Technical appendix to
A Window on the Quality of New Zealand's Health Care 2017

Contents

Introduction

The purpose of this document is to provide more detail of all the indicators covered in the report,[1] including the data used, information about sources, calculation methods, standardisation methods, and tests of statistical significance.

Safety

Measure 1: In-hospital falls leading to a fractured neck of femur (FNOF) in people aged 15 and over by month 2012–16

Why does this measure matter?

'Falls in hospital with a fractured neck of femur' is an unambiguous harm event associated with falls in hospitals. At the start of the national falls programme, around half of all reported serious adverse events in hospitals were falls, and there were in the region of 100 falls with a fractured neck of femur each year. Each such fall is associated with an extra month in hospital, costs around $46,000 in direct costs and is associated with the loss of 1.6 disability-adjusted life years (DALYs).

Measure definition:

Source: National Minimum Dataset (NMDS)

Calculation by: Health Quality & Safety Commission

Previously published in: Quality and safety markers www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-july-september-2016

Presentation: Run chart – period monthly

Statistical test: Statistical process control (SPC) shift denoted by six or more points one side of median

Definition:

Numerator: Incidence of in-hospital (ecodes include Y9214, ecode date is between hospital admission and discharge dates) falls (ecodes include W01x to W19x) with a fractured neck of femur (diag 02–30 includes S720x to S722). Fractured neck of femur diagnosis must not be in position 1 of the first event in an unbroken hospital stay and must not have condition onset flag 2 (ie, condition present on admission).

Denominator: Admissions to hospital by people aged 15 years and over

Location in main report: Figure 6, page 10

Interpretation:

There has been a reduction in the median falls per 100,000 admissions rate from 11.1 per month to 6.8 per month since 2015. This is a significant and sustained reduction. Fifteen of the last 16 months have been below the original median rate. Expressed in before and after

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[1] Available at: www.hqsc.govt.nz/our-programmes/health-quality-evaluation/publications-and-resources/publication/2921

terms, the rate has dropped from 11.4 per 100,000 (95 percent CIs 10.1–12.7) to 7.9 (6.3–9.4).

Measure 2: Hip and knee operations where good practice in antibiotic prophylaxis and skin preparation was, by quarter, 2013–16

Why does this measure matter?

Consistent use of the correct antibiotic prophylaxis, undertaken in the hour before 'knife to skin', together with appropriate skin preparation is associated in the reduction of surgical site infection.

Measure definition:

Source: Surgical site infection database (ICNet)

Calculation by: Health Quality & Safety Commission

Previously published in: Quality and safety markers www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-july-september-2016/

Presentation: Time series – period quarterly

Statistical test: None

Definition:

Numerator:

1: Primary hip and knee replacement operations where prophylactic antibiotics were recorded as given within one hour of the operation commencing

2: Hip and knee operations where the recorded antibiotic given was ≥ 2 g cefazolin or ≥ 1.5 g cefuroxime

3: Hip and knee operations where skin antisepsis using alcohol/chlorhexidine or alcohol/povidone iodine was used

Denominator:

1: Primary hip and knee replacement operations

2, 3: Hip and knee replacement operations

Location in main report: Figure 7, page 10

Interpretation:

Use of all three measures has increased from the July 2013 baseline. Timely antibiotic administration (1) has increased from 93 to 98 percent, correct antibiotic and dose used (2) has increased from 55 to 96 percent, appropriate skin preparation (3) has increased from 97 to 99 percent.

Measure 3: Surgical site infections for hip and knee operations, by month, 2013-16

Why does this measure matter?

Surgical site infections are a common and potentially serious harm resulting from surgery. For hip and knee replacements approximately 1 percent of cases reported a site infection of one sort or another in 2013 – equivalent to approximately 30 a month. Each infection is associated with a direct cost of $40,000 and is associated with the loss of 0.5 DALYs.

Measure definition:

Source: Surgical site infection database (ICNet)

Calculation by: Health Quality & Safety Commission

Previously published in: Quality and safety markers www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-july-september-2016

Presentation: Run chart – period quarterly

Statistical test: SPC shift denoted by six or more points one side of median

Definition:

Numerator:

Hip and knee replacement operations with surgical site infection recorded

Denominator:

Hip and knee replacement operations

Location in main report: Figure 8, page 10

Interpretation:

Between August 2015 and June 2016 the median monthly percentage of hip and knee replacement operations that resulted in a surgical site infection reduced from 1.24 percent to 0.84 percent. This is a significant and sustained reduction with 6 below median points identified between August 2015 and January 2016. Expressed in before and after terms the SSI rate fell from 1.27 percent (95 percent CIs 1.12–1.35 percent) before August 2015 to 0.9 percent from August 2015 onwards (95 percent CIs 0.71–1.08 percent).

Measure 4/5: Postoperative DVT/PE and sepsis rates, actual and predicted rates based on underlying patient risk, by quarter, 2008–16/2009–16

Why does this measure matter?

Postoperative DVT/PE and sepsis are common complications of surgery that can cause serious harm to patients, and are potentially lethal. Unlike several other outcome measures used by the Commission there is good evidence that patients more at risk from DVT/PE and sepsis have been operated on in recent years, meaning that unadjusted rates can give a grossly misleading impression.

