

# **STUDY PROTOCOL**

Safety of mRNA COVID-19 vaccines during pregnancy.

07/04/2025

Version 4.0

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## **DOCUMENT HISTORY**

<b>Version</b>	<b>Date</b>	<b>Description</b>
1.0	12-12-2024	First protocol draft version.
2.0	14-01-2025	Second protocol draft – HARPER template and incorporate feedback.
3.0	17-02-2025	Add background incidence rate study to the protocol.
4.0	07-04-2025	Incorporate research team's feedback

## PROTOCOL OVERVIEW

Study title	Safety of mRNA COVID-19 vaccines during pregnancy.
Protocol version date	07/04/2025
Research question and objectives	<p><b>Research Question (RQ) 1:</b> Which are the background incidence rates of selected adverse events during pregnancy? Which are the differences in baseline characteristics between women who experience an adverse event during pregnancy vs. those pregnancies without the adverse event?</p> <p><b>RQ 2:</b> What is the risk of adverse events associated with receiving a 1st, 2nd, or a booster (3<sup>rd</sup> or subsequent doses) of an mRNA COVID-19 vaccine during pregnancy, compared to pregnant women eligible for the same dose but not vaccinated with it?</p> <p><b>Research Objectives:</b> The study has two main objectives. <b>First</b>, to estimate and characterise background incidence rates of adverse events on pregnant women. <b>Second</b>, to assess the safety of mRNA COVID-19 vaccines administered during pregnancy. The <u>first objective</u> can be subdivided in two specific objectives (SOs):</p> <ul style="list-style-type: none"> <li>• <b>SO 1.1</b> – To estimate incidence rates of selected adverse events in pregnant women.</li> <li>• <b>SO 1.2</b> – To describe demographic and clinical characteristics of pregnant women with incident outcomes and compare their characteristics with individuals of similar age and gestational age but without the outcome.</li> </ul> <p>The <u>second objective</u> has three SOs:</p> <ul style="list-style-type: none"> <li>• <b>SO 2.1</b> – To estimate the risk of pregnant adverse events when receiving a 1<sup>st</sup> COVID-19 vaccine dose (mRNA type) during pregnancy compared to unvaccinated pregnant individuals.</li> <li>• <b>SO 2.2</b> – To estimate the risk of pregnant adverse when receiving a 2<sup>nd</sup> COVID-19 vaccine dose (mRNA type) during pregnancy compared to individuals who are eligible for a 2<sup>nd</sup> dose during pregnancy but have not yet received it.</li> <li>• <b>SO 2.3</b> – To estimate the risk of pregnant adverse when receiving a <b>booster</b> (3<sup>rd</sup> or subsequent doses) COVID-19 vaccine dose (mRNA type) during pregnancy compared to individuals who are eligible for a booster dose during pregnancy but have not yet received it.</li> </ul>
Countries of study	The United Kingdom, Norway, Sweden, and Spain
Authors	Nuria Mercade-Besora, Xintong Li, Edward Burn, Albert Prats-Urbe, Daniel Prieto-Alhambra, Antonella Delmestri, Wai Yi Man, Anna Saura Lazaro, George Corby, Shirley Wang, Berta Raventós, Nhung Trinh, Saeed Hayati, Hedvig Marie Egeland Nordeng, Fredrik Nyberg, Huiqi Li, Talita Duarte-Salles, Agustina Giuliadori, Laura Granes, Daniel Morales, Elena Roel
Conflicts of interest	Prof. Prieto-Alhambra reported receiving grant support from Les Laboratoires Servier; that his research group has received grants and advisory or speaker fees from Amgen, Astellas, AstraZeneca, Chesi-Taylor, Johnson and Johnson and UCD; and that Janssen, on behalf of Innovative Medicines Initiative-funded European Health Data Evidence Network and European Medical Information Framework consortium and Synapse Management Partners, have supported training programs, open to external participants, organized by his department.

	<p>SVW reports ad hoc consulting for Exponent Inc, Cytel Inc, and MITRE a federally funded research and development center for the Centers for Medicare and Medicaid Services.</p> <p>The Department of Pharmacy at the University of Oslo takes part in multinational studies conducted under VAC4EU, an initiative receiving funding from pharmaceutical companies that manufacture COVID-19 vaccines (Pfizer, Moderna).</p> <p>FN has funding from SciLifeLab / the Knut and Alice Wallenberg Foundation (KAW 2021-0010/ VC2021.0018 and KAW 2020.0299/VC 2022.0008) and the Swedish Research Council (2021-05045 and 2021-05450). The overarching SCIFI-PEARL study (contributing Swedish data to the current analysis) through P.I. FN also has core funding from the Swedish state under the agreement between the Swedish government and the county councils, the ALF-agreement (Avtal om Läkarutbildning och Forskning/Medical Training and Research Agreement), grants ALFGBG-938453, ALFGBG-971130, ALFGBG-978954, ALFGBG-1006729, a grant from FORTE (Research Council for Health, Working Life, and Welfare), grant 2024-01711, and previously from a joint grant from FORTE and FORMAS (Research Council for Environment, Agricultural Sciences and Spatial Planning), grant 2020-02828. FN owns some AstraZeneca shares.</p>
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## **GLOSSARY**

<b>Term</b>	<b>Description</b>
JCVI	Joint Committee on Vaccination and Immunisation
AESI	Adverse Events of Special Interest
GP	General Practitioner
LMP	Last Menstrual Period
MAE	Maternal Adverse Events
OMOP	Observational Medical Outcomes Partnership
CDM	Common Data Model
OHDSI	Observational Health Data Sciences and Informatics
SIDIAP	Information System for Research in Primary Care Database
CPRD	Clinical Practice Research Datalink
NLHR@UiO	Norwegian Linked Health Registries at University of Oslo
UiO	University of Oslo
MBRN	Medical Birth Registry of Norway
SCIFI-PEARL	Swedish Covid-19 Investigation for Future Insights – a Population Epidemiology Approach using Register Linkage
RSS	Risk Set Sampling
PS	Propensity Score
GW	Gestational Week
DARWIN	Data Analysis and Real-World Interrogation Network
EU	European Union
EMA	European Medicines Agency
WHO	World Health Organisation
PP	Per-Protocol
LASSO	Least Absolute Shrinkage and Selection Operator
OW	Overlapping Weighting
SMD	Standardised Mean Differences
NCO	Negative Control Outcomes
IRR	Incidence Rate Ratio
CI	Confidence Interval
HELLP	Hemolysis, Elevated Liver enzyme levels, and Low Platelet levels
Tdap	Tetanus, Diphtheria, and Pertussis

<b>HIV</b>	Human Immunodeficiency Viruses
<b>SO</b>	Specific Objective



## 1. TITLE

Safety of mRNA COVID-19 vaccines during pregnancy.

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### **3. ABSTRACT**

#### **3.1. Lay Summary**

In this study we aim to improve the understanding of complications during pregnancy, and to find out if COVID-19 vaccination during pregnancy increases the risk of these complications. To do so, we will use data from four European countries: the United Kingdom, Spain, Norway, and Sweden.

First, we will analyse the data to find out how often complications like blood clots, strokes, or miscarriage, happen during pregnancy. Then, we will investigate if there are differences between pregnant women who experienced complications and those who did not.

Second, we will compare pregnant women receiving the 1st, 2nd, or booster (3<sup>rd</sup> or subsequent doses) COVID-19 vaccine doses with those eligible for the same dose, but who have not received it yet. We will compare how often complication happened between groups to see if vaccination increased risk of complications. The study will be restricted to COVID-19 vaccines recommended for used on pregnant women.

By studying this data, we aim to provide evidence on the safety of COVID-19 vaccines during pregnancy, helping to guide healthcare decisions for pregnant women and their providers.

#### **3.2. Technical Summary**

##### **Background**

Initially, mRNA COVID-19 vaccines were recommended during pregnancy; however, pregnant individuals were excluded from early clinical trials, resulting in limited data on vaccine efficacy and safety for this group. Subsequent observational studies to date have indicated that mRNA vaccines are safe during pregnancy, showing no increased risk of complications such as miscarriage, preterm delivery, stillbirth, or birth defects. Nevertheless, these studies often involve small sample sizes, limiting the ability to evaluate rare adverse events and the effects of different vaccine doses.

##### **Objectives**

To leverage 4 real-world-data sources to, first, understand adverse events occurring during pregnancy, and second, assess whether mRNA COVID-19 vaccines increase the risk of these adverse events.

##### **Methods**

##### **Data Sources**

The study will include participants registered in primary care data from the United Kingdom, primary care data linked with hospital discharge data from Catalonia (Spain), and nationwide linked health registries from Norway and Sweden. All databases will have been mapped to the OMOP common data model facilitating federated analysis pipeline.

##### **Study design**

For the **first objective**, the study design is a population-level descriptive epidemiology study. We will estimate background incidence rates of the outcomes occurring during pregnancy, and compare baseline characteristics between pregnant women who had the outcome and those outcome-free.

The study design for the **second objective** is a cohort study following the target trial emulation framework. We will compare pregnant women receiving a 1<sup>st</sup>, 2<sup>nd</sup>, or booster (3<sup>rd</sup> or subsequent doses) COVID-19 vaccine during pregnancy (with an mRNA vaccine), compared to pregnant women eligible for the same dose but not yet vaccinated with it.

### Outcomes

Outcomes of interest in the study are:

- 1) **15 Adverse Events of Special Interest (AESI):** Deep vein thrombosis, Pulmonary embolism, Myocardial infarction, Ischaemic stroke, Bell's palsy, Encephalitis, Guillain Barré Syndrome, Transverse Myelitis, Haemorrhagic stroke, Myocarditis or pericarditis, Thrombosis with Thrombocytopenia, Immune Thrombocytopenia, Anaphylaxis, Narcolepsy, Disseminated Intravascular Coagulation
- 2) **13 Maternal Adverse Events (MAE):** Miscarriage, Stillbirth, Preterm labour, Eclampsia, HELLP syndrome, Antepartum Haemorrhage, Dysfunctional labour, Postpartum haemorrhage, Postpartum endometritis, Maternal death, Gestational diabetes (only objective 1), Ectopic pregnancy (only objective 1), Pre-eclampsia (only objective 1)

Outcome time-window in the **first objective** is any-time during pregnancy for all outcomes, except post-partum and maternal death outcomes (follow-up will be extended 6 to 12 weeks postpartum according to the definition) and miscarriage (before gestational week 20).

In the **second objective**, we are interested in AESI occurring in the 42 days after vaccination, or until the end of pregnancy, whichever comes first. For the MAE, outcome-time is given by their definition: up until week 19 for miscarriage, 6 weeks after pregnancy end for post-partum endometritis and maternal death, 12 weeks after pregnancy end for postpartum haemorrhage, and up until the end of pregnancy for the rest. As a secondary analysis, we will look at AESI 42 days after index date regardless of pregnancy end.

### Study population

For the **first objective**, the study population will include all pregnancies starting between 1<sup>st</sup> January 2018, and up to 9 months before end of data. Pregnant women aged 12 to 55 years old at pregnancy start day and with 365 days or more of previous follow-up will be included. Pregnant women with an occurrence of the outcome of interest in the wash-out period relative to pregnancy start date will be excluded. Index date will be set at pregnancy start date.

For the **second objective**, women pregnant during the enrolment period, aged 12 to 55 years at pregnancy start date, and with 365 days or more of previous observation in the database will be eligible to enter the study. Women with an occurrence of any of the outcomes of interest during the outcome-specific washout window relative to pregnancy start will be excluded.

Enrolment period will be different for each exposure of interest. When assessing the 1<sup>st</sup> dose of an mRNA COVID-19 vaccine during pregnancy, the enrolment period will span from 01/04/2021 to 28/02/2022. When studying the 2<sup>nd</sup> dose during, the enrolment period runs from 01/05/2021 to

31/03/2022. Finally, when the exposure of interest is the booster dose during pregnancy, the enrolment period goes from 01/10/2021 (when 1<sup>st</sup> booster was approved) to 12 months before the data cut-off.

For each day within the enrolment period, pregnant women receiving the exposure (vaccine dose) of interest will enter the exposure cohort. Index date for exposed will be exposure date. Simultaneously, a sample of eligible comparators (pregnant women who have not yet received the exposure) will enter the comparator cohort if they match on gestational age (2-week band) and maternal age (2-year band). Index date for sampled matched comparators will be the same as that of the exposed counterpart.

#### Follow-up

For the **first objective**, follow-up will be from day 1 after index date, until the earliest of: 1) outcome of interest, 2) end of time-window to observe the outcome of interest, or 3) death or end of available data.

Follow-up for the **second objective**, will start at 1 day after the index date until the earliest of the following events: 1) outcome of interest, 2) end of time-window to observe the outcome of interest, 3) death or end of available data, 4) occurrence of a truncating events that precludes the outcome of interest (e.g., miscarriage for postpartum haemorrhage), and 5) subsequent COVID-19 vaccination.

In sensitivity analysis, follow-up will also be stopped at COVID-19 infection.

#### Data analysis

For the **first objective**, incidence rates will be estimated for calendar year and month and stratified by age group (12-17, 18-34, and 35-55 years) and gestational trimester (0 to 90, 91 to 180, and 181 and more days). Additionally, overall pregnant incidence rates across the study period will be estimated, and stratified by gestational trimester for outcomes occurring during pregnancy (AESI and pre-eclampsia, eclampsia, HELLP syndrome, gestational diabetes, and ectopic pregnancy).

For each outcome, a cohort of all pregnant women who experienced the outcome will be identified, with index date set at incident diagnosis date ("outcome cohort"). Then, a matched cohort will be created with 1:1 matching on age and gestational age, for each outcome cohort. Pre-selected baseline characteristics and large-scale characteristics will be summarised for both cohorts (outcome and matched cohorts) at index date and before. Standardised Mean Differences (SMDs) will be calculated to compare baseline characteristics between cohorts. Matching will be used to provide a better context for the outcome-cohort, rather than to achieve conditional exchangeability.

For the **second objective**, SMDs will be calculated between exposed and comparator cohorts. An SMD  $\leq 0.1$  will indicate adequate covariate balance. 68 Negative Control Outcomes (NCOs) will be used to detect residual confounding.

If the sampled cohorts are not balanced, Propensity Score (PS) overlap weighting will be used to create comparable cohorts. The PS model will include variables on demographics (age, location, index date), pregnancy-related (gestational time at enrolment, previous pregnancies, complications during pregnancy, obesity, smoking status and alcohol use), healthcare utilisation (days in observation, healthcare visits...), and pre-existing conditions (all history) and medications (last 180 days) selected through LASSO regression. SMD and NCO will be used to assess observed and unobserved

confounding in the weighted population. If required, PS-modeling will be iterated until balance is achieved.

Incidence Rate Ratios will measure the relative incidence of the outcomes of interest between exposed and comparator cohorts. Empirical calibration will adjust estimates and confidence intervals if NCOs indicate residual confounding.

Database-specific estimates will be pooled through random-effects meta-analysis for overall results.

#### 4. AMENDMENTS AND UPDATES

Date	Section of study protocol	Amendment or update
14-01-2025	Study design	From sequential matching / weighting to risk set sampling. Instead of estimating propensity scores in a weekly/monthly bases with a reduced population, it allows to estimate them in the whole population.
14-01-2025	Objectives	Added as objective the study of the safety of a 2 <sup>nd</sup> COVID-19 dose. Remove methods comparison as there was no benchmark for it.
03-02-2025	n/a	Added the study on background incidence rates for the outcomes as part of the protocol.
04-04-2025	Data sources	Added CPRD AURUM database.
04-04-2025	Study design	Changed Specific Objective 2.3 from 3 <sup>rd</sup> dose to include all boosters (3 <sup>rd</sup> and subsequent doses).
04-04-2025	Settings	Changed inclusion criteria to allow previous vaccinations happening during pregnancy.
04-04-2025	Outcomes	Changed miscarriage definition according to OMOP perinatal expansion table definition.
04-04-2025	Appendix	Preliminary clinical concept lists added,

## 5. TIMELINE

Task	Estimated end date
Final protocol version	30/04/2025
Protocol approval - CPRD GOLD	31/06/2025
Protocol approval - SIDIAP	31/06/2025
PhenotypeR – v1	15/06/2025
PhenotypeR – v2	15/07/2025
PhenotypeR – v3 (if needed)	15/08/2025
Data analysis – v1	31/08/2025
Data analysis – v2 (if needed)	01/10/2025
Data analysis – v3 (if needed)	01/11/2025
Background rates manuscript – first draft	30/11/2025
Background rates manuscript – final version	31/12/2025
COVID-19 vaccine safety manuscript – first draft	31/12/2025
COVID-19 vaccine safety manuscript – final version	31/01/2026

## **6. RATIONALE AND BACKGROUND**

Pregnant women face a higher risk of COVID-19-related morbidity and mortality compared to non-pregnant women of the same age (1). COVID-19 infection during pregnancy has been linked to adverse maternal outcomes such as preeclampsia/eclampsia, hospitalization, ICU admission, miscarriage, and maternal death (2–6).

Despite being a vulnerable group, pregnant women were not initially prioritized for COVID-19 vaccination due to their exclusion from pivotal clinical trials (7). In the early stages of COVID-19 vaccine rollout, medical organizations and governments generally left the decision about vaccination to the pregnant women and her doctor when their risk group was eligible.

In March 2021, the UK Joint Committee on Vaccination and Immunisation (JCVI) recommended offering vaccines to pregnant women along with those of the same age or risk group (8). In Sweden and Norway, at the end of April 2021, vaccination was initially recommended only for high-risk pregnant women after 12 weeks of gestation. At the end of May 2021, Sweden open vaccination to all pregnant women from gestational week (GW) 12 and above. This recommendation came in August 2021 in Norway, allowing high risk pregnancies to get vaccinated before GW 12. Norway changed its guidance to include all pregnant women, independent of gestational age, to get vaccinated by January 2022 (9). In Spain, early guidance advised against vaccination for pregnant individuals, except for those at higher risk, but the recommendation shifted to encourage vaccination in August 2021 (10).

Across the four countries, the recommendations for pregnant women mirrored those for the general population, but with the restriction to mRNA vaccines (Pfizer and Moderna). Similar to the general population, the interval for the second dose was 21 days for Pfizer and 28 days for Moderna. However, in the UK the second dose was scheduled after 12 weeks, as they prioritised a larger proportion of the population with at least one dose (11).

Currently, Norway recommends initiating primary vaccination to pregnant women previously unvaccinated, a booster dose in the 2<sup>nd</sup>/3<sup>rd</sup> trimester if more than 20 weeks from previous dose have happened, and a booster in the 3<sup>rd</sup> trimester to pregnant women with existing health condition (12). In Spain, COVID-19 vaccination during the Autumn/Winter season is recommended with one dose anytime during pregnancy, and for all pregnancies. Seasonal vaccination started on the 2023/2024 campaign, with vaccines being offered to pregnant women throughout the year previously. Additionally, this vaccine can be simultaneously administered with Tdap or Influenza vaccines (13). Sweden also recommends seasonal COVID-19 vaccination to all pregnant women, which can happen anytime during pregnancy, although common practice is after 12 weeks of pregnancy (14). In the UK, COVID-19 vaccination was offered in the spring, autumn, and winter seasons to all pregnant women with at least 3 months from previous dose, with the possibility to receive it together with the flu vaccine. This recommendation does no longer extended from Spring 2025 and 2026, thereby COVID-19 vaccination is no longer covered for pregnant women (15).

In 2022, the first clinical trial (clinicaltrials.gov; NCT04754594) to include pregnant women was published, focusing on those vaccinated with Pfizer at 24 to 34 weeks of gestational age. While significant for understanding the vaccine's effects in this population, the trial enrolled only 324 participants, a sample too small to evaluate rare adverse events. The trial found increased rates of



occurrence of mild adverse events such as injection at pain site or swelling, but it lacked the numbers to evaluate occurrence of rare but severe adverse events.

Subsequent observational studies have expanded the evidence base, with growing data supporting the safety of mRNA vaccines during pregnancy for both mothers and their foetuses (16–20). Two recent meta-analyses (21,22) reported no significant safety concerns but emphasised the need for further research, including larger and high-quality studies.

Current evidence is limited by insufficient statistical power to evaluate rare safety outcomes due to their low incidence. This limitation also complicates the study of safety outcomes by the timing of vaccination during pregnancy, which may reveal varying risks.

Most research has focused on maternal and perinatal outcomes such as delivery complications, postpartum haemorrhage, preterm labour, and thromboembolism. Yet, a broader range of Adverse Events of Special Interest (AESI) remains unexplored. AESI are potential adverse events of a vaccine that are warrened focused, based on what is known about previous vaccines and a vaccine's development. Additionally, while most existing evidence focuses on the first vaccine dose, data on subsequent doses remains very scarce.

Cohort studies based on observational data in pregnant women present challenges, particularly when comparing exposed and unexposed groups. The allocation of "time zero" is critical in populations with risks that change across gestational ages. Addressing confounding bias is equally essential to ensure validity. Some of the published studies on vaccine safety during pregnancy lack clarity on follow-up initiation and baseline covariate measurement, limiting their reliability (23–26).

When studying vaccine safety, stablishing accurate background rates of adverse events is essential for interpreting trial results and monitoring vaccine safety. To the best of our knowledge, there is only one study (27) that reports background rates on pregnant women, however it is limited to pregnancy-related adverse events and does not include AESI.

Studies evaluating AESI and not just pregnancy-related outcomes will provide a clearer and broader understanding of the baseline incidence of adverse events, enabling more effective assessment of vaccine-related risks and benefits. For instance, a study by Orenstein L AV (2012) emphasized the importance of reliable background rates to distinguish between vaccine benefits and safety concerns in maternal immunization trials (28).

In conclusion, additional large high-quality safety studies are needed to fully inform pregnant individuals and healthcare providers about the risks and benefits of COVID-19 vaccination during pregnancy. Establishing accurate background rates of AESI and pregnancy-related adverse events in pregnant women is essential for interpreting clinical trial and observational studies results and monitoring vaccine safety in this population. Such studies will provide a clearer understanding in COVID-19 vaccine safety for pregnant individuals.

## **7. RESEARCH QUESTIONS AND OBJECTIVES**

**Research Question 1:** What are the background incidence rates of selected adverse events during pregnancy? Which are the differences in baseline characteristics between women who experience an adverse event during pregnancy vs. those who do not?

**Research Question 2:** What is the risk of adverse events associated with receiving a 1st, 2nd, or booster (3<sup>rd</sup> or subsequent doses) of an mRNA COVID-19 vaccine during pregnancy, compared to pregnant women eligible for the same dose but who have not yet received it?

Each research question corresponds to a study objective. To answer the first question (**Objective 1**), we aim to provide epidemiological context to adverse events occurring during pregnancy and post-partum. To do so, the study has two specific objectives (SOs):

- **SO 1.1:** To estimate population level incidence rates of selected adverse events in pregnant women.
- **SO 1.2:** To describe demographic and clinical characteristics of pregnant women with incident outcomes and comparing the characteristics with individuals of similar age and gestational age but without the outcome.

For the second research question (**Objective 2**), where the objective is to assess the safety of mRNA COVID-19 vaccination during pregnancy, the study has the following three SO:

- **SO 2.1:** To estimate the risk of pregnant AESI and MAE when receiving a 1<sup>st</sup> COVID-19 vaccine dose (mRNA type) during pregnancy compared to unvaccinated pregnant individuals.
- **SO 2.2:** To estimate the risk of AESI and MAE when receiving a 2<sup>nd</sup> COVID-19 vaccine dose (mRNA type) during pregnancy compared to individuals who are eligible for a 2<sup>nd</sup> dose during pregnancy but have not yet receive it.
- **SO 2.3:** To estimate the risk of AESI and MAE when receiving a **booster** (3<sup>rd</sup> or subsequent doses) COVID-19 vaccine dose (mRNA type) during pregnancy compared to individuals who are eligible for a booster dose during pregnancy but have not receive it.

Table 1 explains in detail each of the study objectives.

**Table 1.** Study research question and specific objectives.

A) *Specific Objective 1.1*

<b>Research Question</b>	1 - What are the background incidence rates of selected adverse events during pregnancy? Which are the differences in baseline characteristics between women who experience an adverse event during pregnancy vs. those who do not?
<b>Specific Objective</b>	To estimate population level incidence rates of selected adverse events in pregnant women.
<b>Hypothesis</b>	n/a
<b>Population</b>	Inclusion: - Pregnancy starts between 01/01/2018, and up to 9 months before end of data. - Aged 12 to 55 years at the start of pregnancy.

	<ul style="list-style-type: none"> <li>- At least 365 days of prior follow-up time recorded in the database at the start of the pregnancy.</li> </ul> <p>Exclusion:</p> <ul style="list-style-type: none"> <li>- Record of any AESI within the outcome-specific wash-out window relative to pregnancy start date.</li> </ul>
<b>Exposure</b>	n/a
<b>Comparator</b>	n/a
<b>Outcome</b>	Pre-specified Adverse Events of Special Interest (AESI) and Maternal Adverse Events (MAE).
<b>Time (follow-up)</b>	<p><u>Follow-up start</u>: pregnancy start date (index date).</p> <p><u>Follow-up end</u>: earliest of 1) outcome of interest, 2) end of specific outcome-time window, or 3) end of data/death.</p>
<b>Setting</b>	Primary care electronic records from the UK [CPRD GOLD], primary care linked to hospital discharge data from Catalonia, Spain (SIDIAP), and linkage of national-population registries from Norway (NLHR@UiO) and Sweden (SCIFI-PEARL).
<b>Main measure of effect</b>	Incidence rates.

*B) Specific Objective 1.2*

<b>Research Question</b>	Same as above.
<b>Objective</b>	To describe demographic and clinical characteristics of pregnant women with incident outcomes and comparing the characteristics with individuals of similar age and gestational age but without the outcome.
<b>Hypothesis</b>	n/a
<b>Population</b>	Same as above.
<b>Exposure</b>	<p><u>Outcome cohorts</u>:</p> <p>Cohorts of pregnant women who experienced the outcome of interest during pregnancy will be constructed. The index date will be the date of diagnosis or confirmatory test for the disease diagnosis.</p>
<b>Comparator</b>	<p><u>Matched cohorts</u>:</p> <p>For each outcome cohort, we will construct an age and gestational age 1:1 matched cohort from the population in Objective 1 without the outcome during pregnancy. This matched cohort will be used to contextualise the patient characteristics with the outcome cohort.</p>
<b>Outcome</b>	Baseline characteristics of interest (demographics, general healthcare, and relevant comorbidities), and data-driven large-scale diagnosis and prescriptions recorded in the database with a prevalence >0.5%.
<b>Time (follow-up)</b>	Index date will be the date of the incident outcome (outcome cohort), or that of the matched pair (matched cohort). Characteristics will be summarised for time prior to index, no follow up time will be involved.
<b>Setting</b>	Same as above.
<b>Main measure of effect</b>	Standardised Mean Differences

C) *Specific Objective 2.1*

<b>Research Question</b>	2 - Is there an increased risk of adverse events for pregnant women receiving a 1 <sup>st</sup> dose of an mRNA COVID-19 vaccine during pregnancy, compared to pregnant women eligible for the same dose but who have not yet received it?
<b>Objective</b>	To estimate the risk of pregnant AESI and MAE when receiving a 1 <sup>st</sup> COVID-19 vaccine dose (mRNA type) during pregnancy compared to unvaccinated pregnant individuals.
<b>Hypothesis</b>	n/a
<b>Population</b>	<u>Inclusion:</u> - Pregnant individuals at any time between 01/04/2021 and 28/02/2022. - Aged 12 to 55 years at the start of pregnancy. - At least 365 days of prior follow-up time recorded in the database at the start of the pregnancy. - Unvaccinated of COVID-19 before index date. <u>Exclusion:</u> - Record of COVID-19 infection within the 90 days preceding study entry. - Record of any AESI or MAE within the outcome-specific wash-out window relative to study entry.
<b>Exposure</b>	1 <sup>st</sup> dose of an mRNA COVID-19 vaccine during pregnancy. Index date: 1 <sup>st</sup> dose date.
<b>Comparator</b>	Unvaccinated. Index date: exposure date of sampling pair based on risk set sampling.
<b>Outcome</b>	Same as above.
<b>Time (follow-up)</b>	<u>Follow-up start:</u> 1 day after index date. <u>Follow-up end:</u> first of 1) outcome of interest, 2) end of outcome-specific window, 3) end of subject's data, 4) next COVID-19 vaccination, or 5) truncating event for the outcome of interest (e.g. miscarriage for postpartum haemorrhage).
<b>Setting</b>	Same as above.
<b>Main measure of effect</b>	Incidence Rate Ratios.

D) *Specific Objective 2.2*

<b>Research Question</b>	Is there an increased risk of adverse events for pregnant women receiving a 2 <sup>nd</sup> dose of an mRNA COVID-19 vaccine during pregnancy, compared to pregnant women eligible for the same dose but who have not yet received it?
<b>Objective</b>	To estimate the risk of AESI and MAE when receiving a 2 <sup>nd</sup> COVID-19 vaccine dose (mRNA type) during pregnancy compared to individuals who are eligible for a 2 <sup>nd</sup> dose during pregnancy but have not yet receive it.
<b>Hypothesis</b>	n/a
<b>Population</b>	Inclusion:

	<ul style="list-style-type: none"> <li>- Pregnant individuals at any time between 01/05/2021 and 31/03/2022.</li> <li>- Aged 12 to 55 years at the start of pregnancy.</li> <li>- At least 365 days of prior follow-up time recorded in the database at the start of the pregnancy.</li> <li>- Eligible for a 2<sup>nd</sup> dose of COVID-19 vaccine (in the study: 16 days from 1<sup>st</sup> dose).</li> </ul> <p>Exclusion:</p> <ul style="list-style-type: none"> <li>- Record of COVID-19 infection within the 90 days preceding study entry.</li> <li>- Record of any AESI or MAE within the outcome-specific wash-out window relative to study entry.</li> </ul>
<b>Exposure</b>	2 <sup>nd</sup> dose of an mRNA COVID-19 vaccine during pregnancy. Index date: 2 <sup>nd</sup> dose date.
<b>Comparator</b>	Pregnant and eligible for a 2 <sup>nd</sup> dose while pregnant (that is, 16 days or more since 1 <sup>st</sup> dose). Index date: exposure date of sampling pair based on risk set sampling.
<b>Outcome</b>	Same as above.
<b>Time (follow-up)</b>	Same as above.
<b>Setting</b>	Same as above.
<b>Main measure of effect</b>	Same as above.

