An ethnic inequality indicator framework for Waitemata DHB

Final report

Prepared by: Jamie Hosking, Public Health Physician

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Contents

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The presentation of inequality indicators according to the 'gap' compared with the total population draws on analyses by Counties Manukau DHB, as does the use of symbols to summarise DHB performance. This previous work by Counties Manukau DHB is gratefully acknowledged.

The author takes full responsibility for any errors or omissions in this report.

Executive summary and list of indicators

List of indicators

Table 1: A summary assessment of Waitemata DHB performance against each ethnic inequality indicator

Indicator	Further details	Result
1. Life expectancy		☑
2. Housing	Assessments by Warm 'n' Well programme	☑
3. Tobacco use	Adult current smoker prevalence	🕒
4. PHO non-enrolment	Proportion not enrolled with PHO	☑
5. Breast screening	Proportion not up to date with breast screening	☑
6. Cardiovascular risk assessment and management	Proportion of eligible population risk assessed	🕒
7. Diabetes	Proportion of the population estimated to have diabetes accessing free annual checks	☑
8. Child and youth asthma	Asthma admission rates	☒
9. DHB staff ethnicity	Comparison with patient ethnicity	☒
10. Invasive cardiovascular procedures	Procedure rates (combined invasive cardiovascular procedures)	☑
11. DNA rates	DNA rates for outpatient clinics	☒

DNA: Did Not Attend

Symbols used to represent performance results:

Progressing well ☑
Some progress ☑
No progress or worsening ☒
Not yet sufficient time to judge 🕒

Note performance is generally assessed on the basis of whether inequalities are improving or worsening over time, rather than on whether inequalities exist or not for a given indicator.

Recommendations

The recommendations are that Waitemata DHB:

1. Takes measures to monitor and improve ethnicity data collection within the DHB. These could include audits of PHO registers; or other measures to improve ethnicity data collection forms, processes and training
2. Requests, either via the Ministry of Health or directly, that Statistics NZ provide DHB-level population projections and estimates for additional ethnic categories, especially for Asian populations, as monitoring health status in different ethnic groups cannot occur without good denominator information
3. Considers the processes needed for ongoing data collection, analysis and interpretation for this indicator set
4. Considers how best to assign responsibility for each indicator in order to ensure that action is taken to reduce inequalities, guided by indicator results
5. Periodically reviews this indicator set as new knowledge comes to hand, such as on the public health impact of indicators, the availability of new data sources, or changing levels of health inequality
6. Considers undertaking further work to identify a usable mental health indicator
7. Considers, in the future, developing indicators for other dimensions of inequality, especially socio-economic status, to guide action on those inequalities
8. Considers analysing and presenting other health performance indicators, such as the Ministry of Health's Health Targets, in terms of magnitude of inequality (where data is available). The 'gap' approach used in this report provides one potential method for doing this for ethnic inequalities
9. Considers undertaking further work to identify appropriate ways to address different levels of 'need' for invasive cardiovascular procedures in different ethnic groups.

1. Introduction

Reducing health inequalities is one of the objectives of the New Zealand Public Health and Disability Act 2000, under which DHBs were established. Reflecting this, the New Zealand Health Strategy lists reducing inequalities as one of its goals, particularly for Maori, Pacific peoples and people with lower socio-economic status.

This indicator set focuses on ethnic inequalities. Other dimensions of inequality, such as socio-economic status, are also important, but require different approaches to data collection and analysis, as well as intervention. Accordingly, it was decided that this indicator set should focus on ethnic inequalities. However, assessing other inequalities, such as those related to socio-economic status, geography or rurality, would be useful in the future.

While many current DHB and national health indicators provide for subgroup analyses by ethnicity, equity is not the primary focus of those indicators.

Note that inequalities may occur or arise at several different levels, including:

1. Differential access to the determinants of health (e.g. one group having a higher standard of housing than another group)
2. Differential access to health care (e.g. fewer doctors in poorer parts of town)
3. Differences in the quality of care received (e.g. one group being offered treatment less often than another group) (Reid and Robson 2007; Jones 2001; examples added)

Thus, this project aims to develop a set of ethnic inequality indicators across a range of DHB activities that may be used to assess DHB performance on reducing inequalities.

This report is intended to provide a framework for ongoing performance monitoring. It is not intended to be a final, stand-alone assessment of inequalities in the DHB. It is suggested that ongoing reporting of ethnic inequalities include a list of indicators (as in the executive summary), section 6.2 (tables of indicators) and Appendix 1 (data dictionary).

The structure of the report is as follows: it first outlines the conceptual frameworks on which this indicator set was based, and the methods used to develop the indicator set. It then discusses the importance of demographic factors in assessing ethnic inequalities, and summarises the results of the literature review. Section 6 describes the methods according to which indicator results have been presented, and provides result tables for all indicators. Finally, there is a discussion of this indicator set and a set of appendices.

2. Conceptual frameworks

The following conceptual frameworks are relevant to this set of indicators:

Levels of racism (Jones 2000)

1. Institutionalised

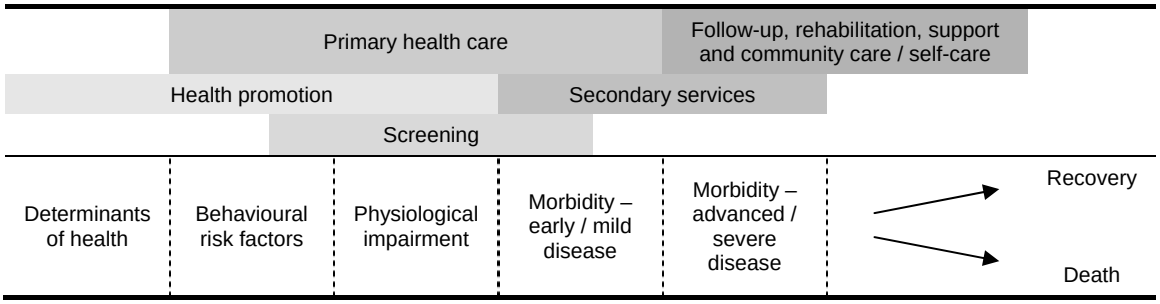
a. Differential access to the goods, services, and opportunities of society by race

2. Personally mediated
    a. Prejudice and discrimination, where prejudice means differential assumptions about the abilities, motives, and intentions of others according to their race, and discrimination means differential actions toward others according to their race
3. Internalised
    a. Acceptance by members of the stigmatised races of negative messages about their own abilities and intrinsic worth

Pathways to inequalities (Reid and Robson 2007, based on Jones 2001)

1. Differential access to the determinants of health
2. Differential access to health care
3. Differences in the quality of care received

Relationship between causal pathway for illness and health services (adapted from the Waitemata DHB CVD framework)



Note: there may be more overlap between services than shown in this simplified diagram

3. Methods

The following methods were set out at the beginning of the indicator selection process.

Search strategy for identifying potential indicators

- Key informant interviews
- Review of key DHB resources (including DSP, DAP, HNA)
- MEDLINE search
- Internet search
- Other sampling frames as identified during project, as appropriate (e.g. EQUIDAD health equity mailing list from World Health Organisation)

Appraisal process for potential indicators

- Each potential indicator must meet all of the following four characteristics to some degree:

1. Modifiability (by the DHB). Some factors (e.g. income and employment) have powerful influences on health, but the DHB has little influence over these factors, so that they may not be appropriate indicators of DHB performance. Where there are multiple factors influencing an indicator, it may also be difficult to attribute any changes to the DHB's actions
2. Importance (public health impact, DHB strategic priorities)
3. Data quality (availability, validity etc.)
4. Inequality (size of inequality, evidence that inequalities exist)

- Balance across the following dimensions:
  - Stage in health service: access / process / outcome
  - Stage in causal pathway: determinants & risk factors / physiological change & early disease / late disease / recovery & rehabilitation
  - Service types: health promotion / primary / secondary & tertiary / follow-up
- There was also an iterative review process by the Health Information for Action (HIAT) team, Waitemata DHB, during the development of these indicators

4. Demography and inequalities

The ethnic breakdown of the Waitemata DHB and NZ populations are shown in Table 2, with further information for the Waitemata DHB Asian population shown in Table 3.

Table 2: 2006 Census ethnicity, WDHB vs NZ population

	WDHB		NZ	
	Number	**%**	**Number**	**%**
European	276,636	57.4%	2,320,059	57.6%
Maori	42,603	8.8%	563,184	14.0%
Pacific	30,378	6.3%	226,200	5.6%
Asian	66,255	13.8%	340,794	8.5%
New Zealander	38,751	8.0%	374,868	9.3%
Other	26,988	5.6%	202,839	5.0%
Total	**481,611**	**100.0%**	**4,027,944**	**100.0%**

Source: Walker and Martin 2007

Table 3: 2006 Census ethnicity within the Asian population for WDHB

	Number	**%**
Chinese	27,330	39.6%
Indian	15,015	21.8%
Korean	12,210	17.7%
Other Asian	14,376	20.9%
Total responses	**68,931**	**100.0%**

Source: Walker and Martin 2007. Note total is for number of responses, not population, as some people reported more than one ethnic group

Different ethnic groups within NZ (and within Waitemata DHB) have very different population age structures (Figure 1, Figure 2). These differences need to be taken into account when selecting and interpreting different measures of inequality. For example, differing population age structures mean that age-standardised rates are needed to compare rates of disease in different ethnic groups.

Factors influencing population age structure include birth patterns, mortality patterns and migration. Mortality patterns differ by ethnicity and are an important ethnic inequality in themselves, as represented in the life expectancy indicator later in this report.

Migration has important effects on measures such as life expectancy. For instance, migration (e.g. of students) makes the shape of the population pyramid for the Asian population very different from that of other groups, particularly among young adults. This makes it problematic to estimate life expectancy. As migration policy typically favours healthier people, the recently migrated population is a highly selected group that is relatively healthy. As a result, life expectancy for the Asian population would be expected to be high, but this more strongly reflects migration policy than DHB performance.

Changes in the proportions of the population belonging to different ethnic groups affect the analysis of health data by ethnicity. In particular, the increasing Asian population in NZ (along with important differences in health between Asian subgroups[1]) means that analysis by Maori, Pacific and 'Other' groups may no longer give sufficiently detailed information for a good assessment of ethnic inequalities.

Calculating ethnic inequalities requires ethnicity information for both numerators and denominators. Denominator information is relatively easy to access for census years (e.g. 2001, 2006) as population counts are known for these years, with ethnicity collected according to the 'gold standard' census method. However, for years in between censuses, data is only available as population estimates or projections. Typically, Statistics NZ has produced projections for DHBs, but only for the ethnic categories of Maori, Pacific and 'Other'. This limits the ability to produce inequality indicators for more detailed ethnic groups for non-census years, even when detailed ethnicity data is available for the numerator.

