

Research Protocol

*Health complications after COVID-19 or influenza ID 94243*

# **Research Protocol: Retrospective Study**

### Research project title

Health complications after COVID-19 or influenza

### Study Investigators

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### Introduction

The Office of the Chief Health Officer is proposing an epidemiological study which aims to understand whether there are any differences in health complications following infection by COVID-19 or influenza in Queensland’s context.

### Background

Post-viral syndromes – referring to a range of lingering symptoms after a viral infection – have been widely reported in the literature following viral outbreaks, epidemics and pandemics.1

The current SARS-CoV-2 (COVID-19) pandemic has seen numerous reports across the world of long-term impacts arising from this virus. These lingering impacts have been described as post-COVID-19 condition and post-acute sequelae of COVID-19, with the term “Long COVID” now in general usage across the media and literature.

Much has been written about the post-acute sequelae of COVID-19, but it remains little understood. Importantly, it is not clear if there are substantial differences between the recoveries or health complications from COVID-19 and influenza. A large review on COVID-19 described significant post-viral impacts across numerous parts of the body,2 including the:

* brain and neurological system,
* cardiovascular system,
* endocrine system,
* respiratory system,
* endocrine system,
* digestive system,
* reproductive system, and
* musculoskeletal system.

Other research has postulated that COVID-19 also creates additional risks in pregnancy and in the pre- and peri-natal domains.3,4

However, research into post-acute sequelae from COVID-19 has noted the available evidence is frequently low quality, prone to bias and often lacking an appropriate comparator group.5 It is clear comparisons with other viral illnesses are necessary to warrant a thorough understanding of potential health complications.6,7

An opportunity exists to examine a range of health issues and compare post-viral complications following the COVID-19 and influenza outbreaks in Queensland, together with a control group of people testing negative to COVID-19 (who also have no record of influenza or COVID-19 infection 12 months either side of this negative COVID-19 result). The onset of subsequent complications will be examined using ICD-10 codes across a range of health domains, and these are listed in Appendix 1. A range of studies have used ICD-10 codes to examine health complications arising from COVID-19 and other illnesses.8-12

### Aims

This research project aims to:

1. To examine the risks of subsequent health complications (determined by ICD-10AM code) in the 12 months following COVID-19 or influenza infection, compared with a control group (no recent evidence of COVID-19 or influenza infection).
2. inform Queensland Health about the potential scale of post-viral impacts arising from COVID-19 or influenza, and any system-wide response that may be required.

### Methods

#### Study Type and Design

This research is a retrospective analysis of existing epidemiological data. It will examine health records accessible through Qld Health’s Notifiable Conditions System (NoCS), which contains records of COVID-19 and influenza cases because laboratory reporting of both conditions is mandated under Queensland Health’s public health legislation.13

#### Setting

This is a desktop analysis that will be conducted in the Office of the Chief Health Officer. Note that all project team members are part of Queensland Health’s Office of the Chief Health Officer, where it is core business to use NoCS. The data custodian has provided endorsement to utilise this system for this purpose, with this attached to the ethics application.

#### Health Records and Data Collection

The following health records in NoCS will be accessed:

* Individuals who tested positive to COVID-19 with this recorded in the Notifiable Conditions System.
* Individuals who tested positive to Influenza with this recorded in the Notifiable Conditions System.
* Individuals who received a negative PCR result for COVID-19 (with no record of influenza or COVID-19 infection 12 months either side of this negative result).

#### Participants

This study accesses records in the Notifiable Conditions System for all:

* Individuals who tested positive to COVID-19 with this recorded in the Notifiable Conditions System.
* Individuals who tested positive to Influenza with this recorded in the Notifiable Conditions System.
* Individuals who received a negative PCR result for COVID-19 (with no record of influenza or COVID-19 infection 12 months either side of this negative result).

There are no age limits for these records, and no “participants” per se. The study requires a waiver of consent (see below).

