Hospital admissions before the age of 2 years in Western Australia

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Abstract

A linked data file of birth records and hospital admissions was used to investigate inpatient hospital morbidity before 2 years of age for all non-Aboriginal and Aboriginal children born in Western Australia in 1986. Of the non-Aboriginal children, 31.8% were admitted to hospital at least once before the age of 2 years, with an overall admission rate of 526/1000 live births; the corresponding figures for Aboriginal children were 68.7% and 2797. The mean number of days in hospital for each non-Aboriginal child admitted was 7.4, and 26.5 for Aboriginal children. Of the total cohort, 21% of non-Aboriginal and 20% of Aboriginal children were admitted only once, and 4% of non-Aboriginal and 36% of Aboriginal children were admitted at least three times; 23% of non-Aboriginal and 24% of Aboriginal children were admitted for only one major disease category, and 1% of non-Aboriginal and 16% of Aboriginal children were in at least four categories. The highest admission rates and highest percentages of the cohort admitted were for gastrointestinal and respiratory diseases and social admissions. These results illustrate the importance for both descriptive and analytical research of relating admissions to hospital for the total population to the individual child, and of using clinically relevant disease classifications.

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Most health information systems in developed countries are based on episodes and are not linked to individual subjects. The Maternal and Child Health Research Data Base of Western Australia is the only database in Australia where this linkage to individual children is routinely carried out for the total state population. For all children born in Western Australia from 1980 onwards, we have linked data relating to their antenatal, perinatal, and postnatal histories, together with hospital admissions up to the age of 6 years. Similar work has been carried out with the Oxford record linkage study^{1 2} in the United Kingdom and some results are also available from smaller, specially linked data sets.^{3 4} In this work we used the linked data to investigate hospital inpatient morbidity up to the age of 2 years for non-Aboriginal and Aboriginal children born in Western Australia in 1986.

Methods

The Maternal and Child Health Research Data Base is based on the Western Australia midwives' notification of birth forms together with birth and death registrations from the Western Australia registrar general. The midwives' notifications are legal documents completed by the attending midwife for every birth in Western Australia, including stillbirths of at least 20 weeks' gestation or 400 g birth weight.⁵ To these records we have added data from the Western Australia Hospital Morbidity Data Collection by linking hospital discharge records to individual birth records for all children born in Western Australia from 1980 onwards. The Western Australia Hospital Morbidity Data Collection contains discharge data for every public and private hospital in Western Australia, including the major diagnosis, which is the condition best characterising the period of stay in hospital, and up to 15 other problems are also coded. All diagnoses are coded according to the four digit categories of the International Classification of Diseases (ICD9).⁶

For this paper we used linked hospital discharge data for the first two years of life (including neonatal admissions) for all children born in Western Australia in 1986. The overall linkage rates for hospital discharge data to birth records were 96% for non-Aboriginal and 88% for Aboriginal children. For certain morbidities in which we have a particular interest (such as lower respiratory tract illness and perinatal conditions) we have linked almost 100% of the discharge records for the two racial groups by going back to the individual hospitals. Children admitted to hospitals in Western Australia but known to have been born outside the state were excluded from the study. Children born in Western Australia but subsequently admitted to hospitals outside the state are included in the cohort but not in the hospital admissions data. As this study includes only children up to the age of 2 years, this number is likely to be small. In a separate longitudinal study in Western Australia of children whose mothers were enrolled during pregnancy, about 3% of children had moved out of the state to live elsewhere between birth and the age of 2 years (W MacDonald, personal communication).

