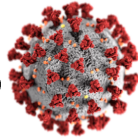


EVENT DEFINITION FORM

Event: Coronary artery disease
Outcome/covariate: Outcome
Version: 1
Status: Final

Contributing authors

authors	Expertise/role	Date
Ilse Kelters (UMCU)	Medical/drafting v0.1	June 24, 2020
Miriam Sturkenboom (UMCU)	Epidemiological review v0.1	June 28, 2020
Ilse Kelters		July 17, 2020
Miriam Sturkenboom	Code review	August 13, 2020
Miriam & Leila Belbachir	Update codes	August 25, 2020
Corinne Willame	Algorithm proposal	September 02, 2020
Miriam Sturkenboom	Final code list	February 14, 2021
Carlos Durán (UMCU)	Review narrow/possible assignment	March 24, 2021
Miriam Sturkenboom	Inclusion of code list used for final report	August 20, 2021



1. Event definition

European Society of Cardiology (Knuuti *et al.*)

Coronary artery disease or ischaemic heart disease describes a set of clinical symptoms due to an inadequate blood supply to the myocardium. This pathological process is characterized by atherosclerotic plaque accumulation in the epicardial arteries, whether obstructive or non-obstructive. This disease can have a long stable period, called chronic artery disease, but also become unstable at any time due to an acute atherothrombotic event. This blockage can restrict blood flow, which causes myocardial ischaemia. When the blood flow is cut off entirely the event is called a 'heart attack' or acute myocardial infarction, which is categorized as acute coronary syndrome.

So, acute coronary syndrome is a subcategory of coronary artery disease, and coronary heart disease results of coronary artery disease. Coronary artery disease is characterized by atherosclerosis in coronary arteries and can be asymptomatic, whereas acute coronary syndrome is always present with symptoms, such as unstable angina, and is often associated with myocardial infarction, which can also occur regardless of coronary artery disease.

Acute coronary syndrome

One third of the cases myocardial infarction is not caused by coronary artery disease. A myocardial infarction can also occur in relation to percutaneous coronary intervention or with non-obstructive coronary arteries, called coronary procedure-related myocardial infarction (type 4 and 5) and myocardial infarction with non-obstructive coronary arteries (MINOCA) respectively. If there is no presence of myocardial ischaemia, a diagnosis of myocardial injury should be made. This diagnosis also includes other causes of cardiac troponin elevation, e.g. arrhythmias, heart failure, myocarditis (Kristian Thygesen *et al.*).

Clinical criteria for myocardial infarction: The clinical definition of myocardial infarction denotes the presence of acute myocardial injury detected by abnormal cardiac biomarkers in the setting of evidence of acute myocardial ischaemia.

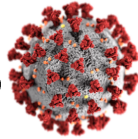
Chronic coronary syndrome

CCS are defined by the different evolutionary phases of CAD, excluding situations in which an acute coronary artery thrombosis dominates the clinical presentation (i.e. ACS).

Signs and symptoms

The clinical symptoms are a cornerstone of the diagnosis, although objective tests are most often necessary to confirm the diagnosis. Clinical symptoms:

- Discomfort/pain
 - o On the chest, located near the sternum, anywhere from the epigastrium to the lower jaw or teeth, between shoulder blades or in either arm to the wrist and fingers.
 - o Pain is described as pressure, tightness, or heaviness.
 - o Symptoms become more severe with increased level of exertion
 - o Relieve of symptoms after using nitrates
 - o Symptoms are unrelated to respiration or position
- These symptoms define the clinical classification:



2. Synonyms / lay terms for the event

Atherosclerosis of the coronary arteries

Stenosis of the coronary arteries

Myocardial ischemia

Acute coronary syndrome

Acute myocardial infarction

Coronary heart disease

Coronary thrombosis

Chronic coronary syndromes

Angina pectoris

Angina

Anginal symptoms

Microvascular angina

Vasospastic angina

Heart attack

Ischaemic heart disease

Revascularization

3. Laboratory tests that are specific for event

Acute coronary syndrome

1. Cardiac troponin

Cardiac troponin I (cTnI) and T (cTnT) are biomarkers for the evaluation of myocardial injury. Myocardial injury is defined as being present when blood levels of cTn are increased above the 99th percentile upper reference limit (see definition event).

2. Creatine kinase MB isoform

This biomarker is less sensitive and specific than cardiac troponin.