[1] Ministry of Health 2006a

WDHB – Population Pyramids – Census 2006

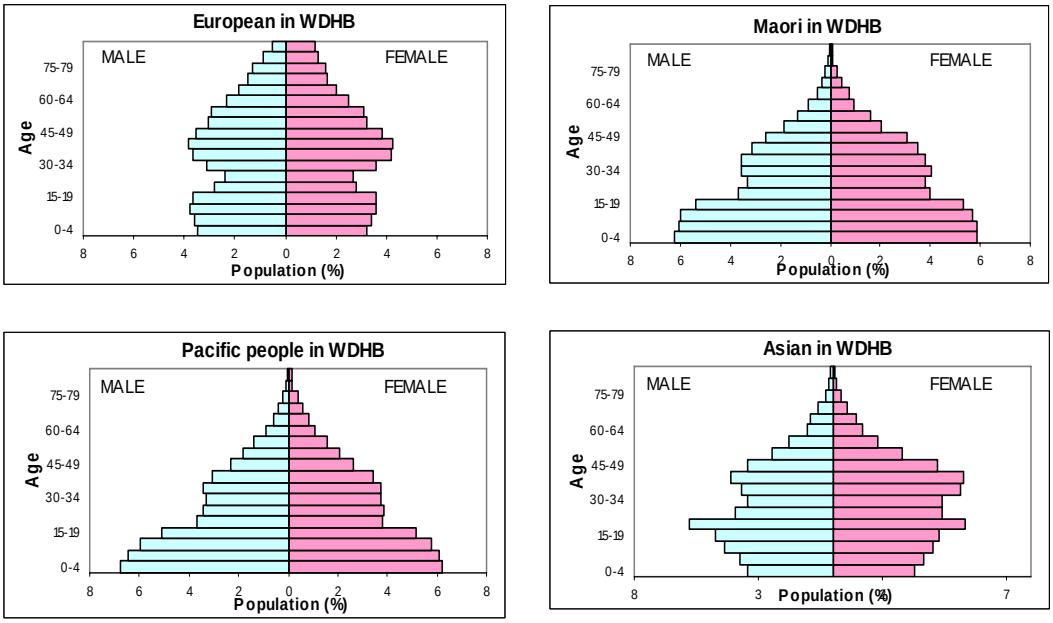


Figure 1: Comparison of Waitemata DHB population pyramids for four ethnic groups, Census 2006

NZ – Age Structure – Census 2006

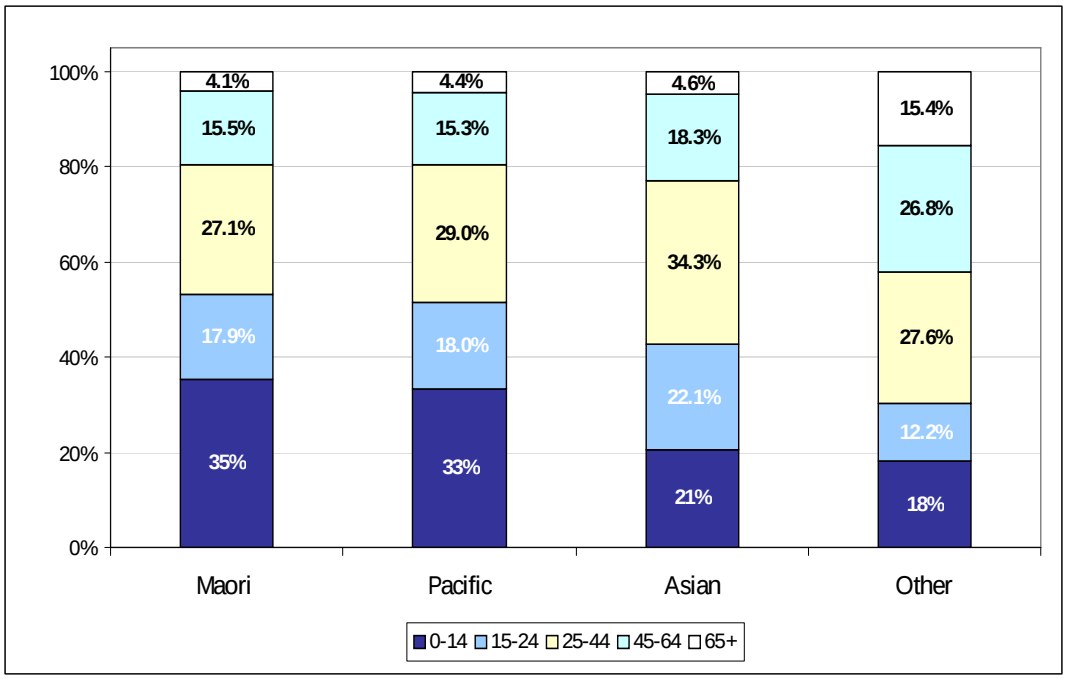


Figure 2: Different age structures for four ethnic groups, NZ population, Census 2006

5. Literature review

A MEDLINE search found little reported work on indicators of ethnic inequality.

5.1 Principles informing inequality indicators

The literature review identified a range of recommendations regarding the principles that ought to inform the development of inequality-focused indicators, targets and monitoring.

It has been recommended that equity-based targets and measures focus not only on 'downstream' health outcomes, but also more 'upstream' risks to health.[2] This may be achieved by ensuring that the monitoring of equity in health and healthcare addresses three areas:

1. How levels of health vary across different social groups
2. How levels of key determinants of health vary across different social groups
3. How these variations/gaps have changed over time[3]

There are a range of alternative approaches that may be used to analyse and present inequalities. For instance, it has been noted that both absolute and relative differences between groups are useful ways to present inequalities.[4,5] Regression-based measures are useful for ordinal groups, e.g. socioeconomic groups, as this allows information from all categories to be taken into account.[6,7] However, this is not applicable to non-ordinal groups such as ethnicity.

It has been recommended that the group with the poorest outcome be compared not with the total population but with the group with the best outcome, on the basis that the level of health enjoyed by the group with the best outcome reflects what is possible for all groups.[8] However, there are some disadvantages to this approach, such as the potential need to change the comparison group for each indicator analysis. The goal of removing the inequality gap for disadvantaged populations leads to the same outcome (i.e. no inequality) regardless of whether the comparison is total population or the most advantaged group. Nevertheless, it is important to consider which comparison group has been used when interpreting results.

Two types of equity targets have been differentiated:

1. 'Symbolic' targets, which are particularly useful for motivating change
2. 'Action-oriented' targets, which may be used to monitor progress towards policy goals

[2] Whitehead et al 1998
[3] Braveman 2003
[4] Braveman 2003
[5] Ministry of Health 2001a
[6] Braveman 2003
[7] Blakely et al 2007
[8] Braveman 2003

There may be value in employing elements of both approaches.[9]

5.2 Examples of inequality indicators

In the USA, an annual National Healthcare Disparities Report[10] tracks disparities across different social groups, including ethnic groups. It uses a large set of core measures, some of which cover access and some of which cover quality of care. These measures focus on health care rather than other determinants of health. One of the main presentation techniques is to illustrate the number of measures where disparities are increasing, stable or decreasing for each ethnic group.

Healthy People 2010, also from the USA, covers a wider range of measures, including many more upstream indicators.[11] Its 'midcourse review' included some findings on ethnic disparities. This too includes a large number of indicators, and it too assesses the number of measures where disparities are increasing, stable or decreasing for each ethnic group.

Massachusetts General Hospital produced a document with guidance on how to create a 'hospital equity report', covering ethnicity, race, language and socioeconomic status. Several presentation techniques were discussed, though none that specifically quantified whether inequalities were increasing or decreasing. Analyses were undertaken by ethnicity of several hospital quality measures, presented with the title 'The Massachusetts General Hospital Disparities Dashboard'.[12]

England has a 'basket of health inequalities'.[13] However, this compares geographic regions (primary care trusts) rather than different ethnic groups. Ireland has a set of 'All-Ireland Health and Social Care Indicators', but again this focuses on geographic regions, though there are also some comparisons by deprivation and rurality.

The Eurothine project ('Tackling health inequalities in Europe: an integrated approach') comprehensively reviewed health inequalities on the basis of country, gender and other factors, but did not provide a set of indicators or focus on ethnic inequalities.[14]

Internet searches and key informant discussions identified little published work on ethnic indicators in NZ. Counties Manukau DHB have produced a document assessing DHB performance using indicators, of which some assess inequalities. [15] Of particular note is an indicator of the 'life expectancy gap' and an indicator for their 'healthy housing' programme, both of which are relevant to Waitemata DHB.

Overall, the CMDHB approach, which involves presenting time trends in the size of the inequality 'gap' (e.g. for life expectancy) appears to be the most

[9] Whitehead et al 1998
[10] Agency for Healthcare Research and Quality 2008
[11] U.S. Department of Health and Human Services 2006
[12] Weinick et al 2007, Weinick et al 2008, Massachusetts General Hospital Quality and Safety 2008.
[13] Fitzpatrick and Jacobson 2003
[14] Erasmus University Medical Centre 2007
[15] Jackson 2006

useful way to present ethnic inequality indicator results in a way that allows the assessment of progress on reducing inequalities, rather than the approaches taken in the US reports.

A number of indicators also already exist in Waitemata DHB documents, summarised in the DAP section on DHB performance. While these are not currently presented in terms of 'gap' measures, many (though not all) include data by ethnicity and could thus provide data that could be used for ethnic inequality monitoring.

6. Presentation of indicators

6.1 Method for presenting indicators

Total population has been used as the comparison group for calculating inequalities, as this enables a consistent comparison group to be used across time points and different indicators. If the 'Other' group were used as a comparison group, e.g. for Maori and Pacific ethnicities, in principle this would need to change if the Other ethnic group became relatively disadvantaged (though it is acknowledged that in practice this is unlikely in the near future). Furthermore, the nature of the 'Other' group changes depending on the number of ethnic groups present in the analysis. Nevertheless, it is acknowledged that arguments do exist for using the 'Other' group, or the most advantaged group, as the comparison.

It is also possible that the proportion of the total population made up of disadvantaged groups may grow over time. If this occurred, and average health status remained the same for each group, the apparent size of the inequality (compared with the total population) would decrease. This would be due to a reduction in health status for the total population, despite no change in the health status of each individual ethnic group. This is a further potential disadvantage of using total population as the comparison group, and should be kept in mind when interpreting results.

Where possible, both absolute and relative measures of inequality have been presented. In practice, absolute measures are most useful and meaningful for many of the measures that are presented as percentages.

The process used for presentation of indicators is as follows (applicable to indicators that have both numerators and denominators):

1. Calculate results by ethnicity
2. Identify the ethnic groups that have results that are worse than the total population (this may be complicated in cases where time trends for an ethnic group give results both above and below the total population result – judgment may be required). These groups that show results worse than the total population result may be referred to as 'disadvantaged groups'
3. Graph results for disadvantaged groups only. In tables, present inequality in terms of both absolute inequality, e.g. the absolute 'gap', as well as relative inequality, e.g. risk ratios, where appropriate. Select

either the absolute measure or the relative measure (whichever is most meaningful) for graphing.

The absolute measure of inequality used for many indicators is the 'gap' between the ethnic group in question and the total population, e.g. a percentage difference.

The relative measure of inequality used for many indicators is a ratio of percentages, referred to as a 'risk ratio'.

Note that some indicators need to be interpreted in an appropriate context, e.g. with reference to level of need (such as interpreting rates of invasive cardiovascular procedures in the light of different levels of 'need' for these procedures in different ethnic groups).

Note that there is one indicator that has a numerator but no denominator is used. In this case, the above process is not applicable.

6.2 Tables of indicators

The following pages contain tables for each of the indicators. The graphs present inequality trends for disadvantaged groups for Waitemata DHB and NZ, where available.