*E) Specific Objective 2.3*

<b>Research Question</b>	Is there an increased risk of adverse events for pregnant women receiving a booster (3 <sup>rd</sup> or subsequent doses) of an mRNA COVID-19 vaccine during pregnancy, compared to pregnant women eligible for a booster but who have not yet received it?
<b>Objective</b>	To estimate the risk of AESI and MAE when receiving a <b>booster</b> (3 <sup>rd</sup> or subsequent doses) COVID-19 vaccine dose (mRNA type) during pregnancy compared to individuals who are eligible for a booster dose during pregnancy but have not receive it.
<b>Hypothesis</b>	n/a
<b>Population</b>	<p>Inclusion:</p> <ul style="list-style-type: none"> <li>- Pregnant individuals at any time between 01/10/2021 and 12 months before data cut.</li> <li>- Aged 12 to 55 years at the start of pregnancy.</li> <li>- At least 365 days of prior follow-up time recorded in the database at the start of the pregnancy.</li> <li>- Eligible for a booster dose (at least 2 previous doses, and 90 days or more from previous dose)</li> </ul> <p>Exclusion:</p> <ul style="list-style-type: none"> <li>- Record of COVID-19 infection within the 90 days preceding study entry.</li> <li>- Record of any AESI or MAE within the outcome-specific wash-out window relative to study entry.</li> </ul>
<b>Exposure</b>	Booster dose of an mRNA COVID-19 vaccine during pregnancy. Index date: booster dose date.

<b>Comparator</b>	Vaccinated with at least 2 doses of COVID-19 vaccines, pregnant and eligible for a booster dose while pregnant (that is, 90 days or more since previous dose). Index date: exposure date of sampling pair based on risk set sampling.
<b>Outcome</b>	Same as above.
<b>Time (follow-up)</b>	Same as above.
<b>Setting</b>	Same as above.
<b>Main measure of effect</b>	Same as above.

## 8. RESEARCH METHODS

### 8.1. Data sources

The study will be informed by routinely collected healthcare data (also known as ‘real-world data’) from Spain, Norway, the United Kingdom, and Sweden. All databases contain clinical data from public healthcare centres in the respective country or region, thereby covering not only a large proportion of the population but also a patient’s complete clinical history. Additionally, through registry linkage, all datasets include complete vaccination data, even if the patient was not vaccinated in the primary setting.

Pregnancy data comes from linkage with specialized sexual care clinics (Spain) and national birth registries (Norway and Sweden). For the UK, pregnancy data is inferred from primary care settings using a previous validated algorithm (29) which infers pregnancy start and end dates, and pregnancy outcome (live births, stillbirths, abortions and ectopic pregnancies) from patient.

The four participating data sources are described below, and a summary is provided in

Table 2.

- The Information System for Research in Primary Care (SIDIAP)

The Spanish public health system offers universal healthcare coverage to residents and is funded primarily through taxation. General Practitioners (GPs) serve as gatekeepers, acting as the first point of contact for medical care. Except in emergencies, patients must consult their assigned GP to access specialised care, diagnostic tests, or hospital treatment. Their primary tasks are to treat ordinary health problems, perform regular check-ups, prescribe drugs and carry out vaccinations, refer patients to specialists when needed, and follow-up on patient health plans after hospital discharge.

The SIDIAP database comprises electronic health records from primary care clinics in the public health system across Catalonia, a region of Spain. The database covers approximately 8.55 million individuals since 2006, and is representative of the population in terms of age, sex, and geographic distribution (30). SIDIAP provides high-quality, healthcare professional-recorded information on

sociodemographics, disease diagnoses, anthropometric measurements, vaccine administration, and prescription and dispensation of medications. For pregnancies, SIDIAP includes detailed data such as the last menstrual period (LMP), estimated delivery dates, type of delivery, pregnancy outcomes (e.g., abortion), gestational age, and trimester-specific obstetric ultrasounds. It also contains paediatric health information (e.g., nutrition, development, screening tests) for individuals under 15 years and offers parent–child linkage for those born or entered into the database after 2006. Pregnancy data is captured by the Sexual and Reproductive Health Care Units of the Catalan Institute of Health. Pregnancy start date is taken from the recorded date of last menstruation corrected from ultrasound.

Additionally, SIDIAP contains data on SARS-CoV-2 RT-PCR test results, regional COVID-19 vaccination (covering vaccines administered outside the primary care setting), and regional mortality data. For this study, it will be linked to diagnoses and medical procedures at hospital discharge, derived from the minimum basic set of hospital discharge data from all Catalan public hospitals.

- Clinical Practice Research Datalink (CPRD) GOLD and AURUM

Similar to Spain, the public health system in the UK provides universal healthcare funded through taxation. GPs act as the first point of contact, managing primary care, maintaining patient records over time, and coordinating referrals to specialists or hospitals.

The CPRD is a governmental, not-for-profit research service, jointly funded by the National Institute for Health and Care Research and the Medicines and Healthcare products Regulatory Agency, a part of the Department of Health in the UK.

The CPRD GOLD database (31) comprises computerized primary care records for approximately 20 million patients. The CPRD AURUM dataset (32) contains routinely collected data from primary care practices in England, for over 40 million patients. Both datasets have data on demographics, diagnoses, prescriptions, vaccinations, laboratory tests, and referrals. Specifically, these databases have comprehensive data on vaccination and COVID-19 test results through registry-linkage. This allows to rely on vaccination data, as vaccines received outside the primary care setting are captured. Additionally, CPRD AURUM will be linked to Hospital Episode Statistics (HES) data, which contains data on diagnostics for admitted, outpatient, and accident and emergency care, as well as procedures for admitted patients.

While CPRD does not link to national birth registries, pregnancy episodes can be inferred from primary care records, as GPs provide longitudinal care for patients. Matcho et al. (29) developed, applied and validated an algorithm to infer pregnancy episodes using four observational databases mapped to the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM) (33), among them CPRD. The algorithm classifies pregnancy outcomes as live births, stillbirths, abortions and ectopic pregnancies. Start dates are estimated using a derived hierarchy of available pregnancy markers, including records such as LMP and nuchal ultrasound dates. The study validation survey found an agreement accuracy of 90% and above for the outcome category, outcome date, and pregnancy start date (with 7-day grace period in either direction for both dates).

- Norwegian Linked Health Registries at University of Oslo (NLHR@UiO)

Norway operates a universal public healthcare system, primarily funded through resident taxes. Similar to the healthcare systems in Spain and the UK, GPs in Norway act as gatekeepers to hospitals and provide longitudinal care for their patients. By law, information from various healthcare services is routinely reported to national patient registries. Each patient is assigned a unique personal identifier, which is used across all healthcare registries. This enables comprehensive data linkage across registries, facilitating the creation of robust and integrated healthcare datasets (34).

The healthcare data spans the entire Norwegian population from 2018 to 2023, which include around 5.67 million individuals. This dataset integrates high-quality information from multiple national health and administrative registries, including: the Norwegian Prescribed Drug Register (35), providing data on drug dispensations; The National Vaccination Registry (36), documenting vaccine administration; The Norwegian Surveillance System for Communicable Diseases (36), with information on positive tests for infectious diseases; The Norwegian Control and Payment of Health Reimbursements Database, which captures primary and secondary care diagnoses and procedures; The Norwegian Patient Registry (37), containing detailed secondary care diagnoses; Cause of Death Register (38) includes death records and also the main diagnosed condition that caused the death and also the series of conditions that lead to the death; and the Medical Birth Registry of Norway (MBRN) (39) includes data on approximately 60,000 annual deliveries, with records linking maternal, paternal, and child health details. The MBRN captures information of pregnancies ending after 12 weeks, including terminations. Pregnancy start is typically estimated using ultrasound measurements taken during pregnancy to determine gestational age. In the absence of ultrasound data, the first day of the LMP is used to estimate gestational age. This gestational age is then recorded in the registry at the time of birth (39). Nordeng et. al (2024) developed an algorithm that detects dates of early non-live pregnancy outcomes that would have gone unnoticed if relying solely on the MBRN data (40).

- Swedish Covid-19 Investigation for Future Insights – a Population Epidemiology Approach using Register Linkage (SCIFI-PEARL)

The Swedish healthcare system is very similar to the Norwegian system in terms of patient interaction with healthcare providers and data collection through registries. However, unlike other countries, Swedish citizens can self-refer to specialists via internet or phone-based healthcare services.

Swedish data is obtained through the SCIFI-PEARL project. The database covers the full Swedish population since 2015 (about 11.7 million individuals) and links data from multiple registers using the unique Swedish personal identification number. Data include high-quality data on specialist outpatient care and inpatient care from the National Patient Register (41), intensive care from the Swedish Intensive Care Register (42), mortality data from the National Cause-of-death Register (43), medication information from the National Prescribed Drug Register (only available from 2018) (44), COVID-19 test positive records from the National monitoring system for communicable diseases (45), COVID-19 vaccination data from the National Vaccination Register, as well as demographics from the Total Population Register (46), socioeconomic information from the Longitudinal integrated database for health insurance and labour market studies (47), and more. Swedish primary care data is available for 40% of the population in the database. Additionally, data from the National Medical Birth Register up to January 2024 is also included, covering information on mother and child, with a national coverage of about 100,000 births per year (48). The birth registry includes pregnancies with a



gestational age of at least 22 weeks, and contains data on previous pregnancies, smoking habits, place of delivery, length of pregnancy, pain management, type of delivery, maternal and infant diagnoses, treatments, the baby's sex, weight, length and head circumference, and the baby's condition at birth. In the database, pregnancy start is defined as the time of birth minus gestational age. Gestational age is estimated based on ultrasound examinations in almost all cases. This information is systematically collected from medical records during prenatal, delivery, and neonatal care, ensuring comprehensive and standardized data across Sweden (49).

**Table 2.** Summary of the data sources in the study.

	<b>SIDIAP</b>	<b>CPRD GOLD</b>	<b>CPRD AURUM</b>	<b>NLHR@UiO</b>	<b>SCIFI-PEARL</b>
<b>Country</b>	Spain (region: Catalonia)	The UK	The UK	Norway	Sweden
<b>Type of data</b>	Electronic Health Records	Electronic Health Records	Electronic Health Records	Nationwide linked Registries	Nationwide linked Registries
<b>Healthcare setting</b>	Primary care database + linkage to hospital discharge data	Primary care	Primary care and hospital data	Primary care, including outpatient visits with GPs, and secondary care (visits with specialists and hospitalizations)	Secondary care
<b>Pregnancy data source</b>	Sexual and Reproductive Health Care Units	-	-	Medical Birth Registry of Norway	National Birth Registry
<b>Vaccination data source</b>	Vaccination registry	Vaccination registry	Vaccination registry	Vaccination registry	Vaccination registry
<b>Number of subjects</b>	8.55 million	17.4 million	47.41 milion	5.67 million	11.7 million

### **Common Data Model**

All databases have been previously mapped to the OMOP CDM (33), maintained by the open-science Observational Health Data Sciences and Informatics (OHDSI) network (50). Working with a CDM will enable the use of the same analytical scripts across databases to avoid sharing patient-level data across institutions. Results with person counts less than 5 will be obscured before sharing.

For databases with directly available pregnancy data (SIDIAP, NLHR@UiO, and SCIFI-PEARL), pregnancy episodes will be identified by using the newly developed OMOP perinatal expansion table (51). This table adopts the OMOP CDM format, allowing interoperability with the rest of patient data, and provides important variables for observational perinatal research. Specifically, the mother table, containing data on pregnancies, contains an id for each pregnancy, start and end dates, pregnancy

outcome (miscarriage (<20 weeks), elective termination, stillbirth or livebirth), and mode of delivery among others. In CPRD GOLD, the same pregnancy data is given by the algorithm developed by Matcho et al (2018). This table will be transformed into the OMOP perinatal extension table format in order to use the same analytical code across all databases.

## 8.2. Study design

### Study design

SO 1.1: Population-level descriptive epidemiology.

SO 1.2: Patient-level characterisation.

Objective 2 (SO 2.1-2.3): Cohort Study following the Targe Trial Emulation framework.

### Rationale for study design choices

**Objective 1** aims to provide descriptive epidemiology context for the outcomes of interest. The population-level descriptive epidemiology, restricted to pregnant women, will allow us to study the background incident rates of selected outcomes during pregnancy. The patient-level characterisation, comparing outcome and matched cohorts, will provide insights on the occurrence of the outcome events for certain pregnant patients.

For **Objective 2**, the cohort study following the target trial emulation framework will allow us to assess the risk of adverse events after a dose-specific vaccination. Additionally, we will consider in the design for the gestational and calendar time distributions between cohorts. The risk of certain outcomes can be influenced by gestational time, thereby is important to have a similar distribution between cohorts. Calendar time is important as 1) people might be keener to get the vaccine if offered in winter season rather than summer, as COVID-19 is more incident in winter, and 2) in recent years COVID-19 vaccine is only offered during the fall/winter season. Additionally, COVID-19 infection increases risk of some outcomes of interest, and thereby for both COVID-19 variant and infection risk, calendar time should be distributed similarly between exposed and comparator cohorts.

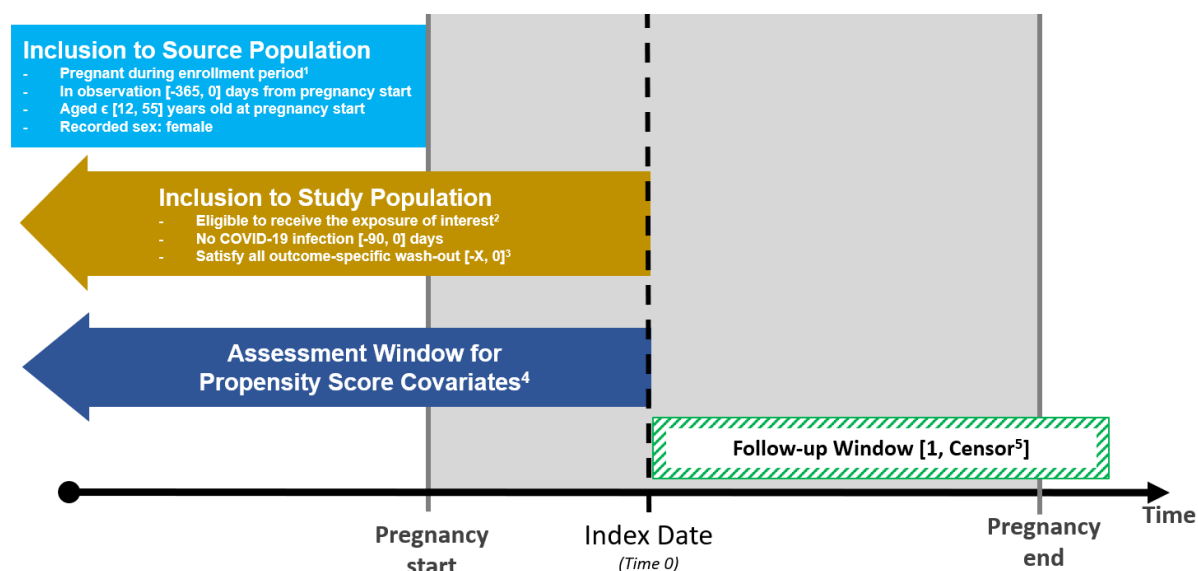
### Study design outline

For **Objective 1**, we will estimate incidence rates of the outcomes of interest (see Section 0

Outcome) on pregnant women before COVID-19 pandemic. Additionally, we will evaluate baseline covariates of pregnant women who experience an outcome of interest. These women will be matched on age and gestational age to pregnant women without the outcome. Baseline covariates (see Section 8.4.4 *Covariates*) will be assessed before index date (outcome occurrence date – or matched date) in both groups to provide context.

For **Objective 2** we will conduct a cohort study following the target trial emulation framework, which exposes the supposed trial decisions and their observational analogues to reduce the chance of incurring in immortal time bias. Briefly, Risk Set Sampling (RSS) (52,53) will be used for treatment and time zero (index date) allocation, and then Propensity Score (PS) (54) weighting be used to address observed confounding, if cohorts are unbalanced. See Sections 8.3.1. *Definition of time 0*, 8.4.4 *Covariates*, and 8.5 Data analysis.

Figure 1 shows a temporal diagram with the assessment windows to be included in the source population and the study population, the time-windows to assess covariates for the PS, and finally the follow-up window after index date, for Objective 2. Specifications of the target trial and their observational emulation can be found in Table 3.



<sup>1</sup> Enrolment period: 01/04/2021 – 28/02/2022 (Specific Objective [SO] 2.1), 01/05/2021 – 31/03/2022 (SO 2.2), and 01/10/2021 – 12 months before data cut (SO 2.3)

<sup>2</sup> Unvaccinated (SO 1), 16 days or more since 1st dose (SO 2.2), and 90 days or more since previous dose, with at least 2 previous doses (SO 2.3)

<sup>3</sup> X = 30 days, 90 days, and all history, for recurrent, acute, and chronic Adverse Events of Special Interest, respectively. For antepartum haemorrhage, HELLP syndrome, and eclampsia, wash-out is from pregnancy start date to index date.

<sup>4</sup> Propensity Score Covariates: age + location + gestational age + index date + previous pregnancies + healthcare visits in the last year + previous follow-up days + smoking status + obesity + alcohol misuse + days since last vaccine dose (SO 2.2 and 2.3) + (SO 2.2 and 2.3) number of previous doses during pregnancy episode + (SO 2.3) number of previous COVID-19 vaccine doses  
LASSO selected prescriptions (lasts 180 days) and co-morbidities (any time prior)

<sup>5</sup> Follow-up end at first of: 1) outcome of interest, 2) end of outcome-specific window, 3) end of subject's data, 4) next COVID-19 vaccination, or 5) truncating event for the outcome of interest (e.g., miscarriage for postpartum haemorrhage).

**Figure 1.** Diagram depicting covariate assessment windows to enter the study population and the follow-up window for Objective 2.

**Table 3.** Specification and emulation of the target trial using observational data

	Randomised Control Trial	Observational implementation
<b>POPULATION</b>		
<b>Inclusion</b>	<ul style="list-style-type: none"> <li>• Pregnant during enrolment period.</li> <li>• Aged 12 to 55 at pregnancy start date.</li> <li>• [Specific Objective (SO) 2.1] Not vaccinated against COVID-19 before pregnancy start.</li> <li>• [SO 2.2] Eligible for 2<sup>nd</sup> COVID-19 vaccine dose (16 days or more from 1<sup>st</sup> dose)</li> <li>• [SO 2.3] Eligible for a booster COVID-19 vaccine (at least 2 previous doses, with 90 days or more from last vaccination)</li> </ul>	<p>Same as in the trial. Enrolment periods are:</p> <ul style="list-style-type: none"> <li>• [SO 2.1] 01/04/2021 to 28/02/2022</li> <li>• [SO 2.2] 01/05/2021 to 31/03/2022</li> <li>• [SO 2.3] 01/10/2021 to 12 months before end of data.</li> </ul>
<b>Exclusion</b>	<ul style="list-style-type: none"> <li>• Enrolled in the healthcare system of interest less than 365 days before pregnancy start date.</li> <li>• COVID-19 in the lasts 90 days.</li> <li>• Occurrence of any outcome of interest during wash-out period.</li> <li>• Prior COVID-19 vaccination during pregnancy with a non-mRNA COVID-19 vaccine.</li> </ul>	Same as in the trial.
<b>INTERVENTION</b>		
<b>Target</b>	<ul style="list-style-type: none"> <li>• [SO 2.1] 1<sup>st</sup> dose of COVID-19 vaccine during pregnancy (with mRNA type).</li> <li>• [SO 2.2] 2<sup>nd</sup> dose of mRNA COVID-19 vaccine during pregnancy (with mRNA type).</li> <li>• [SO 2.3] Booster (3<sup>rd</sup> or subsequent dose) of mRNA COVID-19 vaccine during pregnancy (with mRNA type).</li> </ul>	Same as in the trial.
<b>Comparator</b>	<ul style="list-style-type: none"> <li>• [SO 2.1] Pregnant and COVID-19 unvaccinated.</li> <li>• [SO 2.2] Pregnant and eligible for a 2<sup>nd</sup> COVID-19 dose (16 days or more since 1<sup>st</sup> dose)</li> </ul>	Same as in the trial.

	<ul style="list-style-type: none"> <li>[SO 2.3] Pregnant and eligible for a booster COVID-19 vaccine (at least 2 previous doses, with 90 days or more from last vaccination).</li> </ul>	
<b>Time of treatment initiation</b>	Vaccination day.	Vaccination day for exposed, and the observational analogue based on risk-set sampled treatment assignment day for the unexposed.
<b>Assignment / Allocation</b>	Individuals are randomly assigned to one of the two vaccination strategies.	Individuals assigned to the vaccination strategy according to the data recorded at study entry, following the Risk Set Sampling method. Randomisation is emulated by sampling matching on calendar and gestational time, and by means of Propensity Score Overlap Weights if cohorts are still imbalanced.
<b>OUTCOME</b>		
<b>Outcome/s of interest</b>	<p><b>Adverse Events of Special Interest (AESI) – 15 Outcomes and 2 combinations</b></p> <ul style="list-style-type: none"> <li><u>Venous thromboembolism</u> (Deep vein thrombosis + Pulmonary embolism)</li> <li>Deep vein thrombosis</li> <li>Pulmonary embolism</li> <li>Myocardial infarction</li> <li>Ischaemic stroke</li> <li><u>Central nervous system immune events</u> (Bell's palsy + Encephalitis + Guillain Barré Syndrome + Transverse Myelitis)</li> <li>Bell's palsy</li> <li>Encephalitis</li> <li>Guillain Barré Syndrome</li> <li>Transverse Myelitis</li> <li>Haemorrhagic stroke</li> <li>Myocarditis or pericarditis</li> <li>Thrombosis with Thrombocytopenia (TWT)</li> <li>Immune Thrombocytopenia (ITP)</li> <li>Anaphylaxis</li> <li>Narcolepsy</li> <li>Disseminated Intravascular Coagulation</li> </ul>	Same as in the trial.

	<p><b>Maternal adverse events (MAE) – 10 Outcomes, 1 combination</b></p> <ul style="list-style-type: none"> <li>• Miscarriage</li> <li>• Stillbirth</li> <li>• Foetal death (Miscarriage and Stillbirth combined)</li> <li>• Preterm labour</li> <li>• Eclampsia</li> <li>• HELLP syndrome</li> <li>• Antepartum haemorrhage</li> <li>• Dysfunctional labour</li> <li>• Postpartum haemorrhage</li> <li>• Postpartum endometritis</li> <li>• Maternal death</li> </ul>	
<b>Time of outcome/s</b>	<p><b>AESI</b>  <u>Primary analysis:</u>  AESI occurring within 42 days after receiving the vaccine dose of interest or until the pregnancy ends, whichever comes first.  <u>Secondary analysis:</u>  AESI occurring within 42 days from index date, regardless of pregnancy end.</p> <p><b>MAE</b>  Maternal adverse events linked to the ongoing pregnancy episode will be tracked as follows:</p> <ul style="list-style-type: none"> <li>• <u>Until gestational week 19 + 6 days</u>: miscarriage.</li> <li>• <u>Until pregnancy end</u>: eclampsia, HELLP syndrome, stillbirth, foetal death, antepartum haemorrhage, dysfunctional labour, preterm labour.</li> <li>• <u>Until 6 weeks postpartum</u>: maternal death and postpartum endometritis.</li> <li>• <u>Until 12 weeks postpartum</u>: postpartum haemorrhage.</li> </ul>	Same as in the trial.
<b>Censoring</b>	<p>We will censor individuals at the first of:</p> <ul style="list-style-type: none"> <li>• Outcome of interest.</li> </ul>	Same as in the trial.

	<ul style="list-style-type: none"> <li>End of outcome-specific assessment window (see “Time of outcome/s” in the table).</li> <li>Death/End of data (withdrawal).</li> </ul>	
<b>CAUSAL ESTIMANDS</b>		
<b>Causal estimand</b>	Intention To Treat and Per-Protocol.	Observational analogue of <u>Per-Protocol</u> .
<b>Intercurrent events</b>	<p><b>Treatment-modifying events:</b> affect the interpretation of results</p> <ul style="list-style-type: none"> <li><u>COVID-19 Vaccination</u>: Receiving a subsequent COVID-19 vaccine dose after the dose of interest may influence the observed outcomes and needs to be accounted for in interpretation.</li> <li><u>COVID-19 Infection</u>: Contracting COVID-19 during follow-up may increase risk of some outcomes of interest, requiring careful consideration during analysis.</li> </ul> <p><b>Truncating Events:</b> preclude the existence of the outcome.</p> <ul style="list-style-type: none"> <li><u>Miscarriage</u>: acts as a truncating event for stillbirth, preterm labour, dysfunctional labour, eclampsia, HELLP syndrome, antepartum haemorrhage, and postpartum haemorrhage.</li> <li><u>Death</u>: precludes occurrence of all outcomes except for maternal death, which is recorded as the event itself.</li> </ul>	Same as in the trial.
<b>Strategies</b>	<p><u>Intention To Treat</u> Participants are analysed based on their initial treatment assignment (at the randomisation stage), and are followed even if they deviate from the assigned vaccination strategy. Pregnant women are censored at truncating events for the outcome of interest.</p> <p><u>Per-Protocol</u> Participants are analysed based on the vaccination strategy they received, and are censored when they deviate from it (receiving a COVID-19 vaccine after index date). Pregnant</p>	<u>Per-Protocol</u> : Same as in the trial.

	women are censored at truncating events for the outcome of interest. Follow-up censored at treatment-modifying events as <i>sensitivity analysis</i> .	
<b>Statistical analysis</b>	Incidence Rate Ratios (where more than 5 counts are observed). Subgroup analyses by gestational trimester, vaccine (Pfizer or Moderna), and age group (12-17, 18-34, and 35-55 years).	Same as in the trial.



### **8.3. Settings**

#### **8.3.1. Definition of time 0**

Refer to Table 4 for the operational definition of time 0.

##### **Specific Objective 1.1:** Background Incidence Rates.

The study population refers to the denominator to estimate the background incidence rates of adverse events, which are pregnant women fulfilling inclusion and exclusion criteria at the start of the pregnancy. Time 0 (index date) is pregnancy start date.

##### **Specific Objective 1.2:** Characterise pregnancies with and without adverse events.

For outcomes in which we observe 5 or more incident cases in SO 1.1, we will create an outcome-cohort with pregnant women who had the outcome while pregnant. Index date, from which baseline covariates will be evaluated, is the date of diagnosis or confirmatory test for the outcome of interest.

Each outcome-cohort will have a matched cohort with pregnant women in the study that have not experienced the outcome during pregnancy. Pregnant women experiencing the outcome will be matched 1:1 on age and gestational age (2-week band) to outcome-free pregnant. Index date for the matched cohort will be the one of the matched counterparts.

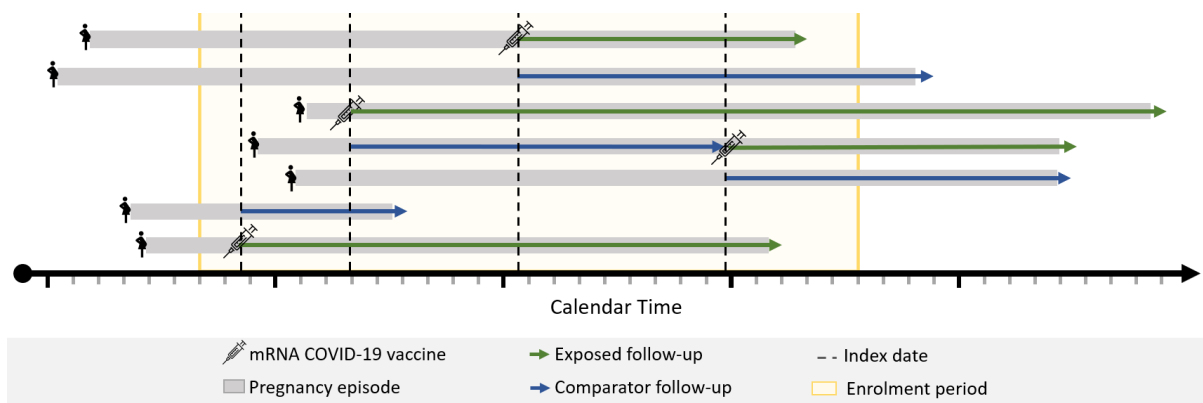
##### **Specific Objectives 2.1 – 2.3:** Cohort Study.

All pregnant women who meet the inclusion and exclusion criteria before the assignment of the index date (see Figure 1) will form the source population for the study objective.

Each day during the enrolment period, when a pregnant woman from the source population becomes exposed, we will select a group of unexposed pregnant women to enter the comparator cohort on the same day (index date). For each exposed woman, we will sample unexposed women matched by maternal age (within a 2-year range) and gestational age (within a 2-week range), ensuring they meet the inclusion and exclusion criteria at that date (index date). Comparator sampling will be performed with replacement, and the sampling ratio will be determined based on prior exploratory analysis of the proportion of exposed to unexposed pregnant women in the database.

An exposed woman will only be included in the cohorts if at least one suitable comparator can be identified from the source population. If a comparator later becomes exposed during the enrolment period, they will be allowed to re-enter the study as an exposed individual, provided that appropriate comparators are available.