Measure definition:

Source: NMDS

Calculation by: Health Quality & Safety Commission

Previously published in: Quality and safety markers www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-july-september-2016

Presentation: Time series observed and predicted DVT/PE and sepsis numbers

Statistical test: Shewhart chart shift based on 8 points one side or other of mean on observed/expected ratio

Definition:

Observed DVT/PE:

Count of hospital events where DVT/PE (ICD 10 codes I260, I269, I801, I802, I803, I809, I828, I829, and O882) was present in the 2nd to 30th diagnostic field, and where:

- the patient was aged 18 and over
- an operating room or anaesthetic procedure was recorded
- the primary diagnosis field was *not* DVT/PE
- where the primary operation code is *not* interruption of vena cava (3480000,3533000, 3533001)
- the event was *not* in the major diagnostic category 14 (pregnancy, childbirth, puerperium).

Observed sepsis:

Count of hospital events where sepsis (ICD 10 A400, A401, A402, A403, A408, A409, A410, A411, A412, A413, A414, A4150, A4151, A4152, A4158, A418, A419, R571, R578, R579, T811 and T8142) was present in the 2nd to 30th diagnostic field, and where:

- the patient was aged 18 and over
- an operating room or anaesthetic procedure was recorded
- the primary diagnosis field was *not* sepsis, infection, immunocompromised state or cancer
- the event was *not* in the major diagnostic category 14 (pregnancy, childbirth, puerperium)
- length of stay was not less than two days.

Expected DVT/PE:

Sum of predicted likelihood of DVT/PE of between 0 (impossible) and 1 (certain) for all events where:

- the patient was aged 18 and over
- an operating room or anaesthetic procedure was recorded
- the primary diagnosis field was *not* DVT/PE
- where the primary operation code is *not* interruption of vena cava (3480000,3533000, 3533001)
- the event was *not* in the major diagnostic category 14 (pregnancy, childbirth, puerperium).

Predicted likelihood derived from logistic regression model using the following variables and weights based on a reference population of patients treated.

Odds ratio estimates

Effect	Point estimate	95 percent Wald confidence limits	
Diagnosis of DVT/PE in previous 5 years	5.362	4.858	5.919
High risk procedure	3.909	3.66	4.174
Surgery type open/both vs scopic	2.767	2.358	3.248
High risk primary diagnosis	2.351	2.187	2.528
Admission type acute	1.783	1.672	1.902
High risk Charlson Co-morbidity score in previous 12 months	1.595	1.497	1.7
Obese	1.544	1.326	1.799
300 or more beds in hospital of treatment	1.514	1.412	1.622
Admission to ICU in previous 12 months	1.501	1.28	1.759
European	1.257	1.166	1.356
Age 55 plus	1.224	1.142	1.31
Female	1.082	1.022	1.146

C statistic 0.805

Expected sepsis:

Sum of predicted likelihood of sepsis of between 0 (impossible) and 1 (certain) for all events where:

- the patient was aged 18 and over
- an operating room or anaesthetic procedure was recorded
- the primary diagnosis field was *not* sepsis, infection, immunocompromised state or cancer
- the event was *not* in the major diagnostic category 14 (pregnancy, childbirth, puerperium)
- length of stay was not less than two days.

Predicted likelihood derived from logistic regression model using the following variables and weights based on a reference population of patients treated.

Odds ratio estimates

Effect	Point estimate	95 percent Wald confidence limits	
Top three risky procedures	5.499	4.986	6.065
Admission type acute	3.139	2.841	3.467
High risk primary diagnosis	2.331	2.131	2.551
Age 50 plus	1.744	1.565	1.943
Admission to ICU in previous 12 months	1.672	1.433	1.951
Male	1.333	1.224	1.452
Max PCC level in previous 12 months	1.194	1.158	1.231
Deprived	1.193	1.087	1.31
269 or more beds in hospital of treatment	1.187	1.056	1.335
High risk Charlson Co-morbidity score in previous 12 months	1.179	1.05	1.322

C statistic 0.818

Location in main report: Figures 9–10, page 11

Measure 6: New Zealand hospital hand hygiene compliance rate 2012–16

Why does this measure matter?

Hand hygiene is the simplest, most effective way to prevent the spread of health care associated infections, making it a key patient safety issue within the health sector. International evidence is clear that improved hand hygiene practices help reduce health care associated infections, including antibiotic-resistant infections within hospitals.

Measure definition:

Source: Hand hygiene New Zealand compliance audit (observational audit of compliance with the WHO five moments for hand hygiene)

Calculation by: Health Quality & Safety Commission

Previously published in: Quality and safety markers www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-july-september-2016

Presentation: Time series – period three times per year

Statistical test: None

Definition:

Numerator:

Observed potential 'moments' for hand hygiene correctly followed

Denominator:

Observed potential 'moments' for hand hygiene

Further details on WHO 'moments' for hand hygiene and how these are audited can be found at www.handhygiene.org.nz

Location in main report: Figure 11, page 12

Interpretation:

The observed proportion of 'moments' where hand hygiene was correctly followed increased from 62 percent in 2012 to 83 percent between July and October 2016. This rate is based on over 63,000 observed moments across the country.

