Organisation for Economic Co-operation and Development

Healthcare Quality and Outcomes (HCQO) indicators
2022-23 Definitions

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1. Glossary

1. The following glossary has been developed to clarify the meaning of key concepts used to specify the indicators for the HCQO data collection. Please refer to these definitions particularly when calculating indicators using Excel files:

- **Acute care hospitals**: A hospital in which acute care is provided (includes acute admissions).

- **Admission/separation/discharge:** Admission follows a clinical decision that a patient requires same-day or overnight hospital care or treatment. Separation or discharge is the process by which care for an admitted patient ceases either due to discharge from the hospital or death. For the purposes of these guidelines the three terms are considered interchangeable, allowing for countries to choose the data source readily available in their context (admission, discharge or separation databases). Thus, indicator and glossary definitions using these terms should be read as referring to any of the three possibilities unless indicated otherwise.

- **Average Length of Stay (ALOS):** The total number of days of stay in hospital(s) divided by the associated total number of admissions for the specified period.

- **Defined daily dose (DDD)**: DDDs are a measure of drug consumption defined by the World Health Organization to standardize drug use.

- **Emergency Department** is a hospital room or area staffed and equipped for the reception and treatment of persons requiring immediate medical care

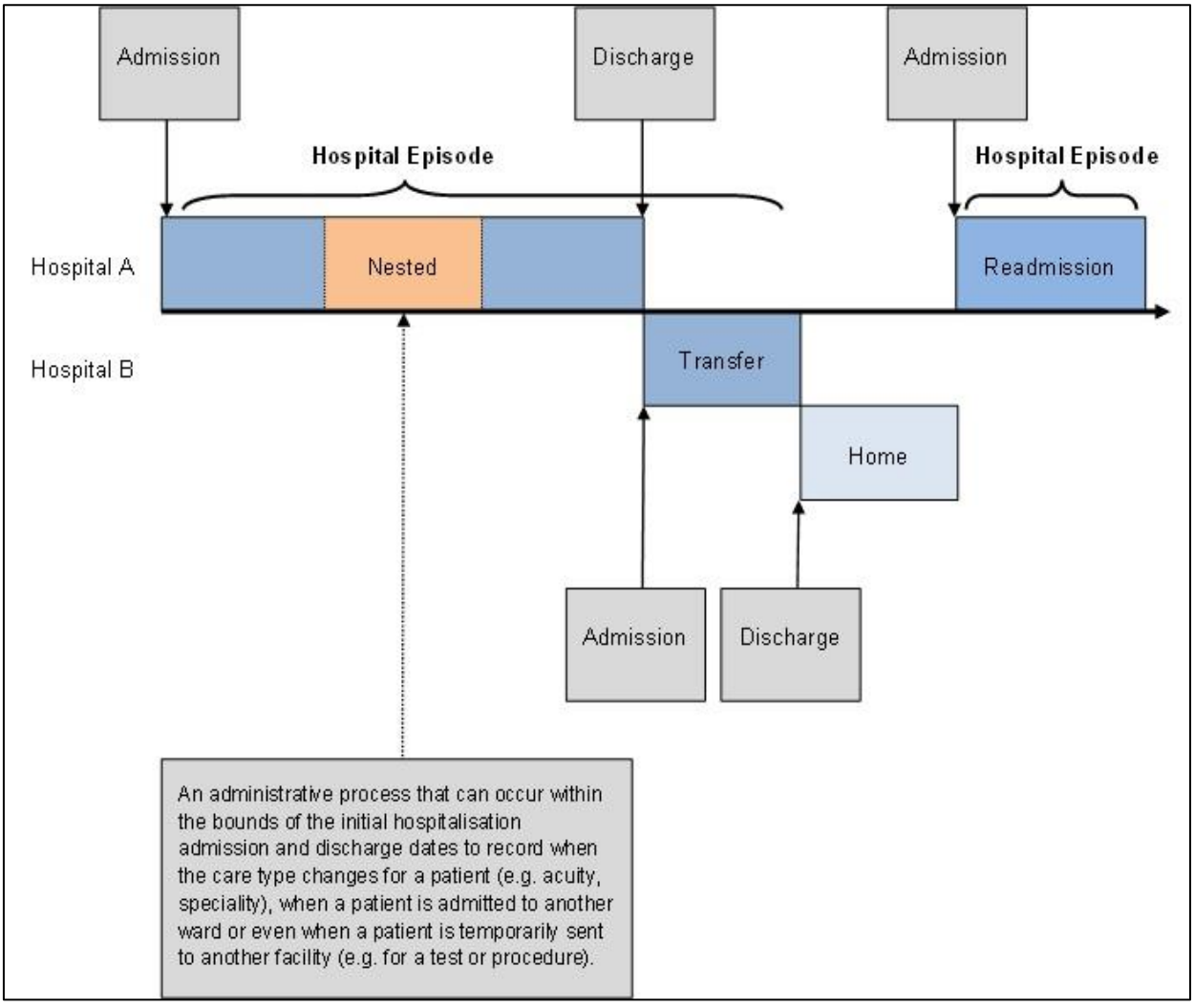
- **Episode of care** is defined as a period of hospitalised care from the date of admission to a hospital for inpatient care to the date of discharge home (or to a nursing home or long term care), in which transfers within or between facilities and “nested” admissions that occurred during this period are linked together to form one episode of care (see Figure 9.1 in the general HCQO data guidelines).

- **Hospitals** comprise licensed establishments that are primarily engaged in providing medical, diagnostic and treatment services that include physician, nursing and other health services to inpatients and the specialised accommodation services required by inpatients. Hospitals provide inpatient health services, many of which can be delivered only by using specialised facilities and professional knowledge as well as advanced medical technology and equipment, which form a significant and integral part of the provision process. Although the principal activity is the provision of inpatient medical care they may also provide day care, outpatient and home healthcare services. The tasks of hospitals may vary by country and are usually defined by legal requirements. In some countries, healthcare facilities need in addition a minimum size (such as a number of beds and medical staff to guarantee 24-hour access) in order to be registered as a hospital. SHA 2011 distinguishes between general hospitals, mental health hospitals and specialised hospitals other than mental health hospitals depending both on the scope of medical treatments provided and the specificity of diseases or medical conditions of inpatients.

- **Hospital admission:** This is defined as a period of hospital care from the date of formal admission to a hospital to the date of formal discharge from the same hospital, which includes the any 'nested admissions' where an administrative process results in the discharge and admission of a patient within the bounds of the initial hospitalisation admission and discharge dates. (see Figure 1.1)

- **Hospital episode**: This is defined as a period of hospitalised care from the date of admission to a hospital to the date of discharge home (or to a nursing home or long-term care), which excludes the counting of any hospital admissions that occurred during this period (either as a result of transferring a patient from one hospital to another or a nested admission) for the calculation of the patient-based rates. (see Figure 1.1)

Figure 1.1. Structure and Relationship between Hospital Admissions and Hospital Episodes



Source: OECD.

- **Income quintiles:** income quintiles are calculated based on the total equivalised disposable income attributed to each member of the household. The data need to be ordered by income value and then four cut-off values, which divide the survey population into five equal groups

representing 20 % of **individuals** each, need to be identified. The first quintile group represents 20 % of population with the lowest income, and the fifth quintile group represents 20 % of population with the highest income.

- **Inpatient admission** is a formal admission into a healthcare facility for treatment and/or care that is expected to constitute an overnight stay. The classification as inpatient care is irrespective of the type of provider; this may be a hospital, nursing care facility, or facilities classified as ambulatory care providers but which perform occasional procedures requiring inpatient care and are thus able to provide overnight accommodation. It can also include health facilities within any type of establishment that accommodates patients justifying an overnight stay (SHA, 2011).

- **Intensive Care Unit (ICU)** is an organized system for the provision of care to critically ill patients that provides intensive and specialized medical and nursing care, an enhanced capacity for monitoring, and multiple modalities of physiologic organ support to sustain life during a period of life-threatening organ system insufficiency. Although an ICU is based in a defined geographic area of a hospital, its **activities** often extend beyond the walls of the physical space to include the emergency department, hospital ward, and follow-up clinic.

- **Length of stay (in days):** The length of stay of a patient should be counted as the date of discharge minus the date of admission (for example, a patient admitted on the 25th and discharged on the 26th should be counted as 1 day).

- **Linked data:** The unit of counting is a patient that can be individually tracked through several admissions and requires unique patient identification and the linking of related admissions within a specified period. Only one admission is counted per patient for the purposes of calculating indicator rates.

- **Obstetric hospitalisations:** Calculation of various indicators (AA and PS) require exclusion of obstetric patients with treatment related to pregnancy, childbirth, and puerperium. These cases have to be identified by their principal diagnoses. ICD classifications contain a separate chapter for obstetric coding (ICD-10-WHO 2019 Chapter XV, Code O00.- – O99.-, and ICD-9 Chapter 11 Codes 630 – 676). Use corresponding chapters of ICD classification in use in your country. For full completeness use additional codes from Table 1.1 and exclude cases when one of these codes is a principal diagnosis. Countries using DRG-assignment are free to keep the former “MDC-14 concept” and exclude all cases assigned to an obstetric DRG.

Table 1.1. ICD classifications for pregnancy, childbirth and puerperium

ICD-9 CM (CMS V32 2014)	**WHO 2019**	Title
n.a.	A34	Obstetrical tetanus
V222	Z33	Pregnant state, incidental
V240	Z39.0	Care and examination immediately after delivery
n.a.	Z64.0	Problems related to unwanted pregnancy

- **Patient_id:** patient identifier which is unique by individual and can be used at a minimum to construct hospital admissions (See unique person identifier).

- **Prescribing database:** electronic database with drug prescribing or dispensing data submitted by dispensing pharmacies and/or prescribing practitioners.

- **Principal diagnosis (PDx)** follows one of two approaches:

    a. The PDx is the condition established after early clinical evaluation to be chiefly responsible for causing the hospitalisation (*'condition held chiefly responsible'* approach).
    b. The PDx is the diagnosis that is finally established to be the main reason for the hospital stay; that is demanding the most resources/medical effort over the course of the patients stay (*'condition demanding the most resources'* approach).

- **Same day/day only admissions:** A same day admission is defined as an admission with a length of stay less than 24 hours. In those countries where a timestamp on admission or discharge is not available, cases with a length of stay of 0 (discharge date-admission date=0) will qualify for same day admission.

- **Secondary diagnosis (SDx):** Comorbid conditions for which the patient received treatment and consumed hospital resources in addition to those conditions considered to be the principal diagnosis.

- **Surgical Admission** for the purposes of calculating the patient safety indicators in the HCQO data collection is the initial denominator case where surgery was performed. This is used as the reference discharge for identifying valid numerator cases in the same admission or any subsequent related readmissions up to and including 30 days after surgery (or if not available, admission) date.

- **Transfers (in/out)** – admissions that result in a transfer from other acute care institutions are considered transfers-in. Admissions which result in a transfer to another acute care facility are considered transfers out.

- **Unique person identifier (UPI)** – patient number that allow patient data to be linked across hospital admissions, hospital episodes, and to death records outside of the hospital.

- **Unlinked data**: The unit of counting is a patient admission and does not require unique patient identification and the linking of related admissions. This means each admission is counted for the purposes of calculating indicator rates, regardless of whether a patient has multiple admissions within the specified period or not.

- **Year:** for the purpose of these guidelines, a year refers to a calendar year, starting the 1st of January and ending the 31st of December.

2. Indicator Definitions

PRIMARY CARE - AVOIDABLE HOSPITAL ADMISSION (AA) INDICATORS

Indicators in the Avoidable admission indicator set include:

- AA1) Asthma hospital admission
- AA2) Chronic obstructive pulmonary disease (COPD) hospital admission
- AA3) Congestive heart failure (CHF) hospital admission
- AA4) Hypertension hospital admission
- AA5) Diabetes hospital admission
- AA6) Diabetes lower extremity amputation: using unlinked data
- AA7) Diabetes lower extremity amputation: using linked data

NOTES

Countries that have multiple admissions within one hospitalisation should build a variable referring to a single hospital episode (see 1. Glossary) and use the first principal diagnosis from the episode to select cases to calculate avoidable admission indicators.

AA1) Asthma hospital admission

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older (5-year age groups). All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All non-maternal/non-neonatal hospital *admissions* with a *principal diagnosis* code of asthma (see Asthma diagnosis codes below) in a specified year.

Exclude:

- Cases where the patient died in hospital during the admission.
- Cases resulting from a transfer from another acute care institution (*transfers-in*).
- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary “Obstetric hospitalisations” in this document for details.
- Cases with cystic fibrosis and anomalies of the respiratory system diagnosis code in any field (see ICD codes below).
- Cases that are *same day/day only admissions.*

Denominator: Population count.

Asthma diagnosis codes:

ICD-9-CM		ICD-10-WHO	
49300	EXTRINSIC ASTHMA NOS	J450	PREDOMINANTLY ALLERGIC ASTHMA
49301	EXT ASTHMA W STATUS ASH	J451	NONALLERGIC ASTHMA
49302	EXT ASTHMA W ACUTE EXAC	J458	MIXED ASTHMA
49310	INT ASTHMA W/O STAT ASTH	J459	ASTHMA, UNSPECIFIED
49311	INTRINSIC ASTHMA NOS	J46	STATUS ASTHMATICUS
49312	INT ASTHMA W ACUTE EXAC		
49320	CH OB ASTH NOS		
49321	CH OB ASTHMA W STAT ASTH		
49322	CH OBS ASTH W ACUTE EXAC		
49381	EXERCSE IND BRONCHOSPASM		
49382	COUGH VARIANT ASTHMA		
49390	ASTHMA NOS		
49391	ASTHMA W STATUS ASTHMAT		
49392	ASTHMA W ACUTE EXAC		

Exclude diagnosis codes cystic fibrosis and anomalies of the respiratory system:

ICD-9-CM		ICD-10-WHO	
27700	CYSTIC FIBROS W/O ILEUS	E840	CYSTIC FIBROSIS WITH PULMONARY MANIFESTATIONS
27701	CYSTIC FIBROS W ILEUS	E841	CYSTIC FIBROSIS WITH INTESTINAL MANIFESTATIONS
27702	CYSTIC FIBROS W PUL MAN	E848	CYSTIC FIBROSIS WITH OTHER MANIFESTATIONS
27703	CYSTIC FIBROSIS W GI MAN	E849	CYSTIC FIBROSIS, UNSPECIFIED
27709	CYSTIC FIBROSIS NEC	P27.0	WILSON-MIKITY SYNDROME
74721	ANOMALIES OF AORTIC ARCH	P27.1	BRONCHOPULMONARY DYSPLASIA ORIGINATING IN THE PERINATAL PERIOD
7483	LARYNGOTRACH ANOMALY NEC	P27.8	OTHER CHRONIC RESPIRATORY DISEASES ORIGINATING IN THE PERINATAL PERIOD
7484	CONGENITAL CYSTIC LUNG	P27.9	UNSPECIFIED CHRONIC RESP DISEASE ORIGINATING IN THE PERINATAL PERIOD
7485	AGENESIS OF LUNG	Q25.4	OTHER CONGENITAL MALFORMATIONS OF AORTA
74860	LUNG ANOMALY NOS	Q31.1	CONGENITAL SUBGLOTTIC STENOSIS
74861	CONGEN BRONCHIECTASIS	Q31.2	LARYNGEAL HYPOPLASIA
74869	LUNG ANOMALY NEC	Q31.3	LARYNGOCELE
7488	RESPIRATORY ANOMALY NEC	Q31.5	CONGENITAL LARYNGOMALACIA
7489	RESPIRATORY ANOMALY NOS	Q31.8	OTHER CONGENITAL MALFORMATIONS OF LARYNX
7503	CONG ESOPH FISTULA/ATRES	Q31.9	CONGENITAL MALFORMATION OF LARYNX, UNSPECIFIED
7593	SITUS INVERSUS	Q32.0	CONGENITAL TRACHEOMALACIA
7707	PERINATAL CHR RESP DIS	Q32.1	OTHER CONGENITAL MALFORMATIONS OF TRACHEA
		Q32.2	CONGENITAL BRONCHOMALACIA
		Q32.3	CONGENITAL STENOSIS OF BRONCHUS
		Q32.4	OTHER CONGENITAL MALFORMATIONS OF BRONCHUS
		Q33.0	CONGENITAL CYSTIC LUNG
		Q33.1	ACCESSORY LOBE OF LUNG
		Q33.2	SEQUESTRATION OF LUNG
		Q33.3	AGENESIS OF LUNG
		Q33.4	CONGENITAL BRONCHIECTASIS
		Q33.5	ECTOPIC TISSUE IN LUNG
		Q33.6	HYPOPLASIA AND DYSPLASIA OF LUNG
		Q33.8	OTHER CONGENITAL MALFORMATIONS OF LUNG
		Q33.9	CONGENITAL MALFORMATION OF LUNG, UNSPECIFIED
		Q34.0	ANOMALY OF PLEURA
		Q34.1	CONGENITAL CYST OF MEDIASTINUM
		Q34.8	OTHER SPECIFIED CONGENITAL MALFORMATIONS OF RESPIRATORY SYSTEM
		Q34.9	CONGENITAL MALFORMATION OF RESPIRATORY SYSTEM, UNSPECIFIED
		Q39.0	ATRESIA OF OESOPHAGUS WITHOUT FISTULA
		Q39.1	ATRESIA OF OESOPHAGUS WITH TRACHEO-OESOPHAGEAL FISTULA
		Q39.2	CONGENITAL TRACHEO-OESOPHAGEAL FISTULA WITHOUT ATRESIA
		Q39.3	CONGENITAL STENOSIS AND STRICTURE OF OESOPHAGUS
		Q39.4	OESOPHAGEAL WEB
		Q39.8	OTHER CONGENITAL MALFORMATIONS OF OESOPHAGUS
		Q89.3	SITUS INVERSUS

AA2) Chronic obstructive pulmonary disease (COPD) hospital admission

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older (5-year age groups). All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All non-maternal/non-neonatal hospital *admissions* with a *principal diagnosis* code of Chronic Obstructive Pulmonary Disease (See COPD diagnosis codes below) in a specified year.

Exclude:

- Cases where the patient died in hospital during the admission.
- Cases resulting from a transfer from another acute care institution (*transfers-in*).
- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- Cases that are *same day/day only admissions.*

Denominator: Population count.

COPD diagnosis codes:

ICD-9-CM		**ICD-10-WHO**	
490	BRONCHITIS NOS*	J40	BRONCHITIS*
4660	AC BRONCHITIS*	J410	SIMPLE CHRONIC BRONCHITIS
4910	SIMPLE CHR BRONCHITIS	J411	MUCOPURULENT CHRONIC BRONCHITIS
4911	MUCOPURUL CHR BRONCHITIS	J418	MIXED SIMPLE AND MUCOPURULENT CHRONIC BRONCHITIS
49120	OBS CHR BRNC W/O ACT EXA	J42	UNSPECIFIED CHRONIC BRONCHITIS
49121	OBS CHR BRNC W ACT EXA	J430	MACLEOD'S SYNDROME
4918	CHRONIC BRONCHITIS NEC	J431	PANLOBULAR EMPHYSEMA
4919	CHRONIC BRONCHITIS NOS	J432	CENTRILOBULAR EMPHYSEMA
4920	EMPHYSEMATOUS BLEB	J438	OTHER EMPHYSEMA
4928	EMPHYSEMA NEC	J439	EMPHYSEMA, UNSPECIFIED
494	BRONCHIECTASIS	J440	COPD WITH ACUTE LOWER RESPIRATORY INFECTION
4940	BRONCHIECTAS W/O AC EXAC	J441	COPD WITH ACUTE EXACERBATION, UNSPECIFIED
4941	BRONCHIECTASIS W AC EXAC	J448	OTHER SPECIFIED CHRONIC OBSTRUCTIVE PULMONARY DISEASE
496	CHR AIRWAY OBSTRUCT NEC	J449	CHRONIC OBSTRUCTIVE PULMONARY DISEASE, UNSPECIFIED
		J47	BRONCHIECTASIS
* Qualifies only if accompanied by secondary diagnosis of 491.xx, 492.x, 494.x or 496 (i.e., any other code on this list).		* Qualifies only if accompanied by secondary diagnosis of J41, J43, J44, J47	

AA3) Congestive heart failure (CHF) hospital admission

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older (5-year age groups). All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All non-maternal/non-neonatal hospital *admissions* with *principal diagnosis* code of Congestive Heart Failure (See CHF diagnosis codes below) in a specified year.

Exclude:

- Cases where the patient died in hospital during the admission.
- Cases resulting from a transfer from another acute care institution (*transfers-in*).
- Cases with cardiac procedure codes in any field – Refer to Annex A (Excel sheet - HCQO 2022_23 Data Collection_Annex A-E).
- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- Cases that are *same day/day only admissions.*

Denominator: Population count.

CHF diagnosis codes:

ICD-9-CM		**ICD-10-WHO**	
39891	RHEUMATIC HEART FAILURE	I11.0	HYPERTENSIVE HEART DISEASE WITH (CONGESTIVE) HEART FAILURE
40201	MAL HYPERT HRT DIS W CHF		
40211	BENIGN HYP HRT DIS W CHF	I13.0	HYPERTENSIVE HEART AND RENAL DISEASE WITH (CONGESTIVE) HEART FAILURE
40291	HYPERTEN HEART DIS W CHF		
40401	MAL HYPER HRT/REN W CHF	I13.2	HYPERTENSIVE HEART AND RENAL DISEASE WITH BOTH (CONGESTIVE) HEART FAILURE AND RENAL FAILURE
40403	MAL HYP HRT/REN W CHF/RF		
40411	BEN HYPER HRT/REN W CHF		
40413	BEN HYP HRT/REN W CHF/RF	I50.0	CONGESTIVE HEART FAILURE
40491	HYPER HRT/REN NOS W CHF	I50.1	LEFT VENTRICULAR FAILURE
40493	HYP HT/REN NOS W CHF/RF	I50.9	HEART FAILURE, UNSPECIFIED
4280	CONGESTIVE HEART FAILURE		
4281	LEFT HEART FAILURE		
42820	SYSTOLIC HRT FAILURE NOS		
42821	AC SYSTOLIC HRT FAILURE		
42822	CHR SYSTOLIC HRT FAILURE		
42823	AC ON CHR SYST HRT FAIL		
42830	DIASTOLC HRT FAILURE NOS		
42831	AC DIASTOLIC HRT FAILURE		
42832	CHR DIASTOLIC HRT FAIL		
42833	AC ON CHR DIAST HRT FAIL		
42840	SYST/DIAST HRT FAIL NOS		
42841	AC SYST/DIASTOL HRT FAIL		
42842	CHR SYST/DIASTL HRT FAIL		
42843	AC/CHR SYST/DIA HRT FAIL		
4289	HEART FAILURE NOS		

AA4) Hypertension hospital admission

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older (5-year age groups). All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All non-maternal/non-neonatal hospital *admissions* with *principal diagnosis* code of Hypertension (see Hypertension diagnosis codes below) in a specified year.

Exclude:

- Cases where the patient died in hospital during the admission.
- Cases resulting from a transfer from another acute care institution (*transfers-in*).
- Cases with cardiac procedure codes in any field – Refer to Annex A (Excel sheet - HCQO 2022_23 Data Collection_Annex A-E).
- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- Cases that are *same day/day only admissions.*

Denominator: Population count

Hypertension diagnosis codes:

ICD-9-CM		ICD-10-WHO	
4010	MALIGNANT HYPERTENSION	I10	ESSENTIAL (PRIMARY) HYPERTENSION
4019	HYPERTENSION NOS	I119	HYPERTENSIVE HEART DISEASE WITHOUT (CONGESTIVE) HEART FAILURE
40200	MAL HYPERTEN HRT DIS NOS		
40210	BEN HYPERTEN HRT DIS NOS	I129	HYPERTENSIVE RENAL DISEASE WITHOUT RENAL FAILURE
40290	HYPERTENSIVE HRT DIS NOS		
40300	MAL HYP REN W/O REN FAIL	I139	HYPERTENSIVE HEART AND RENAL DISEASE, UNSPECIFIED
40310	BEN HYP REN W/O REN FAIL		
40390	HYP REN NOS W/O REN FAIL		
40400	MAL HY HT/REN W/O CHF/RF		
40410	BEN HY HT/REN W/O CHF/RF		
40490	HY HT/REN NOS W/O CHF/RF		

AA5) Diabetes hospital admission

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older (5-year age groups). All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All non-maternal/non-neonatal hospital *admissions* with a *principal diagnosis* code of diabetes (see Diabetes diagnosis codes below) in a specified year.

