NATURAL HISTORY OF COAGULOPATHY AND USE OF ANTI-THROMBOTIC AGENTS IN COVID-19 PATIENTS AND PERSONS VACCINATED AGAINST SARS-COV-2

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Document Status	
Date of final version of the study report	Protocol ver 1.0
EU PAS register number	EUPAS40414

PASS information

Title	Natural history of coagulopathy and use of anti-thrombotic agents in COVID-19 patients and persons vaccinated against SARS-CoV-2
Protocol version identifier	1.0
Date of last version of protocol	12/04/2021
EU PAS register number	EUPAS40414
Active Ingredient	n/a
Medicinal product	J07BX
Product reference	n/a
Procedure number	n/a
Marketing authorisation holder(s)	n/a
Joint PASS	n/a
Research question and objectives	1) To estimate the background incidence of selected embolic and thrombotic events of interest among the general population. 2) To estimate the incidence of selected embolic and thrombotic events of interest among persons vaccinated against SARS-CoV-2 at 7, 14, 21, and 28 days. 3) To estimate incidence rate ratios for selected embolic/thrombotic events of interest amongst people vaccinated against SARS-CoV-2 compared to background rates as estimated in Objective #1. 4) To estimate the incidence of venous thromboembolic events among patients with COVID-19 at 30-, 60-, and 90-days. 5) To calculate the risks of COVID-19 worsening stratified by the occurrence of a venous thromboembolic event. 6) To assess the impact of risk factors on the rates of venous thromboembolic events among patients with COVID-19. 7) To develop and externally validate patient-level prediction models for venous thromboembolic events for patients with COVID-19. 8) To estimate the incidence of arterial thromboembolic events among patients with COVID-19 at 30-, 60-, and 90-days. 9)To calculate the

	risks of COVID-19 worsening stratified by the occurrence of an arterial thromboembolic event. 10) To assess the impact of risk factors on the rates of arterial thromboembolic events among patients with COVID-19. 11) To develop and externally validate patient-level prediction models for arterial thromboembolic events for patients with COVID-19.
Country(-ies) of study	Italy, France, Germany, Netherlands, Spain, and United Kingdom
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Marketing authorisation holder(s)

Marketing authorisation holder(s)	Not applicable
MAH contact person	Not applicable

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2 List of abbreviations

Abbreviation	Name
ATC	Anatomical Therapeutic Chemical Classification
CDM	Common Data Model
COVID-19	Coronavirus disease-2019
CPRD	Clinical Practice Research Datalink
DA	Disease Analyzer
ECMO	Extracorporeal membrane oxygenation
EHR	Electronic Health Record
HES APC	Hospital Episode Statistics Admitted Patient Care
HM	Hospital de Madrid
IPCI	Integrated Primary Care Information
LPD	Longitudinal Patient Data
MACE	Major cardiovascular events
OMOP	Observational Medical Outcomes Partnership
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SIDIAP	The Information System for Research in Primary Care

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4 Abstract

Title

Natural history of coagulopathy and use of anti-thrombotic agents in COVID-19 patients and persons vaccinated against SARS-CoV-2

Version and Date: Version 1.0, 24th March 2021 Name and affiliation of main author: Edward Burn (University of Oxford, Idiap Jordi Gol)

Rationale and background:

Coronavirus disease-2019 (COVID-19) patients appear to be at an increased risk of venous and arterial thromboembolic events. There is a need to better understand the risks of thromboembolic events among patients with COVID-19, their impact on prognosis, the risk factors for such events, and whether individuals' risks can be predicted given their demographic characteristics and medical history. Based on spontaneous ADR reporting, there is uncertainty around the rates of thromboembolic events among individuals vaccinated against SARS-CoV-2, and how these compare with those seen in the general population.

Research question and objectives

The following research objectives will be pursued: 1) To estimate the background incidence of selected embolic and thrombotic events of interest among the general population, 2) to estimate the incidence of selected embolic and thrombotic events of interest among persons vaccinated against SARS-CoV-2 at 7, 14, 21, and 28 days, 3) To estimate incidence rate ratios for selected embolic/thrombotic events of interest amongst people vaccinated against SARS-CoV-2 compared to background rates as estimated in Objective #1, 4) to estimate the incidence of venous thromboembolic events among patients with COVID-19 at 30-, 60-, and 90-days, 5) to calculate the risks of worsening of COVID-19 stratified by the occurrence of a venous thromboembolic event, 6) to assess the impact of risk factors on the rates of venous thromboembolic events among patients with COVID-19, 7) to develop and externally validate patient-level prediction models for venous thromboembolic events for patients with COVID-19, 8) to estimate the incidence of arterial thromboembolic events among patients with COVID-19 at 30-, 60-, and 90-days, 9) to calculate the risks of worsening of COVID-19 stratified by the occurrence of an arterial thromboembolic event, 10) to assess the impact of risk factors on the rates of arterial thromboembolic events among

patients with COVID-19, and 11) to develop and externally validate patient-level prediction models for arterial thromboembolic events for patients with COVID-19.

Study design

We will perform a European international network cohort study using data mapped to the Observational Medical Outcomes Partnership (OMOP) Common Data Model.

Population

The following study cohorts will be defined: 1) General population, 2) Persons vaccinated against SARS-CoV-2 with a first dose, 3) Persons vaccinated against SARS-CoV-2 with a second dose, 4) Persons tested positive for SARS-CoV-2, 5) Persons tested positive for SARS-CoV-2 or with a clinical diagnosis of COVID-19, 6) Persons hospitalised with COVID-19, and 7) Persons requiring intensive services during a hospitalisation with COVID-19.

Variables

Patient demographics will be extracted. Health conditions and medication use will be assessed. For the first two COVID-19 study cohorts, whether an individual is hospitalised at the time of testing positive for SARS-CoV-2 or having a clinical diagnosis of COVID-19 will be identified.

Occurrences of venous thromboembolic events, arterial thromboembolic events, rare thrombotic and coagulopathy events, cardiovascular events, and mortality will be identified for all study populations. Background rates will be estimated for any time after a first visit in 2017-2019, and for the 28-day period after that same visit. The occurrence of these events of interest will be identified at 7, 14, 21, and 28 days following vaccination against SARS-CoV-2. Incidence rate ratios for selected thrombotic and coagulopathy events will be estimated to compare post-vaccination to background rates after adjustment for age and sex. The occurrence of venous thromboembolic and arterial thromboembolic events will be identified in the 30-, 60- and 90-days post-index date for COVID-19 patients. COVID-19 worsening will be defined as increasing care intensity (e.g. from outpatient to inpatient, from inpatient to receiving intensive care services) and/or mortality.

Data sources

Primary care and hospital records from Netherlands (IPCI), Italy (IQVIA LPD Italy), France (IQVIA LPD France), Germany (IQVIA DA Germany), Spain (SIDIAP and HM), and the UK (CPRD GOLD, CPRD AURUM, and linked Hospital Episode Statistics) will be analysed. All databases will have been mapped to the OMOP CDM and will be accessed in a distributed network analysis. Feasibility analyses will be run prior to executing the analysis, and only those databases

where the required study cohorts, patient features, and outcomes of interest can be reliably identified will be included.

Study size

For contributing databases, all the individuals satisfying the eligibility criteria for the study will be included.

Data analysis

The incidence rates of study outcomes among the general population (i.e. background rates) between 1st January 2017 and 31st December 2019 will be estimated per 100,000 person-years We will estimate the incidence for all of the study outcomes at 7, 14, 21, and 28 days following vaccination against SARS-CoV-2, and 30, 60, and 90 days for COVID-19 patients. In each analysis, rates will also be estimated for various strata of interest (such whether an individual was hospitalised at index date, sex, age, vaccine type and batch number (if available), history of arterial and venous thromboembolic events, and various other risk factors of interest). We will use a multistate model to summarise risks of worsening among COVID-19 patients stratified by those with and without thromboembolic events of interest. The impact of risk factors on risks of venous and arterial thromboembolic events among COVID-19 patients will be assessed using two approaches. The first will be to use Cox models to estimate relative risks for various risk factors, while the second will be to use cause-specific Cox models to assess the impact of risk factors on the transitions described in the aforementioned multistate models. Patient-level prediction models for thromboembolic events among COVID-19 patients will be developed using a data-driven approach, with external validation performed across the network of contributing databases.

5 Amendments and updates

There have been no formal amendments to the protocol so far.

Number	Date	Section of study protocol	Amendment or update	Reason
1				
2				
…				

6 Milestones

Milestone	**Planned date**
Approval Study Protocol by EMA	March 2021
<Registration in the EU PAS register>	*March 2021*
Start of data collection	*February 2021*
End of data collection	*May 2021*
Draft report	July 2021
Final study report accepted by EMA	August 2021
Manuscript to be provided to EMA	September 2021

7 Rationale and background

7.1 Coagulopathy in the general population and among individuals vaccinated against SARS-CoV-2

Various vaccines for coronavirus disease-2019 (COVID-19) have been authorised by regulators including the European Medicines Agency, the Food and Drug Administration in the United States, and the United Kingdom Medicines and Healthcare products Regulatory Agency following phase 3 clinical efficacy trials. Millions of individuals have since received one of these vaccines. As with all medical products, however, there remains a need to continue to monitor safety.

Routinely collected health care data can provide valuable evidence as to the incidence of various events of interests among people who have been vaccinated. Moreover, such data sources can be used to estimate the incidence of such events among the general population to contextualise the findings. One particular area of interest are embolic and thrombotic events. At the time of writing (30th March, 2021) case reports of a small number of serious blood clots among individuals vaccinated with the AstraZeneca COVID-19 vaccine have been reported. Further investigation into this specific safety concern is warranted. Using routinely collected data to assess the incidence of such events of interest among the general population and in individuals vaccinated against SARS-CoV-2 would provide valuable evidence in assessing this specific safety concern.

7.2 The occurrence of venous and arterial thromboembolic events in patients with COVID-19

Coronavirus disease-2019 (COVID-19) itself may result in thrombotic disease, both in the venous and arterial circulations, due to excessive inflammation, platelet activation, endothelial dysfunction, and stasis.[1] Indeed, a number of studies have already reported high rates of arterial and venous thromboembolic events among patients hospitalised with COVID-19. Case series of patients admitted to an intensive care unit (ICU) have, for example, described the high incidence of such events. In a case series of COVID-19 patients admitted to ICU in the Netherlands, the incidence of thrombotic complications was found to be 31%,[2] while a similar case series from a hospital in Italy found the incidence of thromboembolic events to be 28%.[3] Meanwhile, the rate of venous thromboembolism was found to be as high as 69% for a case series from two French intensive care units (ICU).[4]

Previous studies assessing the incidence of thromboembolic events in COVID-19 have, however, typically been based on relatively small study populations and have predominantly focused only on hospitalised patients. Consequently, uncertainty remains around the incidence of thromboembolic events among patients with COVID-19. Study cohorts derived from routinely-collected healthcare data can provide the requisite breadth of data capture and sample size to address this research gap.

Moreover, such data can be used to consider the incidence of thromboembolic events for particular groups of interest, for example those with a history of thromboembolic events.

7.3 Thromboembolic events and worsening in patients with COVID-19

COVID-19 patients with a thromboembolic events appear to be at increased risk of worse outcomes, with a recent systematic review finding a strong association between cardiovascular and thromboembolic events and poor prognosis in COVID-19.[5] As with the incidence of the events themselves, routinely-collected data can be used to describe the risks of worsening in COVID-19 among those with and without a thromboembolic events.

7.4 Risk factors for thromboembolic events in patients with COVID-19

Various patient factors have been associated with worse outcomes in COVID-19. Older age, male sex, hypertension, diabetes, and being overweight or obese have all been seen to be associated with an increased risk of hospitalisation and mortality in COVID-19.[6–12] Many of these same factors have also previously been seen to predispose individuals to thromboembolic events.[13,14] Indeed in one study a set of pre-existing cardiovascular risk factors were associated with mortality in COVID-19, independent of patients´ age and sex.[15] The associations between such risk factors and thromboembolic events among patients with COVID-19 has though yet to be elucidated in detail.

7.5 Predicting thromboembolic events in patients with COVID-19

Prediction models that combine various patient features can be used to estimate individuals´ personalised risks of adverse outcomes in COVID-19. A prediction model of thromboembolic events among patients with COVID-19 would, if it had the requisite level of performance, be a valuable tool in the management of COVID-19. Numerous prediction models have been developed for COVID-19, but many have been limited by small sample sizes, a lack of representative study populations, and an absence of external validation.[16] Using routinely-collected data can offer a solution to these potential issues, especially when using data mapped to a common data model which would allow for the development and external validation of models to be done in both a timely and reproducible manner.[17]

8 Research question and objectives

The research objectives which will be addressed are:

1) To estimate the background incidence of selected embolic and thrombotic events of interest among the general population.
2) To estimate the incidence of selected embolic and thrombotic events of interest among persons vaccinated against SARS-CoV-2 at 7, 14, 21, and 28 days.
3) To estimate incidence rate ratios for selected embolic/thrombotic events of interest amongst people vaccinated against SARS-CoV-2 compared to background rates as estimated in Objective #1
4) To estimate the incidence of venous thromboembolic events among patients with COVID-19 at 30, 60, and 90 days.
5) To calculate the risks of COVID-19 worsening stratified by the occurrence of a venous thromboembolic event.
6) To assess the impact of risk factors on the rates of venous thromboembolic events among patients with COVID-19.
7) To develop and externally validate patient-level prediction models for venous thromboembolic events for patients with COVID-19.
8) To estimate the incidence of arterial thromboembolic events among patients with COVID-19 at 30-, 60-, and 90-days.
9) To calculate the risks of COVID-19 worsening stratified by the occurrence of an arterial thromboembolic event.
10) To assess the impact of risk factors on the rates of arterial thromboembolic events among patients with COVID-19.
11) To develop and externally validate patient-level prediction models for arterial thromboembolic events for patients with COVID-19.

9 Research methods

9.1 Study design

An observational cohort study using routinely-collected health care data mapped to the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM).

9.2 Setting

9.2.1 Countries

Datasets from Italy, France, Germany, Netherlands, Spain, and United Kingdom will inform the analyses (see section 9.4 Data Sources below for more details).

9.2.2 Study period

The study period for estimating the background incidence of events of interest will start from the 1st January 2017 and end on 31st December 2019. The study period for all other analyses will start from 1st March 2020 for COVID-19 cohorts, and from December 2020 for the analysis of vaccinated people. The end of the study period will be the last available date of data collection for each contributing database.

9.2.3 Study cohorts

The following study cohorts for the primary analyses will be defined:

1. **General population cohorts (date anchored)** will
    - have been present in the database as of the 1st January 2017 (1st January will be the index date)
2. **General population cohorts (visit anchored)** will
    - have had a visit/contact with the healthcare system between 1st January 2017 and 31st December 2019 (with the date of that first visit used as index date)
3. **Persons vaccinated against SARS-CoV-2 with first dose** will
    - have received a vaccination against SARS-CoV-2 (with the index date the date associated with the vaccination), and
    - have no vaccination against SARS-CoV-2 prior to the index date.
4. **Persons vaccinated against SARS-CoV-2 with second dose** will
    - have received a vaccination against SARS-CoV-2 (with the index date the date associated with the vaccination), and
    - have one vaccination against SARS-CoV-2 prior to the index date.
5. **Persons tested positive for SARS-CoV-2** will
    - have a positive test result for SARS-CoV-2 (with the index date the date associated with the test), and

- have no positive test result for SARS-CoV-2 prior to the index date.

6. **Persons tested positive for SARS-CoV-2 or with a clinical diagnosis of COVID-19** will
    - have either a positive test result for SARS-CoV-2 or a clinical diagnosis of COVID-19 (with the index date whichever comes first of the date associated with the test or date of diagnosis), and
    - have no positive test result for SARS-CoV-2 or clinical diagnosis of COVID-19 prior to the index date.
7. **Persons hospitalised with COVID-19** will have
    - a hospitalisation (with the index date the date of hospital admission),
    - a record of a clinical diagnosis of COVID-19 or a positive test result for SARS-CoV-2 result in the period between 3 weeks prior to and up to three days following the index date, and
    - have no COVID-19 hospitalisation prior to the index date.
8. **Persons requiring intensive services during a hospitalisation with COVID-19** will have
    - a hospitalisation,
    - intensive services initiated during the hospitalisation (with the index date the date at which intensive services were initiated),
    - a record of a clinical diagnosis of COVID-19 or a positive test result for SARS-CoV-2 in the period between 3 weeks prior to and up to three days following the index date, and
    - have no COVID-19 hospitalisation prior to the one which includes the index event of receiving intensive services.

Each of the cohorts described above will be generated again with the additional restriction that individuals have at least a year of observed history in the database prior to their index date. This is to ensure a sufficient time period to identify health conditions and medication use prior to individuals´ index dates.

Additional sensitivity analyses will be performed to consider the impact of varying the time period over which a record of a clinical diagnosis of COVID-19 or a positive test result for SARS-CoV-2 can occur when establishing the cohorts of hospitalised patients, with this time window changed to: 1) only the index date, 2) index date up to three days afterwards, 3) 3 weeks prior to up to the index date, and 4) 3 weeks prior to and up to seven days following the index date.

9.2.4 Follow-up

Study cohorts follow-up will begin on their index date and continue until the first of: outcome of interest, loss to follow-up, or end of the study period. For the cohort of persons vaccinated against SARS-CoV-2 with first dose, follow-up will also be censored on date of receipt of second dose.

9.3 Variables

9.3.1 Exposures

9.3.1.1 Vaccination against SARS-CoV-2

We will identify individuals who received a vaccination against SARS-CoV-2, with the first dose an individual received being used as the index event for one cohort and the second dose for another cohort. Where it is possible to identify the type of vaccine received, we will also extract this information and define cohorts by vaccine type.

9.3.1.2 Positive test result for SARS-CoV-2

Where the type of testing used is observable in a database, we will exclusively use RT-PCR tests when identifying positive test results for SARS-CoV-2, with these being the predominant form of testing over the study period and having high sensitivity and specificity.[18] Antigen tests and serological tests will not be used in this case. However, if the type of test used is not observed in a database, all positive test results for SARS-CoV-2 will be included. The date associated with the test will be used.

Two alternative concept sets for identifying a positive test result for SARS-CoV-2 will be used. The first, which will be preferred, is limited to only codes that indicate the test to have been an RT-PCR test (for example, including a code for “SARS-CoV-2 (COVID19) RNA panel - Unspecified specimen by NAA with probe detection”). For databases where the type of test is not consistently observed, a broader concept set will be used which allows for the inclusion of any type of test (with this concept set, for example, including a code for "Detection of 2019 novel coronavirus using polymerase chain reaction technique").

9.3.1.3 Clinical diagnosis of COVID-19

Testing for SARS-CoV-2 was initially limited in many of the countries that will be represented in this study, particularly in outpatient settings. Clinical diagnoses of COVID-19 in primary care were though made for many individuals. Diagnostic codes compatible with COVID-19 will therefore be identified, with the date on which it was recorded used in the analyses.

9.3.1.4 Hospitalisation with COVID-19

Patients hospitalised with COVID-19 will be identified on the basis of having a hospitalisation along with a confirmatory diagnosis or test result of COVID-19 (both as defined above) within a time window from 21 days prior to admission up to three days following their admission. This time window was chosen so as to include those who had the diagnosis made prior to their hospitalisation and allow for a delay in test results or diagnoses to be made or recorded, while excluding individuals with hospital-acquired COVID-19.

9.3.1.5 Intensive services during a hospitalisation with COVID-19

Patients who received intensive services during a hospitalised with COVID-19 will be identified on the basis of having a hospitalisation where they received mechanical ventilation, tracheostomy, or extracorporeal membrane oxygenation (ECMO). If the date at which the intervention was initiated is observable in the database, this date will be used as the index date. If the date at which the intervention was initiated is not observed (for example, if such interventions are recorded at time of discharge) then the date of hospital admission will be used as the index date. Patients will have had a confirmatory diagnosis or test result of COVID-19 (both as defined above) within a time window from 21 days prior to their index date up to three days following their index date. As above, this time window was chosen so as to include those who had the diagnosis made prior to their hospitalisation and allow for a delay in test results or diagnoses to be made or recorded.

9.3.2 Study outcomes

9.3.2.1 Venous thromboembolic events

In the primary analysis, venous thromboembolic events will be identified by diagnostic codes for pulmonary embolism or deep vein thrombosis. In a secondary analysis pulmonary embolism and deep vein thrombosis will be assessed separately. As a sensitivity analysis, we will require that events were observed during a hospitalisation.

9.3.2.2 Arterial thromboembolic events

In the primary analysis, arterial thromboembolic events will be identified by an acute myocardial infarction or acute ischemic stroke. In a secondary analysis acute myocardial infarction and acute ischemic stroke will be assessed separately. As a sensitivity analysis, we will require that events were observed during a hospitalisation.

9.3.2.3 Rare thrombotic and coagulopathy events

We will identify the occurrence of the following rare outcomes identified as potential safety signals associated with some COVID-19 vaccines:

1. Disseminated intravascular coagulation
2. Immune thrombocytopenia
3. Thrombotic thrombocytopenia purpura
4. Heparin-induced thrombocytopenia
5. Thrombocytopenia
6. Thrombocytopenic purpura
7. Platelet disorder/s
8. Cerebral venous sinus thrombosis
9. Intracranial venous thrombosis,
10. Splenic vein thrombosis
11. Splenic artery thrombosis
12. Splenic infarction
13. Hepatic vein thrombosis
14. Hepatic artery thrombosis
15. Portal vein thrombosis
16. Intestinal infarction
17. Mesenteric vein thrombosis
18. Celiac artery thrombosis
19. Visceral vein thrombosis
20. Splanchnic vein thrombosis

Rates of outcomes 8-20 will be reported also when in combination with thrombocytopenia (outcome 5) as recorded in the 42 days before up to 14 days after the index date.

As a sensitivity analysis, we will require that events were observed during a hospitalisation.

9.3.2.4 Cardiovascular events

Instances of heart failure, cardiac arrhythmia, ventricular arrhythmia or cardiac arrest, chest pain or angina, and sudden cardiac death will be identified. In addition, major cardiovascular events (MACE) will be identified by heart failure, acute myocardial infarction, or stroke, or the occurrence of sudden cardiac death. As a sensitivity analysis, we will require that events were observed during a hospitalisation.

9.3.2.5 All-cause mortality

Mortality will be identified in each of the databases.

9.3.3 Characteristics of study participants

9.3.3.1 Location at index date

For the cohorts **Persons tested positive for SARS-CoV-2** and **Persons tested positive for SARS-CoV-2 or with a clinical diagnosis of COVID-19**, we will identify whether individuals were currently hospitalised on their index date. By definition all those in the cohorts **Persons hospitalised with COVID-19** and **Persons requiring intensive services during a hospitalisation with COVID-19** will be hospitalised on their index date.

