**Appendix 1: Base model variables**

|  |  |  |
| --- | --- | --- |
| ***Variable*** | ***Variable name used in coding*** | ***Response options*** |
| *Identifier variables* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Birth episode number | birth\_ep | numerical |
| Population weight | newwt | numerical |
| *Woman’s characteristics* | | |
| Birth year, simulation | birth\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| Age at time of birth | age | numerical |
| Age group at time of birth | mum\_age | 1 = < 25 years  2 = 25–29 years  3 = 30–34 years  4 = 35–39 years  5 = 40 years or more |
| Height at antenatal booking appointment | height | numerical (cm) |
| Weight at four to six weeks prior to or at conception | weight | numerical (kg) |
| Body mass index at four to six weeks prior to or at conception | bmi | numerical |
| Identifies as Aboriginal and/or Torres Strait Islander | ATSI | 1 = yes  0 = no or not stated |
| Country of birth | cntry\_birth\_broad | string variable |
| Marital status | married | 1 = married  0 = no or not stated |
| Smoking status before 20 weeks of gestation | smoking\_b20 | 1 = yes  0 = no or not stated |
| Smoking status after 20 weeks of gestation | smoking\_a20 | 1 = yes  0 = no or not stated |
| Weeks of gestation at first visit | gestation\_first\_visit | numerical |
| Current pregnancy classified as a high-risk pregnancy | risk | 1 = yes  0 = no or not stated |
| Postal code of primary residence at time of birth | post\_code | numerical |
| Rurality of residence at time of birth | rurality | 1 = major city  2 = inner regional area  3 = outer regional area  4 = remote  5 = very remote |
| Area based socioeconomic decile at time of birth | seifa | 1 = decile 1 (most disadvantaged)  2 = decile 2  3 = decile 3  4 = decile 4  5 = decile 5  6 = decile 6  7 = decile 7  8 = decile 8  9 = decile 9  10 = decile 10 (least disadvantaged) |
| Area based socioeconomic ranking at time of birth | irsd\_rank | numerical |
| *Woman’s health events and states* | | |
| Woman had either severe or non-severe morbidity | maternal\_morbidity | 1 = none morbidity  2 = had non-severe morbidity  3 = had severe morbidity |
| Woman had a subsequent pregnancy | subsequent\_pregnancy | 1 = yes  0 = no or not stated |
| Gap between current and subsequent pregnancies | subsequent\_pregnancy\_gap | numerical (months)  missing if no subsequent pregnancy |
| Woman died following this pregnancy | mum\_death | 1 = yes  0 = no or not stated |
| Length of time between birth and woman’s death | mum\_deathmonth | numerical (months)  missing if no death |
| *Baby’s health states and events* | | |
| Private hospital birth | private | 1 = yes  0 = no or not stated |
| The presentation of the fetus at time of onset of labour | presentation | 1 = vertex or cephalic  2 = breech  3 = other |
| Birth started with induction of labour | induced | 1 = yes  0 = no or not stated |
| Birth by planned caesarean section (no labour) | plannedcs | 1 = yes  0 = no or not stated |
| Caesarean section birth–either planned or unplanned | cs | 1 = yes  0 = no or not stated |
| Vaginal birth with instruments–vacuum | vbinst\_v | 1 = yes  0 = no or not stated |
| Vaginal birth with instruments–forceps | vbinst\_f | 1 = yes  0 = no or not stated |
| Non-instrumental vaginal birth | vaginal | 1 = yes  0 = no or not stated |
| Vaginal birth–with instrument | vbinst | 1 = yes  0 = no or not stated |
| Type of birth | birth\_type | 1 = non-instrumental vaginal birth  2 = Instrumental vaginal birth with instruments  3 = Unplanned caesarean section birth  4 = Planned caesarean section birth |
| Gestational age at birth (in weeks) | gest\_weeks | numerical |
| Preterm birth, prior to 37 weeks of gestation | premature | 1 = yes  0 = no or not stated |
| Stillborn baby  (at least 20 weeks of gestation and/or at least 400 grams in weight) | stillbirth | 1 = yes  0 = no or not stated |
| Baby died following birth (including stillbirth) | baby\_death | 1 = yes  0 = no or not stated |
| Length of time between birth and baby’s death | baby\_deathmonth | numerical (months)  missing if no death |