Exclude:

- Cases where the patient died in hospital during the admission.
- Cases resulting from a transfer from another acute care institution (*transfers-in*).
- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- Cases that are *same day/day only admissions.*

Denominator: Population count.

Diabetes diagnosis codes

ICD-9-CM		ICD-10-WHO	
25002	DMII WO CMP UNCNTRLD	E10.0	INSULIN-DEPENDENT DIABETES MELLITUS WITH COMA
25003	DMI WO CMP UNCNTRLD		
25010	DMII KETO NT ST UNCNTRLD	E10.1	INSULIN-DEPENDENT DIABETES MELLITUS WITH KETOACIDOSIS
25011	DMI KETO NT ST UNCNTRLD		
25012	DMII KETOACD UNCONTROLD	E10.2	INSULIN-DEPENDENT DIABETES MELLITUS WITH RENAL COMPLICATIONS
25013	DMI KETOACD UNCONTROLD		
25020	DMII HPRSM NT ST UNCNTRL	E10.3	INSULIN-DEPENDENT DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
25021	DMI HPRSM NT ST UNCNTRLD		
25022	DMII HPROSMLR UNCONTROLD	E10.4	INSULIN-DEPENDENT DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
25023	DMI HPROSMLR UNCONTROLD		
25030	DMII O CM NT ST UNCNTRLD	E10.5	INSULIN-DEPENDENT DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
25031	DMI O CM NT ST UNCNTRL		
25032	DMII OTH COMA UNCONTROLD	E10.6	INSULIN-DEPENDENT DM WITH OTHER SPECIFIED COMPLICATIONS
25033	DMI OTH COMA UNCONTROLD		
25040	DMII RENL NT ST UNCNTRLD	E10.7	INSULIN-DEPENDENT DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
25041	DMI RENL NT ST UNCNTRLD		
25042	DMII RENAL UNCNTRLD	E10.8	INSULIN-DEPENDENT DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
25043	DMI RENAL UNCNTRLD		
25050	DMII OPHTH NT ST UNCNTRL	E10.9	INSULIN-DEPENDENT DIABETES MELLITUS WITHOUT COMPLICATIONS
25051	DMI OPHTH NT ST UNCNTRLD		
25052	DMII OPHTH UNCNTRLD	E11.0	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH COMA
25053	DMI OPHTH UNCNTRLD		

25060	DMII NEURO NT ST UNCNTRL	E11.1	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH KETOACIDOSIS
25061	DMI NEURO NT ST UNCNTRLD		
25062	DMII NEURO UNCNTRLD	E11.2	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH RENAL COMPLICATIONS
25063	DMI NEURO UNCNTRLD		
25070	DMII CIRC NT ST UNCNTRLD	E11.3	NON-INSULIN-DEPENDENT DMWITH OPHTHALMIC COMPLICATIONS
25071	DMI CIRC NT ST UNCNTRLD		
25072	DMII CIRC UNCNTRLD	E11.4	NON-INSULIN-DEPENDENT DM WITH NEUROLOGICAL COMPLICATIONS
25073	DMI CIRC UNCNTRLD		
25080	DMII OTH NT ST UNCNTRLD	E11.5	NON-INSULIN-DEPENDENT DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
25081	DMI OTH NT ST UNCNTRLD		
25082	DMII OTH UNCNTRLD	E11.6	NON-INSULIN-DEPENDENT DM WITH OTHER SPECIFIED COMPLICATIONS
25083	DMI OTH UNCNTRLD		
25090	DMII UNSPF NT ST UNCNTRL	E11.7	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
25091	DMI UNSPF NT ST UNCNTRLD		
25092	DMII UNSPF UNCNTRLD	E11.8	NON-INSULIN-DEPENDENT DM WITH UNSPECIFIED COMPLICATIONS
25093	DMI UNSPF UNCNTRLD		
		E11.9	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITHOUT COMPLICATIONS
		E13.0	OTHER SPECIFIED DIABETES MELLITUS WITH COMA
		E13.1	OTHER SPECIFIED DIABETES MELLITUS WITH KETOACIDOSIS
		E13.2	OTHER SPECIFIED DIABETES MELLITUS WITH RENAL COMPLICATIONS
		E13.3	OTHER SPECIFIED DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
		E13.4	OTHER SPECIFIED DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
		E13.5	OTHER SPECIFIED DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
		E13.6	OTHER SPECIFIED DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATIONS
		E13.7	OTHER SPECIFIED DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
		E13.8	OTHER SPECIFIED DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
		E13.9	OTHER SPECIFIED DIABETES MELLITUS WITHOUT COMPLICATIONS
		E14.0	UNSPECIFIED DIABETES MELLITUS WITH COMA
		E14.1	UNSPECIFIED DIABETES MELLITUS WITH KETOACIDOSIS
		E14.2	UNSPECIFIED DIABETES MELLITUS WITH RENAL COMPLICATIONS
		E14.3	UNSPECIFIED DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
		E14.4	UNSPECIFIED DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
		E14.5	UNSPECIFIED DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
		E14.6	UNSPECIFIED DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATIONS
		E14.7	UNSPECIFIED DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
		E14.8	UNSPECIFIED DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
		E14.9	UNSPECIFIED DIABETES MELLITUS WITHOUT COMPLICATIONS

AA6) Diabetes lower extremity amputation: using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older. All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All non-maternal/non-neonatal *admissions* with a procedure code of major lower extremity amputation in any field and a diagnosis code of diabetes in any field (see Diabetes major lower extremity amputation and diabetes diagnosis codes below) in a specified year.

Exclude:

- Cases resulting from a transfer from another acute care institution (*transfers-in*).
- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- Cases with trauma diagnosis code (see Trauma diagnosis codes below) in any field.
- Cases with tumour-related peripheral amputation code (ICD-9-CM 1707 and 1708/ICD-10-WHO C40.2 and C40.3) in any field.
- Cases that are *same day/day only admissions*

Denominator 1: Population count

Denominator 2: Estimated population with diabetes

Countries are requested to provide the diabetes prevalence estimates for each age cohort (proportion between 0 and 1). It is recognised that countries may not have prevalence estimates for the specified age cohorts, in which case, countries may apply the average or a linear estimate across the cohorts.

The population with diabetes will be calculated by applying the estimated proportion (0-1) of the general population in each age cohort that has diabetes.

Diabetes major lower extremity amputation and diabetes diagnosis codes:

ICD-9-CM		ICD-10-WHO	
Procedure codes for major lower-extremity amputation:		**Procedure codes for major lower-extremity amputation:**	
8413	DISARTICULATION OF ANKLE		NOT SPECIFIED
8414	AMPUTAT THROUGH MALLEOLI		
8415	BELOW KNEE AMPUTAT NEC		
8416	DISARTICULATION OF KNEE		
8417	ABOVE KNEE AMPUTATION		
8418	DISARTICULATION OF HIP		
8419	HINDQUARTER AMPUTATION		
Diagnosis Codes for Diabetes:		**Diagnosis codes for diabetes:**	
25000	DMII WO CMP NT ST UNCNTR	E10.0	INSULIN-DEPENDENT DIABETES MELLITUS WITH COMA
25001	DMI WO CMP NT ST UNCNTRL		
25002	DMII WO CMP UNCNTRLD	E10.1	INSULIN-DEPENDENT DIABETES MELLITUS WITH KETOACIDOSIS
25003	DMI WO CMP UNCNTRLD		
25010	DMII KETO NT ST UNCNTRLD	E10.2	INSULIN-DEPENDENT DIABETES MELLITUS WITH RENAL COMPLICATIONS
25011	DMI KETO NT ST UNCNTRLD		
25012	DMII KETOACD UNCONTROLD	E10.3	INSULIN-DEPENDENT DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
25013	DMI KETOACD UNCONTROLD		
25020	DMII HPRSM NT ST UNCNTRL	E10.4	INSULIN-DEPENDENT DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
25021	DMI HPRSM NT ST UNCNTRLD		
25022	DMII HPROSMLR UNCONTROLD	E10.5	INSULIN-DEPENDENT DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
25023	DMI HPROSMLR UNCONTROLD		
25030	DMII O CM NT ST UNCNTRLD	E10.6	INSULIN-DEPENDENT DM WITH OTHER SPECIFIED COMPLICATIONS
25031	DMI O CM NT ST UNCNTRL		
25032	DMII OTH COMA UNCONTROLD	E10.7	INSULIN-DEPENDENT DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
25033	DMI OTH COMA UNCONTROLD		
25040	DMII RENL NT ST UNCNTRLD	E10.8	INSULIN-DEPENDENT DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
25041	DMI RENL NT ST UNCNTRLD		
25042	DMII RENAL UNCNTRLD	E10.9	INSULIN-DEPENDENT DIABETES MELLITUS WITHOUT COMPLICATIONS
25043	DMI RENAL UNCNTRLD		
25050	DMII OPHTH NT ST UNCNTRL	E11.0	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH COMA
25051	DMI OPHTH NT ST UNCNTRLD		
25052	DMII OPHTH UNCNTRLD	E11.1	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH KETOACIDOSIS
25053	DMI OPHTH UNCNTRLD		
25060	DMII NEURO NT ST UNCNTRL	E11.2	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH RENAL COMPLICATIONS
25061	DMI NEURO NT ST UNCNTRLD		
25062	DMII NEURO UNCNTRLD	E11.3	NON-INSULIN-DEPENDENT DMWITH OPHTHALMIC COMPLICATIONS
25063	DMI NEURO UNCNTRLD		
25070	DMII CIRC NT ST UNCNTRLD	E11.4	NON-INSULIN-DEPENDENT DM WITH NEUROLOGICAL COMPLICATIONS
25071	DMI CIRC NT ST UNCNTRLD		
25072	DMII CIRC UNCNTRLD	E11.5	NON-INSULIN-DEPENDENT DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
25073	DMI CIRC UNCNTRLD		
25080	DMII OTH NT ST UNCNTRLD	E11.6	NON-INSULIN-DEPENDENT DM WITH OTHER SPECIFIED COMPLICATIONS
25081	DMI OTH NT ST UNCNTRLD		
25082	DMII OTH UNCNTRLD	E11.7	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
25083	DMI OTH UNCNTRLD		

25090	DMII UNSPF NT ST UNCNTRL	E11.8	NON-INSULIN-DEPENDENT DM WITH UNSPECIFIED COMPLICATIONS
25091	DMI UNSPF NT ST UNCNTRLD		
25092	DMII UNSPF UNCNTRLD	E11.9	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITHOUT COMPLICATIONS
25093	DMI UNSPF UNCNTRLD	E13.0	OTHER SPECIFIED DIABETES MELLITUS WITH COMA
		E13.1	OTHER SPECIFIED DIABETES MELLITUS WITH KETOACIDOSIS
		E13.2	OTHER SPECIFIED DIABETES MELLITUS WITH RENAL COMPLICATIONS
		E13.3	OTHER SPECIFIED DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
		E13.4	OTHER SPECIFIED DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
		E13.5	OTHER SPECIFIED DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
		E13.6	OTHER SPECIFIED DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATIONS
		E13.7	OTHER SPECIFIED DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
		E13.8	OTHER SPECIFIED DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
		E13.9	OTHER SPECIFIED DIABETES MELLITUS WITHOUT COMPLICATIONS
		E14.0	UNSPECIFIED DIABETES MELLITUS WITH COMA
		E14.1	UNSPECIFIED DIABETES MELLITUS WITH KETOACIDOSIS
		E14.2	UNSPECIFIED DIABETES MELLITUS WITH RENAL COMPLICATIONS
		E14.3	UNSPECIFIED DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
		E14.4	UNSPECIFIED DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
		E14.5	UNSPECIFIED DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
		E14.6	UNSPECIFIED DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATIONS
		E14.7	UNSPECIFIED DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
		E14.8	UNSPECIFIED DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
		E14.9	UNSPECIFIED DIABETES MELLITUS WITHOUT COMPLICATIONS

Exclude trauma diagnosis codes:

ICD-9-CM		ICD-10-WHO	
8950	AMPUTATION TOE	S78.0	TRAUMATIC AMPUTATION AT HIP JOINT
8951	AMPUTATION TOE-COMPLICAT	S78.1	TRAUMATIC AMPUTATION AT LEVEL BETWEEN HIP AND KNEE
8960	AMPUTATION FOOT, UNILAT	S78.9	TRAUMATIC AMPUTATION OF HIP AND THIGH, LEVEL UNSPECIFIED
8961	AMPUT FOOT, UNILAT-COMPL	S88.0	TRAUMATIC AMPUTATION AT KNEE LEVEL
8962	AMPUTATION FOOT, BILAT	S88.1	TRAUMATIC AMPUTATION AT LEVEL BETWEEN KNEE AND ANKLE
8963	AMPUTAT FOOT, BILAT-COMP	S88.9	TRAUMATIC AMPUTATION OF LOWER LEG, LEVEL UNSPECIFIED
8970	AMPUT BELOW KNEE, UNILAT	S98.0	TRAUMATIC AMPUTATION OF FOOT AT ANKLE LEVEL
8971	AMPUTAT BK, UNILAT-COMPL	S98.1	TRAUMATIC AMPUTATION OF ONE TOE
8972	AMPUT ABOVE KNEE, UNILAT	S98.2	TRAUMATIC AMPUTATION OF TWO OR MORE TOES
8973	AMPUT ABV KN, UNIL-COMPL	S98.3	TRAUMATIC AMPUTATION OF OTHER PARTS OF FOOT
8974	AMPUTAT LEG, UNILAT NOS	S98.4	TRAUMATIC AMPUTATION OF FOOT, LEVEL UNSPECIFIED
8975	AMPUT LEG, UNIL NOS-COMP	T05.3	TRAUMATIC AMPUTATION OF BOTH FEET
8976	AMPUTATION LEG, BILAT	T05.4	TRAUMATIC AMPUTATION OF 1 FOOT AND OTHER LEG [ANY LEVEL, EXCEPT FOOT]
8977	AMPUTAT LEG, BILAT-COMPL	T05.5	TRAUMATIC AMPUTATION OF BOTH LEGS [ANY LEVEL]
		T13.6	TRAUMATIC AMPUTATION OF LOWER LIMB, LEVEL UNSPECIFIED

AA7) Diabetes lower extremity amputation: using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 15 and older. All *acute care hospitals*, including public and private hospitals that provide inpatient care.

Numerator: All diabetic patients admitted for a major lower extremity amputation (see Diabetes major lower extremity amputation codes below) in a specified year.

Counting Rules

Only one major lower extremity amputation *admission* is to be counted for each diabetic patient in the specified year. The admission with the most severe amputation is to be selected if more than one admission is identified for a diabetic patient in the specified year.

Diabetic patients are to be identified by using a *unique person identifier (UPI)*. For all patients with an amputation in the specified year, the aim is to search for:

- First, diabetes codes in any field in the hospital administrative dataset (see diabetes diagnosis codes below) **for up to 5 years**, including the specified year and prior years where the *UPI* can be reliably and consistently used, and then

- Second, records indicating diabetes status in any other relevant database (e.g. pharmaceutical, specialist, laboratory data) where the *UPI* can be reliably and consistently used to identify additional patients.

Exclude:

- Obstetric hospitalisations - Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary “Obstetric hospitalisations” in this document for details.

- Cases with trauma diagnosis code (see Trauma diagnosis codes below) in any field

- Cases with tumour-related peripheral amputation code (ICD-9-CM 1707 and 1708/ICD-10-WHO C40.2 and C40.3) in any field

Denominator 1: Population count.

Denominator 2: Estimated population with diabetes

Countries are requested to provide the diabetes prevalence (proportion; range 0-1) estimates for each age cohort. It is recognised that countries may not have prevalence estimates for the specified age cohorts, in which case, countries may apply the average or a linear estimate across the cohorts.

The population with diabetes will be calculated by applying the estimated proportion (range 0-1) of the general population in each age cohort that has diabetes.

Diabetes major lower extremity amputation and diabetes diagnosis codes:

ICD-9-CM		ICD-10-WHO	
Procedure codes for major lower-extremity amputation:		**Procedure codes for major lower-extremity amputation:**	
8413	DISARTICULATION OF ANKLE		NOT SPECIFIED
8414	AMPUTAT THROUGH MALLEOLI		
8415	BELOW KNEE AMPUTAT NEC		
8416	DISARTICULATION OF KNEE		
8417	ABOVE KNEE AMPUTATION		
8418	DISARTICULATION OF HIP		
8419	HINDQUARTER AMPUTATION		
Diagnosis Codes for Diabetes:		**Diagnosis codes for diabetes:**	
25000	DMII WO CMP NT ST UNCNTR	E10.0	INSULIN-DEPENDENT DIABETES MELLITUS WITH COMA
25001	DMI WO CMP NT ST UNCNTRL		
25002	DMII WO CMP UNCNTRLD	E10.1	INSULIN-DEPENDENT DIABETES MELLITUS WITH KETOACIDOSIS
25003	DMI WO CMP UNCNTRLD		
25010	DMII KETO NT ST UNCNTRLD	E10.2	INSULIN-DEPENDENT DIABETES MELLITUS WITH RENAL COMPLICATIONS
25011	DMI KETO NT ST UNCNTRLD		
25012	DMII KETOACD UNCONTROLD	E10.3	INSULIN-DEPENDENT DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
25013	DMI KETOACD UNCONTROLD		
25020	DMII HPRSM NT ST UNCNTRL	E10.4	INSULIN-DEPENDENT DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
25021	DMI HPRSM NT ST UNCNTRLD		
25022	DMII HPROSMLR UNCONTROLD	E10.5	INSULIN-DEPENDENT DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
25023	DMI HPROSMLR UNCONTROLD		
25030	DMII O CM NT ST UNCNTRLD	E10.6	INSULIN-DEPENDENT DM WITH OTHER SPECIFIED COMPLICATIONS
25031	DMI O CM NT ST UNCNTRL		
25032	DMII OTH COMA UNCONTROLD	E10.7	INSULIN-DEPENDENT DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
25033	DMI OTH COMA UNCONTROLD		
25040	DMII RENL NT ST UNCNTRLD	E10.8	INSULIN-DEPENDENT DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
25041	DMI RENL NT ST UNCNTRLD		
25042	DMII RENAL UNCNTRLD	E10.9	INSULIN-DEPENDENT DIABETES MELLITUS WITHOUT COMPLICATIONS
25043	DMI RENAL UNCNTRLD		
25050	DMII OPHTH NT ST UNCNTRL	E11.0	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH COMA
25051	DMI OPHTH NT ST UNCNTRLD		
25052	DMII OPHTH UNCNTRLD	E11.1	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH KETOACIDOSIS
25053	DMI OPHTH UNCNTRLD		
25060	DMII NEURO NT ST UNCNTRL	E11.2	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH RENAL COMPLICATIONS
25061	DMI NEURO NT ST UNCNTRLD		
25062	DMII NEURO UNCNTRLD	E11.3	NON-INSULIN-DEPENDENT DMWITH OPHTHALMIC COMPLICATIONS
25063	DMI NEURO UNCNTRLD		
25070	DMII CIRC NT ST UNCNTRLD	E11.4	NON-INSULIN-DEPENDENT DM WITH NEUROLOGICAL COMPLICATIONS
25071	DMI CIRC NT ST UNCNTRLD		
25072	DMII CIRC UNCNTRLD	E11.5	NON-INSULIN-DEPENDENT DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
25073	DMI CIRC UNCNTRLD		
25080	DMII OTH NT ST UNCNTRLD	E11.6	NON-INSULIN-DEPENDENT DM WITH OTHER SPECIFIED COMPLICATIONS
25081	DMI OTH NT ST UNCNTRLD		
25082	DMII OTH UNCNTRLD	E11.7	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
25083	DMI OTH UNCNTRLD		

25090	DMII UNSPF NT ST UNCNTRL	E11.8	NON-INSULIN-DEPENDENT DM WITH UNSPECIFIED COMPLICATIONS
25091	DMI UNSPF NT ST UNCNTRLD		
25092	DMII UNSPF UNCNTRLD	E11.9	NON-INSULIN-DEPENDENT DIABETES MELLITUS WITHOUT COMPLICATIONS
25093	DMI UNSPF UNCNTRLD	E13.0	OTHER SPECIFIED DIABETES MELLITUS WITH COMA
		E13.1	OTHER SPECIFIED DIABETES MELLITUS WITH KETOACIDOSIS
		E13.2	OTHER SPECIFIED DIABETES MELLITUS WITH RENAL COMPLICATIONS
		E13.3	OTHER SPECIFIED DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
		E13.4	OTHER SPECIFIED DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
		E13.5	OTHER SPECIFIED DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
		E13.6	OTHER SPECIFIED DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATIONS
		E13.7	OTHER SPECIFIED DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
		E13.8	OTHER SPECIFIED DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
		E13.9	OTHER SPECIFIED DIABETES MELLITUS WITHOUT COMPLICATIONS
		E14.0	UNSPECIFIED DIABETES MELLITUS WITH COMA
		E14.1	UNSPECIFIED DIABETES MELLITUS WITH KETOACIDOSIS
		E14.2	UNSPECIFIED DIABETES MELLITUS WITH RENAL COMPLICATIONS
		E14.3	UNSPECIFIED DIABETES MELLITUS WITH OPHTHALMIC COMPLICATIONS
		E14.4	UNSPECIFIED DIABETES MELLITUS WITH NEUROLOGICAL COMPLICATIONS
		E14.5	UNSPECIFIED DM WITH PERIPHERAL CIRCULATORY COMPLICATIONS
		E14.6	UNSPECIFIED DIABETES MELLITUS WITH OTHER SPECIFIED COMPLICATIONS
		E14.7	UNSPECIFIED DIABETES MELLITUS WITH MULTIPLE COMPLICATIONS
		E14.8	UNSPECIFIED DIABETES MELLITUS WITH UNSPECIFIED COMPLICATIONS
		E14.9	UNSPECIFIED DIABETES MELLITUS WITHOUT COMPLICATIONS

Exclude trauma diagnosis codes:

ICD-9-CM		ICD-10-WHO	
8950	AMPUTATION TOE	S78.0	TRAUMATIC AMPUTATION AT HIP JOINT
8951	AMPUTATION TOE-COMPLICAT	S78.1	TRAUMATIC AMPUTATION AT LEVEL BETWEEN HIP AND KNEE
8960	AMPUTATION FOOT, UNILAT		
8961	AMPUT FOOT, UNILAT-COMPL	S78.9	TRAUMATIC AMPUTATION OF HIP AND THIGH, LEVEL UNSPECIFIED
8962	AMPUTATION FOOT, BILAT		
8963	AMPUTAT FOOT, BILAT-COMP	S88.0	TRAUMATIC AMPUTATION AT KNEE LEVEL
8970	AMPUT BELOW KNEE, UNILAT	S88.1	TRAUMATIC AMPUTATION AT LEVEL BETWEEN
8971	AMPUTAT BK, UNILAT-COMPL		KNEE AND ANKLE
8972	AMPUT ABOVE KNEE, UNILAT	S88.9	TRAUMATIC AMPUTATION OF LOWER LEG, LEVEL
8973	AMPUT ABV KN, UNIL-COMPL		UNSPECIFIED
8974	AMPUTAT LEG, UNILAT NOS	S98.0	TRAUMATIC AMPUTATION OF FOOT AT ANKLE LEVEL
8975	AMPUT LEG, UNIL NOS-COMP		
8976	AMPUTATION LEG, BILAT	S98.1	TRAUMATIC AMPUTATION OF ONE TOE
8977	AMPUTAT LEG, BILAT-COMPL	S98.2	TRAUMATIC AMPUTATION OF TWO OR MORE TOES
		S98.3	TRAUMATIC AMPUTATION OF OTHER PARTS OF FOOT
		S98.4	TRAUMATIC AMPUTATION OF FOOT, LEVEL UNSPECIFIED
		T05.3	TRAUMATIC AMPUTATION OF BOTH FEET
		T05.4	TRAUMATIC AMPUTATION OF 1 FOOT AND OTHER LEG [ANY LEVEL, EXCEPT FOOT]
		T05.5	TRAUMATIC AMPUTATION OF BOTH LEGS [ANY LEVEL] T13.6 TRAUMATIC AMPUTATION OF LOWER LIMB, LEVEL UNSPECIFIED

PRIMARY CARE - PRESCRIBING (PR) INDICATORS

Indicators in the Prescribing indicator set include:

- PR1) Adequate use of cholesterol lowering treatment in people with diabetes
- PR2) First choice anti-hypertensives for people with diabetes
- PR3) Long-term use of benzodiazepines and benzodiazepine related drugs in people aged 65 years and over (> 365 DDD in one year)
- PR4) Use of long-acting benzodiazepines in people aged 65 years and over
- PR5) Volume of cephalosporines and quinolones as a proportion of all systemic antibiotics prescribed
- PR6) Overall volume of antibiotics for systemic use prescribed
- PR7) Any anticoagulating drug in combination with an oral NSAID
- PR8) Proportion of 75 years and over who are taking more than 5 medications concurrently (>90 days excluding dermatological and antibiotics)

- PR9) Overall volume of opioids prescribed (DDDs per 1000 population per day)
- PR10) Proportion of the population who are chronic opioid users (≥ 90 day's supply in a year)
- PR11) Proportion of people 65 years and over prescribed antipsychotics

NOTES

Data are requested for prescribing undertaken in **PRIMARY CARE ONLY**. This includes prescribing undertaken in the primary and ambulatory care setting, whether private or public, and regardless of who is issuing the prescription i.e. family doctors, specialists or other healthcare professionals (such as the case of nurse practitioners or mental health professionals who can, in certain countries, prescribe medicines). Please exclude, as far as possible, prescribing undertaken in hospital care. Please specify in the online survey the healthcare sectors to which the data pertain.