3. Creatine kinase

Chronic coronary syndrome

There is no specific laboratory test. Laboratory investigations are used to identify possible causes of ischaemia, to establish cardiovascular risk factors and associated conditions. Performed tests are:

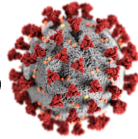
- Whole blood count including haemoglobin
- Thyroid hormone
- Fasting plasma glucose and HbA1c
- Lipid profile including total cholesterol, high density lipoprotein cholesterol, low-density lipoprotein cholesterol and triglycerides
- Renal function
- Cardiac troponin I and T

4. Diagnostic tests that are specific for event

Acute coronary syndrome

1. Electrocardiographic (ECG)

Coronary artery disease



Acute myocardial infarction is characterized by myocardial necrosis or acute ischemia. Under these conditions one of the following changes in the ECG can occur:

- New or presumed new significant ST-segment- T-wave (ST-T) changes or new left bundle branch block (LBBB).
- Pathological Q waves

Imaging techniques are only useful when biomarkers have not been measured or not at appropriate times. Normal biomarkers at appropriate times measured exclude acute myocardial infarction and takes precedence over the imaging criteria.

2. Echocardiography

The strength of echocardiography is the combined assessment of cardiac structure and function, in particular myocardial thickness, thickening/ thinning, and motion. Regional wall motion abnormalities induced by ischaemia can be detected by echocardiography almost immediately after onset when > 20% transmural myocardial thickness is affected. These abnormalities, when new and without alternative aetiology, support the diagnosis of MI when cTn values show a rising and/or falling pattern. Echocardiography also allows detection of non-coronary cardiac pathologies known to cause chest pain, e.g. acute pericarditis, severe aortic stenosis, and hypertrophic cardiomyopathy among others. The technique is useful in diagnosing mechanical complications in patients with MI and haemodynamic compromise (shock), or other potentially fatal entities such as acute aortic dissection or massive pulmonary embolism where the clinical presentation might be similar to that seen with acute MI.

3. Radionuclide imaging

Several radionuclide tracers allow viable myocytes to be imaged directly. A strength of the radionuclide techniques is that they are the only commonly available methods for assessing viability directly, although the relatively low resolution of the images limits them for detecting the smallest areas of MI.

4. Cardiac magnetic resonance imaging

CMR gives you an accurate assessment of myocardial structure and function. CMR is common used in diagnosis of myocardial injury or applied as imaging technique in late presentation of myocardial infarction.

5. Computed tomographic coronary angiography

CT coronary angiography is feasibly but not widely applied because of low additional value of the imaging technique. The diagnosis myocardial infarction cannot be established by CTCA scan alone.

Chronic coronary syndrome

1. ECG

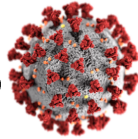
Including a resting 12 lead ECG and ambulatory ECG monitoring.

2. Echocardiogram

Echocardiogram is recommended in all patients for: (1) Exclusion of alternative causes of angina; (2) Identification of regional wall motion abnormalities suggestive of CAD; (3) Measurement of LVEF for risk stratification and; (4) Evaluation of diastolic dysfunction.

3. Chest X-ray

Chest X-ray is recommended for patients with atypical presentation, signs and symptoms of heart failure, or suspicion of pulmonary disease.



4. Invasive coronary angiography

Consider when (1) there is a high clinical likelihood and severe symptoms refractory to medical therapy; (2) typical angina at low level of exercise and clinical evaluation including exercise ECG indicates high-risk events; LV dysfunction suggestive of CAD.

5. Drugs that are used to treat event

Acute coronary syndrome

- Painkillers: morphine s.c. or i.v.
- Aspirin/acetylsalicylic acid 150-300mg
- P2Y12 receptor antagonist: ticagrelor or clopidogrel
- Low molecular weight heparin
- Vasodilators: nitroglycerine
- Beta-blockers: metoprolol
- ACE inhibitor: perindopril, ramipril
- ARB: losartan, valsartan
- Statins: atorvastatin, simvastatin, rosuvastatin

In the acute moment (during CPR): vasopressors (adrenaline, vasopressin) and antiarrhythmics (amiodarone, metoprolol)

Chronic coronary syndrome

Anti-ischaemic drugs: Nitroglycerin, ranalazine, trimetazidine, ivabradine

Beta-adrenergic blockers

Calcium channel blockers

Ace inhibitors: in patients with pre-existing hypertension, LVEF <40%, diabetes or CKD.

