**Supplementary section:** Patterns and predictors of respiratory infection hospitalisations across the first year of life

Supplementary text 1: Major and minor congenital malformations.

The majority of congenital malformations (section Q of the ICD-10) were considered major and thus any participant with one or more were excluded from our analyses. The following table shows the congenital malformations identified as minor and thus if a participant had one or more of the following only, they were not excluded from our analysis. In total, 3.79% (n=16,538) were excluded for having a major congenital malformation identified prior to neonatal discharge.

**Supplementary table 1: Complete list of minor congenital malformations**

|  |  |  |  |
| --- | --- | --- | --- |
| **ICD-10** | **Description** | **ICD-10** | **Description** |
| Q10.0 | Congenital ptosis | Q66.5 | Congenital pes planus |
| Q10.1 | Congenital ectropion | Q66.6 | Oth congenital valgus deformities feet |
| Q10.2 | Congenital entropion | Q66.7 | Pes cavus |
| Q10.3 | Other congenital malformations of eyelid | Q66.8 | Other congenital deformities of feet |
| Q10.5 | Cong stenosis stricture lacrimal duct | Q67.0 | Facial asymmetry |
| Q13.0 | Coloboma of iris | Q67.1 | Compression facies |
| Q13.2 | Other congenital malformations of iris | Q67.2 | Dolichocephaly |
| Q13.5 | Blue sclera | Q67.3 | Plagiocephaly |
| Q15.8 | Oth spec congenital malformations of eye | Q67.4 | Oth cong deformities skull face & jaw |
| Q17.0 | Accessory auricle and ear tag | Q67.41 | Depressions in skull |
| Q17.1 | Macrotia | Q67.6 | Pectus excavatum |
| Q17.3 | Other misshapen ear | Q67.7 | Pectus carinatum |
| Q17.4 | Misplaced ear | Q67.8 | Other congenital deformities of chest |
| Q18.0 | Sinus fistula & cyst of branchial cleft | Q68.0 | Cong defrm sternocleidomastoid musc |
| Q18.1 | Preauricular sinus and cyst | Q68.1 | Congenital deformities of hand |
| Q18.3 | Webbing of neck | Q68.10 | Congenital deformity of hand unspecified |
| Q18.4 | Macrostomia | Q68.8 | Oth spec cong musculoskeletal defrm |
| Q18.6 | Macrocheilia | Q69.0 | Accessory finger(s) |
| Q18.8 | Oth spec cong malform face & neck | Q69.1 | Accessory thumb(s) |
| Q27 | Oth cong malform peripheral vasc sys | Q69.2 | Accessory toe(s) |
| Q30.2 | Fissured notched and cleft nose | Q69.21 | Accessory hallux [halluces] |
| Q30.8 | Other congenital malformations of nose | Q69.29 | Other accessory toe(s) |
| Q35.7 | Cleft uvula | Q69.9 | Polydactyly unspecified |
| Q35.7 | Cleft uvula | Q70.3 | Webbed toes |
| Q38.1 | Ankyloglossia | Q74.1 | Congenital malformations of knee |
| Q38.2 | Macroglossia | Q70.3 | Webbed toes |
| Q38.3 | Oth & ? congenital malformations tongue | Q74.1 | Congenital malformations of knee |
| Q38.4 | Cong malform salivary glands & ducts | Q75.0 | Craniosynostosis |
| Q38.5 | Congenital malformations of palate NEC | Q75.2 | Hypertelorism |
| Q38.50 | Congenital malformation of palate ? | Q75.3 | Macrocephaly |
| Q38.6 | Oth & ? cong malformations of mouth | Q75.8 | Oth spec cong malform skull fce bone |
| Q43.5 | Ectopic anus | Q76.0 | Spina bifida occulta |
| Q43.5 | Ectopic anus | Q76.43 | Oth congenital anomalies vertebra(e) |
| Q52.3 | Imperforate hymen | Q79.5 | Oth cong malformations abdominal wall |
| Q52.4 | Other & ? cong malformations of vagina | Q79.8 | Oth cong malform musculoskeletal sys |
| Q52.5 | Fusion of labia | Q82.4 | Ectodermal dysplasia (anhidrotic) |
| Q52.6 | Other & ? cong malformations of clitoris | Q82.5 | Congenital non-neoplastic naevus |
| Q52.8 | Oth spec cong malform femle genitalia | Q82.8 | Oth spec congenital malformations skin |
| Q53.1 | Undescended testicle unilateral | Q82.81 | Hidrotic ectodermal dysplasia |
| Q53.2 | Undescended testicle bilateral | Q83.2 | Absent nipple |
| Q53.9 | Undscnd testicle unspecified laterality | Q83.3 | Accessory nipple |
| Q54.4 | Congenital chordee | Q83.8 | Other congenital malformations of breast |
| Q55.1 | Hypoplasia of testis and scrotum | Q84.1 | Cong morph disturbances hair NEC |
| Q55.2 | Other & ? cong malform testis & scrotum | Q84.2 | Other congenital malformations of hair |
| Q55.20 | Cong malform of testis and scrotum ? | Q84.3 | Anonychia |
| Q55.21 | Retractile testis | Q84.4 | Congenital leukonychia |
| Q55.6 | Other & ? cong malform of penis | Q84.5 | Enlarged and hypertrophic nails |
| Q55.8 | Oth spec cong malform male gen org | Q84.6 | Other congenital malformations of nails |
| Q55.9 | Cong malformation male gen org unsp | Q84.8 | Oth spec cong malformations integument |
| Q66.2 | Metatarsus varus |  |  |
| Q66.3 | Oth congenital varus deformities of feet |  |  |

Supplementary text 2: Congenital infections and any infection prior to discharge.

Neonates diagnosed with chronic respiratory disease originating in the perinatal period, intrauterine/neonatal asphyxia or an immunological disorder (at any time in the first 12 months of life) were excluded because these are or may result in severe or chronic conditions which may be related to the more common and less severe conditions of interest and to respiratory infection. The full list of conditions which led to exclusions are shown in the table below. In total 0.94% (n=4,101) of the sample were excluded for being diagnoses with one or more of these conditions.