The preferred data are those based on DDDs but if not please provide data based on days and specify in the online survey.

Skip the worksheets for which you are not able to provide data for the numerator and / or denominator of the indicator.

Please refer to the following guidelines for DDD and ATC codes:

- WHO Collaborating Centre for Drug Statistics Methodology, Guidelines for ATC classification and DDD assignment 2020. Oslo, Norway, 2020. https://www.whocc.no/atc_ddd_index/
- Countries are advised to cross-check whether there is any impact to the historic data with applying the most recent Guidelines for ATC and DDD assignment 2020.

PR1) Adequate use of cholesterol lowering treatment in people with diabetes

See Glossary (Section 1.) for definitions of italicised terminology.

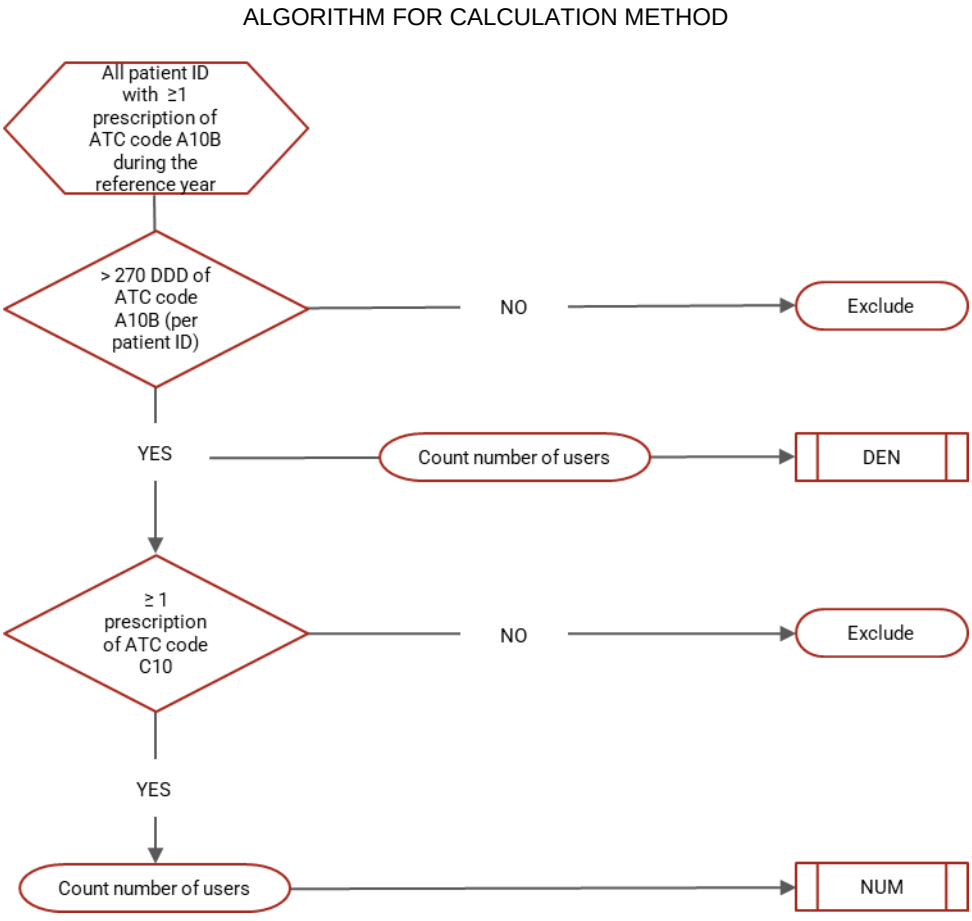
Coverage: Population in the *prescribing database with ≥ 1 prescription of ATC code A10B during the reference year*

Numerator: Number of people who are long-term users of glucose regulating medication (A10B) with concomitant use of ≥ 1 prescription of cholesterol lowering medication (C10).

Denominator: Number of people who are long-term users of glucose regulating medication (A10B) in the prescribing database (see Figure 2.1).

Notes: Number of people who are long-term users of glucose regulating medication (A10B) are defined as individuals who use >270 *Defined Daily Doses (DDD)* of A10B per year. If your database does not report DDD, please derive indicator using >270 days of A10B per year.

Figure 2.1. Adequate use of cholesterol lowering treatment in people with diabetes



Source: OECD.

PR2) First choice anti-hypertensives for people with diabetes

See Glossary (Section 1.) for definitions of italicised terminology.

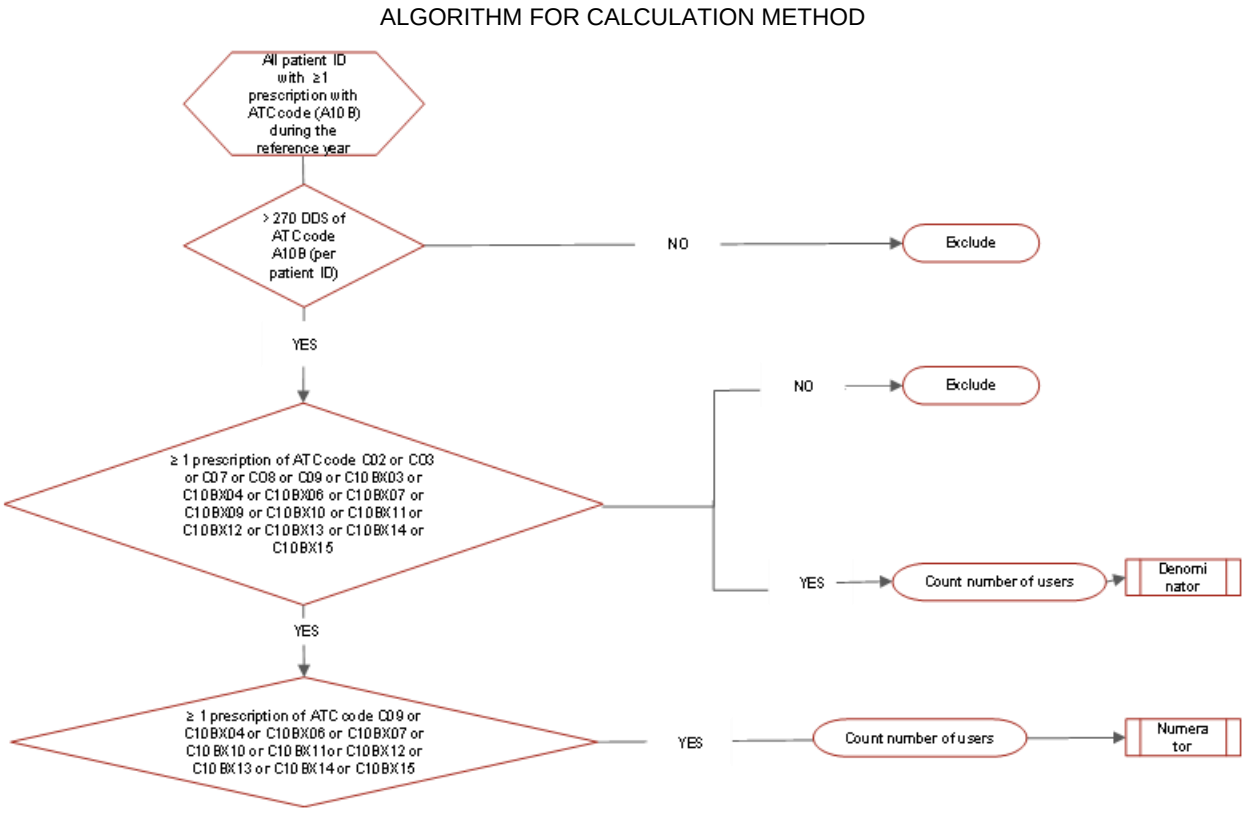
Coverage: Population in *prescribing database with ≥ 1 prescription of ATC code A10B during the reference year*

Numerator: Number of people who are long-term users of glucose regulating medication (A10B) with concomitant use of ≥ 1 prescription angiotensin converting enzyme inhibitor (ACE-I) *or* angiotensin receptor blocker (ARB) (C09, C10BX04, C10BX06, C10BX07, C10BX10, C10BX11, C10BX12, C10BX13, C10BX14, C10BX15).

Denominator: Number of people who are long-term users of glucose regulating medication (A10B) with concomitant use of ≥ 1 prescription antihypertensives (ATC-C02) *or* diuretics (ATC C03) *or* beta-blockers (ATC C07) *or* calcium channel blockers (C08) *or* angiotensin converting enzyme inhibitor (ACE-I) *or* angiotensin receptor blocker (ARB) (C09) *or* C10BX03 *or* C10BX04, or C10BX06, or C10BX07, or C10BX09, or C10BX10 or C10BX11or C10BX12 or C10BX13 or C10BX14 or C10BX15 (Figure 2.2).

Notes: Number of people who are long-term users of glucose regulating medication (A10B) are defined as individuals who use >270 *Defined Daily Doses (DDD*) of A10B per year. If your prescribing database does not report DDD, please derive indicator using >270 days of A10B per year.

Figure 2.2. First choice anti-hypertensives for people with diabetes



Source: OECD.

PR3) Long-term use of benzodiazepines and benzodiazepine related drugs in people aged 65 years and over (> 365 DDD in one year)

See Glossary (Section 1.) for definitions of italicised terminology.

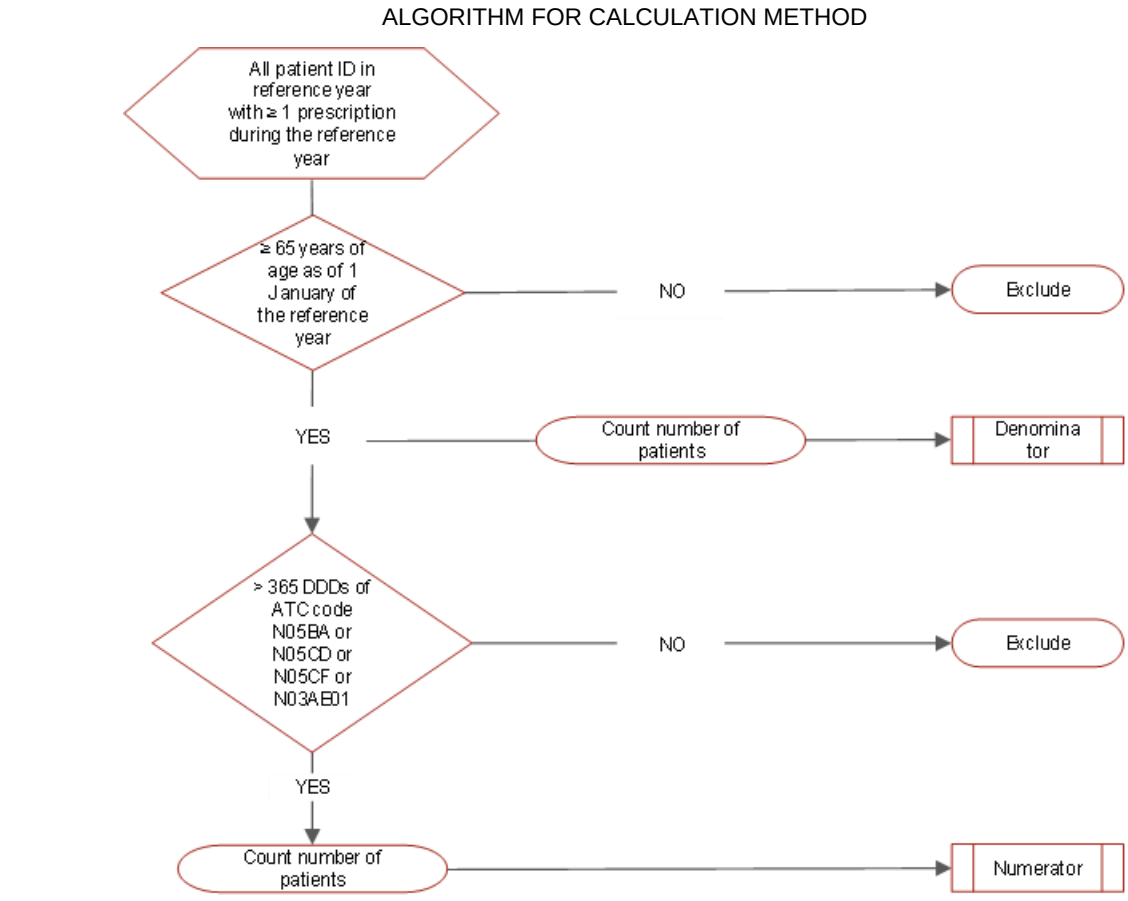
Coverage: Population aged 65 years and over (on 1 January of the reference year) in the *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Number of individuals ≥ 65 years of age on 1 January in the prescribing database with > 365 *DDD*s of benzodiazepines (N05BA *or* N05CD *or* N05CF *or* N03AE01) prescribed in the year.

Denominator: Number of individuals ≥ 65 years of age on 1 January in the prescribing database (Figure 2.3).

Note: If your prescribing database does not report *DDD*, please derive indicator using > 365 *days* of benzodiazepines per year.

Figure 2.3. Long-term use of benzodiazepines and benzodiazepine related drugs in people aged 65 years and over (> 365 DDD in one year)



Source: OECD.

PR4) Use of long-acting benzodiazepines in people aged 65 years and over

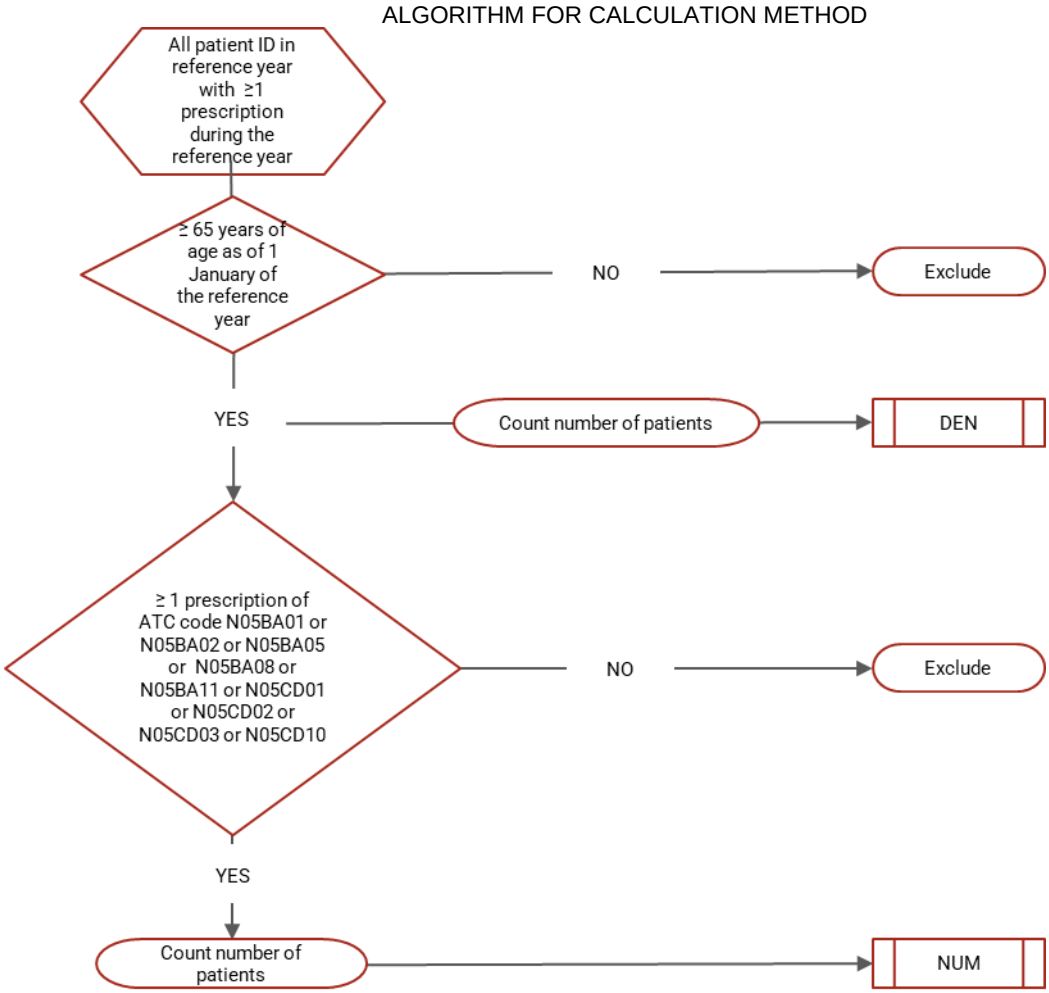
See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 65 years and over (on 1 January of the reference year) in the *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Number of individuals ≥ 65 years of age on 1 January in the prescribing database with ≥ 1 prescription long-acting benzodiazepines (N05BA01, N05BA02, N05BA05, N05BA08, N05BA11, N05CD01, N05CD02, N05CD03, N05CD10)

Denominator: Number of individuals ≥ 65 years of age on 1 January in the prescribing database

Figure 2.4. Use of long-acting benzodiazepines in people aged 65 years and over



Source: OECD.

PR5) Volume of cephalosporines and quinolones as a proportion of all systemic antibiotics prescribed

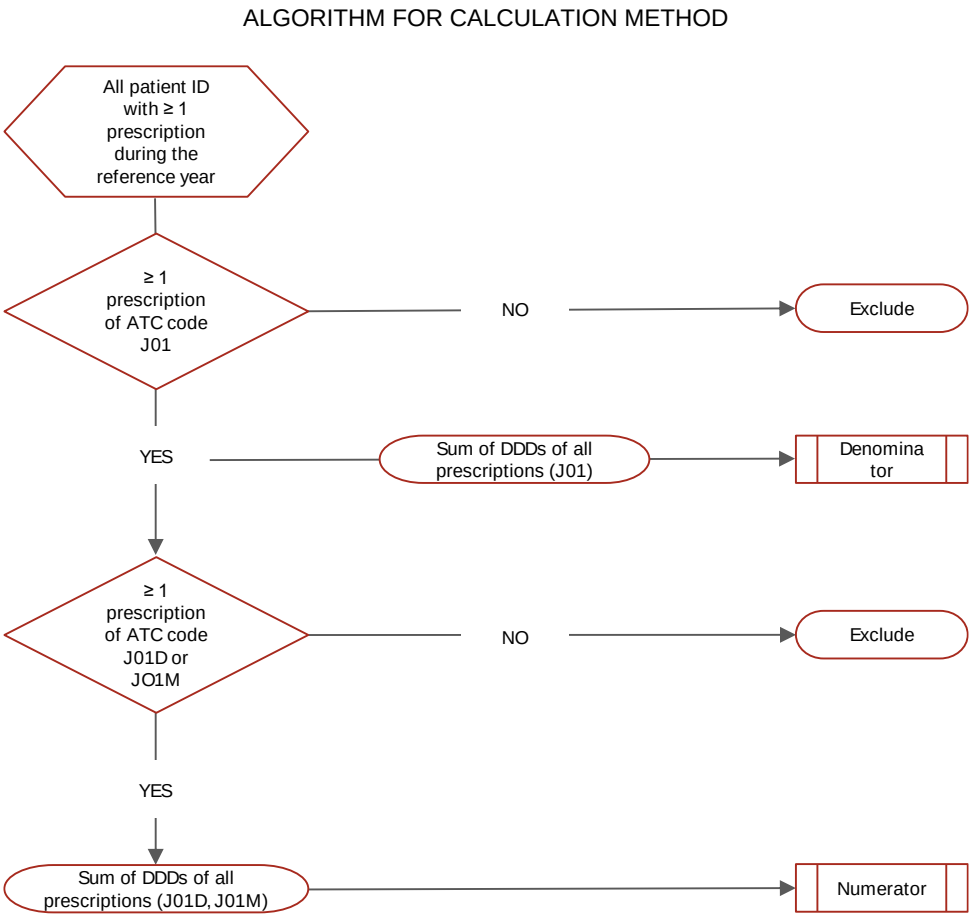
See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population in the *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Sum *DDDs* of all ATC J01D and J01M prescriptions.

Denominator: Sum *DDD*s of all ATC J01 prescriptions in database (Figure 2.5).

Figure 2.5. Volume of cephalosporines and quinolones as a proportion of all systemic antibiotics prescribed



Source: OECD.

PR6) Overall volume of antibiotics for systemic use prescribed (DDDs per 1000 population per day)

See Glossary (Section 1.) for definitions of italicised terminology.

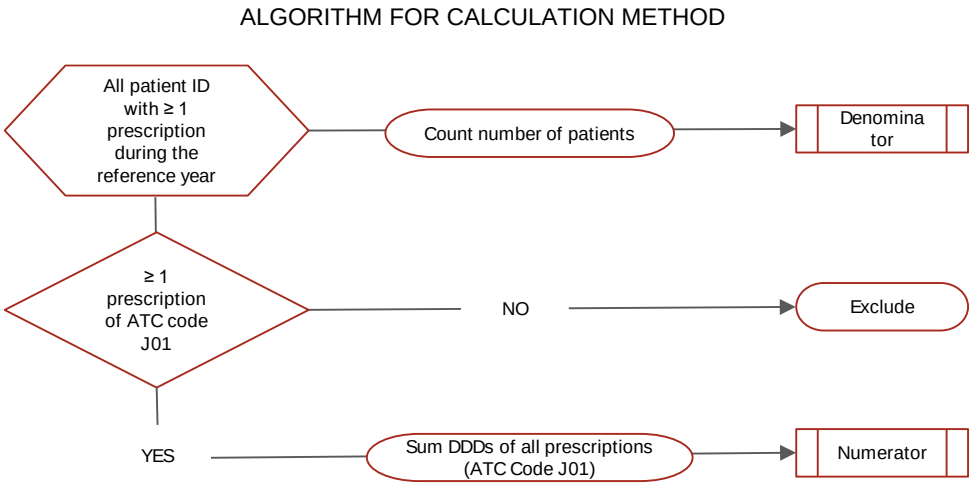
Coverage: Population in the *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Sum *DDD* of all ATC J01 prescriptions

Denominator: Population covered by database on 1 January.

NOTE: Please submit data for the numerator and denominator as specified above in the DATA worksheet. The Excel questionnaire will then make adjustments to calculate DDDs per 1000 population per day and show these data in the RESU worksheet.

Figure 2.6. Overall volume of antibiotics for systemic use prescribed



Source: OECD.

PR7) Any anticoagulating drug in combination with an oral NSAID

See Glossary (Section 1.) for definitions of italicised terminology.