Figure 2 illustrates how individuals will enter the study with 1:1 sampling ratio as an example.



**Figure 2.** Illustrative example of index date assignment from source population – Sampling ratio 1:1 ratio.

**Table 4.** Operational definition of time 0 (index date).

Day 0 description	Number of entries	Type of entry	Washout window	Code Type	Diagnosis position	Applied to study populations	Incident with respect to ...	Measurement characteristics / validation	Source of algorithm
Date of pregnancy start recorded in the database between 1st January 2018 to 9 months before data cut.	Multiple – pregnancy based	At pregnancy start record	Relative to pregnant start date: [washout days, -1]	SNOMED	n/a	Population for SO 1.1	n/a	No validation study	Pregnancy OMOP algorithm (Abellan et al. 2025)
Date of first record of the outcome of interest during pregnancy.	Multiple - pregnancy based	Incident – at pregnant incident outcome date	[Relative to pregnant start date: [washout days, -1]	SNOMED	During pregnancy	Pregnant women with incident outcome (outcome cohorts in SO 1.2)	Incident within the pregnancy episode and previous wash-out window	No validation study	Outcome study phenotypes and Pregnancy OMOP algorithm (Abellan et al. 2025)
Date based on matched pair with same age and gestational age (2-week band).	Multiple – pregnancy based	Incident – matching date (based on pair gestational age)	[Pregnancy start-washout, Pregnancy end]	n/a	n/a	Matched cohort to outcome cohort in SO 1.2.	No record of the outcome during pregnancy neither in the wash-out period before	n/a	Outcome study phenotypes and Pregnancy OMOP algorithm (Abellan et al. 2025)
Date of receiving the dose of	Single	Incident	(-Inf, -1]	RxNorm	n/a	Exposed cohorts in SO 2.1-2.3	To the same dose of any COVID-19 vaccine.	No validation study	COVID-19 vaccines phenotypes

interest while pregnant									(Catala et. al. 2024)
Date when pregnant women become eligible for the exposure of interest but remains unexposed. Pregnant women enter the study if sampled based on exposed counterpart entering the study with same maternal age (2-year band) and gestational age (2-weeks band).	Single	Incident	$(-\text{Inf}, 0]$	n/a	n/a	Comparator cohorts in SO 2.1-2.3	n/a	No validation study	n/a

### **8.3.2. Study inclusion and exclusion criteria**

Table 5 and Table 6 show the operationalisation of the above inclusion criteria.

#### **Specific Objective 1.1:** Background Incidence Rates.

All pregnancies starting between 1<sup>st</sup> January 2018, and up to 9 months before end of data will be eligible to enter the study. Pregnant women aged 12 to 55 years old at pregnancy start day and with 365 days or more of previous follow-up will be included. Pregnant women with an occurrence of the outcome of interest in the wash-out period relative to pregnancy start date will be excluded.

#### **Specific Objective 1.2:** Characterise pregnancies with and without adverse events.

The source population for this SO is the study population in the SO 1.1. From this population, we will create an outcome-cohort for each of the outcomes of interest enrolling pregnancies who experienced the incident outcome. For outcome cohorts with more than 5 pregnancies, we will create a matched cohort with outcome-free pregnancies, matching 1:1 on age and gestational age. Thereby, inclusion to either the outcome-cohort or their match depends on the experiencing the outcome during pregnancy, or being matched, respectively.

#### **Specific Objectives 2.1 – 2.3:** Cohort Study.

##### **Source population**

The source population will include everyone who is pregnant during the enrolment period\* and who satisfy the following inclusion criteria:

- Aged 12 to 55 (both included) at pregnancy start date
- Sex recorded as female
- ≥365 days of previous continuous observation at pregnancy start date
- Eligible to receive the exposure based on previous exposures: unvaccinated of COVID-19 (SO 2.1), 16 days or more from 1<sup>st</sup> dose (SO 2.2), and 90 days or more since previous dose, with at least 2 previous doses (SO 2.3)

Table 5 shows the operationalisation of the above inclusion criteria.

\*The enrolment period for SO 2.1 (1<sup>st</sup> vs. 0) goes from 01/04/2021 to 28/02/2022, aligning with the period when COVID-19 vaccination was recommended during pregnancy and when the majority started receiving their first dose. For SO 2.2 (2<sup>nd</sup> vs. 1<sup>st</sup>) enrolment period goes from 01/05/2021 to 31/03/2022, a 1-month extension from the enrolment in the first SO, as typically 2<sup>nd</sup> dose is ≥21 days after the 1<sup>st</sup>. Finally, enrolment period for SO 2.3 (Booster vs. 2<sup>nd</sup>) goes from when boosters were available, 01/10/2021, up until 12 months before data-cut. We will stop enrolling at that time for SO 2.3 to ensure there is enough follow-up time to see all the pregnant outcomes of interest. These periods are in-line with pregnant vaccination uptake seen in a previous study on COVID-19 vaccine effectiveness during pregnancy (55).

##### **Study population**

At index date assignment we will apply the following exclusion criteria:

- If anyone has a record of any outcome of interest in the outcome-specific wash-out window (see Section 0 Outcome).
- Record of COVID-19 infection in the last 90 days  $[-90, 0]$ .
- Prior COVID-19 vaccine during the pregnancy episode with a non-mRNA vaccine.

Only exposed pregnant women who comply with these criteria will be included. Similarly, only unexposed individuals complying with this will be sampled to enter the study at that day.

**Table 5. Operational Definitions of Inclusion Criteria**

Criterion	Details	Order of application	Assessment window	Code Type	Diagnosis position	Applied to study populations	Measurement characteristics /validation	Source for algorithm
Age	Aged 12 to 55 years old (both included) at pregnancy start date.	Before selection of index date	Relative to pregnancy start date: [0, 0]	n/a	n/a	All cohorts	No validation	n/a
Sex	Female sex recorded.	Before selection of index date	n/a	n/a	n/a	All cohorts	No validation	n/a
Previous observation time	At least 365 of continuous previous observation in the healthcare system.	Before selection of index date	Relative to pregnancy start date: [-365 days, 0]	n/a	n/a	All cohorts	No validation	n/a
Pregnant for some time during enrolment period.	n/a	Before selection of index date	Enrolment period: 01/04/2021 to 28/02/2022 (SO 2.1), 01/05/2021 to 31/03/2022 (SO 2.2), and 01/10/2021 to 12 months before end of data (SO 2.3)	n/a	n/a	All cohorts in SOs 2.1-2.3	No validation	Pregnancy OMOP algorithm (Abellan et al. 2025)
Pregnant at time 0	Pregnant on the day of entering the study	At index date assignment	n/a	n/a	n/a	All cohorts	No validation	Pregnancy OMOP algorithm (Abellan et al. 2025)
Eligible for the dose of interest while pregnant	For SO 2.1: unvaccinated. For SO 2.2: 16 days or more since 1 <sup>st</sup> dose. For SO 2.3: at least two previous doses with 90 days or more from most recent prior dose.	At index date assignment	Relative to pregnancy start date: (-Inf, -1]	RxNorm	n/a	All cohorts in SOs 2.1-2.3	No validation	COVID-19 vaccines phenotypes (Catala et. al 2024)

Outcome of interest	Experienced the outcome of interest during pregnancy	At index date assignment	Relative to pregnancy start date: [-washout, 0)	SNOMED	During pregnancy	Outcome-cohorts for SOs 1.2	No validation	Outcome phenotype algorithms
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**Table 6.** Operational Definitions of Exclusion Criteria

Criterion	Details	Order of application	Assessment window	Code Type	Diagnosis position	Applied to study populations	Measurement characteristics /validation	Source for algorithm
Outcome wash-out	A record of any of the outcomes of interest during the outcome-specific wash-out periods	At index date assignment	Event-specific window relative to index date, [-X, 0], see Section 0 Outcome. Index date based on exposure date and risk set sampling for SOs 2.1-2.3, and index date set to pregnancy start for SOs 1.1-1.2.	SNOMED	n/a	All cohorts	n/a	Outcome phenotype algorithms
COVID-19 infection	Record of a COVID-19 diagnosis or positive test in the last 90 days	At index date assignment	Relative to index date: [-90, 0]	SNOMED	n/a	All cohorts in SOs 2.1-2.3	n/a	COVID-19 phenotype (Catala et. al 2024)
Non mRNA COVID-19 vaccines	Prior COVID-19 vaccination during pregnancy with a non-mRNA COVID-19 vaccine.	At index date assignment	[Pregnancy start, 0]	RxNorm	During pregnancy	All cohorts in SOs 2.1-2.3	n/a	COVID-19 vaccines phenotypes (Catala et. al 2024)



## 8.4. Variables

### 8.4.1. Exposure and comparator (Objective 2)

This section is not applicable for Objectives 1 (SO 1.1 and 1.2).

The exposures of interest are the 1<sup>st</sup> (for SO 2.1), 2<sup>nd</sup> (for SO 2.2), and booster (for SO 2.3) doses of COVID-19 vaccines administered any time during pregnancy, with an mRNA-based vaccine type. Exposed women will be compared to pregnant women who were eligible for the same vaccine dose but did not receive it.

Table 7 summarises exposure and comparator for each objective.

During the established enrolment period for SO 2.1, pregnant women will be considered eligible for the 1<sup>st</sup> dose if they are not vaccinated previously. Eligibility for the 2<sup>nd</sup> dose (SO 2.2) will require a minimum of 16\* days after the 1<sup>st</sup> dose, while for the booster dose (SO 2.3) a person will be considered eligible after 90 days from last dose. Pregnant women that receive the dose of interest with a non-mRNA COVID-19 vaccine will be excluded from the study from that day onwards.

Vaccine records separated for less than 5 days will be considered the same record, using the date of the first dose recorded. Missing vaccine records will be interpreted as the patient not having received that vaccine dose, given the near completeness in vaccination data across all four data sources.

List of codes for COVID-19 vaccines are in APPENDIX I.

\*While recommendations for primary vaccination were 21 days or more between 1<sup>st</sup> and 2<sup>nd</sup> doses, people might have received it slightly before due to logistic reasons (e.g., had already a doctor appointment, went on holidays after, ...).

**Table 7.** Summary of exposure of interest and comparator for each of the Specific Objectives in Objective 2

Specific Objective	Exposure group	Details	Washout window	Code type	Source of algorithm
<b>Specific Objective (SO 2.1)</b> 1st mRNA COVID-19 vaccine dose vs. unvaccinated	Exposed	1st dose of COVID-19 vaccine during pregnancy, with mRNA vaccine	(-Inf, -1]	RxNorm	COVID-19 vaccines phenotypes (Catala et al. 2024)
	Comparator	Pregnant and unvaccinated	(-Inf, 0]		
<b>SO 2.2)</b> 2nd vs. 1st mRNA COVID-19 vaccine doses	Exposed	2nd dose of COVID-19 vaccine during pregnancy, with mRNA vaccine	(-21, -1]		
	Comparator	Pregnant and eligible for a 2nd dose of a COVID-19 vaccine (16 days or more from 1st dose)	(-21, 0]		
<b>SO 2.3)</b> Booster vs. 2nd mRNA COVID-19 vaccine doses	Exposed	Booster dose of COVID-19 vaccine during pregnancy, with an mRNA vaccine	(-90, -1]		
	Comparator	Pregnant and eligible for a booster dose of a COVID-	(-90, 0]		

		19 vaccine (at least two previous doses, with 90 days or more from most recent previous dose)			
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#### 8.4.2. **Outcome**

Outcomes of interest for the study include AESI and adverse events specific to the pregnant women, MAE. The list of outcomes is based on the prioritized COVID-19 vaccine AESI list developed by the Brighton Collaboration, the Global Alignment on Immunization Safety Assessment in Pregnancy consortium, and previous studies (56–58). Table 8 and Table 9 list the AESI and MAE that will be evaluated in the study, respectively. APPENDIX II and III contains the list of clinical codes to identify AESI and MAE outcomes respectively.

Analyses will only be conducted with those outcomes for which 5 or more events.

##### Outcome phenotyping methods

Phenotype creation and evaluation will be conducted following the framework co-created by the Data Analysis and Real-World Interrogation Network (DARWIN) European Union (EU) initiative in collaboration with the European Medicines Agency (EMA) (59). Briefly explained, it consists of a set of standardised steps and tools that assist clinicians and epidemiologists when generating and reviewing concept code lists and phenotyping algorithms. When a phenotype has to be created from scratch, the CodelistGenerator R package (60) is used to obtain a list of potential codes based on a lexical and concept-relationship search strategy. This list will be then refined by clinical experts following the standardised steps outlined in the phenotyping framework. The first phenotype draft will be instantiated in the database to be evaluated. Phenotype evaluation is done with the R package PhenotypeR (61). This package provides information on the generated phenotypes in the database: cohort, demographic distributions of the patients, counts of each clinical code used in the phenotype, suggestions of potential codes that might be missing in the codelist, incidence and prevalence rates, and large-scale cohort characterizations (e.g., medication use, clinical conditions, laboratory measures). These results inform clinical epidemiologists when reviewing the phenotypes to compare whether the cohorts obtained are in line with clinical knowledge and existing literature. Phenotypes are revised, and PhenotypeR executed again until optimal phenotype quality is achieved, or the database is deemed not fit for purpose.

##### AESI and MAE phenotypes

Phenotypes for AESI will be based on previous studies using the OMOP CDM (56,58). Phenotyping algorithms for MAE will be generated from scratch following the DARWIN EU phenotyping framework, except for those referring to the pregnancy outcome (miscarriage and stillbirth) which will be identified from the OMOP pregnancy expansion table (51).

Once all phenotypes are identified—whether reused or newly generated—PhenotypeR will run on all participating databases to evaluate their fitness-for-purpose and assess whether any refinements are needed to the list of codes or whether the outcome cannot be evaluated for any database.

Stillbirth and miscarriage, which are outcomes of interest in the study, have different definitions in each country. The National Health System in the UK defines a miscarriage as a loss of a pregnancy

during the first 23 weeks (62), however that cut-off is 19 weeks for Norway (63), 21 weeks in Sweden (64), and the Spanish Society of Gynaecology and Obstetrics defines a miscarriage as the loss of a foetus weighing less than 500 grams (65). Since stillbirth refers to the death of a foetus before or during birth and is not considered a miscarriage, its definition varies depending on the miscarriage definition. In this network study, as a primary definition, we will use the same definition across databases, which will be the one used in the OMOP pregnancy expansion table (51): if the pregnancy loss happens before week 20 is referred to as miscarriage, and on week 20 or after is a stillbirth.

#### Outcome wash-out period

For each AESI, a wash-out period before index date will be applied to define incident outcomes. Acute and recurrent outcomes will have a wash-out window specific to each outcome, 90 and 30 days respectively, while for chronic outcomes, an event will be considered incident if it is the first recorded instance in the patient's history. Table 8 outlines the outcome-specific wash-out periods for each study AESI.

For MAE outcomes, wash-out will only apply to those outcomes that occur during pregnancy: eclampsia, HELLP syndrome, and antepartum haemorrhage. Pregnant women with an occurrence of these during pregnancy (before entering the study) will be excluded.

#### Outcome-specific timing and inclusion criteria

The time frame for assessing outcome risk will vary based on the type of outcome:

**AESI** – For Objective 1, we will assess incident AESI occurring during pregnancy. For Objective 2, we will assess AESI occurring during pregnancy, and up 42 days from index date (primary analysis). As a secondary analysis, we will assess AESI 42 days from index date, regardless of pregnancy end.

**MAE** - Outcome time is event-specific:

- Miscarriage: The risk period will start from the beginning of pregnancy and extend up to GW 19 (included).
- During pregnancy/end of pregnancy outcomes: will be assessed until the end of pregnancy. These outcomes are eclampsia, HELLP syndrome, antepartum haemorrhage, stillbirth, foetal death, preterm labour, and dysfunctional labour.
- Postpartum outcomes: Postpartum endometritis and maternal death will be ascertained up to 6 weeks from pregnancy end (66). Postpartum haemorrhage will be assessed up to 12 weeks from pregnancy end (67).

Additionally, we will apply outcome-specific inclusion criteria to MAE that have an upper threshold on gestational time. This is done to ensure that only individuals at risk of specific outcomes are included in analyses:

- Miscarriage: Pregnant individuals must be enrolled before GW 20 to contribute to the analysis of miscarriage risk.
- Preterm labour: Only individuals whose index date is before GW 37 will be included, as preterm labour is defined as occurring before this point (68).

**Table 8.** Operational Definitions of Adverse Events of Special Interest.

Outcome name	Details	Type of outcome	Washout window	Time of Outcome	Code Type	Diagnosis position	Applied to study populations:	Measurement characteristics/ validation	Source of algorithm
Myocardial Infarction		Acute	[-90, 0]	Objective 1: any time during pregnancy  Objective 2: [primary analysis] the earliest of 1) 42 days after index date, or 2) end of pregnancy, [secondary analysis] 42 days after index date	SNOMED	Primary	All cohorts	PhenotypeR	DARWIN-EU Study P3-C3-001
Ischemic Stroke		Acute	[-90, 0]						
Venous thromboembolism	Combination of Deep Vein Thrombosis and Pulmonary Embolism	Acute	[-90, 0]						
Deep Vein Thrombosis		Acute	[-90, 0]						
Pulmonary Embolism		Acute	[-90, 0]						
Central nervous system immune events	Combination of Bell's palsy, Encephalomyelitis, Guillain Barré Syndrome, and Transverse Myelitis	Acute	[-90, 0]						
Bell's palsy		Acute	[-90, 0]						
Encephalitis		Acute	[-90, 0]						
Guillain Barré Syndrome		Acute	[-90, 0]						
Transverse Myelitis		Acute	[-90, 0]						
Haemorrhagic stroke		Acute	[-90, 0]						

Myocarditis or pericarditis		Acute	[-90, 0]						
Thrombosis with Thrombocytopenia syndrome		Acute	[-90, 0]						
Immune Thrombocytopenia		Acute	[-90, 0]						
Anaphylaxis		Recurrent	[-30, 0]						
Narcolepsy		Chronic	(-Inf, 0]						
Disseminated Intravascular Coagulation		Acute	[-90, 0]						

**Table 9.** Operational Definitions of Maternal Adverse Events

Outcome name	Details	Type of outcome	Washout window	Time of Outcome	Code Type	Diagnosis position	Applied to study populations:	Measurement characteristics/validation	Source of algorithm
Miscarriage	Spontaneous abortion or miscarriage in the firsts 19 weeks of pregnancy	Binary	n/a	Before or at gestational week 19	SNOMED	Primary	All cohorts	PhenotypeR	Pregnancy OMOP algorithm (Abellan et al. 2025)
Stillbirth	Babies who die at or after 20 weeks	Binary	n/a	Until end of pregnancy					Pregnancy OMOP algorithm (Abellan et al. 2025)

Foetal death	Combination of miscarriage and stillbirth	Binary	n/a	Until end of pregnancy					Pregnancy OMOP algorithm (Abellan et al. 2025)
Preterm labour	Lifebirth delivery before gestational week 37	Binary	n/a	Before or at gestational week 37					Pregnancy OMOP algorithm (Abellan et al. 2025)
Eclampsia		Binary	[Pregnancy start, 0]	Until end of pregnancy					n/a
HELLP syndrome		Binary	[Pregnancy start, 0]	Until end of pregnancy					n/a
Antepartum haemorrhage	Haemorrhage during pregnancy after week 20.	Binary	[Pregnancy start, 0]	Until end of pregnancy					n/a
Dysfunctional labour		Binary	n/a	Until end of pregnancy					n/a
Postpartum haemorrhage	Record of postpartum haemorrhage from pregnancy end to 12 weeks after pregnancy end	Binary	n/a	Up to 12 weeks since end of pregnancy					n/a
Postpartum endometritis	Record of postpartum endometritis from pregnancy end to 6 weeks after pregnancy end	Binary	n/a	Up to 6 weeks since end of pregnancy					n/a

Maternal death	Death record up to 6 weeks after pregnancy end	Binary	n/a	Up to 6 weeks since end of pregnancy					n/a
Gestational diabetes		Binary	n/a	During pregnancy			Objective 1		n/a
Ectopic pregnancy		Binary	n/a	During pregnancy			Objective 1		n/a
Pre-eclampsia		Binary	n/a	During pregnancy			Objective 1		n/a

HELLP: Hemolysis, Elevated Liver enzyme levels, and Low Platelet levels

### 8.4.3. Follow-up

Refer to Table 10 for the operational definition of the study follow-up time.

#### **Specific Objective 1.1:** Background Incidence Rates.

Follow-up starts at pregnancy start date (index date) and continues up to the earliest of 1) outcome of interest, 2) death or end of data, and 3) end of the outcome-specific assessment window.

#### **Specific Objective 1.2:** Characterise pregnancies with and without adverse events.

Does not apply.

#### **Specific Objectives 2.1 – 2.3:** Cohort Study.

The study causal estimand is the observational analogue of a per-protocol (PP) effect.

Follow-up will start the first day after index date (dose of interest date/sampled counterpart vaccination date). Following the PP strategy, follow-up will end at the earliest of the following:

- 1) Date of COVID-19 vaccination after index date (deviation from the treatment strategy)
- 2) Date of the outcome of interest
- 3) End date of the outcome-specific assessment window
- 4) Date of death or disenrollment from the healthcare system
- 5) Date of truncating event affecting the outcome of interest

In sensitivity analysis, follow-up will also be stopped the date they are infected with COVID-19.

**Table 10** *Operational Definition of Follow Up*

#### *A) Specific Objective 1.1*

Time point	Select which apply	Specify
Follow-up Start	Day 0 after index date (pregnancy start date).	
Follow-up End		
Date of Outcome	x	
Date of Death	x	
Date of Disenrollment	x	End of patient available data in the healthcare system.
Day X following index date		End of outcome-specific assessment window. All outcomes are assessed until pregnancy end except for the following: 1) Miscarriage: up to week 19 (included) 2) Postpartum endometritis and maternal death: up to 6 weeks postpartum 3) Postpartum haemorrhage: up to 12 weeks postpartum.



End of study period		
End of exposure		
Date of add to/switch from exposure		
Other date		

*B) Objective 2 (Specific Objectives 2.1-2.3)*

Time point	Select which apply	Specify
Follow-up Start	Day 1 after index date.	
Follow-up End		
Date of Outcome	x	
Date of Death	x	
Date of Disenrollment	x	End of patient available data in the healthcare system.
Day X following index date	x	<p><u>Adverse Events of Special Interest (AESI)</u> For primary analysis we stop follow-up at 42 days after index date or until the pregnancy ends, whichever comes first. For secondary analysis, we will look at 42 days from index date regardless of pregnancy end.</p> <p><u>Maternal Adverse Events (MAE)</u> MAE linked to the ongoing pregnancy episode will be tracked as follows:</p> <ul style="list-style-type: none"> <li>• <u>Until gestational week 19</u>: miscarriage.</li> <li>• <u>Until pregnancy end</u>: eclampsia, HELLP syndrome, stillbirth, foetal death, antepartum haemorrhage, dysfunctional labour, preterm labour.</li> <li>• <u>Until 6 weeks postpartum</u>: maternal death and postpartum endometritis.</li> <li>- <u>Until 12 weeks postpartum</u>: postpartum haemorrhage.</li> </ul>
End of study period		
End of exposure		
Date of add to/switch from exposure	x	Next COVID-19 vaccination.
Other date	x	<p>Date of miscarriage for postpartum haemorrhage.</p> <p>COVID-19 infection date (sensitivity analysis).</p>

#### **8.4.4. Covariates**

We will assess a set of baseline patient covariates to 1) characterise the baseline populations (in SO 1.2 and SO 2.1-2.3) and 2) fit the PS model (in SO 2.1-2.3). We explain below which covariates will be measured and which ones will be used in the PS equation. Table 11 shows the operational definition for each covariate, and Table 12 shows which covariates are available for each database. List of clinical codes for the covariates can be found in APPENDIX IV.

##### Demographics

- Age at pregnancy start date
- Geographic location (e.g., healthcare region to account for local vaccination and infection rates)

##### Pregnancy related and life-factors

History of previous pregnancies and their outcomes, pre-existing and pregnancy-related conditions, and life-style factors that can affect the underlying risk of the pregnancy.

- Number of previous pregnancies recorded
- Pregnant trimester at index date
- History of diabetes (any type)
- History of essential hypertension
- History of HIV
- History of systemic lupus erythematosus
- History of asthma
- History of thyroid disorders (both hypo- and hyperthyroidism)
- History of polycystic ovary syndrome
- History of uterus malformations
- Mental health problems in the last year (anxiety and depression)
- Diagnosis of obesity in the past 5 years
- Alcohol misuse in the past 5 years

##### Healthcare utilisation (proxy) and COVID-19 vaccination

- Days of continuous enrolment in the healthcare system
- Number of healthcare visits (any type) in the last year
- Influenza vaccination near index date [-5, 5]
- Pertussis vaccination near index date [-5, 5]
- Previous COVID-19 infections
- Previous COVID-19 tests
- [SO 2.2 and 2.3] Days since last COVID-19 vaccine dose
- [SO 2.2 and 2.3] Number of previous doses during pregnancy episode
- [SO 2.3] Number of previous COVID-19 vaccine doses

##### Health conditions (large-scale characterisation)

All previous diagnoses (SNOMED codes in the OMOP condition table) recorded with a prevalence greater than 0.5% assessed in three-time windows:

- 1) [-30, 0] days relative to index date
- 2) [-365, -31] days relative to index date
- 3) (-Inf, -366] days relative to index date

#### Medications (large-scale characterisation)

All previous prescriptions (at clinical drug level, as recorded in the OMOP drug exposure table) recorded with a prevalence greater than 0.5% assessed in two-time windows:

- 1) [-30, 0] days relative to index date
- 2) [-180, -31] days relative to index date

Variables for the PS model will be a combination of *hand-picked* and *data-driven*. Hand-picked covariates that will be forced into the PS equation are:

- Age at pregnancy start date
- Geographic location
- Gestational age at index date
- Index date
- Number of previous pregnancies
- Number of healthcare visits in the last year
- Days enrolled in the healthcare system
- [SO 2.2 and 2.3] Days since last vaccine dose
- [SO 2.2 and 2.3] Number of previous doses during pregnancy episode
- [SO 2.3] Number of previous COVID-19 vaccine doses
- Smoking status
- Alcohol misuse
- Obesity

In addition, large-scale health conditions and medications will be introduced to the Least Absolute Shrinkage and Selection Operator (LASSO) regression (69) to predict the exposure. The logistic LASSO regression will shrink the coefficients of variables less predictive of receiving the exposure of interest to zero. Variables with non-zero coefficients will then be forced into the PS equation, alongside the hand-picked variables.

5-fold cross-validation will be used to tune the lambda parameter in the LASSO. The largest lambda within 1 standard error of the minimum will be used to minimise the risk of selecting colliders for the PS. The covariates chosen through LASSO will subsequently be reviewed by the clinicians and epidemiologists on the team to ensure that no colliders are included, since they could bias the PS estimation in the presence of unmeasured confounding (70).

**Table 11.** Operational Definitions of Covariates

Characteristics	Details	Type of variable	Assessment window	Code Type	Diagnosis Position	Applied to study population	Measurement characteristics/ validation	Source of algorithm
Maternal age	Age at pregnancy start date	Numeric	Relative to pregnancy start date: [0,0]	n/a	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Geographic location	Location identifier of GP practice, or healthcare regions if the former unavailable	Categorical	n/a	n/a	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Pregnancy trimester	Pregnant trimester of enrolment: 1 <sup>st</sup> (firsts 90 days), 2 <sup>nd</sup> (from 91 to 180 days), and 3 <sup>rd</sup> (from 181 until end of pregnancy).	Categorical	[0,0]	n/a	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Pregnancy OMOP algorithm (Abellan et al. 2025)
Previous pregnancies	Previous pregnancies captured in the database	Numeric	(-Inf, 0]	n/a	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Pregnancy OMOP algorithm (Abellan et al. 2025)
Diabetes	Any type of diabetes recorded before index date (type 1, 2 or gestational diabetes)	Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
Essential hypertension	History of essential hypertension	Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
HIV	History of HIV	Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a

Systemic lupus erythematosus		Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Mercade-Besora et al. 2024
Asthma		Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
Thyroid disorders	Both hypo- and hyperthyroidism	Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Polycystic ovary syndrome		Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Uterus malformations		Binary	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Anxiety		Binary	[-365, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
Depression		Binary	[-365, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
Obesity	Obesity diagnosis, body weight (> 120kg or >265 pounds) and BMI measurements (>30)	Binary	[-365*5, 0] days	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Alcohol misuse		Binary	[-365*5, 0] days	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Previous follow-up	Days of continuous enrolment in the healthcare system before index date	Numeric	(-Inf, 0]	n/a	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a

Health-care visits	Any healthcare visit in the last year	Numeric	[-365, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
COVID-19 infections	Clinical diagnosis or positive test	Numeric	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
COVID-19 tests	Test for COVID-19 – positive or negative results	Numeric	(-Inf, 0]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	Catala et al. 2024
Days since last COVID-19 vaccine		Numeric	(-Inf, 0]	RxNorm	n/a	All cohorts in SOs 2.2 and 2.3	n/a	Catala et al. 2024
Number of previous COVID-19 vaccine doses in the same pregnancy episode		Numeric	[Pregnancy start, 0]	RxNorm	n/a	All cohorts in SOs 2.2 and 2.3	n/a	Catala et al. 2024
Number of previous COVID-19 vaccine doses		Numeric	[Pregnancy start, 0]	RxNorm	n/a	All cohorts in SOs 2.2 and 2.3	n/a	Catala et al. 2024
Influenza vaccination	Receive influenza vaccine shot near index date	Binary	[-5, 5]	RxNorm	n/a	All cohorts in SOs 2.1 – 2.3	n/a	n/a
Tdap vaccination	Receive Tdap (Tetanus, Diphtheria & Pertussis) vaccine shot near index date	Binary	[-5, 5]	RxNorm	n/a	All cohorts in SOs 2.1 – 2.3	n/a	n/a
Co-morbidity	Incident condition records with prevalence >0.5%	Binary	[-30, 0] [-365, -31] [-Inf, -366]	SNOMED	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a
Co-medication	Prevalent drug prescriptions records with prevalence >0.5%	Binary	[-180, -31] [-30, 0]	RxNorm	n/a	All cohorts in SO 1.2 and SOs 2.1 – 2.3	n/a	n/a

**Table 12.** Characteristics available for each database.

Characteristics	CPRD GOLD	SIDIAP	NHLR@UiO	SCIFI-PEARL
Maternal age	Yes	Yes	Yes	Yes
Geographic location	Yes – GP surgery and healthcare region (care_site and location table)	Yes (location table – healthcare regions)	Yes (location and care-site)	Yes (location, and care-site)
Pregnancy trimester	Yes	Yes	Yes	Yes
Previous pregnancies captured in the database	Yes	Yes	Yes	Yes
Diabetes	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Essential hypertension	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
HIV	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Systemic lupus erythematosus	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Asthma	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Thyroid disorders	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Polycystic ovary syndrome	Yes	Yes	Yes, primary care records from	Yes, from 2015

			2008 and secondary care records from 2018	
Uterus malformations	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Anxiety	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Depression	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Obesity	Yes	Yes	Yes, primary care records from 2008 and secondary care records from 2018	Yes, from 2015
Alcohol misuse	Yes	Yes	Yes, from MBRN	Yes. from the birth register, mapped to pregnancy expansion.
Previous follow-up	Yes	Yes	Yes	Yes
Health-care visits	Yes	Yes	Yes	Yes
COVID-19 infections	Yes	Yes	Yes	Yes
COVID-19 tests	Yes	Yes	Yes	Yes
Days since last COVID-19 vaccine	Yes	Yes	Yes	Yes
Number of previous COVID-19 vaccine doses in the same pregnancy episode	Yes	Yes	Yes	Yes
Number of previous COVID-19 vaccine doses	Yes	Yes	Yes	Yes
Influenza vaccination	Yes	Yes	Yes, from vaccination registry (SYSVAK) from 2018	No



Tdap vaccination	Yes	Yes	Yes, from vaccination registry (SYSVAK) from 2018	No
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## 8.5. Data analysis

### 8.5.1. Objective 1: Descriptive Epidemiology

#### Specific Objective 1.1: Background incidence rate

Incidence rates per 100,000 person-years will be calculated as the number of incident cases divided by the total person-time at risk:

$$IR = \frac{\text{Number of incident events}}{\text{Person – Time at risk}}$$

The corresponding 95% Confidence Intervals (CIs) will be estimated using Poisson exact model.

