

Queensland Health

Research Protocol

*Health complications after acute respiratory
infections*

ID 94243



**Queensland
Government**

Research Protocol: Retrospective Study

1. Research project title

Health complications after COVID-19, influenza or RSV

2. Study Investigators

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3. 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 acute respiratory infections across Queensland.

4. 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, influenza, or respiratory syncytial virus (RSV). 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 COVID-19, influenza and RSV outbreaks in Queensland, together with a control group of people testing negative to COVID-19 (who also have no record of influenza, RSV 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

5. Aims

This research project aims to:

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

6. 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 tested positive to RSV with this recorded in the Notifiable Conditions System.
- Individuals who received a negative PCR result for COVID-19 (with no record of influenza, RSV 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 tested positive to RSV with this recorded in the Notifiable Conditions System.
- Individuals who received a negative PCR result for COVID-19 (with no record of influenza, RSV 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.
- RSV cases in Queensland since it was listed as a notifiable condition from 1 July 2021.
- Records showing a negative PCR test result for COVID-19 that also have no record of influenza, RSV 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, influenza and RSV on the Queensland population, there are no proposed exclusions for those with a record of COVID-19, influenza, or RSV 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;
- 40,000 RSV cases;
- 1.6 million controls (negative to COVID-19 and no record of influenza, RSV or COVID-19 infection 12 months either side of this negative result).

7. 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:

a) 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, influenza and RSV cases because laboratory reporting of these 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.

b) the benefits from the research justify any risks of harm associated with not seeking consent. This research will enable Queensland Health to understand if acute respiratory infections create 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.

c) 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, influenza and RSV cases because laboratory reporting of both conditions is mandated under Queensland Health’s public health legislation.

d) 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.

e) 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.

f) 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.

g) 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 ensure this information is made available through the health system and to the public if required.

h) 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.

i) the waiver is not prohibited by State, federal, or international law.

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

8. Data analysis

Health records in NoCS showing positive test results for either COVID-19, influenza or RSV 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, influenza and RSV 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, influenza and RSV recovery.

The data will be analysed by the project team. This will be presented as descriptive epidemiology in the form of aggregated numbers and proportions.

9. Data Management

The research team are employees within the Office of the Chief Health Officer and Queensland Health's Public Health Intelligence Unit, where use of the Notifiable Conditions System is core business. The Executive Director of the Public Health Intelligence Unit 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".

10. 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 Executive Director of the Public Health Intelligence Unit. 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.

11. 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, RSV, and a control group of PCR-negative participants.

12. 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 RSV, and when thinking about its impact upon the Queensland population.

This study aims to find out more about the Queenslanders' recovery from acute respiratory illnesses, 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, influenza and RSV.

13. 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.

14. 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.

15. References

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12. Kim TS, Roslin M, Wang JJ, et al. BMI as a Risk Factor for Clinical Outcomes in Patients Hospitalized with COVID-19 in New York. *Obesity (Silver Spring)* 2021; **29**(2): 279-84.
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14. Xie Y, Al-Aly Z. Risks and burdens of incident diabetes in long COVID: a cohort study. *Lancet Diabetes Endocrinol* 2022; **10**(5): 311-21.
15. Xie Y, Xu E, Bowe B, Al-Aly Z. Long-term cardiovascular outcomes of COVID-19. *Nat Med* 2022; **28**(3): 583-90.
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.