#### Dates for inclusion

Relevant cases for review are those from 1 July 2017 to 30 June 2023. This date corresponds with the implementation of the 10th edition of the ICD-10 code and will enable the inclusion of:

* Influenza cases from 1 July 2017 to correspond with the volumes infected with COVID-19 from 2020.
* COVID-19 cases in Queensland since the beginning of the pandemic;
* Records showing a negative PCR test result for COVID-19 that also have no record of influenza or COVID-19 infection in NoCS 12 months either side of this negative result.

#### Exclusions

As an epidemiological study of the impacts of COVID-19 and influenza on the Queensland population, there are no proposed exclusions for those with a record of COVID-19 or influenza testing in NoCS from 1 July 2017 to 30 June 2023.

#### Potential sample size

Several studies have used record systems to examine complications arising from COVID-19 and these have featured 4-5 million records.14,15 This study proposes examining approximately 3.4 million records, consisting of approximately:

* 1.6 million COVID-19 cases;
* 180,000 influenza cases;
* 1.6 million controls (negative to COVID-19 and no record of influenza of COVID-19 infection 12 months either side of this negative result).

### Consent

This proposal requires a waiver of consent and believe the activity is consistent with the National Statement section 2.3.10 because this retrospective study of previously collected clinical data carries no foreseeable risk of harm to participants. It is impracticable to obtain consent due to the large number of records being accessed. Non-identifiable patient data will be analysed within the Department. No investigators from outside Queensland Health will be involved in the study

Below is the itemised response against Section 2.3.10 of the National Statement on Ethical Conduct in Human Research (updated 2018):16

*2.3.10 Before deciding to waive the requirement for consent (other than in the case of research aiming to expose illegal activity), an HREC or other review body must be satisfied that:*

1. *involvement in the research carries no more than low risk (see paragraphs 2.1.6 and 2.1.7, page 18) to participants*

There are no “participants” per se. This is an epidemiological study using pre-existing health data in the Notifiable Conditions System (NoCS) which contains records of COVID-19 and influenza cases because laboratory reporting of both conditions is mandated under Queensland Health’s public health legislation. It does not involve contacting individuals and so is considered “low/negligible risk” because the analysis of these pre-existing records will not expose people to harm or discomfort.

1. *the benefits from the research justify any risks of harm associated with not seeking consent*

This research will enable Queensland Health to understand if COVID-19 and/or influenza infection creates further health complications for some of the population. As a result, it may lead to Qld Health considering the best means of protecting and supporting those at risk of complications.

1. *it is impracticable to obtain consent (for example, due to the quantity, age or accessibility of records)*

This is a retrospective study of previously collected clinical data which exists in the Notifiable Conditions System which contains records of COVID-19 and influenza cases because laboratory reporting of both conditions is mandated under Queensland Health’s public health legislation.

1. *there is no known or likely reason for thinking that participants would not have consented if they had been asked*

Please also see the above response against item c). Also, non-identifiable patient data will be analysed within the Department.

1. *there is sufficient protection of their privacy*

The Notifiable Conditions System is housed on a secure Qld Health server with access restrictions and password protection. Personal or identifying elements will be removed from the data when extracted. The information from this study will be stored on a secure, password-protected Queensland Health server for 7 years.

1. *there is an adequate plan to protect the confidentiality of data*

All personal or identifying elements are removed. The information from this study will be stored on a secure, password-protected Queensland Health server for 7 years. It may report and publish these findings at a “population level”. Participants will not be able to be identified.

1. *in case the results have significance for the participants’ welfare there is, where practicable, a plan for making information arising from the research available to them (for example, via a disease-specific website or regional news media)*

In the event the research identifies key risk factors for individuals that are associated with complications, then Queensland Health will be ensure this information is mae available through the health system and to the public if required.

1. *the possibility of commercial exploitation of derivatives of the data or tissue will not deprive the participants of any financial benefits to which they would be entitled.*

This research is unlikely to have commercial derivatives. It is conducted by Qld Health so any resultant findings will relate to amendments or improvements to service delivery for the Qld population.

1. *the waiver is not prohibited by State, federal, or international law.*

The research is a legal investigation of associations between COVID-19, influenza, and other potential health conditions. The data being used was legally obtained under Queensland Health’s public health legislation.