**Supplementary table 2: Complete list of immunological, chronic respiratory and hypoxia/asphyxia**

|  |  |  |  |
| --- | --- | --- | --- |
| **ICD-10** | **Description** | **ICD-10** | **Description** |
|  | **Immunological disorders** |  |  |
| D80 | Immunodef w predom antibody defects | D86 | Sarcoidosis |
| D80.0 | Hereditary hypogammaglobulinaemia | D86.0 | Sarcoidosis of lung |
| D80.1 | Nonfamilial hypogammaglobulinaemia | D86.1 | Sarcoidosis of lymph nodes |
| D80.2 | Selective deficiency of immunoglobulin A | D86.2 | Sarcoidosis lung w lymph nodes |
| D80.3 | Selective deficiency of IgG subclasses | D86.3 | Sarcoidosis of skin |
| D80.4 | Selective deficiency of immunoglobulin M | D86.8 | Sarcoidosis of other and combined sites |
| D80.5 | Immunodeficiency with increased IgM | D86.9 | Sarcoidosis unspecified |
| D80.6 | Ab def nr norm Ig or hyperimmunoglobem | D89 | Other disorders inv immune mechanism NEC |
| D80.7 | Transient hypogammaglobulinaemia infancy | D89.0 | Polyclonal hypergammaglobulinaemia |
| D80.8 | Oth immunodef w predom antibody defects | D89.1 | Cryoglobulinaemia |
| D80.9 | Immunodef w predom antibody defects unsp | D89.2 | Hypergammaglobulinaemia unspecified |
| D81 | Combined immunodeficiencies | D89.3 | Immune reconstitution syndrome |
| D81.0 | Sev cmb immunodef w reticlr dysgenesis | D89.8 | Other spec disrd inv immune mechn NEC |
| D81.1 | Sev cmb immunodef w low T & B cell no | D89.9 | Disorder involving immune mechanism unsp |
| D81.2 | Sev cmb immunodef w norm-low B cell no |  | **Hypoxia/asphyxia**  |
| D81.3 | Adenosine deaminase [ADA] deficiency | P20 | Intrauterine hypoxia |
| D81.4 | Nezelof's syndrome | P20.0 | Intrauterine hypoxia before onset labour |
| D81.5 | Purine nucleoside phosphorylase def | P20.1 | Intrauterine hypoxia during labour |
| D81.6 | Major histocompat complex class I def | P20.9 | Intrauterine hypoxia unspecified |
| D81.7 | Major histocompat complex class II def | P21 | Birth asphyxia |
| D81.8 | Other combined immunodeficiencies | P21.0 | Severe birth asphyxia |
| D81.9 | Combined immunodeficiency unspecified | P21.1 | Mild and moderate birth asphyxia |
| D82 | Immunodef ass w other major defects | P21.9 | Birth asphyxia unspecified |
| D82.0 | Wiskott-Aldrich syndrome |  | **Chronic neonatal respiratory disorders** |
| D82.1 | Di George's syndrome | P27 | Perinatal chronic respiratory disease |
| D82.2 | Immunodeficiency w short limbed stature | P27.0 | Wilson-Mikity syndrome |
| D82.3 | Immunodef fol hered dfct respn to EBV | P27.1 | Chronic neonatal lung disease |
| D82.4 | Hyperimmunoglobulin E [IgE] syndrome | P27.8 | Oth chr respiratory dis perinatal period |
| D82.8 | Immunodef ass w oth spec major defects | P27.9 | Unsp chr resp dis perinatal period |
| D82.9 | Immunodef ass w major defect unsp |  |  |
| D83 | Common variable immunodeficiency |  |  |
| D83.0 | Com var immunodef predom abn Bcell no fn |  |  |
| D83.1 | Com var immunodef predom I/r Tcell disrd |  |  |
| D83.2 | Com var immunodef w auto- Ab B or T cell |  |  |
| D83.8 | Other common variable immunodeficiencies |  |  |
| D83.9 | Common variable immunodeficiency unsp |  |  |
| D84 | Other immunodeficiencies |  |  |
| D84.0 | Lymphocyte function antigen-1 defect |  |  |
| D84.1 | Defects in the complement system |  |  |
| D84.8 | Other specified immunodeficiencies |  |  |
| D84.9 | Immunodeficiency unspecified |  |  |

Supplementary text 3: Congenital infections and any infection prior to discharge.

In addition to all of sections A and B (Certain infectious and parasitic diseases) participants were excluded if they had any other infectious disease prior to neonatal discharge or any congenital disease at any time in the study period. In total, 3.7% (n=16,285) of the sample were excluded for this reason. Most of the infections included would be highly unlikely to occur in a newborn prior to discharge but we decided an exhaustive list was the best approach.

