

Technical appendix to *A window on the quality of Aotearoa New Zealand's health care 2019 – a view on Māori health equity*¹

Indicator	1 Life expectancy at birth 1950–52 to 2012–14
Source	Statistics New Zealand
Available from	www.stats.govt.nz/topics/life-expectancy
Numerator	Life expectancy at birth
Denominator	N/A
Sub-populations	Māori female, Māori male, non-Māori female, non-Māori male
Time period	1950–52 to 2012–14
Standardisation	None
Statistical test	None
Other	

Indicator	2 Deaths amenable to health care per 100,000 population aged 0–74 years
Source	Ministry of Health – mortality national collection, Statistics New Zealand population
Available from	https://nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures/amenable
Numerator	Deaths from ages 0–74 with a cause of death ‘for which effective health interventions exist and are accessible to everyone in need (in New Zealand)’
Denominator	100,000 population
Sub-populations	Māori, non-Māori non-Pacific
Time period	2009–15
Standardisation	Directly age-standardised using WHO World Population as the reference for the age weights
Statistical test	None
Other	Full details of how to construct and use from <i>A Guide to Using Amenable Mortality as a System Level Measure 2018</i> available at the above URL. This includes a full list of the ICD10 codes defining cause of death which are defined as amenable and their rationale for inclusion

Indicator	3 Incidence for poor-survival cancers per 100,000 population
Source	Ministry of Health – New Zealand cancer registry
Available from	www.health.govt.nz/publication/cancer-new-registrations-and-deaths-2013
Numerator	Registrations of specific cancers 2013
Denominator	100,000 population
Sub-populations	Māori, non-Māori
Time period	2013 (assuming this and not three-year)
Standardisation	Directly age-standardised using WHO World Population as the reference for the age weights
Statistical test	None
Other	

Indicator	4 Mortality for poor-survival cancers per 100,000 population
Source	Ministry of Health – New Zealand cancer registry
Available from	www.health.govt.nz/publication/cancer-new-registrations-and-deaths-2013
Numerator	Deaths from specific cancers 2013
Denominator	100,000 population
Sub-populations	Māori, non-Māori
Time period	2013 (assuming this and not three-year)
Standardisation	Directly age-standardised using WHO World Population as the reference for the age weights
Statistical test	None
Other	

Indicator	5 Percentage of women who register with a lead maternity carer in the first trimester of pregnancy, 2009–16
Source	Ministry of Health – National Maternity Collection (MAT)
Available from	https://public.tableau.com/profile/hqj2803#!/vizhome/Maternitysinglemap/AtlasofHealthcareVariationMaternity?publish=yes
Numerator	Number of women who register with a lead maternity carer in the first trimester of their pregnancy
Denominator	Total number of women who register with a lead maternity carer
Sub-populations	Māori, non-Māori

Time period	2009–16
Standardisation	None
Statistical test	None
Other	

Indicator	6 Percentage of babies small for gestational age born at 37–42 weeks gestation, 2009–16
Source	Ministry of Health – National Maternity Collection (MAT)
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Maternitysinglemap/AtlasofHealthcareVariationMaternity?publish=yes
Numerator	Number of babies born at 37–42 weeks gestation with birthweight under the 10th percentile for their gestation
Denominator	Total number of liveborn babies born at 37–42 weeks gestation
Sub-populations	Māori, non-Māori
Time period	2009–16
Standardisation	None
Statistical test	95% confidence intervals calculated on a proportion
Other	

Indicator	7 Rate of chlamydia infection in babies under one-year-old per 100,000, 2015
Source	Institute of Environmental Science and Research – STI surveillance data, Statistics New Zealand 2015 mid-year population estimates
Available from	https://surv.esr.cri.nz/PDF_surveillance/STISurvRpt/2015/FINAL2015AnnualSTIReport.pdf
Numerator	Number of laboratory-confirmed chlamydia cases for babies aged less than one
Denominator	Population aged 0 from 2013 census
Sub-populations	Māori, European/other
Time period	2015
Standardisation	None
Statistical test	95% confidence intervals calculated on a rate
Other	Taranaki excluded from this calculation. To exclude one-year olds in Taranaki from the denominator, we calculated one fifth of children age 0–4 in Taranaki, since population data by region, single-year age band and ethnicity are not readily available