### Data analysis

Health records in NoCS showing positive test results for either COVID-19 or influenza and negative results to COVID-19 will be analysed for the subsequent onset of a range of health complications in the following 12 months post-infection.

These complications will be determined by identifying conditions based on ICD-10AM codes that are listed in Appendix 1. It should be noted that the project duration spans three iterations of ICD-10AM codes, from the implementation of the 10th edition on 1 July 2017 to the current 12th edition which was implemented on 1 July 2022.

The data variables associated with this project are:

* COVID-19 and influenza status [positive or negative]
* Date of test
* Gender [Male, Female, Other]
* Age group [for example 0-18, 18-39, 40-59, 60-79, >80]
* COVID-19 vaccination status at time of diagnosis [0, 1, 2, 3 or more; date of most recent vaccination, if available]
* Influenza vaccination status at time of diagnosis [if available]
* Hospitalised since testing positive [Yes, No, Unknown]
* Record of co-morbidities or disability [Yes, No, Unknown]
* Prior or subsequent health conditions by ICD-10 code (as shown in Appendix 1). This is hospital admissions data that is linked to NoCS through the Qld Health Statistical Services Division.

Subsequent data analysis will enable comparisons between rates of various health complications following either COVID-19 or influenza. Further analysis will include non-identifiable demographic and clinical information (eg vaccination status, hospitalisation) to support Queensland Health’s understanding of post-viral recovery, and whether there is any difference between COVID-19 and influenza recovery.

The data will be analysed by the project team, including the Senior Consultant Epidemiologist within the unit. This will be presented as descriptive epidemiology in the form of aggregated numbers and proportions.

### Data Management

The research team are all employees within the Office of the Chief Health Officer, where use of the Notifiable Conditions System is core business. The Senior Consultant Epidemiologist in the Office of the Chief Health Office will oversee data analysis, and be the primary point within the team for access to the data. Only members of the research team will analyse the information to understand more about the population’s recovery from illness. All personal or identifying elements of this data are removed and the information is deidentified. The information from this study will be stored on a secure, password-protected Queensland Health server for 7 years. It may report and publish these findings at a “population level”.

### Ethical Issues

There is a risk that data extracted from NoCS may be accessed inappropriately and therefore present a data disclosure risk. This data will be managed by the Senior Consultant Epidemiologist in the Office of the Chief Health Officer. NoCS is housed on a secure Qld Health server with access restrictions and password protection. The information from this study will be stored on a secure, password-protected Queensland Health server for 7 years. As a result, data disclosure risks are low.

The research team has reviewed guidance under Section 2.1 of the National Statement. As this is an epidemiological study using existing health records and the study does not involve the recruitment of participants, there is a low risk of harms, discomforts and/or inconveniences for participants and/or others.

### Public Health Importance:

This project is being conducted as part of standard Queensland Health’s obligations to public and population health. It is aimed at increasing understanding of the complications following viral illness. It will assist Queensland Health is considering an appropriate and proportionate response to these health issues.

As noted earlier, the lack of control groups in Long COVID research is important. This survey is significant in that it will enable comparisons between COVID-19, influenza and a control group of PCR-negative respondents.

### Plain Language Description

While there is a lot of current discussion about post-COVID complications, “long COVID” (including complications after COVID-19) remains poorly understood, especially when comparing it to the prolonged recovery from other significant viruses like influenza and when thinking about its impact upon the Queensland population.

This study aims to find out more about the Queenslanders’ recovery from COVID-19 and influenza, and the burden of ongoing impacts from these illnesses. It will help Queensland Health understand its options to respond to post-infection impacts from viruses like COVID-19 and influenza.

### Resource requirements

This is a retrospective review of existing data. There is no financial cost associated with this project. No additional staff appointments are needed to complete this study. Data will be collected by existing staff members in the course of core business.

### Dissemination of findings

The results of this study will be presented at an appropriate scientific forum, and as a paper for publication in a peer reviewed journal.