| Baby developed a chronic condition at or after birth | chroniccondition\_any | 1 = yes  0 = no or not stated |
| Type of chronic condition first developed | chroniccondition | 0 = none  1 = respiratory condition  2 = neurological condition  3 = other condition |
| Time in months since birth that first condition developed | chroniccondition\_onsetmonths | numerical (months) |
| Baby admitted to special care nursery | scn | 1 = yes  0 = no or not stated |
| Baby admitted to neonatal intensive care unit | nicu | 1 = yes  0 = no or not stated |
| *Health outcomes* | | |
| Woman’s QALY during pregnancy | mum\_pregnancy\_qaly | numerical |
| Woman’s QALY during birth | mum\_birth\_qaly | numerical |
| Woman’s QALY postpartum | mum\_postpartum\_qaly | numerical |
| Baby’s QALY around birth | baby\_birth\_qaly | numerical |
| Baby’s QALY postpartum | baby\_postpartum\_qaly | numerical |
| Woman’s total QALYs | mum\_qaly | numerical |
| Baby’s total QALYs | baby\_qaly | numerical |
| Combined (woman and baby’s) total QALYs | total\_qaly | numerical |
| *Health service use and costs* | | |
| *Inpatient hospital use mum* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Principal diagnosis for inpatient episode | pd | categorical–icd-10-am code |
| Diagnostic related group of inpatient episode | drg | categorical–ar-drg |
| Time (in months) between birth and inpatient episode | muminpatient\_service\_time | numerical (months) |
| Year of inpatient episode, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| If inpatient episode was in a private hospital | private\_facility | 1 = yes  0 = no or not stated |
| Cost of the inpatient episode ($) | drgcosta | numerical |
| Discounted cost of the inpatient episode ($) | drgcosta\_d | numerical |
| *ED hospital use mum* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Classification of emergency department presentation | urg\_modified | categorical–simplified urg code |
| Principal diagnosis of emergency department presentation | principal\_diagnosis\_code | categorical–icd-10-am code |
| Time (in months) between birth and emergency department presentation | mumed\_service\_time | numerical (months) |
| Year of emergency department presentation, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| Cost of the emergency department presentation ($) | urgcosta | numerical |
| Discounted cost of the emergency department presentation ($) | urgcosta\_d | numerical |
| *MBS service use mum* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Medical Benefits Schedule item number | item\_code\_current | categorical–item number |
| Amount the Federal Government, through Medicare, paid for the service | benefit\_amounta | numerical |
| Discounted amount the Federal Government, through Medicare, paid for the service | benefit\_amounta\_d | numerical |
| Amount the individual, through out of pocket fees, paid for the service | oopa | numerical |
| Discounted amount the individual, through out of pocket fees, paid for the service | oopa\_d | numerical |
| Amount the individual, through out of pocket fees but MAY have been reimbursed through a private health insurer, for the service | oop\_phia | numerical |
| Discounted amount the individual, through out of pocket fees but MAY have been reimbursed through a private health insurer, for the service | oop\_phia\_d | numerical |
| Time (in months) between birth and service | mummbs\_service\_time | numerical (months) |
| Year of service, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| *PBS service use mum* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Pharmaceutical Benefits Scheme item number | item\_code | categorical–item code |
| Amount the Federal Government, through the PBS, paid for the dispensing | benefit\_amounta | numerical |
| Discounted amount the Federal Government, through the PBS, paid for the dispensing | benefit\_amounta\_d | numerical |
| Amount the individual, through out of pocket fees, paid for the dispensing | patient\_contribution\_amounta | numerical |