The tables contain notes that describe the meaning of each indicator, as well as a suggested interpretation and other comments on the indicator. A 'long-term goal' is presented for each indicator; this represents what the results would be if there were complete equity. It is recognised that this goal may be difficult or even impossible for the DHB to achieve by itself: for example, it may take a long time to achieve such a goal, or achievement of the goal may be influenced by factors not directly within the DHB's control. Nevertheless, the 'long-term goal' value may assist with interpreting the results, such as by indicating whether results are trending in a desirable direction or not.

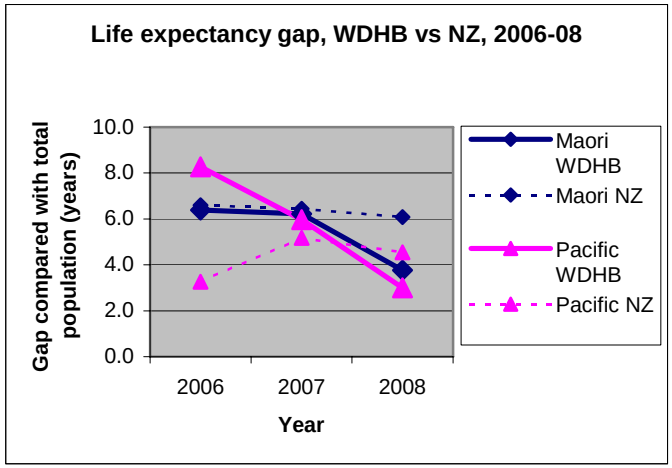
In some cases, the 'Other' group (i.e. non-Maori, non-Pacific and for some indicators also non-Asian) is a disadvantaged group according to the results for a particular indicator. This may seem incongruous given the generally better level of health experienced by the 'Other' group compared with Maori and Pacific populations. This needs to be interpreted in light of the health 'need' for each indicator. For example, as ischaemic heart disease prevalence is higher for Maori and Pacific populations, 'need' for invasive cardiovascular procedures (ICPs) is higher, and thus it is appropriate (and equitable) for Maori and Pacific populations to have higher ICP rates. The target for ICP rates should be higher for Maori and Pacific populations, in proportion to need.

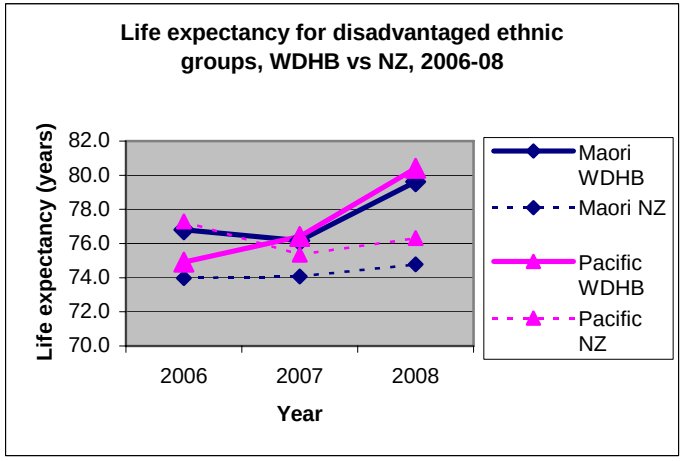
In some cases, the target is the same for all groups. For example, in cardiovascular (CVD) risk assessment, the target is as close as possible to full coverage of the eligible population for all ethnic groups. In such cases, if the 'Other' group has lower coverage, for example, then this is a true inequality and should ideally be addressed. However, the priority given to addressing this inequality (in comparison to other inequalities) should also take into account the overall level of cardiovascular and other health experienced by different ethnic groups.

Indicator results should not be used as the sole guide to action in a particular area. If an indicator result suggests that action is needed, further discussions and information collection are likely to be necessary to guide appropriate action.

Indicator 1: Life expectancy

Result: ☑





Represents:

- Overarching, summary outcome measure of population health

Long-term goal:

- Zero gap for disadvantaged populations

Table 4: Life expectancy by ethnicity compared with total population, WDHB, 2006-08

		LE	Gap	LE	Gap	LE	Gap
		2006		2007		2008	
Maori	**WDHB**	76.8	6.4	76.2	6.2	79.6	3.8
	NZ	74.0	6.6	74.1	6.4	74.8	6.1
Pacific	**WDHB**	74.9	8.3	76.4	6.0	80.4	3.0
	NZ	77.3	3.3	75.3	5.2	76.3	4.5
Other	**WDHB**	84.1	-0.9	83.1	-0.7	83.8	-0.4
	NZ	81.5	-0.9	81.5	-1.0	81.8	-1.0
Total	**WDHB**	**83.2**	**0.0**	**82.4**	**0.0**	**83.4**	**0.0**
	NZ	**80.6**	**0.0**	**80.5**	**0.0**	**80.9**	**0.0**

LE: life expectancy

Interpretation:

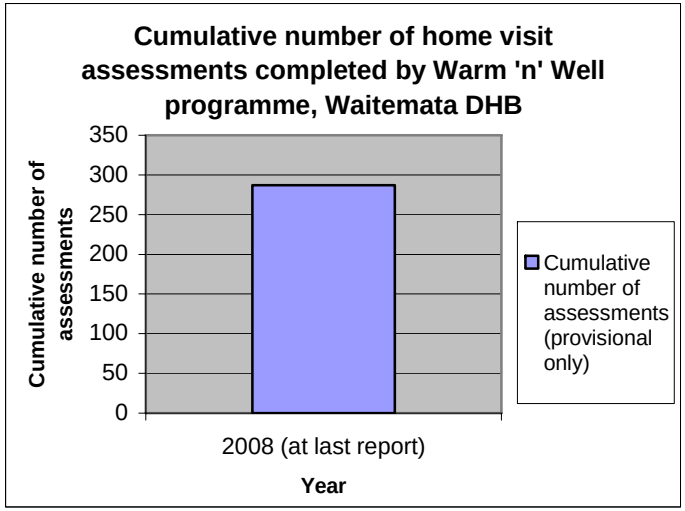
- Maori and Pacific people are disadvantaged, with a life expectancy gap from 3-8 years
- The gap may be reducing for WDHB Maori and Pacific populations in 2007 and 2008, though future results will help to confirm this. Nationally there appears to be little change in the gap over this period
- Life expectancy may be improving for WDHB Maori and Pacific populations, though future results will help to confirm this. Nationally there appears to be little change in life expectancy over this period

Comments:

- Note that some but not all of the factors influencing life expectancy are within the control of the DHB

Indicator 2: Housing

Result: ☑



Represents:

- Likely reductions in inequalities in housing status and housing-related illness (process measure)
- A key determinant of health (housing)

Long-term goal:

- Cumulative number of assessments disproportionately higher for housing-disadvantaged groups (Maori and Pacific populations)

Table 5: Cumulative number of home assessments completed by WDHB Warm 'n' Well programme

	Number	Percentage
	2008	
Maori	n/a	n/a
Pacific	n/a	n/a
Other	n/a	n/a
Total population	**287**	**100.0%**

Note: numbers are provisional only as at 29 Oct 2008, and not based on formal reporting. N/A: not available

Interpretation:

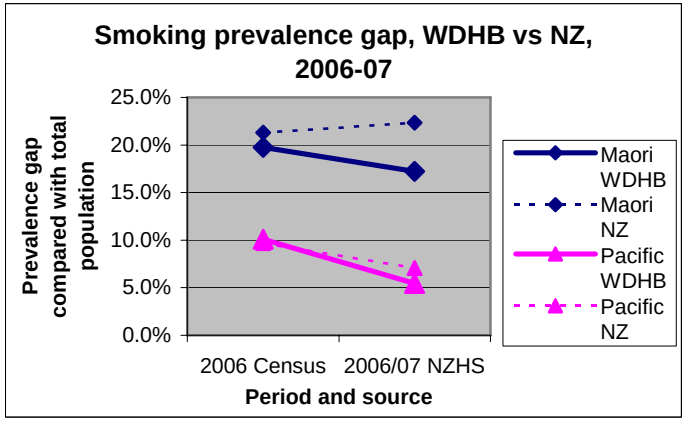
- This programme is likely to be reducing ethnic inequalities in housing status and housing-related disease, based on informal indications that Maori and Pacific populations are disproportionately represented among housing assessments. Need formal ethnicity data to confirm this (to be available soon)
- Note Warm 'n' Well programme commenced 2008

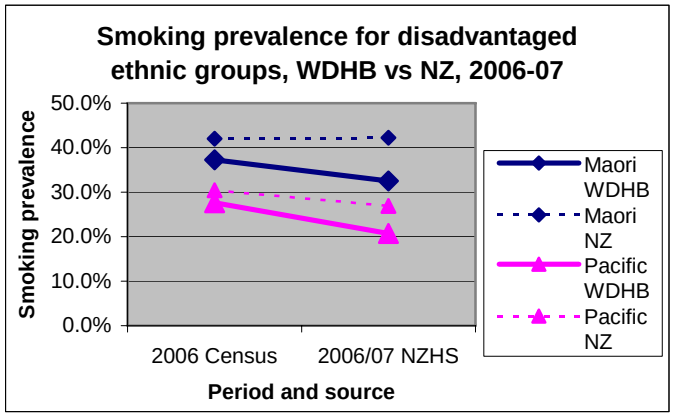
Comments:

- A cumulative measure is presented, since installing insulation leads to relatively permanent improvements in housing conditions, and would be expected to have cumulative impacts on population health.
- Ethnic inequalities are likely to be reduced if the proportion of all assessments to date that were for housing-disadvantaged populations (Maori and Pacific) is greater than the proportion of these groups in the DHB population. Early informal indications are that this is the case

Indicator 3: Tobacco use

Result:





Represents:

- Outcome indicator for a major health risk factor

Long-term goal:

- Zero gap for disadvantaged populations

Table 6: Current smoking prevalence and inequalities, WDHB and NZ, 2006-07

		2006 (Census) %	2006 (Census) Gap	2006 (Census) Risk Ratio	06/07 (NZHS) %	06/07 (NZHS) Gap	06/07 (NZHS) Risk Ratio
Maori	**WDHB**	37.3%	*19.8%*	2.1	32.5%	17.2%	2.1
	NZ	42.0%	*21.3%*	2.0	42.2%	22.3%	2.1
Pacific	**WDHB**	27.6%	*10.1%*	1.6	20.7%	5.4%	1.4
	NZ	30.4%	*9.7%*	1.5	26.9%	7.1%	1.4
Asian	**WDHB**	11.4%	*-6.2%*	0.6	8.6%	-6.7%	0.6
	NZ	11.5%	*-9.3%*	0.6	11.2%	-8.7%	0.6
Other	**WDHB**	16.7%	*-0.8%*	1.0	14.4%	-1.0%	0.9
	NZ	18.8%	*-1.9%*	0.9	18.6%	-1.2%	0.9
Total	**WDHB**	**17.5%**	***0.0%***	**1.0**	**15.3%**	**0.0%**	**1.0**
	NZ	**20.7%**	***0.0%***	**1.0**	**19.9%**	**0.0%**	**1.0**

Rates not age-standardised

Interpretation:

