizure with impairment of consciousness only
4078334	Absence seizure with mild clonic components
4078336	Absence seizure with tonic components
4046219	Acquired epileptic aphasia
765610	Acquired epileptic aphasia, non-refractory
763039	Acquired epileptic aphasia, refractory
35607997	Action myoclonus renal failure syndrome
35623629	Acute encephalopathy with biphasic seizures and late reduced diffusion

Concept ID	Concept name
37208113	Acute repetitive seizure
3654658	Acute seizure due to infection of central nervous system
3661779	Adverse reaction to benzodiazepine
3661831	Adverse reaction to clorazepate
442022	Adverse reaction to oxazolidine derivative
4316986	Adverse reaction to paramethadione
4317250	Adverse reaction to pentobarbitone
4319413	Adverse reaction to phensuximide
436603	Adverse reaction to succinimide
4315644	Adverse reaction to trimethadione
40485492	Afebrile seizure
4079057	Affective seizure
4165104	Akinetic seizure without atonia
4202330	Alcohol withdrawal-induced convulsion
4176652	Alcohol-induced epilepsy
4176651	Alcohol-related fit
37312387	Alopecia, epilepsy, intellectual disability syndrome Moynahan type
4095669	Alprazolam adverse reaction
4098987	Aminoglutethimide adverse reaction
4044083	Amygdalo-hippocampal epilepsy
4231042	Anoxic epileptic seizure
4216135	Anoxic seizure
4044220	Anterior frontopolar epilepsy
432809	Antiepileptic adverse reaction
4046223	Aquagenic epilepsy
36715051	Atherosclerosis, deafness, diabetes, epilepsy, nephropathy syndrome
43531582	Atonic epilepsy
4173765	Atonic seizure
762830	Atonic seizure, non-refractory
762829	Atonic seizure, refractory
43530704	Atypical absence epilepsy
4050738	Atypical absence seizure
762980	Atypical absence seizure, non-refractory
762979	Atypical absence seizure, refractory
3190189	Atypical seizure
35622969	Audiogenic epilepsy
4267146	Auditory seizure

Concept ID	Concept name
36675122	Autism epilepsy syndrome due to branched chain ketoacid dehydrogenase kinase deficiency
37116742	Autism spectrum disorder, epilepsy, arthrogryposis syndrome
37205088	Autosomal dominant epilepsy with auditory features
44783830	Autosomal dominant nocturnal frontal lobe epilepsy
763527	Autosomal dominant nocturnal frontal lobe epilepsy, non-refractory
763526	Autosomal dominant nocturnal frontal lobe epilepsy, refractory
36676588	Autosomal recessive cerebellar ataxia, epilepsy, intellectual disability syndrome due to TUD deficiency
36674914	Autosomal recessive cerebellar ataxia, epilepsy, intellectual disability syndrome due to WWOX deficiency
4097344	Barbiturate antiepileptic adverse reaction
4097343	Beclamide adverse reaction
37397175	Benign adult familial myoclonic epilepsy
4044079	Benign atypical partial epilepsy in childhood
762981	Benign childhood epilepsy with centrotemporal spikes, non-refractory
765908	Benign childhood epilepsy with centrotemporal spikes, refractory
36674689	Benign familial mesial temporal lobe epilepsy
762706	Benign familial neonatal seizures, non-refractory
762705	Benign familial neonatal seizures, refractory
4048424	Benign focal epilepsy of childhood
37395845	Benign focal seizure of adolescence
4043404	Benign frontal epilepsy of childhood
36674783	Benign infantile focal epilepsy with midline spikes and waves during sleep
35623412	Benign infantile seizure with mild gastroenteritis syndrome
4101742	Benign myoclonic epilepsy in infancy
765786	Benign myoclonic epilepsy in infancy, non-refractory
762728	Benign myoclonic epilepsy in infancy, refractory
4244383	Benign neonatal convulsions
4043411	Benign neonatal familial convulsions
4046209	Benign non-familial neonatal convulsions
4043405	Benign occipital epilepsy of childhood - early onset variant
4044081	Benign occipital epilepsy of childhood - late onset variant
762788	Benign occipital epilepsy of childhood - late onset, non-refractory
762787	Benign occipital epilepsy of childhood - late onset, refractory
36674784	Benign occipital lobe epilepsy
36674785	Benign partial epilepsy of infancy with complex partial seizures
36674988	Benign partial epilepsy with secondarily generalized seizures in infancy
4044078	Benign psychomotor epilepsy of childhood
4185733	Benign Rolandic epilepsy

Concept ID	Concept name
4245285	Brief atonic seizure
4097497	Bromazepam adverse reaction
4099416	Carbamazepine adverse reaction
36716394	Celiac disease with epilepsy and cerebral calcification syndrome
4243340	Central convulsion
4171694	Centrencephalic epilepsy
4179936	Childhood absence epilepsy
762734	Childhood absence epilepsy, non-refractory
762733	Childhood absence epilepsy, refractory
4044080	Childhood epilepsy with occipital paroxysms
40481467	Childhood seizure
4097498	Chlordiazepoxide adverse reaction
4099427	Chlormethiazole adverse reaction
4219724	Chronic progressive epilepsia partialis continua
4047894	Chronic progressive epilepsia partialis continua of childhood
4047889	Cingulate epilepsy
4097351	Clobazam adverse reaction
4099417	Clonazepam adverse reaction
4265182	Clonic seizure
765510	Clonic seizure, non-refractory
765497	Clonic seizure, refractory
3188590	Cognitive dysfunction with epilepsy
4086177	Cognitive seizure
45771300	Complete partial seizure of uncertain origin
374168	Complex febrile seizure
762914	Complex febrile seizure, non-refractory
765872	Complex febrile seizure, refractory
4081162	Complex part seizure with impairment of consciousness only
4236312	Complex partial epileptic seizure
4254546	Complex partial seizure + impairment consciousness at onset
4198103	Complex partial seizure evolving to generalized seizure
46273398	Complex partial seizure of frontal lobe
46273399	Complex partial seizure of occipital lobe
46273397	Complex partial seizure of parietal lobe
37018623	Complex partial seizure of temporal lobe
4165417	Complex partial seizure with impairment of consciousness
4043559	Complex partial status epilepticus

Concept ID	Concept name
762978	Complex partial status epilepticus, non-refractory
762977	Complex partial status epilepticus, refractory
37204238	Congenital muscular dystrophy with intellectual disability and severe epilepsy
380533	Convulsions in the newborn
4229670	Convulsive syncope
4132128	Coordinate convulsion
36674989	Cortical dysplasia with focal epilepsy syndrome
4046211	Cryptogenic generalized epilepsy
36680607	Cryptogenic late-onset epileptic spasms
4044224	Cryptogenic Lennox-Gastaut syndrome
4047900	Cryptogenic myoclonic epilepsy
4043412	Cryptogenic West syndrome
4102347	Cursive (running) epilepsy
36676367	Cyclin-dependent kinase-like 5 deficiency
4046222	Decision-making epilepsy
36715417	DEND syndrome
4097501	Diazepam adverse reaction
37204217	Diffuse cerebral and cerebellar atrophy, intractable seizures, progressive microcephaly syndrome
4098316	Dissociative convulsions
4047890	Dorsolateral epilepsy
4043554	Drug-induced epilepsy
36685474	Drug-induced seizure
4107690	Dysmnesic seizure
4086176	Dysphasic seizure
4043414	Early infantile epileptic encephalopathy with suppression bursts
762727	Early infantile epileptic encephalopathy, non-refractory
762726	Early infantile epileptic encephalopathy, refractory
36674712	Early-onset epileptic encephalopathy and intellectual disability due to GRIN2A mutation
36676621	Early-onset epileptic encephalopathy, cortical blindness, intellectual disability, facial dysmorphism syndrome
37116386	Early-onset Lafora body disease
36675141	Early-onset spastic ataxia, myoclonic epilepsy, neuropathy syndrome
4046221	Eating epilepsy
443700	Eclampsia
133816	Eclampsia - delivered
138811	Eclampsia - delivered with postnatal complication
4289142	Eclampsia added to pre-existing hypertension
4034096	Eclampsia in labor

Concept ID	Concept name
137613	Eclampsia in pregnancy
4116344	Eclampsia in puerperium
4058536	Eclampsia with postnatal complication
45757119	Eclampsia with pre-existing hypertension in childbirth
4145352	Eclamptic seizure
374023	Epilepsia partialis continua
762832	Epilepsia partialis continua, non-refractory
380378	Epilepsy
4015832	Epilepsy associated problems
40483585	Epilepsy characterized by intractable complex partial seizures
37110673	Epilepsy co-occurrent and due to degenerative brain disorder
37110677	Epilepsy co-occurrent and due to dementia
37110676	Epilepsy co-occurrent and due to demyelinating disorder
37110674	Epilepsy co-occurrent and due to mesial temporal sclerosis
3178390	Epilepsy complicating pregnancy
4151917	Epilepsy control good
443379	Epilepsy control poor
4015959	Epilepsy drug side effect
37110522	Epilepsy due to cerebrovascular accident
37110675	Epilepsy due to immune disorder
37110329	Epilepsy due to infectious disease of central nervous system
3655274	Epilepsy due to infectious encephalitis
3655276	Epilepsy due to infectious meningitis
37110524	Epilepsy due to intracranial tumor
3655285	Epilepsy due to neonatal central nervous system infection
37119155	Epilepsy due to perinatal anoxic-ischemic brain injury
37110521	Epilepsy due to perinatal stroke
45757114	Epilepsy in mother complicating childbirth
45757050	Epilepsy in mother complicating pregnancy
37118656	Epilepsy of infancy with migrating focal seizures
37116355	Epilepsy telangiectasia syndrome
4046218	Epilepsy undetermined whether focal or generalized
4043551	Epilepsy with continuous spike wave during slow-wave sleep
4047897	Epilepsy with grand mal seizures on awakening
37116354	Epilepsy, microcephaly, skeletal dysplasia syndrome
4310999	Epilepsy, not refractory
4104857	Epileptic automatism

Concept ID	Concept name
4251337	Epileptic cry
37018608	Epileptic dementia with behavioral disturbance
4096378	Epileptic drop attack
36716897	Epileptic encephalopathy
37111648	Epileptic encephalopathy with global cerebral demyelination
4338020	Epileptic psychosis
4197485	Epileptic seizure
4101741	Epileptic seizures - akinetic
4105360	Epileptic seizures - atonic
4104853	Epileptic seizures - clonic
4102344	Epileptic seizures - tonic
4286178	Epileptic vertigo
4097346	Ethosuximide adverse reaction
1340285	Exacerbation of complex partial seizure with impairment of consciousness
1340323	Exacerbation of epilepsy
1340467	Exacerbation of seizure
4009655	Extratemporal epilepsy
4046220	Eyelid myoclonus with absences
4047902	Familial febrile convulsions
35608023	Familial focal epilepsy with variable foci
37205064	Familial infantile myoclonic epilepsy
37205085	Familial mesial temporal lobe epilepsy with febrile seizures
4089691	Familial neonatal seizures
37204833	Familial temporal lobe epilepsy
444413	Febrile convulsion
37110888	Febrile infection related epilepsy syndrome
37396778	Female restricted epilepsy with intellectual disability syndrome
4171110	Fifth day fits
4102730	Finding of measure of fit (seizure)
4103829	Finding relating to fit
43530759	First generalized onset seizure
4097350	Flunitrazepam adverse reaction
4099421	Flurazepam adverse reaction
35622869	Focal epilepsy, intellectual disability, cerebro-cerebellar malformation syndrome
4027257	Focal motor seizure
40486152	Focal seizure with experiential sensory symptoms
37399364	Folinic acid responsive seizure syndrome