9.3.3.2 Demographics

Patients´ age at index date and sex will be identified. Age groups will also be identified using the following groupings: <20; 20-44; 45-54; 55-64; 65-74; 75-84; ≥85 years in accordance with an FDA protocol for the analysis of thromboembolism in COVID-19. Additional age groups will be used, including those reported by the ACCESS consortium
For those databases where such information is observed, individuals´ socioeconomic status and whether they are living in the community or were a nursing home resident will also be identified.

9.3.3.3 Health conditions pre-index date

Individuals´ history of the aforementioned study outcomes will be identified over three time periods: 1) 30 days prior to one day prior index date, 2) 365 days prior to one day prior index date, 3) all available days observed up to one day prior to index date.
A range of other health conditions will be identified using the same time windows on the basis of SNOMED CT codes (which are used as the standard codes in the OMOP CDM), with all descendent codes included. Among these, the following conditions will be identified: antiphospholipid syndrome, asthma, atrial fibrillation, cancer (excluding non-melanoma skin cancers), thrombophilia, dementia, and obesity.

9.3.3.4 Medications pre-index date

Pre-existing medication use will be identified using a time window of 183 days prior to four days prior index date. Medications of interest will be identified on the basis of Anatomical Therapeutic Chemical (ATC) codes, with use of the following medications identified: non-steroidal anti-inflammatory drugs (ATC group: M01A, with all descendant codes included), Cox2 inhibitors (M01AH), systemic corticosteroids (H02AB and H02BX), antithrombotic and anticoagulant

therapies (B01A), lipid modifying agents (C10), agents acting on the renin-angiotensin system (C09), antineoplastic and immunomodulating agents (L), hormonal contraceptives for systemic use (G03A), tamoxifen (L02BA01), and sex hormones and modulators of the genital system (G03).

9.3.3.5 Smoking status pre-index date

Individuals´ smoking status (current smoker, ex-smoker, or non-smoker) will be identified. All available history for an individual will be used to identify records of their smoking status, with the most recent record included in the analysis.

9.3.3.6 Medications on or post-index date

We will also identify medication use on or after the index date. For each medication of interest, we will group users into prevalent and new users. The following medications will be identified: anticoagulants, anti-platelet drugs, thrombolytic agent, or transfusion with blood products or immunoglobulins.

9.4 Data sources

For this study, we will include routinely-collected healthcare data from databases throughout Europe will be accessible for the analysis. These databases are summarised in Table 1 below. All of these databases have been mapped to the OMOP CDM. Feasibility analyses (described below in section 9.8.2) will be run prior to executing the analysis, and only those databases where the required study cohorts, patient features, and outcomes of interest can be reliably identified will be included.

Table 1: Data sources accessible for analysis

Database	Managing Organization	Country	Description
LPD Italy	IQVIA	Italy	LPD Italy is comprised of anonymised patient records collected from software used by GPs during an office visit to document patients´ clinical records. Data coverage includes over 2M patient records with at least one visit and 119.5M prescription orders across 900 GP practices. Dates of service include from 2004 through present. Observation time is defined by the first and last consultation dates. Drugs are captured as prescription records with product, quantity, dosing directions, strength, indication and date of consultation.

LPD France	IQVIA	France	LPD France is a computerised network of physicians including GPs who contribute to a centralised database of anonymised patient EMR. Currently, >1200 GPs from 400 practices are contributing to the database covering 7.8M patients in France. The database covers a time period from 1994 through the present. Observation time is defined by the first and last consultation dates. Drug information is derived from GP prescriptions. Drugs obtained over the counter by the patient outside the prescription system are not reported.
DA Germany	IQVIA	Germany	IQVIA DA Germany is collected from extracts of patient management software used by GPs and specialists practicing in ambulatory care settings. Data coverage includes more than 34M distinct person records out of at total population of 80M (42.5%) in the country and collected from 2,734 providers. Dates of service include from 1992 through March 2020.
CPRD GOLD with linked HES APC	UOXF	UK	The Clinical Practice Research Datalink (CPRD) is a governmental, not-for-profit research service, jointly funded by the NHS National Institute for Health Research (NIHR) and the Medicines and Healthcare products Regulatory Agency (MHRA), a part of the Department of Health, United Kingdom (UK). CPRD GOLD contains data contributed by GP practices using Vision® software. CPRD can be linked, at a patient-level, to the Hospital Episode Statistics Admitted Patient Care (HES APC) database which contains all admissions to National Health Service (NHS) hospitals in England.
CPRD AURUM with linked HES APC	UOXF	UK	CPRD Aurum contains routinely-collected data from practices using EMIS Web® software. As with CPRD GOLD, CPRD AURUM can be linked to HES APC.
IPCI	Erasmus MC	Netherlands	The Integrated Primary Care Information (IPCI) database is collected from EHR records of patients registered with 391 GPs throughout the Netherlands. The database contains records from approximately 2.6 million patients out of a Dutch population of 17M (8.2%) starting in 1996.
SIDIAP	IDIAP Jordi Gol	Spain	The Information System for Research in Primary Care (SIDIAP; www.sidiap.org) is a primary care records database that covers approximatly 80% of the population of

			Catalonia, North-East Spain. Healthcare is universal and tax-payer funded in the region, and primary care physicians are gatekeepers for all care and responsible for repeat prescriptions.
HM Hospitals	IDIAP Jordi Gol	Spain	Hospital de Madrid (HM) Hospitals data are made available through partnership with IDIAPJGol. The HM Hospitals database covers in-patient care delivered across a network of 17 private hospitals in Spain between 1st of March and 24th of April 2020. HM Hospitals database covers more than 2300 confirmed COVID-19 cases, and all in-patient hospital care, including the data of admission, conditions, procedures and medicines dispensed in hospital, date of discharge, and date of known death or date of end of follow-up in the database.

9.5 Study size

For each database, all individuals that satisfy the eligibility criteria for a study cohort will be included. Based on initial cohort counts for only SIDIAP and HM, more than 35,000 individuals with a SARS-CoV-2 positive test (SIDIAP only), more than 125,000 individuals with a COVID-19 diagnosis, more than 25,000 individuals hospitalised with COVID-19, and more than 1,000 persons requiring intensive services during a hospitalisation with COVID-19 (HM only) can be expected to be identified. The final counts can be expected to be substantially higher as additional data becomes available.

As for the analysis of people vaccinated against COVID-19, the most recent version of CPRD AURUM contains information on >3 million people with at least one code suggesting vaccination. CPRD AURUM will therefore be the primary data asset for the analysis of post-vaccination rates.

9.6 Data management

The databases used in this study have been standardised to the OMOP CDM. This enables the use of standardised analytics and tools across the network since the structure of the data and the terminology system is harmonised. The OMOP CDM is developed and maintained by the Observational Health Data Sciences and Informatics (OHDSI) initiative and is described in detail on the wiki page of the CDM: https://ohdsi.github.io/CommonDataModel/ and in The Book of OHDSI: http://book.ohdsi.org

This analytic code for this study will be written in R. Each data partner will execute the study code against their database containing patient-level data and will then return the results set which will

only contain aggregated data. The results from each of the contributing data sites will then be combined in tables and figures for the study report.

9.7 Data analysis

9.7.1 Descriptive statistics

The observed characteristics of each study population as a whole and, for the tested positive for SARS-CoV-2 and tested positive for SARS-CoV-2 or with a clinical diagnosis of COVID-19 cohorts, stratified by whether individuals´ were hospitalised or not hospitalised on their index date will be reported. The time at risk observed along with the number of events that were observed over follow-up will similarly be summarised. The proportion of missing data for a given characteristic, for example relating to smoking status, will also be reported.

9.7.2 Background incidence rates

We will estimate the incidence for all of the study outcomes described in section 9.3.2 among the general population study cohorts. For each year of interest, 2017, 2018, and 2019, the target population will be identified. Incidence rates will be estimated as the total number of events divided by the person-time at risk per 100,000 person-years, with 95% confidence intervals provided. As well as estimating the incidence of outcomes of interest in general for each year, we will estimate it for various strata of the population which will include: age group, sex, history of arterial thromboembolic events, history of venous thromboembolic events, prior anticoagulant or anti-platelet drug exposure, antithrombotic use at index date.

9.7.3 Incidence of study outcomes among persons vaccinated against SARS-CoV-2

We will estimate the incidence for all of the study outcomes described in section 9.3.2 at 7, 14, 21, and 28 days following vaccination against SARS-CoV-2. As well as estimating the incidence of outcomes of interest for each study cohort as a whole, incidence will also be estimated for the various stratifications which will include: vaccine brand name and batch number (if available), age group, sex, history of arterial thromboembolic events, history of venous thromboembolic events, prior anticoagulant or anti-platelet drug exposure, antithrombotic use at index date.

9.7.4 Incidence rate ratios in post-vaccine vs historical (2017-2019) rates

Age and sex-adjusted incidence rate ratios for each of the study outcomes will be estimated using Poisson regression. The 28-day period post-vaccination will be used as target rate, and compared to the age-sex specific historical rate, estimated in the period starting on 1st January 2017. In a sensitivity analysis, historical rates estimated after the first recorded visit in the study period will be used instead to minimize the impact of potential Berksonian bias.

9.7.5 Incidence of study outcomes among COVID-19 patients

We will estimate the incidence for all of the study outcomes described in section 9.3.2 at 30, 60, and 90 days following the index date for each cohort of interest. Given the high risk of mortality among patients with COVID-19, particularly among those hospitalised, the competing risk of mortality will be taken into account when calculating the cumulative incidence of events other that mortality.

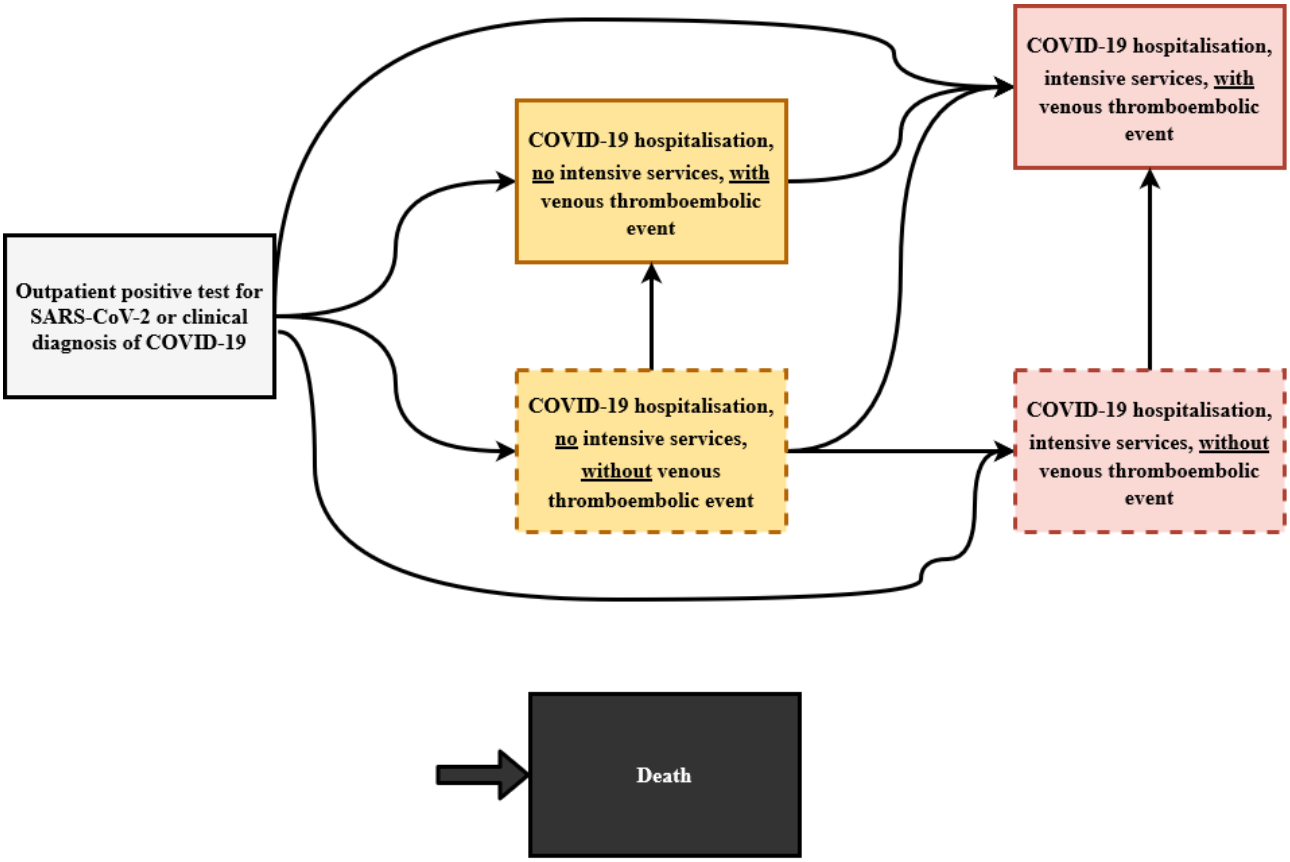
As well as estimating the incidence of outcomes of interest for each study cohort as a whole, incidence will also be estimated for the various stratifications which will include: setting (hospitalised or not hospitalised on index date), age group, sex, history of arterial thromboembolic events, history of venous thromboembolic events, prior anticoagulant or anti-platelet drug exposure, antithrombotic use at index date (non-user, prevalent user, or new user).

9.7.6 Risks of COVID-19 "worsening" (hospital admission, initiation of intensive services, or death) stratified by thromboembolic event occurrence

A multistate-type modelling approach will be used to assess risks of COVID-19 worsening stratified by thromboembolic event occurrence. Multistate models allow for a consideration of individuals progression to multiple events of interest, extending on competing risk models by also describing transitions to intermediate events.[19] In the context of COVID-19, hospitalisations and receipt of intensive services during a hospitalisation can be considered as key intermediate events between testing positive for SARS-COV-2 or having a clinical diagnosis of COVID-19 in an outpatient setting on the one end to a COVID-19-related death on the other.

The exact structure of the model used will depend on the characteristics of the data sources used (which will be examined in detail in the feasibility analysis described in section 9.8.2) and separate models will be developed focused on arterial thromboembolic events and venous thromboembolic events, respectively. Figure 1 shows an exemplar model for assessing COVID-19 worsening stratified by venous thromboembolic event, where individuals would begin by being identified as having a positive test for SARS-CoV-2 or clinical diagnosis of COVID-19 in an outpatient setting and then would progress through the various hospitalisation-related states (with/ without intensive services and with/ without a venous thromboembolic events), and would capture deaths (either after such a hospitalisation or directly after the test, for those individuals who were not hospitalised before their deaths).

Figure 1. Example multi-state model framework to assess COVID-19 worsening stratified by venous thromboembolic event



9.7.7 Assessing the impact of risk factors for thromboembolic events among patients with COVID-19

Two analytic approaches will be used to assess the impact of risk factors on rates of thromboembolic events among patients with COVID-19. The first approach will be to use Cox models to calculate hazard ratios associated with the various risk factors of interest. We will first assess age (as a continuous variable) as a factor of interest and for this will estimate an unadjusted model and sex-stratified models. Subsequently we will assess sex as a factor of interest, estimating an unadjusted model and age-stratified models. Lastly, we will assess other risk factors of interest (the pre-index health conditions and medications of interest mentioned above). For these we will estimate unadjusted models for each, along with age and sex adjusted models, and age- and sex-stratified models.

The second approach will be to use cause-specific Cox models within the multistate framework to estimate hazard ratios associated with the risk factors of interest. This approach will allow for the factors of interest to have a different effect by the transition of interest and, where the model

includes a state representing deaths, will account for the competing risk of mortality. The adjustment strategy used will be the same as that used above.

To note, in both approaches the aim of the models will be inferential, assessing the existence of relationships but not the underlying mechanisms or reasons for them.[20]

9.7.8 Developing and validating patient-level prediction models for thromboembolic events among patients with COVID-19

For each of the study cohorts of patients with COVID-19, patient-level prediction models will be developed for each of the outcomes of interest for each of the time periods of interest. These models will be developed using the OHDSI Patient-Level Prediction framework developed to allow for rapid model development and validation following accepted best practices.[17] Candidate predictors will include patient demographics, prior health conditions, and prior medicine use as observed in each database. Various algorithms will be used for developing models, such as Lasso Logistic Regression and random forest.

Models developed in one of the contributing databases that have a good performance will be externally validated in each of the other databases in which the particular study cohort and outcomes can be identified. For those models which offer good performance, a simplified version of the model will also be assessed (for example, created using a subset of the predictors identified from the data-driven approach). Table 3 summarises the various ways in which model performance will be evaluated.

Table 3. Evaluation of patient-level prediction models

Evaluation	Description
Box Plots	The prediction distribution boxplots are box plots for the predicted risks of the people in the test set with the outcome (class 1: blue) and without the outcome (class 0: red).
Calibration Plot	The calibration plot shows how close the predicted risk is to the observed risk. The diagonal dashed line thus indicates a perfectly calibrated model. The ten (or fewer) dots represent the mean predicted values for each quantile plotted against the observed fraction of people in that quantile who had the outcome (observed fraction). The straight black line is the linear regression using these 10 plotted quantiles mean predicted vs observed fraction points. The two blue straight lines represented the 95% lower and upper confidence intervals of the slope of the fitted line.
Demographic Summary Plot	This plot shows for females and males the expected and observed risk in different age groups together with a confidence area.
Precision Recall Plot	The precision-recall curve is valuable for dataset with a high imbalance between the size of the positive and negative class. It shows the trade-off between precision and

	recall for different threshold. High precision relates to a low false positive rate, and high recall relates to a low false negative rate. High scores for both show that the classifier is returning accurate results (high precision), as well as returning a majority of all positive results (high recall). A high area under the curve represents both high recall and high precision.
Prediction Distribution Plots	The preference distribution plots are the preference score distributions corresponding to i) people in the test set with the outcome (red) and ii) people in the test set without the outcome (blue).
ROC Plot	The ROC plot plots the sensitivity against 1-specificity on the test set. The plot shows how well the model is able to discriminate between the people with the outcome and those without. The dashed diagonal line is the performance of a model that randomly assigns predictions. The higher the area under the ROC plot the better the discrimination of the model.
Smooth Calibration Plot	Similar to the traditional calibration shown above the Smooth Calibration plot shows the relationship between predicted and observed risk. the major difference is that the smooth fit allows for a more fine-grained examination of this. Whereas the traditional plot will be heavily influenced by the areas with the highest density of data the smooth plot will provide the same information for this region as well as a more accurate interpretation of areas with lower density. the plot also contains information on the distribution of the outcomes relative to predicted risk. However, the increased information game comes at a computational cost. It is recommended to use the traditional plot for examination and then to produce the smooth plot for final versions.
Test-Train Similarity Plot	The test-train similarity is presented by plotting the mean covariate values in the train set against those in the test set for people with and without the outcome.
Variable Scatter Plot	The variable scatter plot shows the mean covariate value for the people with the outcome against the mean covariate value for the people without the outcome. The size and colour of the dots correspond to the importance of the covariates in the trained model (size of beta) and its direction (sign of beta with green meaning positive and red meaning negative), respectively.

9.8 Quality control

9.8.1 General 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 http://book.ohdsi.org/DataQuality.html). In particular, it is expected that data partners will have run the OHDSI Data Quality Dashboard tool (https://github.com/OHDSI/DataQualityDashboard) . This tool provides a number of 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.[21] Each of these categories has one or more subcategories and are evaluated in two contexts: validation and verification. Validation relates to how well data align with external benchmarks with expectations derived from known true standards, while verification relates to how well data conform to local knowledge, metadata descriptions, and system assumptions.

9.8.2 Study-specific quality control

Each of the contributing databases will first run an OHDSI cohort diagnostics package (https://github.com/OHDSI/CohortDiagnostics) to identify the exposure cohorts described above. The results will include a summary of codes from the concept sets that are observed in the database and a summary of the concepts that led to entry into particular study cohorts. It also includes a check for ´orphan concepts´, concepts observed in the database that are not included in a concept set of a cohort but perhaps should have been. This will help to inform a consideration of the validity of the exposure cohorts in each of the databases. Subsequently, a cohort diagnostics package will be run to assess the identification of outcomes and patient features in an analogous manner.
The analytic study package will then be run against each database. This package will be developed using best practices described in Chapter 17 of The Book of OHDSI (http://book.ohdsi.org/SoftwareValidity.html) and will be made publicly available via GitHub.

9.9 Limitations of the research methods

The study will be informed by routinely-collected health care data and so data quality issues must be considered. Cohorts of individuals with COVID-19 will be identified. However, outpatient tested positive cohorts will not capture all those individuals infected, or even all those who developed mild, symptomatic disease given the limited availability of testing in outpatient settings, particularly during the first months of the pandemic. The inclusion of a study cohort identified by clinical diagnoses without the requirement for a positive test will address some of these limitations

associated with requiring an individual to have undergone a test for SARS-CoV-2, however without the benefit of a positive test result.

The included databases will vary in the data elements that they capture. Depending on the dataset, not all study populations will be observed. For example, identifying the intensive services cohort will not be possible where inpatient hospital interventions are not observed. Similarly, not all outcomes will be available. For example, deaths will not be observed in all databases. Only the cohorts and outcomes that can be reliably be identified will be assessed in the analyses.

The outcomes considered here are acute events, however it is not yet well-known how well such events have been identified and recorded during the COVID-19 pandemic. This may make it difficult for any comparisons to be made between the rates we find for patients with COVID-19 and historical rates seen among other populations reported in the literature.

9.10 Other aspects

Not applicable

10 Protection of human subjects

For this study, participants from various EU member states will process personal data from individuals which is collected in national/regional electronic health record databases. Due to the sensitive nature of this personal medical data, it is important to be fully aware of ethical and regulatory aspects and to strive to take all reasonable measures to ensure compliance with ethical and regulatory issues on privacy.

All the databases used in this study are already used for pharmaco-epidemiological research and have a well-developed mechanism to ensure that European and local regulations dealing with ethical use of the data and adequate privacy control are adhered to.

In agreement with these regulations, rather than combining person level data and performing only a central analysis, local analyses will be run, which generate non-identifiable aggregate summary results.

Where required, Institutional Review Boards of the respective databases and ethics committees will review the protocol of the study.

Regulatory and ethical compliance

This study was designed and shall be implemented and reported in accordance with the Guidelines for Good Pharmacoepidemiology Practices (GPP) of the International Society for Pharmacoepidemiology, the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines, and with the ethical principles laid down in the Declaration of Helsinki.

This study is fulfilling the criteria of a ‘European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCePP) study’ and follows the ‘ENCePP Code of Conduct’.

11 Management and reporting of adverse events/adverse reactions

According to the new guideline on good pharmacovigilance practice (EMA/873138/2011 Rev 2*) there is no requirement for expedited reporting of adverse drug reactions from studies with secondary use of data (such as electronic health care databases).