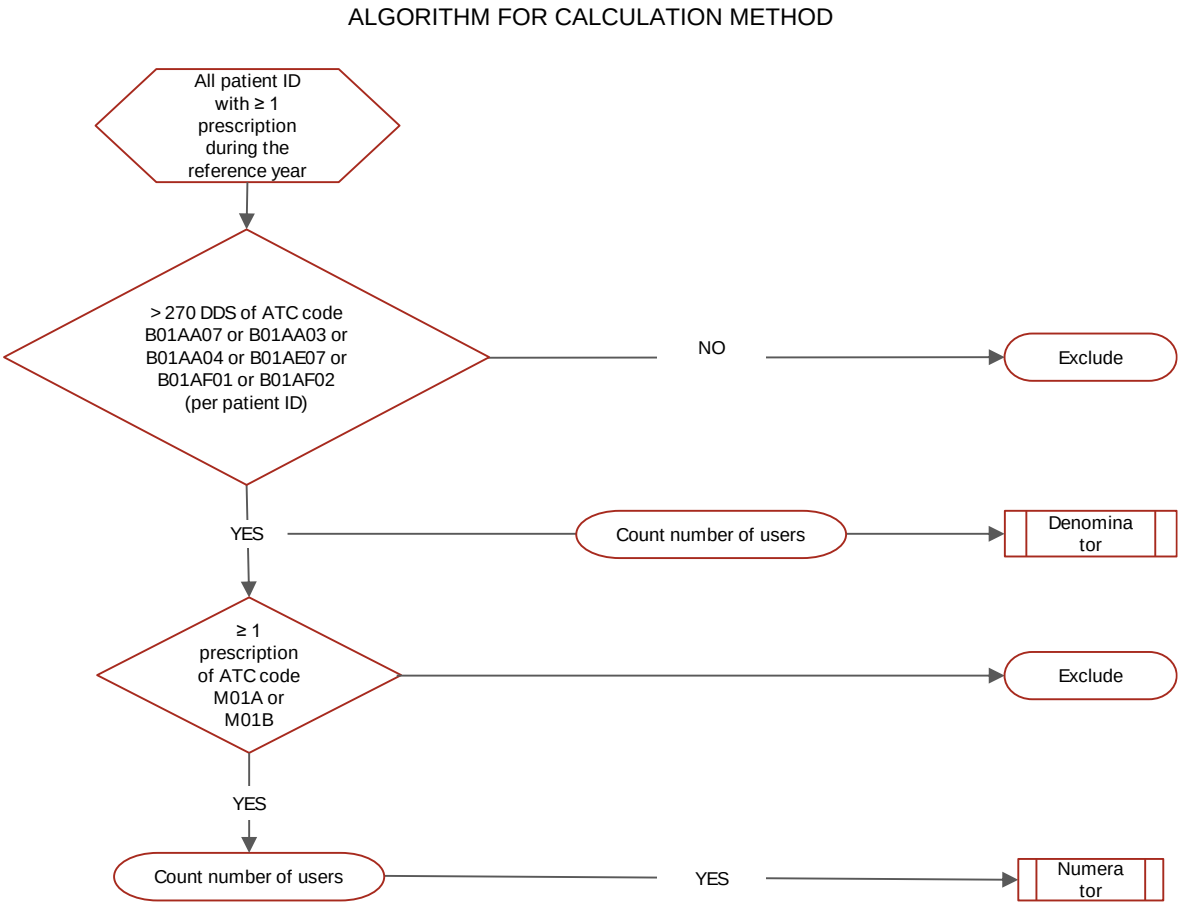
Coverage: Population in the *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Number of individuals who are long-term users of anticoagulating drugs acenocoumarol (B01AA07) *or* warfarin (B01AA03) *or* phenprocoumon (B01AA04) *or* dabigatran (B01AE07) *or* rivaroxaban (B01AF01) *or* apixaban (B01AF02) *or* Edoxaban (B01AF03) with concomitant use of ≥ 1 prescription of NSAID (M01A *or* M01B)

Denominator: Number of individuals who long-term users of ATC-codes acenocoumarol (B01AA07) *or* warfarin (B01AA03) *or* phenprocoumon (B01AA04) *or* dabigatran (B01AE07) *or* rivaroxaban (B01AF01) *or* apixaban (B01AF02) *or* Edoxaban (B01AF03) (Figure 2.7).

Note: individuals who are *l*ong-term users of anticoagulating drugs are defined as individuals who use >270 *Defined Daily Doses (DDD*) of the B01A codes listed above. If your prescribing database does not report *DDD*, please derive indicator using >270 *days* of the B01A codes listed above.

Figure 2.7. Any anticoagulating drug in combination with an oral NSAID



Source: OECD.

PR8) Proportion of 75 years and over who are taking more than 5 medications concurrently (>90 days excluding dermatological and antibiotics)

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 75 years and over (on 1 January of the reference year) in the *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Number of individuals ≥ 75 years of age as on 1 January in database with ≥ 5 chronically used medications with different ATC codes at the fourth level (e.g., A10BA) during the reference year. This means that a different medication should only be counted if it is not within the same ATC codes at the fourth level. Medication here refers to subgroups of chemicals classified by the World Health Organization at the fourth level of the ATC classification system, 2017 version.
For example,

- Person A is a one-drug user if ATC fourth level codes are the following: A10**BA**01, A10**BA**02, A10**BA**03, A10**BA**04
- Person B is a five-drug user if ATC fourth level codes are the following: A10**BA**01, A10**BB**01, A10**BC**01, A10**BD**01, A10**BE**01
- Chronic usage is defined as medication prescribed for more than 90 days or four or more prescriptions of a medication in the year.

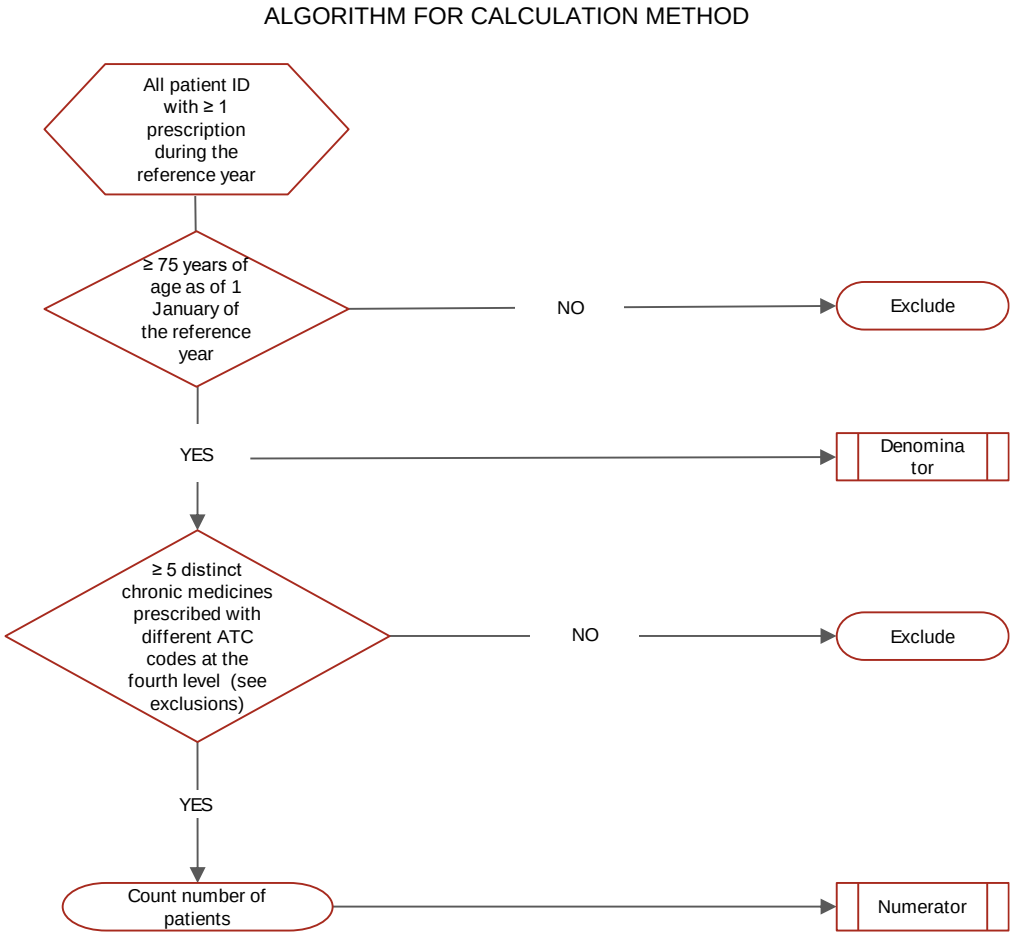
Denominator: Number of individuals ≥ 75 years of age at 1 January in database (Figure 2.8).

NOTE: Dermatologicals for topical usage are excluded of the count because these medications usually do not interact with other (systemic) medications. Antibiotics (i.e., ATC codes “J01”) are also excluded because they are almost exclusively prescribed for acute infections. Please check the table below listing the ATC codes to be excluded from the numerator.

Dermatologicals for topical use to be excluded	***ATC codes***
Antibiotics for the eye	S01A
Otologicals	S02
Antifungals for topical use	D01A
Emollients and protectives	D02
Preparations for treatment of wounds and ulcers	D03
Antipruritics, incl. antihistamines, anaesthetics, etc.	D04
Antipsoriatics for topical use	D05A
Antibiotics and chemotherapeutics for dermatological use	D06
Corticosteroids, dermatological preparations	D07
Antiseptics and disinfectants	D08
Medicated dressings	D09A
Anti-acne preparations for topical use	D10A
Antihidrotics	D11AA
Medicated shampoos	D11AC
Androgens for topical use	D11AE
Wart and anti-corn preparations	D11AF
Tacrolimus	D11AH01
Pimecrolimus	D11AH02
Cromoglicic acid	D11AH03
Crisaborole	D11AH06
Other dermatologicals (exl. finasteride; D11AX10)	D11AX01 to D11AX09
Other dermatologicals (exl. finasteride; D11AX10)	D11AX11 to D11AX57
Antiinfectives and antiseptics, excl. combinations with corticosteroids	G01A

Combinations of corticosteroids and antiinfectives for gynaecological use	G01B
Antiinfectives and antiseptics for local oral treatment	A01AB
Corticosteroids for local oral treatment	A01AC
Antihemorrhoidals with corticosteroids	C05AA

Figure 2.8. Proportion of 75 years and over who are taking more than 5 medications concurrently (>90 days excluding dermatological and antibiotics)



Source: OECD.

PR9) Overall volume of opioids prescribed (DDDs per 1000 population per day)

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 18 years and over (on 1 January of the reference year) in *prescribing database* with ≥ 1 prescription during the reference year

Numerator: Sum *DDD* of all ATC N02A prescriptions

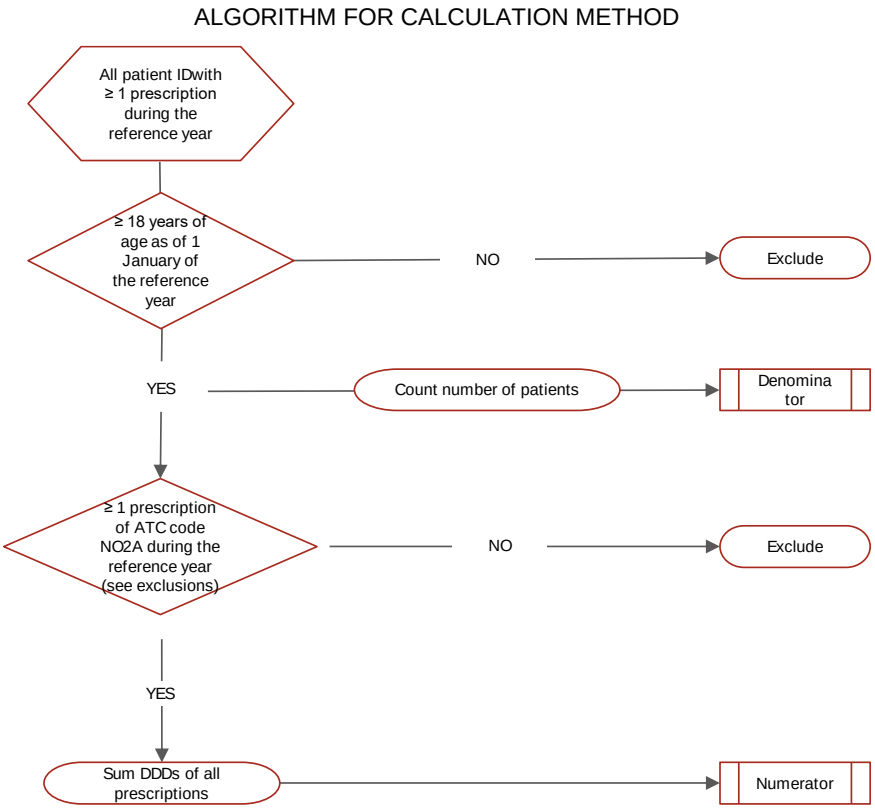
Denominator: Number of individuals ≥ 18 years of age on 1 January (Figure 10.8).

NOTE: Please submit data for the numerator and denominator as specified above in the DATA worksheet. TheExcel questionnaire will then make adjustments to calculate DDDs per 1000 population per day and show these data in the RESU worksheet.

Methadone and buprenorphine/naloxonecombinations (Suboxone) are excluded from all analyses, as these products are most often used in the treatment of addiction and the focus of this collection is opioids for pain. Please check the table below listing the ATC codes to be excluded both from the numerator and the denominator.

Name of opioids for the treatment of addiction for exclusion from the numerator of the opioids indicators	***ATC codes***
Methadone, combinations excl. psycholeptics	N02AC52
Buprenorphine	N02AE01

Figure 2.9. Overall volume of opioids prescribed (DDDs per 1000 population per day)



Source: OECD.

PR10) Proportion of the population who are chronic opioid users (≥ 90 day's supply in a year)

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Population aged 18 years and over (on 1 January of the reference year) in *prescribing database* with ≥ 1 prescription during the reference year

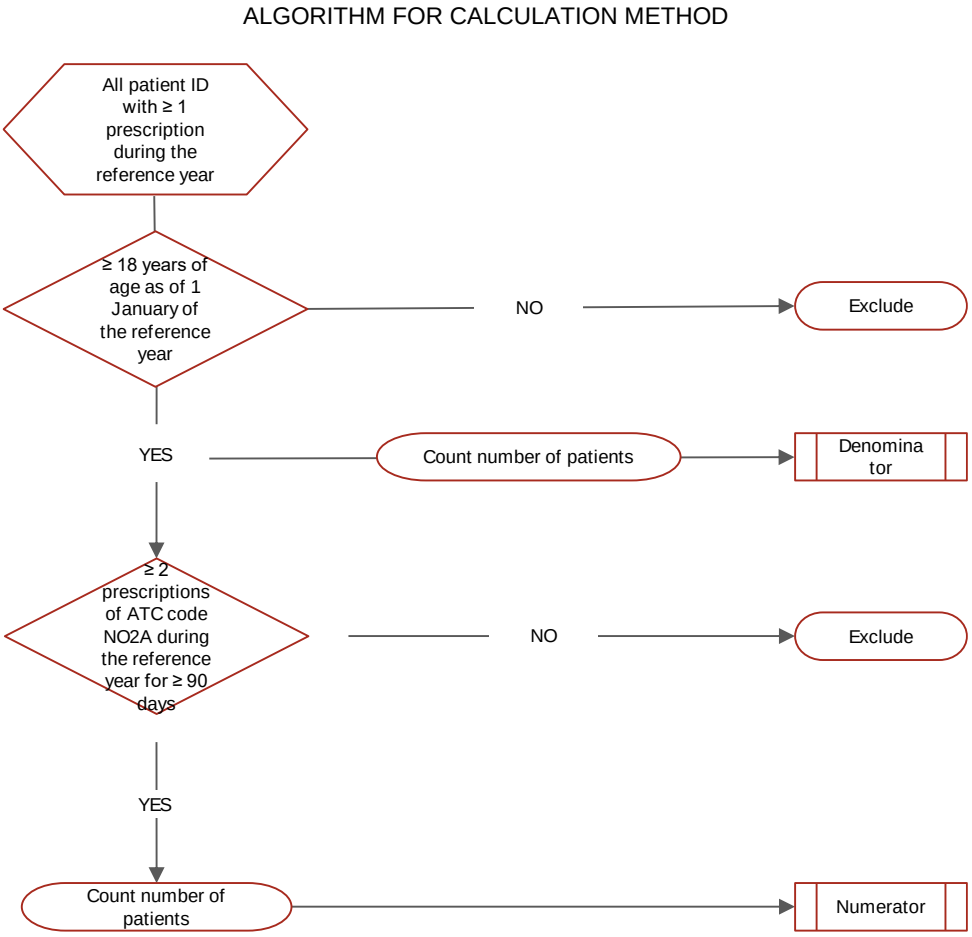
Numerator: Number of individuals ≥ 18 years of age at 1 January in database with 2 or more prescriptions of opioids (N02A) prescribed for ≥ 90 days in the year.

Denominator: **Number of individuals ≥ 18 years of age on 1 January** (Figure 2.10)

NOTE: Methadone and buprenorphine/naloxonecombinations (Suboxone) are excluded from all analyses, as these products are most often used in the treatment of addiction and the focus of this collection is opioids for pain.

Name of opioids for the treatment of addiction for exclusion from the numerator of the opioids indicators	***ATC codes***
Methadone, combinations excl. psycholeptics	N02AC52
Buprenorphine	N02AE01

Figure 2.10. Proportion of the population who are chronic opioid users (≥ 90 day's supply in a year)



Source: OECD.

PR11) Proportion of people 65 years and over prescribed antipsychotics

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: All persons 65 years and over (on the first day of the reference year) in the *prescribing database* (5-year age groups) that show at least one prescription in the reference year

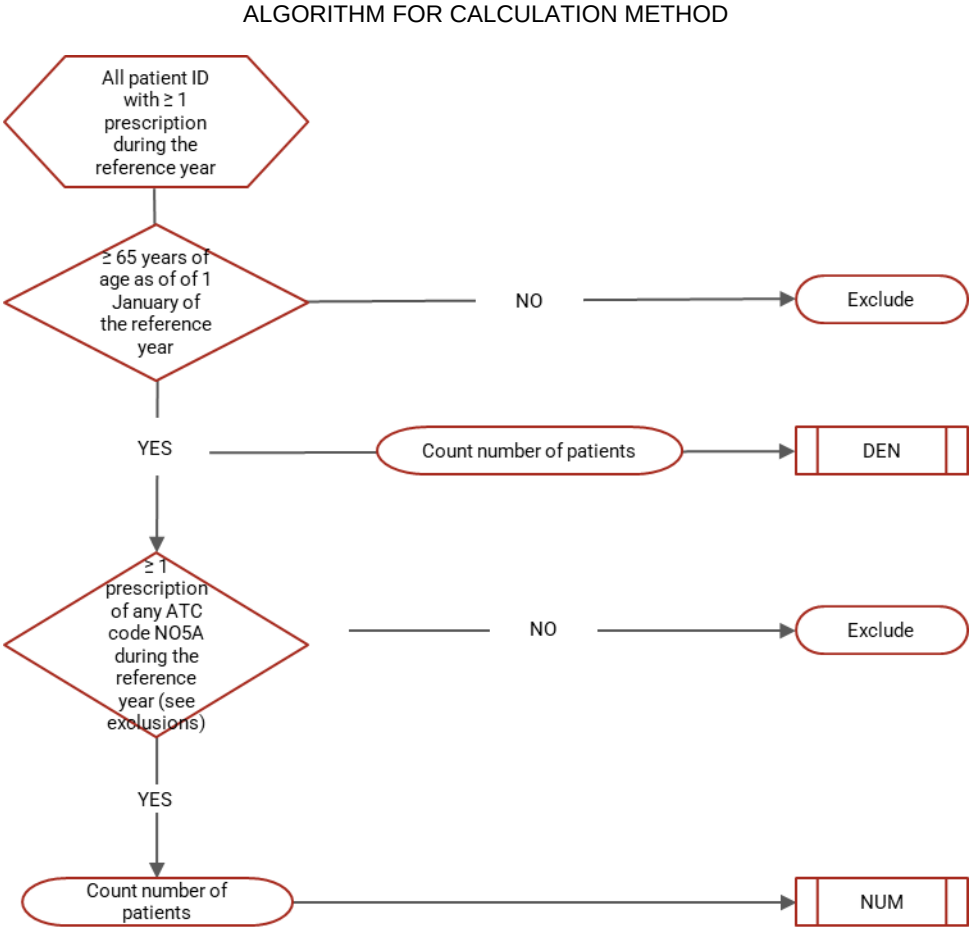
Numerator: Number of individuals ≥65 years on first day of reference year with ≥1 prescription for any antipsychotic medication (ATC codes N05A) prescribed during the reference year.

Denominator: Number of individuals ≥65 years of age on first day of reference year in the national prescription database in the reference year (Figure 2.11).

Exclude:

- Prescriptions for antipsychotic medications registered through in-patient hospital prescription registries.

Figure 2.11. Proportion of people 65 years and over prescribed antipsychotics



Source: OECD.

ACUTE CARE (AC) INDICATORS

Indicators in the acute care indicator set include:

- AC1) AMI 30-day mortality using linked data
- AC2) AMI 30-day mortality using unlinked data
- AC3) Haemorrhagic stroke 30-day mortality using linked data
- AC4) Haemorrhagic stroke 30-day mortality using unlinked data
- AC5) Ischemic stroke 30-day mortality using linked data
- AC6) Ischemic stroke 30-day mortality using unlinked data
- AC7) Hip fracture surgery initiated within 2 calendar days after admission to the hospital

AC1) AMI 30-day mortality using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 and older (5-year age group)

Numerator: Number of deaths in any hospital and out of hospital that occurred within 30 days of the admission date of the denominator cases.

Denominator: The last *admission* for each patient admitted to hospital for acute non-elective (urgent) care with a *principal diagnosis* (PDx) of acute myocardial infarction during 1 January to 31 December in the specified year. [AMI diagnostic codes upon separation: ICD-9 410 or ICD-10 I21, I22.].

Please note only one admission per patient is to be counted in the denominator and the numerator is calculated by following up all denominator cases for up to 30 days.

AC2) AMI 30-day mortality using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 and older (5-year age group)

Numerator: Number of deaths (in the same hospital) that occurred within 30 days of the admission date of the denominator cases.

Denominator: Number of *admissions* to hospital for acute non-elective (urgent) care with a *principal diagnosis* of acute myocardial infarction from 1 January to 31 December in the specified year. [AMI diagnostic codes upon separation: ICD-9 410 or ICD-10 I21, I22.]

Please note:

- All admissions (including *day cases*) are to be counted in the denominator including admissions resulting a) in a *transfer* to another acute care facility (*transfers out*) and b) from a transfer from another acute care facility (*transfers in*).

AC3) Haemorrhagic stroke 30-day mortality using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 and older (5-year age group)

Numerator: Number of deaths in any hospital and out of hospital that occurred within 30 days of the admission date of the denominator cases.

Denominator: The last *admission* in the specified year for each patient admitted to hospital for acute non-elective (urgent) care with a *principal diagnosis* (PDx) of haemorrhagic stroke from 1 January to 31 December in the specified year. [Haemorrhagic stroke diagnostic codes upon separation: ICD-9 430-432 or ICD-10 I60-I62.]

Please note only one admission per patient is to be counted in the denominator and the numerator is calculated by following up all denominator cases for up to 30 days.

AC4) Haemorrhagic stroke 30-day mortality using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 and older (5-year age group)

Numerator: Number of deaths in the same hospital that occurred within 30 days of the admission date of the denominator cases.

Denominator: Number of *admissions* to hospital for acute non-elective (urgent) care with a *principal diagnosis* of haemorrhagic stroke from 1 January to 31 December in the specified year. [Haemorrhagic stroke diagnostic codes upon separation: ICD-9 430-432 or ICD-10 I60-I62.]

Please note:

- All *admissions* (including *day cases*) are to be counted in the denominator including admissions resulting a) in a *transfer* to another acute care facility (*transfers out*) and b) from a transfer from another acute care facility (*transfers in*).

AC5) Ischemic stroke 30-day mortality using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 and older (5-year age group)

Numerator: Number of deaths in any hospital and out of hospital that occurred within 30 days of the admission date of the denominator cases.