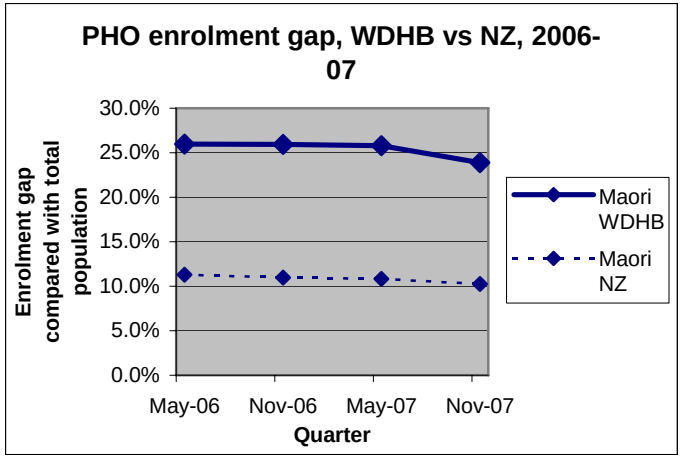
- Maori (especially) and Pacific people are disadvantaged, with smoking prevalence 5 – 25% higher than total population in both WDHB and NZ
- Inequality may be decreasing for Maori and Pacific populations in WDHB, and the Pacific population nationally, though it is too soon to draw firm conclusions
- Smoking prevalence may be declining for Maori and Pacific populations in WDHB, and the NZ Pacific population

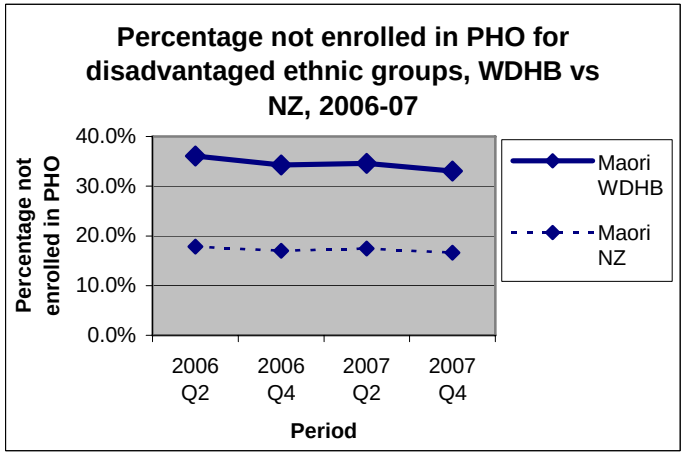
Comments:

- Note different data sources used for different time points, so too soon to draw firm conclusions about trends
- Note age-standardised rates not used as not available for all datasets, but would be preferable for future analyses if possible. Despite this, a brief comparison with age-standardised rates for these data showed little impact on inequality results

Indicator 4: PHO non-enrolment

Result:





Represents:

- Indicator of access to primary care

Long-term goal:

- Zero gap for disadvantaged populations

Table 7: PHO non-enrolment rates and inequalities, WDHB and NZ, 2006-07

		2006 Q2 Non-enrolled %	2006 Q2 Gap	2006 Q4 Non-enrolled %	2006 Q4 Gap	2007 Q2 Non-enrolled %	2007 Q2 Gap	2007 Q4 Non-enrolled %	2007 Q4 Gap
Maori	**WDHB**	36.1%	26.0%	34.3%	25.9%	34.6%	25.8%	33.1%	23.9%
	NZ	17.9%	11.3%	17.0%	11.0%	17.4%	10.8%	16.6%	10.3%
Pacific	**WDHB**	6.3%	-3.8%	5.4%	-2.9%	6.6%	-2.2%	4.3%	-4.8%
	NZ	1.0%	-5.5%	-0.7%	-6.7%	-0.1%	-6.7%	-1.3%	-7.7%
Other	**WDHB**	7.4%	-2.7%	5.5%	-2.8%	6.0%	-2.8%	6.8%	-2.4%
	NZ	4.9%	-1.7%	4.5%	-1.6%	5.1%	-1.5%	5.0%	-1.3%
Total	**WDHB**	**10.1%**	**0.0%**	**8.3%**	**0.0%**	**8.8%**	**0.0%**	**9.2%**	**0.0%**
	NZ	**6.6%**	**0.0%**	**6.0%**	**0.0%**	**6.6%**	**0.0%**	**6.4%**	**0.0%**

Note Pacific enrolment reported as over 100% in some data

Interpretation:

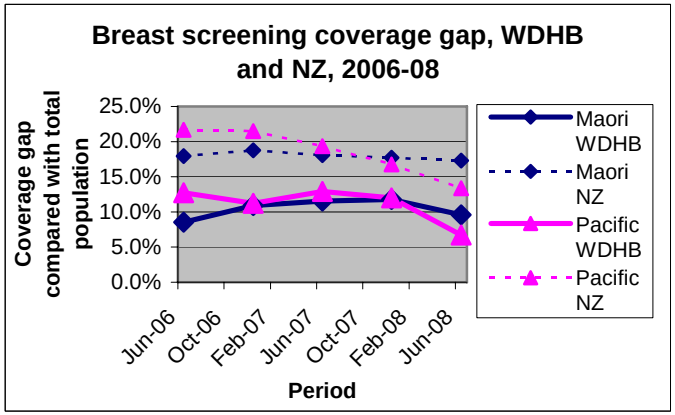
- Maori are disadvantaged, with non-enrolment rates 10-25% higher than for the total population. Inequality and non-enrolment rates are much higher for WDHB Maori than NZ Maori
- Inequality may be decreasing for WDHB Maori, though further data are needed to confirm this
- There appears to be a small improvement in PHO enrolment for WDHB Maori over the last two years

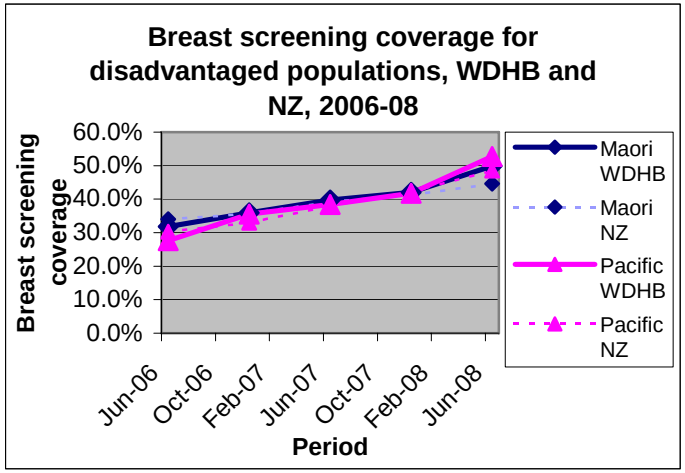
Comments:

- Pacific non-enrolment difficult to measure, with over 100% enrolment according to some measures. Pacific results should be interpreted with care
- Results for this indicator depend not just on access to primary care but also on PHO decisions on whether to enrol patients, and on good PHO ethnicity data collection

Indicator 5: Breast screening coverage

Result:





Represents:

- Access indicator for screening for breast cancer, a major cause of cancer burden

Long-term goal:

- Zero gap for disadvantaged populations

Table 8: Breast screening coverage and inequalities, WDHB and NZ, 2006-08

		Coverage	Gap	Risk ratio	Coverage	Gap	Risk ratio	Coverage	Gap	Risk ratio	Coverage	Gap	Risk ratio
		Dec 06			Jun-07			Dec-07			Jun-08		
Maori	**WDHB**	35.9%	10.9%	1.3	39.7%	11.6%	1.3	42.0%	11.8%	1.3	49.8%	9.6%	1.2
	NZ	35.6%	18.8%	1.5	39.2%	18.1%	1.5	41.2%	17.7%	1.4	44.6%	17.3%	1.4
Pacific	**WDHB**	35.6%	11.2%	1.3	38.4%	12.9%	1.3	41.8%	12.0%	1.3	52.7%	6.7%	1.1
	NZ	32.9%	21.5%	1.7	37.9%	19.4%	1.5	42.1%	16.8%	1.4	48.5%	13.4%	1.3
Other	**WDHB**	47.7%	-0.9%	1.0	52.5%	-1.2%	1.0	55.0%	-1.2%	1.0	60.3%	-0.9%	1.0
	NZ	57.4%	-3.0%	0.9	60.1%	-2.9%	1.0	61.7%	-2.8%	1.0	64.1%	-2.2%	1.0
Total	**WDHB**	**46.8%**	**0.0%**	**1.0**	**51.3%**	**0.0%**	**1.0**	**53.8%**	**0.0%**	**1.0**	**59.4%**	**0.0%**	**1.0**
	NZ	**54.4%**	**0.0%**	**1.0**	**57.3%**	**0.0%**	**1.0**	**58.9%**	**0.0%**	**1.0**	**61.9%**	**0.0%**	**1.0**

Note risk ratio for coverage is of total population to each group

Interpretation:

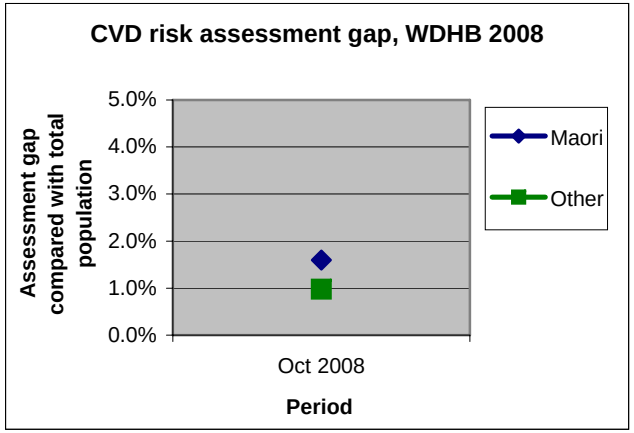
- Maori and Pacific populations are disadvantaged, with screening rates 6-13% lower in WDHB.
- Inequality levels are less in WDHB than NZ
- Inequality appears to be decreasing for WDHB and NZ Pacific populations, will little change for Maori.
- Screening rates appear to be improving substantially for all groups

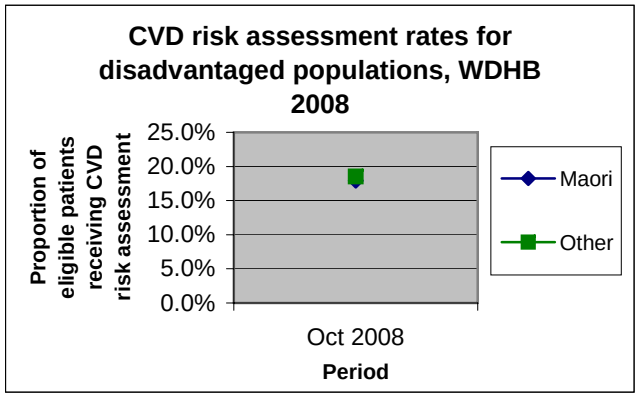
Comments:

- Data for Jun 06 not shown in table due to lack of space
- Coverage for Asian ethnicity not available, but anecdotally Asian coverage may be low

Indicator 6: CVD risk assessment and management

Result:





Represents:

- Access (assessment) indicator for screening intervention that is likely to lead to substantial reductions in cardiovascular risk if fully implemented

Long-term goal:

- Zero gap for disadvantaged populations

Table 9: CVD risk assessment coverage and inequalities, WDHB, 2008

	% assessed	Gap	Risk ratio
Maori	17.9%	1.6%	1.1
Other	18.5%	1.0%	1.1
South Asian	28.2%	-8.7%	0.7
Pacific	31.2%	-11.7%	0.6
Total	**19.5%**	**0.0%**	**1.0**

% assessed refers to proportion of eligible population (eligible according to guidelines) who have been assessed

