

People aged 65 years and over who received the 'triple whammy'

Technical information	
Indicator name (short)	Received the 'triple whammy'.
Description	This measure details the percentage of people aged 65 and over who received the 'triple whammy'.
Rationale	Triple whammy is the combination of an angiotensin converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB), a diuretic and a non-steroidal anti-inflammatory (NSAID). Medsafe notes an increased risk of acute kidney injury with this combination, especially in those with risk factors for renal failure and in older adults. It is recommended this combination should be avoided if possible.¹ Medsafe notes 'triple whammy' as a risk, a recent nested case-control study found that current use of triple therapy (ACE inhibitor/ARB, diuretic and an NSAID) was associated with an increased rate of acute kidney injury (Rate Ratio 1.31, 95% CI 1.12–1.53) compared to double therapy (diuretic plus ACE inhibitor/ARB). 1. Lapi F, Azoulay L, Yin H, et al. 2013. Concurrent use of diuretics, angiotensin converting enzyme inhibitors, and angiotensin receptor blockers with non-steroidal anti-inflammatory drugs and risk of acute kidney injury: nested case-control study. <i>BMJ</i> 346: e8525.
Numerator	- People who received an antipsychotic per year. - Dispensing of all three medicines to be within the same 90-day period.
Denominator	New Zealand population, using Statistics New Zealand (StatsNZ) population projections for the relevant years.
Inclusions	Medicines: - ACEI: cilazapril 2770, enalapril maleate 2711, lisinopril 2797, perindopril 2806, quinapril 2772, trandolapril 1031, captopril 2841, enalapril maleate with hydrochlorothiazide 2708, sacubitril 4105. - ACEI with diuretics: cilazapril with hydrochlorothiazide 1127, quinapril with hydrochlorothiazide 3749. - ARB: candesartan cilexetil 1254, losartan potassium 1061. - ARB with diuretic: losartan potassium with hydrochlorothiazide 1068, losartan with hydrochlorothiazide 3788. - Diuretic: bumetanide 1171, furosemide 1544, amiloride hydrochloride 1050, metolazone 4006, spironolactone 2176, amiloride hydrochloride with furosemide 1051, amiloride hydrochloride with hydrochlorothiazide 1053, bendrofluzide 1116,

	chlorothiazide 1282, chlortalidone 1290, indapamide 1643, eplerenone 4100.
Exclusions	Aspirin was not included in this indicator due to the difficulties of differentiating between high dose aspirin for pain relief and low dose use for primary prevention of heart problems.
Note for calculation	Unit of measure: Percentage Adjustment applied: None District health board (DHB) assignment: Domicile
Data sources	Pharmaceutical Collection, Ministry of Health. National Resident Population, Statistics New Zealand.
Suppression rule	Data is not presented where the denominator was less than 10.
Notes	Dispensing of all three medicines to be within the same 90-day period. <i>See appendix for more details.</i>

Appendix 1. Interpretation notes

Standard deviation

Data is 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 100 population. Upper and lower confidence intervals were calculated to 95 percent level of confidence.

Te Kāwanatanga o Aotearoa
New Zealand Government