

Counties Manukau District Health Board
Improving Access to Elective Surgery 1996/97 – 2005/06



ISBN 978-0-9582260-8-0

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CMDHB
May 2007

Many thanks for the great assistance from Dean Papa, Pauline Hanna, Sue Shipperlee, Chris Mules and others.

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Pictures on cover are from Project Excel - Interventional surgery suite; Manukau Surgery Centre.

Citation: Lindsay G, Jackson G, Robinson T. Counties Manukau District Health Board: Improving access to elective surgery 1996/97 – 2005/06. CMDHB May 2007.

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Abbreviations

ACC	Accident Compensation Corporation
BPH	Benign prostatic hypertrophy
CABG	Coronary artery bypass graft
CM	Counties Manukau
CMDHB	Counties Manukau District Health Board
CPAC	Clinical Priority Access Criteria – scoring system assessing patients for surgery
DRG	Diagnosis-Related Group
DHB	District Health Board
ENT	Ear, Nose, Throat surgical specialty, = ORL
HFA	Health Funding Authority
ICD	International Classification of Diseases (version 9-CM to July 00, Version 10-AM thereafter)
ICU	Intensive Care Unit
MOH	Ministry of Health
NMDS	National Minimum Data Set
NZ	New Zealand
NZDep Index	New Zealand Deprivation Index (2001 version used for this report)
OME	Otitis media with effusion – main indication for grommet surgery
ORL	Otorhinolaryngology surgical specialty, = ENT
PTCA	Percutaneous coronary angioplasty
SDR	Standardised discharge ratio (see methodology section)
SNZ	Statistics New Zealand
SRG	Service-Related Groups (using DRGs to map to specialities)
THJR	Total hip joint replacement
TKJR	Total knee joint replacement
T/L	Tubal ligation, contraceptive measure
T&A	Tonsillectomy and adenoidectomy

Executive summary

Counties Manukau District Health Board has had a deliberate strategy to improve access to elective surgery through increased investment using benchmarking to the national intervention rates as a guide. As a result, Counties Manukau residents now have rates of publicly funded surgery similar to or higher than the New Zealand average for the first time. This document outlines in more detail the changes for Counties Manukau residents for elective surgery overall, and for specific surgical procedures.

Elective surgical procedures numbers have increased

There has been a significant increase in publicly funded elective surgical procedures for Counties Manukau residents over the past 10 years. For children (ages 0-14) the annual number of procedures climbed from about 1,600 in 1996/97 to 2,650 in 2005/06, a 65% increase. For adults (age 15+) the rise was from 5,000 in 1996/97 to 8,000 in 2005/06, a 60% increase.

Compared with New Zealand elective surgery rates, rates for Counties Manukau children were below the NZ average for the late 90s, then improved to exceed the national average for four years before dropping back to slightly below the NZ average in 2004/05 and 2005/06. In contrast, the adult rate was below the NZ average for the late 90s but for the past five years, the rates have been fluctuating around the NZ average. This is the first time Counties Manukau residents have had such access to publicly funded surgery.

Elective surgical procedures waiting times have decreased

The number of people waiting for an elective surgical procedure has dropped from about 8,000 in the 1990s to around 3,000 as at 30 June 2006. More importantly, the number waiting longer than 6 months has dropped from about 60% of surgical procedures performed to 18% as at 30 June 2006 (from 4,600 to 500 people). The average waiting time for elective surgical procedure was relatively stable at around 10 months in the 1990s, but dropped precipitously to under 4 months by 2006.

Significant system change was required

The Elective Services Booking System has been progressively implemented over the past 5 years by CMDHB. It required all patients to be assigned clinical priority scores, and implementation of the switch to a booking system from the old waiting list system (for CMDHB this occurred in 2002). This gave more certainty to the patient, along with more clearly demonstrated fairness - the neediest patients are scored highest and receive surgery ahead of those with low scores. This fundamental change required the removal from the waiting list of all those people assessed in the old system as being able to benefit from surgery but with a level of need too low to meet the new booking list criteria. The mechanism used was to refer these patients back to their general practitioner, leading to over 3,200 letters being sent to patients advising them of their removal from the waiting list between 2003 and 2006.

By the end of 2005/06 the booking system has been fully implemented at Counties Manukau, with patients being added to the booking list at a rate balanced by the patients being treated, ensuring the 6-month maximum is being largely adhered to. By June 2006 only 552 patients were waiting longer than 6 months, and this number has continued to fall. In parallel with this process, CMDHB invested in the Manukau Surgery Centre, purpose-built for elective surgery, allowing the separation of elective work from many of the demands of acute surgical work.

Elective surgery based on need

One of the key aims of the elective surgical reforms was to make the system fairer for patients – ensuring service was provided in proportion to need. One measure of that is the rates of surgery by ethnicity and deprivation group. In the past the Maaori rate for elective surgery has been below the Other rate despite Maaori having higher rates of acute surgery. As the booking system has been implemented the gap has closed for Counties Manukau residents, such that by 2005/06, for the first time, the Maaori rate equalled the Other rate. The gap between Pacific peoples and Other has also reduced over time. Asian rates were consistently much lower than all other groups.

The public system has consistently had higher intervention rates for people living in areas of higher deprivation, a difference usually attributed to wealthier populations choosing to use private surgery options. This intervention rate difference has been maintained or become more pronounced over the past five years for most procedures. For three procedures, the deprivation difference has decreased – cholecystectomy, inguinal hernia repair and prostatectomy; mainly due to increases in publicly funded procedures rates for people living in low deprivation areas. This possibly signals some shift from private surgery, with the increasing certainty enabled by the booking system making the public system more attractive. In general, however, while cause and effect cannot be determined definitively, it appears likely that improvements in equity have taken place as a result of the new system's implementation.

Surgical complexity has increased

Procedures can be assigned different weights depending upon the complexity of the procedure. The case-weighted adult elective discharge rate for Counties Manukau residents was above the NZ average in 2004/05 for the first time. The case-weighted child elective procedure rates for Counties Manukau have fluctuated around the NZ average since 1999.

The overall complexity of surgical procedures has increased by about 12% since 2000/01 for NZ and 20% for CMDHB. The increases in complexity are likely to be related to the new Clinical Priority Access Criteria (CPAC) scoring system ensuring treatment of the higher need and hence higher complexity cases first, and to the increased investment in major procedures like hip and knee joint replacement increasing average procedure complexity.

Private surgical data are limited and not current

Unfortunately little recent data were available to measure the effect of privately provided elective surgery, through either ACC purchasing, health insurance or self-funding. The most recent Counties Manukau data set is for 2001, and even that has little cover of the ENT, Ophthalmology or sterilisation areas. We have noted past private rates where possible – see notes on specific procedures in the table below.

In 2001 the overall utilisation of privately funded surgery by CM residents was similar to the NZ average, but was less that of Waitemata and Auckland residents.

Other important points to note when interpreting data on privately funded surgical procedures are that ethnicity or socioeconomic status recording are somewhat limited; private surgery is likely to be for less serious conditions (does not have to meet any particular CPAC threshold) so the balancing of private and public is not necessarily comparing like with like; and data for private procedures is only required for private hospital inpatient cases. As various procedures become more 'office-based' (e.g. cataract surgery) rather than theatre-based so they disappear from the dataset.

Despite these data limitations it seems likely that the majority of private surgery over the 10-year period was performed in people with health insurance, Europeans and the least deprived. Private surgery is happening in those living in more deprived areas – this may be assisted by workplace and union medical insurance schemes, or the simple misclassification bias inherent in area-based socio-economic categorisations.

Specific procedures

Looking across the surgical procedures examined in this report, there has been a marked improvement in access to publicly funded surgery for Counties Manukau residents over the past 10 years. Most procedures have had increased intervention rates, improvements compared to the New Zealand average, and apparent improvements in equity, with Maaori and people living in high deprivation areas seeing improved intervention rates. A summary of the progress made for each procedure is noted in the table below.

Procedures that have shown the largest improvements in intervention rates are hip and knee joint replacements, cardiac procedures, and cataracts. The largest improvements in access for Maaori are in those areas, and also cholecystectomy procedures. For people living in high deprivation areas the cardiac and orthopaedic rates showed improvements, and high rates were maintained in cataract surgery and provision of tubal ligations.

Some procedures showed little rate change or declined slightly – hysterectomy, prostatectomy, grommets and tonsillectomy/adenoidectomy. In each case there are either alternative treatments becoming available or re-evaluations of the effectiveness of the surgery in treating the underlying condition. Low intervention rates in these conditions may in fact be the prudent course, assuming there is good access to the alternate treatments. Access to urology and gynaecology services remain a concern for the DHB however.

Some procedures – cholecystectomy, inguinal hernia repair and prostatectomy – showed a reduction in the gap between those living in low deprivation areas and those living in high deprivation areas. In each case this has mainly been due to increases in procedure rates from people living in low deprivation areas, while those in poorer areas have largely maintained intervention rates. This possibly signals some shift from private surgery for the wealthier population, with the increasing certainty enabled by the booking system making the public system a more attractive option. While this may be seen by some as an unwanted by-product of the Elective Booking System, one cannot argue with the basis of the system determining priority by need.

Summary of specific procedures for Counties Manukau 1996/97 – 2005/06

Procedure	Intervention Rate	Compared to NZ average *	Ethnicity fairness	Deprivation fairness #	Private significance
Coronary angiogram	↑↑ 50% increase 96-06	↔ Maintaining SDR ~1.2	↑↑↑ 2-3x Maaori & Pacific rates	↑↑ Q5:Q1 ratio widening	~20% procedures in 2001
Angioplasty and CABG †	↑↑↑ Nearly doubled	↑ 1.2 SDR in 05/06	↑↑↑ 2-3x Maaori & Pacific rates	↑ Q5:Q1 widening	~20% procedures in 2001
Total Hip Joint replacement	↑↑↑ Doubled	↑↑↑ to NZ average from 04/05 on	↑↑↑ Maaori >2-fold increase in rates	↔ 50% Q5>Q1 weighting remains	~50% procedures in 2001
Total Knee Joint replacement	↑↑↑ Nearly 3-fold	↑↑↑ from 0.7 SDR to 1.2 from 04/05 on	↑↑↑ Maaori rates quadrupled	↑↑ Clear Q5:Q1 gradient increases	~50% procedures in 2001
Hysterectomy	↔ Little change	↔ Around NZ average	↔ Similar rates	↓ 2-fold Q5:Q1 ratio, falling slightly	~50% procedures in 2001
Tubal ligation	↑ Small increase	↑↑ Moved from ~1.2 SDR to ~1.8 SDR	↔ Large Maaori and Pacific excess maintained	↔ 4-fold Q5:Q1 excess maintained	Highly significant, especially the impact of private vasectomies on other forms of contraception
Cataract operations	↑↑ 50% increase 96-06	↔ Around NZ average	↔ Large Maaori and Pacific excess maintained	↔ 4-fold Q5:Q1 excess maintained	Probably over 50%
Grommets	↔ Higher rates 98-03, now reduced	↓ NZ average 98-03, now below ~0.8 SDR	↔ Some Maaori and Pacific excess maintained	↔ 2-fold Q5:Q1 excess maintained	Probably over 50%
Tonsillectomy/adenoidectomy	↔ Higher rates 98-00, now reduced	↓ NZ average 98/99, now well below ~0.6 SDR	↔ Other excess maintained	↔ 1.5 to 2-fold excess maintained	Probably over 50%
Cholecystectomy	↑ 30-40% increase	↑ 1.2 SDR in 05/06	↑↑ Significant Maaori increase	↓ Q5:Q1 ratio dropped from 3-fold to 2-fold	~30% procedures in 2001
Inguinal hernia repair	↔ Rates steady, child and adult	↔ Around NZ average	↔ Little change	↓ Q5:Q1 ratio dropped from 3-fold to 2-fold	~40% procedures in 2001
Prostate operations	↓ Rates have decreased around 30%	↑ Increased SDR, but still below NZ average	↔ Little change	↓ Q5:Q1 ratio dropped from 3-fold to 2-fold	~60% procedures in 2001

Quick Key (if viewing in colour)

Green shading – moving in a generally positive direction.

Clear – unchanged or neutral position.

Orange shading – potential for concern.

* SDR = Standardised discharge ratio (a measure for comparing the CM rate versus the rate for all of NZ. A rate >1.0 means the rate for CM is greater than the rate for NZ and vice versa.

Q5 = Quintile 5 = NZDep deciles 9+10 i.e. the most deprived areas.

Q1 = Quintile 1 = NZDep deciles 1+2 i.e. the least deprived areas.

† CABG = Coronary artery bypass graft.

1. Introduction

In New Zealand and most countries with publicly funded healthcare systems, there will always be a limit to the amount of elective^{*} treatment that taxpayer funding can support. Technology advances and surgical and anaesthetic improvements widen the scope of what is possible or feasible to be done, and longer life expectancies ensure more people are alive longer to receive health care interventions. This will apply for acute surgery as well as for elective surgery, so as demand for elective services continues to grow, services are constantly under pressure. While elective surgery is not a major contributor to population health outcomes, it has a disproportionate effect on public perception of how well the public health system is functioning.

Counties Manukau DHB (CMDHB) has made considerable progress in improving the access of its residents to elective surgery over the past 5 years. These improvements in access for CMDHB residents for surgery have come against the background of the most radical change in the method of determining eligibility for publicly funded surgery since the waiting list system started. As the Ministry of Health (MOH) explains (from www.electiveservices.govt.nz):

The key principles underlying the new system are clarity, timeliness and fairness: clarity, where patients know whether or not they will receive publicly funded services; timeliness, where services can be delivered within the available capacity, patients receive them in a timely manner; and fairness, ensuring that the resources available are directed to those most in need.

A number of performance indicators have been established to measure clarity and timeliness. These assess how well a hospital manages the patient flow through the system, including whether:

- *all patients referred to hospital by their GP who can be seen within the available resources, are seen for a first specialist assessment within six months*
- *all patients assigned a priority by a specialist are managed in accordance with that priority (relative to the priorities assigned to other patients managed by that service)*
- *all patients given a commitment to getting treatment receive that treatment within six months*
- *all patients have a plan of care.*

The Elective Services Booking System has been progressively implemented over the past 5 years, with CMDHB switching from the waiting list system in 2002. By December 2002, all patients were being assigned clinical priority scores (known as CPAC scores – Clinical Priority Access Criteria) as prioritisation for treatment. In earlier days, however, the process of selecting patients for surgery was not always in accordance with the principles and patient priorities. Commencing January 2004, CMDHB began giving patients a commitment to treatment within 6 months in orthopaedics, followed by introduction in other services between 2004 and 2006. By the end of 2005/06 virtually all cases were receiving this certainty of treatment. The key difference here is that a person had a commitment and was being booked for treatment within 6 months of the assessment. This gives certainty to the patient, and allied with the priority scoring ensures fairness as the most needy patients are ranked first. Patients are no longer told that they need surgery then put on a list that they may never get to the top of. One patient had been on a CMDHB plastics list for 13 years!

To achieve this 6 months booking time, intensive effort was put into clinically reviewing a large backlog of patients to ensure that their clinical prioritisation reflected their need at that time. The process also resulted in a significant improvement in the quality of booking list data quality from updating of information. A treatment threshold was determined for each specialty, such that all patients would be able to be treated within the 6 months. The introduction of treatment thresholds required that patients whose score fell below the threshold were referred back to their general practitioner to be managed in the primary care setting with the ability for re-referral to a specialist if there were changes in the clinical condition. This was quite a disruptive change - 267 letters were sent to patients advising them of their removal from the waiting list in 2003, rising to 412 in 2004 and 1410 in 2005 before tailing off in 2006 (644).

By the end of 2005/06 the booking system has been fully implemented at Counties Manukau, with patients being added to the booking list at a rate balanced by the patients being treated ensuring the 6 month

^{*} Elective treatments are those chosen (elected) by the patient and their doctor that are considered advantageous to the patient but are not urgent (acute).

maximum is being largely adhered to. By June 2006, only 552 patients were waiting longer than 6 months, and this number has continued to fall, as have treatment thresholds as the higher priority patients have been treated. CMDHB was the first DHB nationally to achieve compliance with the national Elective Services Booking System in May 2005. Compliance has been maintained since this time.

In parallel with this process CMDHB invested in the Manukau Surgery Centre, located next to the Superclinic in Manukau City. This was purpose built for elective surgery, and allowed the separation of elective work from many of the demands of acute work. Almost all day surgery for CMDHB and over 90% of other electives are carried out at the Manukau Surgery Centre. Originally opened as a day surgery unit in 1997, it expanded to 10 theatres and 2 procedural rooms with 40 inpatient beds in October 2001. It operated as a 5 day a week service initially, but soon expanded to full 7-day care. The second floor, a further 38 beds including a 4-bed high-dependency unit (HDU), was opened in April 2005. Elective surgery requiring interventional radiology or which might need ICU support remains at Middlemore Hospital. Some of the regional specialities such as cardiothoracic surgery and neurosurgery are carried out for Counties Manukau residents at Auckland City Hospital.

The achievements documented in this report have only come about by the hard work and determination of the staff working in surgical services. Their acceptance of the fairness principles underlying the new system, and willingness to change fundamental aspects of the way they work have been key to the success of the changes. Also integral to the change have been the patients, who once they have had explained the aims of the new system with its emphasis on fairness, and treating those with highest needs first, have been largely supportive.

The public can monitor progress on publicly funded elective surgery for every DHB on the Ministry of Health website www.electiveservices.govt.nz.

As a result of a deliberate CMDHB strategy to increase investment in elective surgery, with benchmarking to the national intervention rates, Counties Manukau residents now have rates of publicly funded surgery similar to or higher than the New Zealand average for the first time. The increase has been briefly described in previous Counties Manukau DHB documents such as *CMDHB Progress 2001-2006. What have we achieved?* (available on www.cmdhb.org.nz). This current document goes into more detail on the surgery-related findings of that report, then looks closer at the changes for specific surgical procedures. Procedures were selected on basis of their importance to CMDHB – their high frequency (e.g. hip and knee joint replacement), cost (e.g. coronary artery bypass surgery), or where there is a special interest (e.g. tubal ligation – this has been the subject of a specific initiative).

It is hoped this report will add to the discussion on where areas of further analytical work for elective surgery might be focussed, and areas for further surgical investment or indeed disinvestment.

1.1. Methodology

Data sources

The primary data source used is the National Minimum Data Set (NMDS) for the 10-year period of 1996/97 to 2005/2006. Private hospital discharges were included only if publicly funded and recorded on the NMDS (it is unclear if all such procedures as so recorded, most are thought to be). All Counties Manukau residents were included, not matter wherever their publicly funded procedure took place in New Zealand (for example, cardiac surgery at Auckland City Hospital carried out on CM residents will be included). ACC-funded elective procedures are not included. ACC purchases care from both public and private hospitals, in differing ratios around the country. With the lack of detailed access to private hospital data (discussed below) we are unable to provide a clear analysis of ACC-funded procedures, so these have been excluded.

Information on waiting times and numbers of people on waiting/booking lists were obtained from CMDHB internal systems. These figures relate to all people treated by CMDHB, rather than all residents.

Please note that the data presented in this report reflect the NMDS at one point in time (downloaded September 2006). Data in the NMDS are subject to small changes over time as late reports about patient discharges are received. As a result, data extracted at a different date may result in slightly different figures.

Acute and elective data

Unless stated otherwise, the data presented for individual procedures are for elective and acute procedures combined as one group. This avoids potential definitional issues in how DHB internal systems classify booking list and urgent arranged patients. Elective as used in this report follows the standard Health sector definition - patients who have a procedure booked greater than a week after presentation (same day = "acute", within a week is "acute arranged").

Age groups and age-standardisation

Data were divided into two broad groups for analysis: 0-14 years, ("child") and 15 years and over ("adult"). For most discussion purposes we are interested in rates per head of population rather than straight numbers. Rates in this report were directly age-standardised in 5-year groups using the 2001 all New Zealand Census population as the standard. As many conditions are common in some age groups but not others, it is important to age-standardise rates when comparing groups that may have differing age structures. For example, CMDHB has a younger population compared to the NZ total population, so one would not expect to see as many total hip joint replacements (a procedure mainly done for older persons) than in a similar sized population with an older mix. Similarly, Maaori and Pacific populations have a younger population structure, so comparisons would be misleading without age-standardisation. Although age-standardising is essential for inter-group comparisons, it does create its own interpretations issues.[†]

Case-weight data

Most of the data in the report are shown as trends in actual procedure numbers and rates. Simple procedures such as a tonsillectomy therefore count the same as a complex total hip joint replacement. The section on elective case-weighted discharges shows an alternative way of viewing data. Case-weights give procedures a different weight depending upon the complexity of the procedure. Case-weight data were available for the period from 1999 onwards.

Ethnicity data

Statistics New Zealand (SNZ) prioritised[‡] ethnicity was used. Data for four ethnic groupings are presented in this report - Maaori, Pacific, Asian and all Others (which includes all European and a small number of people with no ethnicity recorded - <3%). The category 'Asian' is used here in common with many Health sector reports, but the heterogeneity of the populations included within it reduces its usefulness somewhat in analysis. The largest proportion is made up of people of Chinese and Indian ethnic background, but many

[†] For example, in looking at Figure 4 on page 16 one sees for the 2005/06 year Maaori adults have a rate of 29 public hospital elective procedures per 1000 compared with a total Counties Manukau rate of 27 per 1000. That is, if the Maaori population of Counties Manukau in 2005/06 had the same population structure as all New Zealand in 2001, then the age-specific intervention rates that occurred in 2005/06 for Maaori would give a total of 29 in every 1000 (or 2.9%) having had an elective procedure. This is slightly higher than the 27 procedures per 1000 persons the total Counties population would have had if it had the same age structure as all New Zealand in 2001. We have not attempted to use this rather long-winded phraseology throughout, but this is the more accurate way to think about these rates.

[‡] Prioritised means that each person is assigned to one ethnic group only. As people can chose multiple groups this entails assigning those people to a single group using a priority sequence. The high level priority sequence is Maaori, followed by Pacific, Asian, Other then European. For more details, see <http://www.nzhis.govt.nz/documentation/ethnicity/index.html>.

other groups are represented, and range from recent migrants through to sixth-generation New Zealanders. The reliability of hospital-collected ethnicity data over this period is considered to be good, and should reasonably match the Census denominators for calculating rates.

Denominator population numbers for the different ethnic groups were from SNZ data and SNZ DHB population projections as commissioned by the Ministry of Health (October 2005 version for 2002 on, based on Census 2001). As the DHB projections for this period were limited to Maaori, Pacific and all Others, estimates of Asian population figures were produced for the 10-year period so that separate rates could be calculated for this group.

International Classification of Diseases (ICD) procedure codes

The ICD procedure codes underwent changes over the 10-year period covered in this report. The most appropriate ICD-9-CM (to June 2000) and ICD-10-AM (July 2000 on) first, second and third codes to use for each procedure query were selected. The codes used are shown in appendix 1.

Standardised Discharge Ratios (SDRs)

In this report, the SDRs compare the Counties Manukau age-standardised procedure rates with the national average (which is set at 1). If all DHBs were providing services at the same level, they would all be at 1. A rate higher than 1 indicates that the Counties Manukau rate is higher than the average rate in NZ, and a rate lower than 1 indicates that Counties Manukau is lower than the average rate in NZ.

It is important to note that this intervention analysis does not necessarily indicate what the right rate might be, but compares individual DHBs resident populations with the national mean, taking DHB age structures into account. Note that neither ethnicity nor deprivation have been standardised for in this report.

