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People dispensed one or more strong opioid medicines in a year

Technical information	
Indicator name (short)	People dispensed a strong opioid, rate per 1,000.
Description	This measure details the rate of people dispensed a strong opioid per 1,000 population.
Rationale	The Institute for Healthcare Improvement (IHI) classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended.
Numerator	Number of people dispensed a strong opioid: morphine, fentanyl, methadone (excluding those using for substance abuse), oxycodone and pethidine.
Denominator	Statistics New Zealand (Stats NZ) resident population
Inclusions	Medication: 1274 fentanyl citrate; 1795 methadone hydrochloride; 1830 morphine hydrochloride; 1831 morphine sulphate; 2383 morphine tartrate; 3801 fentanyl; 3822 oxycodone hydrochloride; 3896 fentanyl citrate; 1953 pethidine hydrochloride.
Exclusions	- Opioid substitution treatment was excluded by identifying people who had methadone dispensed every 1, 2 or 3 days. People who met this criteria were excluded from further analysis. This method may incorrectly exclude people who had this pattern of dispensing for a different reason; however, a comparison between the number of people registered with the Ministry of Health as receiving opioid substitution treatment and the number of people excluded suggests this method is sufficiently accurate. - Methadone for opioid substitution treatment was excluded from this indicator by removing records of dispensed methadone within 3 days of the previous dispensing.
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National population projections, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	A strong opioid is one that is classed as step 3 of the World Health Organization (WHO) analgesic ladder. In Aotearoa New Zealand, the following strong opioids are subsidised: fentanyl, methadone, morphine, oxycodone and pethidine. See appendix for more details.

People dispensed a strong opioid for 6 or more weeks

Technical information	
Indicator name (short)	People dispensed a strong opioid for 6 or more weeks, rate per 1,000.
Description	This measure details the rate of people dispensed a strong opioid for 6 or more weeks per 1,000 population.
Rationale	The IHI classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended. Except in particular circumstances, strong opioids are intended for short-term use only, with use for 6 weeks or more raising questions about appropriateness.
Numerator	Number of people dispensed a strong opioid for 6–12 weeks after the first dispensing.
Denominator	Stats NZ resident population
Inclusions	- Medication: 1274 fentanyl citrate; 1795 methadone hydrochloride; 1830 morphine hydrochloride; 1831 morphine sulphate; 2383 morphine tartrate; 3801 fentanyl; 3822 oxycodone hydrochloride; 3896 fentanyl citrate; 1953 pethidine hydrochloride. - Date between first dispensing in a year and any subsequent dispensing to be greater than or equal to 6 weeks and not more than 12 weeks. - Only dispensings in the same calendar year were included. The year was truncated at mid-November (ie, first dispensings from mid-November to 31 December were excluded as they would not meet the criteria of a subsequent dispensing 6–12 weeks after the first).
Exclusions	- Opioid substitution treatment is excluded by identifying people dispensed methadone every first, second or third day. - Methadone for opioid substitution treatment was excluded from this indicator by removing records of people dispensed methadone within 3 days of the previous dispensing.
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National population projections, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	Note: A strong opioid is one that is classed as step 3 of the WHO analgesic ladder. In Aotearoa New Zealand, the following strong opioids are subsidised: fentanyl, methadone, morphine, oxycodone and pethidine. See appendix for more details.

People dispensed one or more weak opioid medicines in a year

Technical information	
Indicator name (short)	People dispensed a weak opioid, rate per 1,000.
Description	This measure details the crude rate per 1,000 people who had a community dispensing of a weak opioid.
Rationale	The IHI classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended. Except in particular circumstances, strong opioids are intended for short-term use only, with use for 6 weeks or more raising questions about appropriateness.
Numerator	Number of people dispensed a weak opiate.
Denominator	Stats NZ resident population
Inclusions	Medication: 1229 tramadol; 1332 codeine phosphate; 2427 dihydrocodeine tartrate; 3906 tramadol hydrochloride.
Exclusions	Paracetamol with codeine was excluded on the basis that these contain a much lower dose of codeine.
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	Previous analyses did not include 3906: tramadol hydrochloride. The addition of this code has resulted in an almost doubling in the rate of weak opioid dispensing across Aotearoa New Zealand. Note: A weak opioid is classed as step 2 of the WHO analgesic ladder. In Aotearoa New Zealand, the following weak opioids are subsidised: tramadol, codeine and dihydrocodeine. See appendix for more details.