Angiotensin-receptor blockers

Diuretics

Event prevention: addition of antiplatelet drugs: aspirin (80mg); P2Y12 inhibitor (clopidogrel, prasugrel); statins,

In case of atrial fibrillation: NOAC

6. Procedures used specific for event treatment

Revascularization by percutaneous coronary intervention or coronary artery bypass grafting

7. Setting (outpatient specialist, in-hospital, GP, emergency room) where condition will be most frequently /reliably diagnosed

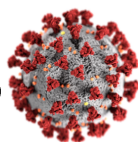
Acute coronary syndrome: Out of hospital/Emergency room

Chronic coronary syndrome: GP or in-hospital depending on the severity

8. Diagnosis codes or algorithms used in different papers to extract the events in Europe/USA: seek literature for papers that have studied this event and see how they extracted/measured the event.

ICD-9 410 to 414;

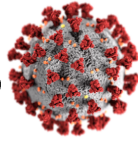
Coronary artery disease



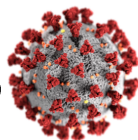
ICD-10 I20 to I25 (includes MI ICD-10 I21 to I22) (Virani, et al).

9. Codes used in ACCESS

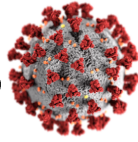
Coding system	Code	Code name	Concept	Concept name	Algorithm
ICD10/CM	I20	Angina pectoris	C0002962	Angina Pectoris	Possible
ICD10/CM	I23	Ischemic heart diseases (I20-I25)	C0151744	Myocardial Ischemia	Possible
ICD10/CM	I24	Ischemic heart diseases (I20-I25)	C0151744	Myocardial Ischemia	Possible
ICD10/CM	I25	Ischaemic heart diseases	C0151744	Myocardial Ischemia	Possible
ICD10/CM	I21	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
ICD10/CM	I21	coronary (artery) thrombosis	C0010072	Coronary Thrombosis	Narrow
ICD10/CM	I21	cardiac infarction	C0027051	Myocardial Infarction	Narrow
ICD10/CM	I22	coronary (artery) thrombosis	C0010072	Coronary Thrombosis	Narrow
ICD10/CM	I22	cardiac infarction	C0027051	Myocardial Infarction	Narrow
ICD10/CM	I70	Atherosclerosis	C0004153	Atherosclerosis	Possible
ICD10/CM	K76.1	Cardiac sclerosis	C0010054	Coronary Arteriosclerosis	Possible
ICD9CM	410	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
ICD9CM	411	Other acute and subacute forms of ischemic heart disease			Possible
ICD9CM	412	Old myocardial infarction			Narrow
ICD9CM	413	Angina pectoris	C0002962	Angina Pectoris	Possible
ICD9CM	440	Atherosclerosis	C0004153	Atherosclerosis	Possible
ICD9CM	414	Other forms of chronic ischemic heart disease	C0151744	Myocardial Ischemia	Possible
ICPC	K74	Angina pectoris	C0002962	Angina Pectoris	Possible
ICPC	K75	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
ICPC	K76	Coronary artery disease			Possible
ICPC	K91	Atherosclerosis	C0004153	Atherosclerosis	Possible
ICPC	K92	Atherosclerosis	C0004153	Atherosclerosis	Possible
RCD2	G3...	Ischaemic heart disease	C0010054	Coronary Arteriosclerosis	Possible
RCD2	G3...	Ischaemic heart disease	C1956346	Coronary Artery Disease	Possible
RCD2	G3...	Ischaemic heart disease	C0010068	Coronary heart disease	Possible
RCD2	G3...	Ischaemic heart disease	C0151744	Myocardial Ischemia	Possible
RCD2	G30..	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
RCD2	G30..	Acute myocardial infarction	C0010072	Coronary Thrombosis	Narrow
RCD2	G30..	Acute myocardial infarction	C0027051	Myocardial Infarction	Narrow
RCD2	G300.	Acute anterolateral infarction	C0155627	Acute myocardial infarction of anterolateral wall	Narrow