Indicator	8 Percentage of preschool children enrolled with oral health services, 2015
Source	Community Oral Health Services, Ministry of Health (numerator) PHO enrolments, Ministry of Health (denominator)
Available from	www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/WellChildSF17/atlas.html
Numerator	The number of children aged less than five years enrolled with oral health services
Denominator	The number of children aged under five years
Sub-populations	Māori, non-Māori
Time period	2015
Standardisation	None
Statistical test	95% confidence intervals calculated on a proportion
Other	Waikato DHB excluded

Indicator	9 Percentage of five-year olds with caries, 2017
Source	Community Oral Health Services, Ministry of Health
Available from	www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/oral-health-data-and-stats/age-5-and-year-8-oral-health-data-community-oral-health-service
Numerator	The number of children aged five examined <i>minus</i> the number of children aged five who were caries free
Denominator	The number of children aged five examined
Sub-populations	Māori, non-Māori
Time period	2017
Standardisation	None
Statistical test	95% confidence intervals calculated on a proportion
Other	

Indicator	10 Childhood cancer five-year relative survival by age group, 2005–14
Source	NZ children's cancer registry
Available from	http://childcancernetwork.org.nz/wp-content/uploads/2017/12/Childhood-Cancer-Survival-in-New-Zealand-2005-2014.pdf
Numerator	The proportion of children with cancer, within a given sub population, who remain alive five years following their cancer diagnosis

Denominator	The proportion of children in the population, of the same age and sex, within a given sub-population, who are alive at the end of the five-year period
Sub-populations	Māori, non-Māori non-Pacific, age strata 0–4 years, 5–9 years, 10–14 years
Time period	2005–14
Standardisation	Data are presented stratified in five-year age strata
Statistical test	95% confidence intervals calculated on a relative survival rate
Other	Ratio expressed as a percentage. Relative survival calculated using period method

Indicator	11 Childhood cancer five-year relative survival by cancer type, 2005–14
Source	NZ children's cancer registry
Available from	http://childcancernetwork.org.nz/wp-content/uploads/2017/12/Childhood-Cancer-Survival-in-New-Zealand-2005-2014.pdf
Numerator	The proportion of children with cancer, within a given sub-population, who remain alive five years following their cancer diagnosis
Denominator	The proportion of children in the population, of the same age and sex, within a given sub-population, who are alive at the end of the five-year period
Sub-populations	Māori, non-Māori non-Pacific, specific cancers
Time period	2015–14
Standardisation	None
Statistical test	95% confidence intervals calculated on a proportion
Other	Ratio expressed as a percentage. Relative survival calculated using period method

Indicator	12 Percentage of children prescribed two or more SABA but no ICS in the same year 2012–16
Source	PHARMAC (Pharms database)
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Asthmasinglemap2018/AtlasofhealthcarevariationAsthma?publish=yes
Numerator	The number of people who were dispensed SABA in two or more quarters and who were not dispensed preventer in the year
Denominator	The number of people who were dispensed SABA in two or more quarters
Sub-populations	Māori, non-Māori non-Pacific, age strata 5–9 years, 10–14 years
Time period	2012–16
Standardisation	Five-year age strata

Statistical test	95% confidence intervals calculated on a proportion
Other	

Indicator	13 Asthma paediatric admissions for children aged 5–9 years, per 1,000 population
Source	Ministry of Health – NMDS, Statistics New Zealand population projections
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Asthmasinglemap2018/AtlasofhealthcarevariationAsthma?publish=yes
Numerator	The number of children aged 5–9 years admitted one or more times in the calendar year with a primary diagnosis of asthma or wheeze (J45–J46, R06.2)
Denominator	Children aged 5–9 years
Sub-populations	Māori, non-Māori
Time period	2012–16
Standardisation	None
Statistical test	95% confidence intervals calculated on a rate
Other	

Indicator	14 Percentage of eight-month-old infants with complete age-appropriate immunisations 2012–18
Source	Ministry of Health – immunisation statistics
Available from	www.health.govt.nz/our-work/preventative-health-wellness/immunisation/immunisation-coverage/national-and-dhb-immunisation-data
Numerator	The number of children who turned the milestone age of 8 months between 1 October and 31 December in each year and who have completed their age-appropriate immunisations by the time they turned the milestone age
Denominator	The number of children who turned the milestone age of 8 months between 1 October and 31 December in each year
Sub-populations	Māori, non-Māori
Time period	2012–18
Standardisation	None
Statistical test	95% confidence intervals calculated on a proportion
Other	Data is shown for the final quarter of the calendar year rather than the whole of the calendar year