Also note that the SDRs in this report may differ slightly from those available at www.nzhis.govt.nz/stats/surgical/index.html due to minor differences in ICD codes used and that this report divided cases into two age-groups (0-14 years and 15+) rather than considering everyone as one group.

Private surgery data

Limited data are available on Counties Manukau residents who have had procedures that were privately funded (usually via health insurance or self-payment). The NMDS data are collected by the NZHIS on certain procedures which may have occurred in a private or public hospital. Note that this dataset excludes services funded by ACC or by DHBs in private facilities.

A limitation is that available data lags behind the public data by many years. Much of the delay is related to processing of the predominately paper-based records, and that public hospital events are processed ahead of privately funded events. The most recent year available for Counties Manukau private hospital data for this analysis is the 2001 calendar year, and does not include ACC or DHB funded work undertaken in private facilities.[§] In 2001 the overall utilisation of privately funded surgery by CM residents was similar to the NZ average, but was less than that of Waitemata and Auckland residents.

Another limitation is that data for private procedures is only required for private hospital inpatient cases. As various procedures become more 'office-based' rather than theatre-based so they disappear from the dataset. For this analysis it particularly affects cataracts and vastectomies (which affects tubal ligation surgery rates). Ethnicity or socioeconomic status analysis is also somewhat limited. About 12% of people had no ethnicity details recorded in the 2001 private hospital dataset compared to <3% for publicly funded data. The ethnicity collection and recording practices in private may not as robust as in the public system. The private procedure data are by prioritised ethnicity.

Private surgery is likely to be for less serious conditions (does not have to meet any particular CPAC threshold) so the balancing of private and public is not necessarily comparing like with like.

Despite these data limitations it seems likely that the majority of private surgery over the 10-year period was performed in people with health insurance, Europeans (the majority of the Other ethnic grouping) and the least deprived. Private surgery is happening in those living in more deprived areas – this may be assisted by workplace and union medical insurance schemes, or the simple misclassification bias inherent in area-based socio-economic categorisations.

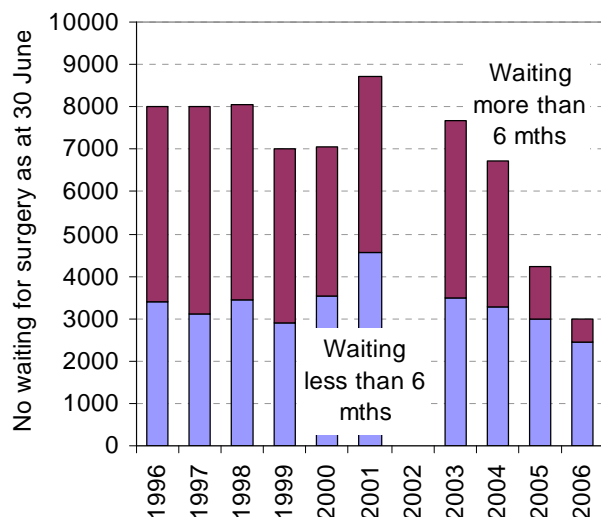
[§] Note that the NZ Health Information Service (NZHIS) has recently published the Selected Privately-funded Morbidity Data 2002 report; however, this does not have data by DHB or ethnic groups. NZHIS advises that the coding, collation and checking of 2003 private hospital information is well under way, as is 2004 and 2005, with imminent publication of summarised 2003 data expected.

2. All elective surgery

2.1. Numbers waiting for elective surgery

The number of people waiting for elective surgery has long been an indicator used in the Health sector. It has a number of problems, including that the overall volume is less important than the time spent waiting (see next section). In practice it is as much driven by the rate at which surgeons assess someone as being

Figure 1: Number of people waiting for elective surgery as of 30 June each year



Source: CMDHB. Note that this includes all patients treated at CMDHB facilities – i.e. it includes non-residents and does not include Counties Manukau residents treated at e.g. Auckland DHB facilities. Note that 2002 year is not shown due to the system changeover to new booking system. Data collection systems are quite different before and after this year, so please interpret cautiously.

suitable for surgery as the amount of surgery being performed. With the move to booking lists rather than waiting lists, and better defined surgical access criteria, it is becoming a more useful indicator - for numbers waiting longer than 6 months anyway.

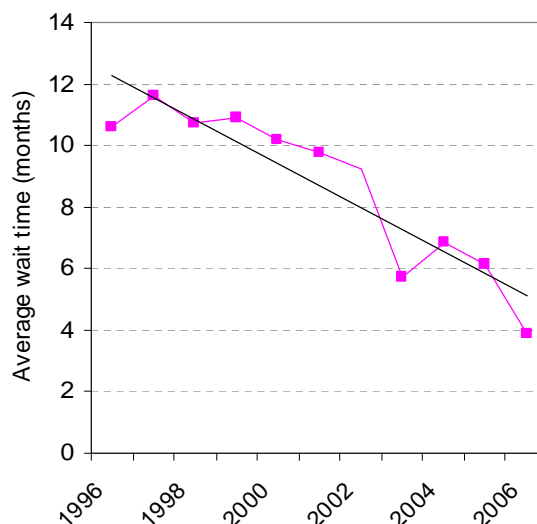
- People waiting for an elective surgical procedure have dropped from the 8,000 level in the 1990s to around 3,000 as at 30 June 2006
- More importantly the number waiting for longer than 6 months has dropped from around 60% of surgery performed to 18% (from 4,600 to 552 people by the end of June 2006)
- It is anticipated that the number waiting more than the six months will fall to near zero
- This reduction in those waiting has been achieved despite an increase in those operated on. Services delivered at CMDHB facilities have expanded to meet demand, and a policy of providing services locally where possible have also increased provision locally.

2.2. Average wait for elective surgery

The number waiting for surgery is a by-product in part of the size of a surgical service. The time someone spends waiting for surgery once booked is a better performance measure.

- The average wait time was relatively stable at around 10 months in the 1990s, but dropped precipitously to under 4 months by 2006
- While increased surgery will have played a part, the main change has been the move to booking lists, and the aim to have no more than a 6 month booking list
- It is expected that the wait time will stabilise at around 3-4 months, the half-way point for the booking list

Figure 2: Average wait for elective surgery 1996-2006 (CMDHB)



Source: CMDHB. Includes all treated at CMDHB facilities – see notes to Figure 1

2.3. Elective surgery utilisation rates

Increases in the demand for acute surgery can make it difficult to provide non-urgent care. Elective surgery rates provide a good measure of the pressure on surgical service provision. This section covers trends over the last 10 years in publicly funded elective surgery for Counties Manukau residents, residents of the other DHBs in the Auckland region and for New Zealand as a whole. Trends by ethnicity and deprivation status are also covered. Data are from the NMDS (National Minimum Dataset), with surgery here defined by the health speciality code = "S" in the NMDS.

Exclusions:

- Acute and acute arranged cases
- ACC-funded cases
- Elective procedures performed by medical specialties (e.g. gastroscopies by gastroenterologists) are not included here or in the usual definition of "elective surgery"
- Procedures done on an outpatient basis, such as removal of minor skin lesions are not included in the NMDS
- Privately funded surgical procedures: a significant portion of all elective surgery for Counties Manukau residents is privately funded, but the proportion of private surgery varies widely from procedure to procedure e.g. from approximately 20% for cardiac surgery to around 50% for total hip joint replacement (2001 data). Unfortunately the privately funded data are limited (see methodology section for further details).

Trends in publicly funded elective surgical procedure rates for Counties Manukau compared to NZ

Figure 3 shows the age-standardised elective procedure rates for Counties Manukau residents versus the NZ average as standardised discharge ratios. A ratio less than one implies that the Counties Manukau rate is less than the NZ average and the reverse for a ratio greater than one.

Adult elective rates for Counties Manukau were below the New Zealand average for the late 90s; however, for the past five years, the rates for Counties Manukau residents have been fluctuating around the NZ average.

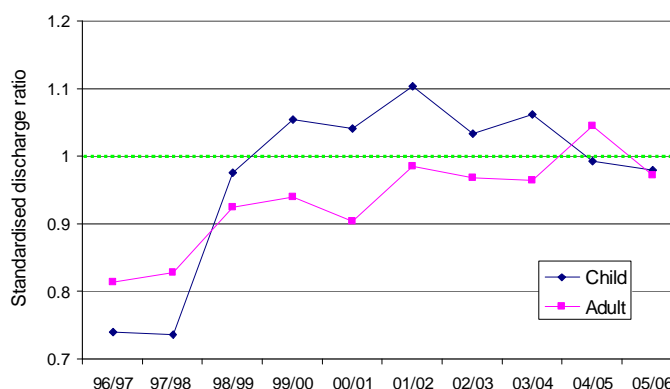
Child elective rates were also below the NZ average for the late 90s, then improved to exceed the national average for four years before dropping back to slightly below the NZ average in 2004/05 and 2005/06.

The Waiting Time Fund initiatives over the 1998-2000 period saw a lifting in elective surgery rates across the country, but did not change the differential between the Auckland DHBs and the rest of NZ.

Publicly funded elective procedure trends in people aged 15+

The general trend over the 10-year period was for the number of elective procedures performed to increase for Counties Manukau as a whole and for each of the ethnic groups studied. The total number of elective procedures for people aged 15+ in Counties Manukau was around 8,000 in 2005/06 compared to about 5,000 in 1996/97, a 60% increase. The population rose 25% over the same time period, so a genuine rise in the rate of surgery occurred.

Figure 3: Elective procedure rate standardised discharge ratios for Counties Manukau versus all NZ



Source: NMDS, rates age-standardised to NZ 2001 population, analysis by CMDHB. Child (age 0-14), Adult (15 years+). Publicly funded elective procedures.

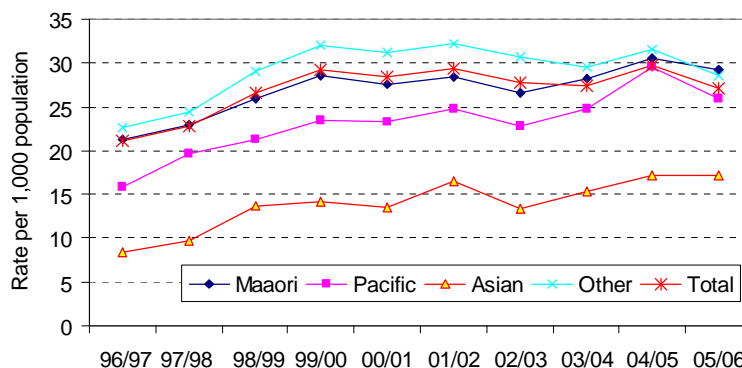
The rates (per 1,000 population) of elective procedures for all ethnic groups in CM have increased since 1996/97, with the rate of increase greatest for Asian and Pacific people (see Figure 4).

Over most of this period, the Maaori rate has been below the Other rate; however, in 2005/06, for the first time, the age-standardised Maaori rate equalled the Other rate.

The gap between Pacific peoples and Other has reduced over time. Asian rates were consistently much lower than all other groups.

In 2005/06, the rates for people aged 15+ were: Maaori (29 per 1,000), Other (29), Pacific (26), Asian (17) and Counties Manukau total (27).

Figure 4: Elective age-standardised procedure rate per 1000 popn age 15+, by ethnic group – CM

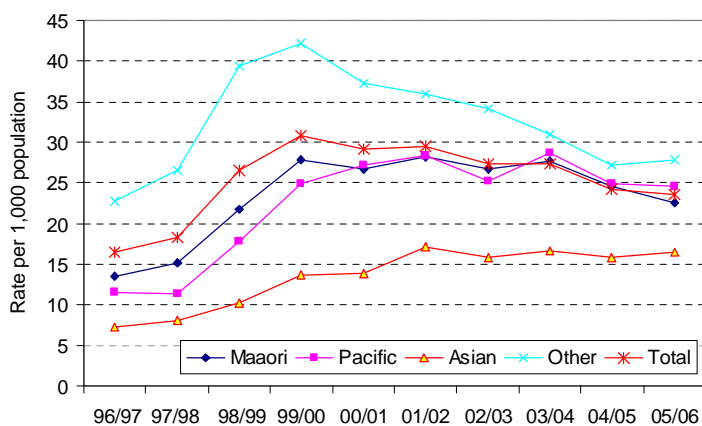


Source: NMDS, rates age-standardised to NZ 2001 population, analysis by CMDHB. Publicly funded elective procedures.

Publicly funded elective procedure trends for children (0-14 years)

The number of procedures for CM residents climbed from a low of about 1,600 in 1996/07 to a peak of 3,100 in 2001/02, then declined to 2,650 in 2005/06. The pattern for NZ is similar. The peak in the 00/01 and 01/02 years in procedure numbers relates particularly to ENT procedures, as new service configurations addressed a large backlog of cases. A much smaller increase in case-weighted discharges occurred, reflecting the relatively low complexity of these procedures.

Figure 5: Elective age-standardised procedure rate per 1,000 popn age 0-14, by ethnic group – CM



Source: NMDS, rates age-standardised to NZ 2001 population, CMDHB analysis.

The child elective procedure rates for CM residents (and residents of the Auckland region) have shown a similar pattern to the all NZ rates over the 10-year period. The total procedure rate in CM reached a high in 2001/02 (29 per 1,000) and then subsequently declined to 23 per 1,000 in 2005/06 – see Figure 5. For children in the Auckland region elective surgery from the 1980s on has been relatively prioritised compared to adult elective surgery, and the shortfall seen in adults services compared to the rest of NZ is not present.

Rates for Maaori, Pacific peoples and Other in CM show a similar peak and decline. Maaori and Pacific rates have been similar to each other over time, particularly over the last several years. The rates for Other have been consistently the highest and the Asian rate consistently very low.

In 2005/06, the rates for people aged 0-14 were – Maaori (22.5 per 1,000 population), Other (28), Pacific (24), Asian (16.5) and Counties Manukau total (23.5).

Although differences in publicly funded procedure rates have reduced in the last few years, they are still marked. It is unclear why children of European background should have a higher rate of surgery than their Maaori or Pacific counterparts. The relatively low rate of elective public procedure rate in Asian children is of note, and is unexplained at present. If this reflects a lower need for surgery, different parental valuing of the risk versus benefit of surgery, or differential access to private surgery then that may be acceptable. If it is due to such things as cultural and other barriers to accessing and receiving services, differential referral patterns from primary care to surgical services, or differences in priority scoring due to symptom presentation, then there would be more concern.

Publicly funded case-weighted elective discharge trends

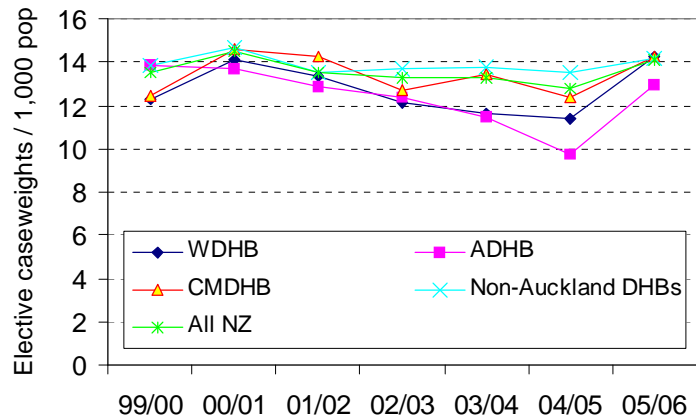
The previous section outlined the trends in actual procedure numbers and rates. Simple procedures such as a tonsillectomy therefore count the same as a complex total hip joint replacement. Case-weighted discharges are a way of giving procedures a different weight depending upon the complexity of the procedure. Comparable case-weight data are available for the period from 1999 onwards.

Child elective procedures

The case-weighted child elective procedure rates for Counties Manukau and NZ have fluctuated between about 12.5 and 14.5 per 1,000 population aged 0-14 over the period from 1999-2005 (see Figure 6).

It is not clear why rates for Auckland and Waitemata DHBs declined over the period until rebounding in 2005/06 to be at or just below the NZ rate. Due to the fluctuations it is difficult to predict long-term trends.

Figure 6: Case-weighted child elective procedures per 1,000 population (1999-2005)

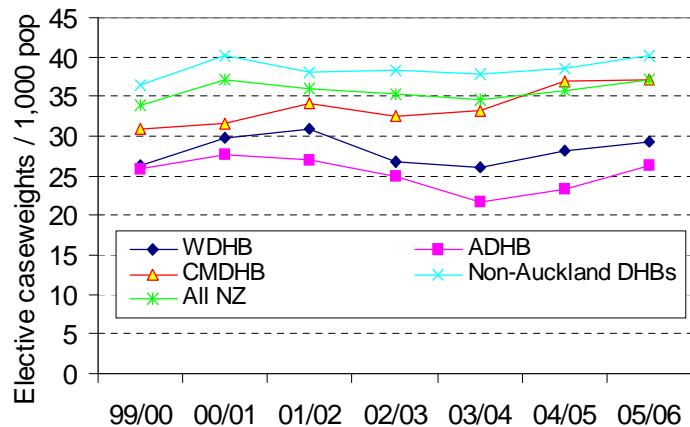


Source: NMDS, analysis by CMDHB, rates age-standardised to NZ 2001 population. Child ages are 0-14 years.

Adult elective procedures

The case-weighted adult elective discharge rate for Counties Manukau was above the New Zealand average in 2004/05, the first time since records began (see Figure 7). There is now a marked difference in elective surgical provision across the Auckland region, with Auckland and Waitemata residents having lower access to public hospital elective procedures. This difference may be being counter-balanced by differential private surgery access.

Figure 7: Case-weighted adult elective procedures per 1,000 population (1999-2005)



Source: NMDS, analysis by CMDHB, rates age-standardised to NZ 2001 population. Adults are ages 15+.

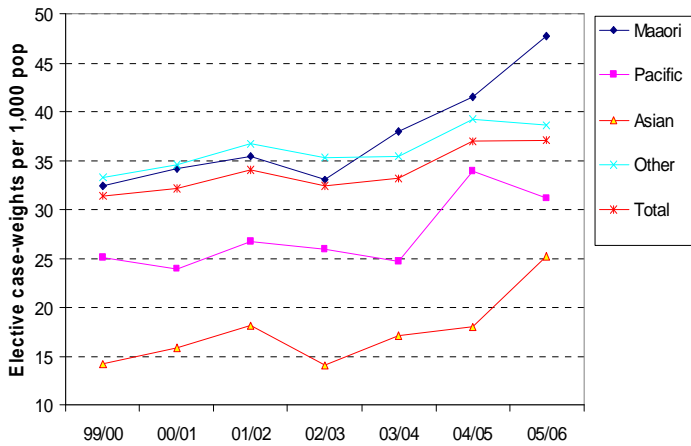
Case-weighted elective discharge trends for adults by ethnicity

This section outlines trends in adult elective case-weighted procedures for different ethnic groups. The previous section gives more information on overall elective surgery rates.

Figure 8 shows the trends in case-weights for different ethnic groups in Counties Manukau (age 15+).

Figure 9 has the standardised case-weight ratios for Counties Manukau versus all NZ for people aged 15+. A ratio less than one implies that the Counties Manukau rate is less than the NZ average and the reverse for a ratio greater than one.

Figure 8: Elective procedure case-weight rates by ethnic group, age 15+, CM (1999-2005)



Source: NMDS, case-weights translated into WIES 11, rates age-standardised to NZ 2001 population, analysis by CMDHB. ACC excluded.

have also been essentially static over this period; however, in 2005/06, the rate in CM increased markedly and is now well above the national average for Asian. Time is needed to see if this is an anomaly or the start of a trend.

Rates for Other in CM have fluctuated around the NZ average and were the highest of all the ethnic groups in CM until 2003/04, when rates for Maaori became the highest.

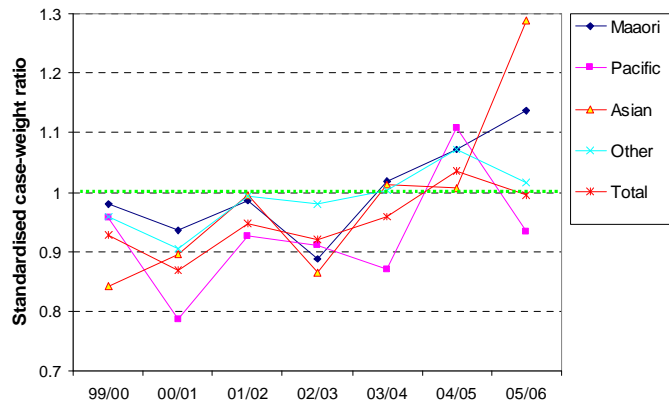
The differential increases seen for Maaori from 2002 to 2006 may relate to improved access to primary care, the mix of increased case complexity over time, and improved clarity in priority access scoring for elective surgery ensuring those most in need get access to surgery first.

In CM the case-weighted elective procedure rates for Maaori have increased by almost 50% since 1999/00. From 2003/04 the rate for Maaori has exceeded the Other rate. Maaori elective surgery rates have also increased for all NZ as well, but at about half the rate of increase for CMDHB. Maaori in CM now receive about 14% more surgery per head than their counterparts elsewhere in NZ.

Counties Manukau Pacific rates were static until 2003/04. Rates have since risen but remain below rates for Maaori and Other. Rates for Pacific peoples in Counties Manukau have been below the national average for Pacific except for 2004/05.

Asian rates have been consistently the lowest of all the ethnic groups at both CM and national levels. Rates in CM and NZ

Figure 9: Standardised case-weight ratios for CM versus all of NZ, age 15+ (1999-2005)



Source: NMDS, case-weights translated into WIES 11, rates age-standardised to NZ 2001 population, analysis by CMDHB. A ratio <1 implies that the CM rate is less than the NZ average and the reverse for a ratio >1.