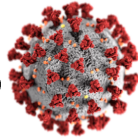
RCD2	G306.	True posterior myocard.infarct	C0264706	True posterior myocardial infarction	Narrow
RCD2	G30z.	Acute myocardial infarct. NOS	C0155626	Acute myocardial infarction	Narrow
RCD2	G3110	Myocardial infarction aborted	C0340325	Coronary thrombosis not resulting in myocardial infarction	Narrow
RCD2	G3111	Unstable angina	C0002965	Angina, Unstable	Narrow
RCD2	G3111	Unstable angina	C0002965	Angina, Unstable	Narrow
RCD2	G3112	Angina at rest	C0002965	Angina, Unstable	Narrow
RCD2	G3112	Angina at rest	C0002965	Angina, Unstable	Narrow
RCD2	G3114	Worsening angina	C0002965	Angina, Unstable	Narrow
RCD2	G3114	Worsening angina	C0002965	Angina, Unstable	Narrow
RCD2	G3114	Worsening angina	C0086666	Myocardial Preinfarction Syndrome	Possible
RCD2	G311z	Preinfarction syndrome NOS	C0086666	Myocardial Preinfarction Syndrome	Possible
RCD2	G312.	Coron thromb/not result in MI	C0340325	Coronary thrombosis not resulting in myocardial infarction	Narrow
RCD2	G31y0	Acute coronary insufficiency	C0002965	Angina, Unstable	Narrow
RCD2	G31y0	Acute coronary insufficiency	C0002965	Angina, Unstable	Narrow
RCD2	G31y0	Acute coronary insufficiency	C0086666	Myocardial Preinfarction Syndrome	Possible
RCD2	G31y1	Microinfarction of heart	C0264696	Microinfarct of heart	Possible
RCD2	G31y2	Subendocardial ischaemia	C0264695	Subendocardial ischemia	Narrow
RCD2	G33..	Angina pectoris	C0002962	Angina Pectoris	Possible
RCD2	G331.	Prinzmetal's angina	C0002963	Angina Pectoris, Variant	Possible
RCD2	G331.	Prinzmetal's angina	C0002963	Angina Pectoris, Variant	Possible
RCD2	G332.	Coronary artery spasm	C0235470	Angina pectoris with documented spasm	Possible
RCD2	G332.	Coronary artery spasm	C0010073	Coronary Artery Vasospasm	Possible
RCD2	G33z.	Angina pectoris NOS	C0002962	Angina Pectoris	Possible
RCD2	G33z1	Stenocardia	C0002962	Angina Pectoris	Possible
RCD2	G33z2	Syncope anginosa	C0264681	Syncope anginosa	Possible
RCD2	G33z4	Ischaemic chest pain	C0002962	Angina Pectoris	Possible
RCD2	G340.	Coronary atherosclerosis	C0010054	Coronary Arteriosclerosis	Possible
RCD2	G3z..	Ischaemic heart disease NOS	C0151744	Myocardial Ischemia	Possible
RCD2	G70..	Atherosclerosis	C0004153	Atherosclerosis	Possible
RCD2	Gyu3400	[X]Acute transmural myocardial infarction of unspecif site			narrow