Concept ID	Concept name
4047888	Frontal lobe epilepsy
4097488	Gabapentin adverse reaction
4232618	Gelastic seizure
374924	Generalized convulsive epilepsy
765787	Generalized convulsive epilepsy, non-refractory
4055361	Generalized epilepsy
37395981	Generalized epilepsy and paroxysmal dyskinesia syndrome
44783583	Generalized epilepsy with febrile seizures plus
763656	Generalized epilepsy with febrile seizures plus, non-refractory
763655	Generalized epilepsy with febrile seizures plus, refractory
44784590	Generalized non-convulsive absence epilepsy
376680	Generalized non-convulsive epilepsy
4078333	Generalized seizure
4263736	Generalized-onset seizures
36716652	GM3 synthase deficiency
373748	Grand mal status
762956	Grand mal status epilepticus, non-refractory
762955	Grand mal status epilepticus, refractory
4179207	Gustatory seizure
4044222	Hemiplegia-hemiconvulsion-epilepsy syndrome
35622175	Hot water reflex epilepsy
37206121	Hyperekplexia epilepsy syndrome
4203424	Hypoglycemia-induced convulsion
35624272	Hypothalamic hamartoma with gelastic seizure
37395921	ICCA syndrome
4249451	Ideational partial seizure
4274575	Idiopathic generalized epilepsy
762976	Idiopathic generalized epilepsy, non-refractory
4047901	Idiopathic myoclonic epilepsy
762088	Idiopathic partial status epilepticus
37110163	Infant epilepsy with migrant focal crisis
36674269	Infantile epileptic dyskinetic encephalopathy
36674719	Infantile spasm and broad thumb syndrome
46270369	Infantile spasms co-occurrent with status epilepticus
762793	Infantile spasms, non-refractory
36676518	Infantile-onset mesial temporal lobe epilepsy with severe cognitive regression
36674191	Intellectual disability, seizures, hypotonia, ophthalmologic, skeletal anomalies syndrome

Concept ID	Concept name
43531630	Intractable absence seizures
762350	Intractable atypical absence epilepsy
46273400	Intractable complex partial parietal lobe epilepsy
42535414	Intractable idiopathic partial epilepsy
761783	Intractable juvenile myoclonic status epilepticus
46273401	Intractable partial frontal lobe epilepsy with impairment of consciousness
46274016	Intractable partial occipital lobe epilepsy with impairment of consciousness
43531718	Intractable partial temporal lobe epilepsy with impairment of consciousness
43530628	Intractable simple partial epilepsy
4046216	Isolated seizures
4145896	Jacksonian, focal or motor epilepsy
37396462	Jeavons syndrome
4046210	Juvenile absence epilepsy
762759	Juvenile absence epilepsy, non-refractory
762758	Juvenile absence epilepsy, refractory
4267274	Juvenile myoclonic epilepsy
763041	Juvenile myoclonic epilepsy, non-refractory
36680579	KCNQ2-related epileptic encephalopathy
4095670	Ketazolam adverse reaction
4033911	Kohlschutter's syndrome
4046214	Lafora disease
4095659	Lamotrigine adverse reaction
4043408	Lateral temporal epilepsy
4046213	Lennox-Gastaut syndrome
762730	Lennox-Gastaut syndrome, non-refractory
762729	Lennox-Gastaut syndrome, refractory
4047895	Localization-related cryptogenic epilepsy
374915	Localization-related epilepsy
4150299	Localization-related idiopathic epilepsy
4044082	Localization-related symptomatic epilepsy
4044221	Localization-related symptomatic epilepsy with specific precipitant
4337361	Long atonic seizure
4095663	Loprazolam adverse reaction
4099424	Lorazepam adverse reaction
4097496	Lormetazepam adverse reaction
4078529	Lowered convulsive threshold
4097182	Magnesium sulfate adverse reaction

Concept ID	Concept name
37205067	Malignant migrating partial seizures of infancy
4097499	Medazepam adverse reaction
4047903	Menstrual epilepsy
36674804	Mesial temporal lobe epilepsy with hippocampal sclerosis
4104856	Mesiobasal limbic epilepsy
4095661	Methylphenobarbitone adverse reaction
37118888	Microcephaly, seizure, intellectual disability, heart disease syndrome
35622355	Micturition induced epilepsy
4097500	Midazolam adverse reaction
762790	Migrating partial seizures in infancy
762792	Migrating partial seizures in infancy, non-refractory
762791	Migrating partial seizures in infancy, refractory
4147503	Motor cortex epilepsy
4139559	Motor epilepsy
4023976	Movement partial seizure
37205773	Multiple congenital anomalies, hypotonia, seizures syndrome
36674383	Multiple congenital anomalies, hypotonia, seizures syndrome type 2
4056835	Musicogenic seizure
4044225	Myoclonic absence epilepsy
762732	Myoclonic absence epilepsy, non-refractory
762731	Myoclonic absence epilepsy, refractory
4043413	Myoclonic astatic epilepsy
763309	Myoclonic astatic epilepsy, non-refractory
763308	Myoclonic astatic epilepsy, refractory
4104714	Myoclonic encephalopathy
36680599	Myoclonic epilepsy in non-progressive encephalopathy
4044223	Myoclonic epilepsy of early childhood
4044227	Myoclonic epilepsy with ragged red fibers
4290772	Myoclonic seizure
762804	Myoclonic seizure, non-refractory
762963	Myoclonic seizure, refractory
4043555	Narcotic withdrawal epilepsy
3188298	New onset seizure
36674194	New-onset refractory status epilepticus
4095667	Nitrazepam adverse reaction
4044229	Nocturnal epilepsy
4043558	Non-convulsive simple partial status epilepticus

Concept ID	Concept name
4044231	Non-convulsive status epilepticus with three per second spike wave
4043557	Non-convulsive status epilepticus without three per second spike wave
44811346	Non-epileptic attack disorder
4047892	Non-progressive Kozhevnikow syndrome
607637	Nonconvulsive seizure
40483620	Nonconvulsive status epilepticus
4196709	Observations of measures of seizures - finding
4046207	Occipital lobe epilepsy
4336820	Olfactory seizure
4043410	Opercular epilepsy
4043409	Orbitofrontal epilepsy
35622368	Orgasm induced epilepsy
36716191	Osteogenesis imperfecta, retinopathy, seizures, intellectual disability syndrome
4099423	Oxazepam adverse reaction
35607971	Pachygyria, intellectual disability, epilepsy syndrome
443342	Paraldehyde adverse reaction
4132780	Paranoid-hallucinatory epileptic psychosis
4046206	Parietal lobe epilepsy
36676587	Partial corpus callosum agenesis, cerebellar vermis hypoplasia with posterior fossa cysts syndrome
4104859	Partial epilepsy with autonomic symptoms
439654	Partial epilepsy with impairment of consciousness
43530676	Partial frontal lobe epilepsy
43530706	Partial occipital lobe epilepsy
43530708	Partial parietal lobe epilepsy
4106574	Partial seizure
4078332	Partial seizure evolving to secondary generalized seizure
4174399	Partial seizure with illusions and hallucinations
4029783	Partial seizure with impaired consciousness
4244738	Partial seizure with multiple symptoms
4245301	Pattern sensitive seizure
37109948	Perceptual disturbances and seizures co-occurrent and due to alcohol withdrawal
37110424	Perceptual disturbances and seizures co-occurrent and due to hypnotic withdrawal
37110471	Perceptual disturbances and seizures co-occurrent and due to psychoactive substance withdrawal
37110423	Perceptual disturbances and seizures co-occurrent and due to sedative withdrawal
35624201	Perioral myoclonia with absences
381842	Petit mal status
765902	Petit mal status, non-refractory

Concept ID	Concept name
765661	Petit mal status, refractory
44801879	Petit-mal epilepsy
4097345	Phenobarbitone adverse reaction
4097491	Phenytoin adverse reaction
4086175	Phonatory seizure
4316060	Photogenic epilepsy
4030066	Photomyoclonus, diabetes mellitus, deafness, nephropathy and cerebral dysfunction
4095660	Piracetam adverse reaction
36676719	Pitt Hopkins-like syndrome
45765412	Pitt-Hopkins syndrome
44784593	Post infectious grand mal epilepsy
44784595	Post-cerebrovascular accident epilepsy
4209118	Post-ictal drowsiness
4135349	Post-ictal state
4326435	Post-traumatic epilepsy
762827	Post-traumatic epilepsy, non-refractory
762826	Post-traumatic epilepsy, refractory
44784592	Postoperative status epilepticus
4195615	Postseizure confusion
4177642	Postseizure delirium
4028205	Postseizure headache
4233724	Posttraumatic seizure
4086174	Postural seizure
4095671	Prazepam adverse reaction
3174006	Pregnancy complicated by epilepsy
43530757	Primary generalized absence epilepsy
37312576	Primary hyperaldosteronism, seizures, neurological abnormalities syndrome
4043406	Primary inherited reading epilepsy
37204277	Primary microcephaly, epilepsy, permanent neonatal diabetes syndrome
4095662	Primidone adverse reaction
40483619	Progressive encephalopathy with edema, hypsarrhythmia and optic atrophy syndrome
36674825	Progressive encephalopathy with edema, hypsarrhythmia, and optic atrophy-like syndrome
4147501	Progressive myoclonic epilepsy
37204409	Progressive myoclonic epilepsy type 3
37204403	Progressive myoclonic epilepsy type 5
37203831	Progressive myoclonic epilepsy type 6
37204476	Progressive myoclonic epilepsy type 8

Concept ID	Concept name
35622037	Progressive myoclonic epilepsy with dystonia
45773528	Progressive myoclonus epilepsy with ataxia
4261957	Psychomotor epilepsy
4104855	Psychosensory epilepsy
4237826	Puerperal convulsion
35625463	PURA syndrome
37110349	Pyridoxal 5-phosphate dependent epilepsy
42535907	Pyridoxine-dependent epilepsy
4168478	Raised convulsive threshold
4041672	Rasmussen syndrome
763040	Rasmussen syndrome, refractory
4297994	Reading seizure
35624480	Recurrent benign focal seizures of childhood
42534952	Recurrent complex partial epilepsy
4143868	Recurrent febrile convulsion
37208117	Recurrent seizure
3171021	Recurrent seizures
4234029	Reflex anoxic seizure
4194366	Reflex epilepsy
43530619	Refractory complex partial seizure with impairment of consciousness
4311977	Refractory epilepsia partialis continua
40483317	Refractory epilepsy
4312246	Refractory frontal lobe epilepsy
43530734	Refractory generalized convulsive epilepsy
40480055	Refractory generalized nonconvulsive epilepsy
46271795	Refractory idiopathic generalized epilepsy
4306496	Refractory infantile spasms
46270370	Refractory infantile spasms co-occurrent with status epilepticus
44784591	Refractory juvenile myoclonic epilepsy
4309257	Refractory localization-related epilepsy
44782522	Refractory myoclonic epilepsy
4314174	Refractory occipital lobe epilepsy
4314726	Refractory parietal lobe epilepsy
4255159	Retropulsion petit mal
4046111	Rhinencephalic epilepsy
35622873	Rolandic epilepsy, speech dyspraxia syndrome
4058001	Salaam spasm