Case-weighted elective surgery trends for adults by speciality

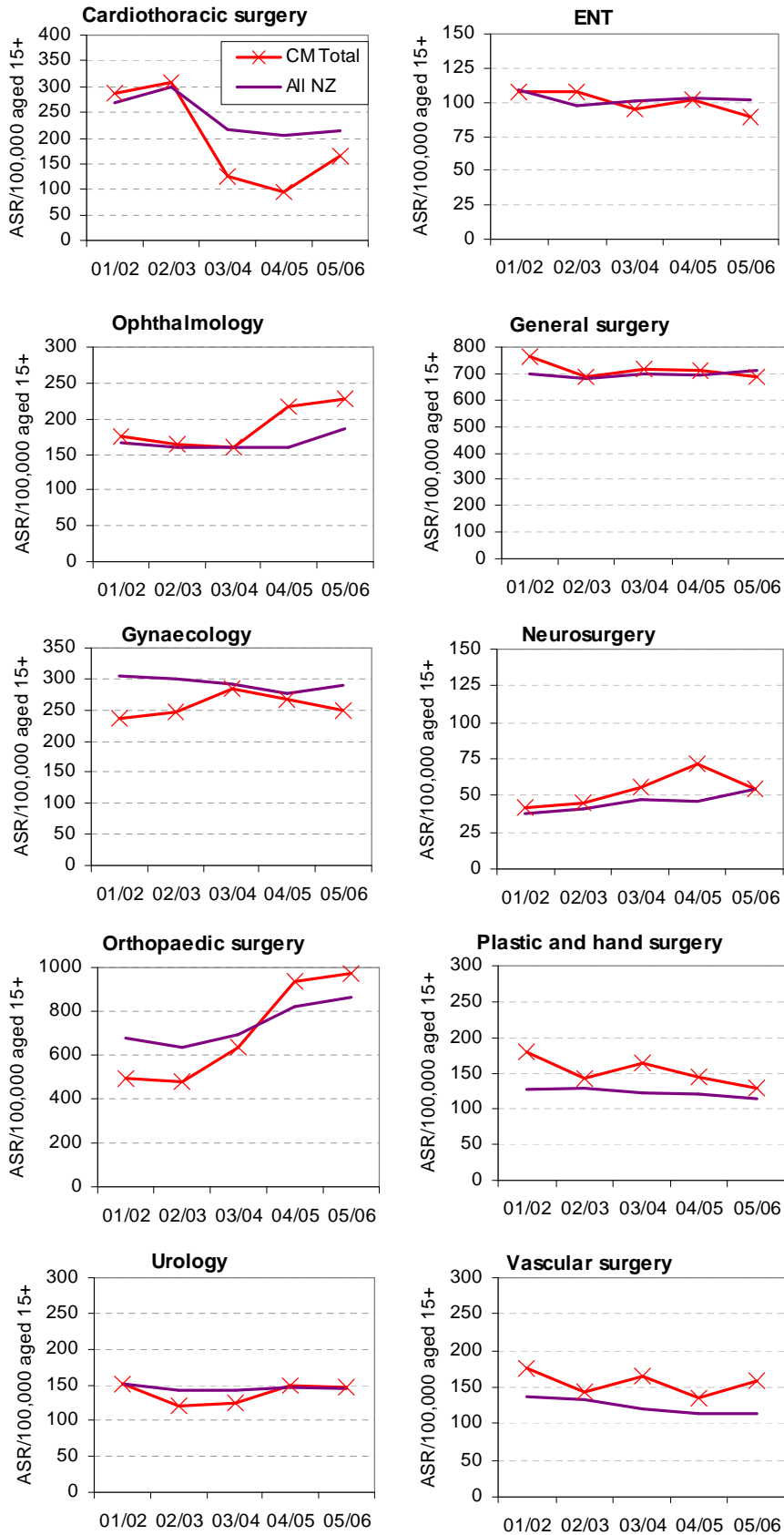
This section provides a brief overview of trends in elective surgery by specialty. Much more analysis is possible at the speciality level, but it was felt that trends were clearer and discussion more focussed when specific procedures were examined – as covered in the rest of the report.

The measure chosen for a speciality view was case-weighted discharges comparing Counties Manukau and all New Zealand (Figure 10). Variations in service organisation across different hospitals preclude using health speciality codes in this kind of comparison, so Service-Related Groups (SRGs) were used. SRGs assign each discharge to a speciality based on the DRG (Diagnosis-Related Group) at discharge. Counties Manukau rates tend to be at or slightly above their New Zealand comparators, and to have been consistent over time. Variations from that general pattern are:

- Cardiothoracic surgery – here the change to booking systems has led to a re-classification of what were coded elective procedures now being coded as arranged or acute. Looking at the procedure level (section 3.1, p22) where both acute and elective angiograms, angioplasties and CABGs are included, a steady rise occurred over this time period.
- Ophthalmology - a rise in 2004/05 and 2005/06 occurred as the additional funding for cataract surgery arrived, and Counties Manukau uptake is higher than the NZ average (see section 3.6 on cataract surgery, p37).
- Gynaecology – rates for elective gynaecological surgery remain below the New Zealand average. Rates for acute surgery are much higher (not shown), diverting resources away from elective work. Hysterectomy rates (including both acute and elective) are at or above the national average (shown in section 3.4, p32)
- Orthopaedics – the unprecedented massive rise in elective orthopaedic surgery for the Counties Manukau resident population is shown here. This was made possible through the additional funding for hip and knee joint replacement surgery (discussed in sections 3.2 p26 and 3.3 p29), and by the reorganisation of orthopaedic surgery across the metro-Auckland Region. This reorganisation reduced the acute and elective load on the CMDHB service from other districts' populations, allowing an increased service for the local population. With a more than doubling of the rate of elective surgery Counties Manukau residents now have an orthopaedic elective surgery rate above that of the New Zealand average for the first time.

** So for example an appendicectomy is mapped to general surgery, even if in a particular case it was carried out by a gynaecologist or a paediatric surgeon.

Figure 10: Case-weighted rates for elective surgery, CM versus all of NZ, age-standardised age 15+, (2001 – 2006)



Source: NMDS, adults elective surgery only, case-weights translated into WIES 11, ASR = age-standardised rates, analysis by CMDHB. Note the differing y-axis scales across the different specialties. Specialties defined by DRG at discharge, based on Service-Related Groups (SRGs).

Surgical complexity

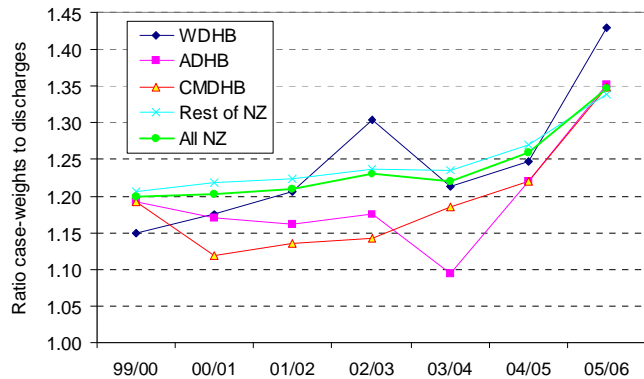
Trends in elective surgical complexity by region

The ratio of the number of case-weights to the number of discharges shows how average elective surgical complexity has changed over time (Figure 11). An increasing ratio shows increasing cost/complexity per discharge.

The overall complexity of surgical procedures has increased by about 12% since 2000/01 for NZ as a whole, but 20% for Counties Manukau residents. Counties Manukau was previously below the NZ rate, but is currently very similar to the NZ average.

These increases are likely to be related to the new CPAC scoring system, with more severe cases likely to be scored higher. The increased investment in major procedures like hip and knee joint replacement is also increasing average complexity.

Figure 11: Complexity ratio of case-weights to discharges, elective procedures, age 15+, by region (1999-2005)

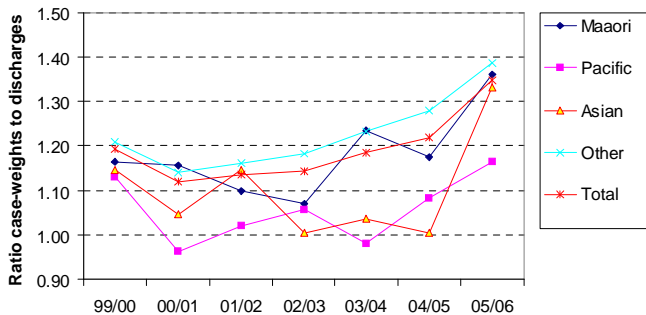


Source: NMDS, analysis by CMDHB. Case-weights translated into WIES 11, ACC excluded.

Trends in elective surgical complexity by ethnic group in Counties Manukau

Figure 12 shows the ratio of the number of case-weights to the number of discharges for different ethnic groups in Counties Manukau as a measure of surgical complexity.

Figure 12: Complexity ratio of case-weights to discharges, elective procedures, age 15+, by ethnic group, CM (1999-2005)



Source: NMDS, case-weights translated into WIES 11, analysis by CMDHB, ACC excluded.

Trends for Maaori, Pacific and Asian peoples are difficult to interpret due to the frequent fluctuations from year to year.

The trend for Other followed the overall trend which showed an increase in average complexity over the last five years.

If the overall patterns over time are considered, it seems likely that the degree of complexity in general, has been greater for Other than for Pacific and Asian peoples and to a lesser extent, Maaori. However, due to the fluctuations it is somewhat difficult to draw firm conclusions.

3. Specific surgical procedures

3.1. Coronary angiograms, coronary artery bypass grafts and angioplasties

This section covers background on the historic disparities in cardiovascular risk factors, disease and mortality as well as reviewing the trends over time in access to coronary angiograms, coronary artery bypass grafting (CABG) and coronary angioplasties, all procedures whose main indication is ischaemic heart disease – lack of blood supply to the heart.

Disparities in coronary heart disease

There is evidence of large scale inequalities in the prevalence of cardiovascular disease risk factors; cardiovascular risk; coronary disease rates and outcomes; and access to services.

Overall coronary heart disease mortality trends

The mortality rates for coronary heart disease (CHD) for both men and women peaked in the late 1960s and have since fallen by about 60%.^{1 2 3} Male mortality rates have been historically about twice those of females. The steep decline in rates over time appears to have resulted from reduced risk factors and more effective and accessible treatments (medical and surgical).^{1 4}

However, despite the falls in CHD remains a very significant cause of death. For New Zealand in 2003, CHD disease was the second leading cause of death after cancer, with over 6,000 deaths.³

Coronary heart disease mortality trends for different ethnic groups

There are marked ethnic differences in CHD mortality rates, with rates consistently highest for Maaori, and the rate for Pacific peoples lower than for Maaori but higher than for non-Maaori non-Pacific (NMNP).^{5 6 3}

The Decades of Disparity-I report showed that ethnic disparities nationally increased over the period of 1980 to 1999.⁶

- Although all ethnic groups had a decline in CHD mortality rates over this period the decline was much greater for NMNP resulting in an increase in disparities
- By the late 1990s, the male Maaori CHD rate was almost three times that of NMNP. Pacific male rates were twice as high as NMNP. Female disparities were even greater with the female Maaori rate over four times and the female Pacific rate over twice as high as NMNP.

Large ethnic inequalities continue to exist, with Maaori CHD mortality rates estimated at about twice those of non-Maaori.^{4 7 8 6 3}

CHD and socioeconomic deprivation

Socio-economically deprived people have a higher rate of CHD across the developed world, with New Zealand no exception.⁸ For example, deprived people (as measured by NZDep01) in New Zealand had CHD mortality rates two to three times that of the least deprived during the 1980s and 90s.⁹

Cardiovascular risk factors

There are many risk factors for cardiovascular disease, the major ones being diet, tobacco, obesity, diabetes, raised cholesterol, insufficient physical activity, and hypertension. Maaori, Pacific and Indian subcontinent peoples have a high prevalence of many cardiovascular risk factors.^{10 11}

NZ Guidelines Group recommendations on cardiovascular risk assessment

In recognition of the higher burden of cardiovascular disease in Maaori, Pacific peoples and people from the Indian subcontinent, the NZ cardiovascular risk guidelines recommend that these groups start cardiovascular risk assessment ten years earlier than other ethnic groups.¹²

Inequalities in access to cardiovascular interventions

Given the higher burden of cardiovascular disease in Maaori and Pacific peoples in particular, it would be expected that cardiovascular intervention rates would be substantially higher for at-risk groups. However, these rates have been historically lower for Maaori and Pacific peoples over many years. For example:

- During the 1980s, Maaori men were three and a half times less likely to receive publicly funded coronary artery bypass graft (CABG) surgery than non-Maaori men, despite being one and a half times more likely to die of coronary heart disease at this time.⁸
- In the 1990s, CABG and angioplasty rates in Maaori and Pacific peoples were only 21-74% that of other New Zealanders despite the higher coronary artery disease mortality and morbidity rates in these groups.¹³

Potential explanations have been offered for the disparities in intervention rates:¹³

- Maaori and Pacific peoples are low users of primary care and preventive services. As referrals for elective CABG and angioplasty are dependent on referrals from primary care, the lower rates may be due to poor access to/use of primary care.
- co-morbidities, late presentation and other contraindications to procedures may make them less likely to be recommended for surgery versus medical treatment
- patient refusal to accept invasive treatment
- difficulties for the patient in traversing the complex health system to get treatment. Discrimination within the health sector has been reported in the US but it is unclear if this is an issue in New Zealand.

Further research is needed to ascertain if the lower rates of intervention in Maaori and Pacific peoples during this period were due to differences in access, referral patterns, patient characteristics or hospital processes-of-care issues.

Access to cardiology procedures 1996 to 2005

As discussed above, access to publicly funded cardiac interventional procedures was shown to be poor for Maaori and Pacific peoples in the 1990s. Populations with twice or higher rates of cardiovascular disease were receiving coronary angioplasty and CABG interventions at a third the rate or less of the non-Maaori/non-Pacific group. This section demonstrates the significant changes that have occurred in this area.

Overall publicly funded coronary angiogram rates

The coronary angiogram rate for Counties Manukau residents was fairly static in the late 1990s at around 300 per 100,000 population aged 15+. Since then the rate has increased and for the last few years, the rate has been in the 400-450 range (see Figure 14). With the recent investment in a cardiac catheter laboratory at Middlemore Hospital (opened Nov 2005), further improvements in access are expected.

The New Zealand rate also increased from around 230-250 in the late 1990s to approximately 350 per 100,000 in recent years (see Figure 16). The Counties Manukau coronary angiogram rate has been consistently above the NZ average (see Figure 15).

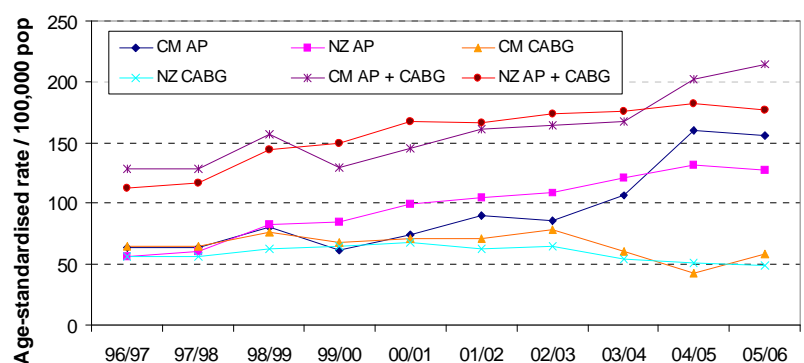
Overall publicly funded cardiac intervention rates

Figure 13 shows that the overall cardiac intervention rates (CABG and angioplasty combined) have risen across NZ over the past 10 years; however, the rates for the different interventions have varied widely.

Note that for CM residents, these procedures are mainly performed at ADHB facilities.

- The overall CABG rate has been essentially unchanged over the last 10 years for both CM and NZ as a whole.
- In contrast, the angioplasty rate has more than doubled over this time for both CM and NZ, reflecting the widespread change in practice over this time towards a greater use of interventional cardiology rather than surgery.

Figure 13: Age-standardised rates of publicly funded CABG and angioplasty, ages 15+, CM residents versus all NZ, 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded elective and acute procedures combined. CABG = Coronary artery bypass graft; AP = Coronary angioplasty.

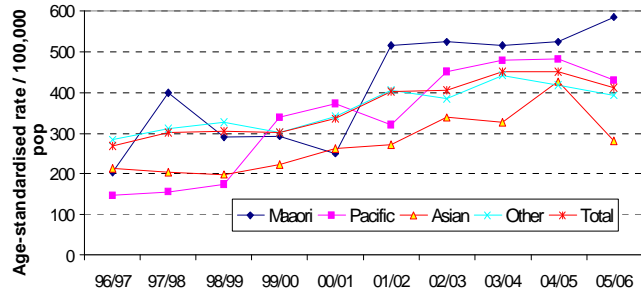
In addition to publicly funded cardiac procedures a number of interventions are performed in private. Data from 2001 shows that approximately 20% of all coronary angiograms, CABG and angioplasties in Counties Manukau residents were privately funded. Although detailed data for recent years are currently not available, it is likely that a significant number continue to be privately funded.

Ethnicity and publicly funded coronary angiogram rates

Figure 14 shows the overall coronary angiogram rates for Counties Manukau and rates by ethnic group:

- Although there have been fluctuations in rates year to year, rates for all groups have shown a trend to increase over time.
- Rates in 2005/06 for all ethnic groups except Maaori dropped; however, it is too early to predict future trend.
- Rates for Maaori and Pacific peoples have increased over time to the point where the rates are now consistently higher than the rate for Other, particularly so for Maaori. Given the context of a higher burden of CHD in these groups and the underutilisation of cardiac interventions in the 1980s and 1990s in NZ, the increase in rates is very encouraging. However, the rates, particularly for Pacific peoples, are still not as high as one would perhaps expect given the disease and risk factor prevalence.

Figure 14: Coronary angiogram rates, age 15+, by ethnic group - CM 1996- 2005



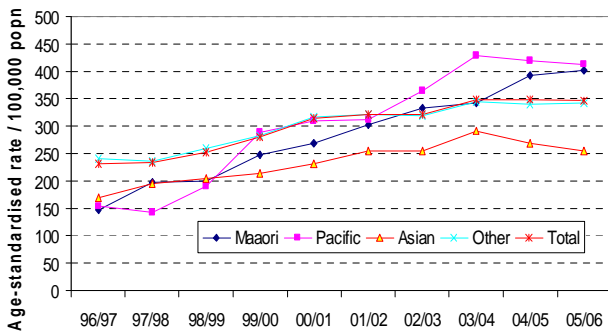
Source: NMDS data. CMDHB analysis. Publicly funded elective and acute coronary angiograms combined.

- Asian rates have generally been the lowest of all the ethnic groups; however, it is important to note that “Asian” is a heterogeneous group containing groups such as Chinese and Southeast Asian people as well as Indian sub-continent peoples (who are at particularly higher risk of CHD).

Coronary angiogram rates for all New Zealand have increased across all ethnic groups (see Figure 16). It is particularly pleasing to see that Maaori and Pacific rates have gone from being below the rate for Other in the late 90s to being above the rate for Other in recent years.

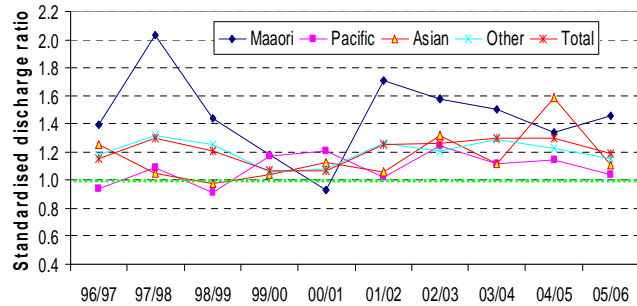
Figure 15 shows the rates for the different ethnic groups in Counties Manukau compared with the NZ average as standardised discharge ratios (see methodology section). For the ten-year period, all ethnic groups in Counties Manukau were usually above the NZ average, particularly for Maaori.

Figure 16: Coronary angiogram rates, ages 15+, by ethnic group – All NZ 1996- 2005



Source: NMDS data. CMDHB analysis. Publicly funded elective and acute coronary angiograms combined.

Figure 15: Coronary angiogram age-standardised rates, 15+ – CM compared with all NZ 1996- 2005



Source: NMDS data. CMDHB analysis. Publicly funded elective and acute coronary angiograms combined. A ratio of >1 means that the CM rate is greater than the NZ rate, a ratio <1 means that the CM rate is less than the NZ rate.

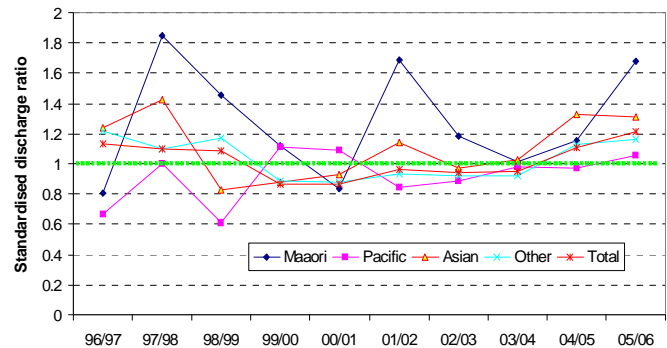
Ethnicity and coronary intervention rates

For this report, data on CABG and coronary angioplasty have been combined as one as it is a better reflection of overall practice.

During this time, all cardiac surgery and angioplasties were performed at Auckland DHB facilities. There have been dramatically improved referral pathways and assessment of cases based on need over this time period.

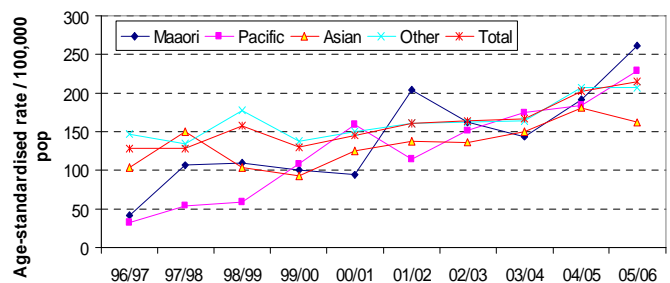
- The overall Counties Manukau rate has been fairly similar to the overall NZ rate for most of this period and for the last two years it has been above the NZ rate (see Figure 17).
- By far the largest rises in cardiac intervention rates have occurred in the Maaori and Pacific populations. Within Counties Manukau the Maaori rate has risen 6-fold and the Pacific 7-fold over the 10-year period (see Figure 18) – both at a faster rate of increase than their NZ counterparts (3- and 4-fold respectively).
- The Counties Manukau Asian rate has also increased over time, with rates in 2005/06 approximately 1.5 times higher than 1996/97 (the fluctuation in rates are likely to be explained by relatively low numbers of procedures, particularly in the late 1990s).
- Within Counties Manukau both Maaori and Pacific peoples now have higher rates than the NZ rates for these groups and higher rates than European/Others within CM. For the last two years, the overall intervention rates for all ethnic groups in Counties Manukau were equal to or higher than their respective NZ rates.

Figure 17: CABG + angioplasty combined standardised discharge ratios for CM versus all NZ, by ethnic group, 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded elective/acute CABG and angioplasty procedures combined. A ratio of >1 means the CM age-standardised rate is greater than the national rate, a ratio <1 means the CM rate is less than the national rate.

Figure 18: Age-standardised rate of all CABG and angioplasty (combined), ages 15+, by ethnic group, CM, 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded elective/acute CABG and angioplasty procedures combined. analysis. All elective/acute CABG and angioplasty procedures combined.

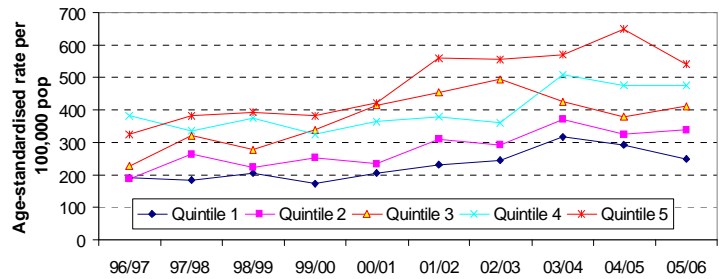
Deprivation and coronary angiogram rates for CM residents

Figure 19 shows a pattern of increasing publicly funded coronary angiogram rates with increasing deprivation. On average, the angiogram rate in the most deprived quintile (NZDep Index deciles 9+10) was twice that of the least deprived quintile (deciles 1+2).

The likely explanations include the mix of publicly and privately funded coronary angiograms, the effect of deprivation on CHD and the confounding effect of ethnicity.