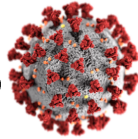
RCD2	G5y2.00	Cardiovascular arteriosclerosis unspecified			possible
RCD2	G38..00	Postoperative myocardial infarction			narrow
RCD2	G382.00	Postoperative transmural myocardial infarction other sites			narrow
RCD2	G383.00	Postoperative transmural myocardial infarction unspec site			narrow
RCD2	G38z.00	Postoperative myocardial infarction, unspecified			narrow
RCD2	Gyu3000	[X]Other forms of angina pectoris			possible
RCD2	G360.00	Haemopericardium/current comp folow acut myocard infarct			narrow
RCD2	G361.00	Atrial septal defect/curr comp folow acut myocardal infarct			narrow
RCD2	G361.00	Atrial septal defect/curr comp folow acut myocardal infarct			narrow
RCD2	G363.00	Ruptur cardiac wall w/out haemopericard/cur comp fol ac MI			narrow
RCD2	G363.00	Ruptur cardiac wall w/out haemopericard/cur comp fol ac MI			narrow
RCD2	G364.00	Ruptur chordae tendinae/curr comp fol acute myocard infarct			narrow
RCD2	G364.00	Ruptur chordae tendinae/curr comp fol acute myocard infarct			narrow
RCD2	G365.00	Rupture papillary muscle/curr comp fol acute myocard infarct			narrow
RCD2	G366.00	Thrombosis atrium,auric append&vent/curr comp foll acute MI			narrow
RCD2	G366.00	Thrombosis atrium,auric append&vent/curr comp foll acute MI			narrow
RCD2	G344.00	Silent myocardial ischaemia			narrow
RCD2	G34..	Chronic IHD			Possible
RCD2	792E.	Percutaneous coronary intervention			narrow
SCTSPA	2610009	cardiopatía isquémica	C0151744	Myocardial Ischemia	Possible
SCTSPA	4557003	angina inestable	C0002965	Angina, Unstable	Narrow
SCTSPA	4557003	angina inestable	C0002965	Angina, Unstable	Narrow
SCTSPA	4557003	síndrome preinfarto	C0086666	Myocardial Preinfarction Syndrome	Possible
SCTSPA	8957000	arteriopatía coronaria	C1956346	Coronary Artery Disease	Possible
SCTSPA	17828002	angina cordis	C0002962	Angina Pectoris	Possible
SCTSPA	21470009	síncope anginoso	C0264681	Syncope anginosa	Possible
SCTSPA	22298006	infarto de miocardio	C0027051	Myocardial Infarction	Narrow
SCTSPA	23687008	espasmo de arteria coronaria	C0010073	Coronary Artery Vasospasm	Possible



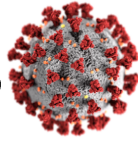
SCTSPA	25106000	infarto inminente	C0002965	Angina, Unstable	Narrow
SCTSPA	25106000	infarto inminente	C0002965	Angina, Unstable	Narrow
SCTSPA	32598000	cardiopatía isquémica aguda	C1510446	Acute ischemic heart disease	Narrow
SCTSPA	34644005	infarto de pared posterior	C0264706	True posterior myocardial infarction	Narrow
SCTSPA	38716007	aterosclerosis	C0004153	Atherosclerosis	Possible
SCTSPA	41702007	aterosclerosis coronaria	C0010054	Coronary Arteriosclerosis	Possible
SCTSPA	41702007	enfermedad coronaria	C0010068	Coronary heart disease	Possible
SCTSPA	42531007	microinfarto cardíaco	C0264696	Microinfarct of heart	Possible
SCTSPA	46109009	isquemia subendocárdica	C0264695	Subendocardial ischemia	Narrow
SCTSPA	53741008	arteriosclerosis coronaria	C0010054	Coronary Arteriosclerosis	Possible
SCTSPA	57054005	infarto agudo de miocardio	C0155626	Acute myocardial infarction	Narrow
SCTSPA	64333001	angina preinfarto	C0002965	Angina, Unstable	Narrow
SCTSPA	64333001	angina preinfarto	C0002965	Angina, Unstable	Narrow
SCTSPA	66514008	trombosis arterial coronaria	C0010072	Coronary Thrombosis	Narrow
SCTSPA	70211005	infarto agudo de miocardio de pared anterolateral	C0155627	Acute myocardial infarction of anterolateral wall	Narrow
SCTSPA	87343002	angina de Prinzmetal	C0002963	Angina Pectoris, Variant	Possible
SCTSPA	87343002	angina de Prinzmetal	C0002963	Angina Pectoris, Variant	Possible
SCTSPA	155322009	cardiopatía isquémica, SAI	C0151744	Myocardial Ischemia	Possible
SCTSPA	194802003	infarto de miocardio posterior verdadero	C0264706	True posterior myocardial infarction	Narrow
SCTSPA	194811003	infarto agudo de miocardio, SAI	C0155626	Acute myocardial infarction	Narrow
SCTSPA	194815007	infarto de miocardio abortado	C0340325	Coronary thrombosis not resulting in myocardial infarction	Narrow
SCTSPA	194820007	síndrome de preinfarto, SAI	C0086666	Myocardial Preinfarction Syndrome	Possible
SCTSPA	194821006	trombosis coronaria que no deriva en infarto de miocardio	C0340325	Coronary thrombosis not resulting in myocardial infarction	Narrow
SCTSPA	194824003	microinfarto cardíaco	C0264696	Microinfarct of heart	Possible
SCTSPA	194828000	angina de pecho	C0002962	Angina Pectoris	Possible
SCTSPA	194830003	angina de pecho, SAI	C0002962	Angina Pectoris	Possible
SCTSPA	194832006	estenocardia	C0002962	Angina Pectoris	Possible
SCTSPA	194833001	síncope anginoso [dup]	C0264681	Syncope anginosa	Possible
SCTSPA	194839002	angina de pecho, SAI	C0002962	Angina Pectoris	Possible