The ICD9 morbidity categories were classified in two ways using the major diagnosis for each admission: firstly, in accordance with the basic tabulation list⁶ (to enable comparison with other studies) and secondly, in clinically relevant categories developed for this study. These categories were agreed with practising

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Table 1 Hospital admissions up to the age of 2 years in diagnostic categories (principal diagnosis only) of the basic tabulation list of ICD9: Western Australia 1986 birth cohort. Excludes 62 records for 29 children of unknown race

ICD9 category	Non-Aboriginal (n=22 456)		Aboriginal (n=1228)	
	No (%) of admissions	Rate/1000 live births	No (%) of admissions	Rate/1000 live births
Perinatal conditions	1830 (15.5)	81	186 (5.4)	151
'Other' reasons	1794 (15.2)	80	455 (13.2)	371
Ill defined conditions	1356 (11.5)	60	442 (12.9)	360
Lower respiratory tract diseases	1255 (10.6)	56	788 (22.9)	642
Upper respiratory tract diseases	1085 (9.2)	48	266 (7.7)	217
Congenital anomalies	783 (6.6)	35	70 (2.0)	57
Oral and digestive diseases	682 (5.8)	30	133 (3.9)	108
Intestinal infections	558 (4.7)	25	415 (12.1)	338
Injuries	506 (4.3)	23	66 (1.9)	54
Ear diseases	415 (3.5)	18	112 (3.3)	91
Eye diseases	303 (2.6)	13	46 (1.3)	37
Other infections and parasites	300 (2.5)	13	140 (4.1)	114
Mental and nervous diseases	184 (1.6)	8	31 (0.9)	25
Skin diseases	149 (1.3)	7	133 (3.9)	108
Diseases of genitals	152 (1.3)	7	12 (0.3)	10
Poisonings	155 (1.3)	7	13 (0.4)	11
Neoplasms	111 (0.9)	5	14 (0.4)	11
Urinary diseases	98 (0.8)	4	57 (1.7)	46
Musculoskeletal diseases	47 (0.4)	2	9 (0.3)	7
Endocrine, metabolic, and blood disorders	56 (0.5)	2	47 (1.4)	38
Total admissions	11819 (100.0)	526	3435 (100.0)	2797
Total children in cohort admitted	7133 (31.8)		844 (68.7)	

paediatricians after studying the complete list of morbidities experienced by the children. Whereas the basic tabulation list is primarily a statistical classification based on causes of death and the aetiology of disease, our categories represent the manifestation of disease, and comprise groups of morbidities requiring a similar clinical approach. Except for table 1, the paper is based on the clinically relevant categories which are summarised in the appendix. For each category we calculated by race the following: the number and percentage of admissions and the admission rate per 1000 live births; the number and percentage of individual children admitted and the percentage of the cohort admitted; the mean length of hospital stay for each admission; and the total number of days in hospital per 1000 live births. We also calculated the frequency of hospital admission and the number of different major disease categories experienced by individual children. As this is a descriptive study, based on vital data for the total population, statistical analyses were not performed. The non-Aboriginal

Table 2 Hospital admissions up to the age of 2 years in clinically relevant diagnostic categories (principal diagnosis only) according to Appendix: Western Australia 1986 birth cohort. Excludes 62 records for 29 children of unknown race

Diagnostic category	Non-Aboriginal (n=22 456)		Aboriginal (n=1228)	
	No (%) of admissions	Rate/1000 live births	No (%) of admissions	Rate/1000 live births
Upper respiratory tract diseases	1862 (15.8)	83	658 (19.2)	536
Gastrointestinal diseases	1404 (11.9)	63	819 (23.8)	667
Lower respiratory tract diseases	1357 (11.5)	60	559 (16.3)	455
Social admissions (healthy children)	1286 (10.9)	57	415 (12.1)	338
Congenital anomalies	1182 (10.0)	53	81 (2.4)	66
Perinatal conditions	982 (8.3)	44	128 (3.7)	104
Trauma, accidents, poisonings	715 (6.0)	32	98 (2.9)	80
'Other' infectious diseases	598 (5.1)	27	320 (9.3)	261
Haematology/oncology	557 (4.7)	25	34 (1.0)	28
'Other' problems	564 (4.8)	25	160 (4.7)	130
Neurology	492 (4.2)	22	58 (1.7)	47
Routine circumcision	314 (2.7)	14	3 (0.1)	2
Eye disorders	212 (1.8)	9	3 (0.1)	2
Renal problems	105 (0.9)	5	70 (2.0)	57
Vaccine preventable diseases	64 (0.5)	3	12 (0.3)	10
Mental disorders	78 (0.7)	3	3 (0.1)	2
Endocrine/genetic diseases	47 (0.4)	2	14 (0.4)	11
Total admissions	11819 (100.0)	526	3435 (100.0)	2797
Total children in cohort admitted	7133 (31.8)		844 (68.7)	