Denominator: The last *admission* in the specified year for each patient admitted to hospital for acute non-elective (urgent) care with a *principal diagnosis* (PDx) of ischemic stroke from 1 January to 31 December in the specified year. [Ischemic stroke diagnostic codes upon separation: ICD-9 433, 434, and 436 or ICD-10 I63-I64.]

Please note only one admission per patient is to be counted in the denominator

AC6) Ischemic stroke 30-day mortality using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 and older (5-year age group)

Numerator: Number of deaths in the same hospital that occurred within 30 days of the admission date of the denominator cases.

Denominator: Number of *admissions* to hospital for acute non-elective (urgent) care with a *principal diagnosis* of ischemic stroke from 1 January to 31 December in the specified year. [Ischemic stroke diagnostic codes upon separation: ICD-9 433, 434, and 436 or ICD-10 I63-I64.]

Please note:

- All *admissions* (including *day cases*) are to be counted in the denominator including admissions resulting a) in a transfer to another acute care facility (*transfers out*) and b) from a transfer from another acute care facility (*transfers in*).

- The numerator is calculated by following up all denominator cases for up to 30 days

AC7) Hip fracture surgery initiated within 2 calendar days after admission to the hospital

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 65 and older (5-year age group)

Numerator: Number of denominator cases that were surgically treated (see list of procedures below) within 2 calendar days after admission.

Denominator: Number of patients aged 65 years or older admitted to hospital for acute non-elective (urgent) care with a *principal diagnosis* (PDx) of upper femur fracture and who were surgically treated (see list of procedures below) in the same hospital during the specified year [Hip fracture diagnostic codes: ICD-10 S72.0, S72.1, S72.2 or ICD-9 820].

Exclude:

- *Admissions* where the hip fracture occurred during the hospital stay (e.g. hip fracture is coded as a post-admission diagnosis).
- *Admissions* with missing or invalid procedure date.

Technical notes:

Within 2 Calendar Days: for the purposes of calculating the numerator cases the term 'within 2 calendar days' includes cases that were:

- Treated on day 0 (same day as admission)
- Treated on day 1 (next day)
- Treated on day 2

Surgically Treated: for the purposes of calculating the denominator cases the term 'surgically treated' refers to the following list of procedures:

- Fixation, hip joint
- Application of external fixator device
- Implantation of internal device, hip joint
- Fixation, femur
- Implantation of internal device pelvis
- Closed reduction of fracture with internal fixation
- Open reduction of fracture with internal fixation
- Total hip replacement
- Partial hip replacement

Due to significant variation in procedure classifications between countries, the secretariat does not provide detailed classification codes of the procedures listed here. Countries are requested to map these procedure descriptions to their procedure classification codes and report any related issues in the comments box in the Sources and Methods section of the questionnaire.

INTEGRATED CARE (IC)

Indicators in integrated care indicator set include:

- IC1) Ischaemic Stroke – All-cause hospital readmissions within 365 days after discharge
- IC2) Ischaemic Stroke – Disease-specific hospital readmissions within 365 days after discharge
- IC3) Ischaemic Stroke – All-cause mortality within 365 days after discharge
- IC4) Ischaemic Stroke – All-cause mortality or all-cause readmission within 365 days after discharge
- IC5) Ischaemic Stroke – All-cause mortality or disease-specific readmission within 365 days after discharge
- IC6) CHF - All-cause hospital readmissions within 365 days after discharge
- IC7) CHF – Disease-specific hospital readmissions within 365 days after discharge
- IC8): CHF- All-cause mortality within 365 days after discharge
- IC9) CHF- All-cause mortality or all-cause readmission within 365 days after discharge
- IC10) CHF- All-cause mortality or disease-specific readmission within 365 days after discharge
- IC11) CHF – Case fatality within 30 days of the admission date

Pilot indicators in integrated care set include:

- Pilot IC indicator 1) Ischaemic Stroke - Prescribed antihypertensive medicines between 12 and 18 months after ischaemic stroke
- Pilot IC indicator 2) Ischaemic Stroke - Prescribed antithrombotics between 12 and 18 months after ischaemic stroke

NOTES

Where possible, countries are welcomed to share data at subnational level on all integrated care indicators. If you are able to do this, please get in touch with the secretariat (HCQO.contact@oecd.org)

In the case of small numbers in cells (<5 cases), countries can fill the cells with round numbers or zero to maintain patient data confidentiality. Countries should report which approach they followed in the Sources and Methods section.

IC1) Ischaemic Stroke – All-cause hospital readmissions within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess readmissions. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who were readmitted to in-patient hospital care for acute non-elective (urgent) care of any condition at least once within 365 days after date of discharge from the index episode of care. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after acute non-elective (urgent) episode of care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year [Ischaemic stroke diagnostic codes upon separation: ICD-9: 433, 434, and 436 or ICD-10: I63-I64]. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke in any diagnosis field [ICD-10: I60-I64 and I69] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC2) Ischaemic Stroke – Disease-specific hospital readmissions within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for any type of stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess readmission. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: Number of patients in the denominator who were readmitted to hospital for acute non-elective (urgent) in-patient care at least once within 365 days with stroke or late effects (sequelae) of stroke as the *principal diagnosis*. [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69]. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after acute non-elective (urgent) episode of care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year [Ischaemic stroke diagnostic codes upon separation: ICD-9: 433, 434, and 436 or ICD-10: I63-I64]. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke [ICD-10: I60-I64 and I69] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC3) Ischaemic Stroke – All-cause mortality within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for any type of stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess mortality. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: Number of all deaths within 365 days after discharge among those cases meeting the inclusion and exclusion rules for the denominator.

Denominator: Number of persons discharged alive from hospital after acute non-elective (urgent) episode of care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year [Ischaemic stroke diagnostic codes upon separation: ICD-9: 433, 434, and 436 or ICD-10: I63-I64]. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke in any diagnosis field [ICD-10: I60-I64 and I69] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC4) Ischaemic Stroke – All-cause mortality or all-cause readmission within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for any type of stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess mortality and readmissions. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who died within 365 days after discharge from the index episode of care or who were readmitted to in-patient hospital care for acute non-elective (urgent) care of any condition at least once within 365 days after discharge from the index episode of care. If a patient was readmitted and died in the specified period, this patient should be counted only once. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after acute non-elective (urgent) episode of care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year [Ischaemic stroke diagnostic codes upon separation: ICD-9: 433, 434, and 436 or ICD-10: I63-I64]. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke in any diagnosis field [ICD-10: I60-I64 and I69] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC5) Ischaemic Stroke – All-cause mortality or disease-specific readmission within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for any type of stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess mortality and readmissions. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who died within 365 days after discharge from the index episode of care or who were readmitted to hospital for acute non-elective (urgent) in-patient care at least once within 365 days with stroke or late effects (sequelae) of stroke as the *principal diagnosis* [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69]. If a patient was readmitted and died in the specified period, this patient should be counted only once. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after acute non-elective (urgent) episode of care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year [Ischaemic stroke diagnostic codes upon separation: ICD-9: 433, 434, and 436 or ICD-10: I63-I64]. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke in any diagnosis field [ICD-10: I60-I64 and I69] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC6) CHF - All-cause hospital readmissions within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time episode of care for heart failure. A first-time episode of care for heart failure is defined as persons with no hospital admission for heart failure [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for heart failure from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess readmissions. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who were readmitted to in-patient hospital care for acute non-elective (urgent) care of any condition at least once within 365 days after discharge from the index episode of care. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after first acute non-elective (urgent) episode of care with a *principal diagnosis* of heart failure from 1 January to 31 December in the specified year. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for heart failure in any diagnosis field [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC7) CHF – Disease-specific hospital readmissions within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time episode of care for heart failure. A first-time episode of care for heart failure is defined as persons with no hospital admission for heart failure [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for heart failure from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess readmission. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: Number of persons in the denominator who were readmitted to acute non-elective (urgent) in-patient care at least once with a *principal diagnosis* for heart failure within 365 days after discharge. [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493]. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after first acute non-elective (urgent) episode of care with a *principal diagnosis* of heart failure from 1 January to 31 December in the specified year. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for heart failure in any diagnosis field [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC8): CHF- All-cause mortality within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time episode of care for heart failure. A first-time episode of care for heart failure is defined as persons with no hospital admission for heart failure [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for heart failure from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess mortality. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: Number of all deaths within 365 days after discharge among those cases meeting the inclusion and exclusion rules for the denominator.

Denominator: Number of persons discharged alive from hospital after first acute non-elective (urgent) episode of care with a *principal diagnosis* of heart failure from 1 January to 31 December in the specified year. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for heart failure in any diagnosis field [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC9) CHF- All-cause mortality or all-cause readmission within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time episode of care for heart failure. A first-time episode of care for heart failure is defined as persons with no hospital admission for heart failure [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, for instance, an incident on 7 July 2018, and no admission for heart failure from 7 July 2013 to 6 July8; data for 2019 is needed to assess mortality and readmissions. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who died within 365 days after discharge from the index episode of care or who were readmitted to in-patient hospital care for acute non-elective (urgent) care of any condition at least once within 365 days after discharge from the index episode of care. If a patient was readmitted and died in the specified period, this patient should be counted only once. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after first acute non-elective (urgent) episode of care with a *principal diagnosis* of heart failure from 1 January to 31 December in the specified year. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for heart failure in any diagnosis field [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC10) CHF- All-cause mortality or disease-specific readmission within 365 days after discharge

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived acute non-elective (urgent) *episode of care* for a first-time episode of care for heart failure. A first-time episode of care for heart failure is defined as persons with no hospital admission for heart failure [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for heart failure from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess mortality and readmissions. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who died within 365 days after discharge from the index episode of care or who were readmitted to in-patient care at least once with a principal diagnosis for heart failure within 365 days after discharge. [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493]. If a patient was readmitted and died in the specified period, this patient should be counted only once. Elective admissions are not included**.**

Denominator: Number of persons discharged alive from hospital after first acute non-elective (urgent) episode of care with a *principal diagnosis* of heart failure from 1 January to 31 December in the specified year. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for heart failure in any diagnosis field [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in previous 5 years are excluded. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

IC11) CHF – Case fatality within 30 days of the admission date

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: This indicator is measured in a population of patients aged 45 years and older who are admitted for an acute non-elective (urgent) *episode of care* for heart failure. A first-time episode of care for heart failure is defined as persons with no hospital admission for heart failure [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, an incident on 7 July 2018, and no admission for heart failure from 7 July 2013 to 6 July 2018. Where not possible, countries are welcomed to apply shorter washout periods.

Day cases should not be considered hospital admission.

Numerator: The number of patients in the denominator who died (either in hospital or out of hospital) within 30 days of the last hospital *admission* date.

Denominator: Number of persons discharged alive or dead from hospital after first acute non-elective (urgent) episode of care with a *principal diagnosis* of heart failure from 1 January to 31 December in the specified year. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for heart failure in any diagnosis field [ICD-10: I11.0, I13.0, I13.2, and I50 or ICD-9: 428XX, 40201, 40211, 40291, 40401, 40411, 40413, 40491, 40493] in previous 5 years are excluded. Please note only one admission per patient is to be counted in the denominator and the numerator is calculated by following up all denominator cases for up to 30 days from date of admission. Day cases are not included.

Data to be delivered: Data will be collected at national level for both the numerator and the denominator by 10-year age group and sex.

Pilot IC indicator 1) Ischaemic Stroke - Prescribed antihypertensive medicines between 12 and 18 months after ischaemic stroke

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived 18-months after a first-time, acute, non-elective (urgent) episode of care for ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69].] in the previous 5 years (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, for instance, an incident on 7 July 2018, and no admission for any type of stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess prescriptions.

Numerator: The number of stroke cases in the denominator with at least one prescribed antihypertensive medicine from the list below within the 182 day (i.e. 6-month) time window between 12 months and 18 months after the hospital discharge date of the first-time episode of care for ischaemic stroke. To clarify: For patients discharged alive in the year 2018, prescription data for both 2019 and the first 6 months of 2020 is needed to follow all discharged cases in a time interval of day 365 to day 547 after discharge.

- Antihypertensive medicines, ATC codes:
  - alpha-blocker and methyldopa, C02
  - diuretics, C03
  - beta blockers C07
  - calcium channel blockers, C08
  - renin-angiotensin-aldosterone system (RAAS) inhibitors (N.B. includes angiotensin converting enzyme inhibitors, ACE inhibitors; angiotensin receptor blockers, ARB), C09

Denominator: Number of persons discharged alive from hospital for acute non-elective (urgent) care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year discharged from hospital and surviving 18 months after discharge. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69].] in the previous 5 years are excluded.

Data to be delivered: Data will be collected for national level data for both the numerator and the denominator for 10-year age. Where possible, countries are welcome to share data at subnational level.

Pilot IC indicator 2) Ischaemic Stroke - Prescribed antithrombotics between 12 and 18 months after ischaemic stroke

Coverage: This indicator is measured in a population of patients aged 45 years and older who survived 18-months after a first-time, acute, non-elective (urgent) episode of care for ischaemic stroke. A first-time ischaemic stroke is defined as an ischaemic stroke among persons with no hospital admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69] in the previous 5 years[1] (i.e. considering a washout period of 5 years or 1825 days). Example: a wash out period of 5 years means, for instance, an incident on 7 July 2018, and no admission for any type of stroke from 7 July 2013 to 6 July 2018; data for 2019 is needed to assess prescriptions.

Numerator: The number of stroke cases in the denominator with at least one prescribed antiplatelet medicine or anticoagulant from the list below within the 182 day (i.e. 6-month) time window between 12 months and 18 months after the hospital discharge date of the first-time episode of care for ischaemic stroke. To clarify: For patients discharged alive in the year 2018, prescription data for both 2019 and the first 6 months of 2020 is needed to follow all discharged cases in a time interval of day 365 to day 547 after discharge.

- Antithrombotics, ATC codes:
  - Antiplatelet medications
    - aspirin (B01AC06), clopidogrel (B01AC04), ticagrelor (B01AC24), prasugrel (B01AC22), eptifibatide (B01AC16), dipyridamole (B01AC07), carbasalate calcium (B01AC08), the combination of aspirin plus extended-release dipyridamole (B01AC30) and cilostazol (B01AC23)
    - Other combinations of cardiac or lipid-lowering agents including aspirin (B01AC56, C10BX12, C10BX06, C10BX08, C07FX04, C07FX03, C10BX02, C10BX05, C10BX01, C10BX04, C07FX02)
  - Anticoagulants
    - warfarin (B01AA03), dabigatran (B01AE07), apixaban (B01AF02), edoxaban (B01AF03), fenprocoumon (B01AA04), acenocoumarol (B01AA07), rivaroxaban (B01AF01)

Denominator: Number of persons discharged alive from hospital for acute non-elective (urgent) care with a *principal diagnosis* of a first-time ischaemic stroke from 1 January to 31 December in the specified year discharged from hospital and surviving 18 months after discharge. The denominator is restricted to persons aged 45 years or older at the day of admission. Patients who had an acute non-elective (urgent) care admission for any type of stroke [ICD-9: 430, 431, 432, 433X1, 434X1, 438 or ICD-10: I60-I64 and I69].] in the previous 5 years are excluded.

Data to be delivered: Data will be collected for national level data for both the numerator and the denominator for 10-year age. Where possible, countries are welcome to share data at subnational level.

[1] Where not possible, countries are welcomed to apply shorter washout periods.

MENTAL HEALTHCARE (MH) QUESTIONNAIRE

Indicators in the mental care indicator set include:

- MH1) In-patient death from suicide among patients at the hospital with a mental disorder
- MH2) Death from suicide within 1 year after discharge among patients discharged with a mental disorder
- MH3) Death from suicide within 30 days after discharge among patients discharged with a mental disorder
- MH4) Excess mortality in people diagnosed with schizophrenia
- MH5) Excess mortality in people diagnosed with bipolar disorder

NOTES

Excess mortality indicators represent a ratio of two mortality rates (**Rate 1** and **Rate 2**) and aim to measure the excess mortality from all causes in people who have a diagnosis of the respective condition. **Rate 1** for these indicators equals the “all cause” mortality rate for all persons aged between 15 and 74 years old in the population diagnosed with the respective condition (schizophrenia, bipolar disorder). **Rate 2** equals the all-cause mortality rate for all persons aged between 15 and 74 in the total population.

Ideal data source for the denominator population in **Rate 1** is a complete register of all people who have ever had a relevant diagnosis but countries without complete registers should consider and assess the suitability of following datasets **provided they can be linked with mortality data**:

- Partial registers (e.g. covering one or more regions)
- Unique patients with a principal or first two listed secondary diagnoses of schizophrenia or bipolar disorder from combined inpatients/outpatients aggregated data, over a number of years (preferably at least 5)
- Representative health surveys
- Unique patients prescribed relevant medicines
- Primary care or other patient databases
- Insurance data

MH1) In-patient death from suicide among patients at the hospital with a mental disorder

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 years and older (5-year age group)

Numerator: Number of patient discharges among denominator cases coded as suicide (ICD-10 codes: X60-X84) in the year. Please note that only suicide should be included – i.e. suicide attempts and self-harm not resulting in death should be excluded.

Denominator: Number of patients discharged with a *principal diagnosis* or first two listed *secondary diagnosis* code of mental health and behavioural disorders (ICD-10 codes F10-F69 and F90-99) in the year.

MH2) Death from suicide within 1 year after discharge among patients discharged with a mental disorder

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 years and older (5-year age group)

Numerator: Number of patients among denominator cases that committed suicide (ICD-10 codes: X60-X84) within 1 year after discharge. Please note that only suicide should be included – i.e. suicide attempts and self-harm not resulting in death should be excluded.

Denominator: Number of patients discharged alive with a *principal diagnosis* or first two listed *secondary diagnosis* code of mental health and behavioural disorders (ICD-10 codes F10-F69 and F90-99) in the year. In cases with several admissions during the year, the follow up period starts from the last discharge (discharge from a hospital and thus not from one department to another).

Note: This indicator requires data that links hospital records with deaths after discharge.

MH3) Death from suicide within 30 days after discharge among patients discharged with a mental disorder

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Patients aged 15 years and older (5-year age group)

Numerator: Number of patients among denominator cases that committed suicide (ICD-10 codes:X60-X84) within 30 days after discharge. Please note that only suicide should be included – i.e. suicide attempts and self-harm not resulting in death should be excluded.

Denominator: Number of patients discharged alive with a *principal diagnosis* or first two listed *secondary diagnosis* code of mental health and behavioural disorders (ICD-10 codes F10-F69 and F90-99) in the year. In cases with several admissions during the year, the follow up period starts from the last discharge (discharge from a hospital and thus not from one department to another).

Note: This indicator requires data that links hospital records with deaths after discharge.

MH4) Excess mortality in people diagnosed with schizophrenia

See Glossary (Section 1.) for definitions of italicised terminology.

The indicator will be the ratio of Rate 1: Rate 2

Rate 1: Directly age- and sex-standardised "all cause" mortality rate in the year for all persons aged between 15 and 74 years old in the population with schizophrenia.

Coverage: Patients aged between 15 and 74 years (5-year age groups)

Numerator: All deaths among the denominator population in the year.

Denominator: All people aged 15-74 years ever diagnosed with schizophrenia (see list of ICD codes) as obtained from a register or equivalent data source in the year.

Rate 2: Directly age- and sex-standardised "all cause" mortality rate in the same year for all persons aged between 15 and 74 years old in the total population.

Coverage: People aged between 15 and 74 years (5-year age groups)

Numerator: All deaths among the denominator population in the year.

Denominator: All people aged 15-74 years in the year.

Schizophrenia diagnostic codes:

ICD-9-CM		**ICD-10-WHO**	
295.0	Simple type of schizophrenia	F20	Schizophrenia
295.1	Disorganised type of schizophrenia	F21	Schizotypal disorder
295.2	Catatonic type of schizophrenia	F23.1	Acute polymorphic psychotic disorder with symptoms of schizophrenia
295.3	Paranoid type of schizophrenia		
295.4	Acute schizophrenic episode	F23.2	Acute schizophrenia-like psychotic disorder
295.5	Latent schizophrenia	F25.0	Schizoaffective disorders
295.6	Residual schizophrenia	F25.1	Schizoaffective disorder, depressive type
295.7	Schizoaffective type of schizophrenia	F25.2	Schizoaffective disorder, mixed type
295.8	Other specified types of schizophrenia	F25.8	Other schizoaffective disorders
		F25.9	Schizoaffective disorder, unspecified
295.9	Unspecified schizophrenia		

MH5) Excess mortality in people diagnosed with bipolar disorder

See Glossary (Section 1.) for definitions of italicised terminology.

The indicator will be the ratio of Rate 1: Rate 2

Rate 1: Directly age- and sex-standardised "all cause" mortality rate in the year for all persons aged between 15 and 74 years old in the population with bipolar disorder.

Coverage: Patients aged between 15 and 74 years (5-year age groups)

Numerator: All deaths among the denominator population in the year.

Denominator: All people aged 15-74 years ever diagnosed with bipolar disorder (see list of ICD codes) as obtained from a register or equivalent data source in the year.

Rate 2: Directly age- and sex-standardised "all cause" mortality rate in the same year for all persons aged between 15 and 74 years old in the total population.

Coverage: People aged between 15 and 74 years (5-year age groups)

Numerator: All deaths among the denominator population in the year.

Denominator: All people aged 15-74 in the year.

Bipolar disorder diagnostic codes:

ICD-9-CM	**ICD-10-WHO**
296.4 Bipolar affective disorder, manic	F31 Bipolar affective disorder
296.5 Bipolar affective disorder, depressed	
296.6 Bipolar affective disorder, mixed	
296.7 Bipolar affective disorder, unspecified	
296.8 Manic depressive psychosis, other and unspecified	

PATIENT EXPERIENCES (PE) QUESTIONNAIRE

Indicators in the patient experience indicator set include:

- PE1) Consultation skipped due to costs
- PE2) Medical tests, treatment or follow-up skipped due to costs
- PE3) Prescribed medicine skipped due to costs
- PE4) Doctor spending enough time with patient during the consultation
- PE5) Regular doctor spending enough time with patient during the consultation
- PE6) Doctor providing easy-to-understand explanations
- PE7) Regular doctor providing easy-to-understand explanations
- PE8) Doctor giving opportunity to ask questions or raise concerns
- PE9) Regular doctor giving opportunity to ask questions or raise concerns
- PE10) Doctor involving patient in decisions about care and treatment
- PE11) Regular doctor involving patient in decisions about care and treatment
- PE12) Doctor treating patient with courtesy and respect
- PE13) Regular doctor treating patient with courtesy and respect

NOTES

PE questionnaire collects weighted rates, and standard errors of the weighted rates. Weighted rates are calculated by removing bias from a survey sample, so they are estimates for the survey target population as a whole and not just for the survey respondents (unweighted rates). Standard errors measure the accuracy of weighted rates and they **should take account of survey sample design**. But if not possible, please calculate it using the following equation:

$$Se(p_{ij}) = \sqrt{\frac{p_{ij} \times (1 - p_{ij})}{n_{ij}}}$$

Where p is the sample proportion, n is the sample size, i is the age group, and j the sex.

If data do not strictly comply with the definitions, please indicate this in the online survey. To assess the data comparability based on question phrases and response categories such as yes/no answer and frequency, please send us the survey questionnaire(s) to HCQO.Contact@oecd.org if your country has not done.

PE1) Consultation skipped due to costs

See Glossary (Section 1.) for definitions of italicized terminology

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered not having visited a health professional (e.g., doctor, nurse or allied health professional) because of costs (i.e., actual out-of-pocket payments for services) by *income quintile* and for all income groups.

Denominator: Number of survey respondents who answered "Yes" or "No" to a survey question on whether consultation was skipped due to costs in the reference year by *income quintile* and for all income groups.

PE2) Medical tests, treatment or follow-up skipped due to costs

See Glossary (Section 1.) for definitions of italicized terminology

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered having skipped a medical test, treatment (excluding medicines), or other follow-up that was recommended by a health professional (e.g., doctor, nurse or allied health professional) because of costs (i.e., actual out-of-pocket payments for services) by *income quintile* and for all income groups.

Denominator: Number of survey respondents who answered "Yes" or "No" to a survey question on whether recommended medical tests, treatment or follow-up was skipped due to costs in the reference year by *income quintile* and for all income groups.