Indicator	15 Population Coverage of chlamydia testing ages 15–24 years
Source	Institute of Environmental Science and Research – STI surveillance data, Statistics New Zealand 2015 mid-year population estimates
Available from	https://surv.esr.cri.nz/PDF_surveillance/STISurvRpt/2015/FINAL2015AnnualSTIReport.pdf
Numerator	People receiving a chlamydia test, unique tests based on NHI and patient ID number
Denominator	Population aged 15–24 from 2015 mid-year population estimates from 2013 census
Sub-populations	Māori, European/other, by gender and 5-year age strata 15–19 and 20–24
Time period	2009–16
Standardisation	Gender and five-year age stratification
Statistical test	None
Other	Taranaki excluded from this calculation, the denominator data is based on the proportion of people in each ethnic group from the 2013 Census ‘usually resident population’ applied to the 2015 mid-year population estimates from Statistics New Zealand. Ethnicity is prioritised in the following order: Māori, Pacific peoples, Asian, Middle Eastern/Latin American/African (MELAA), European or Other (including New Zealander) ethnic groups

Indicator	16 Rate of chlamydia infection per 100,000 aged 15–24 years, 2015
Source	Institute of Environmental Science and Research – STI surveillance data, Statistics New Zealand 2015 mid-year population estimates
Available from	https://surv.esr.cri.nz/PDF_surveillance/STISurvRpt/2015/FINAL2015AnnualSTIReport.pdf
Numerator	Number of laboratory-confirmed chlamydia cases
Denominator	Population aged 15–24 from mid-year population estimates from 2013 census
Sub-populations	Māori, European/other, by gender and five-year age strata 15–19 and 20–24
Time period	2009–16
Standardisation	Gender and five-year age stratification
Statistical test	None
Other	Taranaki excluded from this calculation, the denominator data is based on the proportion of people in each ethnic group from the 2013 census ‘usually resident population’ applied to the 2015 mid-year population estimates from Statistics New Zealand. Ethnicity is prioritised in the following order: Māori, Pacific peoples, Asian, Middle Eastern/Latin American/African (MELAA), European or Other (including New Zealander) ethnic groups

Indicator	17 Percentage of people aged 15–24 years who report unmet need for a GP visit due to cost 2016/17 24 Percentage of people aged 45–64 years who report unmet need for a GP visit due to cost 2016/17 32 Percentage of people aged 65+ years who report unmet need for a GP visit due to cost 2016/17
Source	Ministry of Health – health survey
Available from	Individual level data were requested from Statistics New Zealand for this analysis
Numerator	Survey respondents answering ‘Yes’ to the question ‘In the past 12 months, was there a time when you had a medical problem but did not visit a GP because of cost?’
Denominator	Survey respondents answering ‘no’ to the question ‘In the past 12 months, was there a time when you had a medical problem but did not visit a GP because of cost?’
Sub-populations	Māori, non-Māori, deprivation quintiles, based on NZDep2013
Time period	2016/17 health survey
Standardisation	All indicators were investigated to see whether age-standardisation made a difference, but since the data did not appreciably change, crude results are presented.
Statistical test	95% confidence intervals calculated on a proportion, using the survey weights provided by Statistics New Zealand
Other	

Indicator	18 Hospital admissions for self-harm per 10,000 population aged 15–24 years, 2016–18
Source	Ministry of Health – system level measures, admissions NMDS, population estimates Statistics New Zealand
Available from	https://nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures/youth-slm-0
Numerator	The total number of self-harm hospitalisations amongst youth aged 15–24 years. Self-harm hospitalisations are identified by NMDS events having a diagnosis of injury or poisoning (ie, medical nature codes in ‘S’ or ‘T’) amongst the first 30 diagnosis codes and an intentional self-harm (X60–X84, Y870) or self-harm of undetermined intent (Y10–Y34, Y872) external cause amongst the first 10 external cause codes (ecodes).
Denominator	Estimated New Zealand resident population with Statistics New Zealand projections
Sub-populations	Māori, non-Māori, gender

Time period	2016–18
Standardisation	Directly age-standardised to World Health Organization standard population between 15–24 years in five-year age bands
Statistical test	95% confidence intervals calculated on a rate
Other	