| Discounted amount the individual, through out of pocket fees, paid for the dispensing | patient\_contribution\_amounta\_d | numerical |
| Time (in months) between birth and dispensing | pbs\_service\_time | numerical (months) |
| Year of dispensing, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| *Inpatient hospital use baby* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Principal diagnosis for inpatient episode | pd | categorical–icd-10-am code |
| Diagnostic related group of inpatient episode | drg | categorical–ar-drg |
| Year of inpatient episode, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| If inpatient episode was in a private hospital | private\_facility | 1 = yes  0 = No |
| Cost of the inpatient episode ($) | drgcosta | numerical |
| Discounted cost of the inpatient episode ($) | drgcosta\_d | numerical |
| *ED hospital use baby* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Classification of emergency department presentation | urg\_modified | categorical–simplified urg code |
| Principal diagnosis of emergency department presentation | principal\_diagnosis\_code | categorical–icd-10-am code |
| Year of emergency department presentation, simulated | service\_year\_sim | categorical–2023, 2024, 2025 2026, 2027 |
| Cost of the emergency department presentation ($) | urgcosta | numerical |
| Discounted cost of the emergency department presentation ($) | urgcosta\_d | numerical |
| *MBS service use baby* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Medical Benefits Schedule item number | item\_code\_current | categorical–item number |
| Amount the Federal Government, through Medicare, paid for the service | benefit\_amounta | numerical |
| Discounted amount the Federal Government, through Medicare, paid for the service | benefit\_amounta\_d | numerical |
| Amount the individual, through out of pocket fees, paid for the service | oopa | numerical |
| Discounted amount the individual, through out of pocket fees, paid for the service | oopa\_d | numerical |
| Amount the individual, through out of pocket fees but MAY have been reimbursed through a private health insurer, for the service | oop\_phi\_a | numerical |
| Discounted amount the individual, through out of pocket fees but MAY have been reimbursed through a private health insurer, for the service | oop\_phia\_d | numerical |
| Year of service, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |
| *PBS service use baby* | | |
| Mother’s identifier | mum\_ppn | numerical |
| Baby’s identifier | baby\_ppn | numerical |
| Pharmaceutical Benefits Scheme item number | item\_code | categorical–item code |
| Amount the Federal Government, through the PBS, paid for the dispensing | benefit\_amounta | numerical |
| Discounted amount the Federal Government, through the PBS, paid for the dispensing | benefit\_amounta\_d | numerical |
| Amount the individual, through out of pocket fees, paid for the dispensing | patient\_contribution\_amounta | numerical |
| Discounted amount the individual, through out of pocket fees, paid for the dispensing | patient\_contribution\_amounta\_d | numerical |
| Year of dispensing, simulated | service\_year\_sim | categorical–2023, 2024, 2025, 2026, 2027 |

Socioeconomic status was based on the postcode of women’s residence at the time of birth, mapped to the Australian Bureau of Statistics’ (ABS) Index of Relative Socio-Economic Disadvantage (IRSD) 1. IRSD scores were categorised into deciles ranging from most disadvantaged (1st decile) to least disadvantaged (10th decile). The ABS Accessibility/Remoteness Index of Australia (ARIA+) was used to assess the remoteness of mothers’ postcode of residence at the time of birth 2. The index scores were categorised into the following ordinal categories: Major Cities; Inner Regional; Outer Regional; Remote; and Very Remote.

NICU admission was identified based on the ward type of admission, with those admitted to a ‘Neonatal Service Level 6’, based on the Queensland Clinical Services Capabilities Framework classification system, deemed to be a NICU admission 3.