People dispensed one or more tramadol in a year

Technical information	
Indicator name (short)	People dispensed tramadol, rate per 1,000.
Description	This measure details the rate per 1,000 people who had a community dispensing of tramadol.
Rationale	The IHI classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended. As with strong opioids, continuous use of a weak opioid for 6 weeks or more raises questions about appropriateness.
Numerator	Number of people dispensed tramadol.
Denominator	Stats NZ resident population
Inclusions	Medication: 1229 tramadol; 3906 tramadol hydrochloride
Exclusions	–
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	Note: A weak opioid is classed as step 2 of the WHO analgesic ladder. In Aotearoa New Zealand, the following weak opioids are subsidised: tramadol. See appendix for more details.

People dispensed one or more codeine in a year

Technical information	
Indicator name (short)	People dispensed codeine, rate per 1,000.
Description	This measure details the rate of people dispensed codeine per 1,000 population.
Rationale	The IHI classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended. As with strong opioids, continuous use of a weak opioid for 6 weeks or more raises questions about appropriateness.
Numerator	Number of people dispensed codeine.
Denominator	Stats NZ resident population
Inclusions	Medication: 1332 codeine phosphate; 2427 dihydrocodeine tartrate
Exclusions	Paracetamol with codeine was excluded on the basis that these contain a much lower dose of codeine.
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	Note: A weak opioid is classed as step 2 of the WHO analgesic ladder. In Aotearoa New Zealand, the following weak opioids are subsidised: tramadol. See appendix for more details.

People dispensed morphine one or more times in a year

Technical information	
Indicator name (short)	People dispensed morphine, rate per 1,000.
Description	This measure details the rate of people dispensed morphine per 1,000 population.
Rationale	Morphine is a strong opiate that is considered 'gold standard' treatment for severe acute pain, particularly in the palliative care setting. The UK National Institute for Health and Care Excellence (NICE) recommends that morphine should not be used for neuropathic pain without specialist assessment.
Numerator	Number of people dispensed morphine.
Denominator	Stats NZ resident population
Inclusions	Medication: 1830 morphine hydrochloride; 1831 morphine sulphate; 2383 morphine tartrate
Exclusions	–
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	Note: A weak opioid is classed as step 2 of the WHO analgesic ladder. In Aotearoa New Zealand, the following weak opioids are subsidised: codeine and dihydrocodeine. See appendix for more details.

People dispensed morphine for 6 weeks or more

Technical information	
Indicator name (short)	People dispensed morphine for 6 or more weeks, rate per 1,000.
Description	This measure details the rate of people dispensed morphine for 6 or more weeks per 1,000 population.
Rationale	The IHI classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended. Except in particular circumstances, morphine is intended for short-term use only, with use for 6 weeks or more raising questions about appropriateness.
Numerator	Number of people dispensed morphine for 6–12 weeks following first dispensing in a year.
Denominator	Stats NZ resident population
Inclusions	- Medication: 1830 morphine hydrochloride; 1831 morphine sulphate; 2383 morphine tartrate. - Date between first dispensing in a year and any subsequent dispensing to be greater than or equal to 6 weeks but not more than 12 weeks. - Only dispensings in the same calendar year were included. The year was truncated at mid-November (ie, first dispensings from mid-November to 31 December were excluded as they would not meet the criteria of a subsequent dispensing 6–12 weeks after the first).
Exclusions	–
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	Note: A weak opioid is classed as step 2 of the WHO analgesic ladder. In Aotearoa New Zealand, the following weak opioids are subsidised: codeine and dihydrocodeine. See appendix for more details.

People dispensed oxycodone one or more times in a year

Technical information	
Indicator name (short)	People dispensed oxycodone, rate per 1,000.
Description	This measure details the rate of people dispensed oxycodone one or more time in a year per 1,000 population.
Rationale	In a palliative care setting, oxycodone is recommended as second-line treatment for people who cannot tolerate morphine. NICE recommends that oxycodone should not be used for neuropathic pain without specialist assessment. A bpac ^{nz} review noted that oxycodone is more addictive than morphine and does not have a better side effect profile.
Numerator	Number of people dispensed oxycodone.
Denominator	Stats NZ resident population
Inclusions	Medication: 3822 oxycodone hydrochloride
Exclusions	–
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	See appendix for more details.