Concept ID	Concept name
3657974	Scar epilepsy
35622929	SCN8A-related epilepsy with encephalopathy
4070660	Secondarily generalized seizures
4043552	Secondary reading epilepsy
37110420	Sedative withdrawal with seizure
377091	Seizure
4079058	Seizure causing illusions
37110422	Seizure co-occurrent and due to anxiolytic withdrawal
42536419	Seizure co-occurrent and due to drug withdrawal
37110421	Seizure co-occurrent and due to hypnotic withdrawal
37110470	Seizure co-occurrent and due to psychoactive substance withdrawal
4029498	Seizure disorder
43530665	Seizure disorder as sequela of stroke
4196708	Seizure related finding
4174747	Seizure undetermined whether focal or generalized
4078330	Seizure with structured hallucinations
36715509	Seizure, sensorineural deafness, ataxia, intellectual disability, electrolyte imbalance syndrome
4159752	Seizures complicating infection
4186827	Seizures complicating infection in the newborn
4159150	Seizures complicating intracranial hemorrhage
4159149	Seizures complicating intracranial hemorrhage in the newborn
4154695	Seizures due to metabolic disorder
762709	Seizures in the newborn, non-refractory
762579	Seizures in the newborn, refractory
4047907	Self-induced non-photosensitive epilepsy
37118973	Severe intellectual disability, epilepsy, anal anomaly, distal phalangeal hypoplasia syndrome
4043550	Severe myoclonic epilepsy in infancy
762805	Severe myoclonic epilepsy in infancy, non-refractory
762806	Severe myoclonic epilepsy in infancy, refractory
36675039	Severe neonatal onset encephalopathy with microcephaly
377101	Simple febrile seizure
762948	Simple febrile seizure, non-refractory
762947	Simple febrile seizure, refractory
44789005	Simple partial epileptic seizure
4078331	Simple partial onset of seizure with automatisms
4171667	Simple partial onset seizure followed by impaired consciousness
43530626	Simple partial seizure

Concept ID	Concept name
4264143	Simple partial seizure evolving to complex partial seizure evolving to generalized seizure
4245044	Simple partial seizure evolving to secondary generalized seizure
4081161	Simple partial seizure followed by impaired consciousness
4251921	Simple partial seizure with autonomic dysfunction
4144967	Simple partial seizure with disturbance of higher cerebral function
4081160	Simple partial seizure with focal motor signs with march
4078328	Simple partial seizure with focal motor signs without march
4219625	Simple partial seizure with motor dysfunction
763151	Simple partial seizure with motor dysfunction, non-refractory
763150	Simple partial seizure with motor dysfunction, refractory
4079056	Simple partial seizure with somatosensory or special sensory dysfunction
4215937	Simple partial seizure with special sensory symptoms
4194056	Simple partial seizure, consciousness not impaired
4313035	Simple partial status epilepticus
763096	Simple partial status epilepticus, non-refractory
42873167	Single epileptic seizure
45766063	Single seizure
36716898	Single seizure due to remote cause
36716899	Single unprovoked seizure
4046215	Situation-related seizures
4097489	Sodium valproate adverse reaction
4104858	Somatosensory epilepsy
4146378	Somatosensory seizure
45766380	Spinal muscular atrophy with progressive myoclonic epilepsy
35622261	Startle epilepsy
4200704	Startle partial seizure
4332304	Status epilepticus
37016270	Status epilepticus due to complex partial epileptic seizure
46270365	Status epilepticus due to generalized idiopathic epilepsy
46270366	Status epilepticus due to intractable idiopathic generalized epilepsy
46270364	Status epilepticus due to refractory complex partial seizures
46270367	Status epilepticus due to refractory epilepsy
46270368	Status epilepticus due to refractory simple partial epilepsy
43531626	Status epilepticus in benign Rolandic epilepsy
4000171	Stress seizure
4133780	Stress-induced epilepsy
35625621	STXBP1 encephalopathy with epilepsy

Concept ID	Concept name
4044084	Supplementary motor epilepsy
4216711	Symptomatic generalized epilepsy
4047898	Symptomatic Lennox-Gastaut syndrome
4043549	Symptomatic myoclonic epilepsy
4046212	Symptomatic West syndrome
36683256	SYNGAP1-related intellectual disability
4095672	Temazepam adverse reaction
4102345	Temporal lobe epilepsy
764684	Temporal lobe epilepsy with mesial temporal sclerosis
762814	Temporal lobe epilepsy, non-refractory
4323821	Tetanic convulsion
35622254	Thinking epilepsy
4282301	Todd's paresis
4198075	Tonic seizure
762813	Tonic seizures, non-refractory
762812	Tonic seizures, refractory
4232071	Tonic-clonic epilepsy
4183856	Tonic-clonic seizure
762957	Tonic-clonic seizure, non-refractory
765514	Tonic-clonic seizure, refractory
4043556	Toothbrushing epilepsy
4193675	Transient epileptic amnesia
4095668	Triazolam adverse reaction
762809	Typical absence seizure
762834	Typical absence seizure, non-refractory
765511	Typical absence seizure, refractory
4044226	Unverricht-Lundborg syndrome
4170562	Uremic convulsion
4086173	Versive seizure
4097490	Vigabatrin adverse reaction
4317514	Visceral epilepsy
4213017	Visual epilepsy
4101744	Visual reflex epilepsy
4032157	Visual seizure
376105	West syndrome
40482060	Witnessed epileptic seizure
4047904	Writing epilepsy

Concept ID	Concept name
37397174	X-linked epilepsy with learning disability and behavior disorder syndrome
36714528	X-linked intellectual disability with seizure and psoriasis syndrome
37110783	X-linked spasticity, intellectual disability, epilepsy syndrome

Essential hypertension:

Concept ID	Concept name
312648	Benign essential hypertension
4215640	Benign essential hypertension complicating AND/OR reason for care during childbirth
4034031	Benign essential hypertension complicating AND/OR reason for care during pregnancy
4148205	Benign essential hypertension complicating AND/OR reason for care during puerperium
4269358	Benign essential hypertension in obstetric context
320128	Essential hypertension
4083723	Essential hypertension complicating AND/OR reason for care during childbirth
4302591	Essential hypertension complicating AND/OR reason for care during pregnancy
4321603	Essential hypertension complicating AND/OR reason for care during puerperium
4217486	Essential hypertension in obstetric context
4058987	High-renin essential hypertension
4159755	Labile essential hypertension
4263067	Low-renin essential hypertension
317898	Malignant essential hypertension
45757787	Postpartum pre-existing essential hypertension
4180283	Systolic essential hypertension

Heart disease (excluding hypertension):

Concept ID[1]	Concept name
321588	Heart disease

[1]All descendants included, excluding those included to define hypertension.

Obesity:

Concept ID	Concept name
604591	6q16 microdeletion syndrome
4271317	Adiposogenital dystrophy
4171972	Adult-onset obesity
4270189	Alstrom syndrome
4079899	Android obesity
4235799	Buffalo obesity
4087487	Central obesity
40481140	Childhood obesity

Concept ID	Concept name
36713437	Choroideremia with deafness and obesity syndrome
36678790	Colobomatous microphthalmia, obesity, hypogenitalism, intellectual disability syndrome
45763687	Congenital leptin deficiency
4097929	Constitutional obesity
4097996	Drug-induced obesity
4182506	Endogenous obesity
4100857	Extreme obesity with alveolar hypoventilation
4160821	Familial obesity
4029276	Generalized obesity
37166819	Genetic non-syndromic obesity
4029900	Gynecoid obesity
36717154	Hydrocephalus with obesity and hypogonadism syndrome
4005991	Hyperinsulinar obesity
4163032	Hyperplastic-hypertrophic obesity
4185912	Hyperplastic obesity
4171147	Hypertrophic obesity
4177337	Hypogonadal obesity
4220527	Hypothalamic obesity
4203289	Hypothyroid obesity
35622038	Intellectual disability, obesity, brain malformation, facial dysmorphism syndrome
36674490	Intellectual disability, obesity, prognathism, eye and skin anomalies syndrome
36674893	Intellectual disability, seizures, macrocephaly, obesity syndrome
4171317	Lifelong obesity
37208175	Lower body obesity
37164247	MAGEL2-related Prader-Willi-like syndrome
42872398	Maternal obesity complicating pregnancy, childbirth and the puerperium, antepartum
4216214	Mauriac's syndrome
36716144	MEHMO syndrome
37110069	MOMO syndrome
434005	Morbid obesity
37395980	MORM syndrome
433736	Obesity
4212443	Obesity by adipocyte growth pattern
4215969	Obesity by contributing factors
4189665	Obesity by fat distribution pattern
36716555	Obesity caused by energy imbalance
36717199	Obesity, colitis, hypothyroidism, cardiac hypertrophy, developmental delay syndrome

Concept ID	Concept name
37204685	Obesity due to CEP19 deficiency
37206117	Obesity due to leptin receptor gene deficiency
37397209	Obesity due to melanocortin 4 receptor deficiency
37162364	Obesity due to pituitary disease
36716151	Obesity due to prohormone convertase I deficiency
37204815	Obesity due to SIM1 deficiency
37311904	Obesity in adolescence
45757112	Obesity in mother complicating childbirth
4183240	Obesity of endocrine origin
4093860	Peripheral obesity
37163354	PHIP-related behavioral problems, intellectual disability, obesity, dysmorphic features syndrome
36674827	Prader-Willi-like syndrome
3199162	Pregnancy complicated by obesity
45771307	Proopiomelanocortin deficiency syndrome
36676689	Rapid-onset childhood obesity, hypothalamic dysfunction, hypoventilation, autonomic dysregulation syndrome
37204691	Severe early-onset obesity insulin resistance syndrome due to SH2B1 deficiency
37018860	Severe obesity
42539192	Severe obesity complicating pregnancy
37164244	SIM1-related Prader-Willi-like syndrome
4217557	Simple obesity
37166818	Spastic paraplegia, intellectual disability, nystagmus, obesity syndrome
4211019	Steatopygia
36714072	Syndromic X-linked intellectual disability type 7
36714548	Wilson Turner syndrome
37165655	X-linked intellectual disability, short stature, overweight syndrome

Thyroid disorders:

Concept ID	Concept name
36717595	Acquired central hypothyroidism
37161451	Acquired central hypothyroidism due to pituitary disorder
37161450	Acquired central hypothyroidism due to Sheehan syndrome
138384	Acquired hypothyroidism
607903	Adrenocorticotropic hormone resistance syndrome
4184957	Adult myxedema
45773358	Allan-Herndon-Dudley syndrome
4185526	Athyrotic hypothyroidism sequence
4034815	Autoimmune hypothyroidism

Concept ID	Concept name
36716385	Bamforth Lazarus syndrome
4132435	Central hypothyroidism
36716764	Congenital central hypothyroidism
37110922	Congenital central hypothyroidism due to thyrotropin-releasing hormone receptor deficiency
133728	Congenital hypothyroidism
36713742	Congenital hypothyroidism due to absence of thyroid gland
37155411	Congenital hypothyroidism due to congenital anomaly of thyroid gland
37161472	Congenital hypothyroidism due to dual oxidase maturation factor 2
36716765	Congenital hypothyroidism due to iodine deficiency
37204507	Congenital hypothyroidism due to maternal intake of antithyroid drug
37161473	Congenital hypothyroidism due to peripheral resistance to thyroid hormone
37161468	Congenital hypothyroidism due to symporter mutation
37161471	Congenital hypothyroidism due to thyroglobulin mutation
37161467	Congenital hypothyroidism due to thyroid deiodinase mutation
37161465	Congenital hypothyroidism due to thyroid peroxidase mutation
37164395	Congenital hypothyroidism due to thyroid stimulating hormone receptor mutation
37397258	Congenital hypothyroidism due to transplacental passage of maternal thyroid stimulating hormone binding inhibitory antibody
4081998	Congenital hypothyroidism with diffuse goiter
4130017	Congenital hypothyroidism without goiter
4130026	Congenital iodine deficiency syndrome of mixed type
4246944	Congenital malposition of the thyroid gland
37161466	Consumptive hypothyroidism caused by type 3 iodothyronine deiodinase
37166448	Dementia due to acquired hypothyroidism
37161455	Drug induced acquired central hypothyroidism
4229107	Dyshormonogenetic goiter AND iodide leak
136933	Dyshormonogenic goiter
4034822	Dysprealbuminemic euthyroidal hyperthyroxinemia
4233438	Endemic congenital iodine deficiency syndrome of myxedematous type
4129362	Euthyroid with thyroid antibodies
1340365	Exacerbation of hyperthyroidism
4030051	Familial dysalbuminemic hyperthyroxinemia
4030053	Familial dyshormonogenetic goiter
35608125	Familial glucocorticoid deficiency
36716767	Familial hyperthyroidism
37396803	Familial non-autoimmune autosomal dominant hyperthyroidism
37397527	Familial thyroid dyshormonogenesis