16. 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	Sepsis due to streptococcus	A40	A40	A40
Certain infectious and parasitic diseases	Other sepsis	A41	A41	A41
Certain infectious and parasitic diseases	Bacterial infection of unspecified site	A49	A49	A49
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	Malignant Neoplasms	C00-C96	C00-C96	C00-C96
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	Other coagulation defects	D68	D68	D68
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	Other hypothyroidism	E03	E03	E03
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, Behavioural and Neurodevelopmental disorders	Organic, including symptomatic, mental disorders	F00-F09	F00-F09	F00-F09
Mental, Behavioural and Neurodevelopmental disorders	Mental and behavioural disorders due to psychoactive substance use (includes alcohol and tobacco)	F10-F19	F10-F19	F10-F19
Mental, Behavioural and Neurodevelopmental disorders	Mental and behavioural disorders due to use of tobacco	F17	F17	F17
Mental, Behavioural and Neurodevelopmental disorders	Mood (affective) disorders)	F30-39	F30-39	F30-39
Mental, Behavioural and Neurodevelopmental disorders	Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders	F40-48	F40-48	F40-48
Mental, Behavioural and Neurodevelopmental disorders	Eating disorders	F50	F50	F50
Mental, Behavioral and Neurodevelopmental disorders	Disorders of adult personality and behaviour	F60-69	F60-69	F60-69
Mental, Behavioural and Neurodevelopmental disorders	Behavioural and emotional disorders with onset usually occurring in childhood and adolescence.	F90-98	F90-98	F90-98
Diseases of the nervous system	Parkinson's Disease	G20	G20	G20
Diseases of the nervous system	Secondary Parkinsonism	G21	G21	G21
Diseases of the nervous system	Alzheimer's Disease	G30	G30	G30

Diseases of the nervous system	Other degenerative diseases of nervous system, not elsewhere classified	G31	G31	G31
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	Heart failure	I50	I50	I50
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	Other venous embolism and thrombosis	I82	I82	I82
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 tonsillitis 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	Alcoholic Liver Disease	K70	K70	K70
Diseases of the digestive system	Other diseases of liver	K76	K76	K76
Diseases of the digestive system	Intestinal malabsorption (incl. coeliac 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
Diseases of the genitourinary system	Unspecified kidney failure	N19	N19	N19
Pregnancy, childbirth and the puerperium	Abortion, Termination	O00-O07	O00-O07	O00-O07
Pregnancy, childbirth and the puerperium	Duration of pregnancy	O09	O09	O09
Pregnancy, childbirth and the puerperium	Oedema, proteinuria and hypertensive disorders in the pregnancy, childbirth and the puerperium	O10-O16	O10-O16	O10-O16
Pregnancy, childbirth and the puerperium	Other maternal disorders predominately related to pregnancy	O20-28	O20-28	O20-28
Pregnancy, childbirth and the puerperium	Maternal care related to the fetus and amniotic cavity and possible delivery problems	O30-O48	O30-O48	O30-O48
Pregnancy, childbirth and the puerperium	Complications of labour and delivery	O60-O75	O60-O75	O60-O75
Pregnancy, childbirth and the puerperium	Delivery	O80-O84	O80-O84	O80-O84
Pregnancy, childbirth and the puerperium	Complications predominantly related to the puerperium	O85-O92	O85-O92	O85-O92
Pregnancy, childbirth and the puerperium	Other obstetric conditions, not otherwise classified	O94-O99	O94-O99	O94-O99
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 perinatal 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
Injury, poisoning and certain other consequences of external causes	Poisoning by systemic antibiotics	T36	T36	T36

Injury, poisoning and certain other consequences of external causes	Poisoning by other systemic anti-infectives and antiparasitics	T37	T37	T37
Injury, poisoning and certain other consequences of external causes	Poisoning by narcotics and psychodysleptics [hallucinogens]	T40	T40	T40
Injury, poisoning and certain other consequences of external causes	Toxic effect of alcohol	T51	T51	T51
Injury, poisoning and certain other consequences of external causes	Other complications of surgical and medical care, not elsewhere classified	T88	T88	T88
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	Persons with potential health hazards related to socioeconomic and psychosocial circumstances	Z55-65	Z55-65	Z55-65
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	Malingering [conscious simulation]	Z76.5	Z76.5	Z76.5
Factors influencing health status and contact with health services	Personal history of risk factors, 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