group comprised 94% white children and 6% 'other' races; the latter were mostly of Asian descent. Sixty two hospital records for 29 children of unknown race were excluded from the analysis.

Results

Table 1 gives hospital admissions in the diagnostic categories of the ICD9 basic tabulation list. The number of admissions and the percentage of the total in each category are shown, together with the rate per 1000 live-born children in the cohort. Of the total cohort, 31.8% of the non-Aboriginal children and 68.7% of the Aboriginal children had been admitted to hospital at least once in the first two years of life, with an overall admission rate of 526/1000 live births for non-Aboriginal and 2797/1000 live births for Aboriginal children. Rates in all morbidity categories were higher for Aboriginal children.

Table 2 shows hospital admissions in clinically relevant categories as summarised in the appendix. The four highest rates for both non-Aboriginal and Aboriginal children were for gastrointestinal diseases, upper and lower respiratory tract diseases, and social admissions. Differences between tables 1 and 2 include: (a) higher rates for gastrointestinal diseases (table 2) than for intestinal infections (table 1); (b) higher rates for upper respiratory tract diseases in table 2 than in table 1; (c) lower rates for lower respiratory tract diseases for Aboriginal infants in table 2 than in table 1; and (d) lower rates for perinatal disorders in table 2 than table 1.

Comparison of the two categorisations showed that: (a) the increased rate for gastrointestinal diseases in table 2 was mostly due to the transfer of disorders such as failure to thrive, which in table 1 had been included in the category of 'ill defined conditions'; (b) upper respiratory tract disease in table 2 included otitis media and 'other diseases of respiratory system, not elsewhere classified', whereas in table 1 the former was in ear diseases and the latter in lower respiratory tract diseases; (c) lower respiratory tract diseases in table 2 do not include other diseases of respiratory system, not elsewhere classified; and (d) perinatal disorders in table 2 exclude disorders which have been classified as lower respiratory tract diseases (such as bronchopulmonary dysplasia) and infections (which have been classified as 'other' infectious diseases).

Using the basic tabulation list⁶ it is difficult to document the group of healthy children who were admitted for social reasons as they are in a broad category which also includes children admitted for medical care and treatment. In table 1 these children are included in the category 'other' reasons, whereas in our classification (table 2) they are in the category of social admissions (healthy children). This latter category excludes children who had an elective procedure (such as circumcision) and those who were admitted for examinations or observations, or both. Our clinically relevant classification also allows for the documentation

Table 3 Children admitted to hospital up to the age of 2 years in clinically relevant diagnostic categories (principal diagnosis only) according to Appendix: Western Australia 1986 birth cohort. Excludes 62 records for 29 children of unknown race

Diagnostic category*	Non-Aboriginal (n=22 456)			Aboriginal (n=1228)		
	No of children admitted*	% Of those cohort admitted	% Of cohort admitted	No of children admitted*	% Of those cohort admitted	% Of cohort admitted
Upper respiratory tract diseases	1443	20.2	6.4	330	39.1	26.9
Gastrointestinal diseases	1237	15.9	5.1	398	47.2	32.4
Lower respiratory tract diseases	1013	14.2	4.5	296	35.1	24.1
Social admissions (healthy children)	1144	16.0	5.1	294	34.8	23.9
Congenital anomalies	881	12.4	3.9	43	5.1	3.5
Perinatal conditions	905	12.7	4.0	112	13.3	9.1
Trauma, accidents, poisonings	668	9.4	3.0	82	9.7	6.7
'Other' infectious diseases	568	8.0	2.5	232	27.5	18.9
Haematology/oncology	482	6.8	2.1	21	2.5	1.7
'Other' problems	532	7.5	2.4	127	15.0	10.3
Neurology	371	5.2	1.7	35	4.1	2.9
Routine circumcision	309	4.3	1.4	2	0.2	0.2
Eye conditions	177	2.5	0.8	2	0.2	0.2
Renal problems	81	1.1	0.4	53	6.3	4.3
Vaccine preventable diseases	61	0.9	0.3	8	0.9	0.7
Mental disorders	73	1.0	0.3	3	0.4	0.2
Endocrine/genetic diseases	33	0.5	0.1	13	1.5	1.1
Total children in cohort admitted	7133		31.8	844		68.7