- o Data from 2001 showed that approximately 20% of all coronary angiograms in Counties Manukau residents were privately funded. Although detailed data for recent years are currently not available, it is likely that a significant number continued to be privately funded. The relatively small numbers of procedures in private facilities means the overall rates (publicly + privately funded) are little affected – see Appendix 2.
- o The high rates in the most deprived groups will be confounded to some degree by the high proportion of Maaori and Pacific peoples in Counties Manukau who live in the most deprived areas. As these groups have higher rates of CHD, the effect of deprivation may be inflated to some degree. Although correction for the confounding effect of ethnicity was not performed for this analysis, the rates for the different deprivation groups are closely entwined. An alternative view is that with deprivation effects being so much stronger than ethnicity effects (more than double for Quintile 5 versus Quintile 1 compared to about a 15% increase for Maaori and Pacific compared to Other) in predicting utilisation, if you controlled for deprivation in the ethnicity analysis you might see under utilisation amongst Maaori and Pacific.

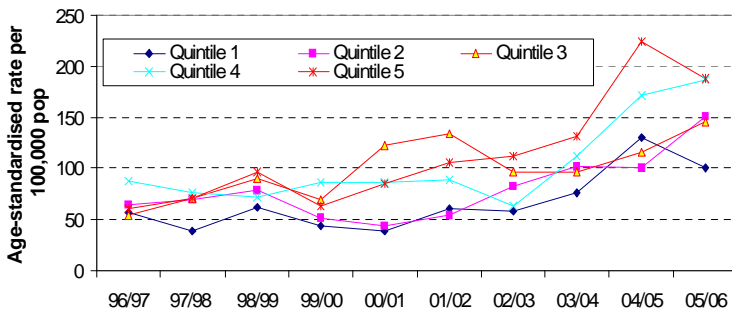
Figure 19: Coronary angiogram age-standardised rates, age 15+, by deprivation status (CM 1996-2005)



Source: NMDS data, CMDHB analysis. Publicly funded acute and elective coronary angiograms. Age-standardised to the 2001 NZ popn. NZDep quintiles (e.g. Quintile 5 = most deprived = NZDep01 deciles 9 & 10).

Deprivation and CABG/coronary angioplasty rates for CM residents

Figure 20: Combined coronary angioplasty and CABG age-standardised rates, age 15+, by NZDep Index deprivation status (CM 1996-2005)



Source: NMDS data, CMDHB analysis. Publicly funded acute and elective coronary angioplasties and CABG.

There was a similar pattern to the coronary angiogram rates for Counties Manukau residents undergoing a CABG or coronary angioplasty (see Figure 20).

3.2. Total hip joint replacement

Background

Total hip joint replacements (THJRs) are most commonly performed in people with advanced arthritis of the hip. Less common indications include conditions such as fractures or tumours.

Unfortunately, NZ data are lacking on the prevalence of hip pain or hip conditions severe enough to warrant consideration of a THJR. As a result, it is difficult to know what the overall need is for THJR, if need varies between different groups and what an appropriate level of surgery might be.

There are also a significant number of privately funded THJRs. However, due to the substantial delays in the collation of these data, it is not known how many THJRs are currently performed in the private sector for Counties Manukau residents. The 2001 calendar year, the most recent period available, showed 47% (n=128) of all Counties Manukau THJR was privately funded – so nearly half of all procedures at that time. This may have fallen off slightly since then with the increased public provision, but is likely to be substantial still. Privately funded procedures on average will be of lower acuity.

Data notes

The NMDS data in the following sections, unless otherwise indicated, are for all publicly funded THJRs in people age 15+, including both acute and elective procedures but excluding ACC cases. In addition to the publicly funded THJR, a significant number of privately funded THJRs are performed and the limited available data on these will be briefly discussed.

THJR trends for Counties Manukau residents

There has been a marked increase in the number of public THJRs performed in recent years in CM and nationally, which has been primarily related to additional government funding targeted at elective surgery. For the period of 1996/07 to 2002/03, the average number of THJR performed for CM residents was about 170 per year. This increased to approximately 240 for 2003/04 and 350 for both 2004/05 and 2005/06. Almost all publicly funded THJR procedures for CM residents occurred at CMDHB facilities.

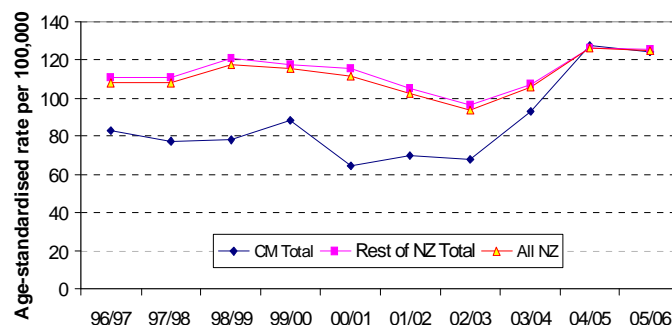
The THJR rates for CM from 1996/97 to 2002/03 (see Figure 21) were fairly constant and well below the NZ rates. However, since then the CM rate has increased and was equal to the NZ rates in 04/05 and 05/06 (~125/100,000 popn aged 15+).

Ethnic differences in THJR rates

There are quite marked differences in the publicly funded THJR rates for different ethnic groups both within Counties Manukau (see Figure 22) and nationally (data not shown):

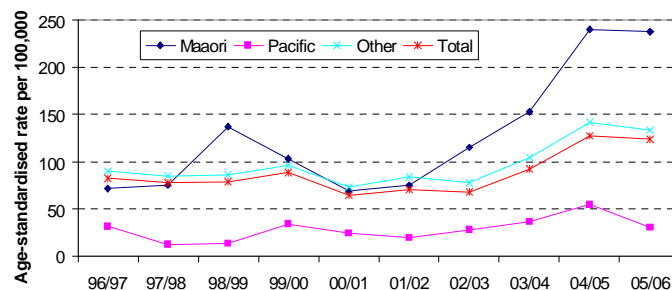
- o The Maaori rate was more or less similar to the Other rate for the period from 1996/07 to 2001/02, apart from 1998/99 where it was higher. However, since 2002/03, the rate for Maaori has increased markedly and was almost twice that of Other in 2005/06 (238 and 134 per 100,000 respectively).
- o Rates for Pacific peoples have been consistently the lowest over the 10-year period. However, some caution is recommended when interpreting the rates as relatively low numbers of THJRs were undertaken (average of 8 per year, range 3-18).
- o Asian rates were not calculated due to the low number of THJRs (average 2 per year, range 0-9).

Figure 21: THJR age-standardised rate per 100,000, 1996-2005 – CM, rest of NZ, all NZ



Source: NMDS data, CMDHB analysis. Publicly funded acute and elective THJR.

Figure 22: THJR age-standardised rates, CM residents aged 15+, by ethnic group

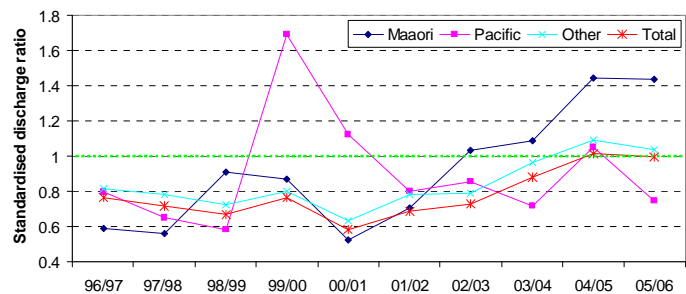


Source: NMDS, CMDHB analysis. Publicly funded acute and elective THJR. Prioritised ethnicity. 2001 NZ Census population used as standard population. "Other" excludes Asian. Asian data not shown due to low numbers of THJR.

Figure 23 shows the standardised discharge ratios for Counties Manukau versus all of NZ (see the methodology section for an explanation of these ratios):

- The overall Counties Manukau rate was consistently below the national average; however, since 2004/05 the rate has increased and is now equal to the NZ rate.
- The rates for Maaori in Counties Manukau were below the national rate for Maaori until 2002/03. Since then the Counties Manukau rates have increased markedly and were approximately 40% higher than the national rates in 2004/05 and 05/06.
- Rates for Pacific in Counties Manukau have on the whole been below the national average for Pacific peoples. However, as noted above, some caution is advised when interpreting the rates as the actual number of THJRs performed in Pacific peoples in Counties Manukau and nationally is low.
- The rates for Asian peoples are not shown due to the low numbers.

Figure 23: THJR age-standardised discharge ratios, age 15+, by ethnic group for CM versus all NZ 1996-2005



Source: NMDS, CMDHB analysis. Publicly funded THJR. Prioritised ethnicity. 2001 NZ Census population used as standard popn. "Other" excludes Asian. Asian data not shown due to low numbers of THJR.

The trends for different ethnic groups are somewhat difficult to interpret. There is some evidence that bone mineral density in Pacific people is higher (and hence bones stronger) in Pacific people.^{14 15} Empirically hip fracture rates are higher in Europeans – more than double the hospital admission rate in 2001-2005 compared with Pacific and Asian, and 1.7 times times the Maaori rate (rates calculated by CMDHB). (NB. hip fracture patients are unlikely to present to private facilities – a 1995 population-based study showed a strong correlation with public hospital discharges).¹⁵ However self-reported arthritis rates (in the New Zealand Health Survey 2002/03) showed no great difference by ethnicity.¹¹ To the extent that the hip fracture rates might reflect need for THJR, it might explain some of the gap for Pacific and Asian; however, it still does not explain the difference between Pacific and Maaori.

- Due to the lack of ethnic specific data on the prevalence of different hip conditions in the community, it is not known if the THJR rates for each ethnic group are appropriate or not.
- The large increase in the Maaori THJR rate in recent years is very encouraging as it is probably related to improved access to primary care, referrals and increased THJR funding rather than an increase in prevalence of conditions requiring a THJR.
- The consistently very low rate of THJR in Pacific peoples may relate to a lower need for the procedures, but further data would be needed to ascertain if there is unmet need for THJR in the Pacific community. One could speculate that the stronger bones in the largely island-born cohort currently in the age range for THJR coupled with generally greater family support in Pacific families compared to many other ethnic groups may result in people being better able to cope with hip-related disability. Other potential explanations include cultural differences and language difficulties, lack of awareness of options available to manage hip pain, barriers to accessing general practice, differential referral patterns to secondary care, lower scores on the priority scoring scale, differences in attendance rates, and higher rates of co-morbidity such as obesity, diabetes and cardiovascular disease (affecting fitness for surgery).
- A significant number of THJRs are undertaken in private which complicates interpretation of ethnic differences in the publicly funded rates. Almost all the private surgeries were for osteoarthritis rather than fractures. The 2001 privately funded data showed the following:
 - Approximately 50% (n=123) of all THJRs for the "Other" group (predominately European) were privately funded.
 - In contrast, no privately funded THJRs were performed in Pacific peoples and only three THJR were performed in Maaori and two in Asian peoples.
 - Although the private data are limited, with no data from recent years, it is likely that relatively few privately funded THJRs are performed in Maaori and Pacific peoples compared to Other. As a result, the total (public and private combined) THJR rate for Other is likely to be higher than that shown here, perhaps twice as high – though with the private procedures likely to be for relatively less serious disease. The total Maaori and Pacific rates are unlikely to be significantly higher than those shown here. In this context, the low public rate in Pacific peoples is even more notable.

THJR by deprivation status

Figure 24 shows that there are quite marked differences in the Counties Manukau rates for THJR by NZDep01 index quintile.

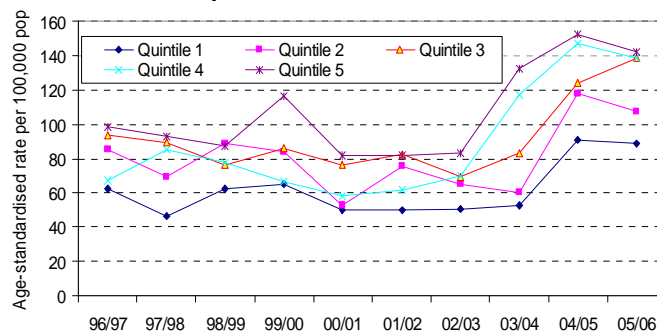
For the 10-year period, the rates for the people living in the most deprived areas in Counties Manukau (quintile 5) were much greater (1.4-2.5 times) than in the least deprived group (quintile 1). For the quintiles between the two extremes, there was a mixed picture until 2002/03. Since then, there has been a clearer pattern for THJR rates to increase as deprivation status increases.

However, it is important to note that these are rates for publicly funded THJR only. A significant number of THJR are also privately funded. In 2001, 47% of all elective THJRs performed in Counties Manukau residents were privately funded. Privately funded THJRs tended to favour people in the less deprived quintiles, but there were still a reasonable number of people living in the more deprived areas, possibly funded through workplace and union medical insurance schemes (see Appendix 2 for more detail on private surgery and deprivation). The total (public and private combined) THJR rates are likely to be closer than is shown in the data here.

While the 2002/03 NZ Health Survey showed that the prevalence of arthritis was higher in the most deprived group compared to the least deprived group, these differences were not significant.¹¹ Also this was for arthritis in general, not for OA or individual body regions or joints.

Due to the lack of data, it is not known if the prevalence of hip conditions severe enough to warrant a THJR varies between groups with different deprivation status, and thus how close to equity we might be. Further research would be needed to ascertain if more deprived people have higher rates of hip disorders.

Figure 24: THJR age-standardised rate, age 15+, by NZDep quintile – CM 1996-2005



Source: NMDS data, CMDHB analysis. NZ Dep Index quintiles range from the least deprived (Quintile 1) to the most deprived (Quintile 5).

3.3. Total knee joint replacement

Background

Total knee joint replacements (TKJRs) are usually performed in people with severe pain or disability due to advanced osteoarthritis of the knee. Osteoarthritis (OA) is a common condition in older adults and can affect many different types of joints. The prevalence of OA increases markedly with increasing age.

Aside from increasing age, obesity is a major risk factor for OA of the knee. Other risk factors include previous knee injury and inflammation.¹⁶ Genetic factors may play a role.

Published NZ data on the community prevalence of OA or other conditions of the knee are extremely limited. While the 2002/03 NZ Health Survey showed that the prevalence of arthritis did not vary between different ethnic groups, this was for arthritis in general, not for OA or individual body regions or joints.¹¹ The prevalence of arthritis was higher in the most deprived group compared to the least deprived group, but these differences were not significant.

NZ data are also lacking on the prevalence of knee conditions severe enough to warrant consideration of a TKJR. As a result, it is difficult to know what the overall need is for TKJR and if need varies between different groups. Overseas data indicates that clinically significant osteoarthritis of the knee affects about 10% of people aged over 60 years.¹⁶

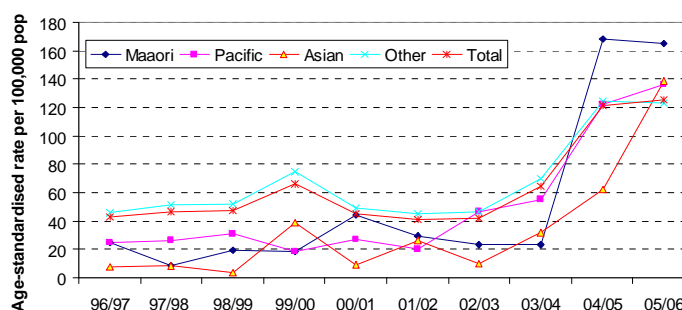
Data notes

The NMDS data in the following sections, unless otherwise indicated, are for all publicly funded acute and elective TKJRs in people age 15+. In addition to the publicly funded TKJR, a significant number of privately funded TKJRs are performed and the limited available data on these will be briefly discussed. Note that ACC funded data are excluded.

TKJR trends for Counties Manukau residents

For the period of 1996/07 to 2002/03, the number of TKJRs performed annually in Counties Manukau was around 100, apart from 1999/00 when almost 150 were undertaken due to Waiting Time Fund purchasing. Over the last three years there has been a marked increase in the number of publicly funded TKJRs performed in Counties Manukau and nationally, which has been primarily related to further additional funding targeted at elective surgery. In 2004/05 and 2005/06 there were approximately 320 and 350 TKJRs performed respectively, a massive jump in access for Counties Manukau residents. Almost all publicly funded TKJRs procedures for Counties Manukau residents occurred at CMDHB facilities.

Figure 25: TKJR age-standardised rates, ages 15+, CM 1996-2005



Source: NMDS, CMDHB analysis. Publicly funded acute and elective TKJRs

The overall TKJR age-standardised rates for Counties Manukau from 1996/97 to 2002/03 (see Figure 25) were generally around 45 per 100,000 population, below the NZ rates for this period. However, the Counties Manukau rates have since increased, becoming equal to the national rate in 2003/04, and from 2004/05 on the Counties Manukau rates were approximately 120 per 100,000 population, higher than the NZ average for the first time.

Ethnic differences in TKJR rates within Counties Manukau

Figure 25 above shows the age-standardised rates for different ethnic groups within CM. The rate for Other was generally the highest until 2003/04. The rates for Maaori, Pacific, and Asian peoples until this time are unlikely to be reliable due to very low numbers of TKJRs undertaken in these groups during this period.

Rates for all ethnic groups in 2004/05 and 2005/06 were markedly higher than previously, reflecting the much greater number of TKJRs performed in these years. It is reassuring that all ethnic group rates increased when additional resources are available. Currently the rate for Maaori is the highest and the rates for all other groups are similar; however, it is premature to predict trends.

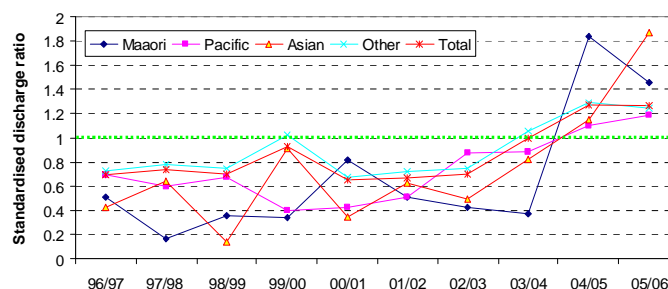
If privately funded TKJRs are included then the overall surgery rates for Other would substantially increase as 50% of TKJR in 2001 in this group were privately funded. The private procedures on average will be for conditions of lesser severity than the publicly funded ones. More recent detailed data on private surgery are not currently available. It is possible that a similar pattern has occurred in the years since then. However, as the public waiting time for TKJR in Counties Manukau has markedly reduced over the last 2 years, it is possible that the proportion of privately funded TKJR in Counties Manukau residents has reduced. As data becomes available, it will be interesting to see how the increased public funding currently available for TKJRs affects the privately / publicly-funded mix of TKJR.

Very few privately funded TKJR were undertaken in 2001 for Counties Manukau Maaori, Pacific, and Asian peoples - four in total if the ethnicity coding in the private hospital data set is to be trusted. This is consistent with the low rates of private surgery for other procedures, and it is unlikely that the total (private+publicly-funded) rate of TKJR for Maaori, Pacific or Asian will be very different from the public rates shown here.

TKJR rates for Counties Manukau versus NZ – overall and by ethnic group

Figure 26 shows the rates for Counties Manukau compared to the NZ average as standardised discharge ratios (see methodology section). The overall rates for Counties Manukau were below the NZ average until 2003/04. The increased number of TKJR performed in the last two years in Counties Manukau has resulted in Counties Manukau now being above the national average.

Figure 26: TKJR standardised discharge ratios, ages 15+, CM versus all NZ 1996-2005



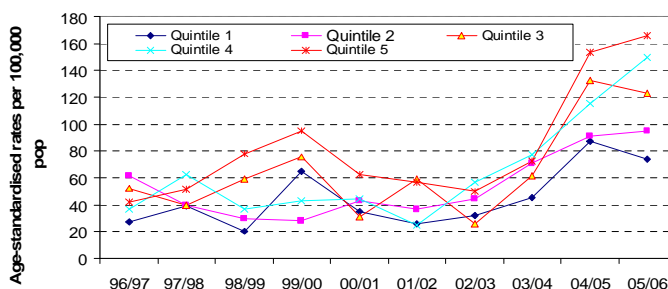
Source: NMDS, CMDHB analysis. Publicly funded acute and elective TKJR

Similarly the rates for each ethnic group in Counties Manukau were almost always below the NZ average until 2003/04. Note that the low numbers of TKJR in Counties Manukau for Maaori, Pacific and Asian peoples in this period result in some marked fluctuations in rate calculations. Rates for the last two years are more robust due to the larger number of TKJR performed and show that the rates for Counties Manukau are now above the NZ average for all ethnic groups. This may relate to a relative backlog of surgery, with rates expected to move closer the NZ averages over time.

TKJR within Counties Manukau by deprivation status

Figure 27 shows the Counties Manukau rates for TKJR by NZDep index quintile. Only in the last two years (due to the increased numbers of TKJR performed) has the pattern of TKJR rates by deprivation status become clearer. Currently there is a marked gradient showing increasing rates of publicly funded TKJR with increasing deprivation, with the rate in the most deprived area (quintile 5) now over twice that of the least deprived area (quintile 1).

Figure 27: TKJR age-standardised rate, age 15+, by NZDep quintile – CM 1996-2005



Source: NMDS data, CMDHB analysis. NZ Dep Index quintiles range from the least deprived (Quintile 1) to the most deprived (Quintile 5). Publicly funded TKJR only.

At a national level for the 10-year period, there is a clear pattern for TKJR rates to increase with increasing deprivation, with rates in the most deprived quintiles approximately 1.5-2 times that of the least deprived quintile during this time.

The wide difference in rates is very likely reflecting the high proportion of TKJR undertaken in private rather than the possibility of a higher prevalence of underlying knee disease in the most deprived people:

- o According to the 2001 privately funded surgical data, almost 50% of the TKJR undertaken in Counties Manukau residents were privately funded. Although more recent detailed data are currently not available, it is likely that a similar proportion has occurred in recent years.
- o Most of the privately funded TJKRs were performed in people from the least deprived areas, having (higher incomes and higher rates of medical insurance (see Appendix 2). The publicly and privately-funded combined rate of TJKR is likely to be reasonably flat by deprivation status.

3.4. Hysterectomy

Background

Hysterectomy is a common operation that has a number of indications including heavy menstrual bleeding, endometrial cancer and fibroids. A hysterectomy can be undertaken by abdominal, vaginal or laparoscopic approaches. Usually a hysterectomy is undertaken electively, however, on rare occasions the procedure can be performed acutely e.g. for massive bleeding following childbirth.

The underlying need for hysterectomy is difficult to estimate due to the heterogeneous underlying conditions, the absence of absolute indications for hysterectomy, the relative lack of available data and the increasing number of medical and other surgical alternatives to hysterectomy that have become available over the 10-year period.

There is variation within and between countries in hysterectomy rates due these need factors, and also with surgical supply factors and demand factors such as differing patient characteristics and attitudes, contraceptive availability, and different general practitioner management practices and attitudes.¹⁷

There are limited data indicating that Maaori may have a lower rate of hysterectomy than non-Maaori.¹⁷ The prevalence of certain underlying conditions in different ethnic groups may vary for some conditions but not for others e.g. Maaori have a higher incidence of endometrial cancer compared to non-Maaori,¹⁸ and Pacific women may have the same rates of fibroids as European women.

Data notes

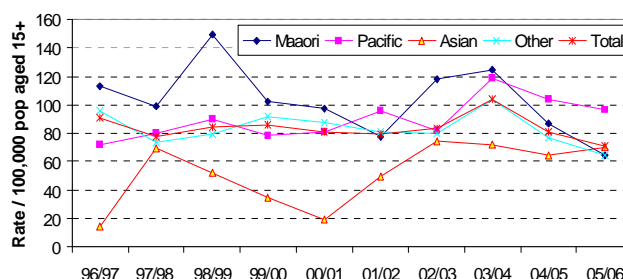
The NMDS data in the following sections, unless otherwise indicated, are for publicly funded hysterectomies in people age 15+. Elective and acute hysterectomies have been combined into one group. In addition to the publicly funded hysterectomies, a significant number of privately funded hysterectomies are performed and the limited available data on these will be briefly discussed.