Interpretation:

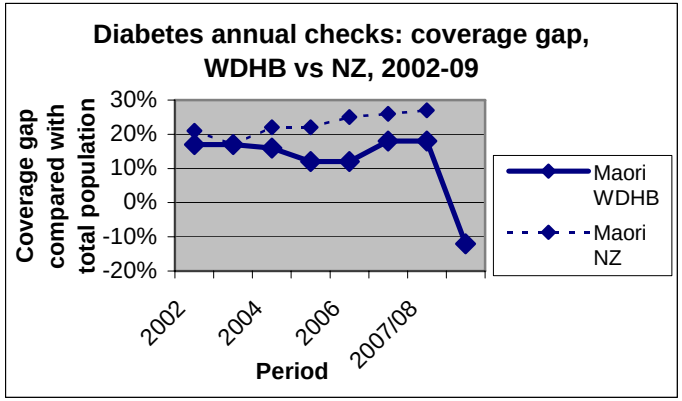
- Maori and Other populations are disadvantaged, with coverage rates 1-2% lower than total population
- Coverage for Maori and Other populations does exceed interim PHO targets for this time point, but are still lower than other ethnic groups

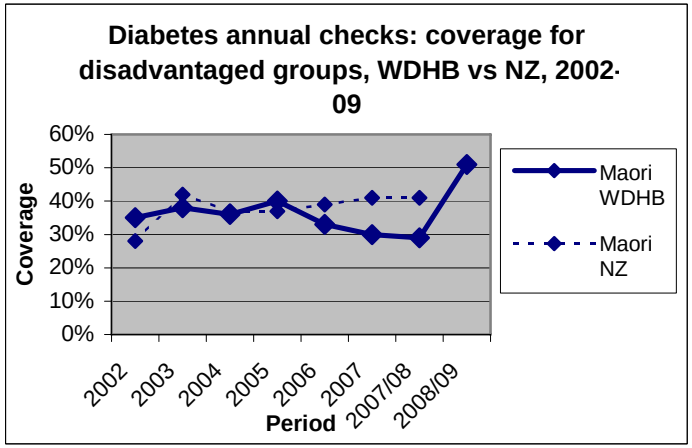
Comments:

- No historical data yet available for this indicator
- No national data available for this indicator
- Recommend moving to a management rather than assessment indicator within 1-2 years if possible

Indicator 7: Diabetes annual checks

Result:





Represents:

- Access indicator for primary care for a priority health condition

Long-term goal:

- Zero gap for disadvantaged populations

Table 10: Coverage for diabetes annual checks, WDHB and NZ, 2006-09

		Coverage	Gap	Risk ratio	Coverage	Gap	Risk ratio	Coverage	Gap	Risk ratio	Coverage	Gap	Risk ratio
		2006			2007			2007/08			2008/09		
Maori	WDHB	33%	12%	1.4	30%	18%	1.6	29%	18%	1.6	51%	-12%	0.8
	NZ	39%	25%	1.6	41%	26%	1.6	41%	27%	1.7			
Pacific	WDHB	66%	-21%	0.7	63%	-15%	0.8	62%	-15%	0.8	45%	-6%	0.9
	NZ	90%	-26%	0.7	99%	-32%	0.7	105%	-37%	0.6			
Other	WDHB	45%	0%	1.0	49%	-1%	1.0	49%	-2%	1.0	37%	2%	1.1
	NZ	68%	-4%	0.9	72%	-5%	0.9	73%	-5%	0.9			
Total	**WDHB**	**45%**	**0%**	**1.0**	**48%**	**0%**	**1.0**	**47%**	**0%**	**1.0**	**39%**	**0%**	**1.0**
	NZ	**64%**	**0%**	**1.0**	**67%**	**0%**	**1.0**	**68%**	**0%**	**1.0**			

Note most recent data only shown due to space limitations

Interpretation:

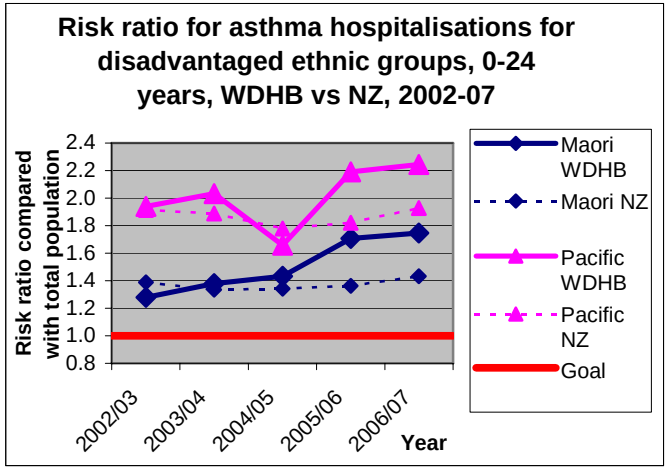
- Maori population is disadvantaged, with annual check coverage generally 10-20% lower in WDHB than total population
- Inequality appears to be increasing nationally but is stable in WDHB and may have reversed in latest data
- Coverage for Maori appears to have been improving nationally but not in WDHB, with the exception of the latest year of data
- Future data needed to establish whether improvement in latest year of data will persist

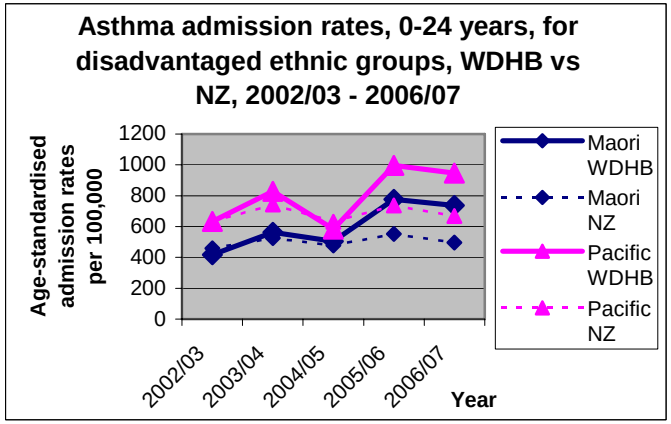
Comments:

- National data for 2007/08 not yet available
- Data for 2002 – 05 shown in graph but not table due to space limitations
- Recommend moving to a management rather than assessment indicator within 1-2 years if possible

Indicator 8: Child and youth asthma hospitalisations

Result: ☒





Represents:

- Outcome measure for a priority child and youth health issue, with substantial disease burden

Long-term goal:

- Zero gap / risk ratio of 1 for disadvantaged populations

Table 11: Asthma admission rates and inequalities, 0-24 years, WDHB vs NZ, 2003-04 - 2006/07

		Rate	Gap	Risk ratio	Rate	Gap	Risk ratio	Rate	Gap	Risk ratio	Rate	Gap	Risk ratio
		2003/04			2004/05			2005/06			2006/07		
Maori	WDHB	562.0	154.3	1.4	503.7	152.1	1.4	777.2	322.1	1.7	737.4	315.4	1.7
	NZ	525.7	132.1	1.3	476.9	121.7	1.3	551.8	146.7	1.4	497.1	150.1	1.4
Pacific	WDHB	828.6	420.9	2.0	583.3	231.7	1.7	996.7	541.6	2.2	946.7	524.6	2.2
	NZ	743.2	349.6	1.9	632.0	276.8	1.8	737.8	332.7	1.8	669.2	322.1	1.9
Other	WDHB	306.5	-101.2	0.8	278.7	-72.9	0.8	293.0	-162.1	0.6	276.1	-145.9	0.7
	NZ	293.8	-99.8	0.7	267.4	-87.9	0.8	298.7	-106.4	0.7	247.3	-99.8	0.7
Total	**WDHB**	**407.7**	**0.0**	**1.0**	**351.6**	**0.0**	**1.0**	**455.1**	**0.0**	**1.0**	**422.0**	**0.0**	**1.0**
	NZ	**393.6**	**0.0**	**1.0**	**355.3**	**0.0**	**1.0**	**405.1**	**0.0**	**1.0**	**347.1**	**0.0**	**1.0**

Most recent years only shown given limited space. Comparison group for admission gap & risk ratio is total population. Rates are age-standardised per 100,000 population.

Interpretation:

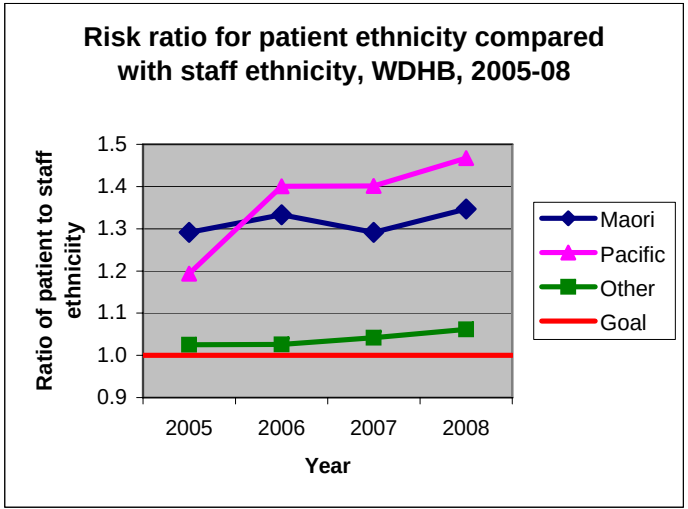
- Maori and Pacific people are disadvantaged, with admission rates now 1.7-2.2 times higher in WDHB
- Inequality appears to be increasing for WDHB Maori and Pacific populations over this period. Nationally there appears to be little change in inequality over this period.
- Admission rates appear to be increasing for WDHB Maori and Pacific populations. Nationally there appears to be little change in admission rates for Maori and Pacific populations over this period.