*Each child can be in more than one category.

of diseases which can be prevented by vaccination as a separate category and shows a low admission rate for Aboriginal and non-Aboriginal children for these morbidities compared with that for other infectious diseases.

Table 3 shows numbers and percentages of individual children admitted to hospital in clinically relevant categories. Categories are not mutually exclusive as each child could be admitted in one, several, or all categories. This table shows the numbers of individual children who had the admission rates shown in table 2. For example, if we consider upper respiratory tract diseases for non-Aboriginal children, 1443 children had 1862 admissions, giving an admission rate of 83/1000 live births experienced by 6.4% of the cohort. Conditions with the highest percentages of individual children admitted were the same four as those noted in table 2, with about 4–6% of the non-Aboriginal population and 24–32% of the Aboriginal population being admitted for each of these conditions.

Table 4 indicates the duration of the admission to hospital. For each 1000 live

Table 4 Days spent in hospital up to the age of 2 years for each diagnostic category (principal diagnosis as classified in Appendix): Western Australia 1986 birth cohort. Excludes 62 records for 29 children of unknown race

Diagnostic category	Non-Aboriginal (n=22 456)			Aboriginal (n=1228)		
	Total days	Mean No of days per admission	Total No of days per 1000 live births	Total days	Mean No of days per admission	Total No of days per 1000 live births
Upper respiratory diseases	4202	2.3	187	3060	4.7	2492
Gastrointestinal diseases	4664	3.3	208	6387	7.8	5201
Lower respiratory diseases	5239	3.9	233	3443	6.2	2804
Social admissions (healthy children)	4391	3.4	196	1784	4.3	1453
Congenital anomalies	5430	4.6	242	7433	9.2	605
Perinatal conditions	16966	17.3	756	2266	17.7	1845
Trauma, accidents, poisonings	1846	2.6	82	576	4.2	469
'Other' infectious diseases	2144	3.6	95	1985	6.2	1616
Haematology/oncology	2845	5.1	127	245	7.2	200
'Other' problems	1105	2.0	49	815	5.1	664
Neurology	1306	2.7	58	304	5.2	248
Routine circumcision	474	1.5	21	12	4.0	10
Eye disorders	434	2.0	19	39	13.0	32
Renal problems	436	4.2	19	481	6.9	21
Vaccine preventable diseases	532	8.3	24	126	10.5	103
Mental disorders	223	2.9	10	25	8.3	20
Endocrine/genetic diseases	280	6.0	12	114	8.0	93
All categories	52517	4.4	2339	22405	6.5	18245

Table 5 Frequency of hospital admission for children up to the age of 2 years: Western Australia 1986 birth cohort. Excludes 62 records for 29 children of unknown race

Frequency of admission	Non-Aboriginal		Aboriginal	
	No of children	% Of cohort	No of children	% Of cohort
0	15323	68	384	31
1	4675	21	243	20
2	1490	7	164	13
3+	968	4	437	36
Total cohort	22456	100	1228	100

births in the cohort, non-Aboriginal children spent 2339 days in hospital in the first two years of life compared with 18 245 days for Aboriginal children. The mean length of stay for each admission was 4.4 days for non-Aboriginal and 6.5 days for Aboriginal children. The mean number of days in hospital in the first two years or life for each child admitted (rather than for each 1000 live births) was 7.4 for non-Aboriginal and 26.5 for Aboriginal children (data not shown).