12 Plans for disseminating and communicating study results

Dissemination activities to be undertaken will have mainly, although not exclusively, a scientific nature (articles, presentations at conferences, etc.).

A work plan for the next steps in the project, including dissemination, includes:

- Finalisation of study protocol: March 2021
- Feasibility analyses of participant and outcome cohorts: April 2021 to June 2021 (as data becomes available)
- Analysis of the background incidence of study outcomes (RQ1): April 2021
- Analysis of the incidence of study outcomes among persons vaccinated, and incidence rate ratios for post-vaccine vs background rates (RQ2 and RQ3): April to June 2021
- Analyses of incidence of thromboembolic events (RQ4 and RQ8) and risk factors for thromboembolic events (modified Poisson models for RQ6 and RQ10): April to June 2021
- Analyses of multistate modelling to assess worsening of COVID-19 (RQ5 and RQ9) and risk factors for thromboembolic events (Cox PH models for RQ6 and RQ10): April to June 2021
- Development and validation of patient-level prediction models (RQ7 and RQ11): April to June 2021
- Submission of study report to EMA: August 2021
- Submission of resulting manuscript/s: September 2021

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Annex 1. List of stand-alone documents

None

Annex 2. ENCePP checklist for study protocols

Annex 3. Concept set for persons vaccinated against SARS-CoV-2

Please note, these concept sets will be updated as and when the OHDSI vocabularies are updated. Excluded indicates that the related codes will not be used in the definition, while descendants indicates whether terms below the code in the hierarchy will be included in the definition. (Please see https://ohdsi.github.io/TheBookOfOhdsi/Cohorts.html#conceptSets for more details on how these concept sets are operationalised).

Vaccinated against SARS-CoV-2

Concept Id	Concept Name	Vocabulary	Excluded	Descendants
37311064	SARS-CoV-2 vaccination	SNOMED	NO	YES

Vaccinated against SARS-CoV-2 with Moderna Covid-19 Vaccine

Concept Id	Concept Name	Vocabulary	Excluded	Descendants	Mapped
766240	AstraZeneca Covid-19 Vaccine	CPT4	NO	YES	YES

Vaccinated against SARS-CoV-2 with Janssen Covid-19 Vaccine Administration

Concept Id	Concept Name	Vocabulary	Excluded	Descendants	Mapped

766235	Janssen Covid-19 Vaccine Administration	CPT4	NO	YES	YES

Vaccinated against SARS-CoV-2 with Pfizer-Biontech Covid-19 Vaccine

Concept Id	Concept Name	Vocabulary	Excluded	Descendants	Mapped
766238	Pfizer-Biontech Covid-19 Vaccine	CPT4	NO	YES	YES

Vaccinated against SARS-CoV-2 with Moderna Covid-19 Vaccine

Concept Id	Concept Name	Vocabulary	Excluded	Descendants	Mapped
766239	Moderna Covid-19 Vaccine	CPT4	NO	YES	YES

Annex 4. Concept sets for COVID-19 study cohorts

Please note, these concept set will be updated as and when the OHDSI vocabularies are updated. Excluded indicates that the related codes will not be used in the definition, while descendants indicates whether terms below the code in the hierarchy will be included in the definition. (Please see https://ohdsi.github.io/TheBookOfOhdsi/Cohorts.html#conceptSets for more details on how these concept sets are operationalised).

SARS-CoV-2 test: indicative of a positive result

Concept Id	Concept Name	Vocabulary	Excluded	Descendants
37310282	2019 novel coronavirus detected	SNOMED	NO	YES

SARS-CoV-2 test: requiring associated value to be positive

Concept Id	Concept Name	Vocabulary	Excluded	Descendants
37310282	2019 novel coronavirus detected	SNOMED	YES	YES
37310281	2019 novel coronavirus not detected	SNOMED	YES	YES
756055	Measurement of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)	OMOP Extension	NO	YES

SARS-CoV-2 test RT-PCR test: requiring associated value to be positive

Concept Id	Concept Name	Vocabulary	Excluded	Descendants
36662635	SARSCoV2 molecular detection	LONIC	NO	YES

Clinical diagnosis of COVID-19

Concept Id	Concept Name	Vocabulary	Excluded	Descendants
439676	Coronavirus infection	SNOMED	NO	YES

4100065	Disease due to Coronaviridae	SNOMED	NO	YES
37311060	Suspected disease caused by 2019-nCoV	SNOMED	NO	YES

Mechanical ventilation

Concept Id	Concept Name	Vocabulary	Excluded	Descendants
765576	Orotracheal intubation using bougie device	SNOMED	NO	YES
2108641	Glossectomy; complete or total, with or without tracheostomy, without radical neck dissection	CPT4	YES	YES
2108642	Glossectomy; complete or total, with or without tracheostomy, with unilateral radical neck dissection	CPT4	YES	YES
2108681	Patient receiving care in the intensive care unit (ICU) and receiving mechanical ventilation, 24 hours or less (CRIT)	CPT4	NO	YES
2788036	Respiratory Ventilation, Less than 24 Consecutive Hours	ICD10PCS	NO	YES
2788037	Respiratory Ventilation, 24-96 Consecutive Hours	ICD10PCS	NO	YES

2788038	Respiratory Ventilation, Greater than 96 Consecutive Hours	ICD10PCS	NO	YES
4006318	Respiratory assist, manual	SNOMED	YES	YES
4021786	Fear of disconnection from ventilator	SNOMED	YES	YES
4031379	Artificial ventilation finding	SNOMED	YES	YES
4072633	Weaning from mechanically assisted ventilation	SNOMED	NO	YES
4074663	Diaphragmatic augmentation	SNOMED	YES	YES
4080957	Endotracheal respiratory assistance	SNOMED	NO	YES
4107247	Inhalation anesthesia, machine system, semi-closed, no rebreathing of primary agent	SNOMED	YES	YES
4168966	Endotracheal tube present	SNOMED	NO	YES
4219858	Problem with patient ventilator	SNOMED	NO	YES
4230167	Artificial respiration	SNOMED	NO	YES
4232550	Home visit for mechanical ventilation care	SNOMED	NO	YES
4232891	Mechanical ventilation response	SNOMED	YES	YES
4235361	Hyperventilation therapy for traumatic brain injury	SNOMED	NO	YES
4237618	Ventilator care	SNOMED	NO	YES

4251737	Ventilator care management	SNOMED	NO	YES
4254108	Resuscitation with artificial respiration	SNOMED	YES	YES
4254905	Ventilator care education	SNOMED	YES	YES
4259233	Ventilator care assessment	SNOMED	YES	YES
4332501	Management of noninvasive mechanical ventilation	SNOMED	NO	YES
4348300	Expired air ventilation	SNOMED	YES	YES
4353715	Ventilator finding	SNOMED	YES	YES
37116689	Insertion of endotracheal ventilation catheter	SNOMED	NO	YES
37206832	Mechanical insufflation exsufflation	SNOMED	NO	YES
40481547	Dependence on ventilator	SNOMED	NO	YES
40487536	Intubation of respiratory tract	SNOMED	NO	YES
42738852	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing; first day	CPT4	NO	YES
42738853	Ventilation assist and management, initiation of pressure or volume preset	CPT4	NO	YES

	ventilators for assisted or controlled breathing; subsequent days			
44509482	Other specified ventilation support	OPCS4	NO	YES
44791135	Ventilatory support	SNOMED	NO	YES
44808555	Provision of mechanical ventilator	SNOMED	YES	YES
45887795	Ventilation assist and management, initiation of pressure or volume preset ventilators for assisted or controlled breathing	CPT4	NO	YES

Tracheostomy

Concept ID	Concept Name	Vocabulary	Exclude	Descendants	Mapped
4166281	Anterior tracheostomy	SNOMED	FALSE	TRUE	FALSE
2106568	Construction of tracheoesophageal fistula and subsequent insertion of an alaryngeal speech prosthesis (eg, voice	CPT4	FALSE	TRUE	FALSE

	button, Blom-Singer prosthesis)				
4115488	Emergency tracheostomy	SNOMED	FALSE	TRUE	FALSE
4337047	Insertion of tracheostomy tube	SNOMED	FALSE	TRUE	FALSE
4168864	Lateral tracheostomy	SNOMED	FALSE	TRUE	FALSE
4199580	Mediastinal tracheostomy	SNOMED	FALSE	TRUE	FALSE
2831237	Medical and Surgical @ Respiratory System @ Bypass @ Trachea @ Open @ Tracheostomy Device	ICD10PCS	FALSE	TRUE	FALSE
2836115	Medical and Surgical @ Respiratory System @ Bypass @ Trachea @ Percutaneous @ Tracheostomy Device	ICD10PCS	FALSE	TRUE	FALSE
2794811	Medical and Surgical @ Respiratory System @ Change @ Trachea @ External @ Tracheostomy Device	ICD10PCS	FALSE	TRUE	FALSE
2862930	Medical and Surgical @ Respiratory System @	ICD10PCS	FALSE	TRUE	FALSE

	Revision @ Trachea @ Open @ Tracheostomy Device				
2870619	Medical and Surgical @ Respiratory System @ Revision @ Trachea @ Percutaneous @ Tracheostomy Device	ICD10PCS	FALSE	TRUE	FALSE
2829384	Medical and Surgical @ Respiratory System @ Revision @ Trachea @ Percutaneous Endoscopic @ Tracheostomy Device	ICD10PCS	FALSE	TRUE	FALSE
2829386	Medical and Surgical @ Respiratory System @ Revision @ Trachea @ Via Natural or Artificial Opening @ Tracheostomy Device	ICD10PCS	FALSE	TRUE	FALSE
4065590	Permanent tracheostomy	SNOMED	FALSE	TRUE	FALSE
2743216	Removal of Tracheostomy Device from Trachea, Via Natural or Artificial Opening	ICD10PCS	FALSE	TRUE	FALSE

4311023	Revision of stoma of trachea	SNOMED	FALSE	TRUE	FALSE
4195473	Temporary tracheostomy	SNOMED	FALSE	TRUE	FALSE
2106569	Tracheal puncture, percutaneous with transtracheal aspiration and/or injection	CPT4	FALSE	TRUE	FALSE
4208093	Tracheostomy, emergency procedure by transtracheal approach	SNOMED	FALSE	TRUE	FALSE
2106565	Tracheostomy, emergency procedure; cricothyroid membrane	CPT4	FALSE	TRUE	FALSE
2106567	Tracheostomy, fenestration procedure with skin flaps	CPT4	FALSE	TRUE	FALSE
2106562	Tracheostomy, planned (separate procedure)	CPT4	FALSE	TRUE	FALSE
2106563	Tracheostomy, planned (separate procedure); younger than 2 years	CPT4	FALSE	TRUE	FALSE
45887989	Transoral approach to skull base, brain stem or upper spinal cord for biopsy,	CPT4	FALSE	TRUE	FALSE

	decompression or excision of lesion				
2110486	Transoral approach to skull base, brain stem or upper spinal cord for biopsy, decompression or excision of lesion; requiring splitting of tongue and/or mandible (including tracheostomy)	CPT4	TRUE	TRUE	FALSE

Extracorporeal membrane oxygenation (ECMO)

Concept ID	Concept Name	Vocabulary	Exclude	Descendants	Mapped
4338595	Cardiac support using extracorporeal membrane oxygenation circuitry	SNOMED	FALSE	FALSE	FALSE
2787821	Extracorporeal Hyperbaric Oxygenation, Continuous	ICD10PCS	FALSE	FALSE	FALSE
46257586	Extracorporeal Membrane Oxygenation or Extracorporeal Life Support Services and Procedures	CPT4	FALSE	TRUE	FALSE

1531632	Extracorporeal Oxygenation, Membrane, Central	ICD10PCS	FALSE	FALSE	FALSE
1531631	Extracorporeal Oxygenation, Membrane, Peripheral Veno-arterial	ICD10PCS	FALSE	FALSE	FALSE
1531630	Extracorporeal Oxygenation, Membrane, Peripheral Veno-venous	ICD10PCS	FALSE	FALSE	FALSE
2787820	Extracorporeal Supersaturated Oxygenation, Intermittent	ICD10PCS	FALSE	FALSE	FALSE
44515635	Extracorporeal membrane oxygenation	OPCS4	FALSE	TRUE	FALSE
4052536	Extracorporeal membrane oxygenation	SNOMED	FALSE	TRUE	FALSE
2002247	Extracorporeal membrane oxygenation [ECMO]	ICD9Proc	FALSE	TRUE	FALSE
44811012	Fluoroscopy guided percutaneous insertion of cannula for extracorporeal membrane oxygenation	SNOMED	FALSE	FALSE	FALSE

Annex 5. Preliminary lists of included concepts for study outcomes

Please note, these concept set will be updated as and when the OHDSI vocabularies are updated. Excluded indicates that the related codes will not be used in the definition, while descendants indicates whether terms below the code in the hierarchy will be included in the definition. (Please see https://ohdsi.github.io/TheBookOfOhdsi/Cohorts.html#conceptSets for more details on how these concept sets are operationalised).

Cardiac arrhythmia

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4088502	AV junctional (nodal) arrest	SNOMED	FALSE	FALSE
4088503	AV junctional (nodal) tachycardia	SNOMED	FALSE	FALSE
4038688	AV junctional rhythm	SNOMED	FALSE	FALSE
4089459	AV nodal re-entry tachycardia	SNOMED	FALSE	FALSE
4228836	AV node arrhythmia	SNOMED	FALSE	FALSE
4088983	AV-junctional (nodal) bradycardia	SNOMED	FALSE	FALSE
4091901	Aberrant premature complexes	SNOMED	FALSE	FALSE
4092011	Aberrantly conducted complex	SNOMED	FALSE	FALSE
4057008	Accelerated atrioventricular conduction	SNOMED	FALSE	FALSE
4247537	Accelerated idioventricular rhythm	SNOMED	FALSE	FALSE
37312140	Acquired Brugada syndrome	SNOMED	FALSE	FALSE
37116420	Acquired complete atrioventricular block	SNOMED	FALSE	FALSE
40479264	Acquired long QT syndrome	SNOMED	FALSE	FALSE
4224848	Andersen Tawil syndrome	SNOMED	FALSE	FALSE
35608001	Ankyrin-B syndrome	SNOMED	FALSE	FALSE

313224	Anomalous atrioventricular excitation	SNOMED	FALSE	FALSE
4296729	Anterior fascicular block, posterior fascicular block AND incomplete right bundle branch block	SNOMED	FALSE	FALSE
4121481	Antidromic atrioventricular re-entrant tachycardia	SNOMED	FALSE	FALSE
37109912	Arrhythmia due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
43020930	Arrhythmia due to vegetation of infective endocarditis	SNOMED	FALSE	FALSE
37108582	Arrhythmia during surgery	SNOMED	FALSE	FALSE
4101624	Arrhythmogenic right ventricular dysplasia	SNOMED	FALSE	FALSE
4102252	Asymptomatic sinoatrial node dysfunction	SNOMED	FALSE	FALSE
4068155	Atrial arrhythmia	SNOMED	FALSE	FALSE
4088504	Atrial bigeminy	SNOMED	FALSE	FALSE
4088986	Atrial escape complex	SNOMED	FALSE	FALSE
313217	Atrial fibrillation	SNOMED	FALSE	FALSE
4108832	Atrial fibrillation and flutter	SNOMED	FALSE	FALSE
44782442	Atrial fibrillation with rapid ventricular response	SNOMED	FALSE	FALSE
314665	Atrial flutter	SNOMED	FALSE	FALSE
4088987	Atrial parasystole	SNOMED	FALSE	FALSE
4108830	Atrial paroxysmal tachycardia	SNOMED	FALSE	FALSE
4115173	Atrial premature complex	SNOMED	FALSE	FALSE

37110775	Atrial septal defect, atrioventricular conduction defect syndrome	SNOMED	FALSE	FALSE
42872924	Atrial standstill	SNOMED	FALSE	FALSE
4171269	Atrial tachycardia	SNOMED	FALSE	FALSE
4091903	Atrial trigeminy	SNOMED	FALSE	FALSE
316135	Atrioventricular block	SNOMED	FALSE	FALSE
43020929	Atrioventricular block due to endocarditis	SNOMED	FALSE	FALSE
4305210	Atrioventricular conduction disorder	SNOMED	FALSE	FALSE
4175473	Atrioventricular dissociation	SNOMED	FALSE	FALSE
42536726	Atrioventricular reciprocating tachycardia	SNOMED	FALSE	FALSE
4081675	Atrioventricular tachycardia	SNOMED	FALSE	FALSE
36712986	Atypical atrial flutter	SNOMED	FALSE	FALSE
4250169	Bifascicular block	SNOMED	FALSE	FALSE
321587	Bilateral bundle branch block	SNOMED	FALSE	FALSE
4088984	Blocked premature atrial contraction	SNOMED	FALSE	FALSE
4228448	Bradyarrhythmia	SNOMED	FALSE	FALSE
4169095	Bradycardia	SNOMED	FALSE	FALSE
45766074	Bradycardic cardiac arrest	SNOMED	FALSE	FALSE
4303408	Brugada syndrome	SNOMED	FALSE	FALSE
313791	Bundle branch block	SNOMED	FALSE	FALSE
40484036	Bundle branch reentrant ventricular tachycardia	SNOMED	FALSE	FALSE
44784217	Cardiac arrhythmia	SNOMED	FALSE	FALSE

38001137	Cardiac arrhythmia & conduction disorders w CC	DRG	FALSE	FALSE
38001138	Cardiac arrhythmia & conduction disorders w/o CC/MCC	DRG	FALSE	FALSE
44784234	Cardiac arrhythmia associated with genetic disorder	SNOMED	FALSE	FALSE
45757098	Cardiac arrhythmia in mother complicating childbirth	SNOMED	FALSE	FALSE
44784235	Cardiac channelopathy	SNOMED	FALSE	FALSE
4303238	Catecholaminergic polymorphic ventricular tachycardia	SNOMED	FALSE	FALSE
42536725	Cavotricuspid isthmus dependent macroreentry tachycardia	SNOMED	FALSE	FALSE
36715042	Chronic atrial and intestinal dysrhythmia	SNOMED	FALSE	FALSE
4141360	Chronic atrial fibrillation	SNOMED	FALSE	FALSE
4137382	Chronic atrial flutter	SNOMED	FALSE	FALSE
4098133	Chronic ectopic atrial tachycardia	SNOMED	FALSE	FALSE
320744	Complete atrioventricular block	SNOMED	FALSE	FALSE
46269694	Complete atrioventricular block as complication of atrioventricular nodal ablation	SNOMED	FALSE	FALSE
4267892	Complete left bundle branch block	SNOMED	FALSE	FALSE
4088337	Complete right bundle branch block	SNOMED	FALSE	FALSE
4121615	Concealed accessory pathway	SNOMED	FALSE	FALSE

316999	Conduction disorder of the heart	SNOMED	FALSE	FALSE
4117112	Controlled atrial fibrillation	SNOMED	FALSE	FALSE
4304839	Diffuse intraventricular block	SNOMED	FALSE	FALSE
4236004	Ectopic atrial beats	SNOMED	FALSE	FALSE
4121479	Ectopic atrial tachycardia	SNOMED	FALSE	FALSE
4121480	Ectopic atrioventricular node tachycardia	SNOMED	FALSE	FALSE
4143042	Ectopic beats	SNOMED	FALSE	FALSE
4164083	Ectopic rhythm	SNOMED	FALSE	FALSE
4122762	Electromechanical dissociation	SNOMED	FALSE	FALSE
4148028	Electromechanical dissociation with successful resuscitation	SNOMED	FALSE	FALSE
36675005	Extrasystoles, short stature, hyperpigmentation, microcephaly syndrome	SNOMED	FALSE	FALSE
37395821	Familial atrial fibrillation	SNOMED	FALSE	FALSE
35624231	Familial dilated cardiomyopathy with conduction defect due to LMNA mutation	SNOMED	FALSE	FALSE
37399476	Familial isolated arrhythmogenic right ventricular dysplasia	SNOMED	FALSE	FALSE
4121613	Familial isolated complete right bundle branch block	SNOMED	FALSE	FALSE
4119603	Familial sick sinus syndrome	SNOMED	FALSE	FALSE
4124703	Familial ventricular tachycardia	SNOMED	FALSE	FALSE

4305862	Fascicular ventricular tachycardia	SNOMED	FALSE	FALSE
4226399	Fibrillation	SNOMED	FALSE	FALSE
314379	First degree atrioventricular block	SNOMED	FALSE	FALSE
4029303	Fusion beats	SNOMED	FALSE	FALSE
46284985	HHS - holiday heart syndrome	SNOMED	FALSE	FALSE
320425	Heart block	SNOMED	FALSE	FALSE
40481891	Heart block due to drug	SNOMED	FALSE	FALSE
36715370	Heart-hand syndrome type 2	SNOMED	FALSE	FALSE
36717434	Heart-hand syndrome type 3	SNOMED	FALSE	FALSE
43020494	High degree second degree atrioventricular block	SNOMED	FALSE	FALSE
4120086	His bundle tachycardia	SNOMED	FALSE	FALSE
4078058	Holt-Oram syndrome	SNOMED	FALSE	FALSE
4320474	Idiojunctional tachycardia	SNOMED	FALSE	FALSE
37109917	Idiopathic ventricular fibrillation not Brugada type	SNOMED	FALSE	FALSE
4171193	Idioventricular rhythm	SNOMED	FALSE	FALSE
4137871	Inappropriate sinus tachycardia	SNOMED	FALSE	FALSE
4124697	Incessant atrial tachycardia	SNOMED	FALSE	FALSE
4119600	Incessant infant ventricular tachycardia	SNOMED	FALSE	FALSE
4304095	Incisional tachycardia	SNOMED	FALSE	FALSE
4298806	Incomplete atrioventricular block with atrioventricular response	SNOMED	FALSE	FALSE
4088336	Incomplete left bundle branch block	SNOMED	FALSE	FALSE

4088338	Incomplete right bundle branch block	SNOMED	FALSE	FALSE
4121482	Induced ventricular tachycardia	SNOMED	FALSE	FALSE
4088332	Intermittent second degree atrioventricular block	SNOMED	FALSE	FALSE
4243143	Interpolated PVCs	SNOMED	FALSE	FALSE
4166844	Intraventricular conduction defect	SNOMED	FALSE	FALSE
4221549	Irregular tachycardia	SNOMED	FALSE	FALSE
4161597	Jervell and Lange-Nielsen syndrome	SNOMED	FALSE	FALSE
4091899	Junctional ectopic tachycardia	SNOMED	FALSE	FALSE
4166380	Junctional escape beats	SNOMED	FALSE	FALSE
4218739	Junctional premature beats	SNOMED	FALSE	FALSE
4088351	Junctional premature complex	SNOMED	FALSE	FALSE
4295336	Left anterior fascicular block	SNOMED	FALSE	FALSE
4171887	Left atrial incisional tachycardia	SNOMED	FALSE	FALSE
316998	Left bundle branch block	SNOMED	FALSE	FALSE
313209	Left bundle branch hemiblock	SNOMED	FALSE	FALSE
4111543	Left main stem bundle branch block	SNOMED	FALSE	FALSE
4268046	Left posterior fascicular block	SNOMED	FALSE	FALSE
4153404	Lev’s syndrome	SNOMED	FALSE	FALSE
4119601	Lone atrial fibrillation	SNOMED	FALSE	FALSE
314664	Long QT syndrome	SNOMED	FALSE	FALSE
37396235	Long QT syndrome caused by drug	SNOMED	FALSE	FALSE
37117768	Long thumb brachydactyly syndrome	SNOMED	FALSE	FALSE