Incidence rates will be estimated for calendar year and month using the R package `IncidencePrevalence` (71), and stratified by age group (12-17, 18-34, and 35-55 years) and gestational trimester (0 to 90, 91 to 180, and 181 and more days).

Additionally, overall pregnant incidence rates across the study period will be estimated, stratified by gestational trimester for outcomes occurring during pregnancy (AESI and pre-eclampsia, eclampsia, HELLP syndrome, gestational diabetes, and ectopic pregnancy).

Incidence rates will not be estimated if there are less than 5 events in a given stratum.

#### Specific Objective 1.2: Patient-level characteristics

For each outcome cohort and their matched cohort, we will summarise the covariates outlined in Section 8.4.4 *Covariates*. We will report counts and proportions for binary and categorical covariates, while for continuous we will calculate mean, standard deviation, and 25, 50, and 75% quantiles. We will use SMD to contextualise the characteristics between the matched cohort and the outcome-cohort. We will use the continuous and binary formulas for SMD for each type of covariate, while for categorical covariates we will use the binary SMD expression for each of the levels. The SMD formulas are the following

$$SMD_{continuous} = \frac{\mu_1 - \mu_2}{\sqrt{\sigma_1^2 + \sigma_2^2}} \quad SMD_{binary} = \frac{p_1 - p_2}{\sqrt{\frac{p_1(1-p_1) + p_2(1-p_2)}{2}}}$$

where  $\mu_i$  is the mean,  $\sigma_i$  the standard deviation,  $p_i$  the proportion, while  $i = 1, 2$  refers to outcome and matched cohorts.

### 8.5.2. Objectives 2: Target Trial Emulation

Table 13 specifies the primary, secondary and subgroup analysis in the study Objectives 2.

## **Confounding diagnostics**

### **Observed confounding**

SMD will be estimated for all covariates in the study (see Section 8.4.4 *Covariates*). An absolute SMD value greater than 0.1 will indicate that the variable is unbalanced. If exposed and comparator cohorts are not balanced, PS weighting will be used to create balanced cohorts.

### **Unobserved confounding**

Negative Control Outcomes (NCO) will be used to assess residual (unobserved) confounding. NCOs are outcomes unrelated to the exposure of interest, meaning the risk between exposed and unexposed groups should be similar. Including NCOs helps evaluate whether residual bias is present in the study (72). A previously validated list of NCOs, used in other studies assessing COVID-19 vaccines (73), will be utilized and refined for this study. A preliminary list of 68 NCOs can be found in APPENDIX V. These outcomes will be identified using the concept IDs listed in APPENDIX V. Additionally, COVID-19 infection will be used as a positive control in the study.

Estimates for NCOs and COVID-19 infection will be calculated using Incidence Rate Ratios (IRR), and 95% CIs will be examined to determine whether any associations with the exposure are present.

## **Propensity Score Weighting**

If the study population derived from RSS is not balanced (see “Confounding Diagnostics”), PS methods will be used to derive a comparable cohort by means of weights.

A PS based on both hand-picked and data-driven covariates will be estimated for each pregnant woman by fitting a logistic regression with a logit link. Details of hand-pick covariates, and the data-driven selection process can be found in Section 8.4.4 *Covariates*. Overlap Weights (OW) (74) will be used to assign a weight to each pregnant women included in the study population. The weights formula proposed in OW is based on the PS, and is the following

$$W(T = 0) = 1 - PS \quad W(T = 1) = PS$$

where  $T$  is exposure status (with 0 referring to comparator cohort, and 1 exposed cohort),  $PS$  the propensity score, and  $W$  the weight.

OW avoids the issues with large or very small weights often encountered in other methods, such as inverse probability weighting. Additionally, previous methodological research on COVID-19 vaccines demonstrated optimal results in balancing observed covariates compared to other propensity score methods (75).

SMD and NCO will also be calculated for the weighted population.

## **Outcome Model**

IRR will be used to measure the relative incidence rate between exposed and comparator cohorts for each analysis and outcome of interest. The formula for calculating the IRR is:

$$IRR = \frac{Events_{Exposed} / Person - Time_{Exposed}}{Events_{Comparator} / Person - Time_{Comparator}}$$

95% confidence intervals will be computed using the bootstrap method to account for non-independence of samples. In each iteration, 90% of the sample will be randomly selected (with replacement), and the IRR will be calculated. This process will be repeated 500 times. The lower bound of the 95% CI will be the 2.5th percentile, and the upper bound will be the 97.5th percentile of the 500 bootstrap IRR estimates.

If more than 5% of NCOs are associated with the exposure, the IRR estimates and their 95% CIs from that database will be calibrated using the Empirical Calibration method (76). This approach addresses systematic errors arising from residual biases by comparing the observed treatment effects of the NCOs to the expected by investigators if there wasn't residual bias. This comparison allows for the derivation of an empirical error distribution, which will be used as the null distribution for the test statistic in estimating the outcome of interest. Utilising this distribution, the method calibrates the estimates and their CIs.

Calibration of estimates and CIs will be done with `'fitSystematicErrorModel'` and `'calibrateConfidenceInterval'` functions of the `'EmpiricalCalibration'` package.

IRR estimates will be calculated locally for each participating database and then combined using random-effects meta-analysis. Where heterogeneity (I<sup>2</sup>) is greater than 50%, estimates will not be meta-analysed and action will be taken to investigate which are the causes on this discrepancy.

IRR will not be estimated if there are less than 5 events between exposed and comparator cohorts.

### **Subgroup analyses**

We will stratify by pregnancy trimester at index date, vaccine brand (Pfizer-Moderna), and age group at index date (12-17, 18-34, and 35-55 years) where there are at least 5 outcome counts (for any of the outcomes) in the stratum. Vaccine brand for comparators will be that of their exposed sampled match. When stratifying by pregnancy trimester, the risk of miscarriage will not be assessed for the third trimester.

For each subgroup analysis, SMDs and NCO will be measured to assess balance. If needed, subgroup-specific PS OW will be calculated and used.

**Table 13.** Objective 2: Primary, Secondary, and Subgroup analysis specification.

#### *A) Primary analysis*

Analysis element	Specification
Hypothesis	COVID-19 vaccination (mRNA) during pregnancy does not increase risk of adverse events on the mother while pregnant.
Exposure contrast	1, 2, and booster doses of mRNA COVID-19 vaccine during pregnancy against pregnant women eligible for the same dose but who has not received it.
Outcome	<u>Adverse Events of Special Interest</u> assessed in the next 42 days from index date or pregnancy end, whichever comes first. <u>Maternal Adverse Events</u> : pregnancy-related outcomes related to the pregnant episode undergoing at index date.
Analytical Software	R

<b>Model(s)</b>	<p><u>Propensity Score</u>: multivariate logistic regression with logit link. Variables to include in the model are hand-picked and data-driven (see Section 8.4.4 <i>Covariates</i>). Function <code>`glm`</code> from package <code>`glmnet`</code>.</p> <p><u>LASSO for covariate selection</u>: Binomial distribution, 5-fold cross validation to choose lambda value (between <math>10^{-3}</math> and <math>10^2</math>). Chosen largest lambda within 1 standard error of the minimum. Function <code>`cv.glmnet`</code> from package <code>`glmnet`</code>, with alpha parameter set to 1.</p> <p><u>Outcome model</u>:</p> <ul style="list-style-type: none"> <li>- Incidence Rate Ratios (IRR):</li> </ul> $IRR = \frac{Events_{Exposed} / Person - Time_{Exposed}}{Events_{Comparator} / Person - Time_{Comparator}}$ <p>Estimates will be computed with the <code>`rateratio`</code> function from the package <code>`fmsb`</code>, and their Confidence Intervals by bootstrapping (90% sampled with replacement, 500 repetitions).</p> <ul style="list-style-type: none"> <li>- Empirical Calibration of the treatment estimates and their confidence intervals based on negative control outcomes. Calibration of estimates and CIs will be done with <code>`fitSystematicErrorModel`</code> and <code>`calibrateConfidenceInterval`</code> functions of the <code>`EmpiricalCalibration`</code> package.</li> </ul>
<b>Confounding Adjustment Method</b>	<p>We will use Propensity Score Weighting, with <u>Overlap Weights</u>. The weights formula is:</p> $W(T = 0) = 1 - PS \quad W(T = 1) = PS$ <p>Where <math>T</math> is exposure status (with 0 referring to comparator, and 1 exposure of interest), <math>PS</math> the propensity score, and <math>W</math> the weight.</p> <p>Additionally, <u>Standardised Mean Differences</u> will be estimated for all covariates, to evaluate remaining observed unbalances after weighting.</p> $SMD_{continuous} = \frac{\mu_1 - \mu_2}{\sqrt{\sigma_1^2 + \sigma_2^2}} \quad SMD_{binary} = \frac{p_1 - p_2}{\sqrt{\frac{p_1(1-p_1) + p_2(1-p_2)}{2}}}$ <p>Where <math>\mu_i</math> is the mean, <math>\sigma_i</math> the standard deviation, <math>p_i</math> the proportion, while <math>i = 1, 2</math> refers to exposed and comparator cohorts. <math> SMD  &gt; 0.1</math> will be considered unbalance.</p> <p><u>Negative Control Outcomes</u> will be used as a diagnosis tool for residual confounding. Incidence Rate Ratios will be used to assess the risk of these outcomes. If more than 5% are associated with the exposure, <u>Empirical Calibration</u> of the treatment estimates will be used.</p> <p>COVID-19 infection will be used as a positive control to detect unobserved confounding in the study.</p>
<b>Missing Data Methods</b>	<p>Analyses will be conducted using available data without imputation; no specific methods will be applied to address missingness.</p>
<b>Subgroup Analyses</b>	<p>When possible, we will stratify by pregnancy trimester at index date, vaccine brand (Pfizer-Moderna), and age group (12-17, 18-34, and 35-55 years) at index date. Propensity score weighting, and subsequent confounding diagnostics, will be computed for each stratum, if needed.</p>

B) Secondary analysis

Analysis element	Specification
Hypothesis	COVID-19 vaccination (mRNA) during pregnancy does not increase risk of adverse events on the mother.
Exposure contrast	As above.
Outcome	Adverse Events of Special Interest assessed in the next 42 days from index date, regardless of end of pregnancy.
Analytical Software	As above.
Model(s)	As above.
Confounding Adjustment Method	As above.
Missing Data Methods	n/a
Subgroup Analyses	As above.

## 8.6. Sensitivity analyses

In the main analysis, we will not censor follow-up when a patient has record of a COVID-19 infection. However, as COVID-19 infection may increase the risk of some outcomes of interest, we will conduct a sensitivity analysis where follow-up is censored at the occurrence of a COVID-19 infection. Table 14 explains the rationale, strengths and limitations of this sensitivity analysis.

**Table 14.** Sensitivity analyses - rationale, strengths and limitations.

Analysis	What is being varied?	Why?	Strengths compared to primary analysis	Limitations compared to primary analysis
Analysis in Objective 2	Censoring follow-up at the occurrence of a COVID-19 infection (clinical diagnosis or positive test)	To understand the potential effect of the infection on the outcomes of interest.	It estimates the risk of adverse events due to the vaccine dose of interest alone, without COVID-19 interfering.	May introduce bias if COVID-19 infections are not properly recorded or if they affect exposure status differently across subgroups. Additionally, it does not reflect the real world where getting COVID-19 is a possibility even after vaccination.

## 9. DATA MANAGEMENT

All databases have previously mapped their data to the OMOP CDM. This enables the use of DARWIN EU and OHDSI standardised analytic tools across the network since the structure of the data and the terminology system is harmonised.

Common analytical code, written in R, will be shared via GitHub and executed locally by each collaborating centre. Whenever possible, standardised analytical tools will be used to ensure methodological consistency. Each data partner will run the study code against their database containing patient-level data and return aggregated results in CSV format. No individual-level data will be shared, maintaining strict data privacy standards, and aggregated counts of less than five will be obscured to protect privacy.

## 10. QUALITY CONTROL

### Database quality control

A number of open-source quality control mechanisms for the OMOP CDM have been developed (see Chapter 15 of [The Book of OHDSI](#)). Participating databases in the study will have run the OHDSI Data Quality Dashboard (DQD) tool provides numerous checks relating to the conformance, completeness and plausibility of the mapped data. Conformance focuses on checks that describe the compliance of the representation of data against internal or external formatting, relational, or computational definitions, completeness in the sense of data quality is solely focused on quantifying missingness, or the absence of data, while plausibility seeks to determine the believability or truthfulness of data values

### Study-specific quality control

Building on previous work conducted by DARWIN EU, this study will follow standardised procedures for network studies and utilise validated R packages designed for data analysis in the OMOP CDM. These tools, which have been tested and validated, will ensure the reliability of the results. However, due to the complexity of the study, bespoke analytical code will be needed. All scripts will be made publicly available on GitHub.

## 11. STUDY SIZE AND FEASIBILITY

In a previous study looking at the effectiveness of COVID-19 vaccines during pregnancy (55), sample sizes were the ones shown in Table 15.

**Table 15.** Sample size obtained in previous study looking at COVID-19 vaccines during pregnancy.

	CPRD GOLD	SIDIAP	NLHR@UiO	SCIFI-PEARL
1 <sup>st</sup> vs. 0	5,482	14,958	30,886	72,796
3 <sup>rd</sup> vs. 2 <sup>nd</sup>	3,784	4,436	21,582	52,390

As the study design was different and study populations were obtained with 1:1 matching, we expect to have a slightly higher number of patients enrolled. The time-period for both studies is the same.

During the validation of the outcome phenotypes, counts will be gathered to determine how many pregnant individuals experienced the outcomes of interest. This information will help assess the feasibility of studying certain outcomes.

No specific power calculation will be performed during the feasibility stage.

## **12. LIMITATIONS OF THE STUDY METHODS**

This study has several limitations that should be considered when interpreting the results.

### Sample size and rare outcomes

Some outcomes of interest are rare events, and the study population is restricted to pregnant women. This may result in an insufficient sample size to accurately evaluate the incidence rates of some outcomes and for subgroup analyses. Additionally, meta-analysis typically assumes a normal distribution of events, which may not be valid for rare outcomes in small populations. Despite these challenges, meta-analysis remains the standard method for pooling results in network studies.

### Pregnancy data in CPRD

CPRD is a primary care database. Pregnancy episodes are inferred using the Matcho et al. 2018 (29) algorithm. Thereby there might be inaccuracies in gestational age and incomplete recording of pregnancy or pregnancy outcomes. Additionally, it does not have specialist or hospital care data which can contribute to outcome misclassification.

### Data on early pregnancy terminations and early miscarriages

In SCIFI-PEARL, only pregnancies beyond 22 GW are captured, excluding spontaneous abortions before this threshold. Similarly, in the Norwegian Medical Birth Registry (MBRN), pregnancies under 12 GW are not mandatory recorded in the medical birth registry. To address this in NHLR@UiO, we will use a previously developed and validated algorithm identify early pregnancy episodes to complement records in the MBRN (40). This will limit the assessment of early pregnancy outcomes.

### Underreporting of COVID-19 infections

COVID-19 infection within the last 90 days is an exclusion criterion for the study population, and infections will also act as a censoring event in sensitivity analyses. Reporting of COVID-19 infections to health systems became non-mandatory in the first quarter of 2022, limiting data capture to severe or symptomatic cases. This will mainly affect SO 2.3, but since pregnant women are closely monitored, we do not expect to have a strong impact.

### Influenza and Tdap vaccine

Influenza and Tdap vaccination are commonly recommended during pregnancy and may be administered during the same maternity visit as the COVID-19 vaccine. This could complicate the interpretation of results, as adverse events cannot be definitively attributed to one vaccine. However, for Objective 1, which focus on the first and second doses of the COVID-19 vaccine, this issue is less

significant since most vaccinations occurred during designated COVID-19 vaccine appointments. We will calculate the proportion of individuals who received an influenza and Tdap vaccine within five days (before or after) of the index date to assess the potential impact of this.

### **13. PROTECTION OF HUMAN SUBJECTS**

The execution of the data analysis will be done in a federated manner, where the analytical code will be shared with data partners which will execute it locally. Then, results where subject and record counts with a value less than 5 will be clouded and shared.

SIDIAP will require ethical approvals from their local Institutional Review Boards to conduct this study.

Ethical approval for CPRD data was obtained by CPRD's Research Data Governance Process (Protocol No #25\_005261).

Ethical approval for the Norwegian data in this study was obtained from The Regional Committee for Research Ethics (EU-COVID-19, approval number: 155294 /REK Nord) and the Data Protection Officer at the University of Oslo (approval number 523275).

Ethical approval for the Swedish part of this study (SCIFI-PEARL project) has been obtained from the Swedish Ethical Review Authority (2020-01800 with subsequent amendments).

### **14. REPORTING OF ADVERSE EVENTS**

Not applicable.

### **15. PLANS FOR DISSEMINATING AND COMMUNICATING STUDY RESULTS**

The results of this study will be disseminated through submission of research abstracts, and if accepted, subsequent presentations (poster or oral) at national and international scientific conferences. Additionally, we plan to prepare at least two manuscripts for journal publication based on the results of this study. Plain English summaries will be shared on university websites, and social media platforms to maximise public engagement internationally. Our statistical code will be shared through GitHub.



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## **APPENDIX**

### **APPENDIX I**

Preliminary list of COVID-19 vaccines codes: any COVID-19 vaccines, Pfizer vaccine, and Moderna vaccine.

Concept ID	Concept Name
<b>Any covid vaccine</b>	
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]

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-1273OMICRON (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-1273OMICRON (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-1273OMICRON (BA.4/BA.5) 0.025 MG/ML
1525542	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273OMICRON (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-BNT162b2OMICRON (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-BNT162b2OMICRON (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-BNT162b2OMICRON (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-BNT162b2OMICRON (BA.4/BA.5) 0.05 MG/ML Injection
1219271	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension



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)
<b>Moderna</b>	
37003517	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML
829421	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
36391504	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
2998096	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]

1994903	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]
2998095	SARS-CoV-2 (COVID-19) vaccine, mRNA-1273 0.2 MG/ML Injectable Suspension [Spikevax]
37003432	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein
37003435	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension
779678	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension [Spikevax]
<b>Pfizer</b>	
1525734	0.3 ML SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.05 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2OMICRON (BA.4/BA.5) 0.05 MG/ML Injection
716025	SARS-COV-2 COVID-19 mRNA, bivalent, original/Omicron BA.1, Non-US Vaccine Product (Comirnaty Bivalent), Pfizer-BioNTech
742041	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.0075 MG/ML / SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2OMICRON (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-BNT162b2OMICRON (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-BNT162b2OMICRON (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-BNT162b2OMICRON (BA.4/BA.5) 0.05 MG/ML Injection
1799560	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
1799558	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
42797615	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
1219271	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
37003436	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension
595835	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]
1759206	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]
36868892	SARS-CoV-2 (COVID-19) vaccine, mRNA-BNT162b2 0.1 MG/ML Injectable Suspension [Comirnaty]
36900251	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-BNT162b2OMICRON (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
1759205	SARS-CoV-2 (COVID-19) vaccine, mRNA spike protein Injectable Suspension [Comirnaty]

### **APPENDIX III**

Preliminary list of codes for Adverse Events of Special Interest.

<b>Concept ID</b>	<b>Concept Name</b>
<b>Myocardial infarction</b>	
45766075	Acute anterior ST segment elevation myocardial infarction
4178129	Acute anteroapical myocardial infarction
4267568	Acute anteroseptal myocardial infarction
312327	Acute myocardial infarction
44782769	Acute myocardial infarction due to left coronary artery occlusion
44782712	Acute myocardial infarction due to right coronary artery occlusion
45766115	Acute myocardial infarction during procedure
434376	Acute myocardial infarction of anterior wall
45766150	Acute myocardial infarction of anterior wall involving right ventricle
438438	Acute myocardial infarction of anterolateral wall
4243372	Acute myocardial infarction of apical-lateral wall
4108669	Acute myocardial infarction of atrium
4151046	Acute myocardial infarction of basal-lateral wall
4275436	Acute myocardial infarction of high lateral wall
438170	Acute myocardial infarction of inferior wall
45771322	Acute myocardial infarction of inferior wall involving right ventricle
438447	Acute myocardial infarction of inferolateral wall
441579	Acute myocardial infarction of inferoposterior wall
436706	Acute myocardial infarction of lateral wall
4324413	Acute myocardial infarction of posterobasal wall
4051874	Acute myocardial infarction of posterolateral wall
4303359	Acute myocardial infarction of septum
4145721	Acute non-Q wave infarction
4119944	Acute non-Q wave infarction - anterolateral
4119456	Acute non-Q wave infarction - anteroseptal
4119945	Acute non-Q wave infarction - inferior
4119946	Acute non-Q wave infarction - inferolateral
4121466	Acute non-Q wave infarction - lateral
4124685	Acute non-Q wave infarction - widespread
4270024	Acute non-ST segment elevation myocardial infarction
35610091	Acute nontransmural myocardial infarction

319039	Acute posterior myocardial infarction
4119457	Acute Q wave infarction - anterolateral
4119943	Acute Q wave infarction - anteroseptal
4121464	Acute Q wave infarction - inferior
4121465	Acute Q wave infarction - inferolateral
4124684	Acute Q wave infarction - lateral
4119948	Acute Q wave infarction - widespread
4126801	Acute Q wave myocardial infarction
4296653	Acute ST segment elevation myocardial infarction
46270162	Acute ST segment elevation myocardial infarction due to left coronary artery occlusion
46270163	Acute ST segment elevation myocardial infarction due to right coronary artery occlusion
43020460	Acute ST segment elevation myocardial infarction involving left anterior descending coronary artery
45766076	Acute ST segment elevation myocardial infarction of anterior wall involving right ventricle
761736	Acute ST segment elevation myocardial infarction of anteroapical wall
46270159	Acute ST segment elevation myocardial infarction of anterolateral wall
46270160	Acute ST segment elevation myocardial infarction of anteroseptal wall
45766116	Acute ST segment elevation myocardial infarction of inferior wall
45766151	Acute ST segment elevation myocardial infarction of inferior wall involving right ventricle
35611570	Acute ST segment elevation myocardial infarction of inferolateral wall
35611571	Acute ST segment elevation myocardial infarction of inferoposterior wall
46274044	Acute ST segment elevation myocardial infarction of lateral wall
46270161	Acute ST segment elevation myocardial infarction of posterior wall
46273495	Acute ST segment elevation myocardial infarction of posterobasal wall
46270158	Acute ST segment elevation myocardial infarction of posterolateral wall
46270164	Acute ST segment elevation myocardial infarction of septum
444406	Acute subendocardial infarction
35610093	Acute transmural myocardial infarction
4119947	Acute widespread myocardial infarction
37109912	Arrhythmia due to and following acute myocardial infarction
438172	Atrial septal defect due to and following acute myocardial infarction
4124687	Cardiac rupture due to and following acute myocardial infarction
4215259	First myocardial infarction
4108678	Hemopericardium due to and following acute myocardial infarction
4173632	Microinfarct of heart
45766214	Mitral valve regurgitation due to acute myocardial infarction without papillary muscle and chordal rupture
45771327	Mitral valve regurgitation due to acute myocardial infarction with papillary muscle and chordal rupture
4323202	Mixed myocardial ischemia and infarction
4329847	Myocardial infarction

37309626	Myocardial infarction due to demand ischemia
4170094	Myocardial infarction in recovery phase
4200113	Non-Q wave myocardial infarction
4030582	Postoperative myocardial infarction
35610087	Postoperative nontransmural myocardial infarction
4206867	Postoperative subendocardial myocardial infarction
35610089	Postoperative transmural myocardial infarction
4207921	Postoperative transmural myocardial infarction of anterior wall
4209541	Postoperative transmural myocardial infarction of inferior wall
37109911	Pulmonary embolism due to and following acute myocardial infarction
4108679	Rupture of cardiac wall without hemopericardium as current complication following acute myocardial infarction
4108219	Rupture of chordae tendinae due to and following acute myocardial infarction
4147223	Rupture of ventricle due to acute myocardial infarction
4124686	Silent myocardial infarction
765132	Subendocardial myocardial infarction
4108217	Subsequent myocardial infarction
4108677	Subsequent myocardial infarction of anterior wall
4108218	Subsequent myocardial infarction of inferior wall
45766241	Subsequent non-ST segment elevation myocardial infarction
45766114	Subsequent ST segment elevation myocardial infarction
45766113	Subsequent ST segment elevation myocardial infarction of anterior wall
45773170	Subsequent ST segment elevation myocardial infarction of inferior wall
4108680	Thrombosis of atrium, auricular appendage, and ventricle due to and following acute myocardial infarction
439693	True posterior myocardial infarction
37109910	Ventricular aneurysm due to and following acute myocardial infarction
45766212	Mitral valve regurgitation due to and following acute myocardial infarction
761737	Acute ST segment elevation myocardial infarction due to occlusion of circumflex coronary artery
4154704	Myocardial infarction with complication
<b>Ischaemic stroke</b>	
4048784	Anterior cerebral circulation hemorrhagic infarction
4045735	Anterior cerebral circulation infarction
4031045	Anterior choroidal artery syndrome
761110	Bilateral cerebral infarction due to precerebral arterial occlusion
4319331	Cerebellar infarction
372924	Cerebral artery occlusion
4110189	Cerebral infarct due to thrombosis of precerebral arteries
443454	Cerebral infarction
762951	Cerebral infarction due to anterior cerebral artery occlusion
765515	Cerebral infarction due to basilar artery stenosis

43530683	Cerebral infarction due to carotid artery occlusion
762933	Cerebral infarction due to cerebral artery occlusion
762937	Cerebral infarction due to cerebral venous thrombosis
4111714	Cerebral infarction due to cerebral venous thrombosis, non-pyogenic
4108356	Cerebral infarction due to embolism of cerebral arteries
45772786	Cerebral infarction due to embolism of middle cerebral artery
4110190	Cerebral infarction due to embolism of precerebral arteries
762935	Cerebral infarction due to internal carotid artery occlusion
763015	Cerebral infarction due to middle cerebral artery occlusion
46273649	Cerebral infarction due to occlusion of basilar artery
35610084	Cerebral infarction due to occlusion of cerebral artery
46270031	Cerebral infarction due to occlusion of precerebral artery
762934	Cerebral infarction due to posterior cerebral artery occlusion
43531607	Cerebral infarction due to stenosis of carotid artery
35610085	Cerebral infarction due to stenosis of cerebral artery
46270381	Cerebral infarction due to stenosis of precerebral artery
4110192	Cerebral infarction due to thrombosis of cerebral arteries
45767658	Cerebral infarction due to thrombosis of middle cerebral artery
44782773	Cerebral infarction due to vertebral artery occlusion
46270380	Cerebral infarction due to vertebral artery stenosis
37110678	Cerebral ischemic stroke due to occlusion of extracranial large artery
37110679	Cerebral ischemic stroke due to stenosis of extracranial large artery
4045734	CVA - cerebrovascular accident due to cerebral artery occlusion
4046362	Hemorrhagic cerebral infarction
4131383	Infarction of basal ganglia
4046237	Infarction of optic radiation
4119140	Infarction of visual cortex
4043731	Infarction - precerebral
4046360	Lacunar infarction
4141405	Left sided cerebral infarction
37116473	Multifocal cerebral infarction due to and following procedure on cardiovascular system
4077086	Occipital cerebral infarction
4046359	Partial anterior cerebral circulation infarction
4319146	Pituitary infarction
4043732	Posterior cerebral circulation hemorrhagic infarction
4045737	Pure motor lacunar infarction
4146185	Right sided cerebral infarction
36717605	Silent cerebral infarct
4142739	Thalamic infarction
4046358	Total anterior cerebral circulation infarction

