

People dispensed a broad-spectrum penicillin as a percent of all people dispensed a penicillin

Technical information	
Indicator name (short)	People dispensed a broad-spectrum penicillin as a percentage of all people dispensed a penicillin.
Description	This measure details the percentage of people who are dispensed a broad-spectrum penicillin as a percent of all people dispensed a penicillin.
Rationale	The New Zealand Formulary classifies amoxicillin and amoxicillin with clavulanic acid as broad-spectrum penicillins. Broad-spectrum antibiotics are associated with antimicrobial resistance and are generally recommended only for certain indications¹. The other penicillins are classed as narrow spectrum. This indicator measures amoxicillin or amoxicillin with clavulanic acid use as a percent of total penicillin's dispensing. Wide regional variation in the use of amoxicillin or amoxicillin with clavulanic acid might highlight areas where improvement may be indicated Wide regional variation in the use of amoxicillin or amoxicillin with clavulanic acid might highlight areas where improvement may be indicated. 1. bpac^{nz}. 2015. Amoxicillin clavulanate update report 2015. URL: www.bpac.org.nz/Report/2015/September/antibiotics.aspx (accessed November 2018).
Numerator	The number of people dispensed amoxicillin or amoxicillin with clavulanic acid in a community pharmacy, in a year
Denominator	The number of people dispensed a penicillin in a community pharmacy in a year.
Inclusions	Chemicals included: - Penicillins: amoxicillin 1072, amoxicillin with clavulanic acid 1070, benzathine benzylpenicillin tetrahydrate 1120, benzylpenicillin sodium (penicillin G) 1136, flucloxacillin 1512, phenoxymethylpenicillin (penicillin V) 1970, procaine benzylpenicillin 2046. DANMAP: - Broad-spectrum penicillins: Amoxicillin 1072, amoxicillin with clavulanic acid 1070 - Narrow-spectrum penicillins: Benzathine benzylpenicillin tetrahydrate 1120, benzylpenicillin sodium (penicillin G) 1136,

	phenoxymethylpenicillin (penicillin V) 1970, flucloxacillin 151, procaine benzylpenicillin 2046.
Exclusions	<i>See appendix for more details.</i>
Note for calculation	Unit of measure: Percentage Adjustment applied: None District health board (DHB) assignment: Domicile
Data sources	Pharmaceutical Collection; primary health organisation (PHO), Ministry of Health. New Zealand Resident Population, Statistics New Zealand.
Suppression rule	Data is not presented where the counts are less than 10.
Notes	<i>See appendix for more details.</i>

Appendix 1. Interpretation notes

Units reported and denominator used

In developing this Atlas domain, we explored different metrics. We decided not to use defined daily doses (DDD) because they are based on adult doses so don't apply well to children. We trialled reporting prescription items dispensed per 1,000 population per day but decided not to progress with this because it does not account for the duration of treatment. This means that an antibiotic dispensed for one day is counted the same as an antibiotic with a 90-day supply. Instead, we chose to report people who were dispensed an antibiotic one or more times in a year.

We explored different denominator populations and elected to use one based on those who attended primary care in the year of interest. Our analysis found that using the denominator of people attending primary care in the year was the best measure for DHB variation because it accounts for need. For example, a DHB with a younger or older age structure is likely to have a greater proportion of its population attend primary care in a year. Other denominators explored were the primary health organisation (PHO) enrolled population and the Statistics New Zealand DHB resident population.

Confidence intervals

Data for each DHB are presented as rate per 1,000 population. Upper and lower confidence intervals were calculated to 95 percent level of confidence.

Practitioner supply order (PSO)

Several antibiotics included in our analysis are also available on PSO. PHARMAC defines this as a written order made by a prescriber for the funded supply of pharmaceuticals for emergency use, teaching and demonstration purposes and for provision to certain patient groups where an individual prescription is not practicable.

Antibiotics given to people using a PSO cannot be included in this Atlas domain because they are not linked to an NHI number.

Te Kāwanatanga o Aotearoa
New Zealand Government