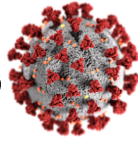
SCTSPA	194878003	cardiopatía isquémica, SAI	C0151744	Myocardial Ischemia	Possible
SCTSPA	225566008	dolor torácico isquémico	C0002962	Angina Pectoris	Possible
SCTSPA	367416001	angina de pecho	C0002962	Angina Pectoris	Possible
SCTSPA	398274000	trombosis de arteria coronaria	C0010072	Coronary Thrombosis	Narrow
SCTSPA	413439005	cardiopatía isquémica aguda	C1510446	Acute ischemic heart disease	Narrow
SCTSPA	414024009	trastorno de arteria coronaria	C1956346	Coronary Artery Disease	Possible
SCTSPA	414545008	cardiopatía isquémica	C0151744	Myocardial Ischemia	Possible
SCTSPA	414795007	isquemia miocárdica	C0151744	Myocardial Ischemia	Possible
SCTSPA	415070008	intervención coronaria percutánea	C1532338	Percutaneous Coronary Intervention	Narrow
SCTSPA	443502000	aterosclerosis de arteria coronaria	C0010054	Coronary Arteriosclerosis	Possible
SCTSPA	371030007	Squeezing chest pain (finding)			possible
SCTSPA	1755008	Old myocardial infarction (disorder)			narrow
SCTSPA	81953000	Chest pain on exertion (finding)			possible
SCTSPA	29857009	Chest pain (finding)			possible
SCTSPA	102589003	Atypical chest pain (finding)			possible
SCTSPA	71884009	Precordial pain (finding)			possible
SCTSPA	233819005	Stable angina (disorder)			possible
SCTSPA	73795002	Acute myocardial infarction of inferior wall			narrow
SCTSPA	279019008	Central crushing chest pain (finding)			possible
SCTSPA	413844008	Chronic myocardial ischemia			possible
SCTSPA	426396005	Cardiac chest pain (finding)			possible
SCTSPA	413844008	Chronic myocardial ischemia (disorder)			possible
SCTSPA	713405002	Subacute ischemic heart disease (disorder)			possible
SCTSPA	63739005	Coronary occlusion (disorder)			narrow
SCTSPA	39468009	Arteriosclerotic cardiovascular disease (disorder)			possible
SCTSPA	50570003	Aneurysm of coronary vessels (disorder)			possible
SNOMEDCT_US	2610009	Ischaemic heart disease	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	4557003	Crescendo angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	4557003	Crescendo angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	4557003	Preinfarction syndrome	C0086666	Myocardial Preinfarction Syndrome	Possible
SNOMEDCT_US	8957000	Coronary artery disease	C1956346	Coronary Artery Disease	Possible
SNOMEDCT_US	17828002	Angina	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	21470009	Syncope anginosa	C0264681	Syncope anginosa	Possible