**Supplementary table 3 (a): Complete list of any infection prior to neonatal discharge (in addition to all of sections A and B)**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **ICD-10** | **Description** | **ICD-10** | **Description** |
| G00 | Bacterial meningitis NEC | J17.1 | Pneumonia in viral dis class elsewhere |
| G00.0 | Haemophilus meningitis | J17.2 | Pneumonia in mycoses |
| G00.1 | Pneumococcal meningitis | J17.3 | Pneumonia in parasitic diseases |
| G00.2 | Streptococcal meningitis | J17.8 | Pneumonia in other dis class elsewhere |
| G00.3 | Staphylococcal meningitis | J18 | Pneumonia organism unspecified |
| G00.8 | Other bacterial meningitis | J18.0 | Bronchopneumonia unspecified |
| G00.9 | Bacterial meningitis unspecified | J18.1 | Lobar pneumonia unspecified |
| G01 | Meningitis in bact dis class elsewhere | J18.2 | Hypostatic pneumonia unspecified |
| G02 | Mengits in oth infect & parasit dis cl/e | J18.8 | Other pneumonia organism unspecified |
| G02.0 | Meningitis in viral dis class elsewhere | J18.9 | Pneumonia unspecified |
| G02.1 | Meningitis in mycoses | J20 | Acute bronchitis |
| G02.8 | Mengits oth spec infect parasit dis cl/e | J20.0 | Ac bronchitis dt Mycoplasma pneumoniae |
| G03 | Meningitis dt other & unspecified causes | J20.1 | Ac bronchitis dt Haemophilus influenzae |
| G03.0 | Nonpyogenic meningitis | J20.2 | Acute bronchitis due to streptococcus |
| G03.1 | Chronic meningitis | J20.3 | Acute bronchitis due to coxsackievirus |
| G03.2 | Benign recurrent meningitis [Mollaret] | J20.4 | Acute bronchitis dt parainfluenza virus |
| G03.8 | Meningitis due to other specified causes | J20.5 | Ac bronchitis dt resp syncytial virus |
| G03.9 | Meningitis unspecified | J20.6 | Acute bronchitis due to rhinovirus |
| G04 | Encephalitis, myelitis encephalomyelitis | J20.7 | Acute bronchitis due to echovirus |
| G04.0 | Acute disseminated encephalitis | J20.8 | Acute bronchitis dt other spec organisms |
| G04.1 | Tropical spastic paraplegia | J20.9 | Acute bronchitis unspecified |
| G04.2 | Bact meningoencephalit meningomyelit NEC | J21 | Acute bronchiolitis |
| G04.8 | Oth encephalit myelitis encephalomyelit | J21.0 | Ac bronchiolitis dt resp syncytial virus |
| G04.9 | Encephalit myelitis encephalomyelit unsp | J21.1 | Ac brchlts dt human metapneumovirus |
| G05 | Encephalit myelitis encephalomyelit cl/e | J21.8 | Ac bronchiolitis dt other spec organisms |
| G05.0 | Encephalit &/or myelitis bact dis cl/e | J21.9 | Acute bronchiolitis unspecified |
| G05.1 | Encephalit &/or myelitis viral dis cl/e | J22 | Unsp acute lower respiratory infection |
| G05.2 | Encephalit &or myelit infect parasit dis | J31.1 | Chronic nasopharyngitis |
| G05.8 | Encephalit &/or myelitis oth dis cl/e | J31.2 | Chronic pharyngitis |
| G06 | Intracranial intraspinal abs & granuloma | J32 | Chronic sinusitis |
| G06.0 | Intracranial abscess and granuloma | J32.0 | Chronic maxillary sinusitis |
| G06.1 | Intraspinal abscess and granuloma | J32.1 | Chronic frontal sinusitis |
| G06.2 | Extradural & subdural abscess unsp | J32.2 | Chronic ethmoidal sinusitis |
| G07 | Intrcran intraspinal abs granuloma cl/e | J32.3 | Chronic sphenoidal sinusitis |
| G08 | Intrcran intraspin phleb & thrombophleb | J32.4 | Chronic pansinusitis |
| G09 | Sequelae of inflammatory diseases of CNS | J32.8 | Other chronic sinusitis |
| H00 | Hordeolum and chalazion | J32.9 | Chronic sinusitis unspecified |
| H00.0 | Hordeolum & other deep inflam of eyelid | J34.0 | Abscess furuncle and carbuncle of nose |
| H00.1 | Chalazion | J34.1 | Cyst and mucocele of nose & nasal sinus |
| H01 | Other inflammation of eyelid | J35 | Chronic diseases of tonsils and adenoids |
| H01.0 | Blepharitis | J35.0 | Chronic tonsillitis |
| H01.1 | Noninfectious dermatoses of eyelid | J35.1 | Hypertrophy of tonsils |
| H01.8 | Other specified inflammation of eyelid | J35.2 | Hypertrophy of adenoids |
| H01.9 | Inflammation of eyelid unspecified | J35.3 | Hypertrophy tonsils with adenoids |
| H10 | Conjunctivitis | J35.8 | Oth chronic diseases tonsils & adenoids |
| H10.0 | Mucopurulent conjunctivitis | J35.9 | Chronic disease tonsils & adenoids unsp |
| H10.1 | Acute atopic conjunctivitis | J36 | Peritonsillar abscess |
| H10.2 | Other acute conjunctivitis | J37 | Chronic laryngitis and laryngotracheitis |
| H10.3 | Acute conjunctivitis unspecified | J37.0 | Chronic laryngitis |
| H10.4 | Chronic conjunctivitis | J37.1 | Chronic laryngotracheitis |
| H10.5 | Blepharoconjunctivitis | J40 | Bronchitis not spec as acute or chronic |
| H10.8 | Other conjunctivitis | J41 | Simple & mucopurulent chronic bronchitis |
| H10.9 | Conjunctivitis unspecified | J41.0 | Simple chronic bronchitis |
| H30 | Chorioretinal inflammation | J41.1 | Mucopurulent chronic bronchitis |
| H30.0 | Focal chorioretinal inflammation | J41.8 | Mx simple & mucopurulent chr bronchitis |
| H30.1 | Disseminated chorioretinal inflammation | J42 | Unspecified chronic bronchitis |
| H30.2 | Posterior cyclitis | J43 | Emphysema |
| H30.8 | Other chorioretinal inflammations | J43.0 | MacLeod's syndrome |
| H30.9 | Chorioretinal inflammation unspecified | J43.1 | Panlobular emphysema |
| H32.0 | Chorioret inflam infect parasit dis cl/e | J43.2 | Centrilobular emphysema |
| H44.0 | Purulent endophthalmitis | J43.8 | Other emphysema |
| H44.1 | Other endophthalmitis | J43.9 | Emphysema unspecified |
| H45.1 | Endophthalmitis in diseases cl/e | J44 | Other COPD |
| H62 | Disorders external ear in diseases cl/e | J44.0 | COPD with acute lower resp infection |
| H62.0 | Otitis externa in bacterial disease cl/e | J44.1 | COPD with acute exacerbation unspecified |
| H62.1 | Otitis externa in viral disease cl/e | J44.8 | Other specified COPD |
| H62.2 | Otitis externa in mycoses | J44.9 | COPD unspecified |
| H62.3 | Otitis ext oth infect parasit dis cl/e | J47 | Bronchiectasis |
| H62.4 | Otitis externa in other diseases cl/e | J85.0 | Gangrene and necrosis of lung |
| H62.8 | Oth disrd external ear in diseases cl/e | J85.1 | Abscess of lung with pneumonia |
| H65 | Nonsuppurative otitis media | J85.2 | Abscess of lung without pneumonia |
| H65.0 | Acute serous otitis media | J85.3 | Abscess of mediastinum |
| H65.1 | Other acute nonsuppurative otitis media | J86 | Pyothorax |
| H65.2 | Chronic serous otitis media | J86.0 | Pyothorax with fistula |
| H65.3 | Chronic mucoid otitis media | J86.9 | Pyothorax without fistula |
| H65.4 | Oth chronic nonsuppurative otitis media | J90 | Pleural effusion NEC |
| H65.9 | Nonsuppurative otitis media unspecified | J91 | Pleural effusion in conditions cl/e |
| H66 | Suppurative and unspecified otitis media | J92 | Pleural plaque |
| H66.0 | Acute suppurative otitis media | J92.0 | Pleural plaque with presence of asbestos |
| H66.1 | Chr tubotympanic suppuratve otitis media | J92.9 | Pleural plaque without asbestos |
| H66.2 | Chr atticoantral suppuratve otitis media | J93 | Pneumothorax |
| H66.3 | Other chronic suppurative otitis media | J93.0 | Spontaneous tension pneumothorax |
| H66.4 | Suppurative otitis media unspecified | J93.1 | Other spontaneous pneumothorax |
| H66.9 | Otitis media unspecified | J93.2 | Iatrogenic pneumothorax |
| H67 | Otitis media in diseases class elsewhere | J93.8 | Other pneumothorax |
| H67.0 | Otitis media in bacterial diseases cl/e | J93.9 | Pneumothorax unspecified |
| H67.1 | Otitis media in viral diseases cl/e | J94 | Other pleural conditions |
| H67.8 | Otitis media in other diseases cl/e | J94.0 | Chylous effusion |
| H70 | Mastoiditis and related conditions | J94.1 | Fibrothorax |
| H70.0 | Acute mastoiditis | J94.2 | Haemothorax |
| H70.1 | Chronic mastoiditis | J94.8 | Other specified pleural conditions |
| H70.2 | Petrositis | J94.9 | Pleural condition unspecified |
| H70.8 | Other mastoiditis and related conditions | L00 | Staphylococcal scalded skin syndrome |
| H70.9 | Mastoiditis unspecified | L01 | Impetigo |
| I00 | Rheumatic fever wo mention heart inv | L01.0 | Impetigo [any organism] [any site] |
| I01 | Rheumatic fever with heart involvement | L01.1 | Impetiginisation of other dermatoses |
| I01.0 | Acute rheumatic pericarditis | L02 | Cutaneous abscess furuncle & carbuncle |
| I01.1 | Acute rheumatic endocarditis | L02.0 | Cutan abscess furuncle & carbuncle face |
| I01.2 | Acute rheumatic myocarditis | L02.1 | Cutan abscess furuncle & carbuncle neck |
| I01.8 | Other acute rheumatic heart disease | L02.2 | Cutan abscess furuncle & carbuncle trunk |