Measure 7: Staphylococcus aureus bacteraemia rate per 1000 bed-days by month

Why does this measure matter?

Since *Staphylococcus aureus* is the most common health care associated pathogen in most New Zealand hospitals, its rate of isolation and the number of patients with health care associated *S. aureus* bacteraemia per 1000 inpatient days is a good outcome measure to monitor the impact of improvements in hand hygiene practice.

Measure definition:

Source: Hand hygiene New Zealand collected from DHBs

Calculation by: Health Quality & Safety Commission

Previously published in: Quality and safety markers www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-july-september-2016/

Presentation: Run chart – period monthly

Statistical test: SPC shift denoted by six or more points one side of median

Definition:

Numerator:

Count of cases where there is isolation of *S. aureus* from one or more sets of blood cultures where:

- it was acquired during hospitalisation in a DHB facility and was not present or incubating at admission, and
- the first positive blood culture was collected ≥ 48 hours after admission or ≤ 48 hours after discharge

OR satisfies at least one of the following criteria:

- is a complication of an indwelling medical device
- occurs within 30 days of a surgical procedure
- an invasive medical, surgical or anaesthetic procedure related to the bloodstream infection is performed in a DHV facility within 48 hours before onset of infection
- is associated with neutropenia (1x10(9)/L) contributed to by chemotherapy at the time of the positive blood culture.

Denominator:

The number of inpatient bed-days in the month calculated on the midnight census method, excluding well babies mental health patients and boarders.

Location in main report: Figure 12, page 12

Interpretation:

S. aureus rates have remained more or less constant over the last five years at around 1.25 bacteraemia per 1000 bed-days.

Patient experience

Measure 8/9: Domain scores for in-hospital patient experience survey/individual question scores for in-hospital patient experience survey, New Zealand 2014–16

Why does this measure matter?

How patients experience care is an important part of the quality of care. Better experience, developing partnerships with patients, and patient- and family-centred care are linked to improved health, clinical, financial and satisfaction outcomes. The four domains cover critical aspects of experience: communication (between consumers and health care professionals), co-ordination (between different parts of the care system), partnership (how consumers and their families are involved in their care) and physical and emotional needs (how well these are met).

Measure definition:

Source: Inpatient experience survey

Calculation by: Health Quality & Safety Commission

Previously published in: Patient experience survey www.hqsc.govt.nz/our-programmes/health-quality-evaluation/publications-and-resources/publication/2716

Presentation: Time series – period quarterly

Statistical test: None

Definition:

1) Domain summary

Numerator: Sum of scores out of 10 for domain given by respondents, weighted by age and sex

Denominator: Number of respondents

2) Individual questions

Numerator: Count of responses in the most positive category, weighted by age and sex

Denominator: Number of respondents giving a relevant answer (ie, respondents responding 'N/A' or the like excluded)

Details of weighting methodology are set out in www.hqsc.govt.nz/assets/Health-Quality-Evaluation/PR/patient-experience-methodology-and-procedures-Jul-2014.pdf

Location in main report: Figures 15–16, page 18

Interpretation:

Domain scores have been consistently broadly positive at a national level. Individual questions have likewise had very consistent results, and most have large majorities of respondents giving the most positive answer. This is more marked as questions become more subjective.

Measure 10/11: Domain scores for primary care patient experience survey/individual question scores for primary care patient experience survey, New Zealand 2016

Why does this measure matter?

How patients experience care is an important part of the quality of care. Better experience, developing partnerships with patients, and patient- and family-centred care are linked to improved health, clinical, financial and satisfaction outcomes. The four domains cover critical aspects of experience: communication (between consumers and health care professionals), co-ordination (between different parts of the care system), partnership (how consumers and their families are involved in their care) and physical and emotional needs (how well these are met).

Measure definition:

Source: Primary care experience survey

Calculation by: Health Quality & Safety Commission

Previously published in: Not previously published

Presentation: Time series – period quarterly

Statistical test: None

Definition:

1) Domain summary

Numerator: Sum of scores out of 10 for domain given by respondents

Denominator: Number of respondents

2) Individual questions

Numerator: Count of responses in the most positive category

Denominator: Number of respondents giving a relevant answer

Location in main report: Figures 17–18, pages 20–21

Interpretation:

Domain scores have been consistently broadly positive at a national level. Individual questions have likewise had very consistent results, and most have large majorities of respondents giving the most positive answer. This is more marked as questions become more subjective.

Effectiveness

Measure 12: Occupied bed-days associated with people aged 75 and over who had two or more acute admissions within the year, per 1000 population aged 75 and over, 2008–16

Why does this measure matter?

Occupied bed-days used by older people admitted to hospital as an emergency twice or more in a year is a useful measure to show how well provision of primary, acute and long-stay care meets the need of the population. When there is too little care outside of hospital, or different parts of the system fail to work together effectively, people 'fall between the gaps' and are more likely to end up entering hospital as an emergency, and often have delayed discharges as there are insufficient well connected services outside the hospital.