### References

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16. National Statement on Ethical Conduct in Human Research 2007 (Updated 2018). The National Health and Medical Research Council, the Australian Research Council and Universities Australia. Commonwealth of Australia, Canberra.

### Appendix 1: Conditions to be analysed post-infection (ICD-10AM code)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chapter Heading (12th Edition)** | **Diagnosis** | **ICD-10AM 12th Ed** | **ICD-10AM 11th Ed** | **ICD-10AM 10th Ed** |
| Certain infectious and parasitic diseases | Scarlet fever | A38 | A38 | A38 |
| Certain infectious and parasitic diseases | Other sepsis | A41 | A41 | A41 |
| Certain infectious and parasitic diseases | Other viral diseases–NEC | B33 | B33 | B33 |
| Certain infectious and parasitic diseases | Viral infection of unspecified site | B34 | B34 | B34 |
| Certain infectious and parasitic diseases | Streptococcus, Enterococcus and Staphylococcus as the cause of diseases classified to other chapters (incl. Strep Group A at B95.0) | B95 | B95 | B95 |
| Certain infectious and parasitic diseases | Other bacterial agents–CE | B96 | B96 | B96 |
| Certain infectious and parasitic diseases | Other and unspecified infectious diseases | B99 | B99 | B99 |
| Neoplasms | Acquired haemolytic anaemia | D59 | D59 | D59 |
| Neoplasms | Other aplastic anemias / bone marrow | D61 | D61 | D61 |
| Neoplasms | Unspecified anaemia | D64.9 | D64.9 | D64.9 |
| Neoplasms | Disseminated intravascular coagulation | D65 | D65 | D65 |
| Neoplasms | Purpura/other hemorrhagic conditions | D69 | D69 | D69 |
| Neoplasms | Other disorders of white blood cells | D72 | D72 | D72 |
| Neoplasms | Other disorders involving the immune mechanism, not elsewhere classified | D89 | D89 | D89 |
| Endocrine, nutritional and metabolic diseases | Thyrotoxicosis (incl. Grave’s disease at E05.0) | E05 | E05 | E05 |
| Endocrine, nutritional and metabolic diseases | Thyroiditis (incl. autoimmune thyroiditis & Hashimoto’s at E06.3) | E06 | E06 | E06 |
| Endocrine, nutritional and metabolic diseases | Intermediate hypoglaecemia | E09 | E09 | E09 |
| Endocrine, nutritional and metabolic diseases | Type 1 diabetes mellitus  | E10 | E10 | E10 |
| Endocrine, nutritional and metabolic diseases | Type 2 diabetes mellitus | E11 | E11 | E11 |
| Endocrine, nutritional and metabolic diseases | Polyglandular dysfunction | E31 | E31 | E31 |
| Endocrine, nutritional and metabolic diseases | Unspecified severe protein-energy malnutrition | E43 | E43 | E43 |
| Endocrine, nutritional and metabolic diseases | Unspecified protein-energy malnutrition | E46 | E46 | E46 |
| Endocrine, nutritional and metabolic diseases | Other nutritional deficiencies | E63 | E63 | E63 |
| Endocrine, nutritional and metabolic diseases | Obesity and overweight | E66 | E66 | E66 |
| Endocrine, nutritional and metabolic diseases | Disorders of lipoprotein metabolism and other lipidaemias | E78 | E78 | E78 |
| Endocrine, nutritional and metabolic diseases | Volume depletion | E86 | E86 | E86 |
| Endocrine, nutritional and metabolic diseases | Other disorders of fluid, electrolyte and acid-base balance | E87 | E87 | E87 |
| Mental, Behavioral and Neurodevelopmental disorders | Organic, including symptomatic, mental disorders | F00-F09 | F00-F09 | F00-F09 |
| Mental, Behavioral and Neurodevelopmental disorders | Mental and behavioural disorders due to psychoactive substance use (includes alcohol and tobacco) | F10-F19 | F10-F19 | F10-F19 |
| Mental, Behavioral and Neurodevelopmental disorders | Mental and behavioural disorders due to use of alcohol | F10 | F10 | F10 |
| Mental, Behavioral and Neurodevelopmental disorders | Mental and behavioural disorders due to use of tobacco | F17 | F17 | F17 |
| Mental, Behavioral and Neurodevelopmental disorders | Mood (affective) disorders) | F30-39 | F30-39 | F30-39 |
