

Surgical hospital admissions with an antibiotic dispensed within 30 days of discharge

Technical information	
Indicator name (short)	Surgical hospital admissions dispensed an antibiotic within 30 days of discharge.
Description	This measure details the rate per 100 of surgical hospital admissions with an antibiotic dispensed within 30 days of discharge.
Rationale	It is recommended that, along with good infection control, antibiotics be prescribed only when needed, with the narrowest spectrum of antimicrobial activity. It is not best practice for antibiotics to be administered routinely postoperatively. NICE recommends antibiotics be used only in cases where infection is clinically evident.¹ Previous research in Aotearoa New Zealand concluded a significant proportion of antibiotics dispensed in patients discharged following surgery was inappropriate and recommended enhanced antimicrobial stewardship in this area.² 1. NICE. Preventing and treating surgical site infections. London: NICE. URL: https://pathways.nice.org.uk/pathways/prevention-and-control-of-healthcare-associated-infections (accessed December 2018). 2. De Almeida M, Gerard C, Freeman JT, et al. 2018. Inappropriate prescribing of antibiotics following discharge after major surgery: an area for improvement. <i>NZ Med J</i> 131(1475): 35–43.
Numerator	Surgical hospital admissions dispensed an antibiotic within 30 days of discharge.
Denominator	Surgical hospital admissions with a length of stay of at least 1 day.
Inclusions	Admission type: Surgical diagnostic-related groups (DRGs) only.
Exclusions	• Exclude non-case-mix events to remove events related to mental health, maternity, and aged care. Events of less than one day were excluded to ensure only inpatient events were included. • Topical antibiotics were excluded.
Note for calculation	Unit of measure: Rate Adjustment applied: None District health board (DHB) assignment: Domicile
Data sources	Pharmaceutical Collection; National Minimum Dataset (NMDS), Ministry of Health.
Suppression rule	Data is not presented where the counts are less than 10.

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