Concept ID	Concept name
4130024	Generalized thyroid hormone resistance
36674793	Genetic transient congenital hypothyroidism
4163854	Glucocorticoid deficiency with achalasia
4130012	Hashitoxicosis - transient
37396504	Hoffman syndrome
4142479	Hyperthyroidism
4337834	Hyperthyroidism due to ectopic thyroid nodule
4227238	Hyperthyroidism due to hydatidiform mole with thyrotoxic crisis
4259138	Hyperthyroidism due to molar thyrotropin
4094160	Hyperthyroidism due to struma ovarii
45757130	Hyperthyroidism in childbirth
4265061	Hyperthyroidism secondary to amiodarone
4241482	Hyperthyroidism secondary to potassium iodide
4194323	Hyperthyroidism secondary to radio contrast dye
4100629	Hyperthyroidism with Hashimoto disease
4291925	Hypothalamic hypothyroidism
4314386	Hypothyroid dwarfism
4034814	Hypothyroid goiter, acquired
140673	Hypothyroidism
37208050	Hypothyroidism caused by amiodarone
37016342	Hypothyroidism caused by drug
4095914	Hypothyroidism caused by resorcinol
4245619	Hypothyroidism due to amyloidosis
4175837	Hypothyroidism due to cystinosis
4210299	Hypothyroidism due to defect in thyroid hormone synthesis
4192649	Hypothyroidism due to fibrous invasive thyroiditis
4172443	Hypothyroidism due to food stuff
4130018	Hypothyroidism due to Hashimoto's thyroiditis
4147364	Hypothyroidism due to infiltrative disease
4289921	Hypothyroidism due to iodide excess
4034824	Hypothyroidism due to iodide organification defect
4129369	Hypothyroidism due to iodide trapping defect
37397535	Hypothyroidism due to mutation in transcription factor of pituitary development
4303055	Hypothyroidism due to sarcoidosis
4268472	Hypothyroidism due to scleroderma
37167445	Hypothyroidism due to systemic sclerosis
45757058	Hypothyroidism due to thyroiditis

Concept ID	Concept name
4030047	Hypothyroidism due to TSH receptor blocking antibody
4231548	Hypothyroidism following radioiodine therapy
45757193	Hypothyroidism in childbirth
4176015	Hypothyroidism in pregnancy
4095912	Hypothyroidism resulting from para-aminosalicylic acid
4095913	Hypothyroidism resulting from phenylbutazone
134312	Iatrogenic hypothyroidism
4309027	Idiopathic atrophic hypothyroidism
37399723	Idiopathic congenital hypothyroidism
4034983	Idiopathic TSH deficiency
4236858	Infant hypothyroidism
44782482	Infant hypothyroidism due to maternal drug
4236859	Infant hypothyroidism to 24 months of age
4202818	Iodide oxidation defect
4331585	Iodide transport defect
140062	Iodine hypothyroidism
4129357	Iodine-induced hyperthyroidism
4076302	Iodotyrosine deiodination defect
4052693	Iodotyrosyl coupling defect
4230503	Isolated thyrotropin deficiency
4028612	Juvenile myxedema
3171361	Lithium induced hypothyroidism
4182596	Myxedema
4263049	Myxedema heart disease
4275410	Myxedematous form of cretinism
36676796	Neonatal iodine exposure
4071079	Neonatal jaundice with congenital hypothyroidism
4210297	Neonatal transient hyperthyroidism
36717199	Obesity, colitis, hypothyroidism, cardiac hypertrophy, developmental delay syndrome
44783239	Ohdo syndrome, Say-Barber-Biesecker-Young-Simpson variant
37397534	Peripheral resistance to thyroid hormone
4232833	Pituitary thyroid hormone resistance
132583	Postablative hypothyroidism
4030049	Post-infectious hypothyroidism
137820	Postoperative hypothyroidism
40609121	Primary hypothyroidism
37161453	Radiation-induced acquired central hypothyroidism

Concept ID	Concept name
4006466	Refetoff syndrome
37166867	Resistance to thyroid hormone due to mutation in thyroid hormone receptor alpha
37166868	Resistance to thyroid hormone due to mutation in thyroid hormone receptor beta
36716766	Secondary hyperthyroidism
4220368	Secondary hypothyroidism
4223217	Severe hypothyroidism
35622406	Short stature with delayed bone age due to thyroid hormone metabolism deficiency
4225129	Sporadic cretinism
4176932	Subclinical hyperthyroidism
4183422	Subclinical hypothyroidism
4130027	Subclinical iodine deficiency hypothyroidism
4269217	Thyroglobulin synthesis defect
4030054	Thyroid hormone resistance syndrome
4177341	Thyroid hormone responsiveness defect
137519	Thyrotoxicosis due to ectopic thyroid nodule with crisis
138718	Thyrotoxicosis due to ectopic thyroid nodule with no crisis
4236235	Thyrotoxicosis due to pituitary thyroid hormone resistance
606080	Transient congenital hypothyroidism due to dual oxidase 2 mutation
4173932	Transient decreased production of T-3
4091169	Transient decreased production of T-4
4104540	Transient hypothyroidism
4079964	Transient hypothyrotropinemia
4173188	Transient neonatal hypothyroidism
37161463	Traumatic acquired central hypothyroidism
36675175	X-linked central congenital hypothyroidism with late-onset testicular enlargement
4236235	Thyrotoxicosis due to pituitary thyroid hormone resistance
606080	Transient congenital hypothyroidism due to dual oxidase 2 mutation
4173932	Transient decreased production of T-3
4091169	Transient decreased production of T-4
4104540	Transient hypothyroidism
4079964	Transient hypothyrotropinemia
4173188	Transient neonatal hypothyroidism
37161463	Traumatic acquired central hypothyroidism
36675175	X-linked central congenital hypothyroidism with late-onset testicular enlargement
4091169	Transient decreased production of T-4
4104540	Transient hypothyroidism
4079964	Transient hypothyrotropinemia

Concept ID	Concept name
4173188	Transient neonatal hypothyroidism
37161463	Traumatic acquired central hypothyroidism
36675175	X-linked central congenital hypothyroidism with late-onset testicular enlargement

Table S2. Preliminary list of medicines definitions.

Coronavirus disease 2019 (COVID-19) vaccination:

Concept ID[1]	Concept name
1525734	0.3 ML SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.05 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.05 MG/ML Injection
36968470	0.5 ML COVID-19 vaccine 0.08 MG/ML Injectable Suspension
36948476	0.5 ML COVID-19 vaccine 0.08 MG/ML Injectable Suspension by Hipra Human Health S.L.U.
36969696	0.5 ML COVID-19 vaccine 1200 UNT/ML Injectable Suspension
36964076	0.5 ML COVID-19 vaccine 1200 UNT/ML Injectable Suspension [CoronaVac]
36962147	0.5 ML COVID-19 vaccine 1200 UNT/ML Injectable Suspension [CoronaVac] by Sinovac Life Sciences
36967747	0.5 ML COVID-19 vaccine 13 UNT/ML Injectable Suspension
36950030	0.5 ML COVID-19 vaccine 13 UNT/ML Injectable Suspension by Beijing Institute of Biological Products
36953390	100 ML COVID-19 vaccine 0.08 MG/ML Injectable Suspension
36923477	100 ML COVID-19 vaccine 0.08 MG/ML Injectable Suspension by Hipra Human Health S.L.U.
36945265	10 ML COVID-19 vaccine 0.08 MG/ML Injectable Suspension
36962290	10 ML COVID-19 vaccine 0.08 MG/ML Injectable Suspension by Hipra Human Health S.L.U.
36962954	1 ML COVID-19 vaccine 1200 UNT/ML Injectable Suspension
36941610	1 ML COVID-19 vaccine 1200 UNT/ML Injectable Suspension [CoronaVac]
36929895	1 ML COVID-19 vaccine 1200 UNT/ML Injectable Suspension [CoronaVac] by Sinovac Life Sciences
36944687	1 ML COVID-19 vaccine 13 UNT/ML Injectable Suspension
36936425	1 ML COVID-19 vaccine 13 UNT/ML Injectable Suspension by Beijing Institute of Biological Products
35894915	COVID-19 vaccine
36935277	COVID-19 vaccine 0.08 MG/ML
36950950	COVID-19 vaccine 0.08 MG/ML Injectable Suspension
36963203	COVID-19 vaccine 1200 UNT/ML
36926164	COVID-19 vaccine 1200 UNT/ML [CoronaVac]
36925409	COVID-19 vaccine 1200 UNT/ML Injectable Suspension
36949344	COVID-19 vaccine 1200 UNT/ML Injectable Suspension [CoronaVac]
36958820	COVID-19 vaccine 13 UNT/ML
36959693	COVID-19 vaccine 13 UNT/ML Injectable Suspension
35897994	COVID-19 vaccine Injectable Solution
36939163	COVID-19 vaccine Injectable Suspension
36943268	COVID-19 vaccine Injectable Suspension [CoronaVac]

Concept ID[1]	Concept name
36118949	COVID-19 vaccine, recombinant, full-length nanoparticle spike (S) protein, adjuvanted with Matrix-M
36929908	COVID-19 vaccine, recombinant, full-length nanoparticle spike (S) protein, adjuvanted with Matrix-M Injectable Solution
36119721	COVID-19 vaccine, recombinant, full-length nanoparticle spike (S) protein, adjuvanted with Matrix-M Injectable Suspension
36126197	COVID-19 vaccine, recombinant, plant-derived Virus-Like Particle (VLP) spike (S) protein, adjuvanted with AS03
36119722	COVID-19 vaccine, recombinant, plant-derived Virus-Like Particle (VLP) spike (S) protein, adjuvanted with AS03 Injectable Suspension
36118948	COVID-19 vaccine, whole virus, inactivated, adjuvanted with Alum and CpG 1018
36119720	COVID-19 vaccine, whole virus, inactivated, adjuvanted with Alum and CpG 1018 Injectable Suspension
716025	SARS-COV-2 COVID-19 mRNA, bivalent, original/Omicron BA.1, Non-US Vaccine Product (Comirnaty Bivalent), Pfizer-BioNTech
716024	SARS-COV-2 COVID-19 mRNA, bivalent, original/Omicron BA.1, Non-US Vaccine (Spikevax Bivalent), Moderna
742038	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.025 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 OMICRON (BA.4/BA.5) 0.025 MG/ML Injectable Suspension
1525543	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.05 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 OMICRON (BA.4/BA.5) 0.05 MG/ML Injectable Suspension
37003517	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML
36391504	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension
829421	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension
36398553	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension
37003518	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension
42796198	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension
2998096	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension [Spikevax]
1994903	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension [Spikevax]
2998095	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension [Spikevax]
779679	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension [Spikevax]
1994915	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension [Spikevax]
742037	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 OMICRON (BA.4/BA.5) 0.025 MG/ML
1525542	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 OMICRON (BA.4/BA.5) 0.05 MG/ML
742041	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.0075 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.0075 MG/ML Injectable Suspension
742009	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.025 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.025 MG/ML Injectable Suspension
1525538	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.05 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.05 MG/ML Injectable Suspension
1525545	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.05 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.05 MG/ML Injection
1219271	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension

Concept ID[1]	Concept name
37003436	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
1799560	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
1799559	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
1799558	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
1779597	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
42797616	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
42797615	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
36900251	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36868891	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
595835	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
1759206	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
1626478	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36868892	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36900252	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
742040	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.0075 MG/ML
742007	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.025 MG/ML
1525544	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.05 MG/ML
37003432	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein
37003435	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension
1759205	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension [Comirnaty]
779678	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension [Spikevax]
739906	SARS-COV-2 (COVID-19) vaccine, vector - Ad26 100000000000 UNT/ML Injectable Suspension
702866	SARS-COV-2 (COVID-19) vaccine, vector non-replicating, recombinant spike protein-Ad26, preservative free, 0.5 mL
724905	SARS-COV-2 (COVID-19) vaccine, vector non-replicating, recombinant spike protein-ChAdOx1, preservative free, 0.5 mL (non-US)
42797615	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
36900251	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36868891	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
595835	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
1759206	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
1626478	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36868892	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36900252	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
742040	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.0075 MG/ML
742007	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.025 MG/ML
1525544	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 OMICRON (BA.4/BA.5) 0.05 MG/ML
37003432	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein

Concept ID[1]	Concept name
37003435	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension
1759205	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension [Comirnaty]
779678	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension [Spikevax]
739906	SARS-COV-2 (COVID-19) vaccine, vector - Ad26 100000000000 UNT/ML Injectable Suspension
702866	SARS-COV-2 (COVID-19) vaccine, vector non-replicating, recombinant spike protein-Ad26, preservative free, 0.5 mL
724905	SARS-COV-2 (COVID-19) vaccine, vector non-replicating, recombinant spike protein-ChAdOx1, preservative free, 0.5 mL (non-US)

Influenza vaccination:

Concept ID	Concept name
1361667	0.5 ML influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe
1361668	0.5 ML influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2019-2020]
1361663	0.5 ML influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Pre...
1361664	0.5 ML influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Pre...
35606414	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.015 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.015 MG/ML / influenza B virus B/Brisbane/9/2014 antigen 0.015 MG/ML Prefilled Syringe
35606416	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.015 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.015 MG/ML / influenza B virus B/Brisbane/9/2014 antigen 0.015 MG/ML Prefilled Syringe [FLUAD 2015-2016]
36249259	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe
36249411	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2016-2017]
40220827	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection
40220832	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection [Flublok 2016-2017]
46276014	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Injection
46276018	0.5 ML influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Injection [Flublok 2015-2016]

Concept ID	Concept name
747766	0.5 ML influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/West Virginia/30/2022 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 M...
747765	0.5 ML influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/West Virginia/30/2022 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 M...
780304	0.5 ML influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/M...
780305	0.5 ML influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/M...
1146798	0.5 ML influenza A virus A/Hawaii/70/2019 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Minnesota/41/2019 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG/ML...
1146799	0.5 ML influenza A virus A/Hawaii/70/2019 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Minnesota/41/2019 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG/ML...
1146800	0.5 ML influenza A virus A/Hong Kong/2671/2019 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Victoria/2454/2019 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Victoria/705/2018 antigen 0.03 MG/ML Prefilled Syringe
1146801	0.5 ML influenza A virus A/Hong Kong/2671/2019 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Victoria/2454/2019 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Victoria/705/2018 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2020-2021]
1593896	0.5 ML influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe
1593901	0.5 ML influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2017-2018]
1593520	0.5 ML influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/M...
1593522	0.5 ML influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/M...
1593537	0.5 ML influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection
1593876	0.5 ML influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection [Flublok 2017-2018]
35201910	0.5 ML influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen...
35201911	0.5 ML influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen...

Concept ID	Concept name
35201914	0.5 ML influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe
35201915	0.5 ML influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2018-2019]
1537647	0.5 ML influenza A virus A/Tasmania/503/2020 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG...
1537643	0.5 ML influenza A virus A/Tasmania/503/2020 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG...
43810065	0.5 ML influenza A virus (H1N1) antigen 0.03 MG/ML / Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML / influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria]
43828149	0.5 ML influenza A virus (H1N1) antigen 0.03 MG/ML / Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML / influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria] by bioCSL
43594165	0.5 ML influenza A virus (H1N1) antigen 0.03 MG/ML Injectable Suspension [Afluria]
43720036	0.5 ML influenza A virus (H1N1) antigen 0.03 MG/ML Injectable Suspension [Afluria] Box of 10
43864462	0.5 ML influenza A virus (H1N1) antigen 0.03 MG/ML Injectable Suspension [Afluria] Box of 10 by bioCSL
43612139	0.5 ML influenza A virus (H1N1) antigen 0.03 MG/ML Injectable Suspension [Afluria] by bioCSL
43612132	0.5 ML Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML Injectable Suspension [Afluria]
43702292	0.5 ML Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML Injectable Suspension [Afluria] Box of 10
43702293	0.5 ML Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML Injectable Suspension [Afluria] Box of 10 by bioCSL
43791911	0.5 ML Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML Injectable Suspension [Afluria] by bioCSL
43612144	0.5 ML influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria]
43702304	0.5 ML influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria] Box of 10
43594169	0.5 ML influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria] Box of 10 by bioCSL
43738160	0.5 ML influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria] by bioCSL
43259431	0.5 ML Influenza B virus vaccine, B-Brisbane-60-2008-like virus 0.015 MG/ML / Influenza Virus Vaccine, Inactivated A-California-07-2009 X-181 (H1N1) strain 0.015 MG/ML / ... Injection [Fluvirin]
43270331	0.5 ML Influenza B virus vaccine, B-Brisbane-60-2008-like virus 0.015 MG/ML / Influenza Virus Vaccine, Inactivated A-California-07-2009 X-181 (H1N1) strain 0.015 MG/ML / ... Injection [Fluvirin] Box of 1
43297451	0.5 ML Influenza B virus vaccine, B-Brisbane-60-2008-like virus 0.015 MG/ML / Influenza Virus Vaccine, Inactivated A-California-07-2009 X-181 (H1N1) strain 0.015 MG/ML / ... Injection [Fluvirin] Box of 10
40225027	influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine B/Brisbane/60/2008 antigen 0.03 MG/ML / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain 0.03 MG/ML Injectable...
40240930	influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine B/Brisbane/60/2008 antigen 0.03 MG/ML / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain 0.03 MG/ML Injectable...

Concept ID	Concept name
40240929	influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine B/Brisbane/60/2008 antigen 0.03 MG/ML / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain 0.03 MG/ML Injectable...
40240134	influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine B/Brisbane/60/2008 antigen 0.03 MG/ML / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain 0.03 MG/ML Injectable...
40225026	influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine B/Brisbane/60/2008 antigen 0.03 MG/ML / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain 0.03 MG/ML Injectable...
40225007	influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine B/Brisbane/60/2008 antigen 0.03 MG/ML / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain 0.03 MG/ML Injectable...
40240925	influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine B/Brisbane/60/2008 antigen / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain Injectable Suspension
40225015	influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine B/Brisbane/60/2008 antigen / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain Injectable Suspension [Afluria 2010-2011 Fo...
40225014	influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine B/Brisbane/60/2008 antigen / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain Injectable Suspension [Fluvirin 2010-2011 F...
40240926	influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine B/Brisbane/60/2008 antigen / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain Injectable Suspension [Fluvirin 2011-2012 F...
40224999	influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine B/Brisbane/60/2008 antigen / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain Injectable Suspension [Fluzone 2010-2011 Fo...
40240131	influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine B/Brisbane/60/2008 antigen / influenza virus vaccine, inactivated A-Victoria-210-2009 X-187 (H3N2) (A-Perth-16-2009) strain Injectable Suspension [Fluzone 2011-2012 Fo...
1361279	influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe
1361280	influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2019-2020]
1361154	influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Prefilled...
1361155	influenza A virus A/Brisbane/02/2018 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Kansas/14/2017 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Prefilled...
35606417	influenza A virus A/California/7/2009 (H1N1) antigen 0.015 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.015 MG/ML / influenza B virus B/Brisbane/9/2014 antigen 0.015 MG/ML Prefilled Syringe
35606418	influenza A virus A/California/7/2009 (H1N1) antigen 0.015 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.015 MG/ML / influenza B virus B/Brisbane/9/2014 antigen 0.015 MG/ML Prefilled Syringe [FLUAD 2015-2016]

Concept ID	Concept name
36249270	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Injectable Suspension
36249272	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Injectable Suspension [Afluria 2016-2017]
36249265	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe
36249412	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2016-2017]
46276313	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/South Australia/55/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.03 MG/ML Injectable Suspension
46276315	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/South Australia/55/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.03 MG/ML Injectable Suspension [Afluria 2015-2016]
46275381	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.03 MG/ML Injectable Suspension
46275385	influenza A virus A/California/7/2009 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.03 MG/ML Injectable Suspension [Fluzone 2015-2016]
40220833	influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection
40220834	influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection [Flublok 2016-2017]
46276019	influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Injection
46276020	influenza A virus A/California/7/2009 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Injection [Flublok 2015-2016]
36249426	influenza A virus A/Christchurch/16/2010 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Injectable Suspension
36249431	influenza A virus A/Christchurch/16/2010 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Injectable Suspension [Fluvirin 2016-2017]
46276178	influenza A virus A/Christchurch/16/2010 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.03 MG/ML Injectable Suspension
46276182	influenza A virus A/Christchurch/16/2010 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Switzerland/9715293/2013 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.03 MG/ML Injectable Suspension [Fluvirin 2015-2016]

Concept ID	Concept name
746137	influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/West Virginia/30/2022 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Pr...
746132	influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/West Virginia/30/2022 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Pr...
780110	influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Prefi...
780105	influenza A virus A/Darwin/6/2021 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Austria/1359417/2021 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Prefi...
1146508	influenza A virus A/Hawaii/70/2019 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Minnesota/41/2019 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG/ML Prefill...
1146507	influenza A virus A/Hawaii/70/2019 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Minnesota/41/2019 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG/ML Prefill...
1146534	influenza A virus A/Hong Kong/2671/2019 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Victoria/2454/2019 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Victoria/705/2018 antigen 0.03 MG/ML Prefilled Syringe
1146535	influenza A virus A/Hong Kong/2671/2019 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Victoria/2454/2019 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Victoria/705/2018 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2020-2021]
793959	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/46/2015 antigen 0.03 MG/ML Injectable Suspension
793961	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/46/2015 antigen 0.03 MG/ML Injectable Suspension [Afluria 2017-2018]
1593904	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Injectable Suspension
1593909	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Injectable Suspension [Fluvirin 2017-2018]
1593902	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe
1593903	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.03 MG/ML / influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2017-2018]
1593524	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Prefi...
1593523	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML Prefi...