| Mental, Behavioral and Neurodevelopmental disorders | Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders | F40-48 | F40-48 | F40-48 |
| Diseases of the nervous system | Alzheimer’s Disease | G30 | G30 | G30 |
| Diseases of the nervous system | Multiple sclerosis | G35 | G35 | G35 |
| Diseases of the nervous system | Migraine | G43 | G43 | G43 |
| Diseases of the nervous system | Other headache syndromes | G44 | G44 | G44 |
| Diseases of the nervous system | Transient cerebral ischaemic attacks and related syndromes | G45 | G45 | G45 |
| Diseases of the nervous system | Sleep disorders | G47 | G47 | G47 |
| Diseases of the nervous system | Polyneuropathies and other disorders of the peripheral nervous system | G60-G64 | G60-G64 | G60-G64 |
| Diseases of the nervous system | Other myopathies | G72 | G72 | G72 |
| Diseases of the nervous system | Disorders of autonomic nervous system | G90 | G90 | G90 |
| Diseases of the nervous system | Toxic encephalopathy | G92 | G92 | G92 |
| Diseases of the nervous system | Other disorders of brain (includes post-viral syndrome/myalgic encephalomyelitis at G93.3) | G93 | G93 | G93 |
| Diseases of the eye and adnexa | Retinal vascular occlusions | H34 | H34 | H34 |
| Diseases of the eye and adnexa | Disorders of refraction and accommodation (incl. Myopia at H52.1) | H52 | H52 | H52 |
| Diseases of the eye and adnexa | Visual disturbances and blindness | H53-H54 | H53-H54 | H53-H54 |
| Diseases of the ear and mastoid process | Disorders of vestibular function | H81 | H81 | H81 |
| Diseases of the ear and mastoid process | Conductive and sensorineural hearing loss | H90 | H90 | H90 |
| Diseases of the ear and mastoid process | Other disorders of the ear, not elsewhere classified (incl tinnitus at H93.1, diplacusis at H93.2) | H93 | H93 | H93 |
| Diseases of the circulatory system | Rheumatic fever without/with heart involvement | I00-I01 | I00-I01 | I00-I01 |
| Diseases of the circulatory system | Rheumatic chorea | I02 | I02 | I02 |
| Diseases of the circulatory system | Chronic rheumatic heart diseases | I05-I09 | I05-I09 | I05-I09 |
| Diseases of the circulatory system | Hypertensive Diseases | I10-I13, I15 | I10-I13, I15 | I10-I13, I15 |
| Diseases of the circulatory system | Ischemic Heart Diseases | I20-I25 | I20-I25 | I20-I25 |
| Diseases of the circulatory system | Pulmonary heart disease and diseases of pulmonary circulation | I26 | I26 | I26 |
| Diseases of the circulatory system | Other pulmonary diseases | I27 | I27 | I27 |
| Diseases of the circulatory system | Acute pericarditis/other diseases of the pericardium | I30-I31 | I30-I31 | I30-I31 |
| Diseases of the circulatory system | Myocarditis | I40-141 | I40-141 | I40-141 |
| Diseases of the circulatory system | Cardiomyopathy | I42 | I42 | I42 |
| Diseases of the circulatory system | “Heart attack” / “heart failure” / cardiac arrest | I46, I150 | I46, I150 | I46, I150 |
| Diseases of the circulatory system | Other conduction disorders | I45 | I45 | I45 |
| Diseases of the circulatory system | Paroxysmal tachycardia | I47 | I47 | I47 |
| Diseases of the circulatory system | Atrial fibrillation and flutter | I48 | I48 | I48 |
| Diseases of the circulatory system | Other cardiac arrhythmias | I49 | I49 | I49 |
| Diseases of the circulatory system | Subarachnoid Hemorrhage | I60 | I60 | I60 |
| Diseases of the circulatory system | Intracerebral Hemorrhage | I61 | I61 | I61 |
| Diseases of the circulatory system | Other nontraumatic intracranial haemorrhage | I62 | I62 | I62 |
| Diseases of the circulatory system | Cerebral infarction | I63 | I63 | I63 |
| Diseases of the circulatory system | Stroke, not specified as haemorrhage or infarction | I64 | I64 | I64 |
| Diseases of the circulatory system | Occlusion and stenosis of precerebral arteries, not resulting in cerebral infarction | I65 | I65 | I65 |
| Diseases of the circulatory system | Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction | I66 | I66 | I66 |
