

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 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.nsfl.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 DHBs changing markedly for overall ASH rates, angina, epilepsy 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>).

Exclusions:

- Acute/Arranged admission types only except for dental where electives are included.
- Non-New Zealand residents.

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 are 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 adults
Numerator	Those aged 15–74 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 15–74 years.
Data source	National Minimum Dataset, Ministry of Health (numerator) PHO enrolments, Ministry of Health (denominator)
Comments	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 adults
Numerator	Those aged 15–74 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 15–74 years.
Data source	National Minimum Dataset, Ministry of Health (numerator) PHO enrolments, 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) and weighting 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 adults
Numerator	Those aged 15–74 years who had an acute or arranged admission for health speciality code dental, medical or surgical.
Denominator	New Zealand PHO enrolled population aged 15–74 years.
Data source	National Minimum Dataset, Ministry of Health (numerator) PHO enrolments, 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.

Indicator #4:	Ethnic composition of DHB, percent (2011/12)
Numerator	Count of ethnicity of population aged 15–74 years, by DHB
Denominator	Statistics New Zealand population projection, population aged 15–74 years, by DHB
Data source	Statistics New Zealand population projections (2012 update)

Table 1: Codes used to calculate adult ASH

Condition	Principal Diagnosis Codes	ASH Weight	Include Electives ?
Angina and chest pain	I20, R072-R074	0.5	No
Asthma	J45-J46	1	No
Cellulitis	H000, H010, J340, L01-L04, L08, L980	1	No
Cervical cancer	C53	1	No
Congestive heart failure	I50, J81	1	No
Constipation	K590	1	No
Dental conditions	K02, K04, K05	1	Yes
Dermatitis & eczema	L20-L30	1	No
Diabetes	E10-E14, E162	1	No
Epilepsy	G40-G41, O15, R560, R568	1	No
Gastroenteritis/dehydration	A02-A09, R11, K529	1	No
GORD (Gastro-oesophageal reflux disease)	K21	1	No
Hypertensive disease	I10-I15, I674	1	No
Kidney/urinary infection	N10, N12, N136, N309, N390	1	No
Myocardial infarction	I21-I23;I241	0.5	No
Nutrition Deficiency and Anaemia	D50-D53, E40-E46, E50-E64, M833	1	No
Other ischaemic heart disease	I240, I248,I249, I25	0.5	No
Peptic ulcer	K25-K28	1	No
Respiratory infections - Pneumonia	J13-J16, J18	1	No
Rheumatic fever/heart disease	I00-I02,I05-I09	1	No
Sexually transmitted Infections	A50-A59,A60, A63, A64, I980, M023, M031, M730, M731, N290, N341	1	No
Stroke	I61, I63-I66	0.5	No
Upper respiratory tract and ENT infections	J00-J04, J06, H65-H67	1	No