Concept ID	Concept name
1593538	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection
1593877	influenza A virus A/Hong Kong/4801/2014 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Brisbane/60/2008 antigen 0.09 MG/ML Injection [Flublok 2017-2018]
35200027	influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 M...
35200028	influenza A virus A/Michigan/45/2015 (H1N1) antigen 0.09 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.09 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 M...
35200049	influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Injectable Suspension
35200054	influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Injectable Suspension [Afluria 2018-2019]
35200047	influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe
35200048	influenza A virus A/Singapore/GP1908/2015 (H1N1) antigen 0.03 MG/ML / influenza A virus A/Singapore/INFIMH-16-0019/2016 (H3N2) antigen 0.03 MG/ML / influenza B virus B/Maryland/15/2016 antigen 0.03 MG/ML Prefilled Syringe [Fluad 2018-2019]
1537482	influenza A virus A/Tasmania/503/2020 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG/ML Pre...
1537508	influenza A virus A/Tasmania/503/2020 (H3N2) antigen 0.09 MG/ML / influenza A virus A/Wisconsin/588/2019 (H1N1) antigen 0.09 MG/ML / influenza B virus B/Phuket/3073/2013 antigen 0.09 MG/ML / influenza B virus B/Washington/02/2019 antigen 0.09 MG/ML Pre...
43625193	influenza A virus (H1N1) antigen 0.03 MG/ML / Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML / influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria]
43643464	influenza A virus (H1N1) antigen 0.03 MG/ML Injectable Suspension [Afluria]
43607294	influenza A virus (H1N1) antigen 0.03 MG/ML Injectable Suspension [Afluria] Box of 10
46276177	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension
46276314	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Afluria 2015-2016]
36249271	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Afluria 2016-2017]
793960	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Afluria 2017-2018]
35200052	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Afluria 2018-2019]
46276181	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Fluvirin 2015-2016]

Concept ID	Concept name
36249429	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Fluvirin 2016-2017]
1593907	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Fluvirin 2017-2018]
46275384	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injectable Suspension [Fluzone 2015-2016]
46275653	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injection
46276017	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injection [Flublok 2015-2016]
40220830	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injection [Flublok 2016-2017]
1593874	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Injection [Flublok 2017-2018]
46276001	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe
35606412	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [FLUAD 2015-2016]
36249409	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Fluad 2016-2017]
1593899	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Fluad 2017-2018]
35200045	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Fluad 2018-2019]
1361188	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Fluad 2019-2020]
1146532	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Fluad 2020-2021]
1593361	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2017-2018]
35200025	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2018-2019]
1361148	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2019-2020]
1146505	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2020-2021]
1758617	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2021-2022]
780109	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2022-2023]
746136	influenza A virus (H1N1) antigen / influenza A virus (H3N2) antigen / influenza B virus antigen Prefilled Syringe [Flublok Quadrivalent 2023-2024]
43841366	Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML Injectable Suspension [Afluria]
43841367	Influenza A virus vaccine, A-California-7-2009 (H1N1)-like virus 0.03 MG/ML Injectable Suspension [Afluria] Box of 10

Concept ID	Concept name
45774411	influenza A virus vaccine, A-Texas-50-2012 X-223A (H3N2), inactivated 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension
45774413	influenza A virus vaccine, A-Texas-50-2012 X-223A (H3N2), inactivated 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Flul...
43532864	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension
44818413	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Afluria 2...
43532964	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Afluria 2...
43532865	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Flulaval...
44818419	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Fluvirin...
43560216	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Fluvirin...
44818422	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Fluzone 2...
43532874	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.03 MG/ML Injectable Suspension [Fluzone 2...
42873937	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Wisconsin-1-2010-like virus 0.03 MG/ML Injectable Suspension
42873939	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Wisconsin-1-2010-like virus 0.03 MG/ML Injectable Suspension [Flulaval 2012...
42873940	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Wisconsin-1-2010-like virus 0.03 MG/ML Injectable Suspension [Fluvirin 2012...
42873941	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.03 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.03 MG/ML / influenza B virus vaccine, B-Wisconsin-1-2010-like virus 0.03 MG/ML Injectable Suspension [Fluzone 2012-...
44507887	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.09 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.09 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.09 MG/ML Injectable Solution
44818416	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.09 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.09 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.09 MG/ML Injectable Solution [Flublok 201...

Concept ID	Concept name
44507888	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.09 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.09 MG/ML / influenza B virus vaccine, B-Massachusetts-2-2012-like virus 0.09 MG/ML Injectable Solution [Flublok 201...
43012767	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.09 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.09 MG/ML / influenza B virus vaccine, B-Wisconsin-1-2010-like virus 0.09 MG/ML Injectable Solution
43012768	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus 0.09 MG/ML / influenza A-California-7-2009-(H1N1)v-like virus vaccine 0.09 MG/ML / influenza B virus vaccine, B-Wisconsin-1-2010-like virus 0.09 MG/ML Injectable Solution [Flublok 2012-20...
44507842	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Solution
44507843	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Solution [Flublok 2013-2014 Formula]
44818106	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Solution [Flublok 2014-2015 Formula]
43532648	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension
43532775	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Afluria 2013-2014 Formula]
44818097	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Afluria 2014-2015 Formula]
43532651	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Flulaval 2013-2014 Formula]
44818100	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Flulaval 2014-2015 Formula]
43560213	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Fluvirin 2013-2014 Formula]
44818112	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Fluvirin 2014-2015 Formula]
43532662	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Fluzone 2013-2014 Formula]
44818116	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Massachusetts-2-2012-like virus Injectable Suspension [Fluzone 2014-2015 Formula]
43012763	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Wisconsin-1-2010-like virus Injectable Solution
43012764	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Wisconsin-1-2010-like virus Injectable Solution [Flublok 2012-2013 Formula]

Concept ID	Concept name
42873919	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Wisconsin-1-2010-like virus Injectable Suspension
42873921	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Wisconsin-1-2010-like virus Injectable Suspension [Flulaval 2012-2013 Formula]
42873922	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Wisconsin-1-2010-like virus Injectable Suspension [Fluvirin 2012-2013 Formula]
42873923	influenza A virus vaccine, A-Victoria-361-2011 (H3N2)-like virus / influenza A-California-7-2009-(H1N1)v-like virus vaccine / influenza B virus vaccine, B-Wisconsin-1-2010-like virus Injectable Suspension [Fluzone 2012-2013 Formula]
43751233	influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria]
43859536	influenza B virus antigen 0.03 MG/ML Injectable Suspension [Afluria] Box of 10
43264065	Influenza B virus vaccine, B-Brisbane-60-2008-like virus 0.015 MG/ML / Influenza Virus Vaccine, Inactivated A-California-07-2009 X-181 (H1N1) strain 0.015 MG/ML / ... Injection [Fluvirin]
43296629	Influenza B virus vaccine, B-Brisbane-60-2008-like virus 0.015 MG/ML / Influenza Virus Vaccine, Inactivated A-California-07-2009 X-181 (H1N1) strain 0.015 MG/ML / ... Injection [Fluvirin] Box of 1
43275078	Influenza B virus vaccine, B-Brisbane-60-2008-like virus 0.015 MG/ML / Influenza Virus Vaccine, Inactivated A-California-07-2009 X-181 (H1N1) strain 0.015 MG/ML / ... Injection [Fluvirin] Box of 10
40213153	Influenza, seasonal, injectable
40213156	influenza virus vaccine, split virus (incl. purified surface antigen)-retired CODE
40213158	influenza virus vaccine, unspecified formulation
40213159	influenza virus vaccine, whole virus
40213152	Seasonal, quadrivalent, recombinant, injectable influenza vaccine, preservative free
40213157	Seasonal trivalent influenza vaccine, adjuvanted, preservative free
40213151	Seasonal, trivalent, recombinant, injectable influenza vaccine, preservative free

Tetanus, Diphtheria & Pertussis (Tdap) vaccination:

Concept ID	Concept name
42800267	0.5 ML Bordetella pertussis filamentous hemagglutinin vaccine, inactivated 0.016 MG/ML / Bordetella pertussis pertactin vaccine, inactivated 0.005 MG/ML / Bordetella pertussis toxoid vaccine, inactivated 0.016 MG/ML / diphtheria toxoid vaccine, inactiv...
42800266	0.5 ML Bordetella pertussis filamentous hemagglutinin vaccine, inactivated 0.016 MG/ML / Bordetella pertussis pertactin vaccine, inactivated 0.005 MG/ML / Bordetella pertussis toxoid vaccine, inactivated 0.016 MG/ML / diphtheria toxoid vaccine, inactiv...
42800473	0.5 ML Bordetella pertussis filamentous hemagglutinin vaccine, inactivated 0.016 MG/ML / Bordetella pertussis pertactin vaccine, inactivated 0.005 UNT/ML / Bordetella pertussis toxoid vaccine, inactivated 0.016 MG/ML / diphtheria toxoid vaccine, inacti...
42800474	0.5 ML Bordetella pertussis filamentous hemagglutinin vaccine, inactivated 0.016 MG/ML / Bordetella pertussis pertactin vaccine, inactivated 0.005 UNT/ML / Bordetella pertussis toxoid vaccine, inactivated 0.016 MG/ML / diphtheria toxoid vaccine, inacti...
42800265	0.5 ML Bordetella pertussis filamentous hemagglutinin vaccine, inactivated 0.01 MG/ML / Bordetella pertussis fimbriae 2/3 vaccine, inactivated 0.01 MG/ML / Bordetella pertussis pertactin vaccine, inactivated 0.006 MG/ML / Bordetella pertussis toxoid va...

Concept ID	Concept name
42800464	0.5 ML Bordetella pertussis filamentous hemagglutinin vaccine, inactivated 0.01 MG/ML / Bordetella pertussis fimbriae 2/3 vaccine, inactivated 0.01 MG/ML / Bordetella pertussis pertactin vaccine, inactivated 0.006 MG/ML / Bordetella pertussis toxoid va...
44791056	Booster diphtheria, tetanus, acellular pertussis and inactivated polio vaccination
44792127	Booster diphtheria, tetanus, acellular pertussis, haemophilus influenzae type b, inactivated polio vaccination
724894	Diphtheria, Tetanus, Poliomyelitis adsorbed (non-US)
40213281	diphtheria, tetanus toxoids and acellular pertussis vaccine
40213282	diphtheria, tetanus toxoids and acellular pertussis vaccine, 5 pertussis antigens
40213289	Diphtheria, tetanus toxoids and acellular pertussis vaccine, and poliovirus vaccine, inactivated
40213283	diphtheria, tetanus toxoids and acellular pertussis vaccine, unspecified formulation
40213291	diphtheria, tetanus toxoids and pertussis vaccine
19033193	pertussis vaccine
4219827	Second low dose diphtheria, tetanus and inactivated polio vaccination
40213230	tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine, adsorbed
4167723	Third low dose diphtheria, tetanus and inactivated polio vaccination

Table S3. Preliminary list of pregnancy complications (not included in the Perinatal Expansion Table [PET]).