| Diseases of the circulatory system | Other peripheral vascular diseases | I73 | I73 | I73 |
| Diseases of the circulatory system | Arterial embolism and thrombosis | I74 | I74 | I74 |
| Diseases of the circulatory system | Phlebitis and thrombophlebitis | I80 | I80 | I80 |
| Diseases of the circulatory system | Hypotension | I95 | I95 | I95 |
| Diseases of the respiratory system | Acute pharyngitis (incl. Streptococcal pharyngitis at J02.0) | J02 | J02 | J02 |
| Diseases of the respiratory system | Acute tonsillitis (incl. Streptococcal tonsilitis at J03.0) | J03 | J03 | J03 |
| Diseases of the respiratory system | Acute upper respiratory infections of multiple and unspecified sites | J06 | J06 | J06 |
| Diseases of the respiratory system | Pneumonia (numerous causes) | J12-J18 | J12-J18 | J12-J18 |
| Diseases of the respiratory system | Other acute lower respiratory infections | J20-J22 | J20-J22 | J20-J22 |
| Diseases of the respiratory system | Other COPDs | J44 | J44 | J44 |
| Diseases of the respiratory system | Asthma | J45 | J45 | J45 |
| Diseases of the respiratory system | Acute Respiratory Distress Syndrome (ARDS) | J80 | J80 | J80 |
| Diseases of the respiratory system | Other interstitial pulmonary diseases | J84 | J84 | J84 |
| Diseases of the respiratory system | Pleural effusion, not elsewhere classified | J90 | J90 | J90 |
| Diseases of the respiratory system | Pneumothorax | J93 | J93 | J93 |
| Diseases of the respiratory system | Respiratory failure, not elsewhere classified | J96 | J96 | J97 |
| Diseases of the respiratory system | Other respiratory disorders | J98 | J98 | J98 |
| Diseases of the digestive system | Diseases of the oesophagus, stomach and duodenum | K20-K31 | K20-K31 | K20-K31 |
| Diseases of the digestive system | Diseases of appendix | K35-K38 | K35-K38 | K35-K38 |
| Diseases of the digestive system | Noninfective enteritis and colitis (incl. Crohn’s disease at K50) | K50-K52 | K50-K52 | K50-K52 |
| Diseases of the digestive system | Paralytic ileus and intestinal obstruction without hernia | K56 | K56 | K56 |
| Diseases of the digestive system | Intestinal malabsorbtion (incl. coelic disease at K90.0) | K90 | K90 | K90 |
| Diseases of the skin and subcutaneous tissue | Impetigo | L01 | L01 | L01 |
| Diseases of the skin and subcutaneous tissue | Cellulitis | L03 | L03 | L03 |
| Diseases of the skin and subcutaneous tissue | Hair loss | L65 | L65 | L65 |
| Diseases of the skin and subcutaneous tissue | Lupus | L93, M32 | L93, M32 | L93, M32 |
| Diseases of the musculoskeletal system and connective tissue | Rheumatoid Arthritis | M05-M06 | M05-M06 | M05-M06 |
| Diseases of the musculoskeletal system and connective tissue | Psoriatic and enteropathic arthropathies | M07 | M07 | M07 |
| Diseases of the musculoskeletal system and connective tissue | Juvenile arthritis / in diseases classified elsewhere | M08-M09 | M08-M09 | M08-M09 |
| Diseases of the musculoskeletal system and connective tissue | Joint Pain | M25.5 | M25.5 | M25.5 |
| Diseases of the musculoskeletal system and connective tissue | Systemic connective tissue disorders (incl. range of autoimmune conditions) | M30-M36 | M30-M36 | M30-M36 |
| Diseases of the musculoskeletal system and connective tissue | Other soft tissue disorders, not elsewhere classified (incl. Myalgia at M79.1) | M79 | M79 | M79 |
| Diseases of the genitourinary system | Acute kidney failure | N17 | N17 | N18 |
| Diseases of the genitourinary system | Chronic kidney disease | N18 | N18 | N18 |
| Pregnancy, childbirth and the puerperium | Late pregnancy | O48 | O48 | O48 |
| Pregnancy, childbirth and the puerperium | Abortion, Termination | O00-O07 | O00-O07 | O00-O07 |
| Pregnancy, childbirth and the puerperium | Pre-eclampsia | O14 | O14 | O14 |
| Pregnancy, childbirth and the puerperium | Eclampsia | O15 | O15 | O15 |
| Pregnancy, childbirth and the puerperium | Hypertensive disorders of pregnancy | O16 | O16 | O16 |