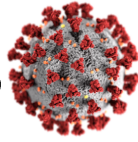
SNOMEDCT_US	22298006	Myocardial infarction	C0027051	Myocardial Infarction	Narrow
SNOMEDCT_US	23687008	Angina pectoris with documented spasm	C0235470	Angina pectoris with documented spasm	Possible
SNOMEDCT_US	23687008	Coronary artery spasm	C0010073	Coronary Artery Vasospasm	Possible
SNOMEDCT_US	25106000	Impending infarction	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	25106000	Impending infarction	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	32598000	Acute ischaemic heart disease	C1510446	Acute ischemic heart disease	Narrow
SNOMEDCT_US	32598000	Myocardial ischaemia	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	34644005	True posterior wall infarction	C0264706	True posterior myocardial infarction	Narrow
SNOMEDCT_US	38716007	Atherosclerosis	C0004153	Atherosclerosis	Possible
SNOMEDCT_US	41702007	Arteriosclerotic heart disease	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	41702007	CAD - Coronary artery disease	C1956346	Coronary Artery Disease	Possible
SNOMEDCT_US	41702007	CHD - Coronary heart disease	C0010068	Coronary heart disease	Possible
SNOMEDCT_US	41702007	Cardiac ischaemia	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	42531007	Microinfarct of heart	C0264696	Microinfarct of heart	Possible
SNOMEDCT_US	46109009	Subendocardial ischemia	C0264695	Subendocardial ischemia	Narrow
SNOMEDCT_US	53741008	Coronary arteriosclerosis	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	53741008	CAD - Coronary artery disease	C1956346	Coronary Artery Disease	Possible
SNOMEDCT_US	53741008	CHD - Coronary heart disease	C0010068	Coronary heart disease	Possible
SNOMEDCT_US	57054005	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
SNOMEDCT_US	64333001	Preinfarction angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	64333001	Preinfarction angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	66514008	Coronary artery thrombosis	C0010072	Coronary Thrombosis	Narrow
SNOMEDCT_US	66514008	Heart attack	C0027051	Myocardial Infarction	Narrow
SNOMEDCT_US	70211005	Acute myocardial infarction of anterolateral wall	C0155627	Acute myocardial infarction of anterolateral wall	Narrow
SNOMEDCT_US	87343002	Prinzmetal angina	C0002963	Angina Pectoris, Variant	Possible
SNOMEDCT_US	87343002	Prinzmetal angina	C0002963	Angina Pectoris, Variant	Possible
SNOMEDCT_US	155303000	Ischaemic heart disease	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	155304006	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
SNOMEDCT_US	155304006	Coronary thrombosis	C0010072	Coronary Thrombosis	Narrow
SNOMEDCT_US	155304006	Attack - heart	C0027051	Myocardial Infarction	Narrow
SNOMEDCT_US	155307004	Angina	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	155308009	Unstable angina	C0002965	Angina, Unstable	Narrow



SNOMEDCT_US	155308009	Unstable angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	155313008	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	155313008	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	155314002	Worsening angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	155314002	Worsening angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	155315001	Arteriosclerotic heart disease	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	155316000	Coronary atherosclerosis	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	155322009	Ischaemic heart disease NOS	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	155382007	Atherosclerosis	C0004153	Atherosclerosis	Possible
SNOMEDCT_US	155414001	Atherosclerosis	C0004153	Atherosclerosis	Possible
SNOMEDCT_US	194795001	Arteriosclerotic heart disease	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	194795001	IHD - Ischaemic heart disease	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	194796000	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
SNOMEDCT_US	194796000	Coronary thrombosis	C0010072	Coronary Thrombosis	Narrow
SNOMEDCT_US	194796000	Attack - heart	C0027051	Myocardial Infarction	Narrow
SNOMEDCT_US	194802003	True posterior myocardial infarction	C0264706	True posterior myocardial infarction	Narrow
SNOMEDCT_US	194811003	Acute myocardial infarction NOS	C0155626	Acute myocardial infarction	Narrow
SNOMEDCT_US	194814006	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194814006	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194814006	Pre-infarction syndrome	C0086666	Myocardial Preinfarction Syndrome	Possible
SNOMEDCT_US	194815007	Aborted myocardial infarction	C0340325	Coronary thrombosis not resulting in myocardial infarction	Narrow
SNOMEDCT_US	194816008	Unstable angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194816008	Unstable angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194817004	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194817004	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194819001	Worsening angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194819001	Worsening angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	194820007	Preinfarction syndrome NOS	C0086666	Myocardial Preinfarction Syndrome	Possible
SNOMEDCT_US	194821006	Coronary thrombosis not resulting in myocardial infarction	C0340325	Coronary thrombosis not resulting in	Narrow