PE3) Prescribed medicine skipped due to costs

See Glossary (Section 1.) for definitions of italicized terminology

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered not having filled a prescription for medicine/collect a prescription for medicine, or skipped doses of medicine because of costs (i.e., actual out-of-pocket payments for medicine) by *income quintile* and for all income groups.

Denominator: Number of survey respondents who answered "Yes" or "No" to a survey question on whether prescribed medicine was skipped due to costs in the reference year by *income quintile* and for all income groups.

PE4) Doctor spending enough time with patient during the consultation

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered positively to a question on whether a doctor spent enough time with them.

Denominator: Number of survey respondents who reported having had a consultation with a doctor in the reference year and answered "Yes" or "No" to a survey question on whether a doctor spent enough time with them.

PE5) Regular doctor spending enough time with patient during the consultation

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered that a regular doctor always or often spent enough time with them.

Denominator: Number of survey respondents who reported having had a regular doctor in the reference year and answered a frequency to a survey question on how often a regular doctor spent enough time with them.

PE6) Doctor providing easy-to-understand explanations

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered positively to a question on whether a doctor explained things in a way that was easy to understand.

Denominator: Number of survey respondents who reported having had a consultation with a doctor in the reference year and answered "Yes" or "No" to a survey question on whether a doctor explained things in a way that was easy to understand.

PE7) Regular doctor providing easy-to-understand explanations

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered that a regular doctor always or often explained things in a way that was easy to understand.

Denominator: Number of survey respondents who reported having had a regular doctor in the reference year and answered a frequency to a survey question on how often a regular doctor explained things in a way that was easy to understand.

PE8) Doctor giving opportunity to ask questions or raise concerns

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered positively to a question on whether a doctor gave an opportunity to ask questions or raise concerns about recommended treatment.

Denominator: Number of survey respondents who reported having had a consultation with a doctor in the reference year and answered "Yes" or "No" to a survey question on whether a doctor gave an opportunity to ask questions or raise concerns about recommended treatment.

PE9) Regular doctor giving opportunity to ask questions or raise concerns

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered that a regular doctor always or often gave an opportunity to ask questions or raise concerns about recommended treatment.

Denominator: Number of survey respondents who reported having had a regular doctor in the reference year and answered a frequency to a survey question on how often a regular doctor gave an opportunity to ask questions or raise concerns about recommended treatment.

PE10) Doctor involving patient in decisions about care and treatment

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered positively to a question on whether a doctor involved them as much as they wanted to be in decisions about their care and treatment.

Denominator: Number of survey respondents who reported having had a consultation with a doctor in the reference year and answered "Yes" or "No" to a survey question on whether a doctor involved them as much as they wanted to be in decisions about their care and treatment.

PE11) Regular doctor involving patient in decisions about care and treatment

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered that a doctor always or often involved them as much as they wanted to be in decisions about their care and treatment.

Denominator: Number of survey respondents who reported having had a regular doctor in the reference year and answered a frequency to a survey question on how often a regular doctor involved them as much as they wanted to be in decisions about their care and treatment.

PE12) Doctor treating patient with courtesy and respect

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered positively to a question on whether a doctor treated with courtesy and respect.

Denominator: Number of survey respondents who reported having had a consultation with a doctor in the reference year and answered "Yes" or "No" to a survey question on whether a doctor treated with courtesy and respect.

PE13) Regular doctor treating patient with courtesy and respect

See Glossary (Section 1.) for definitions of italicised terminology.

Crude or weighted rates are calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Coverage: Survey respondents aged 16 and over (4 age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among denominator cases who answered that a doctor always or often treated them with courtesy and respect.

Denominator: Number of survey respondents who reported having had a regular doctor in the reference year and answered a frequency to a survey question on how often a regular doctor treated them with courtesy and respect.

MENTAL HEALTH PREMS

Indicators in the Mental Health PREMs indicator set include:

- MP1) Care providers treating mental health service users with courtesy and respect (inpatient care)
- MP2) Care providers treating mental health service users with courtesy and respect (community-based care)
- MP3) Care providers spending enough time with mental health service users (inpatient care)
- MP4) Care providers spending enough time with mental health service users (community-based care)
- MP5) Care providers providing easy-to-understand explanations to mental health service users (inpatient care)
- MP6) Care providers providing easy-to-understand explanations to mental health service users (community-based care)
- MP7) Care providers involving mental health service users in decisions about care and treatment (inpatient care)
- MP8) Care providers involving mental health service users in decisions about care and treatment (community-based care)

MP1) Care providers treating mental health service users with courtesy and respect (inpatient care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Survey target population: Adults receiving inpatient hospital services (for example, in hospital, psychiatric hospital, mental healthcare institution, or other inpatient setting). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers treated them with courtesy and respect.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers treated them with courtesy and respect.

MP2) Care providers treating mental health service users with courtesy and respect (community-based care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Survey target population: Adults receiving community-based mental health services (i.e. non-hospital and non-inpatient care). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers treated them with courtesy and respect.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers treated them with courtesy and respect.

MP3) Care providers spending enough time with mental health service users (inpatient care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Target population: Adults receiving inpatient hospital services (for example, in hospital, psychiatric hospital, mental healthcare institution, or other inpatient setting). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers spent enough time with them.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers spent enough time with them.

MP4) Care providers spending enough time with mental health service users (community-based care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Target population Adults receiving community-based mental health services (i.e. non-hospital and non-inpatient care). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99). ***Note***: indicators for adults receiving inpatient services and those receiving community based mental health services are calculated separately.

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers spent enough time with them.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers spent enough time with them.

MP5) Care providers providing easy-to-understand explanations to mental health service users (inpatient care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Target population: Adults receiving inpatient hospital services (for example, in hospital, psychiatric hospital, mental healthcare institution, or other inpatient setting). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers explain things in a way that was easy to understand.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers explain things in a way that was easy to understand.

MP6) Care providers providing easy-to-understand explanations to mental health service users (community-based care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Target population: Adults receiving community-based mental health services (i.e. non-hospital and non-inpatient care). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers explain things in a way that was easy to understand.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers explain things in a way that was easy to understand.

MP7) Care providers involving mental health service users in decisions about care and treatment (inpatient care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Target population: Adults receiving inpatient services (for example, in hospital, psychiatric hospital, mental healthcare institution, or other inpatient setting). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers involve the as much as they wanted to be in decisions about their care and treatment.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers involve the as much as they wanted to be in decisions about their care and treatment.

MP8) Care providers involving mental health service users in decisions about care and treatment (community-based care)

See Glossary (Section 1.) for definitions of italicised terminology.

Crude rate (weighted) is calculated based on the following definitions. Standard errors should be calculated based on the sample design.

Target population: Adults receiving community-based mental health services (i.e. non-hospital or non-inpatient care). Long-term care residents are excluded. *Principal diagnosis* code of mental health and behavioral disorders (ICD-10 codes F10-F69 and F90-99).

Coverage: Survey respondents aged 16 and over (four age groups (16-24, 25-44, 45-65 and 65+) and 16+) who answered the specific question.

Numerator: Number of survey respondents among the denominator cases who answered positively to a question on whether care providers involve the as much as they wanted to be in decisions about their care and treatment.

Denominator: The number of survey respondents who answered "Yes" or "No" to a survey question on whether care providers involve the as much as they wanted to be in decisions about their care and treatment.

PATIENT SAFETY (PS) QUESTIONNAIRE

Indicators in the Patient safety indicator (PSI) set include:

- PS1) Retained surgical item or unretrieved device fragment using unlinked data
- PS2) Retained surgical item or unretrieved device fragment using linked data
- PS3) Postoperative pulmonary embolism - hip and knee replacement discharges using unlinked data
- PS4) Postoperative pulmonary embolism - hip and knee replacement discharges using linked data
- PS5) Postoperative deep vein thrombosis - hip and knee replacement discharges using unlinked data
- PS6) Postoperative deep vein thrombosis - hip and knee replacement discharges using linked data
- PS7) Postoperative sepsis - abdominal discharges using unlinked data
- PS8) Postoperative sepsis - abdominal discharges using linked data
-

- PS9) Obstetric trauma vaginal delivery with instrument
- PS10) Obstetric trauma vaginal delivery without instrument

NOTES

The following abbreviations are used in the indicator algorithms and questionnaire to denote specified data outputs for the HCQO data collection:

DEN	Denominator dataset
LOS	Length of stay
NUM	Numerator dataset
PDX	Principal diagnosis

Each indicator includes a flow chart to illustrate calculation steps.

PS1) Retained surgical item or unretrieved device fragment using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Surgical and medical discharges for patients aged 15 and older

Numerator: Discharges among cases defined in the denominator with ICD code for foreign body left in during procedure in a secondary diagnosis field during the surgical admission (see ICD codes below).

Denominator: All surgical and medical discharges for patients aged 15 and older (Figure 2.12).

Exclude:

- **PDX** - with ICD- code for foreign body left in during procedure in a) the principal diagnosis field or b) secondary diagnosis present on admission (if known)**.**
- **LOS** - with a length of stay less than 24 hours where patient is discharged alive (in those countries where a timestamp of admission or discharge is not available, cases with a length of stay of 0 days shall be excluded).

ICD-9-CM Retained surgical item or unretrieved device fragment diagnosis codes:

9984	Foreign body accidentally left during a procedure
9987	Acute reactions to foreign substance accidentally left during a procedure

Foreign body left in during:

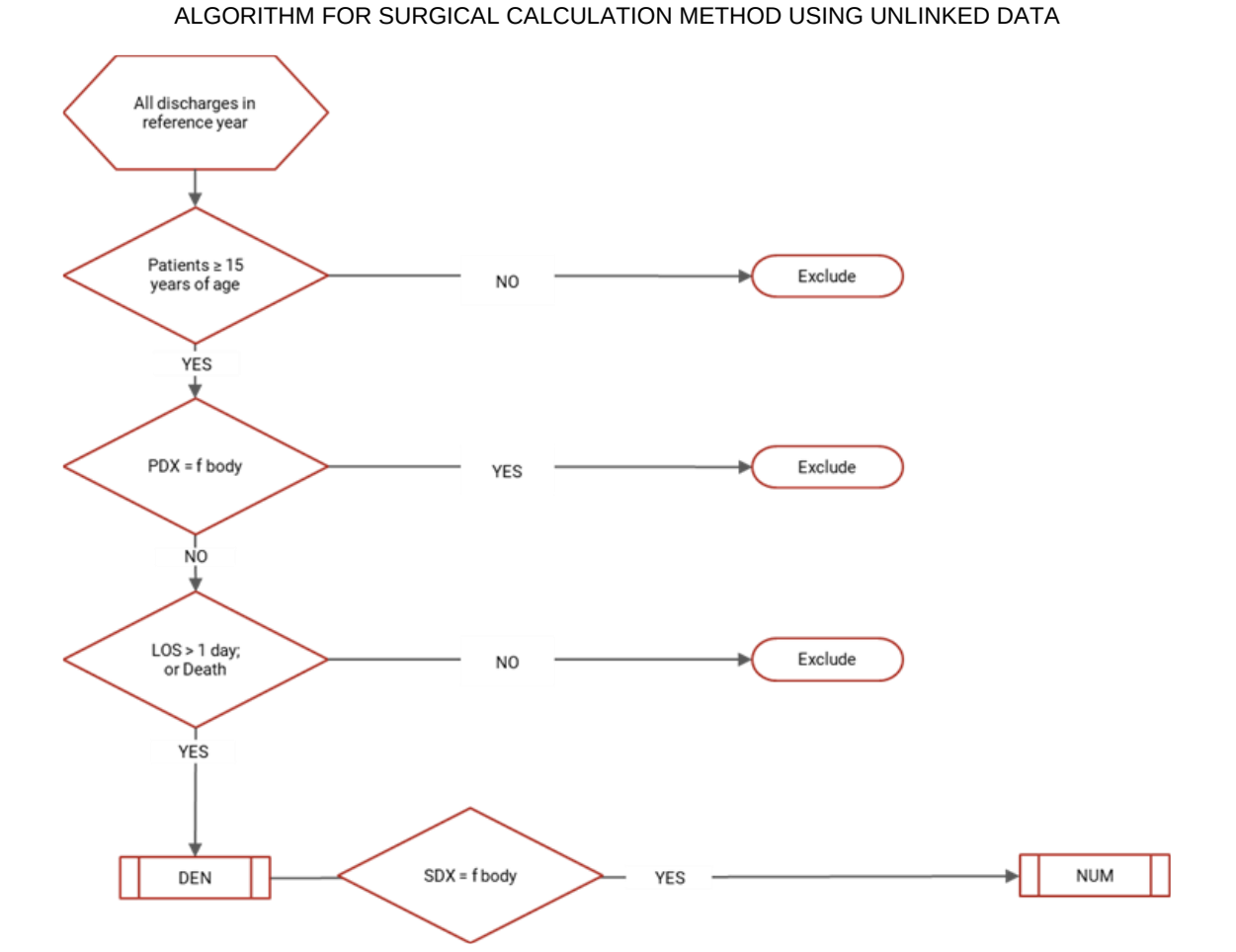
E8710	Surgical operation
E8711	Infusion or transfusion
E8712	Kidney dialysis or other perfusion
E8713	Injection or vaccination
E8714	Endoscopic examination
E8715	Aspiration of fluid or tissue, puncture, and catheterization
E8716	Heart catheterization
E8717	Removal of catheter or packing
E8718	Other specified procedures
E8719	Unspecified procedure

ICD-10-WHO Retained surgical item or unretrieved device fragment diagnosis codes:

T81.5	Foreign body accidentally left in body cavity or operation wound following a procedure
T81.6	Acute reaction to foreign substance accidentally left during a procedure
Y61.0	Foreign object accidentally left in body during surgical and medical care: During surgical operation
Y61.1	Foreign object accidentally left in body during surgical and medical care: During infusion or transfusion
Y61.2	Foreign object accidentally left in body during surgical and medical care: During kidney dialysis or other perfusion
Y61.3	Foreign object accidentally left in body during surgical and medical care: During injection or immunization

Y61.4	Foreign object accidentally left in body during surgical and medical care: During endoscopic examination
Y61.5	Foreign object accidentally left in body during surgical and medical care: During heart catheterization
Y61.6	Foreign object accidentally left in body during surgical and medical care: During aspiration, puncture and other catheterization
Y61.7	Foreign object accidentally left in body during surgical and medical care: During removal of catheter or packing
Y61.8	Foreign object accidentally left in body during surgical and medical care: During other surgical and medical care
Y61.9	Foreign object accidentally left in body during surgical and medical care: During unspecified surgical and medical care

Figure 2.12. Retained surgical item or unretrieved device fragment



PDX: principal diagnosis, f body: foreign body, LOS: length of stay, DEN: denominator dataset, SDX: secondary diagnosis, NUM: numerator cases based on surgical admission
Source: OECD.

PS2) Retained surgical item or unretrieved device fragment using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Surgical and medical discharges for patients aged 15 and older

Numerator: Discharges (NUM1 + NUM2 + NUM3) among cases defined in the denominator with ICD code for foreign body left in during procedure in a secondary diagnosis field during the surgical admission (see ICD codes below).

- NUM1: complications during the surgical admissions
- NUM2: readmissions into the same hospital
- NUM3: readmissions into different hospitals

Denominator: All patients aged 15 and older with any surgical and medical discharges (including PDX and short LOS)

Exclude:

- From NUM1 only:
    - PDX - with ICD- code for foreign body left in during procedure in a) the principal diagnosis field or b) secondary diagnosis present on admission (if known).
    - LOS - with a length of stay less than 24 hours where patient is discharged alive (in those countries where a timestamp of admission or discharge is not available, cases with a length of stay of 0 days shall be excluded).
- From NUM2 and NUM3:
    - Admission occurs more than 30 days after a previous one (matched record is not readmission)

ICD-9-CM Retained surgical item or unretrieved device fragment diagnosis codes:

9984	Foreign body accidentally left during a procedure
9987	Acute reactions to foreign substance accidentally left during a procedure

Foreign body left in during:

E8710	Surgical operation
E8711	Infusion or transfusion
E8712	Kidney dialysis or other perfusion
E8713	Injection or vaccination
E8714	Endoscopic examination
E8715	Aspiration of fluid or tissue, puncture, and catheterization
E8716	Heart catheterization
E8717	Removal of catheter or packing
E8718	Other specified procedures
E8719	Unspecified procedure

ICD-10-WHO Retained surgical item or unretrieved device fragment diagnosis codes:

T81.5	Foreign body accidentally left in body cavity or operation wound following a procedure
T81.6	Acute reaction to foreign substance accidentally left during a procedure
Y61.0	Foreign object accidentally left in body during surgical and medical care: During surgical operation
Y61.1	Foreign object accidentally left in body during surgical and medical care: During infusion or transfusion
Y61.2	Foreign object accidentally left in body during surgical and medical care: During kidney dialysis or other perfusion
Y61.3	Foreign object accidentally left in body during surgical and medical care: During injection or immunization
Y61.4	Foreign object accidentally left in body during surgical and medical care: During endoscopic examination
Y61.5	Foreign object accidentally left in body during surgical and medical care: During heart catheterization
Y61.6	Foreign object accidentally left in body during surgical and medical care: During aspiration, puncture and other catheterization
Y61.7	Foreign object accidentally left in body during surgical and medical care: During removal of catheter or packing
Y61.8	Foreign object accidentally left in body during surgical and medical care: During other surgical and medical care
Y61.9	Foreign object accidentally left in body during surgical and medical care: During unspecified surgical and medical care

PS3) Postoperative pulmonary embolism - hip and knee replacement discharges using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Hip&knee replacement discharges for patients aged 15 and older.

Numerator: Discharges among cases defined in the denominator with ICD code for pulmonary embolism in a *secondary diagnosis* field during the surgical admission (see ICD codes below).

Denominator: Hip and knee replacement discharges, meeting the inclusion and exclusion rules with an ICD code for an operating room procedure (Figure 2.13).

Exclude:

- **Obstetric hospitalisations -** Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- **IVC** - Cases from the numerator and denominator where a procedure for interruption of vena cava or insertion of inferior vena cava filter occurs before or on the same day as the first / main operating room procedure (hip/knee replacement and all surgical discharges) or where a procedure for interruption of vena cava is the only operating room procedure (all surgical discharges).
- **PDX** - case with *principal diagnosis* or secondary diagnosis present on admission (if known) of pulmonary embolism during the *surgical admission* **(NUM1),**
- **LOS -** *surgical admissions* **(NUM1)** with length of stay less than 2 days where patient is discharged alive.

ICD-9-CM Total hip and knee replacement procedure code:

8151	Total hip replacement
8153	Revision of hip replacement
8154	Total knee replacement
8155	Revision of knee replacement

ICD-9-CM Pulmonary Embolism diagnosis codes:

4151	Pulmonary embolism
41511	Iatrogenic pulmonary embolism and infarction
41519	Pulmonary embolism and infarction, other
41513	Saddle embolism pulmonary artery

ICD-10-WHO Pulmonary Embolism diagnosis codes:

I26.0	Pulmonary embolism with mention of acute cor pulmonale
I26.9	Pulmonary embolism without mention of acute cor pulmonale

ICD-9-CM Interruption of Vena Cava procedure code:

387	Interruption of vena cava
	Percutaneous and open insertion of inferior vena cava filter

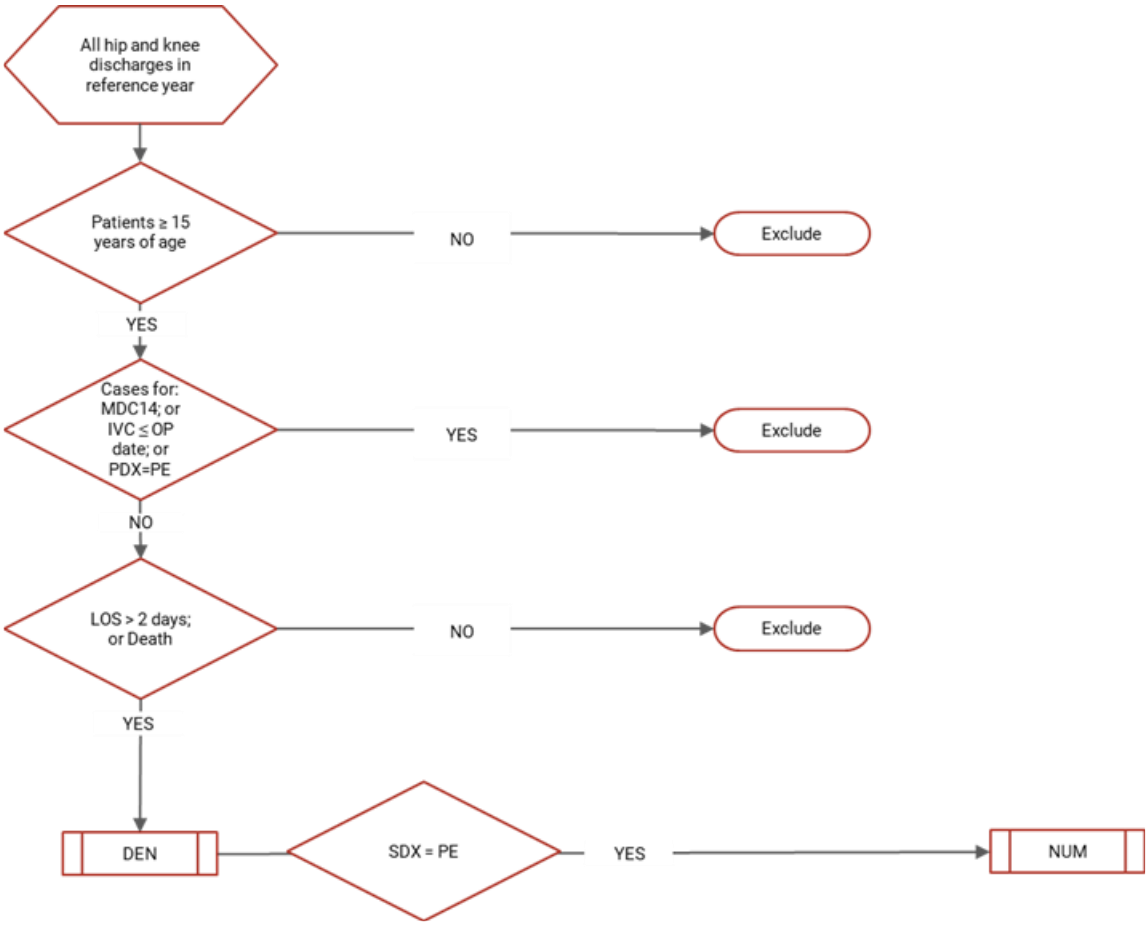
Note: Please search for percutaneous and open insertion of IVC filter codes in your country's version of procedure coding.

The Australian Classification of Health Interventions (ACHI) codes:

Block [726]	34800-00	Interruption of vena cava
Block [723]	35330-00	Percutaneous insertion of inferior vena cava filter
Block [723]	35330-01	Open insertion of inferior vena cava filter

Figure 2.13. Postoperative pulmonary embolism - hip and knee replacement

ALGORITHM FOR CALCULATION METHOD USING UNLINKED DATA



OP=IVC: operating procedure for vena cava, PDX: principal diagnosis, PE: pulmonary embolism, LOS: length of stay, DEN: denominator dataset, SDX: secondary diagnosis, NUM1: numerator cases based on surgical admission.
Source: OECD.

PS4) Postoperative pulmonary embolism - hip and knee replacement discharges using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Hip and knee replacement discharges for patients aged 15 and older.

Numerator: Discharges (NUM1 + NUM2 + NUM3) among cases defined in the denominator with ICD code for pulmonary embolism in a secondary diagnosis field during the surgical admission (see ICD codes below) and in any diagnosis field during readmissions within 30 days of the surgery. If the date of surgery is not available, then 30 days from the admission date for the first surgical admission.

- NUM1: complications during the surgical admissions
- NUM2: readmissions into the same hospital
- NUM3: readmissions into different hospitals

Denominator: Hip and knee replacement discharges, meeting the inclusion and exclusion rules with an ICD code for an operating room procedure.