Table 5 shows the frequency of admissions for children in the first two years of life. Similar percentages of the non-Aboriginal and Aboriginal cohorts were admitted once only (21 and 20% respectively) but 4% of non-Aboriginal children (accounting for 35% of all their admissions) and 36% of Aboriginal children (accounting for 83% of all their admissions) were admitted at least three times. Of those children with two or more admissions, about 10% of non-Aboriginal and 15% of Aboriginal children were likely to have been interhospital transfers for the same episode of disease (data not shown). We calculated these percentages by selecting all children who were discharged from one hospital and admitted to another on the same date and with the same clinically relevant category for the principal diagnosis.

Table 6 gives the number of different disease categories (principal diagnosis) which required hospital admission. Similar percentages of the non-Aboriginal and Aboriginal cohorts were in only one major disease category in the first two years of life (23 and 24% respectively), but 16% of Aboriginal children were in at least four categories, compared with 1% of non-Aboriginal children.

Discussion

In this study we used record linkage between routinely collected data sets for the total

Table 6 Number of disease categories (principal diagnosis only) which required hospital admission: children up to the age of 2 years, Western Australia 1986 birth cohort. Excludes 62 records for 29 children of unknown race

No of categories	Non-Aboriginal		Aboriginal	
	No of children	% Of cohort	No of children	% Of cohort
0	15323	68	384	31
1	5185	23	299	24
2	1388	6	212	17
3	402	2	140	11
4+	158	1	193	16
Total cohort	22456	100	1228	100

Western Australia population to describe the inpatient hospital morbidity of individual children as well as total hospital admissions. Our study confirms the continuing high rates of hospital admissions and the severity of the total burden of disease for Aboriginal children.⁷⁻¹¹ For an adequate understanding of disease patterns and to enable appropriate health planning, it is important to relate admissions to hospital with the individual and with the population at risk. Although this is difficult to achieve for a total population, its value has been recognised by international^{3 12 13} and Australian researchers.¹⁴ We also consider that descriptive studies, if they are to be informative and useful, should be based on clinically relevant data and we have manipulated the available data to achieve this aim.

The classification of lower respiratory tract diseases differs between tables 1 and 2; table 2 (clinically relevant categories) includes other diseases of respiratory system, not elsewhere classified⁶ in the category of upper respiratory tract diseases, whereas in table 1 (basic tabulation list) they are included in lower respiratory tract diseases. Validations of our database, including studying hospital records, have shown that these conditions were mostly minor respiratory ailments such as coughs and colds. Thus, using the basic tabulation list (table 1) overestimates lower respiratory tract disease and underestimates upper respiratory diseases.

Rates for perinatal disorders are lower in table 2 than table 1, especially for non-Aboriginal children. This is because, from the point of view of clinical relevance, we have classified conditions such as bronchopulmonary dysplasia and respiratory distress syndrome as lower respiratory tract disease, while neonatal infections have been classified as other infectious diseases. Whichever of these two classifications is used, differences in the rates between Aboriginal and non-Aboriginal infants for perinatal conditions were not as great as for most other morbidities. Also, the mean length of stay for these conditions was the same for Aboriginal and non-Aboriginal infants, suggesting that the severity of perinatal morbidity was the same for the two groups. This is surprising given the downward shift in birth weight and gestational age distributions in Aboriginal compared with white infants,¹⁵ but it is consistent with recent patterns of infant mortality. Neonatal mortality for Aboriginal infants is similar to that for non-Aboriginal infants, but postneonatal mortality remains three to four times higher for the former.¹⁶ In the USA differences between black and white infants for perinatal conditions were also less than expected.¹³

Whether we consider total hospital admissions or individual children admitted, the four most common conditions were the same for non-Aboriginal and Aboriginal children (gastrointestinal diseases, upper and lower respiratory tract diseases, and social admissions of healthy children), comprising 50% of all admissions for non-Aboriginal and 71% for Aboriginal children. The high rates for social admissions are notable and require further

investigation. In our classification these were all healthy children who had been admitted as boarders accompanying sick people, or for reasons such as 'unspecified family circumstances'. Of the total admissions for non-Aboriginal children, 11% were for social reasons; 12% for Aboriginal children. The data show that the high social admission rates were not due to repeated admissions for a small number of children as about 5% (1144 children) of the non-Aboriginal and 24% (294 children) of the Aboriginal cohort had been admitted for social reasons.