Measure definition:

Source: NMDS

Calculation by: Health Quality & Safety Commission

Previously published in: Health quality and safety indicators www.hqsc.govt.nz/our-programmes/health-quality-evaluation/publications-and-resources/publication/741/

Presentation: Time series – period annual

Statistical test: None

Definition:

Numerator: Sum of length of stay field for all events with event type AC for cohort of patients where age at discharge is 75 plus, and where there were two or more AC admissions in the financial year. Mental health admissions are excluded

Denominator: 1000 population aged 75 and over for relevant year from Statistics New Zealand population projections

Location in main report: Figure 19, page 24

Interpretation:

The occupied beds per 1000 population for New Zealand fell from 1303 to 1143 between 2008–09 and 2015–16. The range between DHBs has remained consistently wide. In 2015–16 this was 751–1635.

Measure 13: Percentage of discharged from acute inpatient units where a community mental health contract with client participation was recorded in the seven days immediately following that discharge, national average and highest and lowest DHB values, 2009–16

Why does this measure matter?

A responsive community support system for people who have experienced an acute psychiatric episode requiring hospitalisation is essential to maintain clinical and functional stability and to minimise the need for hospital readmission. Service users leaving hospital after an admission with a formal discharge plan involving linkages with community services and supports are less likely to need early readmission. Research indicates that service users have increased vulnerability immediately following discharge, including higher risk for suicide.

Measure definition:

Source: MHA KPI19

Calculation by: MHA

Previously published in: Health Quality & Safety Commission health quality and safety indicators www.hqsc.govt.nz/our-programmes/health-quality-evaluation/publications-and-resources/publication/741/

Presentation: Time series – period annual

Statistical test: None

Definition:

Numerator: The number of these discharges for which the discharged service user participated in a contact with any one of the discharging organisation's in scope community mental health teams during the seven days following the day of discharge (excluding the day of discharge).

Denominator: The number of in-scope discharges from an organisation's in-scope acute inpatient units during the given financial year.

Location in main report: Figure 20, page 25

Interpretation:

The occupied beds per 1000 population for New Zealand fell from 1303 to 1143 between 2008–09 and 2015–16. The range between DHBs has remained consistently wide. In 2015–16 this was 751–1635.

Measures 14–23: Proportion of diabetes and bowel cancer patients receiving potentially recommended treatments, 2015

Why does this measure matter?

Variation in treatment patterns is inherently interesting and may be appropriate and warranted or unwarranted and driven by local preference or circumstances rather than evidence or patient wishes.

Interpretation:

All measures are shown as the range between the highest and lowest DHBs.

Location in main report: Figure 21, page 26

Individual measure definitions:

14: Proportion of people with diabetes aged 25 and over regularly receiving metformin or insulin in a year

Source: Ministry of Health Pharmaceutical Collection

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/DiabetesSF22Nov/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People with diabetes dispensed either metformin or insulin in three or four quarters in a year. Medicine codes included:

Metformin: 1794 Metformin hydrochloride

Insulin: 1192 Insulin lispro, 1648 Insulin neutral, 1649 Insulin isophane, 1655 Insulin zinc suspension, 3783 Insulin aspart, 3857 Insulin glargine, 3882 Insulin lispro with insulin lispro protamine, 3908 Insulin glulisine, 3982 Insulin aspart with insulin aspart protamine, 6300 Insulin isophane with insulin neutral

Denominator: Virtual Diabetes Register population identified as having diabetes

15: Proportion of people with diabetes having one or more HbA1c tests in a year

Source: Ministry of Health Laboratory collection

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/DiabetesSF22Nov/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People with diabetes recorded as having on or more HbA1c test (code BG2 – glucosylated haemoglobin, plasma HbA1c test) in a year

Denominator: Virtual Diabetes Register population identified as having diabetes

16: Proportion of People with diabetes having regular screening for renal disease

Source: Ministry of Health Laboratory Collection

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/DiabetesSF22Nov/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People with diabetes recorded as having one or more HbA1c test (code BP8– microalbumin, early morning urine) in a year

Denominator: Virtual Diabetes Register population identified as having diabetes

17: Proportion of people with diabetes regularly receiving ACE inhibitor or ARB in a year

Source: Ministry of Health Pharmaceutical Collection

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/DiabetesSF22Nov/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People with diabetes receiving and ACE inhibitor or ARB in three or four quarters in a year. Medicine codes included:

ACEI: 2794 benazepril, 2841 captopril, 2770 cilazapril, 2711 enalapril maleate, 2797 lisinopril, 2806 perindopril, 2772 quinapril, 1031 trandolapril

ACEI with diuretics: 2840 captopril with hydrochlorothiazide; cilazopril with hydrochlorothiazide; 2708 enalapril with hydrochlorothiazide; 2795 lisinopril with hydrochlorothiazide; 3749 quinapril with hydrochlorothiazide

ARB: 1254 candesartan cilexetil, 1061 losartan potassium

ARB with diuretics: 1068 losartan with hydrochlorothiazide; 3788 losartan with hydrochlorothiazide

Denominator: Virtual Diabetes Register population identified as having diabetes

18: Proportion of people diagnosed with bowel cancer following emergency presentation