45768480	Longstanding persistent atrial fibrillation	SNOMED	FALSE	FALSE
437892	Lown-Ganong-Levine syndrome	SNOMED	FALSE	FALSE
42536724	Macro re-entrant atrial tachycardia	SNOMED	FALSE	FALSE
46272503	Mahaim fiber tachycardia	SNOMED	FALSE	FALSE
4088347	Marked sinus arrhythmia	SNOMED	FALSE	FALSE
35608087	Microcephalus, cerebellar hypoplasia, cardiac conduction defect syndrome	SNOMED	FALSE	FALSE
4088496	Minor intraventricular conduction defect	SNOMED	FALSE	FALSE
4205137	Mobitz type I incomplete atrioventricular block	SNOMED	FALSE	FALSE
313780	Mobitz type II atrioventricular block	SNOMED	FALSE	FALSE
4034164	Monofascicular block	SNOMED	FALSE	FALSE
4023336	Multifocal PVCs	SNOMED	FALSE	FALSE
4176112	Multifocal atrial tachycardia	SNOMED	FALSE	FALSE
4271464	Multifocal premature beats	SNOMED	FALSE	FALSE
4089460	Multiple atrial premature complexes	SNOMED	FALSE	FALSE
4088985	Multiple premature ventricular complexes	SNOMED	FALSE	FALSE
4089463	Multiple ventricular interpolated complexes	SNOMED	FALSE	FALSE
4088982	Narrow QRS ventricular tachycardia	SNOMED	FALSE	FALSE
37398927	Naxos disease	SNOMED	FALSE	FALSE
4217221	Nodal rhythm disorder	SNOMED	FALSE	FALSE
42539038	Non-cavotricuspid isthmus dependent atrial tachycardia	SNOMED	FALSE	FALSE

4119602	Non-rheumatic atrial fibrillation	SNOMED	FALSE	FALSE
44784220	Non-specific intraventricular conduction delay	SNOMED	FALSE	FALSE
4191222	Nonparoxysmal AV nodal tachycardia	SNOMED	FALSE	FALSE
44782789	Nonsustained paroxysmal supraventricular tachycardia	SNOMED	FALSE	FALSE
44782707	Nonsustained paroxysmal ventricular tachycardia	SNOMED	FALSE	FALSE
40480274	Nonsustained ventricular tachycardia	SNOMED	FALSE	FALSE
4124700	Orthodromic atrioventricular re-entrant tachycardia	SNOMED	FALSE	FALSE
4030583	Pacemaker twiddler’s syndrome	SNOMED	FALSE	FALSE
4089464	Paired ventricular premature complexes	SNOMED	FALSE	FALSE
4006208	Parasystole	SNOMED	FALSE	FALSE
4154290	Paroxysmal atrial fibrillation	SNOMED	FALSE	FALSE
4146580	Paroxysmal atrial flutter	SNOMED	FALSE	FALSE
4190306	Paroxysmal atrial tachycardia with block	SNOMED	FALSE	FALSE
4108241	Paroxysmal atrioventricular tachycardia	SNOMED	FALSE	FALSE
4119604	Paroxysmal familial ventricular fibrillation	SNOMED	FALSE	FALSE
4111546	Paroxysmal junctional tachycardia	SNOMED	FALSE	FALSE
4111698	Paroxysmal nodal tachycardia	SNOMED	FALSE	FALSE
317893	Paroxysmal supraventricular tachycardia	SNOMED	FALSE	FALSE
313792	Paroxysmal tachycardia	SNOMED	FALSE	FALSE
437579	Paroxysmal ventricular tachycardia	SNOMED	FALSE	FALSE
4111570	Partial atrioventricular block	SNOMED	FALSE	FALSE

4232691	Permanent atrial fibrillation	SNOMED	FALSE	FALSE
4124702	Permanent junctional reciprocating tachycardia	SNOMED	FALSE	FALSE
4232697	Persistent atrial fibrillation	SNOMED	FALSE	FALSE
4258998	Persistent sinus bradycardia	SNOMED	FALSE	FALSE
4124701	Postoperative His bundle tachycardia	SNOMED	FALSE	FALSE
43020495	Postoperative atrioventricular block	SNOMED	FALSE	FALSE
4119605	Postoperative complete heart block	SNOMED	FALSE	FALSE
4124704	Postoperative sinus node dysfunction	SNOMED	FALSE	FALSE
42539346	Preexcited atrial fibrillation	SNOMED	FALSE	FALSE
4109365	Premature atrial contraction	SNOMED	FALSE	FALSE
316429	Premature beats	SNOMED	FALSE	FALSE
44784218	Progressive familial heart block	SNOMED	FALSE	FALSE
44784219	Progressive familial heart block, type IB	SNOMED	FALSE	FALSE
44782643	Progressive familial heart block, type II	SNOMED	FALSE	FALSE
4233619	Pulseless ventricular tachycardia	SNOMED	FALSE	FALSE
4199501	Rapid atrial fibrillation	SNOMED	FALSE	FALSE
4124696	Re-entrant atrial tachycardia	SNOMED	FALSE	FALSE
4124698	Re-entrant atrioventricular node tachycardia	SNOMED	FALSE	FALSE
4124699	Re-entrant atrioventricular tachycardia	SNOMED	FALSE	FALSE
4111552	Re-entry ventricular arrhythmia	SNOMED	FALSE	FALSE
45771051	Recurrent ventricular tachycardia	SNOMED	FALSE	FALSE
4302802	Right atrial incisional tachycardia	SNOMED	FALSE	FALSE

4249027	Right branch block, incomplete anterior fascicular block AND incomplete posterior fascicular block	SNOMED	FALSE	FALSE
314059	Right bundle branch block	SNOMED	FALSE	FALSE
4184950	Right bundle branch block AND incomplete left bundle branch block	SNOMED	FALSE	FALSE
316432	Right bundle branch block AND left anterior fascicular block	SNOMED	FALSE	FALSE
321590	Right bundle branch block AND left posterior fascicular block	SNOMED	FALSE	FALSE
4138973	Right bundle branch block with left bundle branch block	SNOMED	FALSE	FALSE
4244693	Right bundle branch block, anterior fascicular block AND incomplete left bundle branch block	SNOMED	FALSE	FALSE
4217860	Right bundle branch block, anterior fascicular block AND incomplete posterior fascicular block	SNOMED	FALSE	FALSE
4138545	Right bundle branch block, anterior fascicular block AND posterior fascicular block	SNOMED	FALSE	FALSE
4280348	Right bundle branch block, posterior fascicular block AND incomplete anterior fascicular block	SNOMED	FALSE	FALSE
4032785	Right bundle branch block, posterior fascicular block AND incomplete left bundle branch block	SNOMED	FALSE	FALSE

4121483	Right ventricular outflow tract ventricular tachycardia	SNOMED	FALSE	FALSE
4049219	Romano-Ward syndrome	SNOMED	FALSE	FALSE
4089461	Run of atrial premature complexes	SNOMED	FALSE	FALSE
4091904	Run of ventricular premature complexes	SNOMED	FALSE	FALSE
37312595	Scar mediated macro re-entrant atrial tachycardia	SNOMED	FALSE	FALSE
318448	Second degree atrioventricular block	SNOMED	FALSE	FALSE
4169261	Severe sinus bradycardia	SNOMED	FALSE	FALSE
44784236	Short QT syndrome	SNOMED	FALSE	FALSE
4261842	Sick sinus syndrome	SNOMED	FALSE	FALSE
4028322	Sinoatrial arrest with nodal/ventricular escape	SNOMED	FALSE	FALSE
4277903	Sinoatrial block	SNOMED	FALSE	FALSE
4303256	Sinoatrial nodal reentrant tachycardia	SNOMED	FALSE	FALSE
36674897	Sinoatrial node dysfunction and deafness	SNOMED	FALSE	FALSE
4120084	Sinoatrial node tachycardia	SNOMED	FALSE	FALSE
4210313	Sinus arrest	SNOMED	FALSE	FALSE
4088352	Sinus arrest with atrial escape	SNOMED	FALSE	FALSE
4088210	Sinus arrest with junctional escape	SNOMED	FALSE	FALSE
4091446	Sinus arrest with ventricular escape	SNOMED	FALSE	FALSE
4171683	Sinus bradycardia	SNOMED	FALSE	FALSE
317302	Sinus node dysfunction	SNOMED	FALSE	FALSE
4088350	Slow ventricular response	SNOMED	FALSE	FALSE

4188347	Stokes-Adams syndrome	SNOMED	FALSE	FALSE
4248028	Supraventricular arrhythmia	SNOMED	FALSE	FALSE
4091902	Supraventricular bigeminy	SNOMED	FALSE	FALSE
42538755	Supraventricular bradyarrhythmia	SNOMED	FALSE	FALSE
441872	Supraventricular premature beats	SNOMED	FALSE	FALSE
4275423	Supraventricular tachycardia	SNOMED	FALSE	FALSE
4120085	Supraventricular tachycardia with functional bundle branch block	SNOMED	FALSE	FALSE
4325850	Sustained ventricular fibrillation	SNOMED	FALSE	FALSE
4139206	Sustained ventricular tachycardia	SNOMED	FALSE	FALSE
40480216	Symptomatic sinus bradycardia	SNOMED	FALSE	FALSE
315643	Tachyarrhythmia	SNOMED	FALSE	FALSE
4254116	Tachycardia-bradycardia	SNOMED	FALSE	FALSE
4262389	Tic-tac rhythm	SNOMED	FALSE	FALSE
44783199	Timothy syndrome type 1	SNOMED	FALSE	FALSE
36714606	Timothy syndrome type 2	SNOMED	FALSE	FALSE
37397458	Torsade de pointes with short coupling interval syndrome	SNOMED	FALSE	FALSE
37110729	Torsades de pointe caused by drug	SNOMED	FALSE	FALSE
4135823	Torsades de pointes	SNOMED	FALSE	FALSE
321315	Trifascicular block	SNOMED	FALSE	FALSE
36714994	Typical atrial flutter	SNOMED	FALSE	FALSE

4120087	Unidirectional retrograde accessory pathway	SNOMED	FALSE	FALSE
4099778	Unifocal PVCs	SNOMED	FALSE	FALSE
4106715	Vagal autonomic bradycardia	SNOMED	FALSE	FALSE
43021222	Vagal autonomic bradycardia of prematurity	SNOMED	FALSE	FALSE
4185572	Ventricular arrhythmia	SNOMED	FALSE	FALSE
4008580	Ventricular bigeminy	SNOMED	FALSE	FALSE
4327066	Ventricular escape beat	SNOMED	FALSE	FALSE
4088507	Ventricular escape complex	SNOMED	FALSE	FALSE
4218242	Ventricular escape rhythm	SNOMED	FALSE	FALSE
36714539	Ventricular extrasystoles with syncope, perodactyly and Robin sequence syndrome	SNOMED	FALSE	FALSE
437894	Ventricular fibrillation	SNOMED	FALSE	FALSE
4111700	Ventricular fibrillation and flutter	SNOMED	FALSE	FALSE
433225	Ventricular flutter	SNOMED	FALSE	FALSE
4092010	Ventricular interpolated complexes	SNOMED	FALSE	FALSE
4244893	Ventricular parasystole	SNOMED	FALSE	FALSE
4108828	Ventricular pre-excitation	SNOMED	FALSE	FALSE
4066289	Ventricular premature beats	SNOMED	FALSE	FALSE
4089462	Ventricular premature complex	SNOMED	FALSE	FALSE
4088506	Ventricular quadrigeminy	SNOMED	FALSE	FALSE
40622721	Ventricular tachyarrhythmia	SNOMED	FALSE	FALSE
4103295	Ventricular tachycardia	SNOMED	FALSE	FALSE

4119599	Ventricular tachycardia with normal heart	SNOMED	FALSE	FALSE
4091900	Ventricular tachycardia, monomorphic	SNOMED	FALSE	FALSE
4088349	Ventricular tachycardia, polymorphic	SNOMED	FALSE	FALSE
4088501	Ventricular tachycardia, polymorphic without Q-T prolongation	SNOMED	FALSE	FALSE
4088505	Ventricular trigeminy	SNOMED	FALSE	FALSE
4088348	Wide QRS ventricular tachycardia	SNOMED	FALSE	FALSE
4086313	Withdrawal arrhythmia	SNOMED	FALSE	FALSE
40483798	Bifascicular block on electrocardiogram	SNOMED	FALSE	FALSE
4064452	ECG: atrial fibrillation	SNOMED	FALSE	FALSE
4065290	ECG: partial atrioventricular block - 2:1	SNOMED	FALSE	FALSE
4064458	ECG: partial atrioventricular block - 3:1	SNOMED	FALSE	FALSE
4064873	ECG: partial atrioventricular block - long PR	SNOMED	FALSE	FALSE
4065289	ECG: partial sinoatrial block	SNOMED	FALSE	FALSE
4138456	ECG: sinus bradycardia	SNOMED	FALSE	FALSE
4138921	EKG: Mobitz type II atrioventricular block	SNOMED	FALSE	FALSE
4065285	EKG: atrial ectopics	SNOMED	FALSE	FALSE
4065288	EKG: atrial flutter	SNOMED	FALSE	FALSE
4064874	EKG: complete atrioventricular block	SNOMED	FALSE	FALSE
4064872	EKG: complete sinoatrial block	SNOMED	FALSE	FALSE
4064457	EKG: heart block	SNOMED	FALSE	FALSE
4064453	EKG: ventricular arrhythmia	SNOMED	FALSE	FALSE

4064455	EKG: ventricular fibrillation	SNOMED	FALSE	FALSE
4064869	Electrocardiogram: paroxysmal atrial tachycardia	SNOMED	FALSE	FALSE
40482086	Left anterior fascicular block on electrocardiogram	SNOMED	FALSE	FALSE
40482505	Left posterior fascicular block on electrocardiogram	SNOMED	FALSE	FALSE
4064459	Mobitz type I second degree atrioventricular block on electrocardiogram	SNOMED	FALSE	FALSE
4061093	O/E - pulse rate - bradycardia	SNOMED	FALSE	FALSE
40482887	Right bundle branch block and left anterior fascicular block on electrocardiogram	SNOMED	FALSE	FALSE
40483359	Right bundle branch block and left posterior fascicular block on electrocardiogram	SNOMED	FALSE	FALSE
40482938	Trifascicular block on electrocardiogram	SNOMED	FALSE	FALSE

Cerebral venous sinus thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4102202	Cerebral venous sinus thrombosis	SNOMED	FALSE	FALSE
4048786	Cerebral venous thrombosis of sigmoid sinus	SNOMED	FALSE	FALSE
4043735	Cerebral venous thrombosis of straight sinus	SNOMED	FALSE	FALSE
4111713	Non-pyogenic venous sinus thrombosis	SNOMED	FALSE	FALSE
314667	Nonpyogenic thrombosis of intracranial venous sinus	SNOMED	FALSE	FALSE
4116206	Septic thrombophlebitis of cavernous sinus	SNOMED	FALSE	FALSE
4121335	Septic thrombophlebitis of lateral sinus	SNOMED	FALSE	FALSE
4119136	Septic thrombophlebitis of sagittal sinus	SNOMED	FALSE	FALSE
4041680	Septic thrombophlebitis of sigmoid sinus	SNOMED	FALSE	FALSE
4100225	Thrombophlebitis lateral venous sinus	SNOMED	FALSE	FALSE
4217471	Thrombophlebitis of basilar sinus	SNOMED	FALSE	FALSE
4104695	Thrombophlebitis of cavernous sinus	SNOMED	FALSE	FALSE
4167985	Thrombophlebitis of inferior sagittal sinus	SNOMED	FALSE	FALSE
764714	Thrombophlebitis of sigmoid sinus	SNOMED	FALSE	FALSE
4100224	Thrombophlebitis of superior longitudinal venous sinus	SNOMED	FALSE	FALSE
4098706	Thrombophlebitis of superior sagittal sinus	SNOMED	FALSE	FALSE
4277833	Thrombophlebitis of torcular Herophili	SNOMED	FALSE	FALSE

764710	Thrombophlebitis of transverse sinus	SNOMED	FALSE	FALSE
4228209	Thrombosis of basilar sinus	SNOMED	FALSE	FALSE
4234264	Thrombosis of cavernous venous sinus	SNOMED	FALSE	FALSE
4048890	Thrombosis of inferior sagittal sinus	SNOMED	FALSE	FALSE
4057329	Thrombosis of lateral venous sinus	SNOMED	FALSE	FALSE
4102203	Thrombosis of superior longitudinal sinus	SNOMED	FALSE	FALSE
4290940	Thrombosis of superior sagittal sinus	SNOMED	FALSE	FALSE
4079905	Thrombosis of torcular Herophili	SNOMED	FALSE	FALSE
4105338	Thrombosis transverse sinus	SNOMED	FALSE	FALSE

Chest pain/ angina - narrow

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4108670	Acute coronary insufficiency	SNOMED	FALSE	FALSE
43531588	Angina associated with type 2 diabetes mellitus	SNOMED	FALSE	FALSE
36712984	Angina co-occurrent and due to arteriosclerosis of coronary artery bypass graft	SNOMED	FALSE	FALSE
36712983	Angina co-occurrent and due to coronary arteriosclerosis	SNOMED	FALSE	FALSE
315832	Angina decubitus	SNOMED	FALSE	FALSE
321318	Angina pectoris	SNOMED	FALSE	FALSE
4264145	Angina, class I	SNOMED	FALSE	FALSE
4184827	Angina, class II	SNOMED	FALSE	FALSE
4310270	Angina, class III	SNOMED	FALSE	FALSE
4231426	Angina, class IV	SNOMED	FALSE	FALSE
761735	Arteriosclerosis of autologous arterial coronary artery bypass graft with angina	SNOMED	FALSE	FALSE
35615052	Arteriosclerosis of autologous vein coronary artery bypass graft with angina	SNOMED	FALSE	FALSE
4155963	Atypical angina	SNOMED	FALSE	FALSE
4116486	Exercise-induced angina	SNOMED	FALSE	FALSE
4119455	New onset angina	SNOMED	FALSE	FALSE

4262446	Nocturnal angina	SNOMED	FALSE	FALSE
4198141	Post infarct angina	SNOMED	FALSE	FALSE
315296	Preinfarction syndrome	SNOMED	FALSE	FALSE
315830	Prinzmetal angina	SNOMED	FALSE	FALSE
4161973	Progressive angina	SNOMED	FALSE	FALSE
4161457	Recurrent angina after coronary artery bypass graft	SNOMED	FALSE	FALSE
4161456	Recurrent angina after coronary stent placement	SNOMED	FALSE	FALSE
4155009	Recurrent angina after directional coronary atherectomy	SNOMED	FALSE	FALSE
4161974	Recurrent angina after percutaneous transluminal coronary angioplasty	SNOMED	FALSE	FALSE
4155008	Recurrent angina post rotational atherectomy	SNOMED	FALSE	FALSE
4201629	Refractory angina	SNOMED	FALSE	FALSE
4119942	Stable angina	SNOMED	FALSE	FALSE
37209632	Stable angina due to coronary arteriosclerosis	SNOMED	FALSE	FALSE
4078531	Status anginosus	SNOMED	FALSE	FALSE
4068938	Syncope anginosa	SNOMED	FALSE	FALSE
4324893	Typical angina	SNOMED	FALSE	FALSE
35615053	Unstable angina co-occurrent and due to arteriosclerosis of coronary artery bypass graft	SNOMED	FALSE	FALSE

36712982	Unstable angina co-occurrent and due to coronary arteriosclerosis	SNOMED	FALSE	FALSE
37309713	Unstable angina due to arteriosclerosis of autologous vein coronary artery bypass graft	SNOMED	FALSE	FALSE
4021482	Ischemic chest pain	SNOMED	FALSE	FALSE

Chest pain/angina - broad

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4108670	Acute coronary insufficiency	SNOMED	FALSE	FALSE
43531588	Angina associated with type 2 diabetes mellitus	SNOMED	FALSE	FALSE
36712984	Angina co-occurrent and due to arteriosclerosis of coronary artery bypass graft	SNOMED	FALSE	FALSE
36712983	Angina co-occurrent and due to coronary arteriosclerosis	SNOMED	FALSE	FALSE
315832	Angina decubitus	SNOMED	FALSE	FALSE
321318	Angina pectoris	SNOMED	FALSE	FALSE
4264145	Angina, class I	SNOMED	FALSE	FALSE
4184827	Angina, class II	SNOMED	FALSE	FALSE
4310270	Angina, class III	SNOMED	FALSE	FALSE
4231426	Angina, class IV	SNOMED	FALSE	FALSE
761735	Arteriosclerosis of autologous arterial coronary artery bypass graft with angina	SNOMED	FALSE	FALSE
35615052	Arteriosclerosis of autologous vein coronary artery bypass graft with angina	SNOMED	FALSE	FALSE
4155963	Atypical angina	SNOMED	FALSE	FALSE
4116486	Exercise-induced angina	SNOMED	FALSE	FALSE
4119455	New onset angina	SNOMED	FALSE	FALSE

4262446	Nocturnal angina	SNOMED	FALSE	FALSE
4198141	Post infarct angina	SNOMED	FALSE	FALSE
315296	Preinfarction syndrome	SNOMED	FALSE	FALSE
315830	Prinzmetal angina	SNOMED	FALSE	FALSE
4161973	Progressive angina	SNOMED	FALSE	FALSE
4161457	Recurrent angina after coronary artery bypass graft	SNOMED	FALSE	FALSE
4161456	Recurrent angina after coronary stent placement	SNOMED	FALSE	FALSE
4155009	Recurrent angina after directional coronary atherectomy	SNOMED	FALSE	FALSE
4161974	Recurrent angina after percutaneous transluminal coronary angioplasty	SNOMED	FALSE	FALSE
4155008	Recurrent angina post rotational atherectomy	SNOMED	FALSE	FALSE
4201629	Refractory angina	SNOMED	FALSE	FALSE
4119942	Stable angina	SNOMED	FALSE	FALSE
37209632	Stable angina due to coronary arteriosclerosis	SNOMED	FALSE	FALSE
4078531	Status anginosus	SNOMED	FALSE	FALSE
4068938	Syncope anginosa	SNOMED	FALSE	FALSE
4324893	Typical angina	SNOMED	FALSE	FALSE
35615053	Unstable angina co-occurrent and due to arteriosclerosis of coronary artery bypass graft	SNOMED	FALSE	FALSE