The high social admission rate for Aboriginal children was expected¹⁰ but we were surprised that the rate for non-Aboriginal children was similar to that for gastrointestinal and lower respiratory tract diseases. The mean number of days for each admission for these three diagnostic categories for non-Aboriginal children was also similar, so that the total number of days spent in hospital per 1000 live births for the three categories was not very different. Given the high cost of a hospital bed and the possibility of nosocomial infections, it may be possible to implement cheaper and more appropriate care for these healthy children. Given the young age of the children and the size, diversity and isolation of Western Australia, however, detailed study of the reasons for these admissions, the geographical location, and the home background of the children is justified before any changes are suggested, as hospital care may be the only option in some circumstances.

Studies in other countries have also found high rates for social admissions for young children,^{4 17} though it is difficult to find studies which can be directly compared with our data. A study from New Zealand included a social reasons category defined as 'inadequate home environment', which included children who were admitted so that their mothers could be provided with guidance, as well as children admitted for other reasons.⁴ The children in the New Zealand study were aged up to 3 years and 2% of the cohort were admitted for inadequate home environment, comprising 11% of all admissions, the same proportion as in our study. In contrast with our study, however, it was concluded that the high rates were accounted for by repeat admissions (as they represented only 2% of the cohort).⁴ A study in Nottingham of consecutive emergency paediatric admissions, using data from 1975 to 1976, found that more than 20% of children were admitted primarily for social reasons; these reasons included parental anxiety, inability to cope, and suspicion of child abuse.¹⁷ A repeat of this Nottingham study in 1985 showed that social admissions had decreased to 9% of total admissions,¹⁸ a similar proportion to that found in our study and the New Zealand study.⁴

The rates for non-Aboriginal and Aboriginal children for diseases which are currently non-preventable (such as leukaemia and congenital anomalies) were similar, although the mean lengths of stay for each admission were higher for Aboriginal children. This was probably

related to unsuitable home facilities and remoteness of home community being more likely among the Aboriginal children.¹⁰

The prevalence of hospital inpatient morbidity in this cohort of non-Aboriginal children was higher than for a cohort of Sheffield children born in 1985,³ where 25% had been admitted to hospital by 2 years of age compared with 32% by two years of age in Western Australia. The Sheffield study found that almost 4% of the cohort were admitted three or more times compared with just over 4% in Western Australia. Admission to hospital of children in Western Australia also appeared to be higher than that for the cohort of New Zealand children, where 29% had been admitted to hospital by 3 years of age.⁴ The New Zealand study⁴ had similar results with regard to the major categories for which children were admitted. Given the many reports advocating the minimisation of hospital stays for children,² further investigations of our Western Australia data are justified to elucidate the specific risk factors for this higher rate of admission to hospital. Data from the Oxford record linkage study show that the mean total days spent in hospital in one year for children aged from 1 to 4 years ranged from 2.2 to 3.4 days,² compared with the result from our study of a mean of 7.4 days over two years for non-Aboriginal children admitted during the first two years of life.