Indicator	19 Suicide mortality per 100,000 population aged 15–24 years, 2013–15
Source	Ministry of Health – mortality collection, population estimates Statistics New Zealand
Available from	www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/suicide-data-and-stats
Numerator	The total number of deaths by suicide
Denominator	Estimated New Zealand resident population with Statistics New Zealand projections
Sub-populations	Māori, non-Māori, gender
Time period	2013–15
Standardisation	Directly age-standardised to World Health Organization standard population between 15–24 years in five-year age bands
Statistical test	None
Other	

Indicator	20 Suicide mortality per 100,000 population aged 15–24 years, 1996–2015, males
Source	Ministry of Health – mortality collections, population estimates Statistics New Zealand
Available from	www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/suicide-data-and-stats
Numerator	The total number of deaths by suicide
Denominator	Estimated New Zealand resident population with Statistics New Zealand projections
Sub-populations	Māori, non-Māori
Time period	1996–2015
Standardisation	Directly age-standardised to World Health Organization standard population between 15–24 years in five-year age bands
Statistical test	None
Other	Five-year rolling average calculated

Indicator	21 Suicide mortality per 100,000 population aged 15–24 years, 1996–2015, females
Source	Ministry of Health – mortality collections, population estimates Statistics New Zealand
Available from	www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/suicide-data-and-stats
Numerator	The total number of deaths by suicide
Denominator	Estimated New Zealand resident population with Statistics New Zealand projections
Sub-populations	Māori, non-Māori
Time period	1996–2015
Standardisation	Directly age-standardised to World Health Organization standard population between 15–24 years in five-year age bands
Statistical test	None
Other	Five-year rolling average calculated

Indicator	22 Percentage of girls and young women who received the first HPV vaccine by birth year
Source	Ministry of Health – national immunisation register, population Statistics New Zealand
Available from	Requested from national immunisation register
Numerator	Number of HPV–1 quadrivalent doses given
Denominator	Estimated population
Sub-populations	Māori, non-Māori
Time period	Birth year from 1990 to 2004
Standardisation	None
Statistical test	None
Other	

Indicator	23 Percentage drop-off in the proportion HPV vaccines first (to third) that girls and young women who received the first HPV vaccine by birth year
Source	Ministry of Health – national immunisation register, population Statistics New Zealand
Available from	Requested from national immunisation register
Numerator	Proportion of HPV–1 quadrivalent doses given, minus the proportion of HPV–3 quadrivalent doses given

Denominator	Proportions based on estimated population denominators
Sub-populations	Māori, non-Māori
Time period	Birth year from 1990 to 2004
Standardisation	None
Statistical test	None
Other	

Indicator	25 Reported wait times to access specialist, as a percentage of adults (25–64 years) 2017–18 33 Reported wait times to access specialist, as a percentage of respondents aged 65 years and over 2017–18
Source	Health Quality & Safety Commission – primary care survey
Available from	On request
Numerator	Survey respondents answering in one of the categories ‘less than a week’, ‘1–4 weeks’, ‘1–3 months’, ‘more than 3 months’ to the question ‘In general, how long did you wait from the time you were first told you needed an appointment to the time you went to the specialist doctor?’
Denominator	Survey respondents answering the question ‘In general, how long did you wait from the time you were first told you needed an appointment to the time you went to the specialist doctor?’
Sub-populations	Māori, non-Māori
Time period	2017–18
Standardisation	Direct age-standardisation to 2001 Māori population
Statistical test	95% confidence intervals calculated on a proportion
Other	

Indicator	26 Percentage of inaccessible appointments for adults (25–64 years) 2011–14
Source	National Health Board
Available from	www.tdhb.org.nz/dhb/documents/agenda/CPHAC_2014-08-26.pdf
Numerator	Proportion of DNAs reported by DHBs to National Health Board
Denominator	Unclear
Sub-populations	Māori, non-Māori
Time period	2011–14
Standardisation	None

Statistical test	None
Other	

Indicator	27 Acute bed-days per 1,000 population aged 25–64 (standardised), 2018
Source	Ministry of Health NMDS, Statistics New Zealand estimated population
Available from	https://nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures/acute
Numerator	Sum of the length of stays in days for patients presented to a New Zealand hospital acutely that are publicly funded
Denominator	Resident population estimate 2018
Sub-populations	Māori, non-Māori
Time period	2018
Standardisation	Direct age-standardisation to 2018 Māori population
Statistical test	95% confidence intervals for a rate
Other	