36712982	Unstable angina co-occurrent and due to coronary arteriosclerosis	SNOMED	FALSE	FALSE
37309713	Unstable angina due to arteriosclerosis of autologous vein coronary artery bypass graft	SNOMED	FALSE	FALSE
77670	Chest pain	SNOMED	FALSE	FALSE
4015942	Angina control - worsening	SNOMED	FALSE	FALSE
4218253	Chest pain on exertion	SNOMED	FALSE	FALSE
4096252	Impending infarction	SNOMED	FALSE	FALSE
4021482	Ischemic chest pain	SNOMED	FALSE	FALSE

Disseminated intravascular coagulation

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
37117819	Acquired purpura fulminans	SNOMED	FALSE	FALSE
436093	Disseminated intravascular coagulation	SNOMED	FALSE	FALSE
45772129	Disseminated intravascular coagulation due to placental abruption	SNOMED	FALSE	FALSE
4028488	Purpura fulminans	SNOMED	FALSE	FALSE

Deep vein thrombosis- broad

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
762047	Acute bilateral thrombosis of subclavian veins	SNOMED	FALSE	FALSE
762148	Acute deep vein thrombosis of bilateral iliac veins	SNOMED	FALSE	FALSE
761444	Acute deep vein thrombosis of bilateral lower limbs following coronary artery bypass graft	SNOMED	FALSE	FALSE
35616028	Acute deep vein thrombosis of left iliac vein	SNOMED	FALSE	FALSE
35615035	Acute deep vein thrombosis of left lower limb following procedure	SNOMED	FALSE	FALSE
761416	Acute deep vein thrombosis of left upper limb following coronary artery bypass graft	SNOMED	FALSE	FALSE
35615031	Acute deep vein thrombosis of left upper limb following procedure	SNOMED	FALSE	FALSE
43531681	Acute deep vein thrombosis of lower limb	SNOMED	FALSE	FALSE
35616027	Acute deep vein thrombosis of right iliac vein	SNOMED	FALSE	FALSE
35615034	Acute deep vein thrombosis of right lower limb following procedure	SNOMED	FALSE	FALSE
761415	Acute deep vein thrombosis of right upper limb following coronary artery bypass graft	SNOMED	FALSE	FALSE

35615030	Acute deep vein thrombosis of right upper limb following procedure	SNOMED	FALSE	FALSE
44782746	Acute deep venous thrombosis	SNOMED	FALSE	FALSE
44782751	Acute deep venous thrombosis of axillary vein	SNOMED	FALSE	FALSE
762008	Acute deep venous thrombosis of bilateral axillary veins	SNOMED	FALSE	FALSE
760875	Acute deep venous thrombosis of bilateral calves	SNOMED	FALSE	FALSE
765155	Acute deep venous thrombosis of bilateral ileofemoral veins	SNOMED	FALSE	FALSE
762017	Acute deep venous thrombosis of bilateral internal jugular veins	SNOMED	FALSE	FALSE
762417	Acute deep venous thrombosis of bilateral legs	SNOMED	FALSE	FALSE
762020	Acute deep venous thrombosis of bilateral popliteal veins	SNOMED	FALSE	FALSE
765546	Acute deep venous thrombosis of bilateral tibial veins	SNOMED	FALSE	FALSE
762004	Acute deep venous thrombosis of both upper extremities	SNOMED	FALSE	FALSE
44782742	Acute deep venous thrombosis of calf	SNOMED	FALSE	FALSE
44782747	Acute deep venous thrombosis of femoral vein	SNOMED	FALSE	FALSE
762015	Acute deep venous thrombosis of ileofemoral vein of left leg	SNOMED	FALSE	FALSE

765541	Acute deep venous thrombosis of ileofemoral vein of right lower extremity	SNOMED	FALSE	FALSE
44782748	Acute deep venous thrombosis of iliofemoral vein	SNOMED	FALSE	FALSE
44782752	Acute deep venous thrombosis of internal jugular vein	SNOMED	FALSE	FALSE
762009	Acute deep venous thrombosis of left axillary vein	SNOMED	FALSE	FALSE
760876	Acute deep venous thrombosis of left calf	SNOMED	FALSE	FALSE
765540	Acute deep venous thrombosis of left femoral vein	SNOMED	FALSE	FALSE
765922	Acute deep venous thrombosis of left internal jugular vein	SNOMED	FALSE	FALSE
762418	Acute deep venous thrombosis of left lower extremity	SNOMED	FALSE	FALSE
765537	Acute deep venous thrombosis of left upper extremity	SNOMED	FALSE	FALSE
44782767	Acute deep venous thrombosis of lower extremity as complication of procedure	SNOMED	FALSE	FALSE
46270071	Acute deep venous thrombosis of lower limb due to coronary artery bypass grafting	SNOMED	FALSE	FALSE

762022	Acute deep venous thrombosis of politeal vein of right leg	SNOMED	FALSE	FALSE
44782743	Acute deep venous thrombosis of popliteal vein	SNOMED	FALSE	FALSE
762021	Acute deep venous thrombosis of popliteal vein of left leg	SNOMED	FALSE	FALSE
762010	Acute deep venous thrombosis of right axillary vein	SNOMED	FALSE	FALSE
760877	Acute deep venous thrombosis of right calf	SNOMED	FALSE	FALSE
762013	Acute deep venous thrombosis of right femoral vein	SNOMED	FALSE	FALSE
762018	Acute deep venous thrombosis of right internal jugular vein	SNOMED	FALSE	FALSE
762419	Acute deep venous thrombosis of right lower extremity	SNOMED	FALSE	FALSE
762005	Acute deep venous thrombosis of right upper extremity	SNOMED	FALSE	FALSE
44782745	Acute deep venous thrombosis of thigh	SNOMED	FALSE	FALSE
44782744	Acute deep venous thrombosis of tibial vein	SNOMED	FALSE	FALSE
762026	Acute deep venous thrombosis of tibial vein of left leg	SNOMED	FALSE	FALSE
765156	Acute deep venous thrombosis of tibial vein of right leg	SNOMED	FALSE	FALSE

44782421	Acute deep venous thrombosis of upper extremity	SNOMED	FALSE	FALSE
764016	Acute deep venous thrombosis of upper extremity after coronary artery bypass graft	SNOMED	FALSE	FALSE
44782766	Acute deep venous thrombosis of upper extremity as complication of procedure	SNOMED	FALSE	FALSE
762048	Acute thrombosis of left subclavian vein	SNOMED	FALSE	FALSE
45757410	Acute thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
762049	Acute thrombosis of right subclavian vein	SNOMED	FALSE	FALSE
36712892	Acute thrombosis of splenic vein	SNOMED	FALSE	FALSE
44782762	Acute thrombosis of subclavian vein	SNOMED	FALSE	FALSE
37109253	Bilateral acute deep vein thrombosis of femoral veins	SNOMED	FALSE	FALSE
40478951	Bilateral deep vein thrombosis of lower extremities	SNOMED	FALSE	FALSE
4046884	Deep vein thrombosis of leg related to air travel	SNOMED	FALSE	FALSE
4133004	Deep venous thrombosis	SNOMED	FALSE	FALSE
4181315	Deep venous thrombosis associated with coronary artery bypass graft	SNOMED	FALSE	FALSE
45773536	Deep venous thrombosis of femoropopliteal vein	SNOMED	FALSE	FALSE
763942	Deep venous thrombosis of left lower extremity	SNOMED	FALSE	FALSE
761980	Deep venous thrombosis of left upper extremity	SNOMED	FALSE	FALSE

443537	Deep venous thrombosis of lower extremity	SNOMED	FALSE	FALSE
4133975	Deep venous thrombosis of pelvic vein	SNOMED	FALSE	FALSE
40480555	Deep venous thrombosis of peroneal vein	SNOMED	FALSE	FALSE
4322565	Deep venous thrombosis of profunda femoris vein	SNOMED	FALSE	FALSE
763941	Deep venous thrombosis of right lower extremity	SNOMED	FALSE	FALSE
761928	Deep venous thrombosis of right upper extremity	SNOMED	FALSE	FALSE
4207899	Deep venous thrombosis of tibial vein	SNOMED	FALSE	FALSE
4028057	Deep venous thrombosis of upper extremity	SNOMED	FALSE	FALSE
193512	Embolism and thrombosis of the renal vein	SNOMED	FALSE	FALSE
435565	Embolism and thrombosis of the vena cava	SNOMED	FALSE	FALSE
4119760	Iliofemoral deep vein thrombosis	SNOMED	FALSE	FALSE
4124856	Inferior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4281689	Phlegmasia alba dolens	SNOMED	FALSE	FALSE
4284538	Phlegmasia cerulea dolens	SNOMED	FALSE	FALSE
4309333	Postoperative deep vein thrombosis	SNOMED	FALSE	FALSE
46285905	Provoked deep vein thrombosis	SNOMED	FALSE	FALSE
4033521	Splenic vein thrombosis	SNOMED	FALSE	FALSE
4055089	Superior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
42538533	Thrombosis of iliac vein	SNOMED	FALSE	FALSE
44811347	Thrombosis of internal jugular vein	SNOMED	FALSE	FALSE
765049	Thrombosis of left peroneal vein	SNOMED	FALSE	FALSE

4317289	Thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4203836	Thrombosis of subclavian vein	SNOMED	FALSE	FALSE
4175649	Thrombosis of the popliteal vein	SNOMED	FALSE	FALSE
4149782	Thrombosis of vein of lower limb	SNOMED	FALSE	FALSE
4153353	Traumatic thrombosis of axillary vein	SNOMED	FALSE	FALSE
46285904	Unprovoked deep vein thrombosis	SNOMED	FALSE	FALSE
444247	Venous thrombosis	SNOMED	FALSE	FALSE
4327889	Thromboembolism of vein	SNOMED	FALSE	FALSE
4221821	Thrombophlebitis of deep veins of lower extremity	SNOMED	FALSE	FALSE
46271900	Recurrent deep vein thrombosis	SNOMED	FALSE	FALSE
4189004	Deep vein thrombosis of leg related to intravenous drug use	SNOMED	FALSE	FALSE

Deep vein thrombosis - narrow

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
762047	Acute bilateral thrombosis of subclavian veins	SNOMED	FALSE	FALSE
762148	Acute deep vein thrombosis of bilateral iliac veins	SNOMED	FALSE	FALSE
761444	Acute deep vein thrombosis of bilateral lower limbs following coronary artery bypass graft	SNOMED	FALSE	FALSE
35616028	Acute deep vein thrombosis of left iliac vein	SNOMED	FALSE	FALSE
35615035	Acute deep vein thrombosis of left lower limb following procedure	SNOMED	FALSE	FALSE
761416	Acute deep vein thrombosis of left upper limb following coronary artery bypass graft	SNOMED	FALSE	FALSE
35615031	Acute deep vein thrombosis of left upper limb following procedure	SNOMED	FALSE	FALSE
43531681	Acute deep vein thrombosis of lower limb	SNOMED	FALSE	FALSE
35616027	Acute deep vein thrombosis of right iliac vein	SNOMED	FALSE	FALSE
35615034	Acute deep vein thrombosis of right lower limb following procedure	SNOMED	FALSE	FALSE
761415	Acute deep vein thrombosis of right upper limb following coronary artery bypass graft	SNOMED	FALSE	FALSE

35615030	Acute deep vein thrombosis of right upper limb following procedure	SNOMED	FALSE	FALSE
44782746	Acute deep venous thrombosis	SNOMED	FALSE	FALSE
44782751	Acute deep venous thrombosis of axillary vein	SNOMED	FALSE	FALSE
762008	Acute deep venous thrombosis of bilateral axillary veins	SNOMED	FALSE	FALSE
760875	Acute deep venous thrombosis of bilateral calves	SNOMED	FALSE	FALSE
765155	Acute deep venous thrombosis of bilateral ileofemoral veins	SNOMED	FALSE	FALSE
762017	Acute deep venous thrombosis of bilateral internal jugular veins	SNOMED	FALSE	FALSE
762417	Acute deep venous thrombosis of bilateral legs	SNOMED	FALSE	FALSE
762020	Acute deep venous thrombosis of bilateral popliteal veins	SNOMED	FALSE	FALSE
765546	Acute deep venous thrombosis of bilateral tibial veins	SNOMED	FALSE	FALSE
762004	Acute deep venous thrombosis of both upper extremities	SNOMED	FALSE	FALSE
44782742	Acute deep venous thrombosis of calf	SNOMED	FALSE	FALSE
44782747	Acute deep venous thrombosis of femoral vein	SNOMED	FALSE	FALSE
762015	Acute deep venous thrombosis of ileofemoral vein of left leg	SNOMED	FALSE	FALSE

765541	Acute deep venous thrombosis of ileofemoral vein of right lower extremity	SNOMED	FALSE	FALSE
44782748	Acute deep venous thrombosis of iliofemoral vein	SNOMED	FALSE	FALSE
44782752	Acute deep venous thrombosis of internal jugular vein	SNOMED	FALSE	FALSE
762009	Acute deep venous thrombosis of left axillary vein	SNOMED	FALSE	FALSE
760876	Acute deep venous thrombosis of left calf	SNOMED	FALSE	FALSE
765540	Acute deep venous thrombosis of left femoral vein	SNOMED	FALSE	FALSE
765922	Acute deep venous thrombosis of left internal jugular vein	SNOMED	FALSE	FALSE
762418	Acute deep venous thrombosis of left lower extremity	SNOMED	FALSE	FALSE
765537	Acute deep venous thrombosis of left upper extremity	SNOMED	FALSE	FALSE
44782767	Acute deep venous thrombosis of lower extremity as complication of procedure	SNOMED	FALSE	FALSE
46270071	Acute deep venous thrombosis of lower limb due to coronary artery bypass grafting	SNOMED	FALSE	FALSE

762022	Acute deep venous thrombosis of politeal vein of right leg	SNOMED	FALSE	FALSE
44782743	Acute deep venous thrombosis of popliteal vein	SNOMED	FALSE	FALSE
762021	Acute deep venous thrombosis of popliteal vein of left leg	SNOMED	FALSE	FALSE
762010	Acute deep venous thrombosis of right axillary vein	SNOMED	FALSE	FALSE
760877	Acute deep venous thrombosis of right calf	SNOMED	FALSE	FALSE
762013	Acute deep venous thrombosis of right femoral vein	SNOMED	FALSE	FALSE
762018	Acute deep venous thrombosis of right internal jugular vein	SNOMED	FALSE	FALSE
762419	Acute deep venous thrombosis of right lower extremity	SNOMED	FALSE	FALSE
762005	Acute deep venous thrombosis of right upper extremity	SNOMED	FALSE	FALSE
44782745	Acute deep venous thrombosis of thigh	SNOMED	FALSE	FALSE
44782744	Acute deep venous thrombosis of tibial vein	SNOMED	FALSE	FALSE
762026	Acute deep venous thrombosis of tibial vein of left leg	SNOMED	FALSE	FALSE
765156	Acute deep venous thrombosis of tibial vein of right leg	SNOMED	FALSE	FALSE

44782421	Acute deep venous thrombosis of upper extremity	SNOMED	FALSE	FALSE
764016	Acute deep venous thrombosis of upper extremity after coronary artery bypass graft	SNOMED	FALSE	FALSE
44782766	Acute deep venous thrombosis of upper extremity as complication of procedure	SNOMED	FALSE	FALSE
762048	Acute thrombosis of left subclavian vein	SNOMED	FALSE	FALSE
45757410	Acute thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
762049	Acute thrombosis of right subclavian vein	SNOMED	FALSE	FALSE
36712892	Acute thrombosis of splenic vein	SNOMED	FALSE	FALSE
44782762	Acute thrombosis of subclavian vein	SNOMED	FALSE	FALSE
37109253	Bilateral acute deep vein thrombosis of femoral veins	SNOMED	FALSE	FALSE
40478951	Bilateral deep vein thrombosis of lower extremities	SNOMED	FALSE	FALSE
4046884	Deep vein thrombosis of leg related to air travel	SNOMED	FALSE	FALSE
4133004	Deep venous thrombosis	SNOMED	FALSE	FALSE
4181315	Deep venous thrombosis associated with coronary artery bypass graft	SNOMED	FALSE	FALSE
45773536	Deep venous thrombosis of femoropopliteal vein	SNOMED	FALSE	FALSE
763942	Deep venous thrombosis of left lower extremity	SNOMED	FALSE	FALSE
761980	Deep venous thrombosis of left upper extremity	SNOMED	FALSE	FALSE

443537	Deep venous thrombosis of lower extremity	SNOMED	FALSE	FALSE
4133975	Deep venous thrombosis of pelvic vein	SNOMED	FALSE	FALSE
40480555	Deep venous thrombosis of peroneal vein	SNOMED	FALSE	FALSE
4322565	Deep venous thrombosis of profunda femoris vein	SNOMED	FALSE	FALSE
763941	Deep venous thrombosis of right lower extremity	SNOMED	FALSE	FALSE
761928	Deep venous thrombosis of right upper extremity	SNOMED	FALSE	FALSE
4207899	Deep venous thrombosis of tibial vein	SNOMED	FALSE	FALSE
4028057	Deep venous thrombosis of upper extremity	SNOMED	FALSE	FALSE
193512	Embolism and thrombosis of the renal vein	SNOMED	FALSE	FALSE
435565	Embolism and thrombosis of the vena cava	SNOMED	FALSE	FALSE
4119760	Iliofemoral deep vein thrombosis	SNOMED	FALSE	FALSE
4124856	Inferior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4281689	Phlegmasia alba dolens	SNOMED	FALSE	FALSE
4284538	Phlegmasia cerulea dolens	SNOMED	FALSE	FALSE
4309333	Postoperative deep vein thrombosis	SNOMED	FALSE	FALSE
46285905	Provoked deep vein thrombosis	SNOMED	FALSE	FALSE
4033521	Splenic vein thrombosis	SNOMED	FALSE	FALSE
4055089	Superior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
42538533	Thrombosis of iliac vein	SNOMED	FALSE	FALSE
44811347	Thrombosis of internal jugular vein	SNOMED	FALSE	FALSE
765049	Thrombosis of left peroneal vein	SNOMED	FALSE	FALSE

4317289	Thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4203836	Thrombosis of subclavian vein	SNOMED	FALSE	FALSE
4175649	Thrombosis of the popliteal vein	SNOMED	FALSE	FALSE
4153353	Traumatic thrombosis of axillary vein	SNOMED	FALSE	FALSE
46285904	Unprovoked deep vein thrombosis	SNOMED	FALSE	FALSE
4221821	Thrombophlebitis of deep veins of lower extremity	SNOMED	FALSE	FALSE
46271900	Recurrent deep vein thrombosis	SNOMED	FALSE	FALSE
4189004	Deep vein thrombosis of leg related to intravenous drug use	SNOMED	FALSE	FALSE

Heart failure

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
44782718	Acute combined systolic and diastolic heart failure	SNOMED	FALSE	FALSE
4023479	Acute congestive heart failure	SNOMED	FALSE	FALSE
312927	Acute cor pulmonale	SNOMED	FALSE	FALSE
40481042	Acute diastolic heart failure	SNOMED	FALSE	FALSE
44782655	Acute exacerbation of chronic congestive heart failure	SNOMED	FALSE	FALSE
442310	Acute heart failure	SNOMED	FALSE	FALSE
764877	Acute heart failure co-occurrent with normal ejection fraction	SNOMED	FALSE	FALSE
4108245	Acute left ventricular failure	SNOMED	FALSE	FALSE
4327205	Acute left-sided congestive heart failure	SNOMED	FALSE	FALSE
4267800	Acute left-sided heart failure	SNOMED	FALSE	FALSE
44782733	Acute on chronic combined systolic and diastolic heart failure	SNOMED	FALSE	FALSE
40481043	Acute on chronic diastolic heart failure	SNOMED	FALSE	FALSE
764874	Acute on chronic heart failure co-occurrent with normal ejection fraction	SNOMED	FALSE	FALSE

37309625	Acute on chronic right-sided congestive heart failure	SNOMED	FALSE	FALSE
40480602	Acute on chronic systolic heart failure	SNOMED	FALSE	FALSE
4215446	Acute right-sided congestive heart failure	SNOMED	FALSE	FALSE
4233424	Acute right-sided heart failure	SNOMED	FALSE	FALSE
40480603	Acute systolic heart failure	SNOMED	FALSE	FALSE
4193236	Ayerza’s syndrome	SNOMED	FALSE	FALSE
439698	Benign hypertensive heart disease with congestive cardiac failure	SNOMED	FALSE	FALSE
4030258	Bernheim’s syndrome	SNOMED	FALSE	FALSE
4242669	Biventricular congestive heart failure	SNOMED	FALSE	FALSE
4215802	Cardiac asthma	SNOMED	FALSE	FALSE
4177493	Cardiac insufficiency due to prosthesis	SNOMED	FALSE	FALSE
4233224	Cardiac insufficiency during AND/OR resulting from a procedure	SNOMED	FALSE	FALSE
4264636	Cardiac insufficiency following cardiac surgery	SNOMED	FALSE	FALSE
4259490	Cardiorespiratory failure	SNOMED	FALSE	FALSE
44782719	Chronic combined systolic and diastolic heart failure	SNOMED	FALSE	FALSE
4229440	Chronic congestive heart failure	SNOMED	FALSE	FALSE
4195892	Chronic cor pulmonale	SNOMED	FALSE	FALSE
40479576	Chronic diastolic heart failure	SNOMED	FALSE	FALSE

444031	Chronic heart failure	SNOMED	FALSE	FALSE
764876	Chronic heart failure co-occurrent with normal ejection fraction	SNOMED	FALSE	FALSE
4206009	Chronic left-sided congestive heart failure	SNOMED	FALSE	FALSE
4009047	Chronic left-sided heart failure	SNOMED	FALSE	FALSE
4284562	Chronic right-sided congestive heart failure	SNOMED	FALSE	FALSE
4014159	Chronic right-sided heart failure	SNOMED	FALSE	FALSE
40479192	Chronic systolic heart failure	SNOMED	FALSE	FALSE
4108244	Compensated cardiac failure	SNOMED	FALSE	FALSE
319835	Congestive heart failure	SNOMED	FALSE	FALSE
44784345	Congestive heart failure as early postoperative complication	SNOMED	FALSE	FALSE
762002	Congestive heart failure as post-operative complication of cardiac surgery	SNOMED	FALSE	FALSE
762003	Congestive heart failure as post-operative complication of non-cardiac surgery	SNOMED	FALSE	FALSE
44782428	Congestive heart failure due to cardiomyopathy	SNOMED	FALSE	FALSE
4139864	Congestive heart failure due to left ventricular systolic dysfunction	SNOMED	FALSE	FALSE
4142561	Congestive heart failure due to valvular disease	SNOMED	FALSE	FALSE
36713488	Congestive heart failure stage B	SNOMED	FALSE	FALSE