Antepartum Haemorrhage:

Concept ID	Concept name
4228479	Accidental antepartum hemorrhage
434089	Antepartum hemorrhage
438489	Antepartum hemorrhage associated with coagulation defect
45757208	Antepartum hemorrhage due to disseminated intravascular coagulation
44784542	Antepartum hemorrhage due to placenta previa type I
44784543	Antepartum hemorrhage due to placenta previa type II
44784544	Antepartum hemorrhage due to placenta previa type III
44784545	Antepartum hemorrhage due to placenta previa type IV
4129032	Antepartum hemorrhage with afibrinogenemia
443133	Antepartum hemorrhage with coagulation defect - delivered
438203	Antepartum hemorrhage with coagulation defect - not delivered
4129031	Antepartum hemorrhage with hyperfibrinolysis
4034091	Antepartum hemorrhage with hypofibrinogenemia
4143074	Antepartum hemorrhage, abruptio placentae and placenta previa
3404588	Concealed accidental hemorrhage
193535	Fetal-maternal hemorrhage - delivered
196757	Fetal-maternal hemorrhage with antenatal problem
3657563	First trimester bleeding

Concept ID	Concept name
435323	Hemorrhage in early pregnancy, delivered
4025198	Hemorrhagic complication of pregnancy
4129827	Indeterminate antepartum hemorrhage
193264	Placenta previa with hemorrhage - delivered
200149	Placenta previa with hemorrhage - not delivered
4327745	Second trimester bleeding
4142581	Third trimester bleeding
37109810	Vaginal bleeding complicating early pregnancy
196751	Placenta previa with hemorrhage
201627	Abnormal vaginal bleeding
4083209	Vaginal vault bleeding
4095942	Vaginal introitus bleeding
4124469	Profuse vaginal bleeding
4126713	Moderate vaginal bleeding
4126908	Scanty vaginal bleeding
4129155	Vaginal bleeding
4199815	Heavy episode of vaginal bleeding
4219594	Non-menstrual vaginal bleeding
4127410	Vaginal vault hematoma
199068	Vaginal hematoma
4126712	Fresh bleeding from vagina
4126906	Passing clots vaginally
4126907	Passing altered blood from vagina
4129156	Passing small clots vaginally
4129157	Passing large clots vaginally
44806343	Minimal vaginal blood loss
4195179	Abnormal uterine bleeding unrelated to menstrual cycle
4169954	Genitourinary tract hemorrhage

Eclampsia:

Concept ID	Concept name
4116344	Eclampsia in puerperium
443700	Eclampsia
133816	Eclampsia - delivered
4062550	Pre-eclampsia or eclampsia with pre-existing hypertension with postnatal complication
134414	Pre-eclampsia or eclampsia with pre-existing hypertension - delivered with postnatal complication
42537548	Nephropathy following eclampsia

Concept ID	Concept name
4058536	Eclampsia with postnatal complication
4289142	Eclampsia added to pre-existing hypertension
138811	Eclampsia - delivered with postnatal complication
137613	Eclampsia in pregnancy
4034096	Eclampsia in labor
45757119	Eclampsia with pre-existing hypertension in childbirth
135601	Pre-eclampsia or eclampsia with pre-existing hypertension - delivered
136743	Pre-eclampsia or eclampsia with pre-existing hypertension - not delivered
4034096	Eclampsia in labor

Ectopic pregnancy:

Concept ID	Concept name
37203955	Intramural ectopic pregnancy of myometrium
37209653	Ectopic pregnancy of left ovary
37209654	Ectopic pregnancy of right ovary
42536560	Pelvic infection due to and following ectopic pregnancy
42536561	Genital tract infection due to and following ectopic pregnancy
42537762	Delayed hemorrhage due to and following ectopic pregnancy
42537763	Excessive hemorrhage due to and following ectopic pregnancy
42537767	Damage to pelvic organs and tissues following ectopic pregnancy
42537770	Disorder of vein following ectopic pregnancy
42539701	Embolism due to and following ectopic pregnancy
43530979	Miscarriage of tubal ectopic pregnancy
45757120	Renal failure after ectopic pregnancy
46269806	Salpingitis due to ectopic pregnancy
46269807	Sepsis due to ectopic pregnancy
46269808	Shock due to ectopic pregnancy
46269809	Urinary tract infection due to ectopic pregnancy
195014	Renal failure following molar AND/OR ectopic pregnancy
196177	Genital tract AND/OR pelvic infection following molar AND/OR ectopic pregnancy
196475	Damage to pelvic organs AND/OR tissues following molar AND/OR ectopic pregnancy
432371	Metabolic disorder following molar AND/OR ectopic pregnancy
437611	Ectopic pregnancy
440464	Complication following molar AND/OR ectopic pregnancy
440777	Embolism following molar AND/OR ectopic pregnancy
442271	Shock following molar AND/OR ectopic pregnancy
4023382	Postoperative shock following molar AND/OR ectopic pregnancy

Concept ID	Concept name
4063939	Intravascular hemolysis following molar AND/OR ectopic pregnancy
4066014	Endometritis following molar AND/OR ectopic pregnancy
4069106	Ruptured ectopic pregnancy
4080587	Septic shock following molar AND/OR ectopic pregnancy
4093262	Septic embolism following molar AND/OR ectopic pregnancy
4095115	Renal tubular necrosis following molar AND/OR ectopic pregnancy
4100193	Damage to bladder following molar AND/OR ectopic pregnancy
4103056	Blood clot embolism following molar AND/OR ectopic pregnancy
4107071	Oliguria following molar AND/OR ectopic pregnancy
4118058	Fetal or neonatal effect of ectopic pregnancy
4118263	Fetal or neonatal effect of intraperitoneal ectopic pregnancy
4118419	Fetal or neonatal effect of abdominal ectopic pregnancy
4118420	Fetal or neonatal effect of tubal ectopic pregnancy
4141453	Air embolism following molar AND/OR ectopic pregnancy
4147060	Cerebral anoxia following molar AND/OR ectopic pregnancy
4151214	Uremia following molar AND/OR ectopic pregnancy
4152444	Antenatal ultrasound confirms ectopic pregnancy
4172629	Amniotic fluid embolism following molar AND/OR ectopic pregnancy
4173946	Damage to cervix following molar AND/OR ectopic pregnancy
4174543	Damage to periurethral tissue following molar AND/OR ectopic pregnancy
4185718	Damage to bowel following molar AND/OR ectopic pregnancy
4187090	Sepsis following molar AND/OR ectopic pregnancy
4194053	Damage to uterus following molar AND/OR ectopic pregnancy
4215648	Acute renal failure following molar AND/OR ectopic pregnancy
4216382	Damage to vagina following molar AND/OR ectopic pregnancy
4232953	Damage to broad ligament following molar AND/OR ectopic pregnancy
4239009	Salpingo-oophoritis following molar AND/OR ectopic pregnancy
4242401	Urinary tract infection following molar AND/OR ectopic pregnancy
4265400	Soap embolism following molar AND/OR ectopic pregnancy
4266839	Defibrination syndrome following molar AND/OR ectopic pregnancy
4276942	Electrolyte imbalance following molar AND/OR ectopic pregnancy
4280067	Pulmonary embolism following molar AND/OR ectopic pregnancy
4296038	Tetanus complicating ectopic AND/OR molar pregnancy
4312095	Afibrinogenemia following molar AND/OR ectopic pregnancy
4314877	Pelvic peritonitis following molar AND/OR ectopic pregnancy
4315388	Fat embolism following molar AND/OR ectopic pregnancy
4316051	Salpingitis following molar AND/OR ectopic pregnancy

Concept ID	Concept name
4336392	Parametritis following molar AND/OR ectopic pregnancy
4135209	Combined pregnancy
193525	Abdominal pregnancy
199076	Tubal pregnancy
200153	Ovarian pregnancy
4066151	Intraperitoneal pregnancy
4112952	Membranous pregnancy
4113218	Mesenteric pregnancy
4113680	Ruptured tubal pregnancy
4113682	Angular pregnancy
4113846	Delivery of viable fetus in abdominal pregnancy
4129027	Viable fetus in abdominal pregnancy
4129712	Unruptured tubal pregnancy
4149029	Intraligamentous pregnancy
4174577	Secondary abdominal pregnancy
4194693	Cervical pregnancy
4227267	Cornual pregnancy
4243803	Mesometric pregnancy
37209655	Pregnancy of left fallopian tube
37209656	Ruptured tubal pregnancy of right fallopian tube
37209657	Ruptured tubal pregnancy of left fallopian tube
37209658	Pregnancy of right fallopian tube
40483581	Combined tubal and intrauterine pregnancy
44783183	Combined intrauterine and ovarian pregnancy
3043153	[#] Ectopic pregnancy
37167330	Metabolic disorder following ectopic pregnancy
37167172	Shock following ectopic pregnancy
4215648	Acute renal failure following molar AND/OR ectopic pregnancy
4216382	Damage to vagina following molar AND/OR ectopic pregnancy
4232953	Damage to broad ligament following molar AND/OR ectopic pregnancy
4239009	Salpingo-oophoritis following molar AND/OR ectopic pregnancy
4242401	Urinary tract infection following molar AND/OR ectopic pregnancy
4265400	Soap embolism following molar AND/OR ectopic pregnancy
4266839	Defibrination syndrome following molar AND/OR ectopic pregnancy
4276942	Electrolyte imbalance following molar AND/OR ectopic pregnancy
4280067	Pulmonary embolism following molar AND/OR ectopic pregnancy
4296038	Tetanus complicating ectopic AND/OR molar pregnancy

Concept ID	Concept name
4312095	Afibrinogenemia following molar AND/OR ectopic pregnancy
4314877	Pelvic peritonitis following molar AND/OR ectopic pregnancy
4315388	Fat embolism following molar AND/OR ectopic pregnancy
4316051	Salpingitis following molar AND/OR ectopic pregnancy
4336392	Parametritis following molar AND/OR ectopic pregnancy
4135209	Combined pregnancy
193525	Abdominal pregnancy
199076	Tubal pregnancy
200153	Ovarian pregnancy
4066151	Intraperitoneal pregnancy
4112952	Membranous pregnancy
4113218	Mesenteric pregnancy
4113680	Ruptured tubal pregnancy
4113682	Angular pregnancy
4113846	Delivery of viable fetus in abdominal pregnancy
4129027	Viable fetus in abdominal pregnancy
4129712	Unruptured tubal pregnancy
4149029	Intraligamentous pregnancy
4174577	Secondary abdominal pregnancy
4194693	Cervical pregnancy
4227267	Cornual pregnancy
4243803	Mesometric pregnancy
37209655	Pregnancy of left fallopian tube
37209656	Ruptured tubal pregnancy of right fallopian tube
37209657	Ruptured tubal pregnancy of left fallopian tube
37209658	Pregnancy of right fallopian tube
40483581	Combined tubal and intrauterine pregnancy
44783183	Combined intrauterine and ovarian pregnancy
3043153	[#] Ectopic pregnancy
37167330	Metabolic disorder following ectopic pregnancy
37167172	Shock following ectopic pregnancy

Gestational diabetes:

Concept ID	Concept name
37018765	Gestational diabetes mellitus complicating pregnancy
43020791	Gestational diabetes mellitus uncontrolled
45757124	Gestational diabetes mellitus in childbirth
45757789	Postpartum gestational diabetes mellitus
4024659	Gestational diabetes mellitus
4263902	Gestational diabetes mellitus, class A>2<
4326434	Gestational diabetes mellitus, class A>1<
4058243	Diabetes mellitus during pregnancy, childbirth and the puerperium

HELLP Syndrome:

Concept ID[1]	Concept name
4316372	HELLP syndrome

[1] All descendants included.