Source: New Zealand Cancer Registry, NMDS, National Non-Admitted Patient Collection (NNPAC)

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/BowelCancerSF/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: No of people with bowel cancer presenting at ED in the two weeks prior to diagnosis

Includes 1) People admitted to hospital with health specialty code M05 (Emergency Medicine) and length of stay of 0 or 1 days and the event ended 0–14 days prior to bowel cancer diagnosis 2) people who had an outpatient visit (NNPAC record) with a Purchase_Unit code that started with 'ED' 0–14 days prior to bowel cancer diagnosis

Denominator: No of people with bowel cancer on the New Zealand Cancer Registry

19/20: Proportion of people with bowel cancer who received chemotherapy by disease extent at diagnosis

Source: New Zealand Cancer Registry, PHARMS

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/BowelCancerSF/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People with bowel cancer with disease extent D,E who received chemotherapy drugs include: oxaliplatin, capecitabine, 5-Fluorouracil (5FU), irinotecan

Includes chemotherapy received up to two years after diagnosis

Denominator: People with bowel cancer with disease extent D, E

21: Proportion of people with rectal cancer receiving pre-operative radiotherapy in public hospitals

Source: New Zealand Cancer Registry, NMDS, NNPAC

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/BowelCancerSF/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People receiving preoperative short or long course radiotherapy

Radiotherapy identified with NNPAC codes1

M50005 oncology – radiotherapy (pre July 2011 code)

M50025 oncology – radiotherapy, external beam megavoltage (linac) (July 2011 onwards)

Includes people treated up to 20 weeks before surgery (to account for post-RT wait for surgery)

Denominator: Number of people registered with rectal cancer and having curative surgery in a public hospital Includes people diagnosed with rectal cancer (ICD-10AM code C20) who have curative surgery up to one year after diagnosis

22: Proportion of people receiving long-course radiotherapy (pre- or postoperatively) who also received concurrent chemotherapy in public hospitals

Source: New Zealand Cancer Registry, NMDS, NNPAC

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/BowelCancerSF/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: Number of people with rectal cancer who had both curative surgery and long course radiotherapy in a public hospital also having concurrent chemotherapy

Chemotherapy drugs dispensed during, or up to 6 weeks prior to, radiotherapy include: oxaliplatin, capecitabine, 5-Fluorouracil (5FU), irinotecan

Denominator: Number of people with rectal cancer who had both curative surgery and long course radiotherapy in a public hospital

Includes people who have curative surgery up to one year after diagnosis

Radiotherapy identified with NNPAC codes

M50005 oncology – radiotherapy (pre July 2011 code) 1

M50025 oncology – radiotherapy, external beam megavoltage (linac) (July 2011 onwards)

Long-course defined as 20 or more treatments. Includes people treated up to 20 weeks before surgery (to account for post-radiotherapy wait for surgery), and starting radiotherapy up to 12 weeks after surgery.

23: Proportion of people with rectal cancer receiving preoperative radiotherapy who received short course pre-operative radiotherapy in public hospitals

Source: New Zealand Cancer Registry, NMDS, NNPAC

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/BowelCancerSF/atlas.html

Presentation: Inter-DHB range

Statistical test: N/A

Definition:

Numerator: People with rectal cancer receiving short course radiotherapy prior to curative surgery in a public hospital

Short course is defined as 5–9 treatments. There should not be an overlap between short course and long course, or short course and chemotherapy

Denominator: People with rectal cancer receiving both curative surgery and short or long course radiotherapy in a public hospital

Includes people diagnosed with rectal cancer (ICD-10AM code C20) who have curative surgery up to one year after diagnosis

Radiotherapy identified with NNPAC codes

M50005 oncology – radiotherapy (pre July 2011 code)

M50025 oncology – radiotherapy, external beam megavoltage (linac) (July 2011 onwards)

Short course is defined as 5–9 treatments. There should not be an overlap between short course and long course, or short course and chemotherapy.

Includes people treated up to 20 weeks before surgery to account for post-radiotherapy wait for surgery).

Equity

Measure 24: Mortality from conditions amenable to health care per 100,000 population, aged 0–74 by ethnicity, 2013

Why does this measure matter?

About half the deaths under 75 years of age in New Zealand are classified as amenable according to the current codelist. That is, they are 'untimely, unnecessary' deaths from causes amenable to health care. There remains significant variation between different ethnic groups.

Measure definition:

Source: Ministry of Health Mortality Collection and Statistics New Zealand population estimate

Calculation by: Ministry of Health

Previously published in: nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures

Presentation: Cross sectional comparison, Māori, Pacific peoples, other, 2009–13

Statistical test: None

Definition:

Numerator: Deaths under age 75 years ('premature' deaths) from causes classified as amenable to health care as below.