| Pregnancy, childbirth and the puerperium | Complications specific to multiple gestation | O31 | O31 | O31 |
| Pregnancy, childbirth and the puerperium | Maternal care for known or suspected malpresentation of fetus | O32 | O32 | O32 |
| Pregnancy, childbirth and the puerperium | Maternal care for known or suspected fetal abnormality and damage | O35 | O35 | O35 |
| Pregnancy, childbirth and the puerperium | Complications of labour and delivery | O60-O75 | O60-O75 | O60-O75 |
| Pregnancy, childbirth and the puerperium |  Perineal laceration during delivery | O70 | O70 | O70 |
| Pregnancy, childbirth and the puerperium | Single spontaneous delivery | O80 | O80 | O80 |
| Pregnancy, childbirth and the puerperium | Single delivery by caesarean section | O82 | O82 | O82 |
| Pregnancy, childbirth and the puerperium | Multiple delivery | O84 | O84 | O84 |
| Pregnancy, childbirth and the puerperium | Obstetric death of unspecified cause | O95 | O95 | O95 |
| Certain conditions originating in the perinatal period | Slow fetal growth and fetal malnutrition | P05 | P05 | P05 |
| Certain conditions originating in the perinatal period | Disorders related to short gestation and low birth weight, not elsewhere classified | P07 | P07 | P07 |
| Certain conditions originating in the perinatal period | Disorders related to long gestation and high birth weight | P08 | P08 | P08 |
| Certain conditions originating in the perinatal period | Respiratory and cardiovascular disorders specific to the perintal period | P20-29 | P20-29 | P20-29 |
| Certain conditions originating in the perinatal period | Infections specific to the perinatal period | P35-39 | P35-39 | P35-39 |
| Certain conditions originating in the perinatal period | Other disorders originating in the perinatal period | P90-P96 | P90-P96 | P90-P96 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Abnormalities of the heart beat | R00 | R00 | R00 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Cough | R05 | R05 | R05 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Abnormalities of breathing | R06 | R06 | R06 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Pain in throat and chest (incl. chest pain at R07.1-R07.4) | R07 | R07 | R07 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Other symptoms and signs involving the circulatory and respiratory systems | R09 | R09 | R09 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Anuria & oliguria | R34 | R34 | R34 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Somnolence, stupor & coma | R40 | R40 | R40 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Other signs and symptoms involving cognitive functions and awareness | R41 | R41 | R41 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Dizziness and giddiness | R42 | R42 | R42 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Disturbances of smell and taste | R43 | R43 | R43 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Symptoms and signs involving emotional state | R45 | R45 | R45 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Fever of other and unknown origin | R50 | R50 | R50 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Headache | R51 | R51 | R51 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Pain, not elsewhere classified | R52 | R52 | R52 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Malaise and fatigue | R53 | R53 | R53 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Syncope and collapse | R55 | R55 | R55 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Shock – not elsewhere classified | R57 | R57 | R57 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Lack of expected normal development | R62 | R62 | R62 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Symptoms and signs concerning food and fluid intake | R63 | R63 | R63 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Cachexia | R64 | R64 | R64 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Systemic