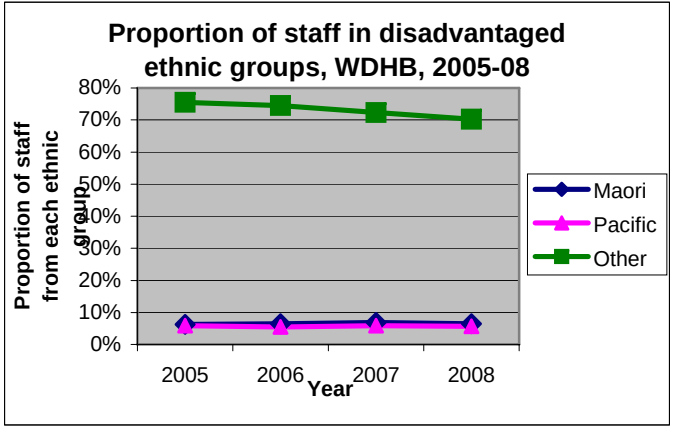
Comments:

- Data for 2002/03 not shown in table due to space limitations

Indicator 9: DHB staff ethnicity

Result: ☒





Represents:

- Process indicator for the cultural appropriateness of health services, especially hospital care

Long-term goal:

- Zero gap / risk ratio of 1 for disadvantaged populations

Table 12: Comparison of ethnicity of staff with ethnicity of patient discharges, WDHB, 2006-08

	Discharges	Staff	Gap	Risk ratio	Discharges	Staff	Gap	Risk ratio	Discharges	Staff	Gap	Risk ratio
		2006				2007				2008		
Maori	8.7%	6.5%	2.2%	1.3	8.9%	6.9%	2.0%	1.3	8.8%	6.5%	2.3%	1.3
Pacific	7.7%	5.5%	2.2%	1.4	8.2%	5.9%	2.4%	1.4	8.4%	5.7%	2.7%	1.5
Asian	7.3%	13.5%	-6.3%	0.5	7.5%	14.9%	-7.4%	0.5	8.2%	17.5%	-9.3%	0.5
Other	76.4%	74.5%	1.9%	1.0	75.3%	72.3%	3.0%	1.0	74.6%	70.2%	4.3%	1.1
Total	**100.0%**	**100.0%**	**0.0%**	**1.0**	**100.0%**	**100.0%**	**0.0%**	**1.0**	**100.0%**	**100.0%**	**0.0%**	**1.0**

Note target is for proportion of staff from each ethnic group to match proportion of patients from each ethnic group

Interpretation:

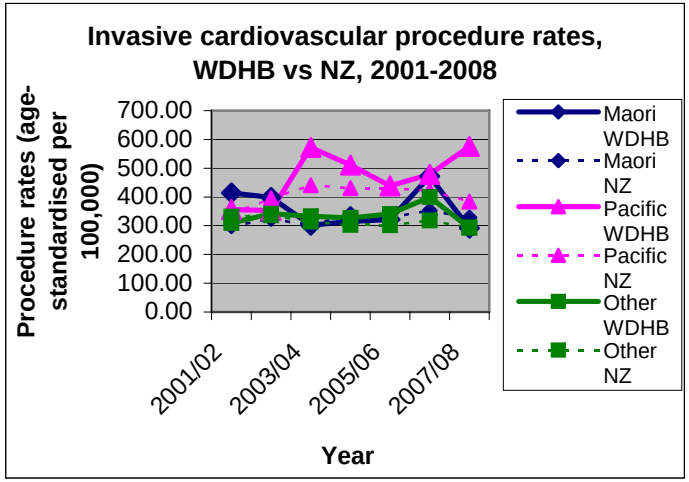
- Maori and Pacific populations are disadvantaged, with risk ratios ranging from 1.2-1.5. The Other population is also becoming slightly under-represented among staff, with a risk ratio of 1.1 in 2008
- Inequality appears relatively constant for Maori but may be worsening for the Pacific population
- The proportion of staff who are Maori or Pacific is relatively constant, while the proportion of staff who are in the Other category has declined and the proportion of staff of Asian ethnicity has increased

Comments:

- Note for the purposes of this indicator, 'disadvantaged groups' are those for which the proportion of staff of a given ethnicity is less than the proportion of patients of a given ethnicity
- Most recent data only shown in table due to space limitations
- Ethnicity data collection for staff appears to be of poor quality, limiting the level of detail for meaningful analyses

Indicator 10: Invasive cardiovascular procedures

Result:



Represents:

- Access and process measure for pathway leading to an important tertiary service with known inequalities historically

Long-term goal:

- Not clearly defined – procedure rate in proportion to clinical need

Table 13: Invasive cardiovascular procedure rates, WDHB and NZ, 2001-08

		2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Maori	**WDHB**	414	399	302	315	321	472	291
	NZ	298	324	302	341	328	353	328
Pacific	**WDHB**	356	353	572	511	438	479	575
	NZ	341	395	441	431	431	421	384
Other	**WDHB**	309	342	332	328	341	399	293
	NZ	331	337	313	303	302	318	293
Total	**WDHB**	**319**	**347**	**342**	**338**	**346**	**409**	**309**
	NZ	**333**	**341**	**321**	**313**	**312**	**328**	**303**

Rates are age-standardised per 100,000

Interpretation:

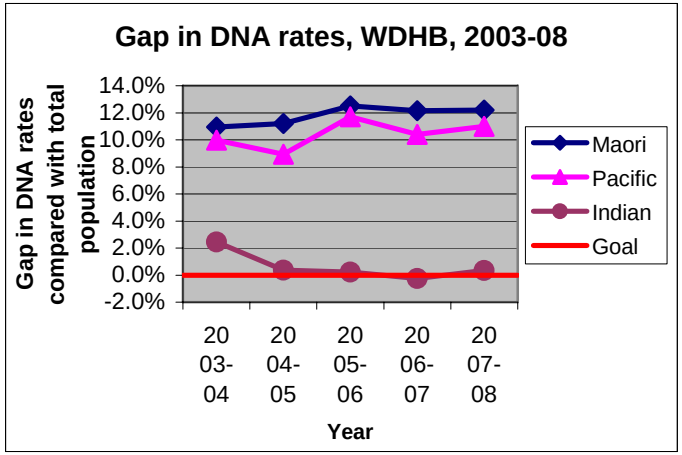
- Ischaemic heart disease prevalence is known to be higher in Maori and Pacific populations. Given this, invasive cardiovascular procedure rates would be expected to be higher for Maori and Pacific populations.
- Compared with the total population, procedure rates appear higher for the Pacific but not the Maori population in WDHB and NZ over the last five years
- It is possible that Maori procedure rates remain low in proportion to need, but this is uncertain
- Inequalities are likely to have reduced for Pacific but not Maori populations over the monitoring period

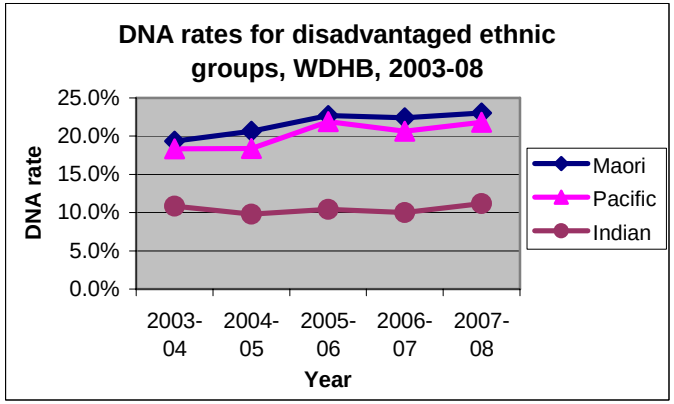
Comments:

- Note a suitable measure of 'need' for invasive cardiovascular procedures, for the purposes of this indicator, has not yet been established
- See data dictionary for variable definitions

Indicator 11: Outpatient DNA rates

Result: ☒





Represents:

- Access indicator covering follow-up after hospital discharge, and referral from primary care to outpatient services. May also be influenced by quality of care

Long-term goal:

- Zero gap / risk ratio of 1 for disadvantaged populations

Table 14: Outpatient clinic DNA rates and inequalities, WDHB, 2003-08

	DNA rate	Gap	Risk ratio	DNA rate	Gap	Risk ratio	DNA rate	Gap	Risk ratio	DNA rate	Gap	Risk ratio
		2004-05			2005-06			2006-07			2007-08	
Maori	20.6%	11.2%	2.2	22.7%	12.5%	2.2	22.4%	12.2%	2.2	23.0%	12.2%	2.1
Pacific	18.4%	8.9%	1.9	21.9%	11.7%	2.1	20.6%	10.4%	2.0	21.8%	11.0%	2.0
European	7.7%	-1.7%	0.8	8.0%	-2.2%	0.8	8.3%	-1.9%	0.8	8.9%	-1.9%	0.8
Indian	9.8%	0.4%	1.0	10.4%	0.2%	1.0	10.0%	-0.2%	1.0	11.2%	0.3%	1.0
Chinese	7.1%	-2.4%	0.7	5.5%	-4.7%	0.5	7.1%	-3.1%	0.7	5.5%	-5.3%	0.5
Other Asian	8.2%	-1.2%	0.9	8.9%	-1.3%	0.9	8.7%	-1.5%	0.8	8.3%	-2.5%	0.8
Other	9.2%	-0.3%	1.0	10.3%	0.1%	1.0	9.0%	-1.3%	0.9	9.9%	-0.9%	0.9
Total	**9.4%**	**0.0%**	**1.0**	**10.2%**	**0.0%**	**1.0**	**10.2%**	**0.0%**	**1.0**	**10.8%**	**0.0%**	**1.0**

Interpretation:

- Maori and Pacific populations are disadvantaged, with DNA rates 8-12% higher than for the total population
- After a reduction in the gap for the Indian population in 2004-05, inequalities appear to be unchanged over the last four years
- DNA rates appear to be increasing for Maori and Pacific populations over the last five years

Comments:

- Data for 2003/04 not shown in table due to space limitations
- National data not available

6.3 Additional useful indicators

There at least are two key areas not well addressed by this indicator set, discussed below.

Ethnicity data collection

Good quality ethnicity data is fundamental to measuring ethnic inequalities in health. However, ethnicity data collection by PHOs in the Waitemata district has been shown in the past to need improvement.[16]

Previously, the proportion of ethnicity recorded as 'Other' or 'Not Stated' has been used as a quantitative indicator. This is no longer considered appropriate, for the following reasons:

- There is reported to be 'gaming' of the system, whereby those collecting ethnicity data are now aware that the 'Other' and 'Not Stated' categories are being monitored, so that patients for whom ethnicity is not properly collected may be assigned instead (incorrectly) to other ethnic groups instead of 'Other' or 'Not Stated'
- From the 2006 Census, the Level 2 category of 'Other' now includes the 'New Zealander' category, making it a large group and unsuitable for monitoring the quality of ethnicity data collection
- Use of the 'Other' category as an indicator does not give a good indication of whether or not all ethnicities have been collected for a patient

Activities currently planned by Waitemata DHB to improve ethnicity data collection within the district include a PHO audit that covers the following stages

- Pre-audit evaluation
- Intervention to improve ethnicity data forms, processes and training
- Post-audit evaluation

Further work will also be needed to improve ethnicity data forms, processes and training in other settings. As part of that work, if a suitable quantitative indicator can be identified, it should be included in this indicator set. Even if no quantitative indicator is identified, ongoing assessment of the quality of ethnicity data collection is needed to ensure the validity of this indicator set.

Mental health

During the development of this indicator set, mental health was identified as an important area of health that should be included if possible.

A range of indicator options were explored for mental health, including:

- Ratio of community visits to inpatient days
- Face-to-face contacts within 7 days after discharge

[16] Bramley and Latimer 2007

- Self-harm emergency department presentations
- Health of the Nation Outcome Scale (HoNOS) score on admission

However, no suitable indicator was identified, for reasons including:

- Lack of inequalities apparent in the indicators considered
- Incomplete data for some potential indicators
- Inadequate ethnicity data for some potential indicators

It became apparent that developing a suitable indicator for mental health would involve a substantial amount of effort and would be best addressed as a separate project in conjunction with mental health services.

It is possible that indicators for which ethnic inequalities were not found represented instances of true equity. However, confirming this would also require more in-depth investigation that was beyond the scope of this project.