| I01.9 | Acute rheumatic heart disease unsp | L02.3 | Cutan abscess furuncle carbuncle buttock |
| I02 | Rheumatic chorea | L02.4 | Cutan abscess furuncle & carbuncle limb |
| I02.0 | Rheumatic chorea with heart involvement | L02.40 | Cutan abs furuncle & carbuncle limb ? |
| I02.9 | Rheumatic chorea wo heart involvement | L02.41 | Cutan abs furuncle & carbuncle upp limb |
| I05 | Rheumatic mitral valve diseases | L02.42 | Cutan abs furuncle & carbuncle low limb |
| I05.0 | Mitral stenosis | L02.43 | Cutan abs furuncle & carbuncle foot |
| I05.1 | Rheumatic mitral insufficiency | L02.8 | Cutan abs furuncle carbuncle other sites |
| I05.2 | Mitral stenosis with insufficiency | L02.9 | Cutan abscess furuncle & carbuncle unsp |
| I05.8 | Other mitral valve diseases | L03 | Cellulitis |
| I05.9 | Mitral valve disease unspecified | L03.0 | Cellulitis of finger and toe |
| I06 | Rheumatic aortic valve diseases | L03.01 | Cellulitis of finger |
| I06.0 | Rheumatic aortic stenosis | L03.02 | Cellulitis of toe |
| I06.1 | Rheumatic aortic insufficiency | L03.1 | Cellulitis of other parts of limb |
| I06.2 | Rheumatic aortic stenosis w insuff | L03.10 | Cellulitis of upper limb |
| I06.8 | Other rheumatic aortic valve diseases | L03.11 | Cellulitis of lower limb |
| I06.9 | Rheumatic aortic valve disease unsp | L03.12 | Cellulitis of upper limb |
| I07 | Rheumatic tricuspid valve diseases | L03.13 | Cellulitis of lower limb |
| I07.0 | Tricuspid stenosis | L03.14 | Cellulitis of foot |
| I07.1 | Tricuspid insufficiency | L03.19 | Cellulitis of limb NEC |
| I07.2 | Tricuspid stenosis with insufficiency | L03.2 | Cellulitis of face |
| I07.8 | Other tricuspid valve diseases | L03.3 | Cellulitis of trunk |
| I07.9 | Tricuspid valve disease unspecified | L03.8 | Cellulitis of other sites |
| I08 | Multiple valve diseases | L03.9 | Cellulitis unspecified |
| I08.0 | Disorders both mitral & aortic valves | L04 | Acute lymphadenitis |
| I08.1 | Disorders both mitral & tricuspid valves | L04.0 | Acute lymphadenitis face head & neck |
| I08.2 | Disorders both aortic & tricuspid valves | L04.1 | Acute lymphadenitis of trunk |
| I08.3 | Cmb disrd mitral, aortic tricuspid valve | L04.2 | Acute lymphadenitis of upper limb |
| I08.8 | Other multiple valve diseases | L04.3 | Acute lymphadenitis of lower limb |
| I08.9 | Multiple valve disease unspecified | L04.8 | Acute lymphadenitis of other sites |
| I09 | Other rheumatic heart diseases | L04.9 | Acute lymphadenitis unspecified |
| I09.0 | Rheumatic myocarditis | L05 | Pilonidal cyst |
| I09.1 | Rheumatic dis endocardium unsp valve | L05.0 | Pilonidal cyst with abscess |
| I09.2 | Chronic rheumatic pericarditis | L05.9 | Pilonidal cyst without abscess |
| I09.8 | Other specified rheumatic heart diseases | L08 | Oth local infection skin & sbc tissue |
| I09.9 | Rheumatic heart disease unspecified | L08.0 | Pyoderma |
| J00 | Acute nasopharyngitis [common cold] | L08.1 | Erythrasma |
| J01 | Acute sinusitis | L08.8 | Oth spec local infectn skin sbc tissue |
| J01.0 | Acute maxillary sinusitis | L08.9 | Local infection skin & sbc tissue unsp |
| J01.1 | Acute frontal sinusitis | N30 | Cystitis |
| J01.2 | Acute ethmoidal sinusitis | N30.0 | Acute cystitis |
| J01.3 | Acute sphenoidal sinusitis | N30.1 | Interstitial cystitis (chronic) |
| J01.4 | Acute pansinusitis | N30.2 | Other chronic cystitis |
| J01.8 | Other acute sinusitis | N30.3 | Trigonitis |
| J01.9 | Acute sinusitis unspecified | N30.4 | Irradiation cystitis |
| J02 | Acute pharyngitis | N30.8 | Other cystitis |
| J02.0 | Streptococcal pharyngitis | N30.9 | Cystitis unspecified |
| J02.8 | Acute pharyngitis dt oth spec organisms | N39.0 | Urinary tract infection site not spec |
| J02.9 | Acute pharyngitis unspecified | N41 | Inflammatory diseases of prostate |
| J03 | Acute tonsillitis | N41.0 | Acute prostatitis |
| J03.0 | Streptococcal tonsillitis | N41.1 | Chronic prostatitis |
| J03.8 | Acute tonsillitis dt oth spec organisms | N41.2 | Abscess of prostate |
| J03.9 | Acute tonsillitis unspecified | N41.3 | Prostatocystitis |
| J04 | Acute laryngitis and tracheitis | N41.8 | Other inflammatory diseases of prostate |
| J04.0 | Acute laryngitis | N41.9 | Inflammatory disease of prostate unsp |
| J04.1 | Acute tracheitis | N45 | Orchitis and epididymitis |
| J04.2 | Acute laryngotracheitis | N45.0 | Orchitis epididymitis w abscess |
| J05 | Ac obstructive laryngitis & epiglottitis | N45.9 | Orchitis epididymitis wo abscess |
| J05.0 | Acute obstructive laryngitis [croup] | N49 | Inf disrd of male genital organs NEC |
| J05.1 | Acute epiglottitis | N49.0 | Inflammatory disorders seminal vesicle |
| J06 | Acute URTI multiple & unspecified sites | N49.1 | Inf disrd sperm cd tunica vaginalis vas |
| J06.0 | Acute laryngopharyngitis | N49.2 | Inflammatory disorders of scrotum |
| J06.8 | Other acute URTI of multiple sites | N49.8 | Inf disrd of oth spec male genital org |
| J06.9 | Acute URTI unspecified | N49.9 | Inf disrd of unsp male genital organ |
| J09 | Influenza dt id zoo pand influenza virus | N70 | Salpingitis and oophoritis |
| J10 | Influenza dt other id influenza virus | N70.0 | Acute salpingitis and oophoritis |
| J10.0 | Influenza w pneumonia other virus id | N70.1 | Chronic salpingitis and oophoritis |
| J10.1 | Influenza w oth resp manif oth virus id | N70.9 | Salpingitis and oophoritis unspecified |
| J10.8 | Influenza w oth manif other virus id | N71 | Inf dis of uterus except cervix |
| J11 | Influenza virus not identified | N71.0 | Acute inflammatory disease of uterus |
| J11.0 | Influenza w pneum virus not identified | N71.1 | Chronic inflammatory disease of uterus |
| J11.1 | Influenza w oth resp manif virus not id | N71.9 | Inflammatory disease of uterus unsp |
| J11.8 | Influenza w oth manif virus not id | N72 | Inflammatory disease of cervix uteri |
| J12 | Viral pneumonia not elsewhere classified | N73 | Oth female pelvic inflammatory diseases |
| J12.0 | Adenoviral pneumonia | N73.0 | Acute parametritis and pelvic cellulitis |
| J12.1 | Respiratory syncytial virus pneumonia | N73.1 | Chronic parametritis & pelvic cellulitis |
| J12.2 | Parainfluenza virus pneumonia | N73.2 | Unsp parametritis and pelvic cellulitis |
| J12.3 | Human metapneumovirus pneumonia | N73.3 | Female acute pelvic peritonitis |
| J12.8 | Other viral pneumonia | N73.4 | Female chronic pelvic peritonitis |
| J12.9 | Viral pneumonia unspecified | N73.5 | Female pelvic peritonitis unspecified |
| J13 | Pneumonia dt Streptococcus pneumoniae | N73.6 | Female pelvic peritoneal adhesions |
| J14 | Pneumonia due to Haemophilus influenzae | N73.8 | Oth spec female pelvic inflammatory dis |
| J15 | Bacterial pneumonia NEC | N73.9 | Female pelvic inflammatory disease unsp |
| J15.0 | Pneumonia due to Klebsiella pneumoniae | N74 | Female pelvic inf disrd in dis cl/e |
| J15.1 | Pneumonia due to Pseudomonas | N74.0 | Tuberculous infection cervix uteri |
| J15.2 | Pneumonia due to staphylococcus | N74.1 | Female tuberculous pelvic inf dis |
| J15.3 | Pneumonia due to streptococcus group B | N74.2 | Female syphilitic pelvic inf dis |
| J15.4 | Pneumonia due to other streptococci | N74.3 | Female gonococcal pelvic inf dis |
| J15.5 | Pneumonia due to Escherichia coli | N74.4 | Female chlamydial pelvic inf dis |
| J15.6 | Pneumonia dt oth gram neg bact | N74.8 | Female pelvic inf disrd in oth dis cl/e |
| J15.7 | Pneumonia dt Mycoplasma pneumoniae | N75 | Diseases of Bartholin's gland |
| J15.8 | Other bacterial pneumonia | N75.0 | Cyst of Bartholin's gland |
| J15.9 | Bacterial pneumonia unspecified | N75.1 | Abscess of Bartholin's gland |
| J16 | Pneumonia dt other infect organisms NEC | N75.8 | Other diseases of Bartholin's gland |
| J16.0 | Chlamydial pneumonia | N75.9 | Disease of Bartholin's gland unsp |
| J16.8 | Pneumonia dt oth spec infect organisms | N76 | Other inflammation of vagina and vulva |
| J17 | Pneumonia in diseases class elsewhere | N76.0 | Acute vaginitis |
| J17.0 | Pneumonia in bact dis class elsewhere | N76.1 | Subacute and chronic vaginitis |
|  |  | N76.2 | Acute vulvitis |
|  |  | N76.3 | Subacute and chronic vulvitis |
|  |  | N76.4 | Abscess of vulva |
|  |  | N76.5 | Ulceration of vagina |
|  |  | N76.6 | Ulceration of vulva |
|  |  | N76.8 | Oth spec inflammation of vagina & vulva |
|  |  | N77 | Vulvovaginal ulceration inflam dis cl/e |
|  |  | N77.0 | Ulceration vulva infect parasit dis cl/e |
|  |  | N77.1 | Vaginits vulvits infect parasit dis cl/e |
|  |  | N77.8 | Vulvovaginal ulceratn inflam in dis cl/e |