Overall trends in publicly funded hysterectomies in Counties Manukau

From 1996-2006, the number of hysterectomies performed in Counties Manukau residents has been fairly stable at around 200-250 per year, except for 2003/04 when there were about 310 performed. Almost all publicly-funded hysterectomies for CM residents occurred at CMDHB facilities.

For New Zealand as a whole, the rate in the mid to late 1990s was around 90 per 100,000 population. The rate has since steadily decreased and is now about 70 per 100,000. For most of the 10-year period, the rates in CM have been around 80 per 100,000, except for 1996/97 and 2003/04 when they were higher (see Figure 28). In 2005/06 the rate was very similar to the national rate of 70 per 100,000.

Figure 28: Hysterectomy rates, age 15+, by ethnic group, CM 1996-2005



Source: NMDS data, CMDHB analysis. Age-standardised with 2001 NZ Census popn. Prioritised ethnicity. Publicly funded elective and acute hysterectomies.

The decline in rates over time both for CM and NZ as a whole is likely to reflect the increased use of medical and surgical alternatives to hysterectomy, relatively restricted access, and critical assessment of the indications for hysterectomy, rather than any decrease in the prevalence of underlying conditions.

The overall rates for CM residents until 2001/02 were mostly slightly below the NZ average (Figure 29). Subsequently they increased to a peak of almost 1.4 times the NZ average in 2003/04 before returning to the average in 2005/06.

Ethnic trends in hysterectomy rates

Figure 28 above shows the trends in the publicly funded rates for different ethnic groups within CM. The trends are somewhat obscured by fluctuations in rates related to relatively small numbers in some years for some ethnic groups – NZ data is compared below:

- o In general, rates for Maaori have often been the highest of all the ethnic groups and have usually been above the rate for Other.

- The rates for Pacific peoples fluctuated around the rate for Other except for the last three years, where the rates have been higher.
- The rates for Asian are likely to have been the lowest of all the ethnic groups, with relatively low number of individuals undergoing hysterectomy over this period.

For NZ as a whole, the ethnic trends for the 10-year period are much clearer (figure not shown):

- The NZ publicly funded rates of hysterectomy were highest in Maaori, on average about 25% higher than the rate for Other.
- Rates for Pacific peoples in the later 1990s fluctuated around the rate for Other and for the last five years, the rates have been slightly above.
- National rates for Asian peoples have consistently been the lowest of all the ethnic groups - on average about 60% that of the rate for Other.

Privately funded hysterectomies are of interest:

- In the 2001 calendar year, about 50% of all hysterectomies performed in Counties Manukau residents were privately funded. There are marked ethnic differences in the proportion of hysterectomies that are privately funded, with lows of 20% (7/35) and 25% (10/39) of all hysterectomies (public and private combined) in Maaori and Pacific peoples respectively, to highs of 55% (18/30) and 60% (213/379) in Asian and Other peoples respectively.
- Unfortunately detailed private surgery data for more recent years are not currently available. However, it is likely that in the years since 2001, there have been similar proportions of private surgery in each ethnic group.
- On average private surgery patients will have less complex conditions than their public system counterparts.

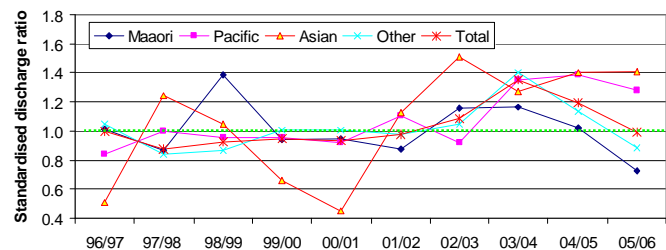
Hysterectomy rates for Counties Manukau versus NZ – overall and by ethnic group

Figure 29 shows the trends in the hysterectomy rates for Counties Manukau residents versus all of NZ as standardised discharge ratios. A discharge ratio of <1 means the Counties Manukau rate is less than the NZ rate and conversely, a ratio >1 means the Counties Manukau rate is greater than the NZ rate.

The trends for the different ethnic group are somewhat difficult to interpret as there have been marked fluctuations in rates, almost certainly due to relatively small numbers in some years.

Rates for all ethnic groups have fluctuated above and below the NZ average. Currently, rates for Pacific and Asian peoples are above the NZ average while rates for Maaori and Other are below.

Figure 29: Hysterectomy standardised discharge ratios, age 15+, CM versus all NZ



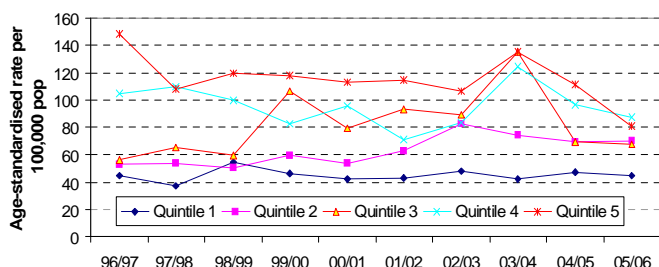
Source: NMDS data, CMDHB analysis. A ratio of >1 means that the CM rate is greater than the national rate, a ratio <1 means that CM rate is less than the national rate.

Hysterectomy and deprivation status

People living in the most deprived areas in Counties Manukau (NZDep index quintile 5) had a much higher rate of publicly funded hysterectomy than people living in the least deprived areas (quintiles 1 and 2) – see Figure 30. At a national level there is also a very clear direct correlation with increasing deprivation (data not shown).

Part of the reason for the wide disparity in publicly funded rates is that people living in the least deprived areas have a significant number of hysterectomies performed in the private sector. For example in 2001, about 50% of all hysterectomies in Counties Manukau residents

Figure 30: Hysterectomy rates, age 15+, by deprivation status, CM 1996-2005



Source: NMDS data, CMDHB analysis. Publicly-funded hysterectomies. The NZDep index quintiles range from the least deprived (quintile 1) to the most deprived (quintile 5).

were privately funded, with the majority for women living in the less deprived areas (see Appendix 2). As a result, the total (publicly + privately funded) hysterectomy rates for the different NZDep01 areas are likely to be relatively similar.

However there is likely to be differing needs for hysterectomy between different socioeconomic groups:

- More deprived people may have a higher prevalence of some of the underlying conditions leading to hysterectomy. For example, a direct correlation of endometrial cancer with deprivation status has been reported in NZ.¹⁸
- There is also some NZ evidence, as well as overseas data, which suggests that women of higher education and occupational status usually have lower overall rates of hysterectomy.¹⁷ Explanations given for this include that better-educated women are more likely to seek medical advice, be better informed about advantages and risks, have better access to resources, more likely to seek alternative treatments and communicate better with their doctors.

3.5. Tubal ligation

Background

Tubal ligation (T/L) or female sterilisation is a common method of contraception that involves occlusion of the fallopian tubes. Reversal of T/L is possible; however, it is a difficult procedure with variable results and should therefore be seen as a permanent procedure. T/L is usually most commonly undertaken in older women who have completed families. Elective laparoscopic T/L is the most common method; however, if a woman has a caesarean section, a T/L is sometimes performed at the same time.

Tubal ligation is only one of many different types of contraception that are available. The popularity of T/L does vary widely between different countries and cultures. A UN survey in 2003 estimated that T/L accounted for about 20% of contraception worldwide and 15% in NZ.¹⁹ Data on the use of T/L and other contraceptive methods in different groups within NZ are somewhat limited. The most cost-effective form of permanent contraception is vasectomy, and vasectomy has many fewer side effects and risk to the patient than does T/L. However, vasectomy does not suit some people and a T/L procedure is still far less risky than carrying a pregnancy to term or undergoing a termination of pregnancy.

Data notes

The NMDS data in the following sections, unless otherwise indicated, are for all publicly funded elective and acute tubal ligations in women age 15+. Little data are available on privately funded T/Ls.

Overall trends in publicly funded tubal ligations in Counties Manukau residents

The number of T/Ls performed in 1996/97 and 1997/98 were 320 and 380 respectively. There was a large increase to 570 in 1998/99 with a one-off Waiting Time Fund purchase, followed by a drop to about 310 in 1999/2000. Since then, the number of T/L performed has been fairly constant at about 420-470 per year, with the existing volumes bolstered by targeted funding by CMDHB. Almost all publicly funded T/L procedures for Counties Manukau residents occurred at CMDHB facilities.

The overall Counties Manukau age-standardised rates reached a peak of 195 per 100,000 in 1998/99. For the last six years the rates have been around 125-145 per 100,000. (see Figure 31)

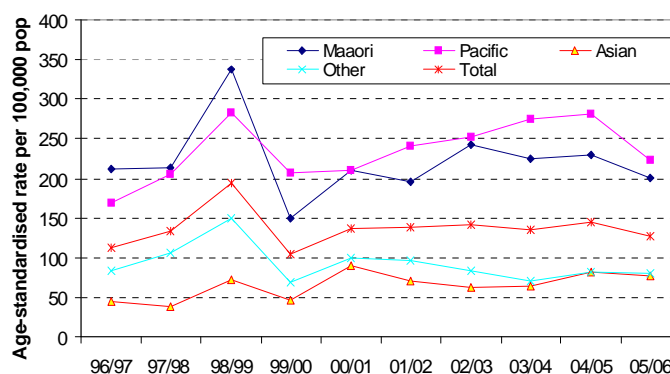
Ethnic trends in tubal ligations

Figure 31 shows marked differences in the T/L publicly funded rates for different ethnic groups within CM. The Maaori and Pacific peoples rates have been consistently the highest of the ethnic groups at about twice to almost four times the rate for Other. The Asian rates were previously the lowest overall; however, in recent years the rates have been very similar to Other.

The explanations for the wide differences in rates are likely to be multifactorial and include:

- the mix between public and privately-funded T/L
- ethnic, gender and cultural differences in the attitude towards contraception in general and the type of contraception preferred, particularly vasectomy
- barriers to accessing contraception including knowledge of contraceptive options, availability of services and cost of contraception.

Figure 31: Tubal ligation age-standardised rates, 15+, by ethnic group, CM 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded T/L.

It is difficult to assess the impact of privately funded surgery on T/L rates as very few such procedures are recorded in the private hospital dataset – around 40 for Counties Manukau residents in 2001. Vasectomies are likely to be taking place in clinic rooms rather than hospital theatres so will not be recorded in the NMDS.

New Zealand data on the use of T/L as a contraceptive method in different ethnic groups are limited, therefore limiting interpretation of the differences in rates:

- There are some data to suggest that in older Pacific women in New Zealand T/L is the preferred option of contraception,²⁰ which may help explain the high rate of T/L seen in Pacific peoples in Counties Manukau. Phrased another way, vasectomy is a less preferred option for older Pacific men.

- o In Asia, T/L is a popular form of contraception, accounting for about 25% of contraception overall. The popularity does; however vary widely from highs of almost 35% in China and India, to 25% in Sri Lanka and Korea and to lows of 1-2% in some other Asian countries.¹⁹ Again this may relate to attitudes towards vasectomy. The low rate of publicly T/L in Asian peoples in Counties Manukau may reflect higher use of private funding, or may indicate some barriers to accessing T/L within Counties Manukau.

It is important not to consider T/L in isolation as it is only one of many different types of contraception. It is of concern that there are likely to be marked ethnic differences in the understanding of available contraceptive options, use of any contraception method, use of family planning services, teenage pregnancy and abortion rates.^{21 22 19}

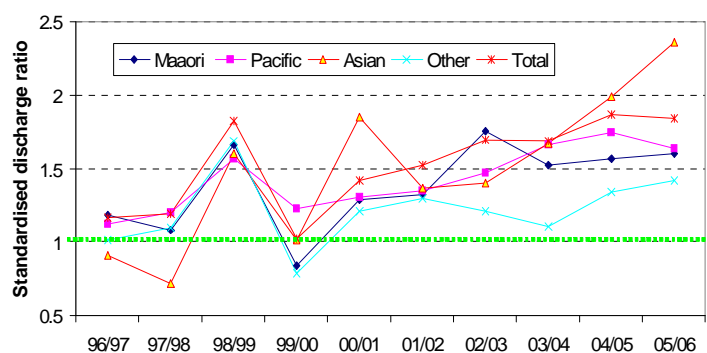
The dynamics of contraceptive use in different ethnic groups; barriers to knowledge of contraceptive options; and accessibility, acceptability and affordability of family planning options and services need to be explored further to ensure that services are delivered in a manner that maximises fertility choices.

Tubal ligation rates for Counties Manukau versus NZ – overall and by ethnic group

Figure 32 shows the rates for Counties Manukau versus the NZ average as standardised discharge ratios (see methodology section for an explanation of these ratios). In the 10-year period, the overall rate for Counties Manukau residents has been above the NZ average, except for 1999/2000 where it equalled the average. In recent years, the Counties Manukau rate has been about 1.5-2 times the NZ average.

Since 2000/2001, the rates for all the ethnic groups in Counties Manukau have been above the NZ average, particularly for Maaori, Pacific, and Asian women. Prior to this time there were some variations in the rates; however, the rates were generally above the NZ average. The ratios for Asian prior to 2000 are not that reliable due the low number of T/L undertaken during this period.

Figure 32: Tubal ligation standardised discharge ratios, 15+, by ethnic group, CM 1996-2005



Source: NMDS data, CMDHB analysis. A ratio of >1 means that the CM rate is greater than the national rate, a ratio <1 means that CM rate is less than the national rate.

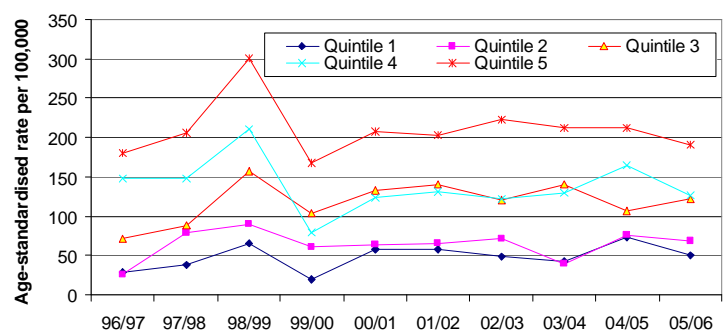
Tubal ligation and deprivation status

Figure 33 shows a clear trend for the most deprived people in Counties Manukau (NZDep Index quintile 1) to have much higher rates of T/L than those in the least deprived deciles (1 and 2). Rates for the intermediate quintiles 3 and 4 were between the two extremes.

There are likely to be other explanations for differences in rates between the different groups. Possible explanations include:

- o People in the less deprived areas may be using alternative forms of contraception in preference to T/L, such as vasectomy, the oral contraceptive pill (OCP) or intrauterine contraceptive devices (IUCD). Vasectomy is a close substitute for T/L. Although we don't have good data on vasectomy rates, anecdotally it is very likely that people in less deprived areas are commonly using vasectomies as an alternative to T/L.
- o People in less deprived area are likely to be accessing privately funded T/L surgery at higher rates
- o As deprivation increases, it may be that forms of contraception other than publicly-funded T/L become less affordable – i.e. vasectomies, which largely require private funding.
- o Maaori and Pacific peoples are disproportionately represented in the most deprived deciles. As a result, it may be different cultural attitudes that are driving the deprivation differences. Maaori and Pacific peoples also have high rates of obesity and as obesity is a relative contraindication to use of the OCP, this may restrict contraception choices.

Figure 33: Tubal ligation age-standardised rates, 15+, by NZDep01 Quintile - CM



Source: NMDS data, CMDHB analysis. The NZDep index quintiles range from the least deprived (quintile 1) to the most deprived (quintile 5).

3.6. Cataract operations

Background

Cataracts are a major cause of impaired vision and blindness worldwide. Cataracts predominately affect the elderly and are more common in women than in men.

Apart from increasing age, well established risk factors for cataracts include diabetes, UV light exposure and smoking.²³ Possible risk factors include myopia and obesity.²³

Data from the early 1990s showed that Maaori and Pacific people with diabetes had a much higher rate of cataracts (14% and 16% respectively) compared to Europeans (6%).²⁴ Maaori and Pacific peoples undergoing cataract surgery were reported to present about 10 years earlier for cataract surgery than European people. The earlier age of presentation was explained in part by a much higher rate of coexisting diabetes in Maaori (38%) and Pacific (58%) than in European (10%). Higher rates of smoking and obesity in Maaori and Pacific peoples¹¹ could also be possible factors.

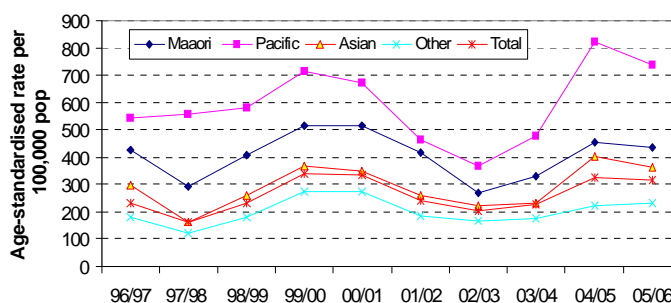
Data notes

The NMDS data in the following sections, unless otherwise indicated, are for all publicly funded cataract-related operations in people age 15+. Little information is available on privately funded operations.

Overall trends in publicly funded cataract operations in Counties Manukau

The number of publicly funded cataract operations for Counties Manukau residents has fluctuated quite markedly over the 10-year period. Numbers climbed from a low of about 340 annually in 1997/98 to 760 in 2000/01. This was followed by a decline to 500 in 2002/03 and subsequent all-time highs of around 860-870 in the last two years. These peaks match elective surgery funding initiatives – the Waiting Time Fund initiative for 1999-2001, and the more recent targeted ophthalmology national funding from 2004 on.

Figure 34: Cataract operations, age-standardised rate, ages 15+, CM 1996-2005



The age-standardised rates for Counties Manukau show these fluctuations over the 10-year period (Figure 34). For the last two years, the rates have been around 320 per 100,000 population.

NMDS data, CMDHB analysis.

Ethnic trends in cataract operation rates in CM

Pacific peoples have had consistently the highest rates over the 10-year period, followed by Maaori (Figure 34). Rates for Asian have been very similar to the average for Counties Manukau and the rates for Other have been consistently the lowest. Potential explanations for the higher rates of cataract surgery in Pacific people and Maaori include a higher prevalence of diabetes and smoking, factors associated with development of cataracts. Higher rates of obesity in these groups may also be a factor.

The reasons for the relatively low rate in Asian and Other are unclear, but may relate to private surgery usage as discussed below. It is unknown to what degree any barriers in access to services are contributing to the low Asian rate, and the prevalence of cataracts in Asian peoples in NZ have not been reported.

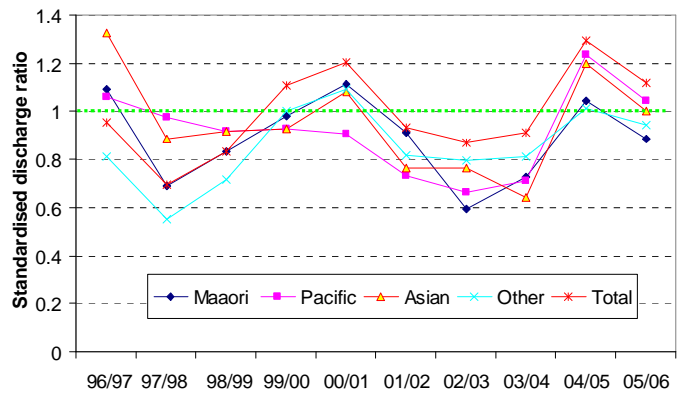
The private hospital surgical data from 2001 regarding cataracts are not complete as most metro Auckland private eye procedures were not recorded on the national system (presumably being seen as being 'clinic-based' rather than theatre procedures). As a result, it is difficult to comment on the mix of public and private surgery for the different ethnic groups. However, it is likely that the Other ethnic grouping will have the highest rate of privately funded cataract surgery. In 1995, the last time there was (probably) full recording of cataract surgery in the private hospital dataset, around 60% of all cataract surgery occurred in the private sector, and recipients were almost all European (though ethnicity recording was not considered robust at that time).

Cataract operation rates for Counties Manukau versus NZ – overall and by ethnic group

Figure 35 shows the trends in the cataract operation rates for Counties Manukau versus all of NZ as standardised discharge ratios. A discharge ratio of <1 means the CM rate is less than the NZ rate and conversely, a ratio >1 means the CM rate is greater than the NZ rate.

The overall Counties Manukau rate has fluctuated above and below the NZ average, largely reflecting the increased number of cataract operations performed in Counties Manukau during elective funding initiatives. During the 1980s and 1990s the metro-Auckland region was well below the national average for cataract surgery. The additional funding for eye surgery sees Counties Manukau currently slightly above the NZ average.

Figure 35: Cataract operations standardised discharge ratios, 15+, by ethnic group CM 1996-2005



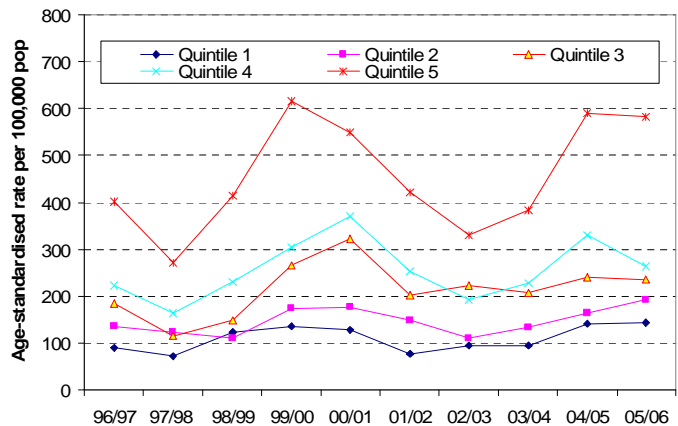
The rates for ethnic groups within Counties Manukau in comparison to those ethnic groups nationally have also fluctuated, but have largely been below or around the New Zealand average. For the last two years the rates for Maaori, and Pacific and Asian peoples have been above or around the NZ average.

Cataract operations and deprivation status for Counties Manukau residents

Figure 36 shows that that people living in the most deprived areas in Counties Manukau (NZDep Index quintile 5) had much higher rates of publicly funded cataract operation than people living in the least deprived areas (quintiles 1 and 2). Rates for the intermediate quintiles were generally between the two extremes.

If it is assumed that privately funded surgery rates have fallen slightly but still make up around half of all surgeries, and that most of the cataract operations undertaken in private will be in people from less deprived areas, then it is likely that the total (publicly + privately funded) cataract operations rates for the least deprived quintiles are similar to the more deprived areas.

Figure 36: Cataract operations age-standardised rates for 15+, CM, by deprivation status (NZDep Index quintile)



Maaori and Pacific peoples are disproportionately represented in the most deprived areas of Counties Manukau. As these groups have higher rates of cataracts and cataract surgery, ethnicity is a confounding factor making it difficult to separate the association of deprivation from that of ethnicity.

3.7. Grommets

Insertion of grommets (ventilation or tympanostomy tubes) into the ear drum is one of the most common operations in childhood; however, much controversy surrounds this procedure. Grommet insertion is most commonly performed in children who have chronic otitis media with effusion (OME) or 'glue ear'. Other indications include recurrent acute otitis media.