These linked data have provided a unique picture of the inpatient hospital morbidity experienced by a total birth cohort during the first two years of life. Although we have been unable to include other childhood morbidity (such as outpatient and general practitioner visits), it is likely that the range of conditions found in this study reflects those found in the general community.⁴ We are confident that we have described all the serious morbidity experienced by the cohort children. Aboriginal children, however, may be more seriously ill than non-Aboriginal children before they are admitted to hospital.¹⁹

This descriptive paper is the first step in a series of studies investigating admissions to hospital for all children in Western Australia. Using these linked data we will be able to ascertain risk factors for particular morbidities and target specific areas where improvements in healthcare and hospital costs could be made. The inclusion of social, demographic, and economic data on our database allows us to include these important factors^{17 20} in analytical studies. For example, we can investigate antenatal risk factors for low birthweight infants and preterm birth, including indicators of socioeconomic status, and we can follow up these children to determine their subsequent morbidity. Such longitudinal studies will give us an increased understanding of the burden of childhood morbidity and enable us to aim preventive measures at those children in most need.

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Appendix

SUMMARY OF CLINICALLY RELEVANT CATEGORIES

ICD9 codes (principal diagnosis): examples of codes in each category (full list available from authors)

ICD9 code	Condition
Upper respiratory tract diseases	
3810-3829	Otitis media
4639	Acute tonsillitis
4644	Croup
4659	Upper respiratory tract infection
5198	Other diseases of the respiratory system, not classified elsewhere
Gastrointestinal diseases	
0091	Colitis, enteritis, and gastroenteritis of presumed infectious origin
0093	Diarrhoea, of presumed infectious origin
2765	Volume depletion
5589	Non-infective gastroenteritis and colitis
7793	Feeding problems in newborn infants
7833	Feeding difficulties and mismanagement
7834	Failure to thrive
Lower respiratory tract diseases	
4660	Bronchitis
4661	Bronchiolitis
4860, 4869	Pneumonia
4930, 4939	Asthma

7699	Respiratory distress syndrome including hyaline membrane disease	2809	Iron deficiency anaemia
7707	Bronchopulmonary dysplasia	7730–7735	Haemolytic disease of fetus or newborn
7708	Other respiratory problems originating in the perinatal period	7740–7747	Perinatal jaundice
Social admissions (healthy children)		'Other' problems	
V201	Other healthy infant receiving care	5210	Dental caries
V605	Holiday relief care	6910	Napkin rash
V612	Parent-child problems	7806	Pyrexia of unknown origin
V619	Unspecified family circumstances	7807	Malaise and fatigue
V641	Waiting for surgical/other procedure not carried out	7860	Dyspnoea and respiratory abnormalities
V650	Healthy person (boarder) accompanying sick person	Neurology	
Congenital anomalies		3420–3449	Cerebral palsy
5500–5532	Congenital hernia	3450–3459	Epilepsy
6050	Congenital phimosis	3890–3899	Deafness
7400–7599	Congenital anomalies	7790	Convulsions in newborn
Perinatal conditions		7803	Convulsions
7634	Morbidity from caesarean delivery	Routine circumcision	
7651	Preterm infant	V502, V508	Routine or ritual circumcision in the absence of significant medical indication
7685	Severe birth asphyxia	Eye disorders	
Trauma, accidents, poisoning		3755	Stenosis and insufficiency of lacrimal passages
7180–7199	Derangement of joints	3780–3789	Strabismus
8000–9299	Fractures, other injuries	Renal problems	
9400–9499	Burns	5859	Chronic renal failure
9600–9899	Poisoning	5990	Urinary tract infection
9941	Drowning and non-fatal submersion	5930–5939	Disorders of kidney and ureter
9955	Child maltreatment syndrome	Vaccine preventable diseases	
'Other' infectious diseases		0330–0339	Whooping cough
0529	Chickenpox	0550–0559	Measles
0542	Herpetic gingivostomatitis	0569	Rubella
0799	Unspecified viral infection	Mental disorders	
1330	Scabies	3131	Emotional disturbance, with misery and unhappiness
3720	Acute conjunctivitis	Endocrine/genetic diseases	
7711–7718	Infections specific to the perinatal period	2500	Diabetes mellitus
Haematology/oncology		2770	Cystic fibrosis
1952	Malignant neoplasm of abdomen	2790–2799	Disorders involving the immune mechanism
2040	Acute lymphoid leukaemia		
2280	Haemangioma and lymphangioma		