7. Appraisal of indicator set

7.1 Rationale for inclusion of each indicator

1. Life expectancy
    - Highest-level outcome available (alongside morbidity / quality of life) so important to measure if possible, though difficult to assess the degree to which any changes are attributable to the DHB's actions
    - Known inequalities
2. Housing
    - Measures the number of assessments by the 'Warm 'n' Well' programme, which includes referral for insulation but also facilitates access to other health and social services.
    - This programme targets households with at least one child, so is especially (but not exclusively) relevant to child health
    - Most obvious determinants-level indicator that is modifiable by DHB – there are only a limited number of suitable indicator options at the determinants of health level
    - There are known ethnic inequalities in housing status[17], and in a range of housing-related problems such as asthma hospitalisations and rheumatic heart disease[18]
    - Installing housing insulation has been shown to improve health, including reducing general practice visits[19] The Counties Manukau DHB Healthy Housing programme was estimated to have reduced housing-related hospital admissions by 37% in its first year.[20]
    - A cumulative measure is presented, since installing insulation leads to relatively permanent improvements in housing conditions, and would be expected to have cumulative impacts on population health
    - This indicator is a proxy for reducing inequalities in housing insulation status across district, which is not directly measured itself
    - Note ethnicity not initially a reporting requirement, but is collected, and service provider will provide this data alongside other reporting information, starting in early 2009
    - Note that the target number of households (those with children, in pre-1978 houses, in NZDep2001 deciles 7-10, excluding Housing NZ stock) has been estimated at 12,305; the target

[17] Darke et al 2006
[18] Ministry of Health 2006b
[19] Howden-Chapman et al 2007
[20] Ministry of Health 2007

number of assessments by this programme is 500 (from Jun 08 onwards)

- Given known inequalities in housing status, Warm 'n' Well assessments would be expected to reduce inequalities within the DHB as long as disadvantaged groups are disproportionately represented in assessments compared with the DHB population as a whole

3. Tobacco use
    - High impact and inequality
    - An outcome measure that represents behavioural risk factor / health promotion stage
    - Adult current smoking prevalence is modifiable by Waitemata DHB, though may still be difficult to attribute prevalence changes to actions by the DHB
    - The Health Targets for smoking, e.g. year 10 never smokers, would be alternative tobacco indicators but appear less directly modifiable by the DHB
4. PHO non-enrolment
    - Indicator of access to primary care
    - Potentially modifiable within district
    - Known inequalities
    - Potentially high impact on a range of conditions (e.g. ambulatory-sensitive hospitalisations, other)
    - Very Low Cost Access visits and Zero Fees for Under 6s visits could be alternative indicators of access to primary care, as might utilisation rates
    - Note existing analysis only covers Maori / Pacific / Other groups, but other data suggest low PHO enrolment rates for Asian population
5. Breast screening coverage
    - Represents screening services – primarily access plus some indication of quality of service / process
    - Breast cancer high burden of disease (more so than cervical) and population-based screening programmes for breast cancer are known to be effective
    - Note private breast screening not captured by this indicator – this may lead to an underestimation of inequalities if private breast screening is less common among disadvantaged groups
    - Is modifiable by DHB

- Note results for Asian population not available due to lack of denominator data, but other data suggest breast screening coverage may be low for this group

6. CVD risk assessment and management
    - Large population health gains to be made by implementing CVDRAM – high public health impact
    - Important to avoid inequality in implementation
    - Is modifiable by DHB
7. Diabetes
    - A major public health issue
    - Access to annual checks is also one of the Health Targets
    - Note that the Health Targets also include other diabetes sub-indicators that could be alternatives here
8. Child and youth asthma hospitalisations, 0-24 years
    - An important cause of disease burden in this age group
    - Specific health area, facilitating action to address inequalities
    - Known inequalities
    - Injury is an even greater cause of hospitalisation, but is a more diverse category, so is less conducive to specific strategies to address
    - Immunisation rates would be an alternative child health measure at the health promotion / primary care level
9. DHB staff ethnicity
    - Indicator of cultural responsiveness of services
    - Note should match ethnicity of admissions/discharges rather than population (as ethnicity distribution may differ between these two groups)
    - Self-discharge rates are an alternative indicator of cultural responsiveness of services, and are known to have inequalities (e.g. RR 2.4 for Maori)
    - Availability of interpreting services is also an important facet of cultural responsiveness of services, especially for some Asian peoples (especially Chinese, Korean) – but a good indicator for this was not identified
10. Invasive cardiovascular procedures
    - Previously identified as an indicator of interest
    - Partly a process-level indicator (in terms of referral for these interventions by clinicians) – also an indicator of access to services.

- Large inequalities described historically [21]
- Cardiovascular disease has high public health impact

11. Outpatient DNA rates
    - Represents follow-up stage of health services
    - Represents access, but probably also quality and service responsiveness / process level issues to some extent
    - Appears modifiable by DHB

7.2 Balance of indicators across different dimensions

This indicator set was designed to achieve a balance across several dimensions:

- Stage in health service: access / process / outcome
- Stage in causal pathway: determinants & risk factors / physiological change & early disease / late disease / recovery & rehabilitation
- Service types: health promotion / primary / secondary & tertiary / follow-up

This balance is assessed below for the stage in health service. Note that many indicators represent a combination of access, process and outcome factors, and which of these the indicator 'primarily' represents may be a matter of judgement.

Stage in health service	Indicator numbers	Count
Primarily access	2, 4, 5, 6, 7, 10, 11	7
Primarily process (including quality measures and service outputs)	9	1
Primarily outcome	1, 3, 8	3

This shows that the indicators are weighted towards 'access' measures. However, several of these access indicators have 'process' or 'quality' components (e.g. invasive cardiovascular procedures and DNA rates). For diabetes and CVD risk assessment and management, it is recommended that there be a future move to a 'management'-based indicator in future, which would further improve the balance.

Balance can also be assessed in terms of the service type, as presented below. Again, there is some overlap between these services.

[21] Tukuitonga and Bindman 2002

Service type	Indicator numbers	Count
Health promotion	2, 3	2
Screening	5, 6	2
Primary care	4, 7	2
Secondary or tertiary care	8, 9, 10	3
Follow-up	11	1
Still uncertain or not applicable	1	1

Based on this analysis, there appears to be a reasonable balance across these important dimensions.

An assessment of these indicators can also be made against the DHB's strategic priorities, as follows:

DHB priorities	Covered?	Indicator number(s)
Reducing inequalities	Yes	All
Healthy lifestyles	Yes	3
Cardiovascular disease	Yes	6, 10
Diabetes	Yes	7
Cancer	Yes	5
Children and young people	Yes	8
Health of older people	No	
Primary care	Yes	4
Mental health	No	
District and regional hospital services	No	
Quality and patient safety	Yes	9

Covers DHB priorities for 'Health Gain and Service Improvement'

This suggests that there is a fairly good fit with DHB priorities, given the limited number of indicators used.

A further consideration is whether the indicators adequately cover child health, given that Maori and Pacific populations, which are known to be disadvantaged with respect to health status, have high proportions of children. Indicators 2 and 8 are directly relevant to children; indicator 4 also covers (but is not restricted to) children.

8. Discussion of indicators

This report presents a draft set of ethnic inequality indicators for Waitemata DHB.

Ethnic inequality indicators have been used elsewhere, including by Counties Manukau DHB,[22] Massachusetts General Hospital[23] and by the U.S. Department of Health and Human Services.[24,25] None of those reports was devoted to ethnic inequality indicators, though the National Healthcare Disparities Reports series does include ethnic disparities as one section of its reporting, and Massachusetts General Hospital covers socio-economic status and language in addition to ethnicity and race. The Counties Manukau DHB report uses a 'gap' approach to representing inequalities for its life expectancy inequality indicator, whereas this report extends this approach to all indicators for which suitable data is available.

The indicator set aims to achieve a balance between access, process and outcome measures, and between different DHB services and stages of the causal pathway for disease.

Indicators are presented in a way that attempts to make it readily apparent whether inequalities are increasing or decreasing, by focusing on the size of the inequality 'gap'. This is not always apparent from analyses that only present results for different ethnic groups and do not directly measure the size of the differences between those groups.

This report has a number of limitations. Data quality and availability is a particularly important issue. Ethnicity data collection is known to be far from perfect, and proper assessment of ethnic inequalities is highly dependent on good-quality ethnicity data. For population-based indicators, measuring ethnic inequalities requires information on population sizes for all relevant ethnic groups, which is difficult to obtain outside census years. Statistics NZ currently provides population projections for ethnic groups at the 'Maori/Pacific/Other' level, but not for more detailed ethnic subgroups. A choice therefore needs to be made between analysing data only at the 'Maori/Pacific/Other' level, or using population projections created outside Statistics NZ, which are potentially less robust.

There is also a tension between having a comprehensive set of indicators that covers all relevant health services and factors influencing health, and having a shorter set of indicators that is easier to interpret and manage. The set of indicators contained in this report aims to balance these concerns as much as possible.

[22] Jackson 2006
[23] Weinick et al 2008
[24] U.S. Department of Health and Human Services 2006
[25] Agency for Healthcare Research and Quality 2008

Community input was not directly obtained in the development of this indicator set, which is one of its limitations. However, as the draft indicator set was developed at the same time as community consultation was undertaken for ethnic-specific health needs assessment for the DHB, some of the community feedback informed the development of this indicator set.

There are a number of options for further developing this indicator set in the future, including:

- Adding other dimensions of inequality, especially socioeconomic status
- Adding indicators for mental health and ethnicity data collection, if these can be developed
- Periodically reviewing the indicator set in the light of new information about the size of inequality and the public health impact of different indicators, and when new data sources become available

It is hoped that this set of ethnic inequalities indicators can help to identify and monitor important health inequalities in the Waitemata district and guide the appropriate allocation of resources to minimise these inequalities.

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Appendix 1: Data dictionary

Indicator 1: Life expectancy	
Numerator: Life expectancy at birth	
Denominator: none	
Source: Analysis within Waitemata DHB	**Contact**: Ratana Walker and Sam Martin, Waitemata DHB
Reporting period: 2006, 2007, 2008	**Frequency of reporting**: Annual
Ethnicity: Maori, Pacific, Other	**Rate**: not applicable
Comments/Issues: • Calculating life expectancy for the Asian population in the Waitemata district is not considered meaningful due to the strong impact of migration	

Indicator 2: Housing	
Numerator: Cumulative number of home visit assessments by Warm 'n' Well programme	
Denominator: none	
Source: Contract reporting data	**Contact**: Stacey Strang, Waitemata DHB
Reporting period: Current data is provisional only from Oct 2008	**Frequency of reporting**: Formal reporting available six-monthly
Ethnicity: To be available early 2009	**Rate**: Number of assessments
Comments/Issues: • Ethnicity data will be available as part of routine reporting from January 2009 • Recommend using ethnic categories that cover groups known to be disadvantaged with respect to housing (Maori and Pacific) – e.g. Maori / Pacific / Other. • Recommend assessing inequality impacts in a similar way to that used for DHB staff ethnicity (indicator 9): compare proportion of cumulative housing assessments belonging to each ethnic group with proportion of WDHB population belonging to each ethnic group. The goal (for reducing inequalities) is to have the former proportion larger than the latter proportion for Maori and Pacific (to reverse the disadvantage with respect to housing for these groups)	

Indicator 3: Tobacco use	
Numerator: Census: regular smokers (regular smokers are people who at the time of the census were regular smokers of one or more cigarettes per day). NZ Health Survey (NZHS) and NZ Tobacco Use Survey (NZTUS): Current smoker (someone who has smoked greater than 100 cigarettes in their lifetime and currently smokes at least monthly)	
Denominator: Census: Census population. NZHS/NZTUS: sample populations	
Source: NZTUS, which used Census data in 2006, and NZHS	**Contact**: Published by Health & Disability Intelligence, Ministry of Health
Reporting period: 2006 (Census); 2006-07 (NZHS)	**Frequency of reporting**: Annual to biennial (depending on availability of analyses by both ethnicity and DHB)
Ethnicity: For Census data: Maori, Pacific, European, Chinese, Indian, Other Asian, Other. For NZHS: Maori, Pacific, Other.	**Rate**: Percentage
Comments/Issues: • Available from NZTUS and NZHS. Note NZTUS used Census 2006 data for its DHB-level results, which will differ in future non-census years. • NZTUS is carried out in between NZHS years. Health & Disability Intelligence is yet to confirm whether it will be able to provide smoking prevalence estimates by DHB and ethnicity for years in which there is no NZHS – they may pool NZTUS results across two years given the relatively small sample size	