**Supplementary table 3 (b): Complete list of congenital infection**

|  |  |  |  |
| --- | --- | --- | --- |
| **ICD-10** | **Description** | **ICD-10** | **Description** |
| P23 | Congenital pneumonia | P36.5 | Sepsis of newborn due to anaerobes |
| P23.0 | Congenital pneumonia due to viral agent | P36.8 | Other bacterial sepsis of newborn |
| P23.1 | Congenital pneumonia due to Chlamydia | P36.9 | Bacterial sepsis of newborn unspecified |
| P23.2 | Congenital pneumonia dt staphylococcus | P37 | Oth congenital infect & parasit diseases |
| P23.3 | Cong pneumonia dt Strep B | P37.0 | Congenital tuberculosis |
| P23.4 | Congenital pneumonia dt Escherichia coli | P37.1 | Congenital toxoplasmosis |
| P23.5 | Congenital pneumonia due to Pseudomonas | P37.2 | Neonatal (disseminated) listeriosis |
| P23.6 | Cong pneumonia dt oth bacterial agents | P37.3 | Congenital falciparum malaria |
| P23.8 | Congenital pneumonia dt oth organisms | P37.4 | Other congenital malaria |
| P23.9 | Congenital pneumonia unspecified | P37.5 | Neonatal candidiasis |
| P35 | Congenital viral diseases | P37.50 | Neonatal candidiasis, unspecified |
| P35.0 | Congenital rubella syndrome | P37.51 | Top or GI neonatal candidiasis |
| P35.1 | Congenital cytomegalovirus infection | P37.52 | Invasive neonatal candidiasis |
| P35.2 | Congenital herpesviral infectn | P37.59 | Other neonatal candidiasis |
| P35.3 | Congenital viral hepatitis | P37.8 | Oth spec congenital infect & parasit dis |
| P35.8 | Other congenital viral diseases | P37.9 | Congenital infect & parasit disease unsp |
| P35.9 | Congenital viral disease unspecified | P38 | Omphalitis newborn w or wo mild haem |
| P36 | Bacterial sepsis of newborn | P39 | Oth infectn specific to perinatal period |
| P36.0 | Newborn sepsis dt streptococcus group B | P39.0 | Neonatal infective mastitis |
| P36.1 | Newborn sepsis oth / unsp streptococci | P39.1 | Neonatal conjunctivitis & dacryocystitis |
| P36.2 | Newborn sepsis dt Staphylococcus aureus | P39.2 | Intra-amniotic infection of fetus NEC |
| P36.3 | Newborn sepsis dt oth / unsp staph | P39.3 | Neonatal urinary tract infection |
| P36.4 | Sepsis of newborn dt Escherichia coli | P39.4 | Neonatal skin infection |
|  |  | P39.8 | Oth spec infectn spec to perintl period |
|  |  | P39.9 | Infectn spec to perinatal peri unsp |