inflammatory response syndrome (SIRS) | R65 | R65 | R65 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Elevated blood glucose level | R73 | R73 | R73 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Abnormal serum enzyme levels | R74 | R74 | R74 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Other abnormal findings of blood chemistry | R79 | R79 | R79 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Abnormal findings on imaging of lung | R91 | R91 | R91 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Abnormal results of function studies | R94 | R94 | R94 |
| Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified | Ill-defined and unknown cause of mortality | R95-R96 | R95-R96 | R95-R96 |
| Codes for special purposes | Vaping related disorder | U07.0 | N/A | N/A |
| Codes for special purposes | Coronavirus disease 2019 [COVID-19], virus identified | U07.1 | N/A | N/A |
| Codes for special purposes | Coronavirus disease 2019 [COVID-19], virus not identified | U07.2 | N/A | N/A |
| Codes for special purposes | Personal history of coronavirus disease 2019 [COVID-19] | U07.3 | N/A | N/A |
| Codes for special purposes | Post coronavirus disease 2019 [COVID-19] condition | U07.4 | N/A | N/A |
| Codes for special purposes | Multisystem inflammatory syndrome associated with coronavirus disease 2019 [COVID-19] | U07.5 | N/A | N/A |
| Codes for special purposes | Coronavirus disease 2019 [COVID-19] vaccines causing adverse effect… | U07.70-U07.74 | N/A | N/A |
| External causes of morbidity and mortality | Exposure to or contact with allergens | Y37 | Y37 | Y37 |
| External causes of morbidity and mortality | Bacterial vaccines | Y58 | Y58 | Y58 |
| External causes of morbidity and mortality | Other and unspecified vaccines and biological substances | Y59 | Y59 | Y59 |
| Factors influencing health status and contact with health services | Exposure to communicable diseases | Z20 | Z20 | Z20 |
| Factors influencing health status and contact with health services | Need for immunisation against influenza | Z25.1 | Z25.2 | Z25.3 |
| Factors influencing health status and contact with health services | Need for immunisation against influenza | Z25.2 | N/A | N/A |
| Factors influencing health status and contact with health services | Need for immunisation against other specified single viral diseases | Z25.8 | Z25.8 | Z25.8 |
| Factors influencing health status and contact with health services | Need for other prophylactic measures | Z29 | Z29 | Z29 |
| Factors influencing health status and contact with health services | Stillbirth | Z37.1, Z37.3, Z37.4, Z37.6, Z37.7 | Z37.1, Z37.3, Z37.4, Z37.6, Z37.7 | Z37.1, Z37.3, Z37.4, Z37.6, Z37.7 |
| Factors influencing health status and contact with health services | Tobacco use, current | Z72.0 | Z72.0 | Z72.0 |
| Factors influencing health status and contact with health services | Alcohol use | Z72.1 | Z72.1 | Z72.1 |
| Factors influencing health status and contact with health services | Drug use | Z72.2 | Z72.2 | Z72.2 |
| Factors influencing health status and contact with health services | Lack of physical exercise | Z72.3 | Z72.3 | Z72.3 |
| Factors influencing health status and contact with health services | Inappropriate diet and eating habits | Z72.4 | Z72.4 | Z72.4 |
| Factors influencing health status and contact with health services | Problem related to lifestyle, unspecified | Z72.9 | Z72.9 | Z72.9 |
| Factors influencing health status and contact with health services | Problems related to life-management difficulty | Z73 | Z73 | Z73 |
| Factors influencing health status and contact with health services | Personal history of risk fators, not elsewhere classified | Z91 | Z91 | Z91 |
| Factors influencing health status and contact with health services | Dependence on enabling machines and devices, not elsewhere classified. | Z99 | Z99 | Z99 |

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