**Appendix 2: Conditions or factors that were identified at the onset of antenatal care or during antenatal care that resulted in pregnancy being deemed ‘High risk’ and requiring midwife referral, as defined by Australian College of Midwives Class C category, mapped to ICD-10-AM Codes**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **ICD-10-AM Code** | | **ICD-10-AM Description** |
| **INDICATIONS AT THE COMMENCEMENT OF CARE** | Previous Medical Condition | New Conditions developed during antenatal period |
| **BMI>35** | | | |
| **Medical Conditions** | | | |
| *Anaesthetic considerations* | | | |
| Malignant hyperthermia | Z88.4 |  |  |
| Difficult or unsuccessful epidural | Not available |  |  |
| *Autoimmune conditions* | | |  |
| Periarteritis nodosa | M00-M25, M30-M36 |  |  |
| Scleroderma |  |  |
| Rheumatoid arthritis |  |  |
| Sjӧrgen’s syndrome |  |  |
| Connective tissue autoimmune disease active |  |  |
| Other autoimmune disease |  |  |
| *Cardiovascular disease* | | | |
| Arrhythmia/palpations; murmurs: recurrent, persistent | I00-I99, Z95 |  | Acute rheumatic fever; Chronic rheumatic heart diseases; Hypertensive diseases; Ischaemic heart diseases; Pulmonary heart disease and diseases of pulmonary circulation; Other forms of heart disease; Cerebrovascular diseases; Diseases of arteries, arterioles and capillaries; Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified; Other and unspecified disorders of the circulatory system |
| Cardiac valve disease |  |
| Cardiac valve replacement |  |
| Cardiomyopathy |  |
| Congenital cardiac disease |  |
| Hypertension |  |
| Ischaemic heart disease |  |
| Rheumatic heart disease |  |
| Pulmonary hypertension |  |
| Other cardiac disease |  |
| *Endocrine* | | | |
| Addison’s disease, Cushing’s disease or other endocrine requiring treatment | E00-E07, E10-E14, E20-E35 | E00-E07, E10-E14, E20-E35 |  |
| Pre-existing Type I and Type II diabetes |  |
| Newly diagnosed Type I and II diabetes |  |
| Hypothyroidism–unstable |  |
| *Gastro-intestinal and hepatobiliary* | | | |
| Inflammatory Bowel Disease including ulcerative colitis and Crohn’s disease | K50-K52 |  | Noninfective enteritis and colitis |
| Cholestasis | K71 |  | Toxic liver disease |
| Gastric bypass surgery | Not available |  |  |
| Unexplained weight loss prior to pregnancy | Not available |  |  |
| *Haematological* | | | |
| Haemolytic anaemia | D50-D89 |  |  |
| Other anaemia |  |  |
| Von Willebrand’s Disease |  |  |
| Other coagulation disorders |  |  |
| Sickle cell conditions |  |  |
| Thalassaemia |  |  |
| Other haemoglobinopathies |  |  |
| Rhesus antibodies |  |  |
| Other antibodies detected |  |  |
| Thrombocytopenia <150 (x109/L) |  |  |
| Acute or current Deep Vein Thrombosis or Pulmonary Embolism |  |  |
| Thrombo-embolic process–family history or underlying pathology |  |  |
| *Infectious diseases* | | | |
| Hepatitis B with positive serology (HBsAg+) | B16 |  |  |
| Cytomegalovirus | B25 |  |  |
| Syphilis–positive serology and not yet treated | A51 |  |  |
| HIV infection | B20-B24 |  | Human immunodeficiency virus [HIV] disease |
| Toxoplasmosis–acute infection in first trimester | B58 |  |  |
| Rubella | B06 |  |  |
| Varicella/zoster virus–current infection | B01 |  |  |
| Tuberculosis–active | A15-A19 |  | Tuberculosis |
| Hepatitis A/B/C/D/E | B15-B19 |  | Viral hepatitis |
| Identified public health concerns e.g., Influenza H1N1, SARS-CoV-2 COVID-19 | Not available |  |  |
| *Malignancy–history or current* | | | |