Exclude:

- **Obstetric hospitalisations -** Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- **IVC** - Cases from the numerator and denominator where a procedure for interruption of vena cava or insertion of inferior vena cava filter occurs before or on the same day as the first / main operating room procedure (hip/knee replacement and all surgical discharges) or where a procedure for interruption of vena cava is the only operating room procedure (all surgical discharges).
- From NUM1 only:
    - PDX - cases with principal diagnosis or secondary diagnosis present on admission (if known) of deep vein thrombosis during the surgical admission (NUM1),
    - LOS - surgical admissions (NUM1) with length of stay less than 2 days.
- NUM 2 and NUM3
    - READM - readmissions more than 30 days after the operation date from the numerator (matched record is not considered readmission as cases are considered to be at risk within 30 days)

Exclude PDX and LOS cases from the denominator if only the Surgical admissions-based calculation is carried out (countries without a UPI). Otherwise, if using the All admissions-based method, no exclusions apply as all denominator cases are considered to be at risk within 30 days.

ICD-9-CM Total hip and knee replacement procedure code:

8151	Total hip replacement
8153	Revision of hip replacement
8154	Total knee replacement
8155	Revision of knee replacement

ICD-9-CM Pulmonary Embolism diagnosis codes:

4151	Pulmonary embolism
41511	Iatrogenic pulmonary embolism and infarction
41519	Pulmonary embolism and infarction, other
41513	Saddle embolism pulmonary artery

ICD-10-WHO Pulmonary Embolism diagnosis codes:

I26.0	Pulmonary embolism with mention of acute cor pulmonale
I26.9	Pulmonary embolism without mention of acute cor pulmonale

ICD-9-CM Interruption of Vena Cava procedure code:

387	Interruption of vena cava
	Percutaneous and open insertion of inferior vena cava filter

Note: Please search for percutaneous and open insertion of IVC filter codes in your country's version of procedure coding.

The Australian Classification of Health Interventions (ACHI) codes:

Block [726]	34800-00	Interruption of vena cava
Block [723]	35330-00	Percutaneous insertion of inferior vena cava filter
Block [723]	35330-01	Open insertion of inferior vena cava filter

PS5) Postoperative deep vein thrombosis - hip and knee replacement discharges using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Hip and knee replacement discharges for patients aged 15 and older.

Numerator: Discharges among cases defined in the denominator with ICD code for deep vein thrombosis in a secondary diagnosis field during the surgical admission (see ICD codes below)

Denominator: Hip and knee replacement discharges, meeting the inclusion and exclusion rules with an ICD code for an operating room procedure (Figure 2.14).

Exclude:

- **Obstetric hospitalisations -** Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- **IVC** - cases from the numerator and denominator where a procedure for interruption of vena cava or insertion of inferior vena cava filter occurs before or on the same day as the first / main operating room procedure (hip/knee replacement and all surgical discharges)
- **PE -** if a patient has both PE and DVT, such case is assigned to PE
- **PDX** - cases with principal diagnosis or secondary diagnosis present on admission (if known) of deep vein thrombosis during the surgical admission (NUM1)
- **LOS -** surgical admissions (NUM1) with length of stay less than 2 days where patient is discharged alive.

ICD-9-CM Total hip and knee replacement procedure code:

8151	Total hip replacement
8153	Revision of hip replacement
8154	Total knee replacement
8155	Revision of knee replacement

ICD-9-CM Deep Vein Thrombosis diagnosis codes:

45111	Phlebitis and thrombosis of femoral vein (deep) (superficial)
45119	Phlebitis and thrombophlebitis of deep vessel of lower extremities – other
4512	Phlebitis and thrombophlebitis of lower extremities
45181	Phlebitis and thrombophlebitis of iliac vein
4519	Phlebitis and thrombophlebitis of other sites – of unspecified site
45340	DVT-embolism lower ext nos (Oct 04)
45341	DVT-emb prox lower ext
45342	DVT-emb distal lower ext
4538	Other venous embolism and thrombosis of other specified veins

ICD-10-WHO Pulmonary Embolism and Deep Vein Thrombosis diagnosis codes:

I80.1	Phlebitis and thrombophlebitis of femoral vein
I80.2	Phlebitis and thrombophlebitis of other deep vessels of lower extremities

I80.3	Phlebitis and thrombophlebitis of lower extremities, unspecified
I80.8	Phlebitis and thrombophlebitis of other sites
I80.9	Phlebitis and thrombophlebitis of unspecified site
I82.8	Embolism and thrombosis of other specified veins

ICD-9-CM Interruption of Vena Cava procedure code:

387	Interruption of vena cava
	Percutaneous and open insertion of inferior vena cava filter

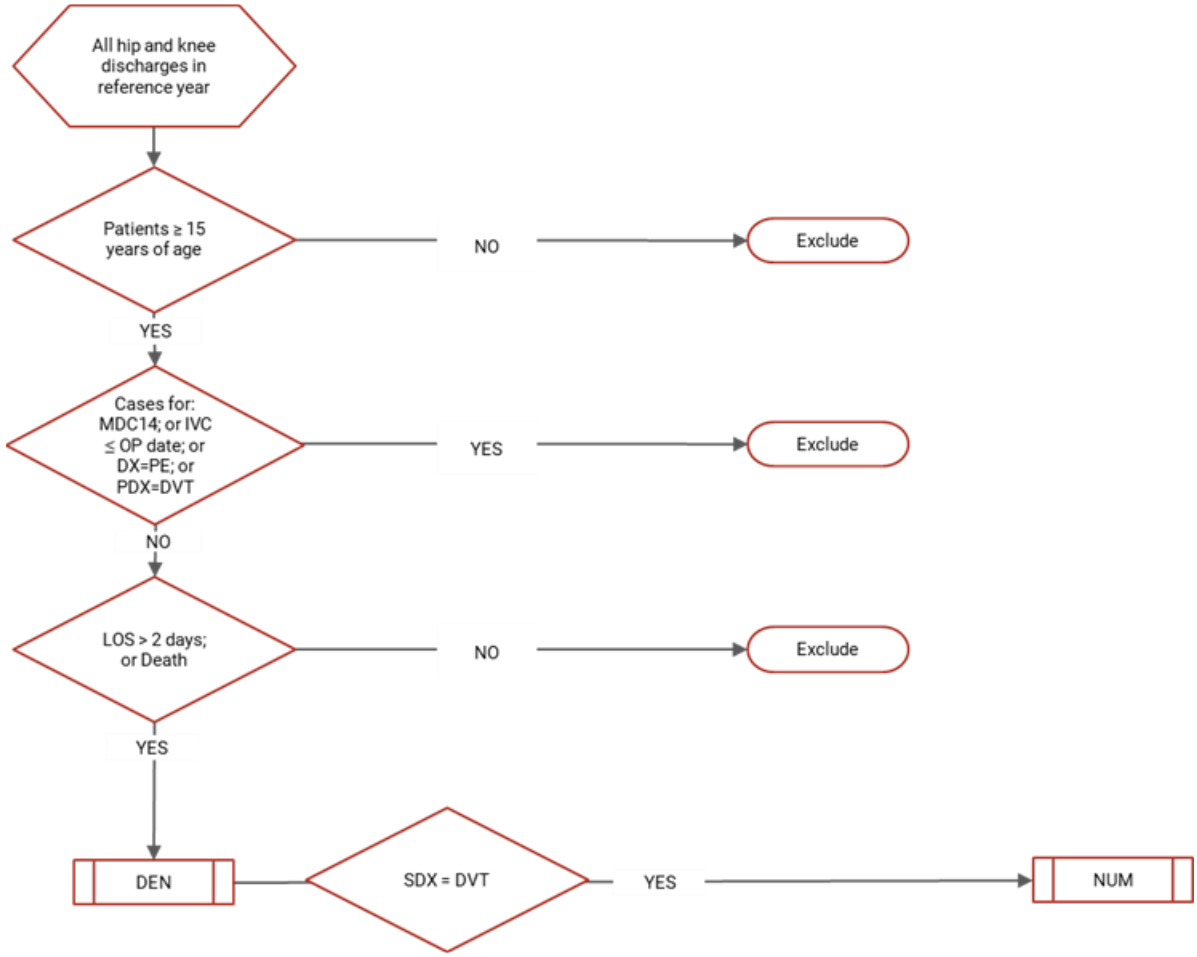
Note: Please search for percutaneous and open insertion of IVC filter codes in your country's version of procedure coding.

The Australian Classification of Health Interventions (ACHI) codes:

Block [726]	34800-00	Interruption of vena cava
Block [723]	35330-00	Percutaneous insertion of inferior vena cava filter
Block [723]	35330-01	Open insertion of inferior vena cava filter

Figure 2.14. Postoperative deep vein thrombosis - hip and knee replacement

ALGORITHM FOR CALCULATION METHOD USING UNLINKED DATA



OP=IVC: operating procedure for vena cava, PDX: principal diagnosis, PE: pulmonary embolism, DVT: deep vein thrombosis, LOS: length of stay, DEN: denominator dataset, SDX: secondary diagnosis, NUM1: numerator cases based on surgical admission.
Source: OECD,

PS6) Postoperative deep vein thrombosis - hip and knee replacement discharges using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Hip and knee replacement discharges for patients aged 15 and older.

Numerator: Discharges (NUM1 + NUM2 + NUM3) among cases defined in the denominator with ICD code for deep vein thrombosis in a secondary diagnosis field during the surgical admission (see ICD codes below) and in any diagnosis field during readmissions within 30 days of the surgery. If the date of surgery is not available, then 30 days from the admission date for the first surgical admission.

- NUM1: complications during the surgical admissions
- NUM2: readmissions into the same hospital
- NUM3: readmissions into different hospitals

Denominator: Hip and knee replacement discharges, meeting the inclusion and exclusion rules with an ICD code for an operating room procedure.

Exclude:

- **Obstetric hospitalisations -** Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- **IVC** - cases from the numerator and denominator where a procedure for interruption of vena cava or insertion of inferior vena cava filter occurs before or on the same day as the first / main operating room procedure (hip/knee replacement and all surgical discharges)
- **PE -** if a patient has both PE and DVT, such case is assigned to PE
- From NUM1 only:
    - PDX - cases with principal diagnosis or secondary diagnosis present on admission (if known) of deep vein thrombosis during the surgical admission (NUM1),
    - LOS - surgical admissions (NUM1) with length of stay less than 2 days.
- NUM 2 and NUM3
    - READM - readmissions more than 30 days after the operation date from the numerator (matched record is not considered readmission as cases are considered to be at risk within 30 days)

ICD-9-CM Total hip and knee replacement procedure code:

8151	Total hip replacement
8153	Revision of hip replacement
8154	Total knee replacement
8155	Revision of knee replacement

ICD-9-CM Deep Vein Thrombosis diagnosis codes:

45111	Phlebitis and thrombosis of femoral vein (deep) (superficial)
45119	Phlebitis and thrombophlebitis of deep vessel of lower extremities – other
4512	Phlebitis and thrombophlebitis of lower extremities

45181	Phlebitis and thrombophlebitis of iliac vein
4519	Phlebitis and thrombophlebitis of other sites – of unspecified site
45340	DVT-embolism lower ext nos (Oct 04)
45341	DVT-emb prox lower ext
45342	DVT-emb distal lower ext
4538	Other venous embolism and thrombosis of other specified veins

ICD-10-WHO Pulmonary Embolism and Deep Vein Thrombosis diagnosis codes:

I80.1	Phlebitis and thrombophlebitis of femoral vein
I80.2	Phlebitis and thrombophlebitis of other deep vessels of lower extremities
I80.3	Phlebitis and thrombophlebitis of lower extremities, unspecified
I80.8	Phlebitis and thrombophlebitis of other sites
I80.9	Phlebitis and thrombophlebitis of unspecified site
I82.8	Embolism and thrombosis of other specified veins

ICD-9-CM Interruption of Vena Cava procedure code:

387	Interruption of vena cava
	Percutaneous and open insertion of inferior vena cava filter

Note: Please search for percutaneous and open insertion of IVC filter codes in your country's version of procedure coding.

The Australian Classification of Health Interventions (ACHI) codes:

Block [726]	34800-00	Interruption of vena cava
Block [723]	35330-00	Percutaneous insertion of inferior vena cava filter
Block [723]	35330-01	Open insertion of inferior vena cava filter

PS7) Postoperative sepsis - abdominal discharges using unlinked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Abdominal discharges for patients aged 15 and older.

Numerator: Discharges among cases defined in the denominator with ICD code for sepsis in a secondary diagnosis field during the surgical admission (see ICD codes below)

Denominator: Abdominopelvic surgical discharges only, meeting the inclusion and exclusion rules with an ICD code for an operating room procedure (Figure 2.15).

Abdominopelvic discharges: See Annex B (Excel sheet - HCQO 2022_23 Data Collection_Annex A-E)

Exclude:

- **Obstetric hospitalisations -** Cases assigned to an obstetric DRG, e.g. from *MDC 14* or specified pregnancy, childbirth, and puerperium codes in any field – Refer to 9. Glossary "Obstetric hospitalisations" in this document for details.
- **INF** - cases from numerator and denominator with *principal diagnosis* of infection or secondary diagnosis present on admission, if known – see ICD codes below,
- **IMM/CA** - cases from numerator and denominator with any code for immunocompromised state or cancer – see ICD codes below
- **PDX** - cases with *principal diagnosis* or diagnosis present on admission (where possible) of sepsis
- **LOS -** length of stay of less than 3 days where patient is discharged alive.

ICD-9-CM Sepsis diagnosis codes:

0380	Streptococcal septicaemia
0381	Staphylococcal septicaemia
03810	Staphylococcal ependence, unspecified
03811	Methicillin susceptible Staphylococcus aureus septicaemia
03812	Methicillin resistant Staphylococcus aureus septicaemia
03819	Other staphylococcal septicaemia
0382	Pneumococcal ependence (streptococcus pneumoniale ependence)
0383	Septicaemia due to anaerobes
78552	Septic shock
78559	Other shock w/o mention of trauma
9980	Postoperative shock
99800	Postoperative shock, nos
99802	Postoperative shock, septic

Septicaemia due to:

03840	Gram-negative organism, unspecified
03841	Haemophilus influenza
03842	Escherichia coli
03843	Pseudomonas
03844	Serratia

03849	Septicaemia due to other gram-negative organisms
0388	Other specified septicaemias
0389	Unspecified septicaemia
99591	Systemic inflammatory response syndrome due to infectious process w/o organ dysfunction
99592	Systematic inflammatory response syndrome due to infectious process w/organ dysfunction

ICD-10-WHO Sepsis diagnosis codes:	
A40.0	Septicaemia due to streptococcus, group a
A40.1	Septicaemia due to streptococcus, group b
A40.2	Septicaemia due to streptococcus, group d
A40.3	Septicaemia due to streptococcus pneumoniae
A40.8	Other streptococcal septicaemia
A40.9	Streptococcal septicaemia, unspecified
A41.0	Septicaemia due to staphylococcus aureus
A41.1	Septicaemia due to other specified staphylococcus
A41.2	Septicaemia due to unspecified staphylococcus
A41.3	Septicaemia due to haemophilus influenza
A41.4	Septicaemia due to anaerobes
A41.5	Septicaemia due to other gram-negative organisms
A41.8	Other specified septicaemia
A41.9	Septicaemia, unspecified
R57.2	Septic shock
R57.8	Other shock
R65.0	Systemic Inflammatory Response Syndrome of infectious origin without organ failure
R65.1	Systemic Inflammatory Response Syndrome of infectious origin with organ failure
T81.1	Shock during or resulting from a procedure, not elsewhere classified

Immunocompromised state codes:

- ICD-9-CM: See Appendix I – Immunocompromised state diagnosis and procedure codes, of the following document:

http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/V44/TechSpecs/PSI%20Appendices.pdf

- ICD-10-WHO: See Annex C (Excel sheet - HCQO 2022_23 Data Collection_Annex A-E). Please note the related procedure codes (see ICD-9-CM codes above) are not specified and countries are requested to search for the relevant codes in their procedure classification systems.

Cancer codes:

- ICD-9-CM: See *Appendix H – Cancer diagnosis codes,* of the following document:

http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/V44/TechSpecs/PSI%20Appendices.pdf

- ICD-10-WHO: See Annex D (Excel sheet - HCQO 2022_23 Data Collection_Annex A-E).

Infection codes:

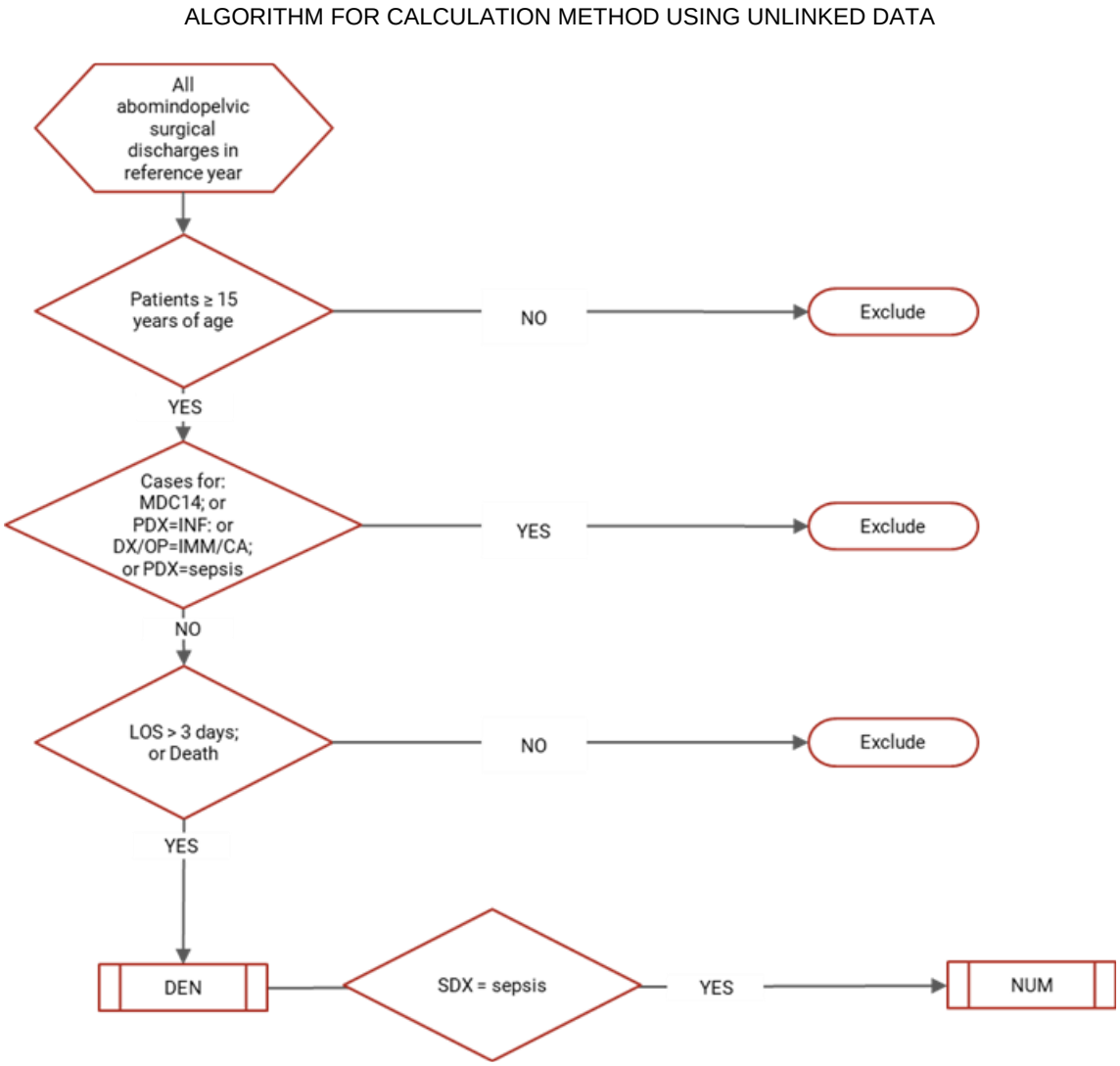
- ICD-9-CM: See Appendix F –Infection diagnosis codes, of the following document:

http://www.qualityindicators.ahrq.gov/Downloads/Modules/PSI/V44/TechSpecs/PSI%20Appendices.pdf

- ICD-10-WHO: See Annex E (Excel sheet - HCQO 2022_23 Data Collection_Annex A-E).

https://qualityindicators.ahrq.gov/Downloads/Modules/PSI/V2022/TechSpecs/PSI_Appendix_F.pdf

Figure 2.15. Postoperative sepsis



DX/OP=imm/ca: diagnosis or operating procedure immunocompromised satate or cancer, PDX: principal diagnosis, LOS: length of stay, DEN: denominator dataset, SDX: secondary diagnosis, NUM1: numerator cases based on surgical admission
Source: OECD.

PS8) Postoperative sepsis - abdominal discharges using linked data

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Abdominal discharges for patients aged 15 and older.

Numerator: Discharges (NUM1 + NUM2 + NUM3) among cases defined in the denominator with ICD code for sepsis in a secondary diagnosis field during the surgical admission (see ICD codes below) and in any diagnosis field during readmissions within 30 days of the surgery. If the date of surgery is not available, then 30 days from the admission date (first surgical admission).

- NUM1: complications during the surgical admissions
- NUM2: readmissions into the same hospital
- NUM3: readmissions into different hospitals

Denominator: Abdominopelvic surgical discharges only, meeting the inclusion and exclusion rules with an ICD code for an operating room procedure.

Exclude:

- MDC - cases from the numerator and denominator for MDC 14 (Pregnancy, childbirth, and puerperium) or principal diagnosis in Annex A: M-3 Code list for MDC 14 (refer to separate MS Excel file)
- INF - cases from numerator and denominator with principal diagnosis of infection or secondary diagnosis present on admission, if known – see ICD codes below,
- IMM/CA - cases from numerator and denominator with any code for immunocompromised state or cancer – see ICD codes below,
- From NUM1 only:
    - PDX - cases with principal diagnosis or diagnosis present on admission (where possible) of sepsis during the surgical admission (NUM1),
    - LOS - surgical admissions (NUM1) with length of stay of less than 3 days.
- From NUM2 and NUM3:
    - Admission occurs more than 30 days after a previous one (matched record is readmission)

Exclude PDX and LOS cases from the denominator if only the Surgical admissions-based calculation is carried out (countries without a UPI). Otherwise, if using the All admissions-based method, no exclusions apply as all denominator cases are considered to be at risk within 30 days.

ICD-9-CM Sepsis diagnosis codes:

0380	Streptococcal septicaemia
0381	Staphylococcal septicaemia
03810	Staphylococcal ependence, unspecified
03811	Methicillin susceptible Staphylococcus aureus septicaemia
03812	Methicillin resistant Staphylococcus aureus septicaemia
03819	Other staphylococcal septicaemia
0382	Pneumococcal ependence (streptococcus pneumoniale ependence)
0383	Septicaemia due to anaerobes
78552	Septic shock
78559	Other shock w/o mention of trauma

9980	Postoperative shock
99800	Postoperative shock, nos
99802	Postoperative shock, septic

Septicaemia due to:

03840	Gram-negative organism, unspecified
03841	Haemophilus influenza
03842	Escherichia coli
03843	Pseudomonas
03844	Serratia
03849	Septicaemia due to other gram-negative organisms
0388	Other specified septicaemias
0389	Unspecified septicaemia
99591	Systemic inflammatory response syndrome due to infectious process w/o organ dysfunction
99592	Systematic inflammatory response syndrome due to infectious process w/organ dysfunction

ICD-10-WHO Sepsis diagnosis codes:	
A40.0	Septicaemia due to streptococcus, group a
A40.1	Septicaemia due to streptococcus, group b
A40.2	Septicaemia due to streptococcus, group d
A40.3	Septicaemia due to streptococcus pneumoniae
A40.8	Other streptococcal septicaemia
A40.9	Streptococcal septicaemia, unspecified
A41.0	Septicaemia due to staphylococcus aureus
A41.1	Septicaemia due to other specified staphylococcus
A41.2	Septicaemia due to unspecified staphylococcus
A41.3	Septicaemia due to haemophilus influenza
A41.4	Septicaemia due to anaerobes
A41.5	Septicaemia due to other gram-negative organisms
A41.8	Other specified septicaemia
A41.9	Septicaemia, unspecified
R57.2	Septic shock
R57.8	Other shock
R65.0	Systemic Inflammatory Response Syndrome of infectious origin without organ failure
R65.1	Systemic Inflammatory Response Syndrome of infectious origin with organ failure
T81.1	Shock during or resulting from a procedure, not elsewhere classified

PS9) Obstetric trauma vaginal delivery with instrument

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Vaginal delivery discharges for patients.