People dispensed oxycodone for 6 weeks or more

Technical information	
Indicator name (short)	People dispensed oxycodone for 6 or more weeks, rate per 1,000.
Description	This measure details the rate of people dispensed oxycodone for 6 or more weeks per 1,000 population.
Rationale	The IHI classes opioids as one of four groups of medicines (along with anticoagulants, insulin and sedatives) that can cause harm to patients, even when used as intended. Except in particular circumstances, oxycodone is intended for short-term use only, with use for 6 weeks or more raising questions about appropriateness.
Numerator	Number of people dispensed oxycodone for 6–12 weeks after first dispensing in a year.
Denominator	Stats NZ resident population
Inclusions	- Medication: 3822 oxycodone hydrochloride. - Date between first dispensing in a year and any subsequent dispensing to be greater than or equal to 6 weeks but not more than 12 weeks. - Only dispensings in the same calendar year were included. The year was truncated at mid-November.
Exclusions	First dispensings from mid-November to 31 December were excluded as they would not meet the criteria of a subsequent dispensing 6–12 weeks after the first.
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	See appendix for more details.

People dispensed fentanyl one or more times in a year

Technical information	
Indicator name (short)	People dispensed fentanyl, rate per 1,000.
Description	This measure details the rate of people dispensed fentanyl one or more times in a year per 1,000 population.
Rationale	Fentanyl is recommended for people with moderate to severe pain as an alternative option after morphine and depending on patient circumstances.
Numerator	Number of people dispensed fentanyl.
Denominator	Stats NZ resident population
Inclusions	Medication: 1274 fentanyl citrate; 3801 fentanyl; 3896 fentanyl citrate
Exclusions	–
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	See appendix for more details.

People dispensed fentanyl for 6 or more weeks

Technical information	
Indicator name (short)	People dispensed fentanyl for 6 or more weeks, rate per 1,000.
Description	This measure details the rate of people dispensed fentanyl for 6 or more weeks per 1,000 population.
Rationale	Fentanyl is recommended for people with moderate to severe pain as an alternative option after morphine and depending on patient circumstances.
Numerator	Number of people dispensed fentanyl.
Denominator	Stats NZ resident population
Inclusions	Medication: 1274 fentanyl citrate; 3801 fentanyl; 3896 fentanyl citrate
Exclusions	–
Note for calculation	Unit of measure: rate Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	See appendix for more details.

People dispensed a strong opioid who had a public hospital event in the 8 days prior to dispensing

Technical information	
Indicator name (short)	People dispensed a strong opioid who had a public hospital event, percent.
Description	This measure details the percentage of people dispensed a strong opioid who had a public hospital event in the 8 days before dispensing.
Rationale	All people starting a strong opioid will have a medical reason for doing so, and it is likely that many have a hospital event related to that reason. People receiving a strong opioid without a hospital event are expected to have received their prescription from either a private hospital or their general practitioner.
Numerator	People having a 'trigger event' in the National Minimum Dataset or National Non-Admitted Patients Collection in the 8 days before first dispensing of a strong opioid.
Denominator	People dispensed a strong opioid, excluding those dispensed for opioid-substitution treatment.
Inclusions	Only events occurring in public hospitals were included.
Exclusions	–
Note for calculation	Unit of measure: percentage Adjustment applied: none Health district assignment: domicile
Data sources	Pharmaceutical Collection, Ministry of Health National Resident Population, Stats NZ
Suppression rule	Data is not presented where the counts are less than 10.
Notes	A trigger event was defined as any public hospital inpatient or outpatient event that occurred no more than 8 days before a strong opioid was dispensed. See appendix for more details.

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 1,000 population. Upper and lower confidence intervals were calculated to a 95 percent level of confidence.

Calculating magnitude of variation

When reporting the size of variation between DHBs to prevent either low or high outliers having a large effect on the reported ratio, the top and/or bottom DHBs are excluded to avoid overstating the variation.

Te Kāwanatanga o Aotearoa
New Zealand Government