4045738	Pure sensory lacunar infarction
40479572	Infarct of cerebrum due to iatrogenic cerebrovascular accident
<b>Pulmonary embolism</b>	
43530605	Pulmonary embolism with pulmonary infarction
45768439	Acute pulmonary embolism
45768888	Acute pulmonary thromboembolism
440417	Pulmonary embolism
4120091	Acute massive pulmonary embolism
4108681	Postoperative pulmonary embolus
4121618	Pulmonary thromboembolism
37016922	Pulmonary embolism on long-term anticoagulation therapy
4253796	Pulmonary microemboli
40480461	Infarction of lung due to iatrogenic pulmonary embolism
35615055	Saddle embolus of pulmonary artery with acute cor pulmonale
40761384	Pulmonary embolism requiring hospitalization
40479606	Septic pulmonary embolism
37109911	Pulmonary embolism due to and following acute myocardial infarction
36713113	Saddle embolus of pulmonary artery
4119607	Subacute massive pulmonary embolism
762808	Infarction of lung due to embolus
<b>Bells palsy</b>	
374923	Bell's palsy
760892	Bells palsy of left side of face
760893	Bells palsy of right side of face
42710044	Peripheral facial palsy
4091559	Facial palsy
<b>Guillain barre syndrome</b>	
374925	Acute infective polyneuritis
4164770	Guillain-Barré syndrome
37396786	Acute inflammatory demyelinating polyradiculoneuropathy
4070552	Fisher's syndrome
4141686	Bickerstaff's brainstem encephalitis
43530713	Acute inflammatory demyelinating polyneuropathy
<b>Transverse myelitis</b>	
4044077	Acute non-infective transverse myelitis
380995	Neuromyelitis optica
4147498	Encephalitis, myelitis and encephalomyelitis
138965	Myelitis
134330	Idiopathic transverse myelitis

139803	Acute transverse myelitis
4310824	Acute ascending myelitis
604439	Acute flaccid myelitis
443904	Transverse myelopathy syndrome
373189	encephalomyelitis
<b>Haemorrhagic stroke</b>	
35609033	Haemorrhagic stroke
42535421	Spontaneous hemorrhage of subarachnoid space from intracranial artery
45766118	Non-aneurysmal subarachnoid intracranial hemorrhage
42538062	Spontaneous intracranial hemorrhage
42873042	Subpial intracranial hemorrhage
439847	Intracranial hemorrhage
4172545	Angiogram-negative subarachnoid hemorrhage
432923	Subarachnoid hemorrhage
4046365	Subarachnoid hemorrhage due to ruptured aneurysm
4111708	Subarachnoid hemorrhage from vertebral artery
4148906	Spontaneous subarachnoid hemorrhage
42535423	Spontaneous hemorrhage of deep cerebral hemisphere
42535424	Spontaneous hemorrhage of cortical intracerebral hemisphere
42535425	Spontaneous hemorrhage of cerebral hemisphere
42539269	Spontaneous hemorrhage of brain stem
43530674	Spontaneous cerebellar hemorrhage
43530727	Spontaneous cerebral hemorrhage
44782730	Nontraumatic intraparenchymal cerebral hemorrhage
45766120	Convexal subarachnoid hemorrhage
46270111	Nontraumatic subarachnoid hemorrhage with brain compression
37309659	Spontaneous hemorrhage of subarachnoid space from anterior communicating artery
46273491	Spontaneous cerebral hemorrhage with compression of brain
42535420	Spontaneous hemorrhage of subarachnoid space from basilar artery
4077200	Subarachnoid hemorrhage from posterior cerebral artery aneurysm
42535422	Spontaneous hemorrhage of subarachnoid space from left posterior communicating artery
4077201	Subarachnoid hemorrhage from basilar artery aneurysm
4077827	Subarachnoid hemorrhage from multiple aneurysms
4077828	Subarachnoid hemorrhage from anterior cerebral artery aneurysm
42539183	Spontaneous hemorrhage of subarachnoid space from right posterior communicating artery
4077958	Subarachnoid hemorrhage from anterior communicating artery aneurysm
4077959	Subarachnoid hemorrhage from posterior communicating artery aneurysm
4078446	Subarachnoid hemorrhage from middle cerebral artery aneurysm
762095	Spontaneous hemorrhage of subarachnoid space from left middle cerebral artery
4078447	Subarachnoid hemorrhage from posterior inferior cerebellar artery aneurysm



762096	Non-traumatic hemorrhage of subarachnoid space from right middle cerebral artery
4046364	Subarachnoid hemorrhage due to ruptured arteriovenous malformation
4078448	Subarachnoid hemorrhage from carotid artery aneurysm
4108952	Subarachnoid hemorrhage from carotid siphon and bifurcation
4173481	Cerebromeningeal hemorrhage
45766119	Perimesencephalic subarachnoid hemorrhage
45766830	Non-aneurysmal perimesencephalic subarachnoid hemorrhage
4144154	Non-traumatic intracerebral ventricular hemorrhage
45773167	Subarachnoid hemorrhage from vertebral artery aneurysm
376713	Cerebral hemorrhage
443752	Ventricular hemorrhage
4045743	Massive supratentorial cerebral hemorrhage
4045744	Lobar cerebral hemorrhage
4045745	Thalamic hemorrhage
4049659	Subcortical hemorrhage
4080892	Intracerebellar and posterior fossa hemorrhage
4110185	Intracerebral hemorrhage, intraventricular
4110186	Intracerebral hemorrhage, multiple localized
4112018	Basal ganglia hemorrhage
4112019	External capsule hemorrhage
4129535	Pituitary hemorrhage
4176892	Cortical hemorrhage
4178726	Internal capsule hemorrhage
37109909	Silent micro-hemorrhage of brain
4199890	Hematoma of brain
4201094	Cerebellar hematoma
4218781	Cerebral hemisphere hemorrhage
37116267	Hemorrhage of medulla oblongata
4298750	Periventricular hemorrhagic venous infarct
40492969	Intraparenchymal hemorrhage of brain
4299377	Intrapontine hemorrhage
4319328	Brain stem hemorrhage
4326561	Cerebellar hemorrhage
4328027	Intraparenchymal hematoma of brain
42872434	Intracranial hematoma
42873044	Hemorrhage in globus pallidus
42873045	Hemorrhage in caudate nucleus
42873046	Hemorrhage in putamen
45766068	Deep hemispheric cerebral hemorrhage
762351	Ruptured acquired aneurysm of cerebral artery

764707	Ruptured aneurysm of intracranial artery
<b>Encephalitis</b>	
36676495	Limbic encephalitis with dipeptidyl-peptidase 6 antibodies
37399546	Limbic encephalitis with N-methyl-D-aspartate receptor antibodies
44806551	Acute encephalitis
379792	Post-immunization encephalitis
764228	Autoimmune encephalitis caused by N-methyl D-aspartate receptor antibody
4041671	Brainstem encephalitis
4041673	Limbic encephalitis
4047626	Focal encephalitis
4088249	Encephalitis lethargica
4100108	Post tetanus vaccination encephalitis
4100109	Post smallpox vaccination encephalitis
4100110	Post typhus vaccination encephalitis
4100111	Post rubella vaccination encephalitis
4100112	Post hepatitis A vaccination encephalitis
4102198	Post BCG vaccination encephalitis
4102199	Post measles vaccination encephalitis
4103107	Post typhoid vaccination encephalitis
4103108	Post paratyphoid vaccination encephalitis
4103109	Post cholera vaccination encephalitis
4103110	Post plague vaccination encephalitis
4103111	Post pertussis vaccination encephalitis
4103112	Post rabies vaccination encephalitis
4103113	Post yellow fever vaccination encephalitis
4103114	Post polio vaccination encephalitis
4103116	Post influenza vaccination encephalitis
4104690	Post hepatitis B vaccination encephalitis
4105200	Post diphtheria vaccination encephalitis
4105201	Post mixed vaccination encephalitis
4141686	Bickerstaff's brainstem encephalitis
4147498	Encephalitis, myelitis and encephalomyelitis
4249132	Primary encephalitis
4318558	Autoimmune encephalitis
4322814	Meningoencephalitis
35607961	Limbic encephalitis with leucine-rich glioma-inactivated 1 antibodies
35622353	Limbic encephalitis with contactin-associated protein-like 2 antibodies
35622805	Non-herpetic acute limbic encephalitis
4249574	Acute hemorrhagic leukoencephalitis
36674282	Steroid-responsive encephalopathy associated with autoimmune thyroiditis

373189	Encephalomyelitis
374021	Acute disseminated encephalomyelitis
443802	Postvaccinal encephalomyelitis
763040	Rasmussen syndrome, refractory
4104546	Meningoencephalomyelitis
4041672	Rasmussen syndrome
4103115	Post mumps vaccination encephalitis
<b>Immune thrombocytopenia</b>	
4027374	Alloimmune platelet transfusion refractoriness
4133984	Alloimmune thrombocytopenia
318397	Chronic idiopathic thrombocytopenic purpura
4000065	Drug-induced immune thrombocytopenia
4119134	Thrombocytopenic purpura
4103532	Immune thrombocytopenia
4028065	Primary ITP (immune thrombocytopenia)
4133983	Secondary autoimmune thrombocytopenia
4102469	Acute idiopathic thrombocytopenic purpura
4137430	Idiopathic thrombocytopenic purpura
441264	Primary thrombocytopenia
<b>Disseminated intravascular coagulation</b>	
4028488	Purpura fulminans
436093	Disseminated intravascular coagulation
37117819	Acquired purpura fulminans
<b>Narcolepsy</b>	
42536721	Narcolepsy type 1
436100	Narcolepsy
437854	Cataplexy and narcolepsy
43531721	Narcolepsy without cataplexy
<b>Deep vein thrombosis</b>	
762047	Acute bilateral thrombosis of subclavian veins
762148	Acute deep vein thrombosis of bilateral iliac veins
35616028	Acute deep vein thrombosis of left iliac vein
35615035	Acute deep vein thrombosis of left lower limb following procedure
35615031	Acute deep vein thrombosis of left upper limb following procedure
43531681	Acute deep vein thrombosis of lower limb
35616027	Acute deep vein thrombosis of right iliac vein
44782746	Acute deep venous thrombosis
44782751	Acute deep venous thrombosis of axillary vein
762008	Acute deep venous thrombosis of bilateral axillary veins

760875	Acute deep venous thrombosis of bilateral calves
765155	Acute deep venous thrombosis of bilateral ileofemoral veins
762017	Acute deep venous thrombosis of bilateral internal jugular veins
762417	Acute deep venous thrombosis of bilateral legs
762020	Acute deep venous thrombosis of bilateral popliteal veins
765546	Acute deep venous thrombosis of bilateral tibial veins
762004	Acute deep venous thrombosis of both upper extremities
44782742	Acute deep venous thrombosis of calf
44782747	Acute deep venous thrombosis of femoral vein
762015	Acute deep venous thrombosis of ileofemoral vein of left leg
765541	Acute deep venous thrombosis of ileofemoral vein of right lower extremity
44782748	Acute deep venous thrombosis of iliofemoral vein
44782752	Acute deep venous thrombosis of internal jugular vein
762009	Acute deep venous thrombosis of left axillary vein
760876	Acute deep venous thrombosis of left calf
765540	Acute deep venous thrombosis of left femoral vein
765922	Acute deep venous thrombosis of left internal jugular vein
762418	Acute deep venous thrombosis of left lower extremity
765537	Acute deep venous thrombosis of left upper extremity
762022	Acute deep venous thrombosis of popliteal vein of right leg
44782743	Acute deep venous thrombosis of popliteal vein
762021	Acute deep venous thrombosis of popliteal vein of left leg
762010	Acute deep venous thrombosis of right axillary vein
760877	Acute deep venous thrombosis of right calf
762013	Acute deep venous thrombosis of right femoral vein
762018	Acute deep venous thrombosis of right internal jugular vein
762419	Acute deep venous thrombosis of right lower extremity
762005	Acute deep venous thrombosis of right upper extremity
44782745	Acute deep venous thrombosis of thigh
44782744	Acute deep venous thrombosis of tibial vein
762026	Acute deep venous thrombosis of tibial vein of left leg
765156	Acute deep venous thrombosis of tibial vein of right leg
44782421	Acute deep venous thrombosis of upper extremity
762048	Acute thrombosis of left subclavian vein
45757410	Acute thrombosis of mesenteric vein
762049	Acute thrombosis of right subclavian vein
36712892	Acute thrombosis of splenic vein
4179911	Axillary vein thrombosis
44782762	Acute thrombosis of subclavian vein
37109253	Bilateral acute deep vein thrombosis of femoral veins

40478951	Bilateral deep vein thrombosis of lower extremities
4042396	Deep thrombophlebitis
77310	Deep vein phlebitis and thrombophlebitis of the leg
4189004	Deep vein thrombosis of leg related to intravenous drug use
3655221	Deep vein thrombosis of lower extremity due to intravenous drug use
4133004	Deep venous thrombosis
45773536	Deep venous thrombosis of femoropopliteal vein
763942	Deep venous thrombosis of left lower extremity
761980	Deep venous thrombosis of left upper extremity
443537	Deep venous thrombosis of lower extremity
4133975	Deep venous thrombosis of pelvic vein
40480555	Deep venous thrombosis of peroneal vein
4322565	Deep venous thrombosis of profunda femoris vein
763941	Deep venous thrombosis of right lower extremity
761928	Deep venous thrombosis of right upper extremity
4207899	Deep venous thrombosis of tibial vein
4028057	Deep venous thrombosis of upper extremity
435565	Embolism and thrombosis of the vena cava
40481089	Embolism from thrombosis of vein of lower extremity
4119760	Iliofemoral deep vein thrombosis
4124856	Inferior mesenteric vein thrombosis
4096099	Phlebitis of deep veins of lower extremity
4281689	Phlegmasia alba dolens
4284538	Phlegmasia cerulea dolens
46285905	Provoked deep vein thrombosis
46271900	Recurrent deep vein thrombosis
4033521	Splenic vein thrombosis
4055089	Superior mesenteric vein thrombosis
4230403	Thrombophlebitis of axillary vein
4069561	Thrombophlebitis of deep femoral vein
761831	Thrombophlebitis of deep vein of bilateral lower limbs
761830	Thrombophlebitis of deep vein of left lower limb
761808	Thrombophlebitis of deep vein of left upper limb
761832	Thrombophlebitis of deep vein of right lower limb
761809	Thrombophlebitis of deep vein of right upper limb
4221821	Thrombophlebitis of deep veins of lower extremity
440750	Thrombophlebitis of deep veins of upper extremities
4176614	Thrombophlebitis of iliac vein
761821	Thrombophlebitis of left deep femoral vein
761819	Thrombophlebitis of left femoral vein

761820	Thrombophlebitis of right deep femoral vein
761818	Thrombophlebitis of right femoral vein
4110339	Thrombophlebitis of the anterior tibial vein
4111868	Thrombophlebitis of the common iliac vein
4110343	Thrombophlebitis of the external iliac vein
439314	Thrombophlebitis of the femoral vein
4109877	Thrombophlebitis of the internal iliac vein
4112171	Thrombophlebitis of the popliteal vein
4112172	Thrombophlebitis of the posterior tibial vein
4250765	Thrombophlebitis of tibial vein
42538533	Thrombosis of iliac vein
44811347	Thrombosis of internal jugular vein
765049	Thrombosis of left peroneal vein
4317289	Thrombosis of mesenteric vein
4203836	Thrombosis of subclavian vein
4175649	Thrombosis of the popliteal vein
4149782	Thrombosis of vein of lower limb
4153353	Traumatic thrombosis of axillary vein
46285904	Unprovoked deep vein thrombosis
199837	Portal vein thrombosis
193512	Embolism and thrombosis of the renal vein
4111861	Phlebitis of popliteal vein
440738	Phlebitis of the femoral vein
438820	Deep venous thrombosis in puerperium
<b>Anaphylaxis</b>	
37207726	Anaphylaxis due to allergen immunotherapy
42539054	Shock co-occurrent and due to anaphylaxis caused by serum
441202	Anaphylaxis
4083867	Human protein-induced anaphylaxis
4084639	Idiopathic anaphylaxis
42536383	Anaphylactic shock
442038	Anaphylactic shock due to serum
4193788	Anaphylactic transfusion reaction
4302371	Anaphylactic shock, due to adverse effect of correct medicinal substance properly administered
762509	Anaphylaxis due to human papillomavirus vaccine
762511	Anaphylaxis due to diphtheria and tetanus vaccine
762512	Anaphylaxis due to tetanus, diphtheria and acellular pertussis vaccine
762513	Anaphylaxis due to meningococcal vaccine
762514	Anaphylaxis due to Hepatitis B vaccine
762515	Anaphylaxis due to rotavirus vaccine

762909	Anaphylaxis due to Hemophilus influenzae type b vaccine
4084168	Drug-induced anaphylaxis
4084169	Penicillin-induced anaphylaxis
4086737	Insulin-induced anaphylaxis
4302371	Anaphylactic shock, due to adverse effect of correct medicinal substance properly administered
<b>Myocarditis or pericarditis</b>	
312653	Acute myocarditis
4147350	Acute myoendocarditis
4006483	Acute myopericarditis
317307	Idiopathic myocarditis
43020652	Inflammatory cardiomyopathy
4242712	Interstitial myocarditis
314383	Myocarditis
4219260	Myocarditis due to drug
4336533	Myocarditis due to hypersensitivity state
37109914	Myopericarditis
4143969	Isolated (Fiedler's) myocarditis
4071283	Acute benign pericarditis
4072086	Acute bloody pericarditis
4070323	Acute effusive pericarditis
315293	Acute idiopathic pericarditis
4304392	Acute mediastinopericarditis
4006483	Acute myopericarditis
320116	Acute pericarditis
4204985	Acute periendocarditis
4069712	Acute pleuropericarditis
4178425	Acute pneumopericarditis
44782774	Chest pain due to pericarditis
4031469	Drug-induced pericarditis
4218568	Non-infectious pericarditis
4138837	Pericarditis
4245386	Pericarditis sicca
312928	adhesive pericarditis
312334	constrictive pericarditis
4238032	Acute pericardial effusion
4108814	Pericardial effusion - noninflammatory
4203625	Chronic constrictive pericarditis
<b>Thrombosis</b>	
45766075	Acute anterior ST segment elevation myocardial infarction
4178129	Acute anteroapical myocardial infarction

4267568	Acute anteroseptal myocardial infarction
762047	Acute bilateral thrombosis of subclavian veins
762148	Acute deep vein thrombosis of bilateral iliac veins
761444	Acute deep vein thrombosis of bilateral lower limbs following coronary artery bypass graft
35616028	Acute deep vein thrombosis of left iliac vein
35615035	Acute deep vein thrombosis of left lower limb following procedure
761416	Acute deep vein thrombosis of left upper limb following coronary artery bypass graft
35615031	Acute deep vein thrombosis of left upper limb following procedure
43531681	Acute deep vein thrombosis of lower limb
35616027	Acute deep vein thrombosis of right iliac vein
35615034	Acute deep vein thrombosis of right lower limb following procedure
761415	Acute deep vein thrombosis of right upper limb following coronary artery bypass graft
35615030	Acute deep vein thrombosis of right upper limb following procedure
44782746	Acute deep venous thrombosis
44782751	Acute deep venous thrombosis of axillary vein
762008	Acute deep venous thrombosis of bilateral axillary veins
760875	Acute deep venous thrombosis of bilateral calves
765155	Acute deep venous thrombosis of bilateral iliofemoral veins
762017	Acute deep venous thrombosis of bilateral internal jugular veins
762417	Acute deep venous thrombosis of bilateral legs
762020	Acute deep venous thrombosis of bilateral popliteal veins
765546	Acute deep venous thrombosis of bilateral tibial veins
762004	Acute deep venous thrombosis of both upper extremities
44782742	Acute deep venous thrombosis of calf
44782747	Acute deep venous thrombosis of femoral vein
762015	Acute deep venous thrombosis of iliofemoral vein of left leg
765541	Acute deep venous thrombosis of iliofemoral vein of right lower extremity
44782748	Acute deep venous thrombosis of iliofemoral vein
44782752	Acute deep venous thrombosis of internal jugular vein
762009	Acute deep venous thrombosis of left axillary vein
760876	Acute deep venous thrombosis of left calf
765540	Acute deep venous thrombosis of left femoral vein
765922	Acute deep venous thrombosis of left internal jugular vein
762418	Acute deep venous thrombosis of left lower extremity
765537	Acute deep venous thrombosis of left upper extremity
44782767	Acute deep venous thrombosis of lower extremity as complication of procedure
46270071	Acute deep venous thrombosis of lower limb due to and following coronary artery bypass grafting
762022	Acute deep venous thrombosis of popliteal vein of right leg
44782743	Acute deep venous thrombosis of popliteal vein
762021	Acute deep venous thrombosis of popliteal vein of left leg



762010	Acute deep venous thrombosis of right axillary vein
760877	Acute deep venous thrombosis of right calf
762013	Acute deep venous thrombosis of right femoral vein
762018	Acute deep venous thrombosis of right internal jugular vein
762419	Acute deep venous thrombosis of right lower extremity
762005	Acute deep venous thrombosis of right upper extremity
44782745	Acute deep venous thrombosis of thigh
44782744	Acute deep venous thrombosis of tibial vein
762026	Acute deep venous thrombosis of tibial vein of left leg
765156	Acute deep venous thrombosis of tibial vein of right leg
44782421	Acute deep venous thrombosis of upper extremity
764016	Acute deep venous thrombosis of upper extremity after coronary artery bypass graft
44782766	Acute deep venous thrombosis of upper extremity as complication of procedure
4120091	Acute massive pulmonary embolism
312327	Acute myocardial infarction
44782769	Acute myocardial infarction due to left coronary artery occlusion
44782712	Acute myocardial infarction due to right coronary artery occlusion
45766115	Acute myocardial infarction during procedure
434376	Acute myocardial infarction of anterior wall
45766150	Acute myocardial infarction of anterior wall involving right ventricle
438438	Acute myocardial infarction of anterolateral wall
4243372	Acute myocardial infarction of apical-lateral wall
4108669	Acute myocardial infarction of atrium
4151046	Acute myocardial infarction of basal-lateral wall
4275436	Acute myocardial infarction of high lateral wall
438170	Acute myocardial infarction of inferior wall
45771322	Acute myocardial infarction of inferior wall involving right ventricle
438447	Acute myocardial infarction of inferolateral wall
441579	Acute myocardial infarction of inferoposterior wall
436706	Acute myocardial infarction of lateral wall
4324413	Acute myocardial infarction of posterobasal wall
4051874	Acute myocardial infarction of posterolateral wall
4303359	Acute myocardial infarction of septum
4145721	Acute non-Q wave infarction
4119944	Acute non-Q wave infarction - anterolateral
4119456	Acute non-Q wave infarction - anteroseptal
4119945	Acute non-Q wave infarction - inferior
4119946	Acute non-Q wave infarction - inferolateral
4121466	Acute non-Q wave infarction - lateral
4124685	Acute non-Q wave infarction - widespread

4270024	Acute non-ST segment elevation myocardial infarction
35610091	Acute nontransmural myocardial infarction
319039	Acute posterior myocardial infarction
45768439	Acute pulmonary embolism
45768888	Acute pulmonary thromboembolism
4119457	Acute Q wave infarction - anterolateral
4119943	Acute Q wave infarction - anteroseptal
4121464	Acute Q wave infarction - inferior
4121465	Acute Q wave infarction - inferolateral
4124684	Acute Q wave infarction - lateral
4119948	Acute Q wave infarction - widespread
4126801	Acute Q wave myocardial infarction
4296653	Acute ST segment elevation myocardial infarction
46270162	Acute ST segment elevation myocardial infarction due to left coronary artery occlusion
46270163	Acute ST segment elevation myocardial infarction due to right coronary artery occlusion
43020460	Acute ST segment elevation myocardial infarction involving left anterior descending coronary artery
45766076	Acute ST segment elevation myocardial infarction of anterior wall involving right ventricle
761736	Acute ST segment elevation myocardial infarction of anteroapical wall
46270159	Acute ST segment elevation myocardial infarction of anterolateral wall
46270160	Acute ST segment elevation myocardial infarction of anteroseptal wall
45766116	Acute ST segment elevation myocardial infarction of inferior wall
45766151	Acute ST segment elevation myocardial infarction of inferior wall involving right ventricle
35611570	Acute ST segment elevation myocardial infarction of inferolateral wall
35611571	Acute ST segment elevation myocardial infarction of inferoposterior wall
46274044	Acute ST segment elevation myocardial infarction of lateral wall
46270161	Acute ST segment elevation myocardial infarction of posterior wall
46273495	Acute ST segment elevation myocardial infarction of posterobasal wall
46270158	Acute ST segment elevation myocardial infarction of posterolateral wall
46270164	Acute ST segment elevation myocardial infarction of septum
444406	Acute subendocardial infarction
762048	Acute thrombosis of left subclavian vein
45757410	Acute thrombosis of mesenteric vein
762049	Acute thrombosis of right subclavian vein
36712892	Acute thrombosis of splenic vein
44782762	Acute thrombosis of subclavian vein
35610093	Acute transmural myocardial infarction
4119947	Acute widespread myocardial infarction
4048784	Anterior cerebral circulation hemorrhagic infarction
4045735	Anterior cerebral circulation infarction
4031045	Anterior choroidal artery syndrome

37109912	Arrhythmia due to and following acute myocardial infarction
438172	Atrial septal defect due to and following acute myocardial infarction
37109253	Bilateral acute deep vein thrombosis of femoral veins
761110	Bilateral cerebral infarction due to precerebral arterial occlusion
40478951	Bilateral deep vein thrombosis of lower extremities
196715	Budd-Chiari syndrome
4124687	Cardiac rupture due to and following acute myocardial infarction
372924	Cerebral artery occlusion
4110189	Cerebral infarct due to thrombosis of precerebral arteries
443454	Cerebral infarction
762951	Cerebral infarction due to anterior cerebral artery occlusion
765515	Cerebral infarction due to basilar artery stenosis
43530683	Cerebral infarction due to carotid artery occlusion
762933	Cerebral infarction due to cerebral artery occlusion
762937	Cerebral infarction due to cerebral venous thrombosis
4111714	Cerebral infarction due to cerebral venous thrombosis, non-pyogenic
4108356	Cerebral infarction due to embolism of cerebral arteries
45772786	Cerebral infarction due to embolism of middle cerebral artery
4110190	Cerebral infarction due to embolism of precerebral arteries
762935	Cerebral infarction due to internal carotid artery occlusion
763015	Cerebral infarction due to middle cerebral artery occlusion
46273649	Cerebral infarction due to occlusion of basilar artery
35610084	Cerebral infarction due to occlusion of cerebral artery
46270031	Cerebral infarction due to occlusion of precerebral artery
762934	Cerebral infarction due to posterior cerebral artery occlusion
43531607	Cerebral infarction due to stenosis of carotid artery
35610085	Cerebral infarction due to stenosis of cerebral artery
46270381	Cerebral infarction due to stenosis of precerebral artery
4110192	Cerebral infarction due to thrombosis of cerebral arteries
45767658	Cerebral infarction due to thrombosis of middle cerebral artery
44782773	Cerebral infarction due to vertebral artery occlusion
46270380	Cerebral infarction due to vertebral artery stenosis
37110678	Cerebral ischemic stroke due to occlusion of extracranial large artery
37110679	Cerebral ischemic stroke due to stenosis of extracranial large artery
4102202	Cerebral venous sinus thrombosis
4046443	Cerebral venous thrombosis of cortical vein
762938	Cerebral venous thrombosis of cortical vein with infarction
762811	Cerebral venous thrombosis of cortical vein without infarction
4048787	Cerebral venous thrombosis of great cerebral vein
4048786	Cerebral venous thrombosis of sigmoid sinus

4043735	Cerebral venous thrombosis of straight sinus
45757409	Chronic thrombosis of mesenteric vein
36712891	Chronic thrombosis of splenic vein
4042396	Deep thrombophlebitis
4046884	Deep vein thrombosis of leg related to air travel
4133004	Deep venous thrombosis
4181315	Deep venous thrombosis associated with coronary artery bypass graft
45773536	Deep venous thrombosis of femoropopliteal vein
763942	Deep venous thrombosis of left lower extremity
761980	Deep venous thrombosis of left upper extremity
443537	Deep venous thrombosis of lower extremity
4133975	Deep venous thrombosis of pelvic vein
40480555	Deep venous thrombosis of peroneal vein
4322565	Deep venous thrombosis of profunda femoris vein
763941	Deep venous thrombosis of right lower extremity
761928	Deep venous thrombosis of right upper extremity
4207899	Deep venous thrombosis of tibial vein
4028057	Deep venous thrombosis of upper extremity
435565	Embolism and thrombosis of the vena cava
40481089	Embolism from thrombosis of vein of lower extremity
4215259	First myocardial infarction
4108678	Hemopericardium due to and following acute myocardial infarction
4046362	Hemorrhagic cerebral infarction
4309039	Hemorrhagic pulmonary infarction
4119760	Iliofemoral deep vein thrombosis
4131383	Infarction of basal ganglia
762808	Infarction of lung due to embolus
40480461	Infarction of lung due to iatrogenic pulmonary embolism
4046237	Infarction of optic radiation
4119140	Infarction of visual cortex
4043731	Infarction - precerebral
4124856	Inferior mesenteric vein thrombosis
4120316	Intracranial septic thrombophlebitis
4194609	Intracranial thrombophlebitis
4141405	Left sided cerebral infarction
4173167	Mesenteric embolus
4173632	Microinfarct of heart
45766214	Mitral valve regurgitation due to acute myocardial infarction without papillary muscle and chordal rupture
45771327	Mitral valve regurgitation due to acute myocardial infarction with papillary muscle and chordal rupture