Pre-eclampsia:

Concept ID	Concept name
4057976	Severe pre-eclampsia with postnatal complication
438490	Severe pre-eclampsia - delivered
132685	Severe pre-eclampsia - not delivered
439393	Pre-eclampsia
4283352	Pre-eclampsia added to pre-existing hypertension
42537547	Nephropathy following pre-eclampsia
35622939	Postpartum pre-eclampsia
604804	Fetal disorder due to maternal pre-eclampsia
1340440	Exacerbation of pre-eclampsia
314090	Mild pre-eclampsia
433536	Severe pre-eclampsia
439077	Severe pre-eclampsia - delivered with postnatal complication
4034094	Moderate proteinuric hypertension of pregnancy
4057976	Severe pre-eclampsia with postnatal complication
438490	Severe pre-eclampsia - delivered

Postpartum haemorrhage:

Concept ID	Concept name
37394499	Minor postpartum haemorrhage
37394500	Major postpartum haemorrhage
37108740	Postpartum hemorrhage due to total placenta previa

Concept ID	Concept name
37110289	Postpartum hemorrhage co-occurrent and due to uterine rupture following obstructed labor
194109	Delayed AND/OR secondary postpartum hemorrhage
196488	Atonic postpartum hemorrhage
443929	Postpartum hemorrhage
4006327	Postpartum afibrinogenemia with hemorrhage
4065618	Secondary postpartum hemorrhage - delivered with postnatal problem
4169890	Postpartum coagulation defect with hemorrhage
4266066	Postpartum fibrinolysis with hemorrhage
4194998	Retained products of conception, following delivery with hemorrhage
46274097	Compression suturing of uterus for atonic postpartum hemorrhage
4127264	Surgical control of postpartum hemorrhage
4169003	Pack to control postpartum hemorrhage
606891	Postpartum hemorrhage with retained placenta
4298174	Bleeding reduction: postpartum uterus
201627	Abnormal vaginal bleeding
4083209	Vaginal vault bleeding
4095942	Vaginal introitus bleeding
4124469	Profuse vaginal bleeding
4126713	Moderate vaginal bleeding
4126908	Scanty vaginal bleeding
4129155	Vaginal bleeding
4199815	Heavy episode of vaginal bleeding
4219594	Non-menstrual vaginal bleeding
4127410	Vaginal vault hematoma
199068	Vaginal hematoma
4126712	Fresh bleeding from vagina
4126906	Passing clots vaginally
4126907	Passing altered blood from vagina
4129156	Passing small clots vaginally
4129157	Passing large clots vaginally
44806343	Minimal vaginal blood loss
4195179	Abnormal uterine bleeding unrelated to menstrual cycle
4169954	Genitourinary tract hemorrhage

TORCH (toxoplasmosis, others, rubella, cytomegalovirus, herpes simplex) infection

Concept ID[1]	Concept name
440653	Toxoplasmosis

Concept ID[1]	Concept name
4273323	Rubella
440032	Cytomegalovirus infection
444429	Herpes simplex
436033	Syphilis
434272	Varicella

[1] All descendants included.

ANNEX VII. ENCePP checklist for study protocols

ENCePP Checklist for Study Protocols (Revision 4)

Study title: DARWIN EU® - Characterisation of pregnancies identified through the PeriNet pregnancy algorithm

EU PAS Register® number: EUPAS1000001218
Study reference number (if applicable): P5-C3-011

Section 1: Milestones	**Yes**	**No**	**N/A**	**Section Number**
1.1 Does the protocol specify timelines for				
1.1.1 Start of data collection[1]	☒	☐	☐	2
1.1.2 End of data collection[2]	☒	☐	☐	
1.1.3 Progress report(s)	☐	☐	☒	
1.1.4 Interim report(s)	☐	☐	☒	
1.1.5 Registration in the EU PAS Register®	☐	☒	☐	
1.1.6 Final report of study results.	☐	☐	☒	

Comments:

Section 2: Research question	**Yes**	**No**	**N/A**	**Section Number**
2.1 Does the formulation of the research question and objectives clearly explain:	☒	☐	☐	
2.1.1 Why the study is conducted? (e.g. to address an important public health concern, a risk identified in the risk management plan, an emerging safety issue)	☒	☐	☐	3, 4
2.1.2 The objective(s) of the study?	☒	☐	☐	
2.1.3 The target population? (i.e. population or subgroup to whom the study results are intended to be generalised)	☒	☐	☐	
2.1.4 Which hypothesis(-es) is (are) to be tested?	☐	☐	☒	
2.1.5 If applicable, that there is no *a priori* hypothesis?	☐	☐	☒	

Comments:

[1] Date from which information on the first study is first recorded in the study dataset or, in the case of secondary use of data, the date from which data extraction starts.

[2] Date from which the analytical dataset is completely available.

Section 3: Study design		**Yes**	**No**	**N/A**	**Section Number**
3.1	Is the study design described? (e.g. cohort, case-control, cross-sectional, other design)	☒	☐	☐	5.1
3.2	Does the protocol specify whether the study is based on primary, secondary or combined data collection?	☒	☐	☐	5.4
3.3	Does the protocol specify measures of occurrence? (e.g. rate, risk, prevalence)	☒☐	☐	☒	
3.4	Does the protocol specify measure(s) of association? (e.g. risk, odds ratio, excess risk, rate ratio, hazard ratio, risk/rate difference, number needed to harm (NNH))	☐	☐	☒	
3.5	Does the protocol describe the approach for the collection and reporting of adverse events/adverse reactions? (e.g. adverse events that will not be collected in case of primary data collection)	☐	☐	☒	

Comments:

Characterisation study

Section 4: Source and study populations		**Yes**	**No**	**N/A**	**Section Number**
4.1	Is the source population described?	☒	☐	☐	5.3
4.2	Is the planned study population defined in terms of:				5.3
	4.2.1 Study time period	☒	☐	☐	
	4.2.2 Age and sex	☒	☐	☐	
	4.2.3 Country of origin	☐	☐	☒	
	4.2.4 Disease/indication	☐	☐	☒	
	4.2.5 Duration of follow-up	☒	☐	☐	
4.3	Does the protocol define how the study population will be sampled from the source population? (e.g. event or inclusion/exclusion criteria)	☒	☐	☐	5.3

Comments:

Section 5: Exposure definition and measurement		**Yes**	**No**	**N/A**	**Section Number**
5.1	Does the protocol describe how the study exposure is defined and measured? (e.g. operational details for defining and categorising exposure, measurement of dose and duration of drug exposure)	☐	☐	☒	

Section 5: Exposure definition and measurement		**Yes**	**No**	**N/A**	**Section Number**
5.2	Does the protocol address the validity of the exposure measurement? (e.g. precision, accuracy, use of validation sub-study)	☐	☐	☒	
5.3	Is exposure categorised according to time windows?	☒	☐	☐	5.6.3
5.4	Is intensity of exposure addressed? (e.g. dose, duration)	☐	☐	☒	
5.5	Is exposure categorised based on biological mechanism of action and taking into account the pharmacokinetics and pharmacodynamics of the drug?	☐	☐	☒	
5.6	Is (are) (an) appropriate comparator(s) identified?	☐	☐	☒	

Comments:

Section 6: Outcome definition and measurement		**Yes**	**No**	**N/A**	**Section Number**
6.1	Does the protocol specify the primary and secondary (if applicable) outcome(s) to be investigated?	☐	☐	☒	
6.2	Does the protocol describe how the outcomes are defined and measured?	☐	☐	☒	
6.3	Does the protocol address the validity of outcome measurement? (e.g. precision, accuracy, sensitivity, specificity, positive predictive value, use of validation sub-study)	☐	☐	☒	
6.4	Does the protocol describe specific outcomes relevant for Health Technology Assessment? (e.g. HRQoL, QALYs, DALYS, health care services utilisation, burden of disease or treatment, compliance, disease management)	☐	☐	☒	

Comments:

Section 7: Bias		**Yes**	**No**	**N/A**	**Section Number**
7.1	Does the protocol address ways to measure confounding? (e.g. confounding by indication)	☐	☐	☒	
7.2	Does the protocol address selection bias? (e.g. healthy user/adherer bias)	☐	☐	☒	
7.3	Does the protocol address information bias? (e.g. misclassification of exposure and outcomes, time-related bias)	☐	☐	☒	

Comments:

Section 8: Effect measure modification	**Yes**	**No**	**N/A**	**Section Number**
8.1 Does the protocol address effect modifiers? (e.g. collection of data on known effect modifiers, sub-group analyses, anticipated direction of effect)	☐	☐	☒	

Comments:

Section 9: Data sources	**Yes**	**No**	**N/A**	**Section Number**
9.1 Does the protocol describe the data source(s) used in the study for the ascertainment of:				
9.1.1 Exposure? (e.g. pharmacy dispensing, general practice prescribing, claims data, self-report, face-to-face interview)	☐	☐	☒	
9.1.2 Outcomes? (e.g. clinical records, laboratory markers or values, claims data, self-report, patient interview including scales and questionnaires, vital statistics)	☐	☐	☒	
9.1.3 Covariates and other characteristics?	☒	☐	☐	5.6.3
9.2 Does the protocol describe the information available from the data source(s) on:				
9.2.1 Exposure? (e.g. date of dispensing, drug quantity, dose, number of days of supply prescription, daily dosage, prescriber)	☐	☐	☒	
9.2.2 Outcomes? (e.g. date of occurrence, multiple event, severity measures related to event)	☐	☐	☒	
9.2.3 Covariates and other characteristics? (e.g. age, sex, clinical and drug use history, co-morbidity, co-medications, lifestyle)	☒	☐	☐	5.6.3
9.3 Is a coding system described for:				
9.3.1 Exposure? (e.g. WHO Drug Dictionary, Anatomical Therapeutic Chemical (ATC) Classification System)	☐	☐	☒	
9.3.2 Outcomes? (e.g. International Classification of Diseases (ICD), Medical Dictionary for Regulatory Activities (MedDRA))	☐	☐	☒	
9.3.3 Covariates and other characteristics?	☐	☐	☒	
9.4 Is a linkage method between data sources described? (e.g. based on a unique identifier or other)	☐	☐	☒	

Comments:

Characterisation study

Section 10: Analysis plan	**Yes**	**No**	**N/A**	**Section Number**
10.1 Are the statistical methods and the reason for their choice described?	☒	☐	☐	5.8.3
10.2 Is study size and/or statistical precision estimated?	☐	☐	☒	
10.3 Are descriptive analyses included?	☒	☐	☐	
10.4 Are stratified analyses included?	☐	☒	☐	
10.5 Does the plan describe methods for analytic control of confounding?	☐	☐	☒	
10.6 Does the plan describe methods for analytic control of outcome misclassification?	☐	☐	☒	
10.7 Does the plan describe methods for handling missing data?	☒	☐	☐	5.8.3
10.8 Are relevant sensitivity analyses described?	☐	☐	☒	

Comments:

Section 11: Data management and quality control	**Yes**	**No**	**N/A**	**Section Number**
11.1 Does the protocol provide information on data storage? (e.g. software and IT environment, database maintenance and anti-fraud protection, archiving)	☒	☐	☐	Annex V
11.2 Are methods of quality assurance described?	☒	☐	☐	Annex V
11.3 Is there a system in place for independent review of study results?	☒	☐	☐	Annex V

Comments:

Section 12: Limitations	**Yes**	**No**	**N/A**	**Section Number**
12.1 Does the protocol discuss the impact on the study results of:				
12.1.1 Selection bias?	☒	☐	☐	6
12.1.2 Information bias?	☐	☐	☒	
12.1.3 Residual/unmeasured confounding? (e.g. anticipated direction and magnitude of such biases, validation sub-study, use of validation and external data, analytical methods).	☐	☐	☒	
12.2 Does the protocol discuss study feasibility? (e.g. study size, anticipated exposure uptake, duration of follow-up in a cohort study, patient recruitment, precision of the estimates)	☐	☐	☒	

Comments:

Section 13: Ethical/data protection issues	**Yes**	**No**	**N/A**	**Section Number**
13.1 Have requirements of Ethics Committee/ Institutional Review Board been described?	☒	☐	☐	Annex IV
13.2 Has any outcome of an ethical review procedure been addressed?	☐	☐	☒	
13.3 Have data protection requirements been described?	☒	☐	☐	Annex V

Comments:

Section 14: Amendments and deviations	**Yes**	**No**	**N/A**	**Section Number**
14.1 Does the protocol include a section to document amendments and deviations?	☒	☐	☐	Annex II

Comments:

Section 15: Plans for communication of study results	**Yes**	**No**	**N/A**	**Section Number**
15.1 Are plans described for communicating study results (e.g. to regulatory authorities)?	☒	☐	☐	Annex V
15.2 Are plans described for disseminating study results externally, including publication?	☒	☐	☐	Annex V

Comments:

Name of the main author of the protocol: Cindy Porras

Date: 6/11/2026

Signature: Cindy Porras