36712928	Congestive heart failure stage B due to ischemic cardiomyopathy	SNOMED	FALSE	FALSE
43021826	Congestive heart failure stage C	SNOMED	FALSE	FALSE
36712927	Congestive heart failure stage C due to ischemic cardiomyopathy	SNOMED	FALSE	FALSE
43021825	Congestive heart failure stage D	SNOMED	FALSE	FALSE
44782713	Congestive heart failure with right heart failure	SNOMED	FALSE	FALSE
4307356	Cor pulmonale	SNOMED	FALSE	FALSE
4111554	Decompensated cardiac failure	SNOMED	FALSE	FALSE
4311437	Decompensated chronic heart failure	SNOMED	FALSE	FALSE
443587	Diastolic heart failure	SNOMED	FALSE	FALSE
43530643	Diastolic heart failure stage B	SNOMED	FALSE	FALSE
43021842	Diastolic heart failure stage C	SNOMED	FALSE	FALSE
43021841	Diastolic heart failure stage D	SNOMED	FALSE	FALSE
43022068	Exacerbation of congestive heart failure	SNOMED	FALSE	FALSE
316139	Heart failure	SNOMED	FALSE	FALSE
4124705	Heart failure as a complication of care	SNOMED	FALSE	FALSE
37311948	Heart failure with mid range ejection fraction	SNOMED	FALSE	FALSE
40486933	Heart failure with normal ejection fraction	SNOMED	FALSE	FALSE
45766164	Heart failure with reduced ejection fraction	SNOMED	FALSE	FALSE
45766167	Heart failure with reduced ejection fraction due to cardiomyopathy	SNOMED	FALSE	FALSE

45766165	Heart failure with reduced ejection fraction due to coronary artery disease	SNOMED	FALSE	FALSE
45773075	Heart failure with reduced ejection fraction due to heart valve disease	SNOMED	FALSE	FALSE
45766166	Heart failure with reduced ejection fraction due to myocarditis	SNOMED	FALSE	FALSE
4004279	High output heart failure	SNOMED	FALSE	FALSE
44782728	Hypertensive heart AND chronic kidney disease with congestive heart failure	SNOMED	FALSE	FALSE
439696	Hypertensive heart and renal disease with (congestive) heart failure	SNOMED	FALSE	FALSE
439694	Hypertensive heart and renal disease with both (congestive) heart failure and renal failure	SNOMED	FALSE	FALSE
314378	Hypertensive heart disease with congestive heart failure	SNOMED	FALSE	FALSE
444101	Hypertensive heart failure	SNOMED	FALSE	FALSE
439846	Left heart failure	SNOMED	FALSE	FALSE
4185565	Low cardiac output syndrome	SNOMED	FALSE	FALSE
4103448	Low output heart failure	SNOMED	FALSE	FALSE
316994	Malignant hypertensive heart disease with congestive heart failure	SNOMED	FALSE	FALSE
4141124	Postvalvulotomy syndrome	SNOMED	FALSE	FALSE

764873	Reduced ejection fraction co-occurrent and due to acute heart failure	SNOMED	FALSE	FALSE
764871	Reduced ejection fraction co-occurrent and due to acute on chronic heart failure	SNOMED	FALSE	FALSE
764872	Reduced ejection fraction co-occurrent and due to chronic heart failure	SNOMED	FALSE	FALSE
4199500	Refractory heart failure	SNOMED	FALSE	FALSE
4138307	Right heart failure due to pulmonary hypertension	SNOMED	FALSE	FALSE
4195785	Right heart failure secondary to left heart failure	SNOMED	FALSE	FALSE
4273632	Right ventricular failure	SNOMED	FALSE	FALSE
35615055	Saddle embolus of pulmonary artery with acute cor pulmonale	SNOMED	FALSE	FALSE
4079695	Sepsis-associated left ventricular failure	SNOMED	FALSE	FALSE
4079296	Sepsis-associated right ventricular failure	SNOMED	FALSE	FALSE
44784442	Symptomatic congestive heart failure	SNOMED	FALSE	FALSE
443580	Systolic heart failure	SNOMED	FALSE	FALSE
43530642	Systolic heart failure stage B	SNOMED	FALSE	FALSE
36717359	Systolic heart failure stage B due to ischemic cardiomyopathy	SNOMED	FALSE	FALSE
43020421	Systolic heart failure stage C	SNOMED	FALSE	FALSE

36712929	Systolic heart failure stage C due to ischemic cardiomyopathy	SNOMED	FALSE	FALSE
43021840	Systolic heart failure stage D	SNOMED	FALSE	FALSE
40482857	Cardiorenal syndrome	SNOMED	FALSE	FALSE
4153875	Cardiac insufficiency as a complication of care	SNOMED	FALSE	FALSE
4215511	Emergency hospital admission for heart failure	SNOMED	FALSE	FALSE
4215689	Heart failure confirmed	SNOMED	FALSE	FALSE
4173819	Impaired left ventricular function	SNOMED	FALSE	FALSE

Hemorrhagic stroke

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
42535426	Acute nontraumatic subdural hemorrhage	SNOMED	FALSE	FALSE
35609033	Haemorrhagic stroke	SNOMED	FALSE	FALSE
439847	Intracranial hemorrhage	SNOMED	FALSE	FALSE
4144154	Non-traumatic intracerebral ventricular hemorrhage	SNOMED	FALSE	FALSE
4111709	Non-traumatic subdural hemorrhage	SNOMED	FALSE	FALSE
43530727	Spontaneous cerebral hemorrhage	SNOMED	FALSE	FALSE
4148906	Spontaneous subarachnoid hemorrhage	SNOMED	FALSE	FALSE
43530728	Subacute non-traumatic intracranial subdural hemorrhage	SNOMED	FALSE	FALSE
432923	Subarachnoid hemorrhage	SNOMED	FALSE	FALSE
4108952	Subarachnoid hemorrhage from carotid siphon and bifurcation	SNOMED	FALSE	FALSE
4111708	Subarachnoid hemorrhage from vertebral artery	SNOMED	FALSE	FALSE

Immune thrombocytopenia

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4103532	Immune thrombocytopenia	SNOMED	FALSE	FALSE
4137430	Idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4133984	Alloimmune thrombocytopenia	SNOMED	FALSE	FALSE
4133983	Secondary autoimmune thrombocytopenia	SNOMED	FALSE	FALSE
4102469	Acute idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4028065	Autoimmune thrombocytopenia	SNOMED	FALSE	FALSE
4027374	Alloimmune platelet transfusion refractoriness	SNOMED	FALSE	FALSE
4009307	Heparin-induced thrombocytopenia with thrombosis	SNOMED	FALSE	FALSE
4000065	Drug-induced immune thrombocytopenia	SNOMED	FALSE	FALSE
436956	Evans syndrome	SNOMED	FALSE	FALSE
433749	Heparin-induced thrombocytopenia	SNOMED	FALSE	FALSE
318397	Chronic idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE

Ischemic stroke

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4045735	Anterior cerebral circulation infarction	SNOMED	FALSE	FALSE
4031045	Anterior choroidal artery syndrome	SNOMED	FALSE	FALSE
761110	Bilateral cerebral infarction due to precererbral arterial occlusion	SNOMED	FALSE	FALSE
4110189	Cerebral infarct due to thrombosis of precerebral arteries	SNOMED	FALSE	FALSE
443454	Cerebral infarction	SNOMED	FALSE	FALSE
762951	Cerebral infarction due to anterior cerebral artery occlusion	SNOMED	FALSE	FALSE
765515	Cerebral infarction due to basilar artery stenosis	SNOMED	FALSE	FALSE
43530683	Cerebral infarction due to carotid artery occlusion	SNOMED	FALSE	FALSE
762933	Cerebral infarction due to cerebral artery occlusion	SNOMED	FALSE	FALSE
762937	Cerebral infarction due to cerebral venous thrombosis	SNOMED	FALSE	FALSE
4111714	Cerebral infarction due to cerebral venous thrombosis, non-pyogenic	SNOMED	FALSE	FALSE

4108356	Cerebral infarction due to embolism of cerebral arteries	SNOMED	FALSE	FALSE
45772786	Cerebral infarction due to embolism of middle cerebral artery	SNOMED	FALSE	FALSE
4110190	Cerebral infarction due to embolism of precerebral arteries	SNOMED	FALSE	FALSE
762935	Cerebral infarction due to internal carotid artery occlusion	SNOMED	FALSE	FALSE
763015	Cerebral infarction due to middle cerebral artery occlusion	SNOMED	FALSE	FALSE
46273649	Cerebral infarction due to occlusion of basilar artery	SNOMED	FALSE	FALSE
35610084	Cerebral infarction due to occlusion of cerebral artery	SNOMED	FALSE	FALSE
46270031	Cerebral infarction due to occlusion of precerebral artery	SNOMED	FALSE	FALSE
762934	Cerebral infarction due to posterior cerebral artery occlusion	SNOMED	FALSE	FALSE
43531607	Cerebral infarction due to stenosis of carotid artery	SNOMED	FALSE	FALSE
35610085	Cerebral infarction due to stenosis of cerebral artery	SNOMED	FALSE	FALSE

46270381	Cerebral infarction due to stenosis of precerebral artery	SNOMED	FALSE	FALSE
4110192	Cerebral infarction due to thrombosis of cerebral arteries	SNOMED	FALSE	FALSE
45767658	Cerebral infarction due to thrombosis of middle cerebral artery	SNOMED	FALSE	FALSE
44782773	Cerebral infarction due to vertebral artery occlusion	SNOMED	FALSE	FALSE
46270380	Cerebral infarction due to vertebral artery stenosis	SNOMED	FALSE	FALSE
37110678	Cerebral ischemic stroke due to occlusion of extracranial large artery	SNOMED	FALSE	FALSE
37110679	Cerebral ischemic stroke due to stenosis of extracranial large artery	SNOMED	FALSE	FALSE
4043731	Infarction - precerebral	SNOMED	FALSE	FALSE
4131383	Infarction of basal ganglia	SNOMED	FALSE	FALSE
4046237	Infarction of optic radiation	SNOMED	FALSE	FALSE
4119140	Infarction of visual cortex	SNOMED	FALSE	FALSE
4141405	Left sided cerebral infarction	SNOMED	FALSE	FALSE
37116473	Multifocal cerebral infarction due to and following procedure on cardiovascular system	SNOMED	FALSE	FALSE
4077086	Occipital cerebral infarction	SNOMED	FALSE	FALSE

4046359	Partial anterior cerebral circulation infarction	SNOMED	FALSE	FALSE
4319146	Pituitary infarction	SNOMED	FALSE	FALSE
4146185	Right sided cerebral infarction	SNOMED	FALSE	FALSE
36717605	Silent cerebral infarct	SNOMED	FALSE	FALSE
4142739	Thalamic infarction	SNOMED	FALSE	FALSE
4046358	Total anterior cerebral circulation infarction	SNOMED	FALSE	FALSE
372924	Cerebral artery occlusion	SNOMED	FALSE	FALSE

Myocardial infarction

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4119457	Acute Q wave infarction - anterolateral	SNOMED	FALSE	FALSE
4119943	Acute Q wave infarction - anteroseptal	SNOMED	FALSE	FALSE
4121464	Acute Q wave infarction - inferior	SNOMED	FALSE	FALSE
4121465	Acute Q wave infarction - inferolateral	SNOMED	FALSE	FALSE
4124684	Acute Q wave infarction - lateral	SNOMED	FALSE	FALSE
4119948	Acute Q wave infarction - widespread	SNOMED	FALSE	FALSE
4126801	Acute Q wave myocardial infarction	SNOMED	FALSE	FALSE
4296653	Acute ST segment elevation myocardial infarction	SNOMED	FALSE	FALSE
46270162	Acute ST segment elevation myocardial infarction due to left coronary artery occlusion	SNOMED	FALSE	FALSE
761737	Acute ST segment elevation myocardial infarction due to occlusion of circumflex coronary artery	SNOMED	FALSE	FALSE
46270163	Acute ST segment elevation myocardial infarction due to right coronary artery occlusion	SNOMED	FALSE	FALSE
43020460	Acute ST segment elevation myocardial infarction involving left anterior descending coronary artery	SNOMED	FALSE	FALSE
45766076	Acute ST segment elevation myocardial infarction of anterior wall involving right ventricle	SNOMED	FALSE	FALSE

761736	Acute ST segment elevation myocardial infarction of anteroapical wall	SNOMED	FALSE	FALSE
46270159	Acute ST segment elevation myocardial infarction of anterolateral wall	SNOMED	FALSE	FALSE
46270160	Acute ST segment elevation myocardial infarction of anteroseptal wall	SNOMED	FALSE	FALSE
45766116	Acute ST segment elevation myocardial infarction of inferior wall	SNOMED	FALSE	FALSE
45766151	Acute ST segment elevation myocardial infarction of inferior wall involving right ventricle	SNOMED	FALSE	FALSE
35611570	Acute ST segment elevation myocardial infarction of inferolateral wall	SNOMED	FALSE	FALSE
35611571	Acute ST segment elevation myocardial infarction of inferoposterior wall	SNOMED	FALSE	FALSE
46274044	Acute ST segment elevation myocardial infarction of lateral wall	SNOMED	FALSE	FALSE
46270161	Acute ST segment elevation myocardial infarction of posterior wall	SNOMED	FALSE	FALSE
46273495	Acute ST segment elevation myocardial infarction of posterobasal wall	SNOMED	FALSE	FALSE
46270158	Acute ST segment elevation myocardial infarction of posterolateral wall	SNOMED	FALSE	FALSE

46270164	Acute ST segment elevation myocardial infarction of septum	SNOMED	FALSE	FALSE
45766075	Acute anterior ST segment elevation myocardial infarction	SNOMED	FALSE	FALSE
4178129	Acute anteroapical myocardial infarction	SNOMED	FALSE	FALSE
4267568	Acute anteroseptal myocardial infarction	SNOMED	FALSE	FALSE
312327	Acute myocardial infarction	SNOMED	FALSE	FALSE
44782769	Acute myocardial infarction due to left coronary artery occlusion	SNOMED	FALSE	FALSE
44782712	Acute myocardial infarction due to right coronary artery occlusion	SNOMED	FALSE	FALSE
45766115	Acute myocardial infarction during procedure	SNOMED	FALSE	FALSE
434376	Acute myocardial infarction of anterior wall	SNOMED	FALSE	FALSE
45766150	Acute myocardial infarction of anterior wall involving right ventricle	SNOMED	FALSE	FALSE
438438	Acute myocardial infarction of anterolateral wall	SNOMED	FALSE	FALSE
4243372	Acute myocardial infarction of apical-lateral wall	SNOMED	FALSE	FALSE
4108669	Acute myocardial infarction of atrium	SNOMED	FALSE	FALSE
4151046	Acute myocardial infarction of basal-lateral wall	SNOMED	FALSE	FALSE
4275436	Acute myocardial infarction of high lateral wall	SNOMED	FALSE	FALSE
438170	Acute myocardial infarction of inferior wall	SNOMED	FALSE	FALSE

45771322	Acute myocardial infarction of inferior wall involving right ventricle	SNOMED	FALSE	FALSE
438447	Acute myocardial infarction of inferolateral wall	SNOMED	FALSE	FALSE
441579	Acute myocardial infarction of inferoposterior wall	SNOMED	FALSE	FALSE
436706	Acute myocardial infarction of lateral wall	SNOMED	FALSE	FALSE
4324413	Acute myocardial infarction of posterobasal wall	SNOMED	FALSE	FALSE
4051874	Acute myocardial infarction of posterolateral wall	SNOMED	FALSE	FALSE
4303359	Acute myocardial infarction of septum	SNOMED	FALSE	FALSE
4147223	Acute myocardial infarction with rupture of ventricle	SNOMED	FALSE	FALSE
4145721	Acute non-Q wave infarction	SNOMED	FALSE	FALSE
4119944	Acute non-Q wave infarction - anterolateral	SNOMED	FALSE	FALSE
4119456	Acute non-Q wave infarction - anteroseptal	SNOMED	FALSE	FALSE
4119945	Acute non-Q wave infarction - inferior	SNOMED	FALSE	FALSE
4119946	Acute non-Q wave infarction - inferolateral	SNOMED	FALSE	FALSE
4121466	Acute non-Q wave infarction - lateral	SNOMED	FALSE	FALSE
4124685	Acute non-Q wave infarction - widespread	SNOMED	FALSE	FALSE
4270024	Acute non-ST segment elevation myocardial infarction	SNOMED	FALSE	FALSE
35610091	Acute nontransmural myocardial infarction	SNOMED	FALSE	FALSE
319039	Acute posterior myocardial infarction	SNOMED	FALSE	FALSE

444406	Acute subendocardial infarction	SNOMED	FALSE	FALSE
35610093	Acute transmural myocardial infarction	SNOMED	FALSE	FALSE
4119947	Acute widespread myocardial infarction	SNOMED	FALSE	FALSE
37109912	Arrhythmia due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
438172	Atrial septal defect due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
4124687	Cardiac rupture due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
4215259	First myocardial infarction	SNOMED	FALSE	FALSE
4108678	Hemopericardium due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
4173632	Microinfarct of heart	SNOMED	FALSE	FALSE
45771327	Mitral valve regurgitation due to acute myocardial infarction with papillary muscle and chordal rupture	SNOMED	FALSE	FALSE
45766214	Mitral valve regurgitation due to acute myocardial infarction without papillary muscle and chordal rupture	SNOMED	FALSE	FALSE
45766212	Mitral valve regurgitation due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
4323202	Mixed myocardial ischemia and infarction	SNOMED	FALSE	FALSE

4329847	Myocardial infarction	SNOMED	FALSE	FALSE
37309626	Myocardial infarction due to demand ischemia	SNOMED	FALSE	FALSE
4170094	Myocardial infarction in recovery phase	SNOMED	FALSE	FALSE
4200113	Non-Q wave myocardial infarction	SNOMED	FALSE	FALSE
4030582	Postoperative myocardial infarction	SNOMED	FALSE	FALSE
35610087	Postoperative nontransmural myocardial infarction	SNOMED	FALSE	FALSE
4206867	Postoperative subendocardial myocardial infarction	SNOMED	FALSE	FALSE
35610089	Postoperative transmural myocardial infarction	SNOMED	FALSE	FALSE
4207921	Postoperative transmural myocardial infarction of anterior wall	SNOMED	FALSE	FALSE
4209541	Postoperative transmural myocardial infarction of inferior wall	SNOMED	FALSE	FALSE
37109911	Pulmonary embolism due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
4108679	Rupture of cardiac wall without hemopericardium as current complication following acute myocardial infarction	SNOMED	FALSE	FALSE
4108219	Rupture of chordae tendinae due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
4124686	Silent myocardial infarction	SNOMED	FALSE	FALSE

765132	Subendocardial myocardial infarction	SNOMED	FALSE	FALSE
45766114	Subsequent ST segment elevation myocardial infarction	SNOMED	FALSE	FALSE
45766113	Subsequent ST segment elevation myocardial infarction of anterior wall	SNOMED	FALSE	FALSE
45773170	Subsequent ST segment elevation myocardial infarction of inferior wall	SNOMED	FALSE	FALSE
4108217	Subsequent myocardial infarction	SNOMED	FALSE	FALSE
4108677	Subsequent myocardial infarction of anterior wall	SNOMED	FALSE	FALSE
4108218	Subsequent myocardial infarction of inferior wall	SNOMED	FALSE	FALSE
45766241	Subsequent non-ST segment elevation myocardial infarction	SNOMED	FALSE	FALSE
4108680	Thrombosis of atrium, auricular appendage, and ventricle due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
439693	True posterior myocardial infarction	SNOMED	FALSE	FALSE
37109910	Ventricular aneurysm due to and following acute myocardial infarction	SNOMED	FALSE	FALSE

Pulmonary embolism

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4120091	Acute massive pulmonary embolism	SNOMED	FALSE	FALSE
45768439	Acute pulmonary embolism	SNOMED	FALSE	FALSE
45768888	Acute pulmonary thromboembolism	SNOMED	FALSE	FALSE
4309039	Hemorrhagic pulmonary infarction	SNOMED	FALSE	FALSE
762808	Infarction of lung due to embolus	SNOMED	FALSE	FALSE
40480461	Infarction of lung due to iatrogenic pulmonary embolism	SNOMED	FALSE	FALSE
4108681	Postoperative pulmonary embolus	SNOMED	FALSE	FALSE
4091708	Pulmonary air embolism	SNOMED	FALSE	FALSE
440417	Pulmonary embolism	SNOMED	FALSE	FALSE
37109911	Pulmonary embolism due to and following acute myocardial infarction	SNOMED	FALSE	FALSE
37016922	Pulmonary embolism on long-term anticoagulation therapy	SNOMED	FALSE	FALSE
43530605	Pulmonary embolism with pulmonary infarction	SNOMED	FALSE	FALSE
4119608	Pulmonary fat embolism	SNOMED	FALSE	FALSE
254662	Pulmonary infarction	SNOMED	FALSE	FALSE
4253796	Pulmonary microemboli	SNOMED	FALSE	FALSE

45766471	Pulmonary oil microembolism	SNOMED	FALSE	FALSE
4121618	Pulmonary thromboembolism	SNOMED	FALSE	FALSE
4119610	Pulmonary tumor embolism	SNOMED	FALSE	FALSE
4119607	Subacute massive pulmonary embolism	SNOMED	FALSE	FALSE
4119609	Subacute pulmonary fat embolism	SNOMED	FALSE	FALSE
4236271	Recurrent pulmonary embolism	SNOMED	FALSE	FALSE

Thrombotic thrombocytopenic purpura

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4301602	Thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
313800	Thrombotic microangiopathy	SNOMED	FALSE	FALSE
4258261	Drug induced thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4230266	Autoimmune thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4204900	Acquired thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4159966	Upshaw-Schulman syndrome	SNOMED	FALSE	FALSE
37312165	Atypical hemolytic uremic syndrome	SNOMED	FALSE	FALSE
4190190	Diarrhea-associated hemolytic uremic syndrome	SNOMED	FALSE	FALSE
4159967	Diarrhea-negative hemolytic uremic syndrome	SNOMED	FALSE	FALSE
197253	Hemolytic uremic syndrome	SNOMED	FALSE	FALSE
4302298	Hemolytic uremic syndrome, adult type	SNOMED	FALSE	FALSE