4323202	Mixed myocardial ischemia and infarction
37116473	Multifocal cerebral infarction due to and following procedure on cardiovascular system
4329847	Myocardial infarction
37309626	Myocardial infarction due to demand ischemia
4170094	Myocardial infarction in recovery phase
314667	Nonpyogenic thrombosis of intracranial venous sinus
4111713	Non-pyogenic venous sinus thrombosis
4200113	Non-Q wave myocardial infarction
4077086	Occipital cerebral infarction
764503	Occlusion of cerebral vein by nonpyogenic thrombus
4046359	Partial anterior cerebral circulation infarction
4096099	Phlebitis of deep veins of lower extremity
4281689	Phlegmasia alba dolens
4284538	Phlegmasia cerulea dolens
4319146	Pituitary infarction
4092406	Portal thrombophlebitis
199837	Portal vein thrombosis
4043732	Posterior cerebral circulation hemorrhagic infarction
4309333	Postoperative deep vein thrombosis
4030582	Postoperative myocardial infarction
35610087	Postoperative nontransmural myocardial infarction
4108681	Postoperative pulmonary embolus
4206867	Postoperative subendocardial myocardial infarction
35610089	Postoperative transmural myocardial infarction
4207921	Postoperative transmural myocardial infarction of anterior wall
4209541	Postoperative transmural myocardial infarction of inferior wall
46285905	Provoked deep vein thrombosis
440417	Pulmonary embolism
37109911	Pulmonary embolism due to and following acute myocardial infarction
37016922	Pulmonary embolism on long-term anticoagulation therapy
43530605	Pulmonary embolism with pulmonary infarction
254662	Pulmonary infarction
4253796	Pulmonary microemboli
4121618	Pulmonary thromboembolism
4119610	Pulmonary tumor embolism
46271900	Recurrent deep vein thrombosis
4236271	Recurrent pulmonary embolism
4146185	Right sided cerebral infarction
4108679	Rupture of cardiac wall without hemopericardium as current complication following acute myocardial infarction
4108219	Rupture of chordae tendinae due to and following acute myocardial infarction

4147223	Rupture of ventricle due to acute myocardial infarction
36713113	Saddle embolus of pulmonary artery
35615055	Saddle embolus of pulmonary artery with acute cor pulmonale
4116206	Septic thrombophlebitis of cavernous sinus
4047634	Septic thrombophlebitis of cortical vein
4043901	Septic thrombophlebitis of great cerebral vein
4121335	Septic thrombophlebitis of lateral sinus
4119136	Septic thrombophlebitis of sagittal sinus
4041680	Septic thrombophlebitis of sigmoid sinus
36717605	Silent cerebral infarct
4124686	Silent myocardial infarction
4033521	Splenic vein thrombosis
4119607	Subacute massive pulmonary embolism
765132	Subendocardial myocardial infarction
4108217	Subsequent myocardial infarction
4108677	Subsequent myocardial infarction of anterior wall
4108218	Subsequent myocardial infarction of inferior wall
45766241	Subsequent non-ST segment elevation myocardial infarction
45766114	Subsequent ST segment elevation myocardial infarction
45766113	Subsequent ST segment elevation myocardial infarction of anterior wall
45773170	Subsequent ST segment elevation myocardial infarction of inferior wall
4055089	Superior mesenteric vein thrombosis
4142739	Thalamic infarction
4100225	Thrombophlebitis lateral venous sinus
4230403	Thrombophlebitis of axillary vein
764716	Thrombophlebitis of basal vein of Rosenthal
4217471	Thrombophlebitis of basilar sinus
4104695	Thrombophlebitis of cavernous sinus
4319332	Thrombophlebitis of cerebral vein
4069561	Thrombophlebitis of deep femoral vein
761831	Thrombophlebitis of deep vein of bilateral lower limbs
761830	Thrombophlebitis of deep vein of left lower limb
761808	Thrombophlebitis of deep vein of left upper limb
761832	Thrombophlebitis of deep vein of right lower limb
761809	Thrombophlebitis of deep vein of right upper limb
4221821	Thrombophlebitis of deep veins of lower extremity
440750	Thrombophlebitis of deep veins of upper extremities
4176614	Thrombophlebitis of iliac vein
4167985	Thrombophlebitis of inferior sagittal sinus
764712	Thrombophlebitis of internal cerebral vein

761821	Thrombophlebitis of left deep femoral vein
761819	Thrombophlebitis of left femoral vein
4318407	Thrombophlebitis of mesenteric vein
761820	Thrombophlebitis of right deep femoral vein
761818	Thrombophlebitis of right femoral vein
764714	Thrombophlebitis of sigmoid sinus
764708	Thrombophlebitis of straight sinus
763149	Thrombophlebitis of superior anastomotic vein
4100224	Thrombophlebitis of superior longitudinal venous sinus
4098706	Thrombophlebitis of superior sagittal sinus
4110339	Thrombophlebitis of the anterior tibial vein
4111868	Thrombophlebitis of the common iliac vein
4110343	Thrombophlebitis of the external iliac vein
439314	Thrombophlebitis of the femoral vein
4109877	Thrombophlebitis of the internal iliac vein
4112171	Thrombophlebitis of the popliteal vein
4112172	Thrombophlebitis of the posterior tibial vein
4250765	Thrombophlebitis of tibial vein
4277833	Thrombophlebitis of torcular Herophili
4108680	Thrombosis of atrium, auricular appendage, and ventricle due to and following acute myocardial infarction
764726	Thrombosis of basal vein
4228209	Thrombosis of basilar sinus
4234264	Thrombosis of cavernous venous sinus
762828	Thrombosis of cerebral medullary veins
4319329	Thrombosis of cerebral veins
42538533	Thrombosis of iliac vein
4048890	Thrombosis of inferior sagittal sinus
44811347	Thrombosis of internal jugular vein
4057329	Thrombosis of lateral venous sinus
765049	Thrombosis of left peroneal vein
4317289	Thrombosis of mesenteric vein
4203836	Thrombosis of subclavian vein
764723	Thrombosis of superior anastomotic vein
4102203	Thrombosis of superior longitudinal sinus
4290940	Thrombosis of superior sagittal sinus
4175649	Thrombosis of the popliteal vein
4079905	Thrombosis of torcular Herophili
4149782	Thrombosis of vein of lower limb
4105338	Thrombosis transverse sinus
4179912	Thrombus of intracranial vein

4046358	Total anterior cerebral circulation infarction
4153353	Traumatic thrombosis of axillary vein
439693	True posterior myocardial infarction
46285904	Unprovoked deep vein thrombosis
37109910	Ventricular aneurysm due to and following acute myocardial infarction
764710	Thrombophlebitis of transverse sinus
4144032	Mesenteric thrombus and/or embolus
45766212	Mitral valve regurgitation due to and following acute myocardial infarction
761737	Acute ST segment elevation myocardial infarction due to occlusion of circumflex coronary artery
77310	Deep vein phlebitis and thrombophlebitis of the leg
4189004	Deep vein thrombosis of leg related to intravenous drug use
4154704	Myocardial infarction with complication
<b>Thrombocytopenia</b>	
432870	Thrombocytopenic disorder
46272950	Thrombocytopathy, asplenia and miosis
44782445	Thrombocytopenia due to alcohol
42536958	Pancytopenia caused by medication
40321716	Secondary thrombocytopenia
37312165	Atypical hemolytic uremic syndrome
37209558	Pancytopenia caused by immunosuppressant
37204551	Hereditary isolated aplastic anemia
37110394	Isolated thrombocytopenia
37019055	Aplastic anemia co-occurrent with human immunodeficiency virus infection
37018663	Thrombocytopenia co-occurrent and due to alcoholism
37017607	Antibody mediated acquired pure red cell aplasia caused by erythropoiesis stimulating agent
37016151	Aplastic anemia caused by antineoplastic agent
36716406	Severe fever with thrombocytopenia syndrome virus
36715586	Refractory thrombocytopenia
36715053	Autosomal dominant macrothrombocytopenia
36713112	Pancytopenia due to antineoplastic chemotherapy
35623407	Adult pure red cell aplasia
4345236	Parvoviral aplastic crisis
4338386	Thrombocytopenia due to non-immune destruction
4316372	HELLP syndrome
4301602	Thrombotic thrombocytopenic purpura
4301128	Thrombocytopenia due to diminished platelet production
4299560	Thrombocytopenic purpura due to defective platelet production
4298690	Immunologic aplastic anemia
4292531	Thrombocytopenic purpura due to platelet consumption
4272928	Thrombocytopenia due to hypersplenism



4247776	Posttransfusion purpura
4239484	Acquired pancytopenia
4235220	Hereditary thrombocytopenic disorder
4234973	Chronic acquired pure red cell aplasia
4233407	Megakaryocytic aplasia
4230266	Autoimmune thrombotic thrombocytopenic purpura
4226905	Thrombocytopenia associated with AIDS
4225810	Aplastic anemia associated with AIDS
4219476	Thrombocytopenia due to defective platelet production
4218171	Uremic thrombocytopenia
4214947	Thrombocytopenic purpura associated with metabolic disorder
4211348	Aplastic anemia associated with pancreatitis
4204900	Acquired thrombotic thrombocytopenic purpura
4197574	Dilutional thrombocytopenia
4188208	Estren-Dameshek anemia
4186108	Aplastic anemia associated with metabolic alteration
4184758	Acquired aplastic anemia
4184200	Secondary aplastic anemia
4177177	Cellular immunologic aplastic anemia
4173278	Thrombocytopenia due to blood loss
4172008	Cyclic thrombocytopenia
4166754	Perinatal thrombocytopenia
4159966	Upshaw-Schulman syndrome
4159749	Idiopathic maternal thrombocytopenia
4159736	Radiation thrombocytopenia
4156233	Thrombocytopenia due to sequestration
4147049	Thrombocytopenia due to extracorporeal circulation
4146088	Aplastic anemia due to drugs
4145458	Thrombocytopenia due to hypothermia
4140545	Post infectious thrombocytopenic purpura
4139555	Thrombocytopenia due to massive blood transfusion
4137430	Idiopathic thrombocytopenic purpura
4133984	Alloimmune thrombocytopenia
4133983	Secondary autoimmune thrombocytopenia
4133981	Benign gestational thrombocytopenia
4125496	Pure red cell aplasia, acquired
4125494	Pancytopenia with pancreatitis
4121264	Epstein syndrome
4120620	Amegakaryocytic thrombocytopenia
4119134	Thrombocytopenic purpura

4103532	Immune thrombocytopenia
4102469	Acute idiopathic thrombocytopenic purpura
4101603	Thrombocytopenia due to extracorporeal circulation of blood
4101583	Aplastic anemia due to infection
4101582	Aplastic anemia due to chronic disease
4100998	Aplastic anemia due to toxic cause
4098148	Thrombocytopenia due to drugs
4098145	Idiopathic aplastic anemia
4098028	Transient acquired pure red cell aplasia
4098027	Aplastic anemia due to radiation
4082738	Autoimmune pancytopenia
4077348	Pancytopenia-dysmelia
4031699	Humoral immunologic aplastic anemia
4028065	Primary ITP (immune thrombocytopenia)
4027374	Alloimmune platelet transfusion refractoriness
4009307	Heparin-induced thrombocytopenia with thrombosis
4000065	Drug-induced immune thrombocytopenia
436956	Evans syndrome
433749	Heparin-induced thrombocytopenia
432881	Pancytopenia
318397	Chronic idiopathic thrombocytopenic purpura
140681	Constitutional aplastic anemia
138723	Acquired red cell aplasia
137829	Aplastic anemia
<b>Platelet measurement</b>	
37393863	Platelet count
4267147	Platelet count
4260199	Serial platelet counts
4038124	Platelet count, Rees-Ecker method
4016231	Platelet count, blood, manual
4015170	Platelet count, blood, automated
3039827	Platelets [#/volume] in Body fluid by Automated count
3031586	Platelets [#/volume] in Blood by Estimate
3024929	Platelets [#/volume] in Blood by Automated count
3024386	Platelet mean volume [Entitic volume] in Blood by Rees-Ecker
3007461	Platelets [#/volume] in Blood

## **APPENDIX IIIII**

Preliminary list of codes for Maternal Adverse Events.

Concept ID	Concept Name
<b>Antepartum haemorrhage</b>	
438203	Placenta previa with hemorrhage - delivered
4062807	Fetal-maternal hemorrhage - delivered
4058524	Fetal-maternal hemorrhage with antenatal problem
4062416	Placenta previa with hemorrhage - not delivered
4058526	Antepartum hemorrhage
4058527	Hemorrhage in early pregnancy, delivered
4034091	Antepartum hemorrhage with coagulation defect - not delivered
4129031	Antepartum hemorrhage associated with coagulation defect
4129032	Antepartum hemorrhage with coagulation defect - delivered
438489	First trimester bleeding
434089	Hemorrhagic complication of pregnancy
4228479	Antepartum hemorrhage with hypofibrinogenemia
37109810	Antepartum hemorrhage with hyperfibrinolysis
435323	Antepartum hemorrhage with afibrinogenemia
4245799	Indeterminate antepartum hemorrhage
444114	Third trimester bleeding
4239938	Antepartum hemorrhage, abruptio placentae and placenta previa
4193062	Accidental antepartum hemorrhage
193264	Second trimester bleeding
200149	Vaginal bleeding complicating early pregnancy
193535	Antepartum hemorrhage due to placenta previa type I
196757	Antepartum hemorrhage due to placenta previa type II
79146	Antepartum hemorrhage due to placenta previa type III
4225723	Antepartum hemorrhage due to placenta previa type IV
4327745	Antepartum hemorrhage due to disseminated intravascular coagulation
4028772	Concealed accidental hemorrhage
<b>Dysfunctional labour</b>	
42536563	Obstructed labor due to shoulder dystocia
72377	Shoulder girdle dystocia
75608	Shoulder dystocia with antenatal problem
80474	Shoulder dystocia - delivered
4025199	Pelvic dystocia AND/OR uterine disorder
4034148	Cervical dystocia
4194811	Retraction ring dystocia
4197085	Maternal dystocia

4216551	Fetal dystocia
4268171	Contraction ring dystocia
4034147	Failure to progress in labor
4091673	Failure to progress in second stage of labor
4129838	Failure to progress in first stage of labor
37110285	Intrapartum hemorrhage co-occurrent and due to obstructed labor with uterine rupture
37110289	Postpartum hemorrhage co-occurrent and due to uterine rupture following obstructed labor
37116435	Sepsis following obstructed labor
37119134	Vesicovaginal fistula with involvement of urinary continence mechanism due to and following obstructed labor
37310898	Obstructed labor due to deep transverse arrest and persistent occipitoposterior position
37396169	Obstructed labor due to fetal abnormality
45757117	Obstructed labor due to disproportion between fetus and pelvis
45772074	Obstructed labor due to incomplete rotation of fetal head
46269810	Obstructed labor due to abnormality of maternal pelvis
192694	Obstructed labor caused by pelvic soft tissues
193273	Obstructed labor caused by bony pelvis with antenatal problem
193827	Obstructed labor
193831	Obstructed labor due to fetal malposition with antenatal problem
194100	Obstructed labor due to fetal malposition
194711	Obstructed labor due to fetal malposition - delivered
196182	Obstructed labor caused by pelvic soft tissues - delivered
197051	Obstructed labor caused by bony pelvis
199087	Obstructed labor caused by bony pelvis - delivered
442440	Obstructed labor caused by pelvic soft tissues with antenatal problem
4060036	Obstructed labor due to breech presentation
4060037	Obstructed labor due to brow presentation
4060038	Obstructed labor due to shoulder presentation
4060039	Obstructed labor due to generally contracted pelvis
4061850	Obstructed labor due to face presentation
4061852	Obstructed labor due to abnormality of maternal pelvic organs
4064423	Obstructed labor due to pelvic inlet contraction
4064424	Obstructed labor due to pelvic outlet and mid-cavity contraction
4064437	Obstructed labor due to unusually large fetus
4064819	Obstructed labor due to compound presentation
4064821	Obstructed labor due to deformed pelvis
443435	Primary uterine inertia
73265	Deep transverse arrest with antenatal problem
75882	Deep transverse arrest - delivered
76487	Deep transverse arrest
192384	Secondary uterine inertia - delivered

192698	Hypertonic uterine dysfunction
192974	Secondary uterine inertia
196759	Primary uterine inertia with antenatal problem
196762	Primary uterine inertia - delivered
197346	Secondary uterine inertia with antenatal problem
197938	Uterine inertia
434431	Prolonged second stage - delivered
434435	Prolonged first stage with antenatal problem
434714	Prolonged second stage of labor
437620	Prolonged second stage with antenatal problem
438213	Delayed delivery of second twin, triplet etc
440167	Prolonged labor
440475	Prolonged first stage - delivered
441361	Delayed delivery after artificial rupture of membranes
441362	Prolonged first stage of labor
442617	Obstruction by abnormal pelvic soft tissues
443244	Hypertonic uterine inertia
443706	Dyscoordinate labor
444404	Obstruction caused by position of fetus at onset of labor
4053158	Uterine incoordination, first degree
4064559	Delayed delivery second twin - delivered
4064560	Delayed delivery second twin with antenatal problem
4064834	Hypertonic uterine inertia - delivered
4064835	Hypertonic uterine inertia with antenatal problem
4080668	Arrested active phase of labor
4129044	Delayed delivery of triplet
4129045	Head entrapment during breech delivery
4170458	Delayed delivery of second twin
4174056	Slow slope active phase of labor
4184274	Irregular uterine contractions
4193756	Desultory labor
4300387	Primary hypotonic uterine dysfunction
4300773	Obstruction by bony pelvis
4308657	Hypotonic uterine inertia
4308660	Prolonged latent phase of labor
4319561	Delayed delivery of second of multiple births
37017049	Prolonged second stage of labor due to poor maternal effort
37311825	Inefficient uterine activity with oxytocin augmentation
44784536	Deep transverse arrest with persistent occipitoposterior position
72700	Locked twins with antenatal problem

442422	Locked twins - delivered
444386	Interlocked twins
<b>Eclampsia</b>	
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
141084	Pre-eclampsia or eclampsia with pre-existing hypertension
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
<b>Ectopic pregnancy</b>	
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
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
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
<b>Gestational diabetes</b>	
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<
<b>HELLP</b>	
4316372	HELLP syndrome
<b>Postpartum endometritis</b>	
193699	Chronic gonococcal endometritis
4061203	Subacute endometritis



4065749	Puerperal endometritis - delivered with postnatal complication
200040	Acute gonococcal endometritis
4327175	Decidual endometritis
4061204	Subacute endomyometritis
4066014	Endometritis following molar AND/OR ectopic pregnancy
4328870	Puerperal endometritis
4031820	Acute endomyometritis
4061463	Puerperal endometritis with postnatal complication
4128047	Gonococcal endometritis
4302765	Endometritis
45765708	Acute on chronic endometritis
4339120	Endomyometritis
4122172	Endometritis, excluding cervix
4194612	Acute endometritis
<b>Postpartum haemorrhage</b>	
37394499	Minor postpartum haemorrhage
37394500	Major postpartum haemorrhage
37108740	Postpartum hemorrhage due to total placenta previa
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
<b>Preeclampsia</b>	
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

## **APPENDIX IVV**

Preliminary list of codes for covariates in the study.

Concept ID	Concept Name
<b>Alcohol misuse dependence</b>	
4338024	Absinthe addiction
433735	Acute alcoholic intoxication in alcoholism
432609	Acute alcoholic intoxication in remission, in alcoholism
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
<b>Anxiety</b>	
442077	Anxiety disorder
<b>Asthma</b>	
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 immunoglobulin 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 <i>Dermatophagoides farinae</i>
45766727	Allergic asthma due to <i>Dermatophagoides pteronyssinus</i>
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

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
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
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

BMI measurement	
3038553	Body mass index (BMI) [Ratio]
36304833	Body mass index (BMI) [Ratio] Estimated
Body weight	
3025315	Body weight
4099154	Body weight
3013762	Body weight Measured
3023166	Body weight Stated
3027492	Dry body weight Measured
Depression	
37016718	Acute depression
4308866	Agitated depression
37312479	Antenatal depression
438727	Atypical depressive disorder
439254	Bipolar affective disorder, current episode depression
439251	Bipolar affective disorder, currently depressed, in full remission
439253	Bipolar affective disorder, currently depressed, mild
437528	Bipolar affective disorder, currently depressed, moderate
4107538	Bipolar I disorder, most recent episode depressed with atypical features
4103574	Chronic depression
40481798	Chronic depressive personality disorder
4031328	Chronic major depressive disorder, single episode
4094358	Chronic recurrent major depressive disorder
4131545	Depression requiring intervention
4333687	Depressive conduct disorder
440383	Depressive disorder
37209503	Depressive disorder caused by amphetamine
4103126	Depressive disorder caused by drug
37309680	Depressive disorder caused by methamphetamine
45757213	Depressive disorder in mother complicating childbirth
37018656	Depressive disorder in mother complicating pregnancy
44782943	Depressive disorder in remission
433440	Dysthymia
4096229	Early onset dysthymia
4114950	Endogenous depression
4333679	Endogenous depression first episode
4168858	Endogenous depression - recurrent
1340305	Exacerbation of depressive disorder
1340392	Exacerbation of major depressive disorder
4336980	Generalized neuromuscular exhaustion syndrome

4154805	Involuntional depression
4057218	Late onset dysthymia
4269493	Major depression in full remission
4148630	Major depression in partial remission
4176002	Major depression in remission
4154391	Major depression, melancholic type
4282096	Major depression, single episode
4323418	Major depression single episode, in partial remission
37111697	Major depression with psychotic features
4152280	Major depressive disorder
45757195	Major depressive disorder in mother complicating childbirth
45757196	Major depressive disorder in mother complicating pregnancy
4181807	Major depressive disorder, single episode with atypical features
4287238	Major depressive disorder, single episode with catatonic features
4270907	Major depressive disorder, single episode with melancholic features
4093584	Major depressive disorder, single episode with postpartum onset
4338029	Masked depression
4133073	Maternity blues
4223090	Menopausal depression
4149320	Mild depression
4336957	Mild major depression
4195572	Mild major depression, single episode
37109052	Mild major depressive disorder co-occurrent with anxiety single episode
4129842	Mild postnatal depression
4228802	Mild recurrent major depression
36713698	Minimal depression
36715000	Minimal major depression
36714999	Minimal major depression single episode
36714997	Minimal recurrent major depression
4174987	Minor depressive disorder
4338031	Mixed anxiety and depressive disorder
4151170	Moderate depression
36717092	Moderately severe depression
36714389	Moderately severe major depression
36717389	Moderately severe major depression single episode
36714998	Moderately severe recurrent major depression
4307111	Moderate major depression
4049623	Moderate major depression, single episode
37109053	Moderate major depressive disorder co-occurrent with anxiety single episode
4077577	Moderate recurrent major depression

3654788	Mood disorder with depressive symptoms caused by amphetamine and/or amphetamine derivative
37110429	Mood disorder with depressive symptoms caused by anxiolytic
37110438	Mood disorder with depressive symptoms caused by cocaine
42538604	Mood disorder with depressive symptoms caused by dissociative drug
37164792	Mood disorder with depressive symptoms caused by ethanol
42538596	Mood disorder with depressive symptoms caused by hallucinogen
37110428	Mood disorder with depressive symptoms caused by hypnotic
42538584	Mood disorder with depressive symptoms caused by opioid
37117211	Mood disorder with depressive symptoms caused by sedative
42538590	Mood disorder with depressive symptoms caused by stimulant
42538736	Mood disorder with depressive symptoms caused by synthetic cathinone
42538599	Mood disorder with depressive symptoms caused by volatile inhalant
443864	Multi-infarct dementia with depression
36712668	Perinatal depression
607543	Persistent depressive disorder
37166876	Postmenopausal depression
4305966	Postoperative depression
4239471	Postpartum depression
42534817	Postpartum major depression in remission
4332994	Post-schizophrenic depression
4102973	Postviral depression
4242733	Premenstrual dysphoric disorder
4145216	Premenstrual dysphoric disorder in remission
4307951	Primary dysthymia
4243308	Primary dysthymia early onset
4195680	Primary dysthymia late onset
35622934	Psychosis and severe depression co-occurrent and due to bipolar affective disorder
35609845	Reactive depression, first episode
35609842	Reactive depression, prolonged single episode
35609844	Reactive depression, recurrent
35609843	Reactive depression, single episode
4314692	Reactive depression (situational)
435520	Reactive depressive psychosis
43020483	Reactive depressive psychosis, single episode
4226155	Recurrent brief depressive disorder
4098302	Recurrent depression
35610109	Recurrent depression with current moderate episode
35610097	Recurrent depression with current severe episode and psychotic features
35610108	Recurrent depression with current severe episode without psychotic features
4282316	Recurrent major depression



4263748	Recurrent major depression in full remission
4141454	Recurrent major depression in partial remission
433991	Recurrent major depression in remission
35615154	Recurrent major depressive disorder co-occurrent with anxiety in full remission
35615155	Recurrent major depressive disorder in partial remission co-occurrent with anxiety
4304140	Recurrent major depressive disorder with atypical features
4220023	Recurrent major depressive disorder with catatonic features
4205471	Recurrent major depressive disorder with melancholic features
4324959	Recurrent major depressive disorder with postpartum onset
432285	Recurrent major depressive episodes
44805549	Recurrent major depressive episodes, in partial remission
44813499	Recurrent major depressive episodes, in remission
438998	Recurrent major depressive episodes, mild
432883	Recurrent major depressive episodes, moderate
44805542	Recurrent major depressive episodes, severe
434911	Recurrent major depressive episodes, severe, with psychosis
44805669	Recurrent major depressive episodes, severe, with psychosis, psychosis in remission
35615151	Recurrent mild major depressive disorder co-occurrent with anxiety
35615153	Recurrent moderate major depressive disorder co-occurrent with anxiety
35609824	Recurrent reactive depressive episodes, severe, with psychosis
35615152	Recurrent severe major depressive disorder co-occurrent with anxiety
4224940	Schizoaffective disorder, depressive type
4092239	Seasonal affective disorder
4224639	Secondary dysthymia
4150047	Secondary dysthymia early onset
4263770	Secondary dysthymia late onset
4149321	Severe depression
42872722	Severe major depression
42872411	Severe major depression, single episode
441534	Severe major depression, single episode, without psychotic features
438406	Severe major depression, single episode, with psychotic features
4299785	Severe major depression, single episode, with psychotic features, mood-congruent
4067409	Severe major depression, single episode, with psychotic features, mood-incongruent
4327337	Severe major depression without psychotic features
4250023	Severe major depression with psychotic features
4144233	Severe major depression with psychotic features, mood-congruent
4243822	Severe major depression with psychotic features, mood-incongruent
37109054	Severe major depressive disorder co-occurrent with anxiety single episode
4129184	Severe postnatal depression
43531624	Severe recurrent major depression

435220	Severe recurrent major depression without psychotic features
4154309	Severe recurrent major depression with psychotic features
4141292	Severe recurrent major depression with psychotic features, mood-congruent
4034842	Severe recurrent major depression with psychotic features, mood-incongruent
44782720	Severe seasonal affective disorder
4025677	Single episode of major depression in full remission
44805550	Single major depressive episode, in remission
439259	Single major depressive episode, severe, with psychosis
44805668	Single major depressive episode, severe, with psychosis, psychosis in remission
4197222	Stuporous depression
607540	Treatment resistant depression
<b>Diabetes</b>	
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
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
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
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
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
<b>Essential hypertension</b>	
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
<b>HIV</b>	
37017285	Acquired hemolytic anemia co-occurrent with human immunodeficiency virus infection
45757102	Acquired immune deficiency syndrome complicating childbirth
4128060	Acquired immune deficiency syndrome-related nephropathy
4221489	Acquired immunodeficiency syndrome-associated disorder
37017266	Acute endocarditis co-occurrent with human immunodeficiency virus infection
4222405	Acute endocarditis with AIDS (acquired immunodeficiency syndrome)
4008081	Acute HIV infection
37017282	Agranulocytosis co-occurrent with human immunodeficiency virus infection
4224553	Agranulocytosis with AIDS (acquired immunodeficiency syndrome)
4267414	AIDS
37166798	AIDS (acquired immunodeficiency syndrome) wasting syndrome
37017132	Anemia co-occurrent with human immunodeficiency virus infection
37019055	Aplastic anemia co-occurrent with human immunodeficiency virus infection
4225810	Aplastic anemia with AIDS (acquired immunodeficiency syndrome)
37017456	Aspergillosis co-occurrent with human immunodeficiency virus infection
42538959	Asymptomatic human immunodeficiency virus A1 infection
4241530	Asymptomatic human immunodeficiency virus infection
4239722	Asymptomatic human immunodeficiency virus infection in pregnancy
37019058	Bacterial pneumonia co-occurrent with human immunodeficiency virus infection
4223032	Bacterial pneumonia with AIDS (acquired immunodeficiency syndrome)
4226790	Blindness with AIDS (acquired immunodeficiency syndrome)
37017595	Burkitt lymphoma co-occurrent with human immunodeficiency virus infection
37017092	Candidiasis of esophagus co-occurrent with human immunodeficiency virus infection
4222062	Candidiasis of lung with AIDS (acquired immunodeficiency syndrome)
37017254	Candidiasis of mouth co-occurrent with human immunodeficiency virus infection
4226792	Candidiasis of mouth with AIDS (acquired immunodeficiency syndrome)