Background on OME

Episodes of OME frequently follow upper respiratory tract infections and acute otitis media. OME can reduce hearing due to the fluid in the middle ear.

International data shows that OME is an almost universal experience in early childhood. Screening surveys of healthy children (age ranges from infancy to 5 years old) show that 15-40% have a middle-ear effusion at any one time.²⁵ It has been estimated that by the age of four, approximately 80% of all children would have had an episode of OME.²⁶

The majority of OME episodes resolve spontaneously; however, chronic OME can develop in some children. This may be associated with eardrum or middle ear damage, language delays and behavioural problems; however, it remains uncertain if these findings are direct consequences of OME or not.²⁶

Several risk factors have been associated with OME including bottle feeding, passive smoking, male gender, lower socioeconomic status, exposure to other children in day-care and cleft-palate.²⁷

Although New Zealand data on the prevalence of chronic OME are somewhat limited, Maaori and Pacific children seem to be at the highest risk. Data from early childhood (three and five year olds) hearing screening programmes in NZ shows that the hearing failure referral rates are two to three times higher for Maaori and Pacific children compared to Other children. Note that these are screening failures and that most but not all cases will be due to OME.²⁸ (For further discussion see p83 of *The Health Status of Children and Young People in Counties Manukau* (Jan 2006) on www.cmdhb.org.nz)

The management of OME and the use of grommets

Optimal management of OME is still under debate in the medical community. The effectiveness of medical treatments (e.g. decongestants, steroids, antihistamines and antibiotics) has not been well established.²⁶ Surgical treatment options include grommet insertion, adenoidectomy or both.

Grommet insertion has been controversial for many years with opinions varying greatly on the indications, risks and benefits. Key points from a recent Cochrane review of this area are summarised below:²⁶

- Agreement on the indications for grommets remain unresolved.
- Further research is needed to help identify which children may benefit from grommet insertion and which children will not.
- There is considerable variation in the rate of grommet insertion within and between counties, e.g. the annual rate per 100,000 children aged 0-14 years is about 200 in the UK, 800-900 in the USA and Canada, and 2000 in the Netherlands.
- Many cases of OME will resolve spontaneously.
- The overall benefits of grommets appear small. While grommets initially improve hearing levels, especially during the first six months, no effect on long-term speech or language development has been proven. Also, grommets last a relatively short time (mean of 6-12 months) before they stop working.
- Grommets may have long-term adverse effects on the ear drum.

Data notes

This section covers NMDS data on unilateral or bilateral grommet insertion. Only the 0-14 age group has been covered as few grommet insertions are performed in people aged 15+. In addition to the publicly funded operations, a significant number of privately funded operations are performed and the limited available data on these will be briefly discussed.

Trends in overall grommet rates for Counties Manukau and NZ

The New Zealand age-standardised rate for grommet insertion in children aged 0-14 reached a peak in 1999/2000 at approximately 960 per 100,000. Since then there has been a steady decline to approximately 690 per 100,000 in 2005/06.

The overall Counties Manukau rate also reached a peak in 1999/2000 at 930 per 100,000 and has since been generally on the decline to reach the lowest rate during the 10-year period in 2005/06 (510 per 100,000) – see Figure 37. The rates in Counties Manukau have been similar to that for all of NZ except for 1996-1998 and the last two years where the rates were below the national rate (see Figure 38).

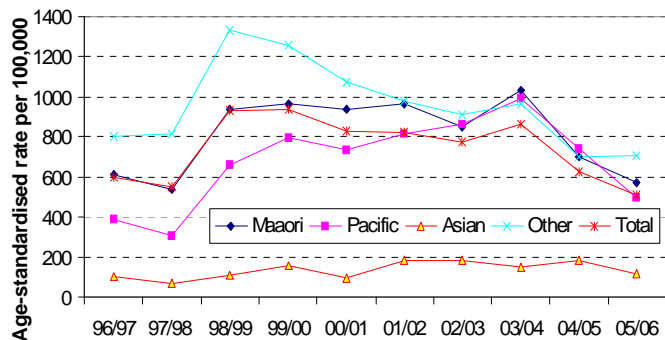
The decline in grommet rates is likely to reflect controversy surrounding grommet insertion and a move towards an initial period of watchful waiting as a common management strategy rather than early insertion of grommets.

Ethnic trends in grommet rates

There are marked differences in the grommet rates between different ethnic groups.

In Counties Manukau for the period of 1996 to 2000, the age-standardised rate for the Other group was consistently the highest; however, since that time, rates for Other, Maaori and Pacific peoples have become fairly similar (see Figure 37). Given that Maaori and Pacific children are likely to have the highest prevalence of OEM (new entrant hearing failure rates for Maaori and Pacific children in CM are about double those of Asian and Others), it is therefore puzzling to see grommet rates for Maaori and Pacific peoples the same or lower than that of Other.

Figure 37: Grommet age-standardised rates for 0-14 years olds in CM, by ethnic group



Source: NMDS data, CMDHB analysis.

However, given the controversy surrounding grommet insertion and that the overall benefits of grommets appear small, the concern over lower than expected rates in Maaori and Pacific children may perhaps be not as great as it first appears. Parental expectations may be driving the difference, but there would be concern if these lower than expected rates were related to access to and use of primary care. Referral for grommets usually requires recurrent attendance at primary care (patient or doctor initiated), which may be more difficult for Maaori and Pacific peoples. It may be that in the Other group high rates of grommet insertion in the past has created an expectation in parents that this is the expected treatment, and that the child may be “missing out” if it is not obtained.

Also of note was that at both a national level (data not shown) and in Counties Manukau there was a much lower age-standardised grommet rate for Asian peoples compared to all other ethnic groups. The reasons for the very low rate in Asian peoples are not clear as data are limited:

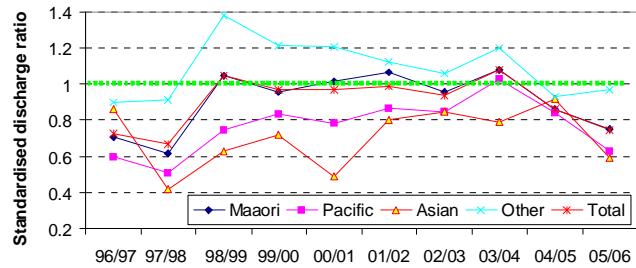
- It is possible that Asian people have a lower rate of OME and other ear conditions that may require grommets. In 2001, Chinese accounted for approximately 45% of the Asian population in Counties Manukau and nationally. Overseas data shows that ethnic Chinese have a low rate of OME so it is possible Chinese in NZ also have low rates.
- NZ childhood screening data, however, shows that young Asian children have similar rates of referral for failed hearing tests as European and Other children.
- Parental expectations may be different.
- Data are lacking as to whether there are issues with access to primary care or if there are low rates of referral to specialist services.

Other reasons may exist for the low rate in Asian peoples and the lower than expected rate in Maaori and Pacific peoples. Potential explanations that would need to be explored further include the possibility that there may be a high rate of spontaneous resolution of OME in these groups, or cultural differences may exist in the acceptance of grommets as a treatment option.

Figure 38 shows the standardised discharge ratios for different ethnic groups in Counties Manukau compared to ethnic group data for all of New Zealand. Given the lack of clear indication for this procedure being under the NZ average is probably a desirable position to be in.

- o The Maaori rate has been mostly around the NZ average, while the Pacific rate has generally been below the NZ average
- o The Asian residents in Counties Manukau rate has been consistently below the NZ average.
- o The rate for Other has been mostly above the NZ average.
- o Rates in the last two years for all ethnic groups in Counties Manukau have been below the NZ rate.

Figure 38: Grommets age-standardised discharge ratios for 0-14 years olds, by ethnic group for CM versus all NZ



Source: NMDS data, CMDHB analysis. A ratio of >1 means that the CM rate is greater than the national rate, a ratio <1 means that CM rate is less than the national rate.

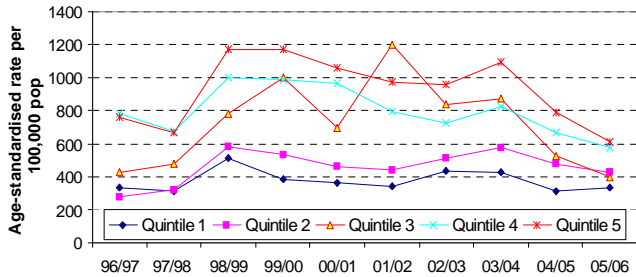
Grommet rates and deprivation status

Figure 39 shows the age-standardised grommet insertion rate by deprivation status (as measured by NZDep index quintile). There was a fairly consistent pattern for grommet rates to markedly increase as deprivation status increased.

There is some evidence in the literature that lower socioeconomic status is associated with a higher rate of OME.

Little grommet surgery is recorded in the private surgery dataset in 2001, the last year of Counties Manukau data available. Back in 1995 over half of all grommet surgery occurred in the private sector – the apparent fall is likely to be a data recording change rather than any change in service pattern. Assuming that the same rate of private grommet surgery is still occurring, grommet insertions undertaken in private are likely to drive the least deprived surgery rates higher than the more deprived. As noted above this high intervention rate may not be delivering good value health gain for these children.

Figure 39: Grommet age-standardised rates for 0-14 year olds, CM, by deprivation status (NZDep Index quintile)



Source: NMDS data, CMDHB analysis. The NZDep index quintiles range from the least deprived (quintile 1) to the most deprived (quintile 5).

It is perhaps concerning that there is such a deprivation gradient when there is no ethnic gradient. It implies that if you controlled ethnic rates for deprivation, Maaori and Pacific rates may be very low.

3.8. Tonsillectomy and adenoidectomy

Background

Tonsillectomy is one of the most commonly performed operations in childhood. It is usually performed for cases of recurrent tonsillitis. Indications can also include upper airway obstruction from enlarged tonsils (which may result in obstructive sleep apnoea) and chronic tonsillitis.

Tonsillectomy over the decades has gone through periods of enthusiasm as well as uncertainty with regards to the overall benefit in children. Although recurrent episodes of tonsillitis are generally accepted as an appropriate indication for tonsillectomy, there is no consensus as to which children would benefit from such surgery. Relatively little good data exist to support tonsillectomy for recurrent tonsillitis, with small trials showing only a marginal benefit. The benefits of tonsillectomy may not be significant enough to justify the cost and risks of surgery in most children.²⁹

An important point to note is the natural decrease in the frequency of upper respiratory infections and tonsillitis as children age, with many children “outgrowing” their recurrent infections. Increased use of antibiotic therapy and more conservative surgical indications over time has led to a decline in tonsillectomy rates in most countries.

There is also some controversy regarding the indications for adenoidectomy. Historically, adenoidectomy has often been performed routinely in conjunction with tonsillectomy. Indications also can include chronic adenoiditis, nasal airway obstruction, recurrent/persistent otitis media (in conjunction with grommet insertion) and recurrent/chronic sinusitis.

Both tonsillectomy and adenoidectomy procedures can be indicated for adults as well. However, as the majority are for children, this discussion will be restricted to children aged 0-14.

Data notes

The NMDS data on tonsillectomy and adenoidectomy have been considered together as one group for this report. Data for tonsillectomy alone, tonsillectomy plus adenoidectomy, or adenoidectomy alone are included. Only the 0-14 age group has been covered as fewer tonsillectomies or adenoidectomies are performed in people aged 15+. In addition to the publicly funded operations, a significant number of privately funded operations are performed and the limited available data on these will be briefly discussed.

Trends in overall rates for Counties Manukau and NZ

The tonsillectomy and adenoidectomy (T+A) rates for Counties Manukau (see Figure 40) and NZ (data not shown) both peaked in 1998/99 (with Waiting Time Fund contracts peaking in that year) and have been declining slowly since. In 2005/06, both the Counties Manukau and NZ rates were the lowest in the 10-year period (250 and 420 per 100,000 population aged 0-14 respectively).

The decline in rates over time almost certainly reflects the trend towards not performing a tonsillectomy until multiple episodes of tonsillitis have occurred. Current national referral guidelines require 7 or more episodes in the preceding 12 month; or 5 per year in the preceding 2 years; or 3 per year in the preceding 3 years. Recurrent episodes are treated with antibiotics until these thresholds are met.

Figure 40 shows the trends in the T+A rates for Counties Manukau residents versus all of New Zealand as standardised discharge ratios. A discharge ratio of <1 means the Counties Manukau rate is less than the NZ rate and conversely, a ratio >1 means the Counties Manukau rate is greater than the NZ rate.

The overall rates for Counties Manukau have been consistently below the NZ rates apart from in 1998/99 when Counties Manukau equalled the national average. In this year, the number of T+A performed in Counties Manukau (~690) was far higher than the preceding year (~280). Significant Waiting Time Fund purchases by the HFA account for most of this peak. For the last three years the Counties Manukau T+A rate has been around 60% of the NZ rate, similar to the historical average.

Ethnic trends

A similar pattern for the different ethnic groups was seen at a Counties Manukau level (see Figure 41) and for NZ as a whole (data not shown).

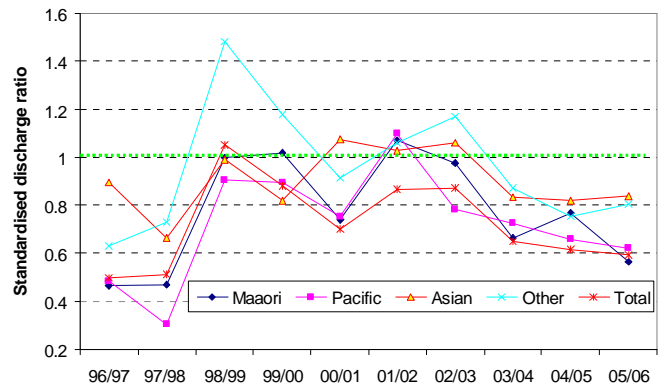
Asian peoples had the lowest rates, with the rate for Pacific peoples only marginally higher. The rate for Maaori has generally been above the Pacific rate. The rate for Other has been consistently far higher than for other groups. As for grommet insertion (see section above) it may be that parental expectations are driving significant behaviour differences here in seeking out care.

Figure 40 shows the age-standardised discharge ratios for Counties Manukau versus the NZ average for different ethnic groups. The rates for all ethnic groups in Counties Manukau compared to the respective national averages have fluctuated over the period from 1996-2005. While the rate for Other in Counties Manukau has at times exceeded the national rate, for the most part, rates for the different ethnic groups in Counties Manukau have been below or around the national average. For the last three years, the Counties Manukau rates for all ethnic groups have been below the respective national averages, particularly for Pacific peoples. As for grommets, as a DHB being located below the NZ average for procedures with less clear-cut cost-benefits is probably desirable.

It is uncertain what the community prevalence of tonsil or adenoid problems are for different ethnic groups. Limited data does exist on the presentation of sore throat to general practice; but only a minority of these cases will be due to tonsillitis. Data from the 2001/02 NatMedCa study showed that there was no difference in the rate of sore throat presentation for different ethnic groups or by NZDep2001 deprivation status (all ages).³⁰ In contrast, the 1991 WaiMedCa study found that Maaori and Pacific children aged 5-14 years with a sore throat consulted a GP less than often than European children with a sore throat.

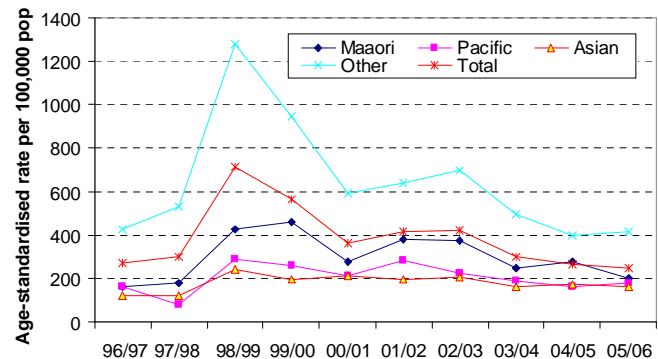
As a result of limited data, it is uncertain if the lower rates of T+A in Asian peoples, Pacific peoples and Maaori are due to a lower prevalence of tonsillar/adenoid problems, differing parental attitudes to recurrent infections, or different access, referral or operation patterns. Anecdotal data suggests that ethnic differences in parental demand for tonsillectomy is an important driver.

Figure 40: T+A age-standardised discharge ratios for 0-14 years olds, by ethnic group for CM versus all NZ



Source: NMDS data, CMDHB analysis. A discharge ratio of <1 means the CM rate is less than the NZ rate and vice-versa.

Figure 41: T+A age-standardised rates for 0-14 years olds in CM, by ethnic group



Source: NMDS data, CMDHB analysis.

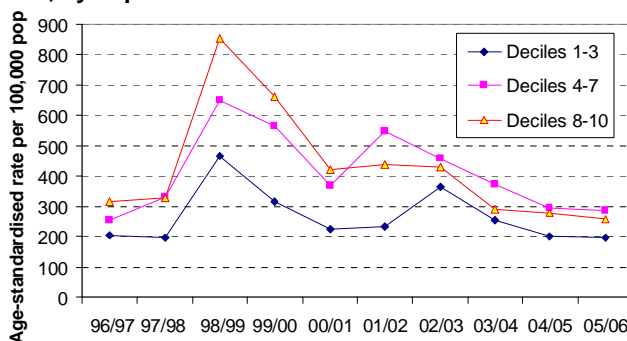
T + A and deprivation status

Rates of T + A were also looked at with regards to deprivation status as measured by the NZDep Index. In order to have sufficient numbers for analysis, the least deprived deciles (1-3) were aggregated into one group, deciles 4-7 as another group and the most deprived deciles of 8-10 as a third group. (see Figure 42).

Of note, rates of publicly-funded T+A in the deciles 4-7 and 8-10 were similar to each other and consistently higher than for deciles 1-3, the least deprived group. However, the actual differences between the different groups are likely to be reversed as a significant number of T+A are undertaken in the private sector.

In 2001 (the last year of available private hospital data), approximately 25% of all T+A procedures for Counties Manukau residents were privately funded, similar to the NZ average (30%). However, compared to earlier (1995) private hospital data there is less than half the number of procedures recorded in the 2001 dataset – most likely a change in data management. If the mid-1990s private surgery rates continued then more than half of all T + A surgery would be privately funded. Whatever the figure, it is likely that most of these private operations were for people living in the least deprived deciles, and when combined with the lower rate of publicly funded T+A in the deciles 1-3 group would give a large excess in this group. This high intervention rate may be delivering only marginal health benefits for some children.

Figure 42: T+A age-standardised rates for 0-14 years olds in CM, by deprivation status



Source: NMDS data, CMDHB analysis. Age-standardised with 2001 NZ Census population.

3.9. Cholecystectomy

Background

Cholecystectomy is one of the most commonly performed abdominal operations. Cholecystitis, which is almost always due to gallstones, is by far the usual indication. Rarer indications include conditions such as gallbladder cancer.

Laparoscopic cholecystectomy has largely replaced “open” surgical cholecystectomy due to the faster recovery, shorter hospital stay and lower overall morbidity rate. However, a significant number of people (up to a quarter) undergoing laparoscopic cholecystectomy may need conversion to open cholecystectomy due to complications such as uncontrolled bleeding.³¹

Traditionally, cholecystectomy has been undertaken electively after inflammation from cholecystitis has subsided. However, a recent review concluded that early cholecystectomy (within 7 days of onset of symptoms) is the treatment of choice for acute cholecystitis.³¹ Early surgery is associated with reduced duration of hospital admission compared to delayed surgery (≥ 6 weeks of onset) with similar complication and mortality rates. Up to 25% of people scheduled for delayed surgery need to undergo acute surgery due to recurrent or worsening symptoms.

Risk factors for gallstones include increasing age, female gender, obesity, family history and high blood triglyceride levels.³² Genetic predisposition is important but not completely understood. Internationally there are marked differences in the prevalence of gallstones in different ethnic groups.³² For example, Asian people and sub-Saharan Africans may have the lowest prevalence while certain groups such as Scandinavians, American Indians, and Chileans have a high prevalence. African Americans have a lower prevalence than whites in the USA.

New Zealand data are limited, but gallstones may be more common in Maori and Pacific peoples.^{33 34}

Data notes

The NMDS data in the following sections, unless otherwise indicated, are for publicly-funded cholecystectomies in people age 15+. Elective and acute cholecystectomies have been combined into one group. In addition to the publicly funded cholecystectomies, a significant number of privately funded cholecystectomies are performed and the limited available data on these will be briefly discussed.

Overall trends in publicly funded cholecystectomies in Counties Manukau

The number of cholecystectomies performed for Counties Manukau residents was fairly static at around 280-320 per year for the period of 1996/07 to 2000/01. The number performed has since steadily increased to approximately 480 per year in 2004/05 and 2005/06. The increase has not been due to specific national increases in elective funding, but rather targeted improvements in funding for elective surgery at CMDHB. It reflects trends towards early cholecystectomy in acute cholecystitis and reduced thresholds for intervention.

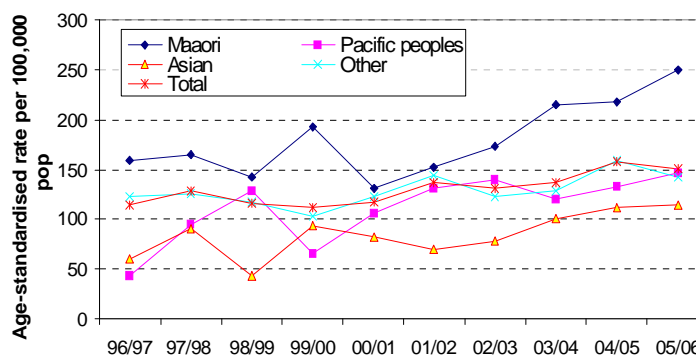
The overall Counties Manukau age-standardised rates fluctuated in the 110-140 per 100,000 range until 2003/04 (see Figure 43). For the last two years the rates have been around 150-160 per 100,000.

Ethnic trends in cholecystectomies

There are some marked differences in age-standardised rates of publicly-funded cholecystectomy for different ethnic groups (Figure 43).

Rates for Maori have been the highest of all the ethnic groups over the last 10 years, but particularly in the last four years where they have been significantly higher. The large increase in the Maori rate over recent years is encouraging if it reflects improved access to care, but concerning if there has been a significant increase in the prevalence of gallbladder pathology (which seems unlikely, but data on this are lacking). As obesity rates increase, the prevalence of gall bladder disorders is expected to increase.

Figure 43: Cholecystectomy rates, age 15+, by ethnic group, CM 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded elective and acute cholecystectomies.

In contrast to Maaori, the rates for Other and Pacific peoples have changed little over recent years. For the last six years the rates for these two groups have been similar to each other; however, prior to that the rates for Pacific peoples has generally been below that of Other. It is unclear why the rate in Pacific peoples should be much different from the Maaori rate.

Rates for Asian peoples have generally been the lowest over the 10-year period. A possible partial explanation is that gallstone prevalence may be low in Asian countries. NZ specific prevalence data are, however, lacking. Although the data are somewhat limited, it seems that a significant number of cholecystectomies are privately funded (see below) in this group. It is unknown to what extent any barriers in access to health care services may be contributing to the low rate.