Indicator	Tables 1 and 2 Responses to the communication domain (25–64 and 65+)
Source	Health Quality & Safety Commission inpatient survey
Available from	www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/patient-experience/adult-inpatient-experience
Numerator	Respondents giving the most positive answer to questions within the communication domain of the national inpatient survey
Denominator	Respondents to questions within the communication domain of the national inpatient survey
Sub-populations	Māori, non-Māori
Time period	2018
Standardisation	None
Statistical test	Sign test for consistency of direction of response
Other	Age – sex weighting of respondents to the sampled pool of patients

Indicator	28 Percentage of people with diabetes who have regular HbA1c monitoring
Source	Ministry of Health virtual diabetes register
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Diabetessinglemapdhb2018/AtlasofhealthcarevariationDiabetes?publish=yes
Numerator	Number of people with diabetes between the ages of 25 and 64 who received one or more HbA1c tests
Denominator	Number of people with diabetes
Sub-populations	Māori, non-Māori
Time period	2014–17
Standardisation	Direct age-standardisation to age structure of the in-year cohort of Māori with diabetes
Statistical test	95% confidence intervals for a proportion
Other	

Indicator	29 Percentage of people with diabetes who received at least one albumin:creatinine ratio test
Source	Ministry of Health virtual diabetes register
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Diabetessinglemapdhb2018/AtlasofhealthcarevariationDiabetes?publish=yes
Numerator	Number of people with diabetes between the ages of 25 and 64 who received at least one albumin:creatinine ratio test
Denominator	Number of people with diabetes
Sub-populations	Māori, non-Māori
Time period	2014–17
Standardisation	Direct age-standardisation to age structure of the in-year cohort of Māori with diabetes
Statistical test	95% confidence intervals for a proportion
Other	

Indicator	30 Percentage of people with diabetes who were admitted to hospital with diabetic ketoacidosis
Source	Ministry of Health virtual diabetes register
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Diabetessinglemapdhb2018/AtlasofhealthcarevariationDiabetes?publish=yes
Numerator	Number of people with diabetes admitted to hospital at least once with a primary diagnosis of diabetic ketoacidosis

Denominator	Number of people with diabetes
Sub-populations	Māori, non-Māori
Time period	2014–17
Standardisation	Direct age-standardisation to age structure of the in-year cohort of Māori with diabetes
Statistical test	95% confidence intervals for a proportion
Other	

Indicator	31 Percentage of people with diabetes having a lower-limb amputation
Source	Ministry of Health virtual diabetes register
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Diabetessinglemapdhb2018/AtlasofhealthcarevariationDiabetes?publish=yes
Numerator	Number of people with diabetes who underwent a lower-limb amputation
Denominator	Number of people with diabetes
Sub-populations	Māori, non-Māori
Time period	2014–17
Standardisation	Direct age-standardisation to age structure of the in-year cohort of Māori with diabetes
Statistical test	95% confidence intervals for a proportion
Other	Excludes people who died within the year

Indicator	34 Unmet need for special equipment among disabled people aged 65 and over
Source	Ministry of Health disability survey 2013
Available from	www.health.govt.nz/our-work/populations/maori-health/tatau-kahukura-maori-health-statistics/nga-mana-hauora-tutohu-health-status-indicators/disability
Numerator	Respondents aged 65 and over with a disability who identified that they had an unmet need for specialised equipment
Denominator	Respondents aged 65 and over with a disability
Sub-populations	Māori, non-Māori, male and female
Time period	2013
Standardisation	None
Statistical test	None
Other	

Indicator	35 Number of bed-days for patients aged 65+ who are admitted twice or more as an emergency per 1,000 population
Source	Ministry of Health NMDS, Statistics New Zealand estimated population
Available from	https://prezi.com/oeehp81gbntu/health-quality-and-safety-indicators-june-2016/
Numerator	Sum of lengths of stay for hospital admission for the cohort of patients aged 65 and over who were admitted to a hospital as a publicly funded acute admission more than once in a year
Denominator	Resident population estimate
Sub-populations	Māori, non-Māori
Time period	2012/13 to 2017/18
Standardisation	None
Statistical test	None
Other	

Indicator	36 Number of bed-days for patients aged 45+ who are admitted twice or more as an emergency per 1,000 population by five-year age band
Source	Ministry of Health NMDS, Statistics New Zealand estimated population
Available from	https://prezi.com/oeehp81gbntu/health-quality-and-safety-indicators-june-2016/
Numerator	Sum of lengths of stay for hospital admission for the cohort of patients aged 65 and over who were admitted to a hospital as a publicly funded acute admission more than once in a year
Denominator	Resident population estimate
Sub-populations	Māori, non-Māori, five-year age strata
Time period	2012/13 to 2017/18
Standardisation	Five-year age strata from 45+ are used
Statistical test	None
Other	