Numerator: Discharges among cases defined in the denominator with ICD code for 3rd and 4th degree obstetric trauma in any diagnosis or procedure field (see ICD codes below).

Denominator: All vaginal delivery discharges with any procedure code for instrument-assisted delivery (see procedure codes below and Figure 2.16).

ICD-9-CM Obstetric Trauma diagnosis codes:

66420	Delivery with third degree laceration, unspecified
66421	Delivery with third degree laceration, during delivery
66424	Delivery with third degree laceration, postpartum condition or complication
66430	Trauma to perineum and vulva during delivery, fourth degree perineal laceration
66431	Trauma to perineum and vulva during delivery, fourth degree perineal laceration
66434	Trauma to perineum and vulva during delivery, fourth degree perineal laceration

ICD-9-CM Obstetric Trauma repair procedure codes:

7561	Repair of current obstetric lacerations of bladder and urethra
7562	Repair of current obstetric lacerations of rectum and sphincter

ICD-10-WHO Obstetric Trauma diagnosis codes:

O70.2	Third degree perineal laceration during delivery
O70.3	Fourth degree perineal laceration during delivery

ICD-9-CM Instrument-Assisted Delivery procedure codes:

720	Low forceps operation
721	Low forceps operation w/ episiotomy
7221	Mid forceps operation w/ episiotomy
7229	Other mid forceps operation
7231	High forceps operation w/ episiotomy
7239	Other high forceps operation
724	Forceps rotation of fetal head
7251	Partial breech extraction w/ forceps to aftercoming head
7253	Total breech extraction w/ forceps to aftercoming head
726	Forceps application to aftercoming head
7271	Vacuum extraction w/ episiotomy
7279	Vacuum extraction delivery nec

Note: delivery admissions must be classified into four categories:

- c-section deliveries (excluded)
- forceps and vacuum assisted deliveries from which this indicator is calculated
- all other deliveries (including failed forceps/vaccum, episotomy, etc … and non-instrument) from which non-instrument indicator is calculated
- Failed vacuum extraction, failed forceps, assisted breech delivery, episiotomy, incision of cervix and symphysiotomy procedures are not included in the Instrument Assisted Delivery Procedures code list. Therefore, these procedures are excluded from the definition of the 'with instrument' indicator and conversely included in the definition of the 'without instrument' indicator.

ICD-9-CM Outcome of delivery codes:

Note: This category is intended for the coding of the outcome of delivery on the mother's record (Department of Health and Human Services, 2007)

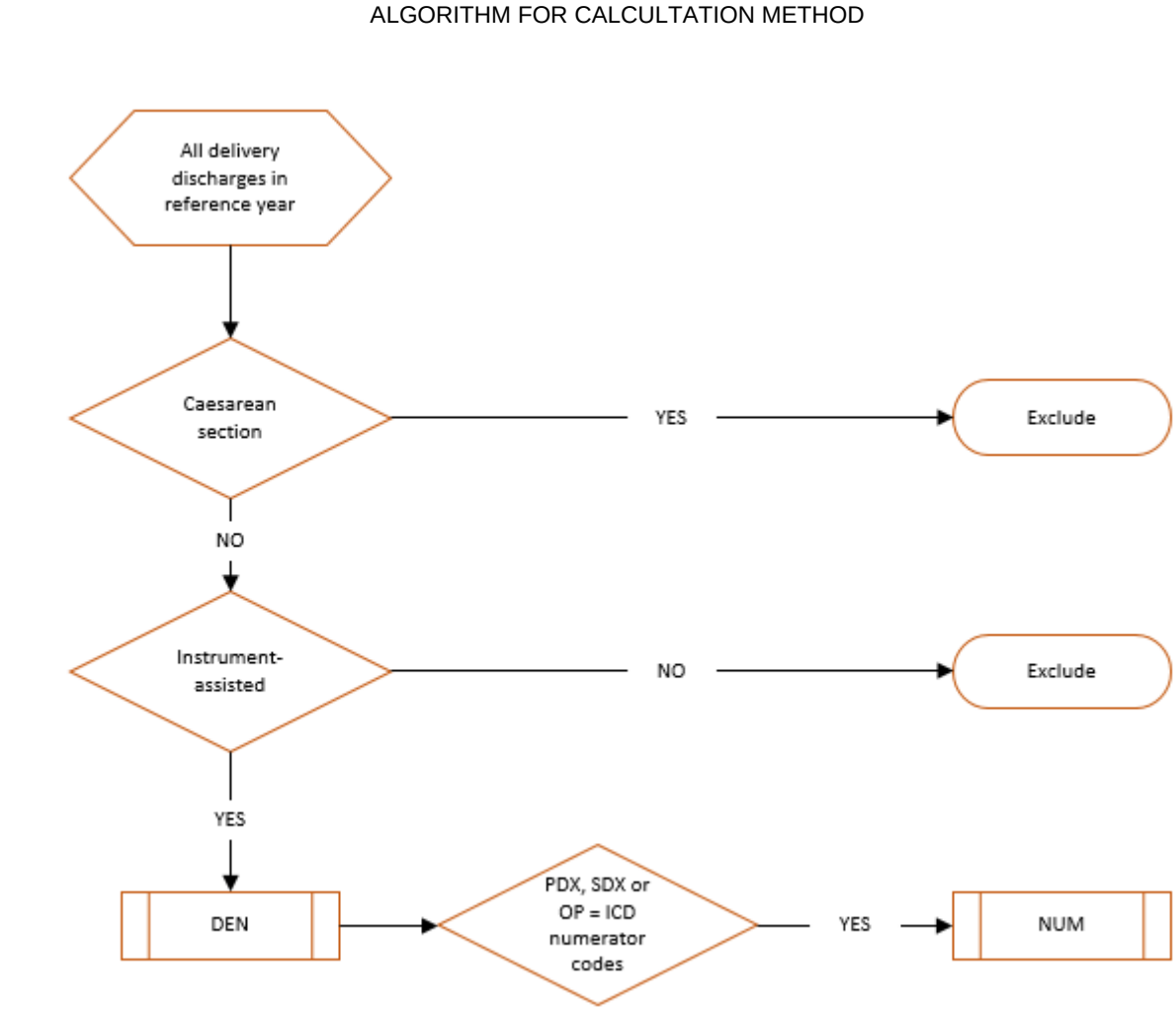
V27.0	Single liveborn
V27.1	Single stillborn
V27.2	Twins, both liveborn
V27.3	Twins, one liveborn and one stillborn
V27.4	Twins, both stillborn
V27.5	Other multiple birth, all liveborn
V27.6	Other multiple birth, some liveborn
V27.7	Other multiple birth, all stillborn
V27.9	Unspecified outcome of delivery

ICD-10-WHO Outcome of delivery codes:

Note: This category is intended for use as an additional code to identify the outcome of delivery on the mother's record (WHO, 2019).

Z37.0	Single live birth
Z37.1	Single stillbirth
Z37.2	Twins, both liveborn
Z37.3	Twins, one liveborn and one stillborn
Z37.4	Twins, both stillborn
Z37.5	Other multiple births, all liveborn
Z37.6	Other multiple births, some liveborn
Z37.7	Other multiple births, all stillborn
Z37.9	Outcome of delivery, unspecified

Figure 2.16. Obstetric trauma vaginal delivery with instrument



PDX: principal diagnosis, DEN: denominator dataset, SDX: secondary diagnosis, NUM: numerator cases, OP: procedure code.
Source: OECD.

PS10) Obstetric trauma vaginal delivery without instrument

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Vaginal delivery discharges for patients.

Numerator: Discharges among cases defined in the denominator with ICD code for 3rd and 4th degree obstetric trauma in any diagnosis or procedure field (see ICD codes below).

Denominator: All vaginal delivery discharge patients.

Exclude cases: with instrument-assisted delivery.

ICD-9-CM Obstetric Trauma diagnosis codes:

66420	Delivery with third degree laceration, unspecified
66421	Delivery with third degree laceration, during delivery
66424	Delivery with third degree laceration, postpartum condition or complication
66430	Trauma to perineum and vulva during delivery, fourth degree perineal laceration
66431	Trauma to perineum and vulva during delivery, fourth degree perineal laceration
66434	Trauma to perineum and vulva during delivery, fourth degree perineal laceration

ICD-9-CM Obstetric Trauma procedure codes:

7561	Repair of current obstetric lacerations of bladder and urethra
7562	Repair of current obstetric lacerations of rectum and sphincter

ICD-10-WHO Obstetric Trauma diagnosis codes:

O70.2	Third degree perineal laceration during delivery
O70.3	Fourth degree perineal laceration during delivery

ICD-9-CM Instrument-Assisted Delivery procedure codes

720	Low forceps operation
721	Low forceps operation w/ episiotomy
7221	Mid forceps operation w/ episiotomy
7229	Other mid forceps operation
7231	High forceps operation w/ episiotomy
7239	Other high forceps operation
724	Forceps rotation of fetal head
7251	Partial breech extraction w/ forceps to aftercoming head
7253	Total breech extraction w/ forceps to aftercoming head
726	Forceps application to aftercoming head
7271	Vacuum extraction w/ episiotomy
7279	Vacuum extraction delivery nec
728*	Other specified instrumental delivery
729*	Unspecified instrumental delivery

Note: Failed vacuum extraction, failed forceps, assisted breech delivery, episiotomy, incision of cervix and symphysiotomy procedures are not included in the Instrument Assisted Delivery Procedures code list. Therefore, these procedures are excluded from the definition of the 'with instrument' indicator and conversely included in the definition of the 'without instrument' indicator.

ICD-9-CM Outcome of delivery codes:

Note: This category is intended for the coding of the outcome of delivery on the mother's record. (Department of Health and Human Services, 2007)

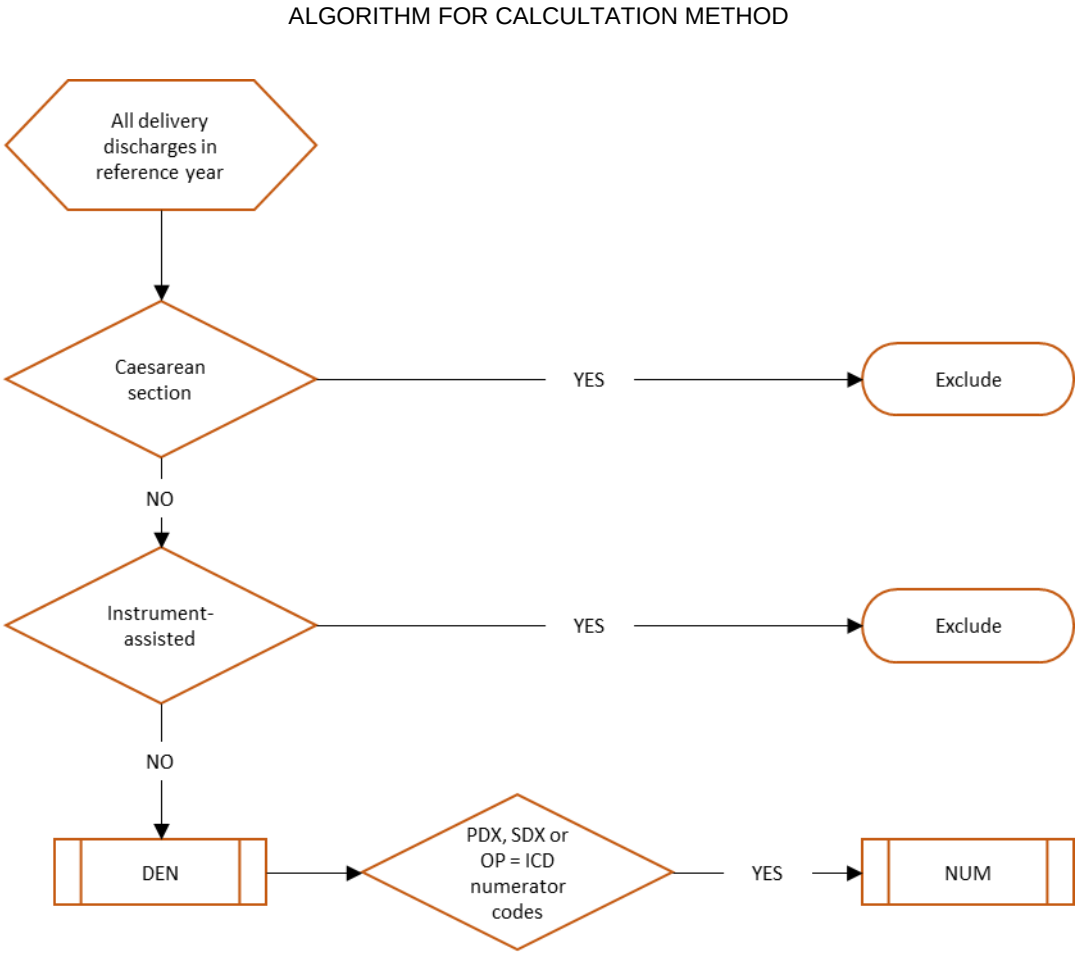
V27.0	Single liveborn
V27.1	Single stillborn
V27.2	Twins, both liveborn
V27.3	Twins, one liveborn and one stillborn
V27.4	Twins, both stillborn
V27.5	Other multiple birth, all liveborn
V27.6	Other multiple birth, some liveborn
V27.7	Other multiple birth, all stillborn
V27.9	Unspecified outcome of delivery

ICD-10-WHO Outcome of delivery codes:

Note: This category is intended for use as an additional code to identify the outcome of delivery on the mother's record (WHO, 2019).

Z37.0	Single live birth
Z37.1	Single stillbirth
Z37.2	Twins, both liveborn
Z37.3	Twins, one liveborn and one stillborn
Z37.4	Twins, both stillborn
Z37.5	Other multiple births, all liveborn
Z37.6	Other multiple births, some liveborn
Z37.7	Other multiple births, all stillborn
Z37.9	Outcome of delivery, unspecified

Figure 2.17. Obstetric trauma vaginal delivery without instrument



PDX: principal diagnosis, DEN: denominator dataset, SDX: secondary diagnosis, NUM: numerator cases, OP: procedure code.
Source: OECD.

END OF LIFE CARE

Indicators in the End of Life Care indicator set include:

- EC1) Deaths in hospital
- EC2) Unplanned/urgent in-patient admissions during the last 30 days of life, cancer deaths
- EC3) Unplanned/urgent in-patient admissions during the last 30 days of life, cardiovascular diseases' deaths
- EC4) Unplanned/urgent in-patient admissions during the last 30 days of life, chronic respiratory diseases' deaths
- EC5) Unplanned/urgent in-patient admissions during the last 30 days of life, Alzheimer's and other dementias' deaths
- EC6) Unplanned/urgent in-patient admissions during the last 30 days of life, all causes of death
- EC7) Unplanned/urgent in-patient admissions during the last 180 days of life, cancer deaths
- EC8) Unplanned/urgent in-patient admissions during the last 180 days of life, cardiovascular diseases' deaths
- EC9) Unplanned/urgent in-patient admissions during the last 180 days of life, chronic respiratory diseases' deaths
- EC10) Unplanned/urgent in-patient admissions during the last 180 days of life, Alzheimer's and other dementias' deaths
- EC11) Unplanned/urgent in-patient admissions during the last 180 days of life, all causes of death

Notes

In order to ensure the comparability of data across countries, followings are required:

- A unique patient identifier to link different episodes of care by one or multiple providers over time.
- Data on hospital admissions and discharges including arrival and discharge dates, by coding of diagnoses (ICD-10). National coverage is required.
- Data linkage to death registries including information on diagnosis (ICD-10), age, dates of deaths, place of death (hospital, hospice, LTC facilities, other facilities, home or in other or unknown places).

EC1) Deaths in hospital

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: All deaths, excluding external causes of mortality

Numerator: Raw number of deaths in *hospital*, by age groups and sex

Denominator: Raw number of people who died for all causes excluding external causes of mortality, by age groups and sex

ICD-10 Diagnosis codes: all ICD-10 codes, except V00-Y99

EC2) Unplanned/urgent in-patient admissions during the last 30 days of life, cancer deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to Cancer (neoplasms (C00-D49))

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 30 days of life for patients who died due to cancer in the reference year, by age group and sex

Denominator: Raw number of deaths due to Cancer

ICD-10 Diagnosis codes: Cancer (neoplasms (C00-D49))

EC3) Unplanned/urgent in-patient admissions during the last 30 days of life, cardiovascular diseases' deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to selected cardiovascular diseases, excluding stroke (I00-I52)

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 30 days of life for patients who died due to selected cardiovascular diseases in the reference year, by age group and sex

Denominator: Raw number of deaths due to selected cardiovascular diseases, excluding stroke (I00-I52)

ICD-10 Diagnosis codes: selected cardiovascular diseases, excluding stroke (I00-I52)

EC4) Unplanned/urgent in-patient admissions during the last 30 days of life, chronic respiratory diseases' deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to chronic respiratory diseases (J40-J47, J96),

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 30 days of life for patients who died due to chronic respiratory diseases (J40-J47, J96), in the reference year, by age group and sex

Denominator: Raw number of deaths due to chronic respiratory diseases (J40-J47, J96),

ICD-10 Diagnosis codes: Chronic respiratory diseases (J40-J47, J96),

EC5) Unplanned/urgent in-patient admissions during the last 30 days of life, Alzheimer's and other dementias' deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to Alzheimer's and other dementias (F00-F03, G30, R54),

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 30 days of life for patients who died due to Alzheimer's and other dementias (F00-F03, G30, R54), in the reference year, by age group and sex

Denominator: Raw number of deaths due to Alzheimer's and other dementias (F00-F03, G30, R54),

ICD-10 Diagnosis codes: Alzheimer's and other dementias (F00-F03, G30, R54)

EC6) Unplanned/urgent in-patient admissions during the last 30 days of life, all causes of death

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due all causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99)

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 30 days of life for patients who died due all causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99), in the reference year, by age group and sex

Denominator: Raw number of deaths due to all causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99),

ICD-10 Diagnosis codes: All causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99)

EC7) Unplanned/urgent in-patient admissions during the last 180 days of life, cancer deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to Cancer (neoplasms (C00-D49))

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 180 days of life for patients who died due to cancer in the reference year, by age group and sex

Denominator: Raw number of deaths due to Cancer

ICD-10 Diagnosis codes: Cancer (neoplasms (C00-D49))

EC8) Unplanned/urgent in-patient admissions during the last 180 days of life, cardiovascular diseases' deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to selected cardiovascular diseases, excluding stroke (I00-I52)

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 180 days of life for patients who died due to selected cardiovascular diseases in the reference year, by age group and sex

Denominator: Raw number of deaths due to selected cardiovascular diseases, excluding stroke (I00-I52)

ICD-10 Diagnosis codes: selected cardiovascular diseases, excluding stroke (I00-I52)

EC9) Unplanned/urgent in-patient admissions during the last 180 days of life, chronic respiratory diseases' deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to chronic respiratory diseases (J40-J47, J96),

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 180 days of life for patients who died due to chronic respiratory diseases (J40-J47, J96), in the reference year, by age group and sex

Denominator: Raw number of deaths due to chronic respiratory diseases (J40-J47, J96),

ICD-10 Diagnosis codes: Chronic respiratory diseases (J40-J47, J96),

EC10) Unplanned/urgent in-patient admissions during the last 180 days of life, Alzheimer's and other dementias' deaths

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due to Alzheimer's and other dementias (F00-F03, G30, R54),

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 180 days of life for patients who died due to Alzheimer's and other dementias (F00-F03, G30, R54), in the reference year, by age group and sex

Denominator: Raw number of deaths due to Alzheimer's and other dementias (F00-F03, G30, R54),

ICD-10 Diagnosis codes: Alzheimer's and other dementias (F00-F03, G30, R54)

EC11) Unplanned/urgent in-patient admissions during the last 180 days of life, all causes of death

See Glossary (Section 1.) for definitions of italicised terminology.

Coverage: Deaths due all causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99)

Numerator: Raw number of patients with more than 1 urgent/unplanned *in-patient admissions* during the last 180 days of life for patients who died due all causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99), in the reference year, by age group and sex

Denominator: Raw number of deaths due to all causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99),

ICD-10 Diagnosis codes: All causes excluding external causes of mortality (all ICD-10 codes, except V00-Y99)

3. Reference material

3.1. Age-(sex) standardisation

2. To enable comparability across countries, the crude rates/means for many of the indicators are standardised (or adjusted) by age and sex in order to remove the confounding effect of different population/patient structure that we know differ in OECD countries. Confidence intervals for the standardised rates are also calculated.

3. The method used is direct standardisation: an overview of the calculation of standardised rates and confidence interval is provided in Box 3.1.

4. As for excess mortality for people diagnosed with a mental disorder in the MH questionnaire, mortality rates provided for both numerator and denominator are standardised, and then the standardised rates are used to calculate the ratio. Acute care indicators use specific disease populations collected in 2013 from OECD countries to standardise 30-day mortality rates. Integrated care indicators use specific disease populations collected in 2018 from OECD countries.

Box 3.1. Calculation for Age/Sex Standardised Rates/Means and Confidence Intervals

Calculation of age/sex standardised rates/means:

Sex-specific age-standardised rates/means (SR) are calculated as a weighted average of the age-specific rates/means (ASR). The weights are determined by **the 2015 OECD population, which has been selected as standard population** (Table 3.1).

Table 3.1. 2015 OECD standard population (15+)

	Age-group							
	0-14	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
Sex								
Male	Data are for adults only	30691981	33469335	34508354	34894399	35002373	35208558	34660372
Female		29111324	31890350	33499971	34352178	34701217	35185172	34893929
Total		59803305	65359685	68008325	69246577	69703590	70393730	69554301
	50-54	**55-59**	**60-64**	**65-69**	**70-74**	**75-79**	**80-84**	**85+**
Sex								
Male	33945806	31047338	27306071	23725699	17515803	13214632	8764367	6354136
Female	34644220	32459999	29538678	26657966	21242908	18041732	13862761	13905892
Total	68590026	63507337	56844749	50383665	387587101	31256364	22627128	20260028

Source: OECD.

$$SR_j = \frac{\sum_i (ASR_{ij} \times POP_i)}{POP_{TOT}}$$

Where i is the age group, j the sex, SR_j the age standardised rate/mean for sex j, ASR_{ij} the age-specific rate/mean (per 100 patients or per 100 000 population depending on the indicator) for age group i and sex j, POP_i the total standard population for age group i,and POP_{TOT} the total standard population defined as $\sum_i POP_i$.

Please note that age-specific rates/means ASR_{ij} are standardised to the **total 2015 OECD standard population** (and not the sex-specific standard population) to facilitate meaningful cross sex comparisons.

The age-sex standardised rate/mean for total population is a weighted average of age and sex specific rates/means:

$$SR_{TOT} = \frac{\sum_{ij} (ASR_{ij} \times POP_{ij})}{POP_{TOT}}$$

Where i is the age group, SR_{TOT} the age/sex standardised rate/mean for total population, ASR_{ij} the age-specific rate/mean (per 100 patients or per 100 000 population depending on the indicator) for age group i and sex j, POP_{ij} the standard population size in age group i and sex j, and POP_{TOT} the total standard population defined as $\sum_{ij} POP_{ij}$.

Calculation of confidence intervals:

In the AA, AC, IC and MH questionnaire, the standard error of the age-specific rates is assumed to be determined by a binomial distribution, and is calculated as:

$$Se(ASR_{ij}) = \sqrt{\frac{ASR_{ij} \times (100 - ASR_{ij})}{D_{ij}}}$$

Where D_{ij} is the number of people reported in the denominator of the indicator, in the i-th age interval and for sex j. In the PE and MP questionnaire, the standard error of the age-specific rates and means is provided by countries.

The standard error of the standardized rate/mean is then:

$$Se(SR_j) = \frac{\sum_i (POP_{ij} \times Se(ASR_{ij}))^2}{POP_{TOT}^2}$$

, and the 95-percent confidence intervals for the standardized rate are formed as:

$$Lower\ \ value = SR_j - 1.96 \times Se(SR_j)$$

$$Upper\ \ value = SR_i + 1.96 \times Se(SR_i)$$

Source: OECD.