36714339	Candidiasis of upper respiratory tract co-occurrent with human immunodeficiency virus infection
37017276	Cardiomyopathy co-occurrent with human immunodeficiency virus infection
4226110	Central nervous disorder with AIDS (acquired immunodeficiency syndrome)
4223276	Central nervous system demyelinating disease with AIDS (acquired immunodeficiency syndrome)
44783780	Cholangitis with AIDS (acquired immunodeficiency syndrome)
3654682	Chronic hepatitis C co-occurrent with human immunodeficiency virus infection
37017210	Chronic infection caused by herpes simplex virus co-occurrent with human immunodeficiency virus infection
4224740	Coccidioidomycosis with AIDS (acquired immunodeficiency syndrome)
37017453	Coccidiosis co-occurrent with human immunodeficiency virus infection
4171124	Congenital acquired immune deficiency syndrome
4180254	Congenital human immunodeficiency virus infection
4171125	Congenital human immunodeficiency virus positive status syndrome
4222712	Cryptococcosis with AIDS (acquired immunodeficiency syndrome)
37017549	Dementia co-occurrent with human immunodeficiency virus infection
4228133	Dementia with AIDS (acquired immunodeficiency syndrome)
37017294	Demyelinating disease of central nervous system co-occurrent with human immunodeficiency virus infection
4227229	Dermatomycosis with AIDS (acquired immunodeficiency syndrome)
37018935	Dermatophytosis co-occurrent with human immunodeficiency virus infection
37017442	Diffuse non-Hodgkin immunoblastic lymphoma co-occurrent with human immunodeficiency virus infection
37017319	Disorder of central nervous system co-occurrent with human immunodeficiency virus infection
37018711	Disorder of eye proper co-occurrent with human immunodeficiency virus infection
37017094	Disorder of gastrointestinal tract co-occurrent with human immunodeficiency virus infection
37017260	Disorder of kidney co-occurrent with human immunodeficiency virus infection
37017279	Disorder of peripheral nervous system co-occurrent with human immunodeficiency virus infection
37017244	Disorder of respiratory system co-occurrent with human immunodeficiency virus infection
37017125	Disorder of skin co-occurrent with human immunodeficiency virus infection
37017259	Disorder of spinal cord co-occurrent with human immunodeficiency virus infection
37017655	Disseminated atypical infection caused by Mycobacterium co-occurrent with human immunodeficiency virus infection
4227380	Disseminated candidiasis with AIDS (acquired immunodeficiency syndrome)
37019052	Disseminated infection caused by Strongyloides co-occurrent with human immunodeficiency virus infection
4228754	Dyspnea with AIDS (acquired immunodeficiency syndrome)
3654950	Encephalitis caused by human immunodeficiency virus type 1
4222250	Encephalitis with AIDS (acquired immunodeficiency syndrome)
4228612	Encephalomyelitis with AIDS (acquired immunodeficiency syndrome)

4228440	Encephalopathy with AIDS (acquired immunodeficiency syndrome)
37017265	Enlargement of liver co-occurrent with human immunodeficiency virus infection
37017106	Eruption of skin co-occurrent with human immunodeficiency virus infection
37116831	Extrapulmonary tuberculosis co-occurrent with human immunodeficiency virus infection
4228272	Failure to thrive in infant with AIDS (acquired immunodeficiency syndrome)
3200792	False positive serology for HIV
4221911	Fatigue with AIDS (acquired immunodeficiency syndrome)
4276586	Finding of HIV status
37017586	Focal segmental glomerulosclerosis co-occurrent with human immunodeficiency virus infection
37017261	Gastrointestinal malabsorption syndrome co-occurrent with human immunodeficiency virus infection
37017093	Heart disease co-occurrent with human immunodeficiency virus infection
4222402	Hematopoietic system disease with AIDS (acquired immunodeficiency syndrome)
37017209	Hemophagocytic syndrome with human immunodeficiency virus infection
4222224	Hepatomegaly with AIDS (acquired immunodeficiency syndrome)
4227539	Herpes zoster with AIDS (acquired immunodeficiency syndrome)
4225170	Histoplasmosis with AIDS (acquired immunodeficiency syndrome)
4295638	HIV CDC stage finding
4013106	HIV detected
46284256	HIV (human immunodeficiency virus) disease resulting in haematological and immunological abnormalities
4314426	HIV infection with acute lymphadenitis
4201627	HIV infection with aseptic meningitis
4172009	HIV infection with infectious mononucleosis-like syndrome
36714516	Human immunodeficiency virus 2 antibody detected and Human immunodeficiency virus 1 antibody cross-reactivity
4276281	Human immunodeficiency virus antibody titer - finding
44783356	Human immunodeficiency virus carrier
604781	Human immunodeficiency virus Centers for Disease Control and Prevention dual infection with HIV-1 and HIV-2
604783	Human immunodeficiency virus Centers for Disease Control and Prevention stage 0
600510	Human immunodeficiency virus Centers for Disease Control and Prevention stage 1
600511	Human immunodeficiency virus Centers for Disease Control and Prevention stage 2
600512	Human immunodeficiency virus Centers for Disease Control and Prevention stage 3
600513	Human immunodeficiency virus Centers for Disease Control and Prevention stage unknown
604782	Human immunodeficiency virus Centers for Disease Control and Prevention undifferentiated type
36715476	Human immunodeficiency virus complicating pregnancy childbirth and the puerperium
4161950	Human immunodeficiency virus encephalitis
4262297	Human immunodeficiency virus encephalopathy
4340791	Human immunodeficiency virus enteropathy



4253472	Human immunodeficiency virus I infection
439727	Human immunodeficiency virus infection
4087603	Human immunodeficiency virus infection constitutional disease
36687122	Human immunodeficiency virus infection with cognitive impairment
4087604	Human immunodeficiency virus infection with neurological disease
4092686	Human immunodeficiency virus infection with secondary clinical infectious disease
45757132	Human immunodeficiency virus in mother complicating childbirth
4047624	Human immunodeficiency virus leukoencephalopathy
606047	Human immunodeficiency virus modified skin disease
4347288	Human immunodeficiency virus myopathy
42536591	Human immunodeficiency virus World Health Organization 2007 stage 1 co-occurent with malaria
42536590	Human immunodeficiency virus World Health Organization 2007 stage 1 co-occurent with tuberculosis
42536593	Human immunodeficiency virus World Health Organization 2007 stage 2 co-occurent with malaria
42536592	Human immunodeficiency virus World Health Organization 2007 stage 2 co-occurent with tuberculosis
42536594	Human immunodeficiency virus World Health Organization 2007 stage 3 co-occurent with malaria
42539031	Human immunodeficiency virus World Health Organization 2007 stage 3 co-occurent with tuberculosis
42536596	Human immunodeficiency virus World Health Organization 2007 stage 4 co-occurent with malaria
42536595	Human immunodeficiency virus World Health Organization 2007 stage 4 co-occurent with tuberculosis
4228760	Hyperhidrosis with AIDS (acquired immunodeficiency syndrome)
37018063	Immune reconstitution inflammatory syndrome caused by human immunodeficiency virus infection
36674252	Infection caused by Coccidia co-occurent with acquired immunodeficiency syndrome
37017550	Infection caused by Cryptosporidium co-occurent with human immunodeficiency virus infection
37017446	Infection caused by Cytomegalovirus co-occurent with human immunodeficiency virus infection
37017454	Infection caused by herpes simplex virus co-occurent with human immunodeficiency virus infection
37017457	Infection caused by herpes zoster virus co-occurent with human immunodeficiency virus infection
36674254	Infection caused by Isospora co-occurent with acquired immunodeficiency syndrome
37017295	Infection caused by Nocardia co-occurent with human immunodeficiency virus infection
37017248	Infection caused by Pneumocystis co-occurent with human immunodeficiency virus infection
37019042	Infection caused by Salmonella co-occurent with human immunodeficiency virus infection
37017124	Infection caused by Strongyloides co-occurent with human immunodeficiency virus infection

36674253	Infection caused by <i>Toxoplasma gondii</i> co-occurrent with acquired immunodeficiency syndrome
40493262	Infectious disease with acquired immune deficiency syndrome
37017318	Infectious gastroenteritis co-occurrent with human immunodeficiency virus infection
4225989	Infectious gastroenteritis with AIDS (acquired immunodeficiency syndrome)
37162220	Infectious mononucleosis caused by human immunodeficiency virus
37162221	Infectious mononucleosis caused by human immunodeficiency virus type I
37017284	Infective arthritis co-occurrent with human immunodeficiency virus infection
4228290	Infective arthritis with AIDS (acquired immunodeficiency syndrome)
4222383	Intestinal malabsorption with AIDS (acquired immunodeficiency syndrome)
37116830	Invasive carcinoma of uterine cervix co-occurrent with human immunodeficiency virus infection
37017296	Isosporiasis co-occurrent with human immunodeficiency virus infection
4224096	Kaposi's sarcoma with AIDS (acquired immunodeficiency syndrome)
4228757	Low vision with AIDS (acquired immunodeficiency syndrome)
37017263	Lymphadenopathy co-occurrent with human immunodeficiency virus infection
4225027	Malaise with AIDS (acquired immunodeficiency syndrome)
4226357	Malignant neoplasm with AIDS (acquired immunodeficiency syndrome)
37017320	Malignant neoplastic disease co-occurrent with human immunodeficiency virus infection
4225193	Microsporidiosis associated with acquired immunodeficiency syndrome
37017580	Microsporidiosis co-occurrent with human immunodeficiency virus infection
37017652	Multidermatomal infection caused by Herpes zoster co-occurrent with human immunodeficiency virus infection
4221607	Mycobacteriosis with AIDS (acquired immunodeficiency syndrome)
37017126	Myelitis co-occurrent with human immunodeficiency virus infection
4227974	Myelitis with AIDS (acquired immunodeficiency syndrome)
4224078	Myelopathy with AIDS (acquired immunodeficiency syndrome)
37017108	Myocarditis co-occurrent with human immunodeficiency virus infection
4227053	Myocarditis with AIDS (acquired immunodeficiency syndrome)
37017424	Nephrotic syndrome co-occurrent with human immunodeficiency virus infection
37019034	Neuralgia co-occurrent with human immunodeficiency virus infection
4228745	Neuralgia with AIDS (acquired immunodeficiency syndrome)
37017262	Neuritis co-occurrent with human immunodeficiency virus infection
4227519	Neuritis with AIDS (acquired immunodeficiency syndrome)
4048033	Neuropathy due to human immunodeficiency virus
4211956	Neutropenia with AIDS (acquired immunodeficiency syndrome)
4224578	Nocardiosis with AIDS (acquired immunodeficiency syndrome)
4223738	Noninfectious gastroenteritis with AIDS (acquired immunodeficiency syndrome)
4227077	Nutritional deficiency with AIDS (acquired immunodeficiency syndrome)
37017579	Opportunistic mycosis co-occurrent with human immunodeficiency virus infection
37017249	Organic brain syndrome co-occurrent with human immunodeficiency virus infection

4227205	Organic brain syndrome with AIDS (acquired immunodeficiency syndrome)
4224860	Organic dementia with AIDS (acquired immunodeficiency syndrome)
36716524	Parkinsonism due to human immunodeficiency virus infection
4236860	Pediatric human immunodeficiency virus infection
4320032	Persistent generalized lymphadenopathy
4221503	Pneumococcal pneumonia with AIDS (acquired immunodeficiency syndrome)
4226502	Pneumocystosis with AIDS (acquired immunodeficiency syndrome)
4228277	Pneumonia with AIDS (acquired immunodeficiency syndrome)
37018721	Polyneuropathy co-occurrent with human immunodeficiency virus infection
4226662	Polyneuropathy with AIDS (acquired immunodeficiency syndrome)
37017247	Presenile dementia co-occurrent with human immunodeficiency virus infection
4224240	Presenile dementia with AIDS (acquired immunodeficiency syndrome)
37017112	Primary cerebral lymphoma co-occurrent with human immunodeficiency virus infection
606040	Primary human immunodeficiency virus infection
4227969	Primary lymphoma of brain with AIDS (acquired immunodeficiency syndrome)
1340516	Progression of Human immunodeficiency virus infection
37017246	Progressive multifocal leukoencephalopathy co-occurrent with human immunodeficiency virus infection
4226631	Progressive multifocal leukoencephalopathy with AIDS (acquired immunodeficiency syndrome)
37017455	Pyrexia of unknown origin co-occurrent with human immunodeficiency virus infection
37018714	Radiculitis co-occurrent with human immunodeficiency virus infection
4227072	Radiculitis with AIDS (acquired immunodeficiency syndrome)
37017467	Reactive for both human immunodeficiency virus antibodies and p24 antigen
37017278	Recurrent bacterial pneumonia co-occurrent with human immunodeficiency virus infection
37018755	Recurrent salmonella sepsis co-occurrent with human immunodeficiency virus infection
37017425	Renal failure syndrome co-occurrent with human immunodeficiency virus infection
4225643	Respiratory disorder with AIDS (acquired immunodeficiency syndrome)
37017243	Reticulosarcoma co-occurrent with human immunodeficiency virus infection
4226388	Reticulosarcoma with AIDS (acquired immunodeficiency syndrome)
4223918	Retinal vascular changes with AIDS (acquired immunodeficiency syndrome)
4228115	Retinopathy with AIDS (acquired immunodeficiency syndrome)
4226629	Salivary gland disease with AIDS (acquired immunodeficiency syndrome)
4225017	Salmonella infection with AIDS (acquired immunodeficiency syndrome)
44784137	Sepsis with acquired immunodeficiency syndrome
4224566	Skin disorder with AIDS (acquired immunodeficiency syndrome)
4220603	Skin rash with AIDS (acquired immunodeficiency syndrome)
37017082	Splenomegaly co-occurrent with human immunodeficiency virus infection
4223597	Strongyloidiasis with AIDS (acquired immunodeficiency syndrome)
37017071	Subacute adenoviral encephalitis co-occurrent with human immunodeficiency virus infection
4222717	Subacute adenoviral encephalitis with AIDS (acquired immunodeficiency syndrome)

4227350	Subacute endocarditis with AIDS (acquired immunodeficiency syndrome)
4224425	Subacute myocarditis with AIDS (acquired immunodeficiency syndrome)
45769864	Symptomatic human immunodeficiency virus (HIV) I infection
43531586	Symptomatic human immunodeficiency virus infection
4226905	Thrombocytopenia with AIDS (acquired immunodeficiency syndrome)
4226658	Tuberculosis with AIDS (acquired immunodeficiency syndrome)
4045982	Vacuolar myelopathy
4225318	Viral pneumonia with AIDS (acquired immunodeficiency syndrome)
37017283	Visual impairment co-occurrent with human immunodeficiency virus infection
604976	World Health Organization human immunodeficiency virus infection clinical stage
<b>Influenza vaccine</b>	
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]
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...
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...
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]
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]
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...
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]
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
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...
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]

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
<b>Non smoker</b>	
903651	Currently doesn't use tobacco or its derivatives
42742406	Current tobacco non-smoker and not currently exposed to secondhand smoke (Asthma)
2101897	Current tobacco non-user (CAD, CAP, COPD, PV) (DM) (IBD)
2617856	Current tobacco non-user (Deprecated)
4144272	Never smoked tobacco
903653	Never used tobacco or its derivatives
4222303	Non-smoker
40329152	Non-smoker (& [never smoked tobacco])
40298657	Non-smoker (& [never smoked tobacco])
<b>Obesity</b>	
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
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
4029277	Fat pad syndrome
4029276	Generalized obesity
37166819	Genetic non-syndromic obesity
4029900	Gynecoid obesity
36717154	Hydrocephalus with obesity and hypogonadism syndrome
4005991	Hyperinsular 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
438731	Localized adiposity
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
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
<b>Polycystic ovary syndrome</b>	
3654293	Polycystic bilateral ovaries
3654291	Polycystic left ovary
36683296	Polycystic ovary
40443308	Polycystic ovary syndrome
3654296	Polycystic ovary syndrome of bilateral ovaries
3654295	Polycystic ovary syndrome of left ovary
3654294	Polycystic ovary syndrome of right ovary

3654292	Polycystic right ovary
<b>Smoker</b>	
40766642	Are you considering quitting smoking during the next 6 months [PLCO]
4044778	Chain smoker
4047454	Cigar consumption
4276526	Cigarette smoker
903657	Cigarette smoker
764104	Cigarette smoker (1-4 cigarettes/day)
764103	Cigarette smoker (5-9 cigarettes/day)
4282779	Cigarette smoking tobacco
4246415	Cigar smoker
903664	Cigar smoker
4132133	Cigar smoking tobacco
764468	Continuous dependence on chewing tobacco
765451	Continuous dependence on cigarette smoking
40766945	Current smoker
44802867	Current smoker annual review
2101895	Current tobacco smoker (CAD, CAP, COPD, PV) (DM)
2617854	Current tobacco smoker (Deprecated)
44786481	Documentation that patient is a current tobacco user
764383	Enrollment in smoking cessation program
764471	Episodic dependence on chewing tobacco
764469	Episodic dependence on cigarette smoking
40486518	Failed attempt to stop smoking
4041511	Heavy cigarette smoker
903661	Heavy cigarette smoker (20-39 cigarettes per day)
4052947	Heavy cigarette smoker (20-39 cigs/day)
4209006	Heavy smoker (over 20 per day)
762499	Heavy tobacco smoker
44784248	Hookah pipe smoker
903665	Hookah smoker
40766643	In the past, have you ever made a serious attempt to quit smoking That is, have you stopped smoking for at least one day or longer because you were trying to quit [PLCO]
4052948	Keeps trying to stop smoking
600776	Lack of support for smoking cessation
4042037	Light cigarette smoker
903659	Light cigarette smoker (1-9 cigarettes per day)
4052029	Light cigarette smoker (1-9 cigs/day)
762498	Light tobacco smoker
42534813	Maternal tobacco use in pregnancy

4131520	Minutes from waking to first tobacco consumption
4044776	Moderate cigarette smoker
903660	Moderate cigarette smoker (10-19 cigarettes per day)
4052030	Moderate cigarette smoker (10-19 cigs/day)
4209585	Moderate smoker (20 or less per day)
4193014	Negotiated date for cessation of smoking
4209423	Nicotine dependence
619068	Nondependent abuse of tobacco
4216174	Not interested in stopping smoking
44811339	Number of previous attempts to stop smoking
4044775	Occasional cigarette smoker
37395605	Occasional tobacco smoker
903663	Pipe smoker
4218917	Pipe smoker
4224317	Pipe smoking tobacco
4041509	Pipe tobacco consumption
4215409	Ready to stop smoking
4293731	Reason for restarting smoking
4058138	Rolls own cigarettes
1617736	Smoked cigarette within 30M after waking in past 3 months
1617232	Smoked more than 10 cigarettes per day in past 3 months
4298794	Smoker
36716991	Smoker in home
4263877	Smokers' cough
4126918	Smokers keratosis
46270550	Smoker's melanosis
4028286	Smoker's respiratory syndrome
42709996	Smokes tobacco daily
4001198	Smoking-pipe maker
4046886	Smoking reduced
4204653	Smoking restarted
4141787	Smoking started
4190573	Thinking about stopping smoking
4148163	Tobacco amblyopia
37109024	Tobacco dependence caused by chewing tobacco
37109023	Tobacco dependence caused by cigarettes
4099811	Tobacco dependence, continuous
4103417	Tobacco dependence, episodic
437264	Tobacco dependence syndrome
3655996	Tobacco dependence with current use

4315821	Tobacco deposit on teeth
903654	Tobacco or its derivatives user
4150993	Tobacco related optic neuropathy
764198	Tobacco smoking in mother complicating childbirth
764199	Tobacco smoking in mother complicating pregnancy
764197	Tobacco smoking in mother complicating puerperium
21494888	Tobacco smoking status for tobacco smoker
45757177	Tobacco use in mother complicating childbirth
764196	Tobacco use in mother complicating pregnancy
764195	Tobacco use in mother complicating puerperium
36031616	Tobacco use in the past year
4005823	Tobacco user
903658	Trivial cigarette smoker (0-1 cigarettes per day)
4144273	Trivial cigarette smoker (less than one cigarette/day)
4058137	Trying to give up smoking
4044777	Very heavy cigarette smoker
4058136	Very heavy cigarette smoker (40+ cigs/day)
903662	Very heavy cigarette smoker (more or equal to 40 cigarettes per day)
44789712	Wants to stop smoking
40766644	What was the longest length of time you stopped smoking because you were trying to quit [PLCO]
<b>Stop smoking</b>	
37020654	Age when stopped smoking cigarettes completely
44802805	Recently stopped smoking
3558278	Recently stopped smoking
45461579	Recently stopped smoking
45491652	Stopped smoking
3472723	Stopped smoking
4052032	Stopped smoking
40298679	Stopped smoking
3090238	Stopped smoking
40486722	Stopped smoking before pregnancy
3558649	Stopped smoking before pregnancy
3558648	Stopped smoking during pregnancy
40486721	Stopped smoking during pregnancy
<b>Substance misuse dependence</b>	
4089921	Abuse of antacids
440992	Abuse of antidepressant drug
4091716	Abuse of diuretics
4085362	Abuse of drugs to lose weight

4091715	Abuse of herbal medicine
4091714	Abuse of laxatives
4333674	Abuse of nonpsychotropic analgesic drugs
37164389	Abuse of steroid hormone
42538729	Abuse of synthetic cathinone
4092159	Abuse of vitamins
3190002	Acetaminphen abuse
433753	Alcohol abuse
37164322	Amfetamine and/or amfetamine derivative abuse, continuous
37164321	Amfetamine and/or amfetamine derivative abuse, episodic
37164390	Amphetamine and/or amphetamine derivative abuse in remission
3654785	Amphetamine and/or amphetamine derivative dependence
37164565	Amphetamine and/or amphetamine derivative dependence continuous
37164564	Amphetamine and/or amphetamine derivative dependence episodic
37164563	Amphetamine and/or amphetamine derivative dependence in remission
437533	Amphetamine dependence
436371	Barbiturate abuse
4180736	Caffeine dependence
434327	Cannabis abuse
42535585	Catha edulis abuse
44782433	Chronic abuse of laxatives
4001994	Chronic drug abuse
432303	Cocaine abuse
436389	Cocaine dependence
433994	Cocaine dependence, continuous
440692	Cocaine dependence, episodic
432302	Cocaine dependence in remission
37116661	Cocaine user
765685	Continuous dependence on snuff use
4144308	Continuous inhalant abuse
4141032	Continuous phencyclidine abuse
44782685	Continuous sedative abuse
44790195	Delivery of rehabilitation for drug addiction
4275756	Dependent drug abuse
37172480	Diamorphine abuse
44786481	Documentation that patient is a current tobacco user
436954	Drug abuse
4145220	Drug abuse, continuous
43530681	Drug abuse in remission
44789201	Drug addiction detoxification therapy - methadone

44789202	Drug addiction maintenance therapy - methadone
4151569	Drug addiction notification
44787991	Drug addiction notification - HS2A 1(Revision) to Home Office
44808917	Drug addiction notification local SMR22
44792393	Drug addiction notification to Chief Medical Officer
44787997	Drug addiction re-notification - HS2A to Home Office
44788496	Drug addiction re-notification to Chief Medical Officer
4149607	Drug addiction therapy - methadone
440069	Drug dependence
440787	Drug dependence in mother complicating pregnancy, childbirth AND/OR puerperium
4321741	Drug habituation
764471	Episodic dependence on chewing tobacco
764469	Episodic dependence on cigarette smoking
764470	Episodic dependence on snuff use
4143110	Episodic drug abuse
4140733	Episodic inhalant abuse
44789542	Episodic nondependent crack cocaine abuse
43020431	Episodic phencyclidine abuse
4213111	Frequency of substance misuse
437245	Hallucinogen abuse
37205764	Harmful pattern of use of amphetamine and/or amphetamine derivative
37110441	Harmful pattern of use of caffeine
37110444	Harmful pattern of use of nicotine
35610532	Harmful use of alcohol
35610533	Harmful use of amphetamine
35610529	Harmful use of analgesic
35610509	Harmful use of antacids
35610524	Harmful use of antidepressant drug
36676297	Harmful use of anxiolytic
35610542	Harmful use of barbiturate
35610534	Harmful use of cannabis
35610536	Harmful use of cocaine
35610525	Harmful use of diuretics
35610526	Harmful use of drugs to lose weight
35610537	Harmful use of hallucinogen
35610527	Harmful use of herbal medicine
36676296	Harmful use of hypnotic
35610538	Harmful use of inhalant
37110458	Harmful use of ketamine
35610535	Harmful use of khat

35610528	Harmful use of laxatives
35610539	Harmful use of methanol
35610540	Harmful use of opioid
35610541	Harmful use of sedative
35610530	Harmful use of steroids
35610543	Harmful use of stimulant
35610544	Harmful use of synthetic cannabinoid
35610545	Harmful use of synthetic cathinone
35610531	Harmful use of vitamins
4290538	Inhalant abuse
43020430	Intravenous cocaine abuse
44782731	Intravenous nondependent opioid abuse
37116660	Marijuana user
434697	Maternal tobacco abuse
40217339	Medication assisted treatment, methadone; weekly bundle including dispensing and/or administration, substance use counseling, individual and group therapy, and toxicology testing, if performed (provision of the services by a medicare-enrolled opioid tr...
2796047	Medication Management for Substance Abuse Treatment, Methadone Maintenance
44783367	Methamphetamine abuse
4141524	Methamphetamine dependence
4121343	Methanol abuse
37164560	Methylenedioxymethamphetamine dependence
4152165	Nondependent alcohol abuse
435534	Nondependent alcohol abuse, continuous
440685	Nondependent alcohol abuse, episodic
441276	Nondependent alcohol abuse in remission
762382	Nondependent amphetamine abuse
37164337	Nondependent amphetamine and/or amphetamine derivative abuse
37164334	Nondependent amphetamine and/or amphetamine derivative abuse, continuous
37164336	Nondependent amphetamine and/or amphetamine derivative abuse, episodic
37155429	Nondependent amphetamine and/or amphetamine derivative abuse in remission
44813498	Nondependent antidepressant type drug abuse
434627	Nondependent antidepressant type drug abuse, continuous
434917	Nondependent antidepressant type drug abuse, episodic
439313	Nondependent antidepressant type drug abuse in remission
37164330	Nondependent anxiolytic abuse
37164326	Nondependent anxiolytic abuse, continuous
37164325	Nondependent anxiolytic abuse, episodic
37164328	Nondependent anxiolytic abuse in remission
4103419	Nondependent cannabis abuse
434019	Nondependent cannabis abuse, continuous

434328	Nondependent cannabis abuse, episodic
435231	Nondependent cannabis abuse in remission
4102821	Nondependent cocaine abuse
439796	Nondependent cocaine abuse, continuous
436089	Nondependent cocaine abuse, episodic
436098	Nondependent cocaine abuse in remission
4175635	Non dependent drug abuse
4150794	Nondependent hallucinogen abuse
440381	Nondependent hallucinogen abuse, continuous
438732	Nondependent hallucinogen abuse, episodic
441272	Nondependent hallucinogen abuse in remission
37164331	Nondependent hypnotic abuse
37164327	Nondependent hypnotic abuse, continuous
37164324	Nondependent hypnotic abuse, episodic
37164329	Nondependent hypnotic abuse in remission
761090	Nondependent intravenous amphetamine abuse
439312	Nondependent mixed drug abuse
436097	Nondependent mixed drug abuse, continuous
440694	Nondependent mixed drug abuse, episodic
4103426	Nondependent mixed drug abuse in remission
4099935	Nondependent opioid abuse
434016	Nondependent opioid abuse, continuous
435798	Nondependent opioid abuse, episodic
436088	Nondependent opioid abuse in remission
37164338	Nondependent psychostimulant abuse
37164333	Nondependent psychostimulant abuse, continuous
37164335	Nondependent psychostimulant abuse, episodic
37164332	Nondependent psychostimulant abuse in remission
37017493	Novel psychoactive substance misuse
438130	Opioid abuse
4321069	PCP abuse
4109691	Persistent alcohol abuse
4219382	Persistent substance misuse
2796060	Pharmacotherapy for Substance Abuse Treatment, Antabuse
2796064	Pharmacotherapy for Substance Abuse Treatment, Bupropion
2796063	Pharmacotherapy for Substance Abuse Treatment, Clonidine
2796059	Pharmacotherapy for Substance Abuse Treatment, Levo-alpha-acetyl-methadol (LAAM)
2796058	Pharmacotherapy for Substance Abuse Treatment, Methadone Maintenance
2796062	Pharmacotherapy for Substance Abuse Treatment, Naloxone
2796061	Pharmacotherapy for Substance Abuse Treatment, Naltrexone