Group	Condition	ICD-10-AM-VI	Notes
Infections	Pulmonary tuberculosis	A15–A16	
	Meningococcal disease	A39	
	Pneumococcal disease	A40.3, G00.1, J13	
	Hepatitis C (HCV)	B17.1, B18.2	New
	HIV/AIDS	B20–B24	
Cancers	Stomach cancer	C16	
	Rectal cancer	C19–C21	
	Bone and cartilage cancer	C40–C41	
	Melanoma of skin	C43	
	Female breast cancer	C50	
	Cervical cancer	C53	
	Uterine cancer	C54, C55	New
	Prostate cancer	C61	
	Testis cancer	C62	
	Thyroid cancer	C73	
	Hodgkin lymphoma	C81	
	Acute lymphoblastic leukaemia	C91.0	Ages 0–44

Maternal and infant disorders	Complications of pregnancy	O00–O96, O98–O99	
	Complications of perinatal period	P01–P03, P05–P94	
	Cardiac septal defect	Q21	
Cardiovascular disorders and diabetes	Diabetes	E10–E14	
	Valvular heart disease	I01, I05–I09, I33–I37	
	Hypertensive diseases	I10–I13	
	Coronary heart disease	I20–I25	
	Pulmonary embolism	I26	
	Atrial fibrillation & flutter	I48	New
	Heart failure	I50	
	Cerebrovascular diseases	I60–I69	
Other chronic disorders	Chronic obstructive pulmonary disease (COPD)	J40–J44	
	Asthma	J45–J46	
	Cholelithiasis	K80	
	Renal failure	N17–N19	
	Peptic ulcer disease	K25–K27	
Injuries	Land transport accidents excluding trains	V00, V01–V04, V06–V14, V16–V24, V26–V34, V36–V44, V46–V54, V56–V64, V66–V74, V76–V79, V80.0–V80.5, V80.7–V80.9, V82–V86, V87.0–V87.5, V87.7–V87.9, V88.0–V88.5, V88.7–V88.9, V89, V98–V99	
	Accidental falls on same level	W00–W08, W18	
	Fire	X00–X09	
	Suicide	X60–X84	

Denominator: People aged under 75 years, projected 2011 population

Age standardised to WHO world standard population

Full details on method available from

nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures

Location in main report: Figure 22, page 27

Interpretation:

Amenable mortality rates for 2013 are significantly higher for Māori (223 deaths per 100,000), and Pacific peoples (196) than other populations (81).

Measure 25: Proportion of responders who experienced one or more types of unmet need for health care in the past 12 months, 2011–15

Why does this measure matter?

Access to health care is fundamental to its quality and plays a major role in determining equity. The New Zealand Health Survey crucially takes a population-based view rather than a health consumer view. This means that it is uniquely able to consider the experiences of those who are unable to access health care for any reason.

Measure definition:

Source: Ministry of Health New Zealand Health Survey

Calculation by: Ministry of Health

Previously published in: https://minhealthnz.shinyapps.io/nz-health-survey-2015-16-annual-update

Presentation: Time series by year

Statistical test: Difference in proportions, p value

Definition:

Numerator: Respondents reporting experiencing one or more types of unmet need for primary health care in the past 12 months based upon questions:

A2.06   In the past 12 months, has there been a time when you wanted to see a GP, nurse or other health care worker at your usual medical centre within the next 24 hours, but they were unable to see you? Yes/No

A2.33   In the past 12 months, was there a time when you had a medical problem but did not visit a GP because of cost? Yes/No

A2.34   In the past 12 months, was there a time when you had a medical problem but did not visit a GP because you had no transport to get there? Yes/No

A2.59   In the past 12 months, was there a time when you had a medical problem outside regular office hours but did not visit an after-hours medical centre because of cost? Didn't have a medical problem outside regular office hours/Yes, didn't go because of cost/No

A2.60   In the past 12 months, was there a time when you had a medical problem outside regular office hours but did not visit an after-hours medical centre because you had no transport to get there? Yes, didn't go because I had no transport to get there/No

Denominator: Respondents to health survey aged 15 and over

www.health.govt.nz/publication/indicator-interpretation-guide-2015-16-new-zealand-health-survey

Location in main report: Figure 23, page 28

Interpretation:

Proportion of respondents reporting one or more types of unmet need increased from 26.6 percent in 2011–12 to 28.8 percent (difference 2.2 percent p=0.01).

Measure 26: Ratio of proportion of responders experiencing unmet needs by group, 2011–15

Why does this measure matter?

Access to health care is fundamental to its quality and plays a major role in determining equity. The New Zealand Health Survey crucially takes a population based view rather than a health consumer view. This means that it is uniquely able to consider the experiences of those who are unable to access health care for any reason.