Limited data suggests that is likely that a significant number of cholecystectomies in Counties Manukau residents are privately funded and that there may be marked inequalities in the proportion of private cholecystectomies between the different ethnic groups. In 2001 calendar year, about 30% of the 500 cholecystectomies performed in Counties Manukau residents were privately funded:

- o Maaori had the lowest proportion (8%; 4/53)
- o Pacific peoples were next (12%; 6/52)
- o Then Other (37%; 122/350)
- o Asian peoples (40%; 14/35) had the highest proportion of privately funded operations.

Unfortunately, detailed private surgery data are not currently available for more recent years. However, if a similar pattern of ethnic differences in private surgery has occurred since then, this would mean that the total cholecystectomy rates (publicly + privately funded combined) for Maaori would be slightly higher than the public rates. Similarly the rate for Pacific peoples may increase only slightly, meaning that Pacific peoples are likely to have the lowest total rate of cholecystectomy. Given the high rate of obesity in the Pacific population one might expect a higher rate- either there is a lower prevalence for gall bladder disease or there are problems with access to services for Pacific people.

In contrast, the total rates for Other and Asian are likely to be significantly higher than the public rates shown here.

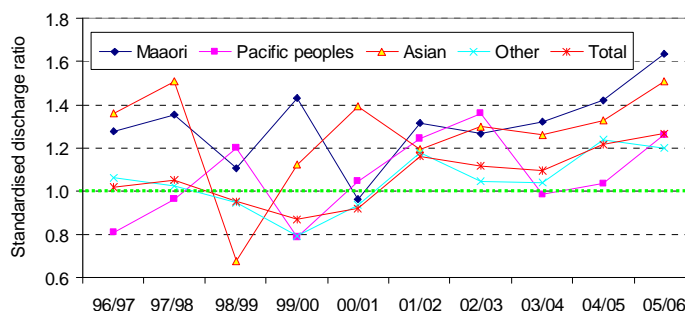
Cholecystectomy rates for Counties Manukau versus NZ – overall and by ethnic group

Figure 44 shows how the rates of publicly funded cholecystectomy for Counties Manukau compared to the NZ average, both in terms of overall rates and for different ethnic groups (an explanation of SDRs is given in the methodology section).

For the period from 1996/07 to 2000/01, the overall rate for Counties Manukau fluctuated above and below the NZ average. Since 2001/02, the rate for publicly funded cholecystectomies in Counties Manukau has been consistently higher than the NZ average.

The Counties Manukau rates for the different ethnic groups since 2001/02 have generally been above the national average, particularly for Maaori and Asian peoples, where they have been much higher. Prior to this time, rates fluctuated around the national averages.

Figure 44: Cholecystectomy standardised discharge ratios, age 15+, CM versus all NZ



Source: NMDS data, CMDHB analysis. Publicly funded elective and acute cholecystectomies. A discharge ratio of <1 means the CM rate is less than the NZ average and a ratio >1 the reverse.

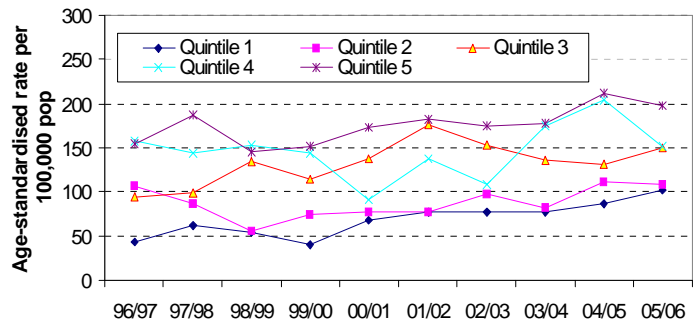
Cholecystectomy and deprivation status

Rates of cholecystectomy were also looked at with regards to deprivation status as measured by the NZDep Index quintile. The quintiles range from the least deprived (quintile 1) to the most deprived (quintile 5) - (Figure 45).

Over the 10-year period there is a clear pattern for the publicly funded cholecystectomy rates to be much higher for those living in the most deprived quintile than for those living in the least deprived quintiles (1 and 2). Rates for quintiles 3 and 4 have fluctuated over this time but generally have been between the two extremes. There has been a narrowing of the difference over the past 6 years, possibly related to the improving access to surgery and the increased certainty provided by the booking system making the public system more attractive. This may be influencing the decision as to whether to look for a privately funded procedure or to wait for a publicly funded one.

In 2001, 30% of all cholecystectomies undertaken in Counties Manukau residents were privately funded. Later data are not currently available, but it is likely to be a similar proportion in recent years. Appendix 2 shows the strong deprivation gradient for the privately funded operations, balancing the publicly funded rates somewhat. It is likely that the total (public + privately funded) cholecystectomy rates for people living in the least deprived areas are lower (~75%) than those living in the more deprived areas.

Figure 45: Cholecystectomy age-standardised rates, age 15+, by deprivation status – CM



Source: NMDS data, CMDHB analysis. Deprivation status by NZDep01 quintile.

This suggests that the most deprived group either has a higher prevalence of gallbladder pathology, or a higher rate of more serious disease requiring surgery. There is some limited international data suggesting that this may be the case,³⁵ with obesity and nutrition factors being strongly linked with deprivation levels. New Zealand data on the association of gallbladder disease and socioeconomic status are lacking.

3.10. Inguinal hernia repair

Background

An inguinal hernia is an out-pouching of the peritoneum (lining of the abdominal cavity), with or without abdominal contents, through the muscles in the groin. It is commonly a congenital problem, particularly involving the developmental migration of the testes through the abdominal wall in the boy foetus.

Inguinal hernia repair is a commonly performed operation in infants and adults. Repairs are usually performed electively either as an open procedure, but some are performed laparoscopically. There is still some debate and ongoing research as to what are the most effective methods of repair.

Occasionally acute operations are needed due to the bowel becoming stuck in the hernia. The risk of this may be as high as 60% in the first 6 months of life, therefore, surgical repair of hernia is usually recommended at the earliest elective date after diagnosis in this age-group.³⁶ In adults, the risk of acute obstruction is much lower.

Inguinal hernias are much more common in males than females. In adults the prevalence rises with increasing age.³⁷ Chronic cough, manual labour involving heavy lifting, and obesity are commonly regarded as risk factors.

Data on the prevalence of inguinal hernias in the community are somewhat limited and data on the prevalence of inguinal hernias in different ethnic groups are extremely limited.

Data notes

The NMDS data in the following sections, unless otherwise indicated, are for all forms of publicly funded inguinal hernia repairs. Elective and acute inguinal hernia repairs have been combined into one group. All ages have been combined into one group as there were sufficient numbers of repairs in both the children and adult age groups. In addition to the publicly funded inguinal hernia repairs, a significant number of privately funded inguinal hernia repairs are performed and the limited data on these will be briefly discussed.

Overall trends in publicly funded inguinal hernia repairs in Counties Manukau

The number of publicly funded inguinal hernia repairs performed annually in Counties Manukau residents has been reasonably consistent over the past 10 years, fluctuating mainly in the 360-400 range. The proportion that were in people aged <15 years ranged from 35-50% over the 10-year period.

The age-standardised rate per 100,000 population has been fairly constant over the 10-year period (see Figure 46). Rates ranged from 80-110, but were mostly around 100 per 100,000.

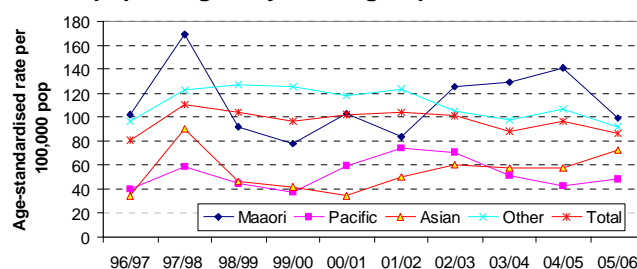
Ethnic trends in inguinal hernia repair for Counties Manukau residents

There are some differences between ethnic groups in the rate of publicly-funded inguinal hernia repairs within Counties Manukau (Figure 46). Pacific and Asian peoples have had the lowest rates over the 10-year period, while rates for Maaori have fluctuated above and below the rate for Other.

It is important to consider the potential impact of privately funded hernia repairs on the overall rate of hernia repair. Limited private surgical data suggests there may be marked differences between different ethnic groups in the proportion of inguinal hernia repairs that were privately funded. In the 2001 calendar year, about 40% of the almost 600 inguinal hernia repairs in Counties Manukau residents were privately funded. The proportion for the different ethnic groups were as follows:

- o Maaori – 14% (9/65),
- o Pacific peoples – 12% (7/57)
- o Asian peoples – 30% (6/20)
- o Other – 44% (197/448).

Figure 46: Inguinal hernia repair age-standardised rate per 100,000 pop, all ages, by ethnic group – CM 1996-2005



Source: NMDS data, CMDHB analysis. Publicly-funded elective and acute inguinal hernia repair. All ages.

Unfortunately, detailed private data for recent years are not currently available. However, if one assumes that proportions of privately funded hernia repair for each ethnic group have been reasonably similar in recent years, then the total (publicly + privately funded) inguinal hernia repair rate for:

- o Other is likely to be significantly higher than the public rate shown here and may be the highest of all ethnic groups
- o Maaori would increase slightly
- o Asian would increase but are likely to remain significantly lower than Maaori or Other.
- o The total rate for Pacific peoples is unlikely to increase much from the public rate, implying that Pacific peoples may have the lowest overall rate of inguinal surgical repair. This is a similar finding to that seen with many of the other procedures discussed in this report. Again access to care may be the issue, or a general stoicism, or it is also possible that there are ethnic differences in the prevalence of inguinal hernia, but data are currently lacking in this area.

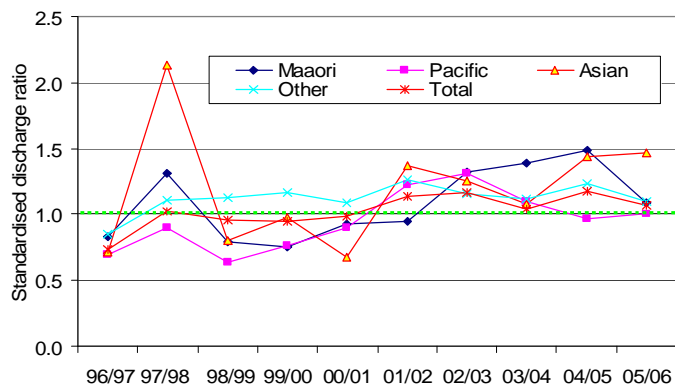
Inguinal hernia repair rates for Counties Manukau versus NZ

The overall Counties Manukau rate for public inguinal hernia repair increased to be around the New Zealand average for 1997/98 to 2000/01 (Figure 47). Since then, the rate has been slightly above the NZ average. This relative improvement in Counties Manukau residents position versus the rest of New Zealand has come through the maintenance of CMDHB volumes compared with reducing public procedure numbers in the rest of New Zealand.

Over the 10-year period, there has been a change from the Counties Manukau rates for the different ethnic groups to be largely below or around the NZ average to the pattern in recent years, where the rates for almost all the ethnic groups within Counties Manukau have been above the NZ average.

Over the last two years, the Pacific rate within Counties Manukau has been about the national average for Pacific. Whilst Asian rates are lower than Maaori and Pacific rates, Asian residents of Counties Manukau have higher relative rates than their counterparts in the rest of New Zealand.

Figure 47: Inguinal hernia repair standardised discharge ratios, all ages, by ethnic group, CM versus all NZ 1996-2005



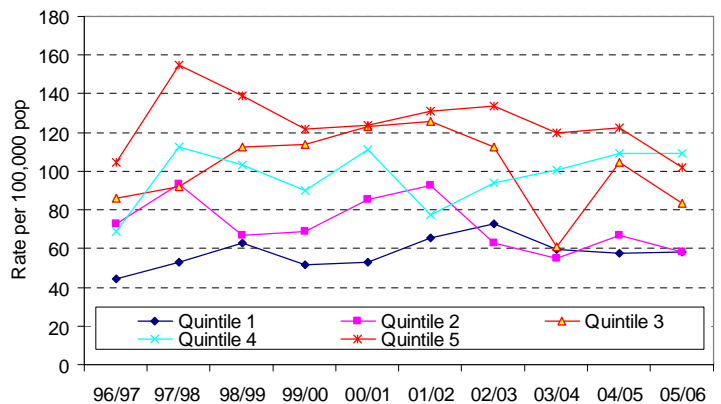
Source: NMDS data, CMDHB analysis. All ages. Publicly funded elective and acute inguinal hernia repair. A discharge ratio of <1 means the CM rate is less than the NZ average and a ratio >1 the reverse.

Inguinal hernia repair and deprivation status

Figure 48 shows that there is a clear pattern for the rate of publicly funded inguinal hernia operations to be significantly higher for those living in the most deprived areas (quintile 5) than those living in the least deprived areas (quintiles 1 and 2). Rates for the intermediate quintiles (3 and 4) were generally between the two extremes.

One might have expected that people living in more deprived areas would have a higher prevalence of inguinal hernia through having higher rates of manual labour. However, the higher rates of private surgery in people living in the least deprived areas (see Appendix 2) mean the total (publicly + private funded) hernia rates are likely to be fairly even for the different deprivation status groups.

Figure 48: Inguinal hernia repair age-standardised rates, all ages, by deprivation status (NZDep quintile) – CM 1996-2005



Source: NMDS data, CMDHB analysis. All ages. Deprivation status by NZDep01 quintile.

3.11. Prostate operations

Background

This section covers data on a diverse range of prostate operations (see data notes below), which are usually undertaken for treatment of prostate cancer or benign prostatic hyperplasia. These two conditions are discussed below.

Prostate cancer

Prostate cancer is a significant public health issue in New Zealand. It is the most commonly diagnosed cancer in New Zealand men and the third most common cause of male cancer deaths. It accounts for about 600 or 4% of all male deaths each year in New Zealand.³

Prostate cancer is largely a disease of older men and is rare in men below the age of 50. Prostate cancers range from very aggressive tumours to slowly growing tumours, which may not cause any symptoms or shorten a man's life. The majority of men with prostate cancer will not die of it. Unfortunately, at present there are no tests which can accurately predict which cancers are life-threatening and which will cause no harm.³⁸

There is not yet convincing evidence that screening reduces prostate cancer mortality or morbidity. Routine screening for prostate cancer in asymptomatic men of any age is not currently recommended in NZ, as the risks associated with screening and subsequent investigation and treatment may exceed any benefits.³⁸ However, most general practitioners do screen for prostate cancer, either routinely or if a patient requests testing. Unfortunately, this has often been done in the context of little or no communication of the risks by providers.³⁹ Consumer understanding of prostate disease and issues surrounding it is often poor.⁴⁰

Maaori have been reported to have the lowest incidence of prostate cancer, with the incidence in Pacific men slightly below that of NZ European men.⁴¹ In contrast, the standardised mortality for Maaori and Pacific men has usually been reported to be higher than for NZ European men.^{3 6 7 42} This disparity between incidence and mortality supports the possibility that Pacific and Maaori men underutilise health services and receive prostate health care later than NZ European men.⁴¹ Cultural and other barriers to healthcare access and utilisation are likely to be important factors. NZ data are lacking but overseas data suggest that Asian men, particularly Chinese and Japanese men, have a low incidence of prostate cancer.⁴¹

Note that for CM residents undergoing a prostatectomy, approximately 35% are for cancerous indications and 65% are for non-cancerous indications.

Benign prostatic hyperplasia

It is common for the prostate gland to grow larger as a man ages and this enlargement is called benign prostatic hyperplasia (BPH). BPH can compress the urethra and result in lower urinary tract symptoms (LUTS) such as frequent urination, difficulty starting urination, poor stream and acute urinary retention.

The main risk factor for BPH is increasing age. BPH is common in men aged over 40 and limited data suggests the community prevalence in NZ men aged 40-79 may be around 20%.⁴³

The overall prevalence of BPH may be similar for Maaori, Pacific and NZ European men, however, relatively few Maaori and Pacific men seem to seek or receive help for LUTS in comparison to NZ European men.^{44 43} These findings may reflect cultural and other barriers in to accessing health care for these groups. A high incidence of BPH has been reported in Southeast Asian and Japanese men; however, again NZ specific data are lacking.⁴⁴

Lower socioeconomic status, increasing weight, and smoking may also be associated with BPH.⁴⁴

Surgical treatment such as a TURP (transurethral resection of prostate) was the traditional approach for advanced BPH. However, over recent years, medical and herbal therapies for BPH have been increasingly used, with good evidence of effectiveness for many of these.⁴⁵

Data notes: The NMDS data in the following sections, unless otherwise indicated, are for all forms of publicly funded prostate operations for men aged 15+. Most will be elective operations. All forms of open prostatectomy and endoscopic resections of the prostate are included in this analysis as well as other less common treatments such as prostate cryotherapy and microwave therapy. Prostate biopsies are excluded, as are radiotherapy treatments. The ICD procedures codes included are shown in Appendix 1.

In addition to the publicly funded prostate operations, a significant number of privately funded prostate operations are performed and the limited data on these will be briefly discussed.

Overall trends in publicly funded prostate operations in Counties Manukau

The number of prostate operations over the 10-year period has fluctuated between about 110-150 per year, with a peak year in 1999/00 with Waiting Time Fund purchases. In 2005/06, the number performed was approximately 130. All procedures for Counties Manukau residents are carried out by the regional urology service provided by Auckland DHB, some locally but most at Auckland facilities.

Nationally over this period there has been a fairly steady decline in numbers from approximately 2,800 in 1996/97 to 1,850 in 2005/06. Age-standardised rates for New Zealand over this period have also declined from a high of approximately 102 per 100,000 pop aged 15+ in 1996/97 to 57 in 2005/06 (Figure 50).

It is not completely clear what has driven this almost halving in the national prostate operation rate over ten years; however, it is likely to be a combination of increased use of medical rather than surgical treatment for BPH and increased use of “watchful waiting” as a strategy for early prostate cancer rather than immediate surgery or radiotherapy. While it is possible that recommendations from the National Health Committee (1996 and 2004)³⁸ that routine screening for prostate cancer is not recommended have contributed to the fall in operative rates, this may not have had a major effect, given that most GPs still continued to screen patients and consumer expectation/demand for testing was high.^{45 40}

In Counties Manukau rates (Figure 49) have fallen over time as seen nationally but not to the same degree, leading to an improvement in the standardised discharge ratio compared with all New Zealand (Figure 50).

Ethnic trends in prostate operations for Counties Manukau residents

The ethnic trends in publicly funded prostate operations for Maaori and Asian in Counties Manukau over the 10-year period are somewhat difficult to interpret as the numbers performed each year has been very low (average of 7 and 8 per year respectively). The resulting instability in rates for these groups gives apparent fluctuations over the 10-year period (see Figure 49).

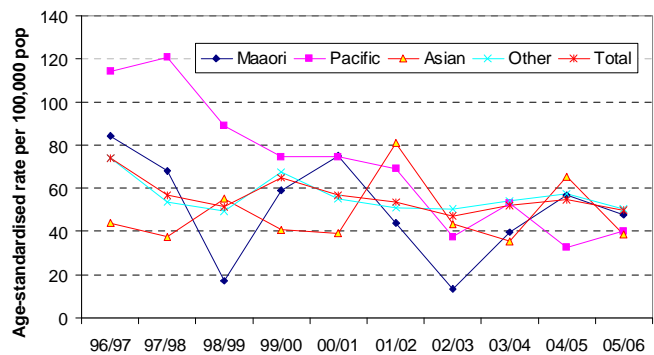
The rates in Pacific peoples will be more reliable as the numbers performed have been a little higher (average of 13 per year). Rates have declined over time with rates in recent years approximately 30-50 per 100,000 pop, considerably lower than at the beginning of the 10-year period (115-120 per 100,000).

The numbers performed annually in Counties Manukau for the Other ethnic group have been considerably higher (average 130 per year) and consequently the rates for this group will be much more reliable. Publicly funded rates for this group were highest in 1996/97 at about 74 per 100,000 population. Since then the rates have fluctuated in the 50-67 per 100,000 range.

Given the somewhat unclear picture in Counties Manukau, almost certainly due to low numbers of prostate operations, it is worthwhile looking at national trends in publicly funded prostate operations.

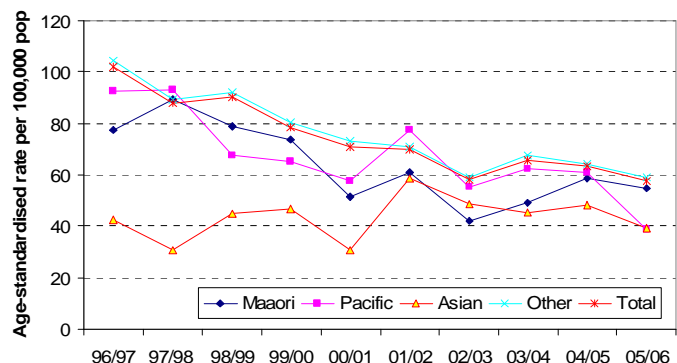
- o Although there have been some fluctuations, rates for Maaori, Pacific peoples and Other all declined over the 10-year period (see Figure 50).
- o The rates for Maaori and Pacific peoples were generally below that of Other.
- o The rates for Asian have almost always been the lowest, fluctuating around 40 per 100,000.

Figure 49: Prostate operations age-standardised rate per 100,000 pop, 15+, by ethnic group – CM 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded prostate operations.

Figure 50: Prostate operations age-standardised rate per 100,000 pop, 15+, by ethnic group – All NZ 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded prostate operations.

A significant number of prostate operations are provided in the private sector:

- In the 2001 calendar year, for Counties Manukau residents, there were very few privately funded operations in Maaori (4 out of a total of 14), Pacific (6/19) and Asian (3/10). Due to the low numbers, the actual proportion of private surgery will be somewhat unreliable.
- In contrast, a very high number and proportion of prostate operations were privately funded for Other (~65% or 183/309).
- Unfortunately, more detailed data from recent years are not currently available. However, if a similar pattern has occurred since then the total rate (private + publicly funded combined) for Other would be more than twice the public rates shown here. The total rates for Maaori, Pacific and Asian would only be slightly higher than the public rates. If true, then this would mean that Other men would have rates of prostate operations approximately twice than of the other ethnic groups. This disparity might reflect barriers to accessing health care; differing attitudes to surgery in this rather sensitive area; or possibly differences in prevalence of prostate disease.

Prostate operations rates for Counties Manukau versus NZ

Figure 51 shows the rates for Counties Manukau residents compared with the NZ average as standardised discharge ratios (see methodology section). The overall rates for Counties Manukau in the ten-year period have been consistently below the NZ average.

Low numbers make Maaori, Pacific and Asian trends difficult to interpret – they are probably little different from their respective national averages. The rate for Other in Counties Manukau has consistently been below the NZ average. The lower overall rate for Counties Manukau may be due in part to barriers to accessing services; however, the extent of this within Counties Manukau is unknown. It is also not known if Counties Manukau has a lower prevalence of prostate disease compared to the NZ average.

A partial explanation for low rate in Counties Manukau is the possibility that more privately funded prostate operations are performed for Counties Manukau residents compared to the NZ average. This was certainly the case in 2001 when 60% of Counties Manukau residents prostate operations were privately funded compared to about 33% for NZ. (similar to the proportions of Waitemata and Auckland residents) It is not known if a similar public/private mix has occurred in recent years, though there has been little change in regional urology services since 2001.