2796057	Pharmacotherapy for Substance Abuse Treatment, Nicotine Replacement
2796066	Pharmacotherapy for Substance Abuse Treatment, Other Replacement Medication
2796065	Pharmacotherapy for Substance Abuse Treatment, Psychiatric Medication
40482898	Polysubstance abuse
4168196	Prolonged high dose use of cannabis
4239381	Psychoactive substance abuse
4004672	Psychoactive substance use disorder
443274	Psychostimulant dependence
37164568	Psychostimulant dependence continuous
37164567	Psychostimulant dependence episodic
37164566	Psychostimulant dependence in remission
44787894	Referral to community drug dependency team
4269905	Referral to drug abuse counselor
442601	Sedative abuse
40479573	Stimulant abuse
4279309	Substance abuse
2821602	Substance Abuse Treatment @ None @ Pharmacotherapy @ Antabuse
2849587	Substance Abuse Treatment @ None @ Pharmacotherapy @ Antabuse @ None
2834828	Substance Abuse Treatment @ None @ Pharmacotherapy @ Antabuse @ None @ None
2809356	Substance Abuse Treatment @ None @ Pharmacotherapy @ Bupropion
2876004	Substance Abuse Treatment @ None @ Pharmacotherapy @ Bupropion @ None
2849589	Substance Abuse Treatment @ None @ Pharmacotherapy @ Bupropion @ None @ None
2849588	Substance Abuse Treatment @ None @ Pharmacotherapy @ Clonidine
2826853	Substance Abuse Treatment @ None @ Pharmacotherapy @ Clonidine @ None
2894447	Substance Abuse Treatment @ None @ Pharmacotherapy @ Clonidine @ None @ None
2900299	Substance Abuse Treatment @ None @ Pharmacotherapy @ Levo-alpha-acetyl-methadol (LAAM)
2862965	Substance Abuse Treatment @ None @ Pharmacotherapy @ Levo-alpha-acetyl-methadol (LAAM) @ None
2849586	Substance Abuse Treatment @ None @ Pharmacotherapy @ Levo-alpha-acetyl-methadol (LAAM) @ None @ None
2876003	Substance Abuse Treatment @ None @ Pharmacotherapy @ Methadone Maintenance
2801512	Substance Abuse Treatment @ None @ Pharmacotherapy @ Methadone Maintenance @ None
2900298	Substance Abuse Treatment @ None @ Pharmacotherapy @ Methadone Maintenance @ None @ None
2862966	Substance Abuse Treatment @ None @ Pharmacotherapy @ Naloxone
2854469	Substance Abuse Treatment @ None @ Pharmacotherapy @ Naloxone @ None
2839406	Substance Abuse Treatment @ None @ Pharmacotherapy @ Naloxone @ None @ None
2814227	Substance Abuse Treatment @ None @ Pharmacotherapy @ Naltrexone
2881419	Substance Abuse Treatment @ None @ Pharmacotherapy @ Naltrexone @ None

2881420	Substance Abuse Treatment @ None @ Pharmacotherapy @ Naltrexone @ None @ None
2881418	Substance Abuse Treatment @ None @ Pharmacotherapy @ Nicotine Replacement
2849585	Substance Abuse Treatment @ None @ Pharmacotherapy @ Nicotine Replacement @ None
2839405	Substance Abuse Treatment @ None @ Pharmacotherapy @ Nicotine Replacement @ None @ None
2900300	Substance Abuse Treatment @ None @ Pharmacotherapy @ Other Replacement Medication
2889407	Substance Abuse Treatment @ None @ Pharmacotherapy @ Other Replacement Medication @ None
2881421	Substance Abuse Treatment @ None @ Pharmacotherapy @ Other Replacement Medication @ None @ None
2814228	Substance Abuse Treatment @ None @ Pharmacotherapy @ Psychiatric Medication
2862967	Substance Abuse Treatment @ None @ Pharmacotherapy @ Psychiatric Medication @ None
2826854	Substance Abuse Treatment @ None @ Pharmacotherapy @ Psychiatric Medication @ None @ None
2796056	Substance Abuse Treatment, Pharmacotherapy
4217840	Substance misuse behavior
4217841	Substance misuse decreased
4188558	Substance misuse increased
4296409	Substance use treatment: alcohol withdrawal
4302387	Substance use treatment: drug withdrawal
42539100	Synthetic cannabinoid abuse
42539370	Synthetic cathinone dependence
4319165	Therapeutic drug dependence
37169544	Tobacco dependence caused by chewing tobacco in remission
4099811	Tobacco dependence, continuous
4103417	Tobacco dependence, episodic
4103418	Tobacco dependence in remission
437264	Tobacco dependence syndrome
<b>Systemic lupus erythematosus</b>	
4295179	Acute systemic lupus erythematosus
36676444	Autosomal systemic lupus erythematosus
4346976	Bullous systemic lupus erythematosus
37110504	Chorea co-occurrent and due to systemic lupus erythematosus
4044056	Chorea due to systemic lupus erythematosus
37110517	Demyelination of central nervous system co-occurrent and due to systemic lupus erythematosus
4269448	Dilated cardiomyopathy due to systemic lupus erythematosus
46273369	Endocarditis due to systemic lupus erythematosus
4296502	Fulminating systemic lupus erythematosus
37016279	Glomerular disease due to systemic lupus erythematosus
4055640	Lung disease with systemic lupus erythematosus

4299106	Lupus disease of the lung
4057084	Lupus hepatitis
4344399	Lupus panniculitis
4344495	Lupus vasculitis
4105023	Myopathy due to disseminated lupus erythematosus
46270384	Nephropathy co-occurrent and due to systemic lupus erythematosus
37399735	Nephrosis co-occurrent and due to systemic lupus erythematosus
37395585	Nephrotic syndrome co-occurrent and due to systemic lupus erythematosus
4101469	Pericarditis secondary to systemic lupus erythematosus
4105637	Polyneuropathy in disseminated lupus erythematosus
4319305	Rash of systemic lupus erythematosus
4145240	Renal tubulo-interstitial disorder in systemic lupus erythematosus
4217054	Retinal vasculitis due to systemic lupus erythematosus
37117740	Secondary autoimmune hemolytic anemia co-occurrent and due to systemic lupus erythematosus
4285717	SLE glomerulonephritis syndrome
4250483	SLE glomerulonephritis syndrome, WHO class I
4186940	SLE glomerulonephritis syndrome, WHO class II
4297164	SLE glomerulonephritis syndrome, WHO class III
4267801	SLE glomerulonephritis syndrome, WHO class IV
4178133	SLE glomerulonephritis syndrome, WHO class V
4002526	SLE glomerulonephritis syndrome, WHO class VI
257628	Systemic lupus erythematosus
4300204	Systemic lupus erythematosus-associated antiphospholipid syndrome
4318863	Systemic lupus erythematosus encephalitis
4301051	Systemic lupus erythematosus of childhood
4219859	Systemic lupus erythematosus-related syndrome
44814064	Systemic lupus erythematosus/Sjogren's overlap syndrome
4344400	Systemic lupus erythematosus with multisystem involvement
4344158	Systemic lupus erythematosus with organ/system involvement
4149913	Systemic lupus erythematosus with pericarditis
<b>Tdap vaccine</b>	
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...
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
<b>Thyroid disorder</b>	
36717595	Acquired central hypothyroidism
37161451	Acquired central hypothyroidism due to pituitary disorder
37161450	Acquired central hypothyroidism due to Sheehan syndrome
138384	Acquired hypothyroidism
607903	Adrenocorticotrophic hormone resistance syndrome
4184957	Adult myxedema
45773358	Allan-Herndon-Dudley syndrome
4185526	Athyrotic hypothyroidism sequence
4034815	Autoimmune hypothyroidism
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
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
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
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
<b>Uterus malformations</b>	
37204537	Agenesis of body of uterus
40405737	Agenesis of uterus
37204538	Aplasia of body of uterus
37204436	Aplasia of uterine cervix
4150816	Bicornuate uterus
4034082	Bicornuate uterus affecting obstetric care
4028640	Bicornuate uterus in pregnancy, childbirth and the puerperium
4002491	Cervical, vaginal and external female genital anomalies
4172511	Cochleate uterus
37164304	Complete septate uterus
4147333	Congenital abnormality of uterus affecting obstetric care
197339	Congenital abnormality of uterus, affecting pregnancy
4145939	Congenital abnormality of uterus in pregnancy, childbirth and the puerperium
4245318	Congenital abnormal shape of uterus
37311775	Congenital absence of body of uterus
4291794	Congenital absence of cervix
4063522	Congenital absence of uterus
444437	Congenital anomaly of cervix
4244022	Congenital atresia of uterus
4238346	Congenital duplication of cervix
4049461	Congenital duplication of uterus
45757090	Congenital fistula between uterus and urinary tract
4005469	Congenital fistulae between uterus and digestive and urinary tracts
45757089	Congenital hypoplasia of uterine cervix
45757689	Congenital imperforate cervix
4109625	Congenital malformation of uterus and cervix
4231104	Congenital prolapsed uterus
4012550	Congenital stenosis of cervical canal
201388	Congenital uterine anomaly
4005588	Congenital uterointestinal fistula
4002490	Congenital uterovesical fistula
4058635	Double uterus affecting pregnancy
36716428	Double uterus, hemivagina, renal agenesis syndrome



4235773	Doubling of uterus with doubling of cervix and vagina
45757210	Doubling of uterus with doubling of cervix and vagina with obstruction
4108901	Embryonic cyst of cervix
4253344	Female infertility due to structural congenital anomaly of cervix
4113440	Hypoplasia of uterus and cervix
2110208	Hysteroplasty, repair of uterine anomaly (Strassman type)
4147753	Infantile uterus
37160604	Mayer Rokitansky Küster Hauser syndrome type 1
36713399	Mayer-Rokitansky-Küster-Hauser syndrome type 2
4047942	Persistent fetal uterus
36674759	Pseudounicornuate uterus
4338806	Rokitansky sequence
4046117	Rudimentary uterus in male
4220376	Segmental uterine aplasia
4109795	Solid rudimentary uterus
37312029	Uterine arteriovenous malformation
4188292	Uterus acollis
4244530	Uterus arcuatus
4310798	Uterus bicameratus vetularum
4245809	Uterus bicornis affecting pregnancy
4248025	Uterus bicornis bicollis
36713395	Uterus bicornis bicollis with blind hemi-vagina
36713396	Uterus bicornis bicollis with patent cervix and vagina
4237916	Uterus bicornis unicollis
4049412	Uterus bicornis unicollis with septate vagina
4197915	Uterus bicornuatus vetularum
4185224	Uterus biforis
4331291	Uterus bilocularis
4032777	Uterus cordiformis
4095095	Uterus incudiformis
4102854	Uterus parvicollis
4201748	Uterus subseptus
4028991	Uterus unicornis
<b>COVID-19 diagnosis</b>	
3661405	Acute bronchitis caused by SARS-CoV-2
3655976	Acute hypoxemic respiratory failure due to COVID-19
3661748	Acute kidney injury due to COVID-19
3661406	Acute respiratory distress syndrome due to COVID-19
3662381	Asymptomatic SARS-CoV-2
756031	Bronchitis caused by COVID-19

3656667	Cardiomyopathy due to COVID-19
3656668	Conjunctivitis due to COVID-19
37311061	COVID-19
3656669	Dyspnea caused by SARS-CoV-2
37310284	Encephalopathy due to COVID-19
3661885	Fever caused by SARS-CoV-2
37310283	Gastroenteritis caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2)
3663281	Infection of lower respiratory tract caused by SARS-CoV-2
37310286	Infection of upper respiratory tract caused by SARS-CoV-2
3661631	Lymphocytopenia due to COVID-19
37310287	Myocarditis due to COVID-19
37310254	Otitis media due to COVID-19
704995	Patient meets COVID-19 clinical diagnostic criteria
700297	Patient meets COVID-19 laboratory confirmation criterion (detection of specific RNA in a clinical specimen using a molecular amplification detection test)
704996	Patient meets COVID-19 laboratory diagnostic criteria
700296	Patient meets COVID-19 presumptive laboratory evidence criteria (detection of specific antigen in a clinical specimen, OR detection of specific antibody in serum, plasma, or whole blood indicative of a new or recent infection)
3661408	Pneumonia caused by SARS-CoV-2
756039	Respiratory infection caused by COVID-19
3655977	Rhabdomyolysis due to COVID-19
3655975	Sepsis due to disease caused by COVID-19
3661632	Thrombocytopenia due to COVID-19
<b>COVID-19 test</b>	
40218804	2019-ncov coronavirus, sars-cov-2/2019-ncov (covid-19), any technique, multiple types or subtypes (includes all targets), non-cdc
704058	2019-ncov coronavirus, sars-cov-2/2019-ncov (covid-19), any technique, multiple types or subtypes (includes all targets), non-cdc, making use of high throughput technologies as described by cms-2020-01-r (Deprecated)
36659749	Bovine coronavirus RNA [Cycle Threshold #] in Specimen by NAA with probe detection
40218805	Cdc 2019 novel coronavirus (2019-ncov) real-time rt-pcr diagnostic panel
44789510	Coronavirus nucleic acid detection
44811805	Coronavirus nucleic acid detection assay
45770687	Coronavirus RNA (ribonucleic acid) detection assay
44807536	Coronavirus RNA (ribonucleic acid) measurement by NAAT (nucleic acid amplification test)
37168088	Detection of ribonucleic acid of SARS-CoV-2 using microchip real time polymerase chain reaction
3667069	Detection of ribonucleic acid of SARS-CoV-2 using polymerase chain reaction
36660491	Human coronavirus 229E RNA [Presence] in Lower respiratory specimen by NAA with non-probe detection

36659667	Human coronavirus HKU1 RNA [Presence] in Lower respiratory specimen by NAA with non-probe detection
36660329	Human coronavirus NL63 RNA [Presence] in Lower respiratory specimen by NAA with non-probe detection
36660364	Human coronavirus OC43 RNA [Presence] in Lower respiratory specimen by NAA with non-probe detection
742224	Infectious agent antigen detection by immunoassay technique (eg, enzyme immunoassay [EIA], enzyme-linked immunosorbent assay [ELISA], fluorescence immunoassay [FIA], immunochemiluminometric assay [IMCA]), qualitative or semiquantitative; severe acute resp
700360	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]), amplified probe technique
801235	Infectious agent detection by nucleic acid (dna or rna); severe acute respiratory syndrome coronavirus 2 (sars-cov-2) (coronavirus disease [covid-19]), amplified probe technique, cdc or non-cdc, making use of high throughput technologies, ... (Deprecated)
704059	Infectious agent detection by nucleic acid (dna or rna); severe acute respiratory syndrome coronavirus 2 (sars-cov-2) (coronavirus disease [covid-19]), amplified probe technique, making use of high throughput technologies as described by ... (Deprecated)
759690	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]) and influenza virus types A and B, multiplex amplified probe technique
759691	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease [COVID-19]), influenza virus types A and B, and respiratory syncytial virus, multiplex amplified probe technique
759520	Infectious disease (bacterial or viral respiratory tract infection) pathogen-specific DNA and RNA, 21 targets, including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), amplified probe technique, including multiplex reverse transcription for
742219	Infectious disease (bacterial or viral respiratory tract infection), pathogen-specific nucleic acid (DNA or RNA), 22 targets including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), qualitative RT-PCR, nasopharyngeal swab, each pathogen rep
742218	Infectious disease (bacterial or viral respiratory tract infection), pathogen-specific nucleic acid (DNA or RNA), 22 targets including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), qualitative RT-PCR, nasopharyngeal swab, each pathogen rep
36661384	Influenza virus A and B and SARS-CoV-2 (COVID-19) and SARS-related CoV RNA panel - Respiratory system specimen by NAA with probe detection
36661375	Influenza virus A and B and SARS-CoV-2 (COVID-19) identified in Respiratory system specimen by NAA with probe detection
36661376	Influenza virus A and B and SARS-CoV-2 (COVID-19) RNA panel - Respiratory system specimen by NAA with probe detection
1761840	Influenza virus A and B and SARS-CoV-2 (COVID-19) RNA panel - Specimen by NAA with probe detection
705104	Measurement of Coronavirus (Coronavirinae subfamily species)
705105	Measurement of Coronavirus (Coronavirinae subfamily species) antigen
37310257	Measurement of SARS-CoV-2 antigen
756055	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

586310	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) Genetic material using Molecular method
704991	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Blood
756029	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Respiratory specimen
586307	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Saliva
705107	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Sample from nose
704976	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Sample from oropharynx
586309	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Specified specimen
756065	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Unspecified specimen
702834	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) specific cell-mediated immune response in Blood
704992	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Culture method
705001	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique
705000	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique in Blood
756085	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique in Respiratory specimen
586308	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique in Saliva
705106	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique in Sample from nose
704975	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique in Sample from oropharynx
756084	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Nucleic acid amplification technique in Unspecified specimen
704993	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using Sequencing
706164	Middle East respiratory syndrome coronavirus (MERS-CoV) RNA [Presence] in Respiratory system specimen by NAA with probe detection
46236919	SARS2 gene full mutation analysis in Blood or Tissue by Sequencing
46236920	SARS2 gene mutation analysis limited to known familial mutations in Blood or Tissue by Molecular genetics method
723477	SARS-CoV-2 (COVID-19) Ag [Presence] in Respiratory system specimen by Rapid immunoassay
36033653	SARS-CoV-2 (COVID-19) clade [Type] in Specimen by Molecular genetics method
36033659	SARS-CoV-2 (COVID-19) E gene [Cycle Threshold #] in Respiratory system specimen by NAA with probe detection

36033658	SARS-CoV-2 (COVID-19) E gene [Presence] in Respiratory system specimen by NAA with probe detection
36033652	SARS-CoV-2 (COVID-19) lineage [Identifier] in Specimen by Molecular genetics method
1989163	SARS-CoV-2 (COVID-19) lineage [Type] in Specimen by Sequencing
36033645	SARS-CoV-2 (COVID-19) M gene [Presence] in Upper respiratory specimen by NAA with probe detection
729890	SARS-CoV-2 (COVID-19) Mpro gene mutation detected [Identifier] in Specimen by Molecular genetics method Nominal
36033648	SARS-CoV-2 (COVID-19) N gene [Cycle Threshold #] in Oropharyngeal wash by NAA with probe detection
706167	SARS-CoV-2 (COVID-19) N gene [Cycle Threshold #] in Specimen by NAA with probe detection
706157	SARS-CoV-2 (COVID-19) N gene [Cycle Threshold #] in Specimen by Nucleic acid amplification using CDC primer-probe set N1
706155	SARS-CoV-2 (COVID-19) N gene [Cycle Threshold #] in Specimen by Nucleic acid amplification using CDC primer-probe set N2
36661371	SARS-CoV-2 (COVID-19) N gene [Log #/volume] (viral load) in Respiratory system specimen by NAA with probe detection
715272	SARS-CoV-2 (COVID-19) N gene [Presence] in Nasopharynx by NAA with probe detection
36033644	SARS-CoV-2 (COVID-19) N gene [Presence] in Nose by NAA with non-probe detection
757678	SARS-CoV-2 (COVID-19) N gene [Presence] in Nose by NAA with probe detection
706161	SARS-CoV-2 (COVID-19) N gene [Presence] in Respiratory system specimen by NAA with probe detection
586524	SARS-CoV-2 (COVID-19) N gene [Presence] in Respiratory system specimen by Nucleic acid amplification using CDC primer-probe set N1
586525	SARS-CoV-2 (COVID-19) N gene [Presence] in Respiratory system specimen by Nucleic acid amplification using CDC primer-probe set N2
36661378	SARS-CoV-2 (COVID-19) N gene [Presence] in Saliva (oral fluid) by NAA with probe detection
36032258	SARS-CoV-2 (COVID-19) N gene [Presence] in Saliva (oral fluid) by Nucleic acid amplification using CDC primer-probe set N1
36033646	SARS-CoV-2 (COVID-19) N gene [Presence] in Saliva (oral fluid) by Nucleic acid amplification using CDC primer-probe set N2
586520	SARS-CoV-2 (COVID-19) N gene [Presence] in Serum or Plasma by NAA with probe detection
706175	SARS-CoV-2 (COVID-19) N gene [Presence] in Specimen by NAA with probe detection
706156	SARS-CoV-2 (COVID-19) N gene [Presence] in Specimen by Nucleic acid amplification using CDC primer-probe set N1
706154	SARS-CoV-2 (COVID-19) N gene [Presence] in Specimen by Nucleic acid amplification using CDC primer-probe set N2
36661370	SARS-CoV-2 (COVID-19) N gene [# /volume] (viral load) in Respiratory system specimen by NAA with probe detection
36033642	SARS-CoV-2 (COVID-19) Nsp2 gene [Presence] in Upper respiratory specimen by NAA with probe detection
36033649	SARS-CoV-2 (COVID-19) ORF1ab region [Cycle Threshold #] in Oropharyngeal wash by NAA with probe detection

723469	SARS-CoV-2 (COVID-19) ORF1ab region [Cycle Threshold #] in Respiratory system specimen by NAA with probe detection
706168	SARS-CoV-2 (COVID-19) ORF1ab region [Cycle Threshold #] in Specimen by NAA with probe detection
723478	SARS-CoV-2 (COVID-19) ORF1ab region [Presence] in Respiratory system specimen by NAA with probe detection
36031506	SARS-CoV-2 (COVID-19) ORF1ab region [Presence] in Saliva (oral fluid) by NAA with probe detection
723464	SARS-CoV-2 (COVID-19) ORF1ab region [Presence] in Specimen by NAA with probe detection
36033640	SARS-CoV-2 (COVID-19) ORF1ab region [Units/volume] (viral load) in Upper respiratory specimen by NAA with probe detection
1617427	SARS-CoV-2 (COVID-19) ORF1a region [Presence] in Respiratory system specimen by NAA with probe detection
1616454	SARS-CoV-2 (COVID-19) ORF1a region [Presence] in Saliva (oral fluid) by NAA with probe detection
1617191	SARS-CoV-2 (COVID-19) ORF1b region [Presence] in Respiratory system specimen by NAA with probe detection
1616841	SARS-CoV-2 (COVID-19) ORF1b region [Presence] in Saliva (oral fluid) by NAA with probe detection
586516	SARS-CoV-2 (COVID-19) [Presence] in Specimen by Organism specific culture
723471	SARS-CoV-2 (COVID-19) RdRp gene [Cycle Threshold #] in Respiratory system specimen by NAA with probe detection
723470	SARS-CoV-2 (COVID-19) RdRp gene [Cycle Threshold #] in Specimen by NAA with probe detection
1988376	SARS-CoV-2 (COVID-19) RdRp gene mutation detected [Identifier] in Specimen by Molecular genetics method
36031652	SARS-CoV-2 (COVID-19) RdRp gene [Presence] in Lower respiratory specimen by NAA with probe detection
706160	SARS-CoV-2 (COVID-19) RdRp gene [Presence] in Respiratory system specimen by NAA with probe detection
36032174	SARS-CoV-2 (COVID-19) RdRp gene [Presence] in Saliva (oral fluid) by NAA with probe detection
706173	SARS-CoV-2 (COVID-19) RdRp gene [Presence] in Specimen by NAA with probe detection
36031453	SARS-CoV-2 (COVID-19) RdRp gene [Presence] in Upper respiratory specimen by NAA with probe detection
586528	SARS-CoV-2 (COVID-19) RNA [Cycle Threshold #] in Respiratory system specimen by NAA with probe detection
586529	SARS-CoV-2 (COVID-19) RNA [Cycle Threshold #] in Specimen by NAA with probe detection
715262	SARS-CoV-2 (COVID-19) RNA [Log #/volume] (viral load) in Specimen by NAA with probe detection
706158	SARS-CoV-2 (COVID-19) RNA panel - Respiratory system specimen by NAA with probe detection
706169	SARS-CoV-2 (COVID-19) RNA panel - Specimen by NAA with probe detection
723476	SARS-CoV-2 (COVID-19) RNA [Presence] in Nasopharynx by NAA with non-probe detection
586526	SARS-CoV-2 (COVID-19) RNA [Presence] in Nasopharynx by NAA with probe detection

757677	SARS-CoV-2 (COVID-19) RNA [Presence] in Nose by NAA with probe detection
36033656	SARS-CoV-2 (COVID-19) RNA [Presence] in Oropharyngeal wash by NAA with probe detection
36031238	SARS-CoV-2 (COVID-19) RNA [Presence] in Respiratory system specimen by NAA with non-probe detection
706163	SARS-CoV-2 (COVID-19) RNA [Presence] in Respiratory system specimen by NAA with probe detection
36661377	SARS-CoV-2 (COVID-19) RNA [Presence] in Respiratory system specimen by Sequencing
715260	SARS-CoV-2 (COVID-19) RNA [Presence] in Saliva (oral fluid) by NAA with probe detection
715261	SARS-CoV-2 (COVID-19) RNA [Presence] in Saliva (oral fluid) by Sequencing
723463	SARS-CoV-2 (COVID-19) RNA [Presence] in Serum or Plasma by NAA with probe detection
706170	SARS-CoV-2 (COVID-19) RNA [Presence] in Specimen by NAA with probe detection
36033655	SARS-CoV-2 (COVID-19) RNA [Presence] in Specimen from Donor by NAA with probe detection
3965194	SARS-CoV-2 (COVID-19) RNA [Presence] in Throat by NAA with non-probe detection
36033662	SARS-CoV-2 (COVID-19) S gene codon N501= [Presence] in Specimen by Molecular genetics method
36033663	SARS-CoV-2 (COVID-19) S gene codon N501Y [Presence] in Specimen by Molecular genetics method
36033650	SARS-CoV-2 (COVID-19) S gene [Cycle Threshold #] in Oropharyngeal wash by NAA with probe detection
723467	SARS-CoV-2 (COVID-19) S gene [Cycle Threshold #] in Respiratory system specimen by NAA with probe detection
723468	SARS-CoV-2 (COVID-19) S gene [Cycle Threshold #] in Specimen by NAA with probe detection
36033664	SARS-CoV-2 (COVID-19) S gene mutation detected [Identifier] in Specimen by Molecular genetics method
36033665	SARS-CoV-2 (COVID-19) S gene mutation [Presence] in Specimen by Molecular genetics method
723465	SARS-CoV-2 (COVID-19) S gene [Presence] in Respiratory system specimen by NAA with probe detection
36031213	SARS-CoV-2 (COVID-19) S gene [Presence] in Respiratory system specimen by Sequencing
36033660	SARS-CoV-2 (COVID-19) S gene [Presence] in Saliva (oral fluid) by NAA with probe detection
586519	SARS-CoV-2 (COVID-19) S gene [Presence] in Serum or Plasma by NAA with probe detection
723466	SARS-CoV-2 (COVID-19) S gene [Presence] in Specimen by NAA with probe detection
36031944	SARS-CoV-2 (COVID-19) specific TCRB gene rearrangements [Presence] in Blood by Sequencing
36033661	SARS-CoV-2 (COVID-19) variant interpretation in Specimen Narrative
1989033	SARS-CoV-2 (COVID-19) variant [Type] in Specimen by NAA with probe detection
36033667	SARS-CoV-2 (COVID-19) variant [Type] in Specimen by Sequencing
586517	SARS-CoV-2 (COVID-19) whole genome [Nucleotide sequence] in Isolate or Specimen by Sequencing
757685	SARS-CoV+SARS-CoV-2 (COVID-19) Ag [Presence] in Respiratory system specimen by Rapid immunoassay
706166	SARS-related coronavirus E gene [Cycle Threshold #] in Specimen by NAA with probe detection
36032295	SARS-related coronavirus E gene [Presence] in Lower respiratory specimen by NAA with probe detection

586523	SARS-related coronavirus E gene [Presence] in Respiratory system specimen by NAA with probe detection
36031814	SARS-related coronavirus E gene [Presence] in Saliva (oral fluid) by NAA with probe detection
586518	SARS-related coronavirus E gene [Presence] in Serum or Plasma by NAA with probe detection
706174	SARS-related coronavirus E gene [Presence] in Specimen by NAA with probe detection
36032286	SARS-related coronavirus E gene [Presence] in Upper respiratory specimen by NAA with probe detection
706159	SARS-related coronavirus+MERS coronavirus RNA [Presence] in Respiratory system specimen by NAA with probe detection
706172	SARS-related coronavirus N gene [Cycle Threshold #] in Specimen by Nucleic acid amplification using CDC primer-probe set N3
706171	SARS-related coronavirus N gene [Presence] in Specimen by Nucleic acid amplification using CDC primer-probe set N3
706165	SARS-related coronavirus RNA [Presence] in Respiratory system specimen by NAA with probe detection
723472	SARS-related coronavirus RNA [Presence] in Specimen by NAA with probe detection

## **APPENDIX V**

Preliminary list of 68 Negative Control Outcomes (NCO) for the study. NCO definitions will be based on the concepts in the list and their descendant codes.

<b>Concept ID</b>	<b>Concept Name</b>
42709838	Cellulitis of lower limb
436659	Iron deficiency anemia
4155902	Wax in ear canal
138825	Actinic keratosis
377889	Hearing loss
140673	Hypothyroidism
4026112	Rectal hemorrhage
4169905	Foot pain
197672	Urinary incontinence
436070	Vitamin D deficiency
4112752	Basal cell carcinoma of skin
195562	Hemorrhoids
4217260	Intraocular pressure left eye
437541	Glaucoma
380731	Otitis externa
4195039	Osteopenia
4036620	Dry eyes
378425	Blepharitis
74719	Ulcer of foot
4111921	Squamous cell carcinoma of skin
138384	Acquired hypothyroidism



374028	Age related macular degeneration
44783954	Acid reflux
4155040	Laceration of lower leg
4288544	Inguinal hernia
46287159	Traumatic wound
196456	Gallstone
135333	Pressure ulcer
4285898	Polyp of colon
374375	Impacted cerumen
4053604	Open wound of lower leg
4060207	Vulval irritation
376707	Acute conjunctivitis
4058568	Vaginal irritation
440083	Acute stress disorder
4170770	Epidermoid Cyst
139099	Ingrowing nail
200588	Injury of abdomen
4152163	Injury of eye region
4083487	Macular drusen
440087	Parasomnia
441838	Personality disorder
134870	Pityriasis versicolor
81151	Sprain of ankle
201612	Alcoholic liver damage
442149	Poisoning by bee sting
196044	Primary malignant neoplasm of stomach
314962	Raynaud's disease
4099188	Salmonella
196625	Viral hepatitis A without hepatic coma
765053	Lump in right breast
73302	Curvature of spine
80502	Osteoporosis
81902	Urinary tract infectious disease
75576	Irritable bowel syndrome
3043005	Allergies
4149320	Mild depression
318736	Migraine
133834	Atopic dermatitis
194133	Low back pain
380378	Epilepsy
4029186	Crusted scabies
433116	Dog bite
4312914	Knife wound
4099313	Urinalysis
4324693	Mammography

442619	Fracture of humerus
4188487	Rupture of cruciate ligaments