Indicator	37 Percentage of people aged 65 years and over receiving a potentially dangerous combination of ACE inhibitor, diuretic and NSAID, 2015–17
Source	PHARMAC Pharms database, Statistics New Zealand estimated population
Available from	www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/PolypharmacySFNov2017/atlas.html
Numerator	People dispensed all three medicines within a 90-day period

Denominator	Resident population estimate
Sub-populations	Māori, non-Māori
Time period	2015–17
Standardisation	Direct age-standardisation to age structure of the in-year Māori population aged 65+
Statistical test	95% confidence intervals for a proportion
Other	Included medicines: ACEI: cilazapril 2770, enalapril maleate 2711, lisinopril 2797, perindopril 2806, quinapril 2772; 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, bendrofluazide 1116, chlorothiazide 1282, chlortalidone 1290, indapamide 1643; NSAID: diclofenac sodium 1401, ibuprofen 2798, ketoprofen 1697, mefenamic acid 1769, naproxen 2782, naproxen sodium 2783, sulindac 2193, tenoxicam 2536, celecoxib 1271, meloxicam 3912

Indicator	38 Percentage of fractured necks of femur (FNOF) operated on same or next day of admission 2012–16
Source	Ministry of Health NMDS
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/Fallssinglemapv12018/HQSCAtlasofVariationFalls
Numerator	The number of people operated on the same or next day of admission
Denominator	Admissions with any diagnosis of FNOF, an external cause code of fall and who had a hip operation in the year
Sub-populations	Māori, non-Māori
Time period	2012–16
Standardisation	Direct age-standardisation to age structure of the in-year Māori population aged 65+
Statistical test	95% confidence intervals for a proportion
Other	To avoid double counting, only one fracture per person in one year was counted <ul style="list-style-type: none"> • Exclude falls and fractures that occur after the admission date • FNOF ICD10 S72.0, S72.1, S72.2 • Hip operation codes: fixation, hip joint (4930600), application of external fixator device (5013000, 4748300), implantation of internal device, hip

	joint (4792100), fixation, femur (4751900, 4753700, 4753400, 4758800, 4759100, 4753100), implantation of internal device, hip joint (4792100), closed reduction of fracture with internal fixation (4753100, 4751900), open reduction of fracture with internal fixation (4752801), total hip replacement (4931800, 4931900, 9060700, 9060701), partial hip replacement (4931500, 4752200)
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Indicator	39 Compliance with dosing and timing per 100 orthopaedic surgeries of those aged 45+
Source	Health Quality & Safety Commission, surgical site infection registry
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/SSIorthopaedicdashboardpublic/SSIIOrthopaedicsurgery?publish=yes
Numerator	Hip and knee arthroplasty procedures where both dosing and timing procedures were complied with
Denominator	Total hip and knee arthroplasty procedures
Sub-populations	Māori, non-Māori
Time period	2013–17
Standardisation	None
Statistical test	None
Other	

Indicator	40 Age-standardised surgical site infection rate per 100 orthopaedic surgeries of those aged 45+ years 2013/14–18
Source	Health Quality & Safety Commission, surgical site infection registry
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/SSIorthopaedicdashboardpublic/SSIIOrthopaedicsurgery?publish=yes
Numerator	Hip and knee arthroplasties where a surgical site infection was recorded
Denominator	Total hip and knee arthroplasty procedures
Sub-populations	Māori, non-Māori
Time period	2013/14 to 2018
Standardisation	Direct age standardisation to age structure of the in-year Māori cohort who received a hip or knee operation aged 45+
Statistical test	None
Other	

Indicator	41 Age distribution of hip and knee arthroplasty patients
Source	Health Quality & Safety Commission, surgical site infection registry
Available from	https://public.tableau.com/profile/hqi2803#!/vizhome/SSIorthopaedicdashboardpublic/SSIIOrthopaedicsurgery?publish=yes
Numerator	Hip and knee arthroplasty for each chronological age
Denominator	Total hip and knee arthroplasty procedures
Sub-populations	Māori, non-Māori, individual one-year ages
Time period	2014–17
Standardisation	None, one-year age stratification
Statistical test	None
Other	

¹ Report available online at: www.hqsc.govt.nz/our-programmes/health-quality-evaluation/publications-and-resources/publication/3721