Ventricular arrhythmia or cardiac arrest

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4247537	Accelerated idioventricular rhythm	SNOMED	FALSE	FALSE
4216773	Asystole	SNOMED	FALSE	FALSE
45766074	Bradycardic cardiac arrest	SNOMED	FALSE	FALSE
321042	Cardiac arrest	SNOMED	FALSE	FALSE
4309332	Cardiac arrest as a complication of care	SNOMED	FALSE	FALSE
4172822	Cardiac arrest due to cardiac disorder	SNOMED	FALSE	FALSE
4301015	Cardiac arrest due to pacemaker failure	SNOMED	FALSE	FALSE
4173446	Cardiac arrest due to respiratory disorder	SNOMED	FALSE	FALSE
4306984	Cardiac arrest due to trauma	SNOMED	FALSE	FALSE
4311273	Cardiac arrest during AND/OR resulting from a procedure	SNOMED	FALSE	FALSE
37398951	Cardiac arrest during surgery	SNOMED	FALSE	FALSE
761738	Cardiac arrest following cardiac surgery	SNOMED	FALSE	FALSE
317669	Cardiac arrest in fetus OR newborn	SNOMED	FALSE	FALSE
4120088	Cardiac arrest with successful resuscitation	SNOMED	FALSE	FALSE
4256374	Cardiorespiratory arrest	SNOMED	FALSE	FALSE
44783658	Cardiorespiratory arrest with successful resuscitation	SNOMED	FALSE	FALSE

4303238	Catecholaminergic polymorphic ventricular tachycardia	SNOMED	FALSE	FALSE
4128968	Circulatory arrest	SNOMED	FALSE	FALSE
4122762	Electromechanical dissociation	SNOMED	FALSE	FALSE
4148028	Electromechanical dissociation with successful resuscitation	SNOMED	FALSE	FALSE
36675005	Extrasystoles, short stature, hyperpigmentation, microcephaly syndrome	SNOMED	FALSE	FALSE
4124703	Familial ventricular tachycardia	SNOMED	FALSE	FALSE
4305862	Fascicular ventricular tachycardia	SNOMED	FALSE	FALSE
4029303	Fusion beats	SNOMED	FALSE	FALSE
4120086	His bundle tachycardia	SNOMED	FALSE	FALSE
764719	Idiopathic cardiac arrest	SNOMED	FALSE	FALSE
37109917	Idiopathic ventricular fibrillation not Brugada type	SNOMED	FALSE	FALSE
4171193	Idioventricular rhythm	SNOMED	FALSE	FALSE
4119600	Incessant infant ventricular tachycardia	SNOMED	FALSE	FALSE
4121482	Induced ventricular tachycardia	SNOMED	FALSE	FALSE
37017187	Intraoperative cardiorespiratory arrest	SNOMED	FALSE	FALSE
4091899	Junctional ectopic tachycardia	SNOMED	FALSE	FALSE
46272503	Mahaim fiber tachycardia	SNOMED	FALSE	FALSE
4088985	Multiple premature ventricular complexes	SNOMED	FALSE	FALSE

4089463	Multiple ventricular interpolated complexes	SNOMED	FALSE	FALSE
4088982	Narrow QRS ventricular tachycardia	SNOMED	FALSE	FALSE
44782707	Nonsustained paroxysmal ventricular tachycardia	SNOMED	FALSE	FALSE
40480274	Nonsustained ventricular tachycardia	SNOMED	FALSE	FALSE
4037682	O/E - collapse -cardiac arrest	SNOMED	FALSE	FALSE
4089464	Paired ventricular premature complexes	SNOMED	FALSE	FALSE
4119604	Paroxysmal familial ventricular fibrillation	SNOMED	FALSE	FALSE
437579	Paroxysmal ventricular tachycardia	SNOMED	FALSE	FALSE
4124701	Postoperative His bundle tachycardia	SNOMED	FALSE	FALSE
4233619	Pulseless ventricular tachycardia	SNOMED	FALSE	FALSE
45771051	Recurrent ventricular tachycardia	SNOMED	FALSE	FALSE
4121483	Right ventricular outflow tract ventricular tachycardia	SNOMED	FALSE	FALSE
4091904	Run of ventricular premature complexes	SNOMED	FALSE	FALSE
4088350	Slow ventricular response	SNOMED	FALSE	FALSE
4325850	Sustained ventricular fibrillation	SNOMED	FALSE	FALSE
4139206	Sustained ventricular tachycardia	SNOMED	FALSE	FALSE
37397458	Torsade de pointes with short coupling interval syndrome	SNOMED	FALSE	FALSE
37110729	Torsades de pointe caused by drug	SNOMED	FALSE	FALSE
4135823	Torsades de pointes	SNOMED	FALSE	FALSE

4185572	Ventricular arrhythmia	SNOMED	FALSE	FALSE
4008580	Ventricular bigeminy	SNOMED	FALSE	FALSE
4327066	Ventricular escape beat	SNOMED	FALSE	FALSE
4218242	Ventricular escape rhythm	SNOMED	FALSE	FALSE
36714539	Ventricular extrasystoles with syncope, perodactyly and Robin sequence syndrome	SNOMED	FALSE	FALSE
437894	Ventricular fibrillation	SNOMED	FALSE	FALSE
4111700	Ventricular fibrillation and flutter	SNOMED	FALSE	FALSE
433225	Ventricular flutter	SNOMED	FALSE	FALSE
4092010	Ventricular interpolated complexes	SNOMED	FALSE	FALSE
4244893	Ventricular parasystole	SNOMED	FALSE	FALSE
4066289	Ventricular premature beats	SNOMED	FALSE	FALSE
4088506	Ventricular quadrigeminy	SNOMED	FALSE	FALSE
40622721	Ventricular tachyarrhythmia	SNOMED	FALSE	FALSE
4103295	Ventricular tachycardia	SNOMED	FALSE	FALSE
4119599	Ventricular tachycardia with normal heart	SNOMED	FALSE	FALSE
4091900	Ventricular tachycardia, monomorphic	SNOMED	FALSE	FALSE
4088349	Ventricular tachycardia, polymorphic	SNOMED	FALSE	FALSE
4088501	Ventricular tachycardia, polymorphic without Q-T prolongation	SNOMED	FALSE	FALSE
4088505	Ventricular trigeminy	SNOMED	FALSE	FALSE
4088348	Wide QRS ventricular tachycardia	SNOMED	FALSE	FALSE

4064453	EKG: ventricular arrhythmia	SNOMED	FALSE	FALSE
4064455	EKG: ventricular fibrillation	SNOMED	FALSE	FALSE
4064871	EKG: ventricular tachycardia	SNOMED	FALSE	FALSE
4111552	Re-entry ventricular arrhythmia	SNOMED	FALSE	FALSE

Inpatient visit

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
262	Emergency Room and Inpatient Visit	Visit	FALSE	TRUE
9201	Inpatient Visit	Visit	FALSE	TRUE

Celiac artery thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4179906	Celiac artery embolus	SNOMED	FALSE	FALSE
4174016	Celiac artery thrombosis	SNOMED	FALSE	FALSE
4111852	Embolism and thrombosis of the celiac artery	SNOMED	FALSE	FALSE

Deep vein thrombosis - broad (additional ICD codes)

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
44834756	Acute venous embolism and thrombosis of other specified veins	ICD9CM	FALSE	FALSE
45586638	Embolism and thrombosis of other specified veins	ICD10	FALSE	FALSE
45572145	Embolism and thrombosis of unspecified vein	ICD10	FALSE	FALSE

Hepatic vein thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
196715	Budd-Chiari syndrome	SNOMED	FALSE	FALSE
4301208	Hepatic vein thrombosis	SNOMED	FALSE	FALSE

Intestinal infarction

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4195665	Gastrointestinal tract vascular insufficiency	SNOMED	FALSE	FALSE
4148299	Ischemic colitis	SNOMED	FALSE	FALSE
4173167	Mesenteric embolus	SNOMED	FALSE	FALSE
4317289	Thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4319280	Acute bowel infarction	SNOMED	FALSE	FALSE
4144032	Mesenteric thrombus and/or embolus	SNOMED	FALSE	FALSE
45757410	Acute thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
45757409	Chronic thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
44811741	Acute ischaemia of large intestine	SNOMED	FALSE	FALSE
44811740	Acute ischaemia of small intestine	SNOMED	FALSE	FALSE
37117790	Insufficiency of mesenteric artery	SNOMED	FALSE	FALSE
37016198	Epiploic appendagitis	SNOMED	FALSE	FALSE
35622081	Nongangrenous ischemic colitis	SNOMED	FALSE	FALSE
35622080	Gangrenous ischemic colitis	SNOMED	FALSE	FALSE
4345926	Abdominal angina	SNOMED	FALSE	FALSE
4342767	Transient ischemic colitis	SNOMED	FALSE	FALSE
4341648	Hemorrhagic infarction of intestine	SNOMED	FALSE	FALSE
4341646	Occlusive mesenteric ischemia	SNOMED	FALSE	FALSE
4340939	Non-occlusive mesenteric ischemia	SNOMED	FALSE	FALSE

4340378	Transmural infarction of intestine	SNOMED	FALSE	FALSE
4340375	Focal segmental ischemia of small intestine	SNOMED	FALSE	FALSE
4318537	Large bowel gangrene	SNOMED	FALSE	FALSE
4318407	Thrombophlebitis of mesenteric vein	SNOMED	FALSE	FALSE
4240850	Acute ischemic enterocolitis	SNOMED	FALSE	FALSE
4239942	Embolic mesenteric infarction	SNOMED	FALSE	FALSE
4237654	Ischemic enterocolitis	SNOMED	FALSE	FALSE
4215949	Nonocclusive intestinal infarction	SNOMED	FALSE	FALSE
4214720	Thrombotic mesenteric infarction	SNOMED	FALSE	FALSE
4192856	Acute ischemic colitis	SNOMED	FALSE	FALSE
4188336	Chronic ischemic enterocolitis	SNOMED	FALSE	FALSE
4174014	Inferior mesenteric artery embolus	SNOMED	FALSE	FALSE
4149013	Mesenteric infarction	SNOMED	FALSE	FALSE
4148257	Chronic gastrointestinal tract vascular insufficiency	SNOMED	FALSE	FALSE
4148256	Acute GIT vascular insufficiency	SNOMED	FALSE	FALSE
4124856	Inferior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4055089	Superior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4055025	Superior mesenteric artery embolus	SNOMED	FALSE	FALSE
4045408	Ischemic stricture of intestine	SNOMED	FALSE	FALSE
201894	Acute vascular insufficiency of intestine	SNOMED	FALSE	FALSE
192673	Vascular insufficiency of intestine	SNOMED	FALSE	FALSE

Heparin

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
21600972	Heparin group	ATC	FALSE	TRUE
4207626	Subcutaneous injection of heparin	SNOMED	FALSE	FALSE
45768801	Bridging anticoagulant therapy with low molecular weight heparin	SNOMED	FALSE	FALSE
4150546	Continuous infusion of heparin	SNOMED	FALSE	FALSE
4213991	Low dose heparin prophylaxis	SNOMED	FALSE	FALSE
40481876	Low molecular weight heparin therapy	SNOMED	FALSE	FALSE
41404759	0.2 ML heparin 25000 UNT/ML Prefilled Syringe Box of 10 by Ratiopharm	RxNorm Extension	FALSE	FALSE
41405132	0.2 ML heparin 25000 UNT/ML Prefilled Syringe Box of 25 by Ratiopharm	RxNorm Extension	FALSE	FALSE
41405875	0.3 ML heparin 25000 UNT/ML Prefilled Syringe Box of 10 by Ratiopharm	RxNorm Extension	FALSE	FALSE
41405544	0.3 ML heparin 25000 UNT/ML Prefilled Syringe Box of 25 by Ratiopharm	RxNorm Extension	FALSE	FALSE

Hepatic artery thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4111853	Embolism and thrombosis of hepatic artery	SNOMED	FALSE	FALSE
4223098	Hepatic artery thrombosis	SNOMED	FALSE	FALSE

Intracranial venous thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4111714	Cerebral infarction due to cerebral venous thrombosis, non-pyogenic	SNOMED	FALSE	FALSE
4102202	Cerebral venous sinus thrombosis	SNOMED	FALSE	FALSE
4046443	Cerebral venous thrombosis of cortical vein	SNOMED	FALSE	FALSE
762938	Cerebral venous thrombosis of cortical vein with infarction	SNOMED	FALSE	FALSE
762811	Cerebral venous thrombosis of cortical vein without infarction	SNOMED	FALSE	FALSE
4048787	Cerebral venous thrombosis of great cerebral vein	SNOMED	FALSE	FALSE
4048786	Cerebral venous thrombosis of sigmoid sinus	SNOMED	FALSE	FALSE
4043735	Cerebral venous thrombosis of straight sinus	SNOMED	FALSE	FALSE
4120316	Intracranial septic thrombophlebitis	SNOMED	FALSE	FALSE
4194609	Intracranial thrombophlebitis	SNOMED	FALSE	FALSE
4179912	Intracranial venous thrombosis	SNOMED	FALSE	FALSE
4111713	Non-pyogenic venous sinus thrombosis	SNOMED	FALSE	FALSE
314667	Nonpyogenic thrombosis of intracranial venous sinus	SNOMED	FALSE	FALSE

764503	Occlusion of cerebral vein by nonpyogenic thrombus	SNOMED	FALSE	FALSE
4047634	Septic thrombophlebitis of cortical vein	SNOMED	FALSE	FALSE
4043901	Septic thrombophlebitis of great cerebral vein	SNOMED	FALSE	FALSE
4100225	Thrombophlebitis lateral venous sinus	SNOMED	FALSE	FALSE
764716	Thrombophlebitis of basal vein of Rosenthal	SNOMED	FALSE	FALSE
4217471	Thrombophlebitis of basilar sinus	SNOMED	FALSE	FALSE
4104695	Thrombophlebitis of cavernous sinus	SNOMED	FALSE	FALSE
4319332	Thrombophlebitis of cerebral vein	SNOMED	FALSE	FALSE
4167985	Thrombophlebitis of inferior sagittal sinus	SNOMED	FALSE	FALSE
764712	Thrombophlebitis of internal cerebral vein	SNOMED	FALSE	FALSE
764708	Thrombophlebitis of straight sinus	SNOMED	FALSE	FALSE
763149	Thrombophlebitis of superior anastomotic vein	SNOMED	FALSE	FALSE
4100224	Thrombophlebitis of superior longitudinal venous sinus	SNOMED	FALSE	FALSE
4098706	Thrombophlebitis of superior sagittal sinus	SNOMED	FALSE	FALSE
4277833	Thrombophlebitis of torcular Herophili	SNOMED	FALSE	FALSE
764710	Thrombophlebitis of transverse sinus	SNOMED	FALSE	FALSE
764726	Thrombosis of basal vein	SNOMED	FALSE	FALSE
4228209	Thrombosis of basilar sinus	SNOMED	FALSE	FALSE
4234264	Thrombosis of cavernous venous sinus	SNOMED	FALSE	FALSE
762828	Thrombosis of cerebral medullary veins	SNOMED	FALSE	FALSE

4319329	Thrombosis of cerebral veins	SNOMED	FALSE	FALSE
4048890	Thrombosis of inferior sagittal sinus	SNOMED	FALSE	FALSE
4057329	Thrombosis of lateral venous sinus	SNOMED	FALSE	FALSE
764723	Thrombosis of superior anastomotic vein	SNOMED	FALSE	FALSE
4102203	Thrombosis of superior longitudinal sinus	SNOMED	FALSE	FALSE
4290940	Thrombosis of superior sagittal sinus	SNOMED	FALSE	FALSE
4079905	Thrombosis of torcular Herophili	SNOMED	FALSE	FALSE
4105338	Thrombosis transverse sinus	SNOMED	FALSE	FALSE

Mesenteric vein thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
36717492	Acute occlusion of mesenteric vein	SNOMED	FALSE	FALSE
45757410	Acute thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4124856	Inferior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4055089	Superior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4317289	Thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
45757409	Chronic thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4318407	Thrombophlebitis of mesenteric vein	SNOMED	FALSE	FALSE
4173167	Mesenteric embolus	SNOMED	FALSE	FALSE
4144032	Mesenteric thrombus and/or embolus	SNOMED	FALSE	FALSE

Platelet disorder

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4332151	Platelet disorder	SNOMED	FALSE	FALSE
46272950	Thrombocytopathy, asplenia and miosis	SNOMED	FALSE	FALSE
46271357	Periodontitis co-occurrent with Chédiak-Higashi syndrome	SNOMED	FALSE	FALSE
44782445	Thrombocytopenia due to alcohol	SNOMED	FALSE	FALSE
42536958	Pancytopenia caused by medication	SNOMED	FALSE	FALSE
40321716	Secondary thrombocytopenia	SNOMED	FALSE	FALSE
37312165	Atypical hemolytic uremic syndrome	SNOMED	FALSE	FALSE
37209558	Pancytopenia caused by immunosuppressant	SNOMED	FALSE	FALSE
37204551	Hereditary isolated aplastic anemia	SNOMED	FALSE	FALSE
37204548	Hereditary thrombocytopenia with normal platelets	SNOMED	FALSE	FALSE
37204520	Bleeding diathesis due to thromboxane synthesis deficiency	SNOMED	FALSE	FALSE
37204478	Pancytopenia due to IKZF1 mutations	SNOMED	FALSE	FALSE
37204236	X-linked dyserythropoietic anemia with abnormal platelets and neutropenia	SNOMED	FALSE	FALSE
37203819	Bleeding diathesis due to collagen receptor defect	SNOMED	FALSE	FALSE
37117164	Revesz syndrome	SNOMED	FALSE	FALSE

37116398	Thyrocerebrorenal syndrome	SNOMED	FALSE	FALSE
37110834	Defect of purinergic receptor p2y G protein-coupled 12	SNOMED	FALSE	FALSE
37110748	Bleeding disorder due to calcium and DAG-regulated guanine exchange factor-1 deficiency	SNOMED	FALSE	FALSE
37110713	Familial platelet syndrome with predisposition to acute myelogenous leukemia	SNOMED	FALSE	FALSE
37110394	Isolated thrombocytopenia	SNOMED	FALSE	FALSE
37019055	Aplastic anemia co-occurrent with human immunodeficiency virus infection	SNOMED	FALSE	FALSE
37018663	Thrombocytopenia co-occurrent and due to alcoholism	SNOMED	FALSE	FALSE
37017607	Antibody mediated acquired pure red cell aplasia caused by erythropoiesis stimulating agent	SNOMED	FALSE	FALSE
37017165	GATA binding protein 1 related thrombocytopenia with dyserythropoiesis	SNOMED	FALSE	FALSE
37016797	MYH9 related disease	SNOMED	FALSE	FALSE
37016151	Aplastic anemia caused by antineoplastic agent	SNOMED	FALSE	FALSE
36717326	DK phocomelia syndrome	SNOMED	FALSE	FALSE
36716406	Severe fever with thrombocytopenia syndrome virus	SNOMED	FALSE	FALSE

36716047	Radioulnar synostosis with amegakaryocytic thrombocytopenia syndrome	SNOMED	FALSE	FALSE
36715586	Refractory thrombocytopenia	SNOMED	FALSE	FALSE
36715327	Familial thrombocytosis	SNOMED	FALSE	FALSE
36715053	Autosomal dominant macrothrombocytopenia	SNOMED	FALSE	FALSE
36715052	Attenuated Chédiak-Higashi syndrome	SNOMED	FALSE	FALSE
36713970	WT limb blood syndrome	SNOMED	FALSE	FALSE
36713636	Medich giant platelet syndrome	SNOMED	FALSE	FALSE
36713635	White platelet syndrome	SNOMED	FALSE	FALSE
36713443	MYH9 macrothrombocytopenia syndrome	SNOMED	FALSE	FALSE
36713112	Pancytopenia due to antineoplastic chemotherapy	SNOMED	FALSE	FALSE
36675176	Thrombocythemia with distal limb defect	SNOMED	FALSE	FALSE
36674972	Macrothrombocytopenia with mitral valve insufficiency	SNOMED	FALSE	FALSE
36674474	Pancytopenia with developmental delay syndrome	SNOMED	FALSE	FALSE
35625536	Ataxia pancytopenia syndrome	SNOMED	FALSE	FALSE
35623565	Glycoprotein VI deficiency	SNOMED	FALSE	FALSE
35623407	Adult pure red cell aplasia	SNOMED	FALSE	FALSE
4345236	Parvoviral aplastic crisis	SNOMED	FALSE	FALSE
4338386	Thrombocytopenia due to non-immune destruction	SNOMED	FALSE	FALSE

4316372	HELLP syndrome	SNOMED	FALSE	FALSE
4314802	Kasabach-Merritt syndrome	SNOMED	FALSE	FALSE
4311682	Radial aplasia-thrombocytopenia syndrome	SNOMED	FALSE	FALSE
4305588	Doan-Wright syndrome	SNOMED	FALSE	FALSE
4301602	Thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4301128	Thrombocytopenia due to diminished platelet production	SNOMED	FALSE	FALSE
4300464	Wiskott-Aldrich autosomal dominant variant syndrome	SNOMED	FALSE	FALSE
4299560	Thrombocytopenic purpura due to defective platelet production	SNOMED	FALSE	FALSE
4298690	Immunologic aplastic anemia	SNOMED	FALSE	FALSE
4292531	Thrombocytopenic purpura due to platelet consumption	SNOMED	FALSE	FALSE
4292425	Sex-linked thrombocytopenia	SNOMED	FALSE	FALSE
4280071	Thrombocytosis	SNOMED	FALSE	FALSE
4272928	Thrombocytopenia due to hypersplenism	SNOMED	FALSE	FALSE
4264464	Mediterranean macrothrombocytopenia	SNOMED	FALSE	FALSE
4258261	Drug induced thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4247776	Posttransfusion purpura	SNOMED	FALSE	FALSE
4246348	Platelet dense granule deficiency	SNOMED	FALSE	FALSE

4245912	Hermansky-Pudlak syndrome	SNOMED	FALSE	FALSE
4239484	Acquired pancytopenia	SNOMED	FALSE	FALSE
4235220	Hereditary thrombocytopenic disorder	SNOMED	FALSE	FALSE
4234973	Chronic acquired pure red cell aplasia	SNOMED	FALSE	FALSE
4233407	Megakaryocytic aplasia	SNOMED	FALSE	FALSE
4230266	Autoimmune thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4226905	Thrombocytopenia associated with AIDS	SNOMED	FALSE	FALSE
4225810	Aplastic anemia associated with AIDS	SNOMED	FALSE	FALSE
4222080	Platelet dysfunction associated with uremia	SNOMED	FALSE	FALSE
4219476	Thrombocytopenia due to defective platelet production	SNOMED	FALSE	FALSE
4218171	Uremic thrombocytopenia	SNOMED	FALSE	FALSE
4214947	Thrombocytopenic purpura associated with metabolic disorder	SNOMED	FALSE	FALSE
4211348	Aplastic anemia associated with pancreatitis	SNOMED	FALSE	FALSE
4204900	Acquired thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4201288	Platelet secretory disorder	SNOMED	FALSE	FALSE
4197685	Gray platelet syndrome	SNOMED	FALSE	FALSE
4197574	Dilutional thrombocytopenia	SNOMED	FALSE	FALSE
4189319	Platelet dysfunction due to drugs	SNOMED	FALSE	FALSE
4188208	Estren-Dameshek anemia	SNOMED	FALSE	FALSE