**Supplementary table 4: The ICD-10-AM codes which defined the Respiratory Infections Hospitalisation (RIH)**

|  |  |  |  |
| --- | --- | --- | --- |
| **ICD-10** | **Description** | **ICD-10** | **Description** |
| A15.0 | TB lung conf sputm mico w or wo cult | J15.5 | Pneumonia due to Escherichia coli |
| A15.1 | TB lung confirmed by culture only | J15.6 | Pneumonia dt oth gram neg bact |
| A15.2 | TB lung confirmed histologically | J15.7 | Pneumonia dt Mycoplasma pneumoniae |
| A15.3 | TB lung confirmed by unspecified means | J15.8 | Other bacterial pneumonia |
| A15.4 | TB intrathoracic nodes conf bact & histo | J15.9 | Bacterial pneumonia unspecified |
| A15.5 | TB larynx trach bronc conf bact & histo | J16 | Pneumonia dt other infect organisms NEC |
| A15.6 | Tuberculous pleurisy conf bact & histo | J16.0 | Chlamydial pneumonia |
| A15.7 | Primary respiratory TB conf bact & histo | J16.8 | Pneumonia dt oth spec infect organisms |
| A15.8 | Other respiratory TB conf bact & histo | J17 | Pneumonia in diseases class elsewhere |
| A15.9 | Respiratory TB unsp conf bact & histo | J17.0 | Pneumonia in bact dis class elsewhere |
| A16 | Respiratory TB not conf bact & histo | J17.1 | Pneumonia in viral dis class elsewhere |
| A16.0 | TB lung negative bact & histo | J17.2 | Pneumonia in mycoses |
| A16.1 | TB lung no bact & histo exam done | J17.3 | Pneumonia in parasitic diseases |
| A16.2 | TB lung wo bact & histo confirmation | J17.8 | Pneumonia in other dis class elsewhere |
| A16.3 | TB intrathor nodes wo bact & histo conf | J18 | Pneumonia organism unspecified |
| A16.4 | TB lrnx trach bronc wo bact & histo conf | J18.0 | Bronchopneumonia unspecified |
| A16.5 | Tubrcul pleurisy wo bact & histo conf | J18.1 | Lobar pneumonia unspecified |
| A16.7 | Primary resp TB wo bact & histo conf | J18.2 | Hypostatic pneumonia unspecified |
| A16.8 | Oth respiratory TB wo bact & histo conf | J18.8 | Other pneumonia organism unspecified |
| A16.9 | Respiratory TB unsp wo bact & histo conf | J18.9 | Pneumonia unspecified |
| A31.0 | Pulmonary mycobacterial infection | J20 | Acute bronchitis |
| A36.0 | Pharyngeal diphtheria | J20.0 | Ac bronchitis dt Mycoplasma pneumoniae |
| A36.1 | Nasopharyngeal diphtheria | J20.1 | Ac bronchitis dt Haemophilus influenzae |
| A36.2 | Laryngeal diphtheria | J20.2 | Acute bronchitis due to streptococcus |
| A37 | Whooping cough | J20.3 | Acute bronchitis due to coxsackievirus |
| A37.0 | Whooping cough dt Bordetella pertussis | J20.4 | Acute bronchitis dt parainfluenza virus |
| A37.1 | Whooping cough dt Bordetella parapertuss | J20.5 | Ac bronchitis dt resp syncytial virus |
| A37.8 | Whooping cough dt oth Bordetella species | J20.6 | Acute bronchitis due to rhinovirus |
| A37.9 | Whooping cough unspecified | J20.7 | Acute bronchitis due to echovirus |
| A38 | Scarlet fever | J20.8 | Acute bronchitis dt other spec organisms |
| A42.0 | Pulmonary actinomycosis | J20.9 | Acute bronchitis unspecified |
| A43.0 | Pulmonary nocardiosis | J21 | Acute bronchiolitis |
| B25.0 | Cytomegaloviral pneumonitis | J21.0 | Ac bronchiolitis dt resp syncytial virus |
| B37.1 | Pulmonary candidiasis | J21.1 | Ac brchlts dt human metapneumovirus |
| B38.0 | Acute pulmonary coccidioidomycosis | J21.8 | Ac bronchiolitis dt other spec organisms |
| B38.1 | Chronic pulmonary coccidioidomycosis | J21.9 | Acute bronchiolitis unspecified |
| B38.2 | Pulmonary coccidioidomycosis unsp | J22 | Unsp acute lower respiratory infection |
| B39.0 | Acute pulmonary histoplasmosis capsulati | J31.1 | Chronic nasopharyngitis |
| B39.1 | Chr pulmonary histoplasmosis capsulati | J31.2 | Chronic pharyngitis |
| B39.2 | Pulmonary histoplasmosis capsulati unsp | J32 | Chronic sinusitis |
| B40.0 | Acute pulmonary blastomycosis | J32.0 | Chronic maxillary sinusitis |
| B40.1 | Chronic pulmonary blastomycosis | J32.1 | Chronic frontal sinusitis |
| B40.2 | Pulmonary blastomycosis unspecified | J32.2 | Chronic ethmoidal sinusitis |
| B41.0 | Pulmonary paracoccidioidomycosis | J32.3 | Chronic sphenoidal sinusitis |
| B42.0 | Pulmonary sporotrichosis | J32.4 | Chronic pansinusitis |
| B44.0 | Invasive pulmonary aspergillosis | J32.8 | Other chronic sinusitis |
| B44.1 | Other pulmonary aspergillosis | J32.9 | Chronic sinusitis unspecified |
| B44.2 | Tonsillar aspergillosis | J34.0 | Abscess furuncle and carbuncle of nose |
| B45.0 | Pulmonary cryptococcosis | J34.1 | Cyst and mucocele of nose & nasal sinus |
| B46.0 | Pulmonary mucormycosis | J35 | Chronic diseases of tonsils and adenoids |
| J00 | Acute nasopharyngitis [common cold] | J35.0 | Chronic tonsillitis |
| J01 | Acute sinusitis | J35.1 | Hypertrophy of tonsils |
| J01.0 | Acute maxillary sinusitis | J35.2 | Hypertrophy of adenoids |
| J01.1 | Acute frontal sinusitis | J35.3 | Hypertrophy tonsils with adenoids |
| J01.2 | Acute ethmoidal sinusitis | J35.8 | Oth chronic diseases tonsils & adenoids |
| J01.3 | Acute sphenoidal sinusitis | J35.9 | Chronic disease tonsils & adenoids unsp |
| J01.4 | Acute pansinusitis | J36 | Peritonsillar abscess |
| J01.8 | Other acute sinusitis | J37 | Chronic laryngitis and laryngotracheitis |
| J01.9 | Acute sinusitis unspecified | J37.0 | Chronic laryngitis |
| J02 | Acute pharyngitis | J37.1 | Chronic laryngotracheitis |
| J02.0 | Streptococcal pharyngitis | J40 | Bronchitis not spec as acute or chronic |
| J02.8 | Acute pharyngitis dt oth spec organisms | J41 | Simple & mucopurulent chronic bronchitis |
| J02.9 | Acute pharyngitis unspecified | J41.0 | Simple chronic bronchitis |
| J03 | Acute tonsillitis | J41.1 | Mucopurulent chronic bronchitis |
| J03.0 | Streptococcal tonsillitis | J41.8 | Mx simple & mucopurulent chr bronchitis |
| J03.8 | Acute tonsillitis dt oth spec organisms | J42 | Unspecified chronic bronchitis |
| J03.9 | Acute tonsillitis unspecified | J43 | Emphysema |
| J04 | Acute laryngitis and tracheitis | J43.0 | MacLeod's syndrome |
| J04.0 | Acute laryngitis | J43.1 | Panlobular emphysema |
| J04.1 | Acute tracheitis | J43.2 | Centrilobular emphysema |
| J04.2 | Acute laryngotracheitis | J43.8 | Other emphysema |
| J05 | Ac obstructive laryngitis & epiglottitis | J43.9 | Emphysema unspecified |
| J05.0 | Acute obstructive laryngitis [croup] | J44 | Other COPD |
| J05.1 | Acute epiglottitis | J44.0 | COPD with acute lower resp infection |
| J06 | Acute URTI multiple & unspecified sites | J44.1 | COPD with acute exacerbation unspecified |
| J06.0 | Acute laryngopharyngitis | J44.8 | Other specified COPD |
| J06.8 | Other acute URTI of multiple sites | J44.9 | COPD unspecified |
| J06.9 | Acute URTI unspecified | J47 | Bronchiectasis |
| J09 | Influenza dt id zoo pand influenza virus | J85.0 | Gangrene and necrosis of lung |
| J10 | Influenza dt other id influenza virus | J85.1 | Abscess of lung with pneumonia |
| J10.0 | Influenza w pneumonia other virus id | J85.2 | Abscess of lung without pneumonia |
| J10.1 | Influenza w oth resp manif oth virus id | J85.3 | Abscess of mediastinum |
| J10.8 | Influenza w oth manif other virus id | J86 | Pyothorax |
| J11 | Influenza virus not identified | J86.0 | Pyothorax with fistula |
| J11.0 | Influenza w pneum virus not identified | J86.9 | Pyothorax without fistula |
| J11.1 | Influenza w oth resp manif virus not id | J90 | Pleural effusion NEC |
| J11.8 | Influenza w oth manif virus not id | J91 | Pleural effusion in conditions cl/e |
| J12 | Viral pneumonia not elsewhere classified | J92 | Pleural plaque |
| J12.0 | Adenoviral pneumonia | J92.0 | Pleural plaque with presence of asbestos |
| J12.1 | Respiratory syncytial virus pneumonia | J92.9 | Pleural plaque without asbestos |
| J12.2 | Parainfluenza virus pneumonia | J93 | Pneumothorax |
| J12.3 | Human metapneumovirus pneumonia | J93.0 | Spontaneous tension pneumothorax |
| J12.8 | Other viral pneumonia | J93.1 | Other spontaneous pneumothorax |
| J12.9 | Viral pneumonia unspecified | J93.2 | Iatrogenic pneumothorax |
| J13 | Pneumonia dt Streptococcus pneumoniae | J93.8 | Other pneumothorax |
| J14 | Pneumonia due to Haemophilus influenzae | J93.9 | Pneumothorax unspecified |
| J15 | Bacterial pneumonia NEC | J94 | Other pleural conditions |
| J15.0 | Pneumonia due to Klebsiella pneumoniae | J94.0 | Chylous effusion |
| J15.1 | Pneumonia due to Pseudomonas | J94.1 | Fibrothorax |
| J15.2 | Pneumonia due to staphylococcus | J94.2 | Haemothorax |
| J15.3 | Pneumonia due to streptococcus group B | J94.8 | Other specified pleural conditions |
| J15.4 | Pneumonia due to other streptococci | J94.9 | Pleural condition unspecified |