Measure definition:

Source: Ministry of Health New Zealand Health Survey

Calculation by: Ministry of Health

Previously published in: https://minhealthnz.shinyapps.io/nz-health-survey-2015-16-annual-update/

Presentation: Ratio of percentages

Statistical test: Ratio compared with 1.00 (identical proportion of respondents in both sub groups), 95 percent confidence intervals

Definition:

Numerator: Proportion of sub group reporting experiencing one or more types of unmet need for primary health care in the past 12 months based upon questions

Denominator: Proportion of respondents not in sub group/proportion of respondents in control group reporting experiencing one or more types of unmet need for primary health care in the past 12 months based upon questions

Adjustment variables: to avoid confounding by different demographic structures of different sub groups, the following variables are adjusted for:

Men versus women: age

Māori versus non-Māori, Pacific versus non-Pacific, Asian versus non-Asian: age, sex

Most deprived versus least deprived: age, sex, ethnic group

www.health.govt.nz/publication/indicator-interpretation-guide-2015-16-new-zealand-health-survey

Location in main report: Figure 24, page 28

Interpretation:

Men are less likely to report barriers to access than women (ratio 0.64; 95 percent CI 0.59–0.69)

Māori are more likely to report barriers to access than non-Māori (1.38; 1.28–1.49)

Pacific are as likely to report barriers to access as non-Pacific (1.13; 1.00–1.28)

Asian are less likely to report barriers to access than non-Asian (0.71; 0.62–0.83)

Most deprived are more likely to report barriers to access than least deprived (1.61; 1.37–1.89)

Measure 27: Responses to in-hospital patient experience survey questions, Māori versus non-Māori

Why does this measure matter?

How patients experience care is an important part of the quality of care. Better experience, developing partnerships with patients, and patient- and family-centred care are linked to improved health, clinical, financial and satisfaction outcomes. The four domains cover critical aspects of experience: communication (between consumers and health care professionals), co-ordination (between different parts of the care system), partnership (how consumers and their families are involved in their care) and physical and emotional needs (how well these are met).

Measure definition:

Source: Inpatient experience survey

Calculation by: Health Quality & Safety Commission

Previously unpublished

Presentation: graphic showing which questions showed significant and consistent differences in the proportion of Māori and non-Māori respondents giving the most positive answer.

Statistical test:

Significance – results for 10 iterations of survey (August 2014–November 2016) combined, difference in proportions 95 percent CIs

Consistency - sign test, each iteration taken as a separate instance – 9 or 10 out of 10 instances in a consistent direction interpreted as consistency

Numerator: Count of responses in the most positive category, weighted by age and sex

Denominator: Number of respondents giving a relevant answer (ie, respondents responding 'N/A' or the like excluded)

Details of weighting methodology are set out in www.hqsc.govt.nz/assets/Health-Quality-Evaluation/PR/patient-experience-methodology-and-procedures-Jul-2014.pdf

Location in main report: graphic, page 29

Interpretation:

Results underlying graphic are:

	Percentages (95 CIs)	Instances lower
Māori consumers are *consistently* and *significantly* less likely to:		
Always get answers they could understand when they had important questions to ask a doctor	73 percent (70–75) vs 77 percent (76–77)	9/10
Have their condition explained to them in a way they could *completely* understand	69 percent (66.3–70.9) vs 72 percent (71.3–72.8)	9/10
Always feel that doctors listened to what they had to say	73 percent (71–75) vs 78 percent (77–79)	10/10
Always feel that nurses listened to what they had to say	76 percent (73.7–78.2) vs 79 percent (78.4–79.8)	9/10
Never get conflicting information from different staff members	65 percent (62–67) vs 72 percent (71–72)	10/10
Definitely think that hospital staff did everything they could to control their pain	80 percent (78–82) vs 84 percent (83–84)	9/10
Believe their hospital room or ward was *very* clean	69 percent (66–71) vs 72 percent (72–73)	10/10
Always feel staff treated them with respect and dignity while they were in the hospital	83 percent (81–85) vs 88 percent (88–89)	10/10
Māori consumers *significantly* less likely to:		
Always feel that other members of the health care team listened to what they had to say	75 percent (72.5–77.6) vs 79 percent (77.8–79.4)	6/10
Always feel staff treated them with kindness and understanding while they were in the hospital	82 percent (80–84) vs 86 percent (85–86)	8/10
Māori consumers are *consistently* and *significantly* more likely to:		
Definitely be told about what medication side effects to watch for when they went home	55 percent (52–57) vs 48 percent (47–48)	0/10
Always have family/whānau included in discussions about their care	59 percent (56–61) vs 55 percent (54–56)	1/10

Measures 28–30: Diabetes measures standardised rate ratios

Why does this measure matter?

How patients experience care is an important part of the quality of care. Better experience, developing partnerships with patients, and patient- and family- centred care are linked to improved health, clinical, financial and satisfaction outcomes. The four domains cover critical aspects of experience: communication (between consumers and health care professionals), co-ordination (between different parts of the care system), partnership (how consumers and their families are involved in their care) and physical and emotional needs (how well these are met).

Measure definition:

28: SRR proportion of people with diabetes regularly receiving ACE inhibitor or ARB in a year

Base measure as measure 17 above

29: SRR proportion of people with diabetes having one or more HbA1c tests in a year

Base measure as measure 15 above

30: SRR proportion of medical surgical bed-days for people with diabetes

Source: NMDS

Calculation by: Health Quality & Safety Commission

Previously published in: www.hqsc.govt.nz/assets/Health-Quality-Evaluation/Atlas/DiabetesSF22Nov/atlas.html

Statistical test: Difference in proportion 95 percent CIs

Numerator: Number of bed-days occupied by people with diabetes, medical and surgical discharges

Denominator: Total number of occupied bed-days for medical and surgical admissions

All measures

Standardisation: All measures directly age standardised using 2001 NZ Māori census population using eight age groups (0–9, 10–19, etc, 70+)

Rate ratio calculation: Ethnic groups – specific ethnic group standardised rate divided by reference group (European/Other ethnic group)

Socioeconomic – high deprived (NZDep quintile 5 – most deprived) standardised rate divided by reference group (NZDep quintile 1 – least deprived)

Statistical test – 95 percent CIs of ratio do not overlap 1.0

Presentation: Standardised rate ratios for Māori, Pacific and Asian populations and high deprived quintile for all three measures, all New Zealand

Location in main report: Figure 25, page 31

Interpretation

Presented with 1.00 as a reference point for graph, hence ratios of less than 1.0 have bars in opposite direction.