| All | C00-C97 |  | Malignant Neoplasms |
| *Neurological* | | | |
| AV malformations | Q27, Q28 |  |  |
| Epilepsy with medication or seizure in the past 12 months | G40 |  | Epilepsy |
| Muscular dystrophy or myotonic dystrophy | G71 |  |  |
| Myasthenia gravis | G70 |  |  |
| Spinal cord lesion (paraplegia or quadriplegia) | G95 |  |  |
| Subarachnoid haemorrhage, aneurysms | I60, I71, I72 |  |  |
| *Organ transplants* | | | |
| All | Z94 |  |  |
| *History of or pre-existing psychological or perinatal mental health concerns* | | | |
| EPDS–positive response to self-harm question (Q10) | X60-X84 |  |  |
| *Renal function disorders* | | | |
| Renal function disorder with or without dialysis | N00-N08, N25-N29 |  |  |
| Glomerulonephritis |  |  |
| Previous kidney surgery (potential to impair kidney function during pregnancy) |  |  |
| *Respiratory disease* | | | |
| Asthma poorly controlled | J45 |  | Asthma |
| H1N1 | Not available |  |  |
| Severe lung function disorder | R06 |  |  |
| Sarcoidosis | D86 |  |  |
| Cystic fibrosis | E84 |  |  |
| *Skeletal problems* | | | |
| Osteogenesis imperfecta | Q78 |  |  |
| Scheuermann’s disease | M42 |  |  |
| Scoliosis with rods | M41 |  |  |
| Spondylolisthesis | M43 |  |  |
| *System, connective tissue diseases or other systemic and rare disorders* | | | |
| Marfan’s syndrome | Q87 |  |  |
| Raynaud’s disease | I73 |  |  |
| Other systematic or rare disorders | Not available |  |  |
| Genetic conditions | Not available |  |  |
| **Pre-existing gynaecological disorders** | | | |
| *Cervical abnormalities Abnormal PAP smear results* | | | |
| Cervical amputation | Z90.7 |  |  |
| *Uterine abnormalities* | | | |
| Myomectomy or hysterotomy | Z90.7 |  |  |
| Bicornuate/unicornuate uterus | Q51 |  |  |
| Other congenital reproductive tract anomaly e.g., vaginal septum | Q52, Q50 |  |  |
| **Previous maternity history** | | | |
| *Active blood incompatibility* | | | |
| Anti-red cell antibodies (Rh, Kell, Duffy, Kidd) | R71 |  |  |
| Anti-platelet antibodies (neonatal alloimmune thrombocytopenia- NAIT) |  |  |
| *Autoimmune thrombocytopenia* | | | |
| All | D69 |  |  |
| *Cervical weakness* | | | |
| History of cervical cerclage | O34.3 |  |  |
| *Endocrine* | | | |
| Gestational diabetes–uncontrolled +/- medication | O24 |  |  |
| *Rhesus isoimmunisation* | | | |
| All | O36 |  |  |
| *Hypertension* | | | |
| Chronic hypertension | O10-O16 |  |  |
| Severe eclampsia |  |  |
| Eclampsia |  |  |
| HELPP syndrome |  |  |
| *Obstetric cholestasis* | | | |
| All | O26.6 |  |  |
| *Placenta* | | | |
| Accreta, increta, percreta | O43 |  |  |
| Manual removal | O72 |  |  |
| *Preterm labour/birth* | | | |
| Urinary incontinence | O60 |  |  |
| *Termination of pregnancy* | | | |
| Termination of pregnancy for genetic/congenital reasons | O04 |  |  |
| *Trophoblastic disease* | | | |
| Hydatidiform or vesicular mole | O01 |  |  |
| *Previous caesarean section* | | | |
| All | O82 |  |  |
| *Maternal collapse* | | | |
| All | Not available |  |  |
| *Perineal or other laceration* | | | |
| Third or fourth degree tear–persistent pelvic floor or other dysfunction | O70.2, O70.3 |  |  |
| Cervical laceration | O70.9 |  |  |
| Episiotomy–midline, bilateral, with extension | O70 |  |  |
| *Postpartum haemorrhage* | | | |
| Major 1000-2000mL +/- treatment +/- HDU admission | O72 |  |  |
| Severe >2000mL +/- HDU admission +/- massive transfusion |  |  |
| *Pelvic floor dysfunction* | | | |
| Dyspareunia | N94.1 |  |  |