Indicator 4: PHO non-enrolment	
Numerator: Resident population not enrolled in any PHO	
Denominator: Statistics NZ population projections prepared for Ministry of Health	
Source: Ministry of Health PHO Enrolment Demographics	**Contact**: James Teasdale, Data Analyst, Primary Health Policy, Health & Disability Services Policy Group, Population Health Directorate, Ministry of Health
Reporting period: 2008, second and third quarters	**Frequency of reporting**: Available quarterly
Ethnicity: Maori, Pacific, Other. Asian available for numerator but not denominator so not able to be used	**Rate**: Percentage not enrolled
Comments/Issues: • Analysis limited to ethnic categories available in denominator data • Would be ideal to include Asian (and subgroups) if denominator data were available	

Indicator 5: Breast screening coverage	
Numerator: Number of Breast Screen Aotearoa-screened women aged 45-69 years during the 24-month period	
Denominator: Statistics NZ population projections prepared for Ministry of Health	
Source: National Screening Unit data	**Contact**: Eileen Hewer, Quality Manager, National Screening Unit, Ministry of Health
Reporting period: Jun 06 – Jun 08	**Frequency of reporting**: Six-monthly
Ethnicity: Maori, Pacific, Other	**Rate**: Percentage coverage (screened in last two years)
Comments/Issues: • Would be ideal to include Asian (and subgroups) if data were available	

Indicator 6: CVD risk assessment and management	
Numerator: Number of patients receiving CVD risk assessment	
Denominator: Number of eligible patients (defined as: Maori/Pacific/Southern Asian, >35 for male and >45 for female; European/Other, >45 for male and >55 for female).	
Source: PHOs via healthAlliance Data Warehouse	**Contact**: Lifeng Zhou, Waitemata DHB
Reporting period: TBC	**Frequency of reporting**: TBC
Ethnicity: Maori, Pacific, South Asian, Other	**Rate**: Percentage coverage
Comments/Issues: • Data taken from report of preliminary analysis. Historical data not available	

Indicator 7: Diabetes	
Numerator: Number accessing annual checks	
Denominator: Proportion of population estimated to have diabetes	
Source: Get Checked Master Summary report, Ministry of Health (spreadsheet)	**Contact**: Sandy Dawson, Chief Advisor, Clinical Service Development, Sector Capability & Innovation Directorate, Ministry of Health
Reporting period: 2001-2007/08	**Frequency of reporting**: Annual
Ethnicity: Maori, Pacific, Other	**Rate**: Percentage
Comments/Issues: • Would be ideal to include Asian (and subgroups) if data were available	

Indicator 8: Child and youth asthma hospitalisations	
Numerator: Asthma admissions (primary diagnosis J45-J46), age 0-24	
Denominator: Statistics NZ population projections prepared for Ministry of Health, age 0-24	
Source: Waitemata DHB analysis	**Contact**: Sam Martin
Reporting period: 2002/03 – 2006/07	**Frequency of reporting**: Annual
Ethnicity: Maori, Pacific, Other	**Rate**: Age-standardised rate per 100,000
Comments/Issues: • Analysis limited to ethnic categories available in denominator data • Would be ideal to include Asian (and subgroups) if data were available	

Indicator 9: DHB staff ethnicity

Numerator: Patients: number of patients (all casemix purchased discharges) belonging to each ethnic group

Staff: number of staff (all current full-time WDHB employees) belonging to each ethnic group

Denominator: Patients: total number of patients (all casemix purchased discharges)

Staff: total number of staff (all current full-time WDHB employees)

Source: Analysis within Waitemata DHB	**Contacts**: Discharges: Zina Ayar, Decision Support Team. Staff ethnicity: Carmel Cournane, healthAlliance
Reporting period: 2005-08	**Frequency of reporting**: Annual
Ethnicity: Maori, Pacific, Asian, Other	**Rate**: Percentage

Comments/Issues:

- This indicator assesses the extent to which the ethnicity distribution of DHB staff matches the ethnicity distribution of patients, as a measure of cultural appropriateness of services
- Staff ethnicity data is not of a high quality, with over 10% of staff ethnicities reported as 'not disclosed' and reported ethnicity categories not well-matched to Census ethnicity categories. Accordingly, analysis is conducted at the level of Maori / Pacific / Asian / Other, even though more detailed ethnicity categories are available
- Staff ethnicity includes all current full-time WDHB employees (including non-clinical staff) and does not take account of the relative importance of the person's role in influencing patient health. However, there was no clear method for performing such an analysis with the available data.

Indicator 10: Invasive cardiovascular procedures	
Numerator: Total number of invasive cardiovascular procedures (defined as angiographies plus angioplasties plus coronary artery bypass grafts)	
Denominator: Statistics NZ population projections prepared for Ministry of Health	
Source: Analysis within Waitemata DHB	**Contact**: John Huakau, Waitemata DHB
Reporting period: 2001/02 – 2007/08	**Frequency of reporting**: Annual
Ethnicity: Maori, Pacific, Other	**Rate**: Age-standardised rate per 100,000
Comments/Issues: • Would be ideal to include Indian population, if data were available, given CVD disease burden in this group. Would also be useful to include other Asian subgroups if possible • Results need to be interpreted in relation to 'need' for invasive cardiovascular procedures. CVD disease burden is known to be higher in Maori and Pacific populations, suggesting that invasive cardiovascular procedure rates should also be higher, but how much higher is difficult to quantify • No suitable method of adjusting rates to account for 'need' was identified, but may be a useful future piece of work • Results for different ethnic groups are not directly compared for this indicator (i.e. there is no calculation of absolute or relative inequality) because there is no adjustment for 'need' and thus results could be misleading regarding whether procedure rates were equitable	

Indicator 11: Outpatient DNA rates	
Numerator: Number of patients who did not attend outpatient clinic appointments	
Denominator: Number of outpatient clinic appointments	
Source: Analysis within Waitemata DHB	**Contact**: Sheree Clements, Waitemata DHB
Reporting period: 2003/04 – 2007/08	**Frequency of reporting**: Annual
Ethnicity: Maori, Pacific, European, Indian, Chinese, Other Asian, Other	**Rate**: Percentage
Comments/Issues: • National data not available for this indicator	

DNA: 'did not attend' (i.e. a clinic appointment)

Appendix 2: Other indicators considered for this project

A large number of potential indicators were identified and considered as part of this project. Sources included consultation within the DHB, strategic planning documents, other NZ indicator documents and the literature review.

A selection of these are presented in this appendix, on the basis that they may be of use in the further development of inequality indicators.

Indicator options identified during consultation

Indicator	Notes on details and issues
Fully vaccinated at 2y	Routinely available quarterly. Already in health targets
Elective services	Not routinely available by ethnicity
Free under 6s / VLCA visits	Alternative to PHO enrolment
Suicide rates or attempts	Small numbers per year for suicide deaths
Nutrition or physical activity	Already in health targets
Violence	
Parenting (relationship with children)	E.g info from social report on parent/child relationships (uncertain whether available for DHB by ethnicity)
Colon cancer	May be a useful indicator once screening programme has started
Other determinants (e.g. security of income, housing, employment)	Many not directly modifiable by DHB at present
Oral health	E.g. DMFT
Breastfeeding rates	Already in health targets
Under 18yo pregnancy rate	Indicator of unwanted pregnancies (does not directly correspond)
Patient satisfaction	Responsiveness of services is a very important issue – but may not be measured well by patient satisfaction surveys, which show little inequality in reported satisfaction
Self-discharge rates	Small numbers – but RR 2.4 for Maori
Under 5 mortality rates	
Patient complaints	
Availability of interpreting services	

Indicator options from Health Targets:

% two year olds fully immunised	Immunisation coverage
Adolescent oral health utilisation	Oral health
ESPI compliance; agreed increase in discharges	Elective services
Wait under 8 weeks to treatment	Cancer waiting times
Decline in ASH for 0-74yo	Ambulatory-sensitive hospitalisations
More annual checks, good control, retinal screening	Diabetes services
Up-to-date relapse prevention plans	Mental health services
More breastfeeding, more fruit & veges 5+/day	Nutrition / physical activity / obesity
Year 10 never smokers, children in smokefree homes	Tobacco

Indicator options from Waitemata District Strategic Plan:

Maori PHO enrolment	Inequalities
Pacific mortality rates	Inequalities
Childhood obesity strategy implementation	Healthy lifestyles
Reduce smoking prevalence (total / Maori)	Healthy lifestyles
CVD / diabetes risk assessment & management	CVD/diabetes
Cancer Control Strategy implementation	Cancer
Well Child enrolment and fully vaccinated age 2	Children
Baby-friendly hospital certification	Children

PHOs - community involvement, 'sustainable', 'robust business capacity', enrolment	Primary health
School based health services in secondary schools	Young people
Service range, accessibility, co-ordination	Health of older people
Access to community mental health services for children & youth	Mental health
Complete 10y service development plan for secondary services	Specialist services
Staff retention and vacancy rates	Developing capability and capacity
Information systems for chronic illness outcomes and primary/secondary integration	Developing capability and capacity
Financial viability	Financial sustainability

Proposed minimum set of health disparity indicators (Ministry of Health 2001)

Table 5: Proposed minimum set of health disparity indicators

- $DALE_0$*
- LEo (and derivatives if desired, eg, probability of surviving middle age)
- All-cause YLL rate
- Self-rated health*
- Disability prevalence (adjusted for severity)*
- Avoidable mortality and YLL rate
- Avoidable hospitalisation rate
- IMR (or postneonatal mortality rate or SIDS rate, depending on the purpose)
- LBW (preferably distinguishing premature delivery from growth retardation)
- Breastfeeding rate (full at three months; full and partial at six months)
- DMF teeth at age 12
- Hearing failure at school entry (or earlier if possible)
- Youth fertility rate (or under 18 pregnancy rate)
- Youth suicide and attempted suicide rates
- Youth road traffic injury hospitalisation and mortality rates
- IHD mortality rate
- Rheumatic fever notification rate (and/or RHD hospitalisation rate)
- Breast cancer registration rate (linking to the performance measure: screening rate)
- Invasive cervical cancer registration rate (linking to screening rate)
- Hepatitis B notification rate (and/or primary liver cancer notification rate)
- Combined VPD notification rate (including TB) (linking to immunisation coverage rate)
- Meningococcal disease notification rate (temporarily only)
- Smoking rate (possibly including a smoking intensity measure)
- Physical inactivity rate*
- Obesity rate* (eg, if self-reported BMI can be collected through a CATI survey)
- Diabetes rate* (otherwise use indicator of diabetes burden, eg, amputation rate)
- Hypertension rate* (otherwise use proxy indicator, eg, HHD mortality rate).

* Currently only available from surveys with a periodicity of more than three years; would therefore require change in survey design or data could be collected (three-yearly or more frequently) by some other means.