Supplementary text 5: Conditions which defined the RIH exclusive variable.

The following conditions were used to exclude RIH as having arisen from perinatal factors (i.e., acted as proximal risk factors). As an example of the way this alternative outcome variable worked in practice, consider three study participants each with two inpatient episodes within a given calendar month, the first with two episodes with respiratory infections and no exclusionary conditions, the second with one episode with a respiratory infection and no exclusionary condition and another episode with a respiratory infection and an exclusionary condition, and the third with two episodes with both respiratory infections and exclusionary conditions. The entries in the vector in the order of patients for the first RIH variable (RIH inclusive) is (1,1,1) while for the second RIH variable (RIH exclusive) is (1,1,0).

Importantly, we note that the relationship between these factors and respiratory infection is complicated and debateable (i.e., what came first). We also understand that this list is not exhaustive, as almost every reader will be able to suggest another disorder which should have been placed on the list or one which should not have been placed on the list. However, our purpose was not to create a ‘perfect’ respiratory infections variable, free from proximal causes, but rather to see if our main result could be replicated with these restrictive exclusions in place. If the results were not replicated then it suggests predicting patterns of respiratory infection from perinatal/neonatal factors is complicated by the more proximal diseases which accompany them and our findings would be questionable. However, if our main analysis was replicated with these exclusions, it would suggest we can reasonably infer the impact of perinatal/neonatal risk factors on RIH pattern independent of the diseases which accompany them.

**Supplementary table 5: The conditions used to define the second RIH variable used in the sensitivity analyses**

|  |  |
| --- | --- |
| **ICD code** | **Section and disorders** |
|  | Section C |
| C0-C99 | All malignant neoplasms |
|  | Section D |
| D55-77 | Haemolytic/aplastic anaemias and other blood disorders |
|  | Section E |
| E10-E15 | All diabetic disorders |
| E40-E90 | Malnutrition, deficiencies, weight disorders and metabolic disorders |
|  | Section G |
| G10-99 | All non-inflammatory disorders |
|  | Section J |
| J45-46 | All asthma disorders |
|  | Section L |
| L20-31 | All eczema and dermatitis |
|  | Section N |
| N10-20 | All renal disorders |

Supplementary text 6: Geographic divisions of QLD.

Due to confidentiality concerns common in Australia we were not given participant postcode (zip code) information. Instead, we were provided with 20 regional codes which mapped individuals to their local Hospital and Health Services zone. These 20 regions were then divided up into four broad geographic regions of QLD as described below (the map can be found at <https://www.health.qld.gov.au/maps>):

1. South East Queensland (SEQ):

* Gold Coast
* Metro North (north Brisbane)
* Metro South (south Brisbane)
* Sunshine coast
* West Moreton
* Metro North/West Moreton

2. Northern QLD:

* Cairns and Hinterland
* Townsville
* Torres and Cape
* North West
* Cairns and Hinterland/Townsville
* Townsville/North West

3. Central QLD:

* Central West
* Darling Downs
* South West
* Central West/North West
* Central QLD/Darling Downs

4. South QLD:

* Mackay
* Central QLD
* Wide Bay

Supplementary text 7: The 4-class solution in spatial-temporal subsamples.

Note: for all graphs numbers in the box legend indicate class prevalence; y-axis represents probability of RIH; the x-axis shows month since birth beginning with month 0 being the first month; and Mplus does not order or colour code the classes in the same order for each model.

Figure 1 (a): The 4-class solution in the full sample.



Figure 1 (b): The 4-class solution among babies born in summer.



Figure 1 (c): The 4-class solution among babies born in autumn.



Figure 1 (d): The 4-class solution among babies born in winter.



Figure 1 (e): The 4-class solution among babies born in spring.



Figure 1 (f): The 4-class solution among babies born in 2009-2010.

 Figure 1 (g): The 4-class solution among babies born in 2011-2012.



Figure 1 (h): The 4-class solution among babies born in 2013-2014.



Figure 1 (h): The 4-class solution among babies born in South East Queensland (SEQ).



Figure 1 (i): The 4-class solution among babies born in North Queensland.



Figure 1 (j): The 4-class solution among babies born in West Queensland.



Figure 1 (k): The 4-class solution among babies born in South Queensland.

Supplementary text 8: Results using the restricted RIH variable as defined in supplementary section 5.



Supplementary figure 2: Trajectories from the 4 class solution using the restricted RIH variable [fit indices: BIC=209659; BIC-SSA=209401; Entropy=0.63).