| Faecal incontinence | R15 |  |  |
| Urinary incontinence | N98 |  |  |
| *Neonatal* | | | |
| Neonate with other infection requiring admission | Not available |  |  |
| Stillbirth or neonatal loss | Z35.2, P95 |  |  |
| *History of psychological or mental health* | | | |
| Postnatal depression | F53 |  |  |
| Puerperal psychosis |  |  |
| Other significant perinatal mental illness |  |  |
| **Clinical indications developed or identified during the antepartum period** | | | |
| *Cardiac* | | | |
| Palpitations–prolonged, symptomatic or associated with significant symptoms |  | R00 |  |
| New onset cardiac conditions |  | I00-I99 |  |
| *Cervical weakness* | | | |
| Cervical shortening with risk factors for preterm birth |  | Not available |  |
| Preterm cervical dilation |  |  |
| *Cervix cytology abnormalities* | | | |
| Evidence of invasive disease |  | Not available |  |
| *Clinical discrepancies with symphysio-fundal height (SFH), fetal growth and/or amniotic fluid* | | | |
| Macrosomia (>4000g or 90th centile) |  | P05, P07 |  |
| Fetal growth restriction (FGR) |  |  |
| FGR with concerning features e.g., oligohydramnios, abnormal umbilical doppler) |  |  |
| Polyhydramnios (severe)–defined as >34cm AFI or >15 DVP |  | O40 |  |
| Oligohydramnios |  | O41 |  |
| *Ectopic pregnancy* | | | |
| All |  | O00 |  |
| *Endocrine* | | | |
| Gestational diabetes–uncontrolled and/or requiring medication |  | O24, O10-O14 |  |
| New diagnosis in pregnancy |  |  |
| *Fetal anomaly* | | | |
| All |  | O68 |  |
| *Gastro-intestinal and hepatobiliary* | | | |
| Obstetric cholestasis |  | O26.6 |  |
| Appendicitis |  | K25 |  |
| *Haematological* | | | |
| Anaemia |  | D50-D89 |  |
| Severe anaemia |  |  |
| Blood group incompatibility |  |  |
| Coagulation disorders |  |  |
| Pulmonary embolism |  |  |
| Thrombosis or thrombophilia |  |  |
| Thrombocytopenia |  |  |
| *Hypertension* | | | |
| Pre-eclampsia |  | O10-O16 |  |
| Eclampsia |  |  |
| Any type with proteinuria (>2+ or >0.3g/24hrs) |  |  |
| HELLP syndrome |  |  |
| *Infectious disease* | | | |
| Cytomegalovirus |  | B25 |  |
| Herpes Simplex Virus Type 1 (HSV1)–active lesions in late pregnancy |  | B00 |  |
| HIV infection |  | B20-B24 |  |
| Listeriosis |  | A32 |  |
| Rubella |  | B06 |  |
| *Neurological* | | | |
| Stroke |  | I64 |  |
| Cerebral venous thrombosis |  | O22.5 |  |
| New onset of seizures |  | Not available |  |
| *Placental/cord indications* | | | |
| Placental abruption |  | O43 |  |
| Placenta accreta, increta or percreta |  |  |
| Placenta praevia |  |  |
| Vasa praevia |  |  |
| *Psychological or perinatal mental health concerns (diagnosis in pregnancy)* | | | |
| EPDS >12 OR positive response to Q10 self-harm during pregnancy (intention to self-harm) |  | X60-X84 |  |
| Acute and unstable mental health concern |  | F00-F99 |  |
| Other significant perinatal mental illness |  | Not available |  |
| *Renal function disorders* | | | |
| Pyelonephritis |  | N10-N16 |  |
| *Respiratory disease* | | | |
| Asthma poorly controlled |  | J45 |  |
| Influenza (A or B) |  | J09-J18 |  |
| H1N1 |  | Not available |  |
| Pneumonia |  | Not available |  |
| Severe lung function disorder |  | R06 |  |
| Sarcoidosis |  | D86 |  |
| COVID-19 |  | Not available |  |
| *Sepsis* | | | |
| All |  | A41 |  |
| *Surgery during pregnancy* | | | |
| Major surgery |  | Not available |  |
| *Trophoblastic disease* | | | |
| Hydatidiform or vesicular mole |  | O01 |  |
| *Vaginal blood loss* | | | |