A high-level view

Measure 31: Mortality from conditions amenable to health care per 100,000 population, aged 0–74, 2000–13

Why does this measure matter?

About half the deaths under 75 years of age in New Zealand are classified as amenable according to the current codelist. That is, they are 'untimely, unnecessary' deaths from causes amenable to health care.

Measure definition:

Source: Ministry of Health Mortality Collection and Statistics New Zealand population estimate

Calculation by: Ministry of Health

Previously published in: nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures

Presentation: Time series, period annual, 2000–13

Statistical test: None

Definition:

Numerator: Deaths under age 75 years ('premature' deaths) from causes classified as amenable to health care as below.

Group	Condition	ICD-10-AM-VI	Notes
Infections	Pulmonary tuberculosis	A15-A16	
	Meningococcal disease	A39	
	Pneumococcal disease	A40.3, G00.1, J13	
	Hepatitis C (HCV)	B17.1, B18.2	New
	HIV/AIDS	B20-B24	
Cancers	Stomach cancer	C16	
	Rectal cancer	C19–C21	
	Bone and cartilage cancer	C40–C41	
	Melanoma of skin	C43	
	Female breast cancer	C50	
	Cervical cancer	C53	
	Uterine cancer	C54, C55	New
	Prostate cancer	C61	
	Testis cancer	C62	
	Thyroid cancer	C73	
	Hodgkin lymphoma	C81	
	Acute lymphoblastic leukaemia	C91.0	Ages 0-44

Maternal and infant disorders	Complications of pregnancy	O00–O96, O98–O99	
	Complications of perinatal period	P01–P03, P05–P94	
	Cardiac septal defect	Q21	
Cardiovascular disorders and diabetes	Diabetes	E10–E14	
	Valvular heart disease	I01, I05–I09, I33–I37	
	Hypertensive diseases	I10–I13	
	Coronary heart disease	I20–I25	
	Pulmonary embolism	I26	
	Atrial fibrillation & flutter	I48	New
	Heart failure	I50	
	Cerebrovascular diseases	I60–I69	
Other chronic disorders	Chronic obstructive pulmonary disease (COPD)	J40–J44	
	Asthma	J45–J46	
	Cholelithiasis	K80	
	Renal failure	N17–N19	
	Peptic ulcer disease	K25–K27	
Injuries	Land transport accidents excluding trains	V00, V01–V04, V06–V14, V16–V24, V26–V34, V36–V44, V46–V54, V56–V64, V66–V74, V76–V79, V80.0–V80.5, V80.7–V80.9, V82–V86, V87.0–V87.5, V87.7–V87.9, V88.0–V88.5, V88.7–V88.9, V89, V98–V99	
	Accidental falls on same level	W00–W08, W18	
	Fire	X00–X09	
	Suicide	X60–X84	

Denominator: People aged under 75 years, projected 2011 population

Age standardised to WHO world standard population

Full details on method available from

nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures

Location in main report: Figure 1, page 5

Measure 32/33: Age standardised disability- adjusted life years (DALYs) lost per 1000 population, high-income countries, 2015; Change in age standardised disability-adjusted life years (DALYs) lost per 1000 population, high-income countries, 2000–15

Why does this measure matter?

DALYs are a broad measure of outcome which considers the quality of a person's life as well as its length.

Measure definition:

Source: Global Burden of Disease study, Institute of Healthcare Metrics and Evaluation, University of Washington www.healthdata.org/gbd

Calculation by: Global Burden of Disease Study

Previously published in: vizhub.healthdata.org/gbd-compare

Presentation: International comparison, high-income nations

Statistical test: 95 percent confidence intervals

Definition:

Numerator: Years of life lost plus years of life disabled

Denominator: Population, all ages

Location in main report: Figures 2–3, page 6, Figure 5, page 7

Measure 34: Expenditure on health care per capita, US$ purchasing power parity, 2014

Why does this measure matter?

Expenditure per capita on health care is a useful starting point to understand the costs and value of any given system

Measure definition:

Source: OECD

Calculation by: OECD

Previously published in: stats.oecd.org/Index.aspx?DataSetCode=SHA

Presentation: International comparison, high-income nations

Statistical test: None

Definition:

Numerator: All health care expenditure, regardless of source as reported by OECD nations to WHO Global Health Expenditure Database converted into US$

Denominator: Population, all ages

Location in main report: Figure 4–5, page 7

New Zealand Government