**Supplementary table 6: Multinomial logistic regression showing the associations among neonatal pulmonary morbidities and RIH trajectories [expressed as odds ratios (OR) with 95% confidence intervals (95% CI) and p-value (p)] (*n*=314,481) using the restricted RIH variable**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Chronic/None | Early/None | Low/None | Chronic/Low | Early/Low | Chronic/Early |
|  | OR | 95% CI | p | OR | 95% CI | p | OR | 95% CI | p | OR | 95% CI | p | OR | 95% CI | p | OR | 95% CI | p |
| Predictors |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TTN | 0.85 | 0.31 | 2.33 | 0.745 | 2.16 | 1.51 | 3.10 | 0.000 | 1.49 | 1.21 | 1.85 | 0.000 | 0.57 | 0.19 | 1.64 | 0.295 | 1.45 | 0.95 | 2.20 | 0.083 | 0.39 | 0.13 | 1.13 | 0.084 |
| RDS | 2.79 | 1.58 | 4.94 | 0.000 | 2.10 | 1.37 | 3.22 | 0.001 | 1.54 | 1.18 | 2.01 | 0.001 | 1.81 | 0.93 | 3.51 | 0.080 | 1.36 | 0.83 | 2.22 | 0.217 | 1.33 | 0.66 | 2.66 | 0.422 |
| ORS | 1.40 | 0.63 | 3.14 | 0.412 | 1.60 | 0.96 | 2.67 | 0.072 | 1.27 | 0.96 | 1.68 | 0.088 | 1.10 | 0.46 | 2.66 | 0.831 | 1.26 | 0.69 | 2.30 | 0.458 | 0.88 | 0.34 | 2.24 | 0.782 |
| MAS | 1.67 | 0.27 | 10.37 | 0.585 | 1.37 | 0.34 | 5.54 | 0.658 | 1.41 | 0.75 | 2.65 | 0.283 | 1.18 | 0.16 | 8.57 | 0.871 | 0.97 | 0.20 | 4.76 | 0.971 | 1.22 | 0.14 | 10.72 | 0.861 |
| PAPN | 5.50 | 1.73 | 17.49 | 0.004 | 1.31 | 0.12 | 14.57 | 0.828 | 3.15 | 1.07 | 9.21 | 0.037 | 1.75 | 0.46 | 6.64 | 0.412 | 0.42 | 0.03 | 5.55 | 0.506 | 4.21 | 0.31 | 56.82 | 0.279 |
| SAPN | 8.22 | 3.40 | 19.90 | 0.000 | 2.44 | 0.91 | 6.59 | 0.077 | 0.81 | 0.30 | 2.20 | 0.676 | 10.19 | 2.16 | 48.01 | 0.003 | 3.03 | 0.68 | 13.51 | 0.146 | 3.36 | 0.93 | 12.18 | 0.065 |
| female | 0.34 | 0.25 | 0.46 | 0.000 | 0.61 | 0.53 | 0.71 | 0.000 | 0.59 | 0.55 | 0.62 | 0.000 | 0.58 | 0.42 | 0.79 | 0.001 | 1.04 | 0.88 | 1.23 | 0.642 | 0.55 | 0.40 | 0.77 | 0.000 |
| smoke | 2.20 | 1.64 | 2.96 | 0.000 | 1.53 | 1.28 | 1.82 | 0.000 | 1.57 | 1.45 | 1.70 | 0.000 | 1.40 | 1.02 | 1.93 | 0.040 | 0.97 | 0.80 | 1.19 | 0.783 | 1.44 | 1.02 | 2.03 | 0.036 |
| low SES | 1.82 | 1.05 | 3.15 | 0.032 | 0.89 | 0.72 | 1.11 | 0.298 | 1.38 | 1.24 | 1.53 | 0.000 | 1.33 | 0.74 | 2.36 | 0.339 | 0.65 | 0.50 | 0.84 | 0.001 | 2.04 | 1.14 | 3.67 | 0.017 |
| Middle SES | 1.09 | 0.62 | 1.90 | 0.765 | 0.73 | 0.59 | 0.89 | 0.002 | 1.14 | 1.03 | 1.26 | 0.012 | 0.96 | 0.53 | 1.72 | 0.879 | 0.64 | 0.50 | 0.82 | 0.000 | 1.50 | 0.83 | 2.71 | 0.182 |
| no partner | 1.99 | 1.48 | 2.68 | 0.000 | 1.60 | 1.33 | 1.93 | 0.000 | 1.38 | 1.27 | 1.51 | 0.000 | 1.44 | 1.04 | 1.99 | 0.029 | 1.16 | 0.94 | 1.43 | 0.174 | 1.24 | 0.88 | 1.75 | 0.223 |
| public | 0.91 | 0.62 | 1.33 | 0.626 | 1.03 | 0.87 | 1.22 | 0.715 | 0.99 | 0.92 | 1.06 | 0.733 | 0.92 | 0.62 | 1.37 | 0.688 | 1.04 | 0.86 | 1.26 | 0.656 | 0.88 | 0.59 | 1.33 | 0.552 |
| prev preg | 1.19 | 1.13 | 1.26 | 0.000 | 1.26 | 1.22 | 1.29 | 0.000 | 1.16 | 1.14 | 1.18 | 0.000 | 1.03 | 0.97 | 1.09 | 0.336 | 1.08 | 1.05 | 1.12 | 0.000 | 0.95 | 0.89 | 1.01 | 0.102 |
| preterm | 3.00 | 1.95 | 4.63 | 0.000 | 2.29 | 1.74 | 3.01 | 0.000 | 1.84 | 1.59 | 2.13 | 0.000 | 1.64 | 1.01 | 2.64 | 0.044 | 1.25 | 0.91 | 1.71 | 0.169 | 1.31 | 0.79 | 2.17 | 0.290 |
| low bwt | 2.29 | 1.44 | 3.63 | 0.000 | 1.02 | 0.70 | 1.49 | 0.913 | 1.41 | 1.19 | 1.68 | 0.000 | 1.62 | 0.97 | 2.70 | 0.067 | 0.72 | 0.47 | 1.10 | 0.133 | 2.24 | 1.25 | 4.01 | 0.007 |
| overweight | 1.54 | 1.09 | 2.16 | 0.014 | 1.21 | 1.01 | 1.45 | 0.038 | 1.24 | 1.15 | 1.33 | 0.000 | 1.24 | 0.86 | 1.78 | 0.244 | 0.98 | 0.79 | 1.20 | 0.828 | 1.27 | 0.86 | 1.86 | 0.223 |
| obese | 2.30 | 1.69 | 3.14 | 0.000 | 1.69 | 1.43 | 2.00 | 0.000 | 1.54 | 1.43 | 1.66 | 0.000 | 1.49 | 1.08 | 2.08 | 0.017 | 1.10 | 0.91 | 1.34 | 0.340 | 1.36 | 0.96 | 1.93 | 0.084 |
| age <18 | 0.84 | 0.19 | 3.78 | 0.819 | 0.74 | 0.19 | 2.90 | 0.662 | 2.69 | 2.09 | 3.46 | 0.000 | 0.31 | 0.07 | 1.47 | 0.142 | 0.27 | 0.07 | 1.14 | 0.075 | 1.14 | 0.15 | 8.52 | 0.899 |
| age>35 | 0.62 | 0.43 | 0.90 | 0.011 | 0.75 | 0.62 | 0.90 | 0.002 | 0.69 | 0.64 | 0.75 | 0.000 | 0.90 | 0.61 | 1.33 | 0.589 | 1.08 | 0.87 | 1.34 | 0.498 | 0.83 | 0.55 | 1.25 | 0.378 |