| Antepartum haemorrhage |  | O46 |  |

**Appendix 3: Non-severe morbidity, as defined by the World Health Organisation’s Maternal Morbidity classification, mapped to ICD-10-AM Codes**

|  |  |  |
| --- | --- | --- |
| **WHO Description** | **ICD-10-AM Code** | **ICD-10-AM Description** |
| **Variable** |
| *Delivery/Termination* | | |
| Obstructed labour | O64-O66 | Obstructed labour due to malposition and malpresentation of fetus; Obstructed labour due to maternal pelvic abnormality; Other obstructed labour) |
| *Obstetric haemorrhage* | | |
| Postpartum Haemorrhage | O67, O72 | Labour and delivery complicated by intrapartum haemorrhage, not elsewhere classified;  Postpartum haemorrhage |
| *Pregnancy, birth related infection* | | |
| Mastitis/Breast Abscess | O85, O86, O91 | Puerperal sepsis; other puerperal infections; Infections of breast associated with baby birth |
| Chorioamnionitis |
| Puerperal Sepsis |
| UTI/Pyelonephritis |
| Tetanus |
| *Other obstetric complications* | | |
| *Thrombotic* | | |
| Deep Vein Thrombosis | O87, O88 | Venous complications and haemorrhoids in the puerperium; Obstetric embolism |
| Septic Ovaria/Pelvic Vain |
| Thrombophlebitis |
| *Cardiovascular* | | |
| Peripartum Cardiomyopathy | O89 | Complications of anaesthesia during the puerperium |
| Mirror Syndrome |
| *Endocrine* | | |
| Other | O90 | Complications of the puerperium, not elsewhere classified |
| *Unanticipated Complications* | | |
| Cerebral Anoda | O74 | Complications of anaesthesia during labour and delivery |
| *Complications of Management* | | |
| Perineal Tear (3rd or 4th degree) | O71, O70.2, O70.3 | Rupture of uterus before onset of labour; Rupture of uterus during labour; Postpartum inversion of uterus; Obstetric laceration of cervix; Obstetric high vaginal laceration; Other obstetric injury to pelvic organs; Obstetric damage to pelvic joints and ligaments;  Obstetric haematoma of pelvis; Other specified obstetric trauma; Obstetric trauma, unspecified; Third degree perineal laceration during delivery; Fourth degree perineal laceration during delivery |
| Episiotomy infection |
| Vaginal wall/perineal laceration |
| Urethral tear/damage |
| Vulval Haematoma |
| Uterine perforation |
| Postpartum inversion of uterus |
| Post-operative ileus/bowel obstruction |
| Ovarian hyperstimulation syndrome |

**Appendix 4: Severe morbidity, as defined by the World Health Organisation’s Maternal Morbidity classification, mapped to ICD-10-AM Codes**

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| **WHO Description** | **Description** | **ICD-10-AM Code** | **ICD-10-AM Description** |
| **Variable** |
| Severe post-partum haemorrhage | Genital bleeding after delivery, with at least one of the following: perceived abnormal bleeding (1000 ml or more) or any bleeding with hypotension or blood transfusion | O72 | Postpartum haemorrhage |
| Severe pre-eclampsia | Persistent systolic blood pressure of 160 mmHg or more or a diastolic blood pressure of 110 mmHg; proteinuria of 5 g or more in 24 hours; oliguria of | O14.1 | Severe pre-eclampsia |
| Eclampsia | Generalised fits in a patient without previous history of epilepsy. Includes coma in pre-eclampsia. | O15, O14.2 | Eclampsia; HELLP syndrome |
| Severe sepsis | Presence of fever (body temperature >38°C), a confirmed or suspected infection (e.g. chorioamnionitis, septic abortion, endometritis, pneumonia), and at least one of the following: heart rate >90, respiratory rate >20, leukopenia (white blood cells 12 000). | R65.1, O85 | Systemic Inflammatory Response Syndrome of infectious origin with organ failure–severe sepsis;  Puerperal sepsis |
