

Atlas of Healthcare Variation Methodology

General points:

- Data are not presented where the number of people was less than 10. This is to preserve confidentiality.
- People were assigned to their district health board (DHB) of domicile; where more than one domicile was recorded, the most recent value was selected.
- Ethnicity data was analysed by prioritised ethnic group (Māori, Pacific peoples, Asian, European/Other).
- The same codes were used to calculate ASH and modified ASH rates. Modified ASH was calculated by removing many filters and exclusions except for the exclusion of non-residents, neonates aged < 29 days and elective admissions (with the exception of dental).
- Detailed information on the Ministry of Health's ASH methodology, including the filters applied is located on this website:
<http://www.nsf.health.govt.nz/apps/nsfl.nsf/pagesmh/485>
- Note that for ethnicity analyses, the Ministry of Health presents data for Pacific peoples for seven DHBs only (Auckland, Canterbury, Capital and Coast, Counties Manukau, Hutt, Waikato and Waitemata). For the other DHBs, Pacific people are combined with the Other grouping.

The inclusion of emergency department cases meeting the 'three hour rule' typically increased overall ASH rates by 15%, whilst the inclusion of non-casemix events resulted in an overall increase of 4%. However, the effect was not uniform between DHBs with the ranking of a number of DHBs changing for otitis media/upper respiratory tract infections and gastroenteritis. For a detailed discussion see Appendix 3 of the New Zealand Child and Youth Epidemiology Service report: 2011 Health Status of Children and Young People in New Zealand Report (<http://dnmeds.otago.ac.nz/departments/womens/paediatrics/research/nzcyes/index.html>).

Standard deviation

Data are presented as standard deviation from the mean.

Standard deviation is a statistical measure of variation from a mean. Assuming that recorded instances are normally distributed (ie, they are in the usual 'bell-shaped curve') 68 percent of all recorded instances would be expected to be within one standard deviation either side of the mean and 95 percent within two standard deviations. The two 'middle' shades will be within one standard deviation of the mean.

Confidence intervals

Data for each DHB is presented as rate per 1000 population. Upper and lower confidence intervals were calculated to 95 percent level of confidence.

Indicator #1:	Ambulatory sensitive hospitalisations in children aged 29 days to 14 years
Numerator	Those aged 29 days to 14 years who had an acute or arranged admission type with the exception of dental where elective admissions

	are included. For a list of the conditions included, see Table 1.
Denominator	New Zealand PHO enrolled population aged 29 days to 14 years.
Data source	Filtered National Minimum Dataset, Ministry of Health (numerator) PHO enrolment data, Ministry of Health (denominator)
Additional filters	For complete details on methodology please see: http://www.nsfl.health.govt.nz/apps/nsfl.nsf/pagesmh/485 Same day ED cases meeting the 3 hour rule are excluded. Primary Rural Facilities are excluded by casemix filter = Y. ASH extracts use filtered NMDS data which includes casemix purchased events only. These are identified using WIES10.

Indicator #2:	Modified ambulatory sensitive hospitalisations in children aged 29 days to 14 years
Numerator	Those aged 29 days to 14 years who had an acute or arranged admission type with the exception of dental where elective admissions are included. For a list of the conditions included, see Table 1.
Denominator	New Zealand PHO enrolled population aged 29 days to 14 years.
Data source	National Minimum Dataset, Ministry of Health (numerator) PHO enrolment data, Ministry of Health (denominator)
Comments	The method used to calculate ASH rates differs from the Ministry of Health's definition in that filters (such as exclusion of emergency department cases meeting the three-hour rule) were not applied. Exclusions applied were elective admissions (except for dental) and those who were non-New Zealand residents. An exclusion was also applied by health speciality code, excluding mental health, neonatal intensive care, health in older persons and maternity admissions.

Indicator #3:	All acute/arranged hospital admissions in children aged 29 days to 14 years
Numerator	Those aged 29 days to 14 years who had an acute or arranged admission for health speciality code dental, medical or surgical.
Denominator	New Zealand PHO enrolled population aged 29 days to 14 years.
Data source	National Minimum Dataset, Ministry of Health (numerator) PHO enrolment data, Ministry of Health (denominator)
Comments	Health speciality code excluded acute or arranged admissions for mental health, neonatal intensive care, health in older persons and maternity. All electives were excluded except for dental. Non-New Zealand residents were excluded.

Indicator #4:	Ethnic composition of DHB, percent (2011/12)
Numerator	Count of ethnicity of population aged 0 to 14 years, by DHB
Denominator	Statistics New Zealand population projection, population aged 0 to 14 years, by DHB
Data source	Statistics New Zealand population projections (2012 update)

Table 1: Codes used to calculate childhood ASH

Condition	Principal diagnosis codes	Age group*	Include electives
Asthma	J45-J46		No
Bronchiectasis	J47		No
Cellulitis	H000, H010, J340, L01-L04, L08, L980		No
Constipation	K590		No
Dental conditions	K02, K04, K05		Yes
Dermatitis and eczema	L20-L30		No
Gastroenteritis/Dehydration	A02-A09, K529, R11		No
GORD (Gastro-oesophageal reflux disease)	K21		No
Kidney/urinary infection	N10, N12, N136, N309, N390	≥5 yr	No
Nutrition deficiency and anaemia	D50-D53, E40-E46, E50-E64		No
Respiratory infections – pneumonia	J13-J16, J18		No
Rheumatic fever/Heart disease	I00-I02,I05-I09		No
Upper respiratory tract and ear, nose and throat infections	J00-J04, J06, H65-H67		No
Vaccine-preventable disease – meningitis, whooping cough, hepatitis b, pneumococcal disease, other	A33-A37, A403, A80, B16, B18	6 months – <15 yr	No
Vaccine-preventable disease – measles, mumps, rubella	B05, B06,B26, M014, P350	15 months – <15 yr	No
* Age group: unless otherwise stated the age is 29 days to 14 years.			