4186108	Aplastic anemia associated with metabolic alteration	SNOMED	FALSE	FALSE
4185078	Bernard Soulier syndrome	SNOMED	FALSE	FALSE
4184758	Acquired aplastic anemia	SNOMED	FALSE	FALSE
4184200	Secondary aplastic anemia	SNOMED	FALSE	FALSE
4184188	Platelet procoagulant activity deficiency	SNOMED	FALSE	FALSE
4182351	Exhausted platelets	SNOMED	FALSE	FALSE
4178859	Acquired storage pool deficiency	SNOMED	FALSE	FALSE
4177177	Cellular immunologic aplastic anemia	SNOMED	FALSE	FALSE
4173278	Thrombocytopenia due to blood loss	SNOMED	FALSE	FALSE
4172008	Cyclic thrombocytopenia	SNOMED	FALSE	FALSE
4166754	Perinatal thrombocytopenia	SNOMED	FALSE	FALSE
4159966	Upshaw-Schulman syndrome	SNOMED	FALSE	FALSE
4159749	Idiopathic maternal thrombocytopenia	SNOMED	FALSE	FALSE
4159736	Radiation thrombocytopenia	SNOMED	FALSE	FALSE
4156233	Thrombocytopenia due to sequestration	SNOMED	FALSE	FALSE
4155386	Platelet type pseudo-von Willebrand disease	SNOMED	FALSE	FALSE
4155128	Platelet sequestration	SNOMED	FALSE	FALSE
4148471	Fanconi’s anemia	SNOMED	FALSE	FALSE
4147049	Thrombocytopenia due to extracorporeal circulation	SNOMED	FALSE	FALSE
4146088	Aplastic anemia due to drugs	SNOMED	FALSE	FALSE

4146086	Constitutional aplastic anemia with malformation	SNOMED	FALSE	FALSE
4145458	Thrombocytopenia due to hypothermia	SNOMED	FALSE	FALSE
4140545	Post infectious thrombocytopenic purpura	SNOMED	FALSE	FALSE
4139942	Glanzmann’s thrombasthenia	SNOMED	FALSE	FALSE
4139555	Thrombocytopenia due to massive blood transfusion	SNOMED	FALSE	FALSE
4137430	Idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4134438	Familial alpha>2< adrenergic receptor defect in platelets	SNOMED	FALSE	FALSE
4134437	Mixed alpha granule and dense body deficiency	SNOMED	FALSE	FALSE
4134436	Hereditary platelet function disorder	SNOMED	FALSE	FALSE
4133985	Isolated collagen aggregation defect	SNOMED	FALSE	FALSE
4133984	Alloimmune thrombocytopenia	SNOMED	FALSE	FALSE
4133983	Secondary autoimmune thrombocytopenia	SNOMED	FALSE	FALSE
4133981	Benign gestational thrombocytopenia	SNOMED	FALSE	FALSE
4125652	Acquired platelet disorder	SNOMED	FALSE	FALSE
4125651	Glycoprotein Ib defect	SNOMED	FALSE	FALSE
4125496	Pure red cell aplasia, acquired	SNOMED	FALSE	FALSE
4125494	Pancytopenia with pancreatitis	SNOMED	FALSE	FALSE
4123079	Post-splenectomy thrombocytosis	SNOMED	FALSE	FALSE
4123076	Montreal platelet syndrome	SNOMED	FALSE	FALSE
4123075	May-Hegglin anomaly	SNOMED	FALSE	FALSE

4123074	Megakaryocytic thrombocytopenia	SNOMED	FALSE	FALSE
4123073	Platelet type von Willebrand’s disease	SNOMED	FALSE	FALSE
4121265	Mediterranean thrombocytopenia	SNOMED	FALSE	FALSE
4121264	Epstein syndrome	SNOMED	FALSE	FALSE
4121133	Giant platelet syndrome	SNOMED	FALSE	FALSE
4121132	Dense body defect	SNOMED	FALSE	FALSE
4121131	Inherited platelet disorder	SNOMED	FALSE	FALSE
4120622	Reactive thrombocytosis	SNOMED	FALSE	FALSE
4120620	Amegakaryocytic thrombocytopenia	SNOMED	FALSE	FALSE
4120619	Thromboxane synthetase deficiency	SNOMED	FALSE	FALSE
4120618	Cyclooxygenase deficiency	SNOMED	FALSE	FALSE
4120617	Thromboxane generation defect	SNOMED	FALSE	FALSE
4120616	Glycoprotein Ia defect	SNOMED	FALSE	FALSE
4120615	Platelet membrane defect	SNOMED	FALSE	FALSE
4119134	Thrombocytopenic purpura	SNOMED	FALSE	FALSE
4103532	Immune thrombocytopenia	SNOMED	FALSE	FALSE
4102469	Acute idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4101603	Thrombocytopenia due to extracorporeal circulation of blood	SNOMED	FALSE	FALSE
4101583	Aplastic anemia due to infection	SNOMED	FALSE	FALSE
4101582	Aplastic anemia due to chronic disease	SNOMED	FALSE	FALSE
4100998	Aplastic anemia due to toxic cause	SNOMED	FALSE	FALSE

4098148	Thrombocytopenia due to drugs	SNOMED	FALSE	FALSE
4098145	Idiopathic aplastic anemia	SNOMED	FALSE	FALSE
4098028	Transient acquired pure red cell aplasia	SNOMED	FALSE	FALSE
4098027	Aplastic anemia due to radiation	SNOMED	FALSE	FALSE
4082738	Autoimmune pancytopenia	SNOMED	FALSE	FALSE
4077348	Pancytopenia-dysmelia	SNOMED	FALSE	FALSE
4069584	Platelet dysfunction due to aspirin	SNOMED	FALSE	FALSE
4031699	Humoral immunologic aplastic anemia	SNOMED	FALSE	FALSE
4030445	Acquired PF-3 disease	SNOMED	FALSE	FALSE
4028066	Acquired platelet function disorder	SNOMED	FALSE	FALSE
4028065	Autoimmune thrombocytopenia	SNOMED	FALSE	FALSE
4027378	Platelet factor V deficiency	SNOMED	FALSE	FALSE
4027376	Platelet storage pool defect	SNOMED	FALSE	FALSE
4027375	Scott syndrome	SNOMED	FALSE	FALSE
4027374	Alloimmune platelet transfusion refractoriness	SNOMED	FALSE	FALSE
4009307	Heparin-induced thrombocytopenia with thrombosis	SNOMED	FALSE	FALSE
4006317	Chédiak-Higashi syndrome	SNOMED	FALSE	FALSE
4000065	Drug-induced immune thrombocytopenia	SNOMED	FALSE	FALSE
441264	Primary thrombocytopenia	SNOMED	FALSE	FALSE
440982	Wiskott-Aldrich syndrome	SNOMED	FALSE	FALSE
440372	Acquired thrombocytopenia	SNOMED	FALSE	FALSE

438383	Essential thrombocythemia	SNOMED	FALSE	FALSE
437241	Qualitative platelet disorder	SNOMED	FALSE	FALSE
436956	Evans syndrome	SNOMED	FALSE	FALSE
433749	Heparin-induced thrombocytopenia	SNOMED	FALSE	FALSE
432881	Pancytopenia	SNOMED	FALSE	FALSE
432870	Thrombocytopenic disorder	SNOMED	FALSE	FALSE
318397	Chronic idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
140681	Constitutional aplastic anemia	SNOMED	FALSE	FALSE
138723	Acquired red cell aplasia	SNOMED	FALSE	FALSE
137829	Aplastic anemia	SNOMED	FALSE	FALSE
37397537	Beta thalassemia X-linked thrombocytopenia syndrome	SNOMED	FALSE	FALSE
4230228	Amegakaryocytic thrombocytopenia with congenital malformation	SNOMED	FALSE	FALSE

Platelet measurement

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
3007461	Platelets [#/volume] in Blood	LOINC	FALSE	TRUE
3031586	Platelets [#/volume] in Blood by Estimate	LOINC	FALSE	TRUE
3024929	Platelets [#/volume] in Blood by Automated count	LOINC	FALSE	TRUE
3039827	Platelets [#/volume] in Body fluid by Automated count	LOINC	FALSE	TRUE
3024386	Platelet mean volume [Entitic volume] in Blood by Rees-Ecker	LOINC	FALSE	TRUE
4267147	Platelet count	SNOMED	FALSE	TRUE
37393863	Platelet count	SNOMED	FALSE	TRUE

Portal vein thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
199837	Portal vein thrombosis	SNOMED	FALSE	FALSE

Splenic artery thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4112165	Embolism and thrombosis of the splenic artery	SNOMED	FALSE	FALSE
35615064	Thrombosis of splenic artery	SNOMED	FALSE	FALSE

Splenic infarction

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4048527	Fleckmilz	SNOMED	FALSE	FALSE
4044745	Splenic infarction	SNOMED	FALSE	FALSE

Splenic vein thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4033521	Splenic vein thrombosis	SNOMED	FALSE	FALSE
36712892	Acute thrombosis of splenic vein	SNOMED	FALSE	FALSE

Stroke, general

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
36684840	Acute stroke	SNOMED	FALSE	FALSE
381316	Cerebrovascular accident	SNOMED	FALSE	FALSE

Sudden cardiac death, specific codes

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
42536727	Sudden arrhythmic death syndrome	SNOMED	FALSE	FALSE
4317150	Sudden cardiac death	SNOMED	FALSE	FALSE

Splanchnic Vein Thrombosis

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4033521	Splenic vein thrombosis	SNOMED	FALSE	FALSE
196715	Budd-Chiari syndrome	SNOMED	FALSE	FALSE
199837	Portal vein thrombosis	SNOMED	FALSE	FALSE
4317289	Thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4092406	Portal thrombophlebitis	SNOMED	FALSE	FALSE
36712892	Acute thrombosis of splenic vein	SNOMED	FALSE	FALSE
4173167	Mesenteric embolus	SNOMED	FALSE	FALSE
4144032	Mesenteric thrombus and/or embolus	SNOMED	FALSE	FALSE
45757410	Acute thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
45757409	Chronic thrombosis of mesenteric vein	SNOMED	FALSE	FALSE
4318407	Thrombophlebitis of mesenteric vein	SNOMED	FALSE	FALSE
4124856	Inferior mesenteric vein thrombosis	SNOMED	FALSE	FALSE
4055089	Superior mesenteric vein thrombosis	SNOMED	FALSE	FALSE

Thrombocytopenia

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
37397537	Beta thalassemia X-linked thrombocytopenia syndrome	SNOMED	FALSE	FALSE
432870	Thrombocytopenic disorder	SNOMED	FALSE	FALSE
46272950	Thrombocytopathy, asplenia and miosis	SNOMED	FALSE	FALSE
44782445	Thrombocytopenia due to alcohol	SNOMED	FALSE	FALSE
42536958	Pancytopenia caused by medication	SNOMED	FALSE	FALSE
40321716	Secondary thrombocytopenia	SNOMED	FALSE	FALSE
37312165	Atypical hemolytic uremic syndrome	SNOMED	FALSE	FALSE
37209558	Pancytopenia caused by immunosuppressant	SNOMED	FALSE	FALSE
37204551	Hereditary isolated aplastic anemia	SNOMED	FALSE	FALSE
37204548	Hereditary thrombocytopenia with normal platelets	SNOMED	FALSE	FALSE
37204520	Bleeding diathesis due to thromboxane synthesis deficiency	SNOMED	FALSE	FALSE
37204478	Pancytopenia due to IKZF1 mutations	SNOMED	FALSE	FALSE
37117164	Revesz syndrome	SNOMED	FALSE	FALSE
37116398	Thyrocerebrorenal syndrome	SNOMED	FALSE	FALSE
37110394	Isolated thrombocytopenia	SNOMED	FALSE	FALSE

37019055	Aplastic anemia co-occurrent with human immunodeficiency virus infection	SNOMED	FALSE	FALSE
37018663	Thrombocytopenia co-occurrent and due to alcoholism	SNOMED	FALSE	FALSE
37017607	Antibody mediated acquired pure red cell aplasia caused by erythropoiesis stimulating agent	SNOMED	FALSE	FALSE
37017165	GATA binding protein 1 related thrombocytopenia with dyserythropoiesis	SNOMED	FALSE	FALSE
37016797	MYH9 related disease	SNOMED	FALSE	FALSE
37016151	Aplastic anemia caused by antineoplastic agent	SNOMED	FALSE	FALSE
36717326	DK phocomelia syndrome	SNOMED	FALSE	FALSE
36716406	Severe fever with thrombocytopenia syndrome virus	SNOMED	FALSE	FALSE
36716047	Radioulnar synostosis with amegakaryocytic thrombocytopenia syndrome	SNOMED	FALSE	FALSE
36715586	Refractory thrombocytopenia	SNOMED	FALSE	FALSE
36715053	Autosomal dominant macrothrombocytopenia	SNOMED	FALSE	FALSE
36713970	WT limb blood syndrome	SNOMED	FALSE	FALSE
36713443	MYH9 macrothrombocytopenia syndrome	SNOMED	FALSE	FALSE
36713112	Pancytopenia due to antineoplastic chemotherapy	SNOMED	FALSE	FALSE
36674972	Macrothrombocytopenia with mitral valve insufficiency	SNOMED	FALSE	FALSE

36674474	Pancytopenia with developmental delay syndrome	SNOMED	FALSE	FALSE
35625536	Ataxia pancytopenia syndrome	SNOMED	FALSE	FALSE
35623407	Adult pure red cell aplasia	SNOMED	FALSE	FALSE
4345236	Parvoviral aplastic crisis	SNOMED	FALSE	FALSE
4338386	Thrombocytopenia due to non-immune destruction	SNOMED	FALSE	FALSE
4316372	HELLP syndrome	SNOMED	FALSE	FALSE
4314802	Kasabach-Merritt syndrome	SNOMED	FALSE	FALSE
4311682	Radial aplasia-thrombocytopenia syndrome	SNOMED	FALSE	FALSE
4305588	Doan-Wright syndrome	SNOMED	FALSE	FALSE
4301602	Thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4301128	Thrombocytopenia due to diminished platelet production	SNOMED	FALSE	FALSE
4300464	Wiskott-Aldrich autosomal dominant variant syndrome	SNOMED	FALSE	FALSE
4299560	Thrombocytopenic purpura due to defective platelet production	SNOMED	FALSE	FALSE
4298690	Immunologic aplastic anemia	SNOMED	FALSE	FALSE
4292531	Thrombocytopenic purpura due to platelet consumption	SNOMED	FALSE	FALSE
4292425	Sex-linked thrombocytopenia	SNOMED	FALSE	FALSE

4272928	Thrombocytopenia due to hypersplenism	SNOMED	FALSE	FALSE
4264464	Mediterranean macrothrombocytopenia	SNOMED	FALSE	FALSE
4258261	Drug induced thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4247776	Posttransfusion purpura	SNOMED	FALSE	FALSE
4239484	Acquired pancytopenia	SNOMED	FALSE	FALSE
4235220	Hereditary thrombocytopenic disorder	SNOMED	FALSE	FALSE
4234973	Chronic acquired pure red cell aplasia	SNOMED	FALSE	FALSE
4233407	Megakaryocytic aplasia	SNOMED	FALSE	FALSE
4230266	Autoimmune thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4226905	Thrombocytopenia associated with AIDS	SNOMED	FALSE	FALSE
4225810	Aplastic anemia associated with AIDS	SNOMED	FALSE	FALSE
4219476	Thrombocytopenia due to defective platelet production	SNOMED	FALSE	FALSE
4218171	Uremic thrombocytopenia	SNOMED	FALSE	FALSE
4214947	Thrombocytopenic purpura associated with metabolic disorder	SNOMED	FALSE	FALSE
4211348	Aplastic anemia associated with pancreatitis	SNOMED	FALSE	FALSE
4204900	Acquired thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4197574	Dilutional thrombocytopenia	SNOMED	FALSE	FALSE
4188208	Estren-Dameshek anemia	SNOMED	FALSE	FALSE

4186108	Aplastic anemia associated with metabolic alteration	SNOMED	FALSE	FALSE
4185078	Bernard Soulier syndrome	SNOMED	FALSE	FALSE
4184758	Acquired aplastic anemia	SNOMED	FALSE	FALSE
4184200	Secondary aplastic anemia	SNOMED	FALSE	FALSE
4177177	Cellular immunologic aplastic anemia	SNOMED	FALSE	FALSE
4173278	Thrombocytopenia due to blood loss	SNOMED	FALSE	FALSE
4172008	Cyclic thrombocytopenia	SNOMED	FALSE	FALSE
4166754	Perinatal thrombocytopenia	SNOMED	FALSE	FALSE
4159966	Upshaw-Schulman syndrome	SNOMED	FALSE	FALSE
4159749	Idiopathic maternal thrombocytopenia	SNOMED	FALSE	FALSE
4159736	Radiation thrombocytopenia	SNOMED	FALSE	FALSE
4156233	Thrombocytopenia due to sequestration	SNOMED	FALSE	FALSE
4148471	Fanconi’s anemia	SNOMED	FALSE	FALSE
4147049	Thrombocytopenia due to extracorporeal circulation	SNOMED	FALSE	FALSE
4146088	Aplastic anemia due to drugs	SNOMED	FALSE	FALSE
4146086	Constitutional aplastic anemia with malformation	SNOMED	FALSE	FALSE
4145458	Thrombocytopenia due to hypothermia	SNOMED	FALSE	FALSE
4140545	Post infectious thrombocytopenic purpura	SNOMED	FALSE	FALSE
4139555	Thrombocytopenia due to massive blood transfusion	SNOMED	FALSE	FALSE

4137430	Idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4133984	Alloimmune thrombocytopenia	SNOMED	FALSE	FALSE
4133983	Secondary autoimmune thrombocytopenia	SNOMED	FALSE	FALSE
4133981	Benign gestational thrombocytopenia	SNOMED	FALSE	FALSE
4125496	Pure red cell aplasia, acquired	SNOMED	FALSE	FALSE
4125494	Pancytopenia with pancreatitis	SNOMED	FALSE	FALSE
4123076	Montreal platelet syndrome	SNOMED	FALSE	FALSE
4123075	May-Hegglin anomaly	SNOMED	FALSE	FALSE
4123074	Megakaryocytic thrombocytopenia	SNOMED	FALSE	FALSE
4121265	Mediterranean thrombocytopenia	SNOMED	FALSE	FALSE
4121264	Epstein syndrome	SNOMED	FALSE	FALSE
4120620	Amegakaryocytic thrombocytopenia	SNOMED	FALSE	FALSE
4119134	Thrombocytopenic purpura	SNOMED	FALSE	FALSE
4103532	Immune thrombocytopenia	SNOMED	FALSE	FALSE
4102469	Acute idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4101603	Thrombocytopenia due to extracorporeal circulation of blood	SNOMED	FALSE	FALSE
4101583	Aplastic anemia due to infection	SNOMED	FALSE	FALSE
4101582	Aplastic anemia due to chronic disease	SNOMED	FALSE	FALSE
4100998	Aplastic anemia due to toxic cause	SNOMED	FALSE	FALSE
4098148	Thrombocytopenia due to drugs	SNOMED	FALSE	FALSE
4098145	Idiopathic aplastic anemia	SNOMED	FALSE	FALSE

4098028	Transient acquired pure red cell aplasia	SNOMED	FALSE	FALSE
4098027	Aplastic anemia due to radiation	SNOMED	FALSE	FALSE
4082738	Autoimmune pancytopenia	SNOMED	FALSE	FALSE
4077348	Pancytopenia-dysmelia	SNOMED	FALSE	FALSE
4031699	Humoral immunologic aplastic anemia	SNOMED	FALSE	FALSE
4028065	Autoimmune thrombocytopenia	SNOMED	FALSE	FALSE
4027374	Alloimmune platelet transfusion refractoriness	SNOMED	FALSE	FALSE
4009307	Heparin-induced thrombocytopenia with thrombosis	SNOMED	FALSE	FALSE
4000065	Drug-induced immune thrombocytopenia	SNOMED	FALSE	FALSE
441264	Primary thrombocytopenia	SNOMED	FALSE	FALSE
440982	Wiskott-Aldrich syndrome	SNOMED	FALSE	FALSE
440372	Acquired thrombocytopenia	SNOMED	FALSE	FALSE
436956	Evans syndrome	SNOMED	FALSE	FALSE
433749	Heparin-induced thrombocytopenia	SNOMED	FALSE	FALSE
432881	Pancytopenia	SNOMED	FALSE	FALSE
318397	Chronic idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
140681	Constitutional aplastic anemia	SNOMED	FALSE	FALSE
138723	Acquired red cell aplasia	SNOMED	FALSE	FALSE
137829	Aplastic anemia	SNOMED	FALSE	FALSE

Thrombocytopenic purpura

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
4119134	Thrombocytopenic purpura	SNOMED	FALSE	FALSE
4301602	Thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4299560	Thrombocytopenic purpura due to defective platelet production	SNOMED	FALSE	FALSE
4292531	Thrombocytopenic purpura due to platelet consumption	SNOMED	FALSE	FALSE
4258261	Drug induced thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4247776	Posttransfusion purpura	SNOMED	FALSE	FALSE
4230266	Autoimmune thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4214947	Thrombocytopenic purpura associated with metabolic disorder	SNOMED	FALSE	FALSE
4204900	Acquired thrombotic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4159966	Upshaw-Schulman syndrome	SNOMED	FALSE	FALSE
4140545	Post infectious thrombocytopenic purpura	SNOMED	FALSE	FALSE
4137430	Idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
4102469	Acute idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE

318397	Chronic idiopathic thrombocytopenic purpura	SNOMED	FALSE	FALSE
313800	Thrombotic microangiopathy	SNOMED	FALSE	FALSE

Visceral venous thrombosis or obstruction

Concept ID	Concept name	Vocabulary	Is excluded?	Include descendants?
36717492	Acute occlusion of mesenteric vein	SNOMED	FALSE	FALSE
36712892	Acute thrombosis of splenic vein	SNOMED	FALSE	FALSE
196715	Budd-Chiari syndrome	SNOMED	FALSE	FALSE
35624285	Complete obstruction of hepatic portal vein	SNOMED	FALSE	FALSE
4301208	Hepatic vein thrombosis	SNOMED	FALSE	FALSE
37110194	Hepatic veno-occlusive disease with immunodeficiency syndrome	SNOMED	FALSE	FALSE
37109927	Obstruction of visceral vein	SNOMED	FALSE	FALSE
4238060	Portal vein obstruction	SNOMED	FALSE	FALSE
4033521	Splenic vein thrombosis	SNOMED	FALSE	FALSE
4277276	Veno-occlusive disease of the liver	SNOMED	FALSE	FALSE
37111372	Visceral venous thrombosis	SNOMED	FALSE	FALSE
36712891	Chronic thrombosis of splenic vein	SNOMED	FALSE	FALSE