| Ruptured uterus | Rupture of uterus during labour confirmed by laparotomy. | O71.0, O71.1 | Rupture of uterus before onset of labour; Rupture of uterus during labour |
| Life-threatening conditions (near-miss criteria) | | | |
| Cardiovascular | Shock, cardiac arrest (absence of pulse/ heart beat and loss of consciousness), use of continuous vasoactive drugs, cardiopulmonary resuscitation, severe hypoperfusion (lactate >5 mmol/L or >45 mg/dL), severe acidosis (pH<7.1) | R57, I46, O74.2, O75.1, O75.4, I21, I71, I60-69, I50 | Shock not elsewhere classified; Cardiac arrest; Cardiac complications of anaesthesia during labour and delivery; Shock during or following labour and delivery; Other complications of obstetric surgery and procedures; Acute myocardial infarction; Aortic aneurysm and dissection; Cerebrovascular diseases; Congestive heart failure |
| Respiratory | Acute cyanosis, gasping, severe tachypnoea (respiratory rate >40 breaths per minute), severe bradypnea (respiratory rate <6 breaths per minute), intubation and ventilation not related to anaesthesia, severe hypoxemia (O2 saturation <90% for ≥60 min or PAO2/FiO2 <200 | J96, J80, J95, J81 | Respiratory failure, not elsewhere classified; Adult respiratory distress syndrome; Tracheostomy malfunction;  Pulmonary oedema |
| Renal | Oliguria non-responsive to fluids or diuretics, dialysis for acute renal failure, severe acute azotaemia (creatinine ≥300 μmol/ mL or ≥3.5 mg/dL) | O90.4, N17, N19 | Postpartum acute renal failure; Acute renal failure; Unspecified kidney failure |
| Coagulation/hemotogical | Failure to form clots, massive transfusion of blood or red cells (≥5 units), severe acute thrombocytopenia ( | O87, O67.0, O88, D65 | Venous complications and haemorrhoids in the puerperium, Intrapartum haemorrhage with coagulation defect; Obstetric embolism; Disseminated intravascular coagulation [defibrination syndrome] |
| Hepatic | Jaundice in the presence of pre-eclampsia, severe acute hyperbilirubinemia (bilirubin >100 μmol/L or >6.0 mg/dL) | K71, K72 | Toxic liver disease; Hepatic failure, not elsewhere classified |
| Neurologic | Prolonged unconsciousness (lasting ≥12 h)/coma (including metabolic coma), stroke, uncontrollable fits/status epilepticus, total paralysis | F53, F23, O99.3, G40 | Puerperal psychosis; Brief psychotic disorder; Mental disorders and diseases of the nervous system complicating pregnancy, baby birth and the puerperium; epilepsy |
| Uterine dysfunction | Uterine haemorrhage or infection leading to hysterectomy | O71.5, O67.9 | Other obstetric injury to pelvic organs |
| Critical interventions or intensive care unit use | | | |
| Intensive care unit admission | Defined based on standard ward code in birth-related inpatient admissions. | | |
| Intervention radiology | Not available | | |
| Laparotomy excluding caesarean section | Not available | | |
| Use of blood products | Not available | | |

**References**

1. Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016 (Australian Bureau of Statistics)

2. Queensland Government. Accessibility/Remoteness Index of Australia. Queensland Government Statistician's Office. Accessed 28 September, 2018. <http://www.qgso.qld.gov.au/about-statistics/statistical-standards/national/aria.php>

3. Queensland Health. Clinical Services Capabilities Framework. Brisbane: Queensland Government; 2018.