				myocardial infarction	
SNOMEDCT_US	194824003	Microinfarction of heart	C0264696	Microinfarct of heart	Possible
SNOMEDCT_US	194828000	Angina pectoris	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	194830003	Angina pectoris NOS	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	194832006	Stenocardia	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	194833001	Syncope anginosa	C0264681	Syncope anginosa	Possible
SNOMEDCT_US	194835008	Ischaemic chest pain	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	194839002	Angina pectoris NOS	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	194841001	Coronary atherosclerosis	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	194841001	Coronary artery disease	C1956346	Coronary Artery Disease	Possible
SNOMEDCT_US	194848007	Atherosclerosis	C0004153	Atherosclerosis	Possible
SNOMEDCT_US	194878003	Ischaemic heart disease NOS	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	195251000	AS - Atherosclerosis	C0004153	Atherosclerosis	Possible
SNOMEDCT_US	195540001	Ischaemic heart disease	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	225566008	Ischemic chest pain	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	233818002	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	233818002	Angina at rest	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	233820004	Unstable angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	233820004	Unstable angina	C0002965	Angina, Unstable	Narrow
SNOMEDCT_US	233822007	Myocardial ischaemia	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	233824008	Myocardial infarction	C0027051	Myocardial Infarction	Narrow
SNOMEDCT_US	266231003	Coronary atherosclerosis	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	266288001	Acute myocardial infarction	C0155626	Acute myocardial infarction	Narrow
SNOMEDCT_US	266288001	Coronary thrombosis	C0010072	Coronary Thrombosis	Narrow
SNOMEDCT_US	266288001	Attack - heart	C0027051	Myocardial Infarction	Narrow
SNOMEDCT_US	266290000	Arteriosclerotic heart disease	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	266318005	Atherosclerosis	C0004153	Atherosclerosis	Possible
SNOMEDCT_US	271430002	Ischaemic heart disease	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	367416001	Angina, NOS	C0002962	Angina Pectoris	Possible
SNOMEDCT_US	398274000	Coronary artery thrombosis	C0010072	Coronary Thrombosis	Narrow
SNOMEDCT_US	413439005	Acute ischemic heart disease	C1510446	Acute ischemic heart disease	Narrow
SNOMEDCT_US	414024009	Disorder of coronary artery	C1956346	Coronary Artery Disease	Possible



SNOMEDCT_US	414545008	Ischemic heart disease	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	414795007	Myocardial ischemia	C0151744	Myocardial Ischemia	Possible
SNOMEDCT_US	415070008	Percutaneous coronary intervention	C1532338	Percutaneous Coronary Intervention	Narrow
SNOMEDCT_US	443502000	Coronary atherosclerosis	C0010054	Coronary Arteriosclerosis	Possible
SNOMEDCT_US	15990001	Acute posterolateral myocardial infarction			Narrow
SNOMEDCT_US	52035003	Acute anteroapical infarction			narrow
SNOMEDCT_US	53741008	Coronary artery disease			possible
SNOMEDCT_US	54329005	Other specified anterior myocardial infarction			narrow
SNOMEDCT_US	58612006	Lateral myocardial infarction NOS			narrow
SNOMEDCT_US	59021001	Angina at rest			possible
SNOMEDCT_US	65547006	Acute inferolateral infarction			narrow
SNOMEDCT_US	66189004	Postmyocardial infarction syndrome			narrow
SNOMEDCT_US	70211005	Acute anterolateral infarction			narrow
SNOMEDCT_US	70422006	Acute subendocardial infarction			narrow
SNOMEDCT_US	194856005	Subsequent myocardial infarction			narrow
SNOMEDCT_US	194857001	Subsequent myocardial infarction of anterior wall			narrow
SNOMEDCT_US	233823002	Silent myocardial ischaemia			narrow
SNOMEDCT_US	233843008	Silent myocardial infarction			narrow
SNOMEDCT_US	304914007	Acute Q-wave infarct			narrow
SNOMEDCT_US	307140009	Acute non-Q wave infarction			narrow
SNOMEDCT_US	394659003	Acute coronary syndrome			possible
SNOMEDCT_US	398274000	Coronary thrombosis			narrow
SNOMEDCT_US	401303003	Acute ST segment elevation myocardial infarction			narrow
SNOMEDCT_US	401314000	Acute non-ST segment elevation myocardial infarction			narrow
SNOMEDCT_US	413838009	Other chronic ischaemic heart disease			possible

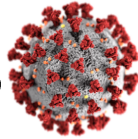
10. Algorithm proposal

Broad algorithm:

- All concept sets = Any of the codes in any provenance, no prior codes
- Index date: first occurrence of any of these concept sets

Narrow algorithm (proof of obstruction):

Coronary artery disease



- Concept set = (acute Myocardial_disorders, unstable angina) mentioning in any other location (no prior codes)
- Index date: first occurrence of any of these concept sets

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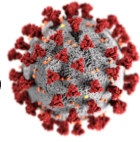
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