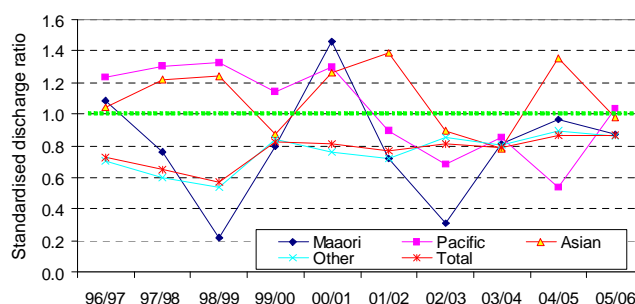
It could be also argued that the low overall Counties Manukau rate in comparison to the NZ average could be a positive factor if it reflected a greater proportion of practitioners following the advice that routine screening for prostate cancer is not recommended, and increased use of effective medical treatments for BPH.

Prostate operations and deprivation status

Figure 52 shows that there is a fairly clear pattern for the rates of publicly funded prostate operations in Counties Manukau residents to increase as deprivation status increases. This pattern is confirmed at a national level (data not shown).

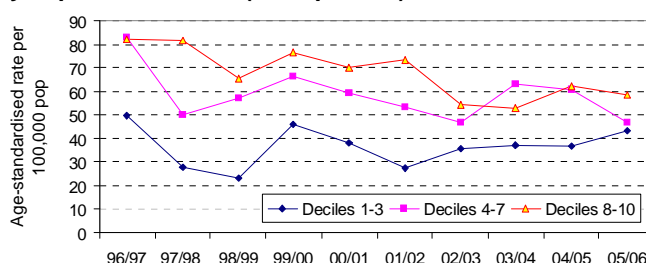
Deprivation status has been measured using the NZ Deprivation Index based on area of domicile. For this section deciles have been aggregated into three groups in order to have sufficient numbers. Deciles 1-3 are the least deprived areas and deciles 8-10 the most deprived.

Figure 51: Prostate operations standardised discharge ratios, 15+, by ethnic group, CM versus all NZ 1996-2005



Source: NMDS data, CMDHB analysis. Publicly funded prostate operations. A discharge ratio of <1 means the CM rate is less than the NZ average and a ratio >1 the reverse.

Figure 52: Prostate operations age-standardised rates, 15+, by deprivation status (NZDep Index) – CM 1996-2005



NMDS data, CMDHB analysis. Age-standardised with 2001 NZ Census popn. NZDep Index used as measure of deprivation status.

Potential explanations for the difference in rates include the issue of private surgery (most likely) and the possibility of higher rates of benign prostatic hyperplasia in deprived people.⁴⁴ It is unclear why the rate in the more deprived men is declining slightly, while if anything the rate in those living in less deprived areas is increasing. It may be that improvements in certainty for procedure provision through the booking system are increasing the use of publicly funded surgery instead of privately funded surgery. There may also be a differential effect due to the increasing uptake of (non-recommended) prostate specific antigen screening. Such screening is demand-led, and is likely to occur more in men living in less deprived areas, and of European ethnicity.

Currently the most recent detailed privately funded data is from the 2001 calendar year, in which approximately 60% of the prostate operations for Counties Manukau residents were privately funded. The majority of these operations were for people living in the least deprived areas (see Appendix 2). As a result, the total rates (publicly + privately funded combined) end up showing relatively little difference across deprivation groups. Although more recent data are not currently available, it is likely that a similar private/public mix has occurred in recent years.

3.12. Summary - specific procedures

Procedure	Intervention Rate	Compared to NZ average *	Ethnicity fairness	Deprivation fairness #	Private significance
Coronary angiogram	↑↑ 50% increase 96-06	↔ Maintaining SDR ~1.2	↑↑↑ 2-3x Maaori & Pacific rates	↑↑ Q5:Q1 ratio widening	~20% procedures in 2001
Angioplasty and CABG †	↑↑↑ Nearly doubled	↑ 1.2 SDR in 05/06	↑↑↑ 2-3x Maaori & Pacific rates	↑ Q5:Q1 widening	~20% procedures in 2001
Total Hip Joint replacement	↑↑↑ Doubled	↑↑↑ to NZ average from 04/05 on	↑↑↑ Maaori >2-fold increase in rates	↔ 50% Q5>Q1 weighting remains	~50% procedures in 2001
Total Knee Joint replacement	↑↑↑ Nearly 3-fold	↑↑↑ from 0.7 SDR to 1.2 from 04/05 on	↑↑↑ Maaori rates quadrupled	↑↑ Clear Q5:Q1 gradient increases	~50% procedures in 2001
Hysterectomy	↔ Little change	↔ Around NZ average	↔ Similar rates	↓ 2-fold Q5:Q1 ratio, falling slightly	~50% procedures in 2001
Tubal ligation	↑ Small increase	↑↑ Moved from ~1.2 SDR to ~1.8 SDR	↔ Large Maaori and Pacific excess maintained	↔ 4-fold Q5:Q1 excess maintained	Highly significant, especially the impact of private vasectomies on other forms of contraception
Cataract operations	↑↑ 50% increase 96-06	↔ Around NZ average	↔ Large Maaori and Pacific excess maintained	↔ 4-fold Q5:Q1 excess maintained	Probably over 50%
Grommets	↔ Higher rates 98-03, now reduced	↓ NZ average 98-03, now below ~0.8 SDR	↔ Some Maaori and Pacific excess maintained	↔ 2-fold Q5:Q1 excess maintained	Probably over 50%
Tonsillectomy/adenoidectomy	↔ Higher rates 98-00, now reduced	↓ NZ average 98/99, now well below ~0.6 SDR	↔ Other excess maintained	↔ 1.5 to 2-fold excess maintained	Probably over 50%
Cholecystectomy	↑ 30-40% increase	↑ 1.2 SDR in 05/06	↑↑ Significant Maaori increase	↓ Q5:Q1 ratio dropped from 3-fold to 2-fold	~30% procedures in 2001
Inguinal hernia repair	↔ Rates steady, child and adult	↔ Around NZ average	↔ Little change	↓ Q5:Q1 ratio dropped from 3-fold to 2-fold	~40% procedures in 2001
Prostate operations	↓ Rates have decreased around 30%	↑ Increased SDR, but still below NZ average	↔ Little change	↓ Q5:Q1 ratio dropped from 3-fold to 2-fold	~60% procedures in 2001

Quick Key (if viewing in colour)

Green shading – moving in a generally positive direction.

Clear – unchanged or neutral position.

Orange shading – potential for concern.

* SDR = Standardised discharge ratio (a measure for comparing the CM rate versus the rate for all of NZ. A rate >1.0 means the rate for CM is greater than the rate for NZ and vice versa.

Q5 = Quintile 5 = NZDep deciles 9+10 i.e. the most deprived areas.

Q1 = Quintile 1 = NZDep deciles 1+2 i.e. the least deprived areas.

† CABG = Coronary artery bypass graft.

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Appendix 1: Procedure codes used

Procedure	ICD-9	ICD-10
Angiography	8855 Coronary arteriography using a single catheter 8856 Coronary arteriography using two catheters 8857 Other and unspecified coronary arteriography	3821500 Coronary angiography 3821800 Coronary angiography with left heart catheterisation 3821801 Coronary angiography with right heart catheterisation 3821802 Coronary angiography with left and right heart catheterisation
Angioplasty	3601 Single vessel PTCA without mention of thrombolytic agent 3602 Single vessel PTCA with thrombolytic agent 3605 Multiple vessel PTCA during single operative episode 3606 Dilation/stenting of single coronary vessel 3607 Dilation/stenting of multiple coronary vessels	3530400 Percutaneous transluminal balloon angioplasty of 1 coronary artery (CA) 3530500 PTCA of \geq 2 CA 3530500 PTCA of 2 or more CA 3531000 Percutaneous insertion of 1 transluminal stent into single CA 3531001 Percutaneous insertion of \geq 2 transluminal stents into single CA 3531001 Percutaneous insertion of 2 or more transluminal stents into single CA 3531002 Percutaneous insertion of \geq 2 transluminal stents into multiple CA
Caesarean section	7401 Elective classical caesarean section 7402 Emergency classical caesarean section 7411 Elective lower segment caesarean section 7412 Emergency lower segment caesarean 742 Extraperitoneal caesarean section 744 Caesarean section of other specified type 7499 Other caesarean section of unspecified type	1652000 Elective classical caesarean section 1652001 Emergency classical caesarean section 1652002 Elective lower segment caesarean section 1652003 Emergency lower segment caesarean section
Cataract extraction	1311 Intracapsular extraction lens temp inferior route 1319 Other intracapsular extraction of lens 132 Extracapsular extraction of lens by linear extraction technique 133 Extracapsular extraction of lens by simple aspiration (and irrig) technique 1341 Phacoemulsification & aspiration of cataract 1342 Mechan. phacofragmentation/aspiration of cataract by posterior route 1343 Mechanical phacofragmentation and other aspiration of cataract 1351 Extracapsular extraction of lens by temporal inferior route 1359 Other extracapsular extraction of lens 1363 Capsulotomy 1364 Discission of secondary membrane (after cataract) 1365 Excision of secondary membrane (after cataract) 1366 Mechanical fragmentation of secondary membrane (after cataract) 1369 Other cataract extraction	4269800 Intracapsular extraction of crystalline lens 4269801 Extracapsular extraction lens by simple aspiration 4269802 Extracapsular extraction of lens by phacoemulsification and aspiration of cataract 4269803 Extracapsular extraction lens by mechanical phacofragmentation and aspiration of cataract 4269804 Other extracapsular extraction of lens 4269805 Other extraction of crystalline lens 4270200 Intracapsular extraction of crystalline lens with insertion of foldable artificial lens 4270201 Intracapsular extraction of crystalline lens with insertion of other artificial lens 4270202 Extracapsular extraction of crystalline lens by simple aspiration (and irrigation) technique with insertion of foldable artificial lens 4270203 Extracapsular extraction lens by simple aspiration with insertion of other artificial lens 4270204 Extracapsular extraction lens by phacoemulsification & asp of cataract with insertion foldable artificial lens 4270205 Extracapsular extraction lens by phacoemulsification and asp cataract with insertion of other artificial lens 4270206 Extracapsular extraction lens by mech phacofragm & asp cataract w insertion foldable artificial lens 4270207 Extracapsular extraction lens by mech phacofragm & asp of cataract with insertion of other artificial lens

		<p>4270208 Other extracapsular extraction of crystalline lens with insertion of foldable artificial lens</p> <p>4270209 Other extracapsular extraction of crystalline lens with insertion of other artificial lens</p> <p>4270210 Other extraction of crystalline lens with insertion of foldable artificial lens</p> <p>4270211 Other extraction of crystalline lens with insertion of other artificial lens</p> <p>4271900 Capsulectomy of lens</p> <p>4271902 Mech fragmentation of secondary membrane</p> <p>4272200 Capsulectomy of lens by posterior chamber sclerotomy</p> <p>4273100 Capsulectomy of lens by posterior chamber sclerotomy with removal of vitreous</p> <p>4273101 Extraction of crystalline lens by posterior chamber sclerotomy with removal of vitreous</p> <p>4273400 Capsulotomy of lens</p> <p>4273700 Needling of posterior capsule of lens</p> <p>4278800 Capsulotomy of lens by laser</p> <p>4279102 Corticolysis of lens material by laser</p>
Cholecystectomy	<p>5122 Cholecystectomy</p> <p>5123 Laparoscopic cholecystectomy</p>	<p>3044300 Cholecystectomy</p> <p>3044500 Laparoscopic cholecystectomy</p> <p>3044600 Lap cholecystectomy proceeding to open</p> <p>3044800 Laparoscopic cholecystectomy with removal of common bile duct calculus via cystic duct</p> <p>3044900 Laparoscopic cholecystectomy & laparoscopic choledochotomy</p> <p>3045401 Cholecystectomy with choledochotomy</p> <p>3045500 Cholecystectomy with choledochotomy and biliary intestinal anastomosis</p>
Coronary artery bypass grafts	<p>3610 CA bypass for heart revascularization, NOS</p> <p>3611 CA bypass of one CA</p> <p>3612 CA bypass of two coronary arteries</p> <p>3613 CA bypass of three coronary arteries</p> <p>3614 CA bypass of four or more coronary arteries</p> <p>3615 Single internal mammary-CA bypass</p> <p>3616 Double internal mammary-CA bypass</p> <p>3619 Other bypass anastomosis for heart revascularisation</p>	<p>3849700 CA bypass, using 1 saphenous vein graft</p> <p>3849701 CA bypass, using 2 saphenous vein grafts</p> <p>3849702 CA bypass, using 3 saphenous vein grafts</p> <p>3849703 CA bypass, using >= 4 saphenous vein grafts</p> <p>3849704 CA bypass, using 1 other venous graft</p> <p>3849705 CA bypass, using 2 other venous grafts</p> <p>3849706 CA bypass, using 3 other venous grafts</p> <p>3849707 CA bypass, using >= 4 other venous grafts</p> <p>3849707 CA bypass, using 4 or more venous grafts</p> <p>3850000 CA bypass, using 1 LIMA graft</p> <p>3850001 CA bypass, using 1 RIMA graft</p> <p>3850002 CA bypass, using 1 radial artery graft</p> <p>3850003 CA bypass, using 1 epigastric artery graft</p> <p>3850004 CA bypass, using 1 other arterial graft</p> <p>3850300 CA bypass, using >= 2 LIMA grafts</p> <p>3850300 CA bypass, using 2 LIMA grafts</p> <p>3850301 CA bypass, using >= 2 RIMA grafts</p> <p>3850301 CA bypass, using 2 RIMA grafts</p> <p>3850302 CA bypass, using >= 2 radial artery grafts</p> <p>3850302 CA bypass, using 2 radial artery grafts</p> <p>3850303 CA bypass, using >= 2 epigastric artery grafts</p>

		<p>3850303 CA bypass, using 2 epigastric artery grafts</p> <p>3850304 CA bypass, using >= 2 other arterial grafts</p> <p>3850304 CA bypass, using 2+ other arterial grafts</p> <p>3863700 Re-operation for reconstr of occluded CA</p> <p>3863700 Re-operation for reconstr of occluded CA graft</p> <p>9020100 CA bypass, using 1 other material graft, NEC</p> <p>9020101 CA bypass, using 2 other material grafts, NEC</p> <p>9020102 CA bypass, using 3 other material grafts, NEC</p> <p>9020103 CA bypass, using 4+ other grafts, NEC</p>
Grommets	2001 Myringotomy with insertion of tube	<p>4163200 Myringotomy with insertion of tube, unilateral</p> <p>4163201 Myringotomy with insertion of tube, bilateral</p>
Hysterectomy	<p>683 Subtotal abdominal hysterectomy</p> <p>684 Total abdominal hysterectomy</p> <p>685 Vaginal hysterectomy</p> <p>686 Radical abdominal hysterectomy</p> <p>687 Radical vaginal hysterectomy</p>	<p>3565300 Subtotal abdominal hysterectomy</p> <p>3565301 Total abdominal hysterectomy</p> <p>3565302 Abdominal hysterectomy with unilateral salpingo-oophorectomy</p> <p>3565303 Abdominal hysterectomy with bilateral salpingo-oophorectomy</p> <p>3565700 Vaginal hysterectomy</p> <p>3566100 Abdominal hysterectomy with extensive retroperitoneal dissection</p> <p>3566400 Radical abdominal hysterectomy with radical excision of pelvic lymph nodes</p> <p>3566401 Radical vaginal hysterectomy with radical excision of pelvic lymph nodes</p> <p>3566700 Radical abdominal hysterectomy</p> <p>3566701 Radical vaginal hysterectomy</p> <p>3567000 Abdominal hysterectomy with radical excision of pelvic lymph nodes</p> <p>3567300 Vaginal hysterectomy with unilateral salpingo-oophorectomy</p> <p>3567301 Vaginal hysterectomy with bilateral salpingo-oophorectomy</p> <p>3575000 Lap assisted vaginal hysterectomy</p> <p>3575300 Lap assisted vaginal hysterectomy with unilateral salpingo-oophorectomy</p> <p>3575301 Lap assisted vaginal hysterectomy with bilateral salpingo-oophorectomy</p> <p>3575600 Lap assisted vaginal hysterectomy proceeding to abdominal hysterectomy</p> <p>3575601 Lap assisted vaginal hysterectomy proceeding to abdominal hysterectomy with unilateral salpingo-oophorectomy</p> <p>3575602 Lap assisted vaginal hysterectomy proceeding to abdominal hysterectomy with bilateral salpingo-oophorectomy</p>
Inguinal hernia repair	<p>5300 Unilateral repair of inguinal hernia, NOS</p> <p>5301 Repair of direct inguinal hernia</p> <p>5302 Repair of indirect inguinal hernia</p> <p>5303 Repair of direct inguinal hernia with graft or prosthesis</p> <p>5304 Repair of indirect inguinal hernia with graft or prosthesis</p> <p>5305 Repair inguinal hernia with graft or prosth, NOS</p>	<p>3060902 Laparoscopic repair of inguinal hernia, unilateral</p> <p>3060903 Laparoscopic repair of inguinal hernia, bilateral</p> <p>3061402 Repair of inguinal hernia, unilateral</p> <p>3061403 Repair of inguinal hernia, bilateral</p>

	<p>5310 Bilateral repair of inguinal hernia, NOS</p> <p>5311 Bilat repair of direct inguinal hernia</p> <p>5312 Bilat repair of indirect inguinal hernia</p> <p>5313 Bilat repair of inguinal hernia, 1 direct, 1 indirect</p> <p>5314 Bilat repair of direct inguinal hernia with graft/prosthesis</p> <p>5315 Bilateral repair of indirect inguinal hernia with graft or prosthesis</p> <p>5316 Bilateral repair inguinal hernia, one direct, one indirect+graft,prosth</p>	
	5317 Bilateral inguinal hernia repair with graft or prosthesis, NOS	
Prostate operations	<p>6021 Transurethral prostatectomy</p> <p>6022 Laser assisted prostatectomy</p> <p>6023 Transurethral needle ablation of prostate (TUNA)</p> <p>6024 Transurethral electrical vaporisation of prostate</p> <p>603 Suprapubic prostatectomy</p> <p>604 Retropubic prostatectomy</p> <p>605 Radical prostatectomy</p> <p>6061 Local excision of lesion of prostate</p> <p>6062 Perineal prostatectomy</p> <p>6063 Cryoablation of prostate</p> <p>6064 Microwave thermotherapy of prostate</p> <p>6065 High intensity focused ultrasound (HIFUS) (transrectal) of prostate</p> <p>6069 Other prostatectomy</p>	<p>3683901 Endoscopic destruction of prostatic lesion</p> <p>3683903 Endoscopic resection of prostatic lesion</p> <p>3720000 Cryoablation of prostate</p> <p>3720001 Microwave thermotherapy of prostate</p> <p>3720002 High intensity focused ultrasound [HIFUS] (transrectal) of prostate</p> <p>3720003 Suprapubic prostatectomy</p> <p>3720004 Retropubic prostatectomy</p> <p>3720005 Other open prostatectomy</p> <p>3720006 Other closed prostatectomy</p> <p>3720300 Transurethral resection of prostate [TURP]</p> <p>3720301 Transureth needle ablation of prostate [TUNA]</p> <p>3720302 Transurethral electrical vaporisation of prostate</p> <p>3720303 Cryoablation of prostate</p> <p>3720304 Microwave thermotherapy of prostate</p> <p>3720306 Other closed prostatectomy</p> <p>3720700 Endoscopic laser ablation of prostate</p> <p>3720701 Endoscopic laser excision of prostate</p> <p>3720900 Radical prostatectomy</p> <p>3721000 Radical prostatectomy with bladder neck reconstruction</p> <p>3721100 Radical prostatectomy with bladder neck reconstruction and pelvic lymphadenectomy</p>
Tonsillectomy or adenoidectomy	<p>282 Tonsillectomy without adenoidectomy</p> <p>283 Tonsillectomy with adenoidectomy</p> <p>286 Adenoidectomy without tonsillectomy</p>	<p>4178900 Tonsillectomy without adenoidectomy</p> <p>4178901 Tonsillectomy with adenoidectomy</p> <p>4180100 Adenoidectomy without tonsillectomy</p>
Total hip joint replacement	<p>8151 Total hip replacement</p> <p>8153 Revision of hip replacement</p>	<p>4931800 Total arthroplasty of hip, unilateral</p> <p>4931900 Total arthroplasty of hip, bilateral</p> <p>4932400 Revision of total arthroplasty of hip</p> <p>4932700 Revision of total arthroplasty of hip with bone graft to acetabulum</p> <p>4933000 Revision of total arthroplasty of hip with bone graft to femur</p> <p>4933300 Revision of total arthroplasty of hip with bone graft to acetabulum and femur</p> <p>4934500 Rev of total arthroplasty of hip with anatomic specific allograft to acetabulum and femur</p>
Total knee joint replacement	<p>8154 Total knee replacement</p> <p>8155 Revision of knee replacement</p>	<p>4951800 Total arthroplasty of knee, unilateral</p> <p>4951900 Total arthroplasty of knee, bilateral</p> <p>4952100 Total arthroplasty of knee with bone graft</p>

		<p>to femur, unilateral</p> <p>4952101 Total arthroplasty to knee with bone graft to femur, bilateral</p> <p>4952102 Total arthroplasty to knee with bone graft to tibia, unilateral</p> <p>4952103 Total arthroplasty knee with bone graft to tibia, bilateral</p> <p>4952400 Total arthroplasty knee with bone graft to fem + tib, unilateral</p> <p>4952401 Total arthroplasty knee with bone graft fem + tib, bilateral</p> <p>4952700 Revision of total arthroplasty of knee</p> <p>4953000 Rev total arthroplasty knee with bone graft to femur</p> <p>4953001 Rev total arthroplasty knee with bone graft to tibia</p> <p>4953300 Rev total arthroplasty of knee with bone graft to fem+ tib</p> <p>4953400 Total replacement arthroplasty of patellofemoral joint of knee</p> <p>4955400 Revision of total arthroplasty of knee with anatomic specific allograft</p>
Tubal ligation	<p>662 Bilateral endoscopic destruct/occlusion fallopian tubes</p> <p>663 Other bilateral destruct/occlusion fallopian tubes</p> <p>6664 Electrodestruction of fallopian tubes</p> <p>6692 Unilateral destruct/occlusion of fallopian tube</p>	<p>3568800 Laparoscopic sterilisation</p> <p>3568801 Sterilisation via vaginal approach</p> <p>3568802 Sterilisation by open abdominal approach</p> <p>3568803 Laparoscopic electrodestruction fallopian tubes</p> <p>3568804 Electrodestruction of fallopian tubes</p>

Appendix 2: Deprivation and private surgery in 2001

The discussion on the relationship between elective surgery and socioeconomic factors throughout this document is complicated by the role of the private surgery sector in the New Zealand health system, and the relative lack of data coming from the private sector as compared with public hospitals. This section attempts to show the link to deprivation including both public and private procedures.

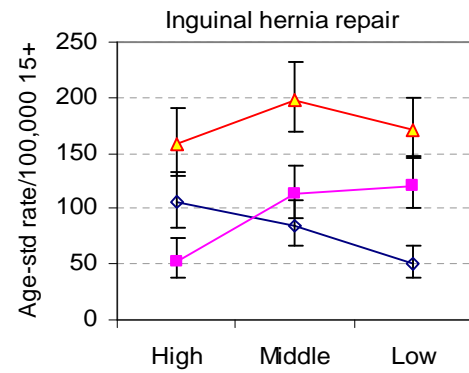
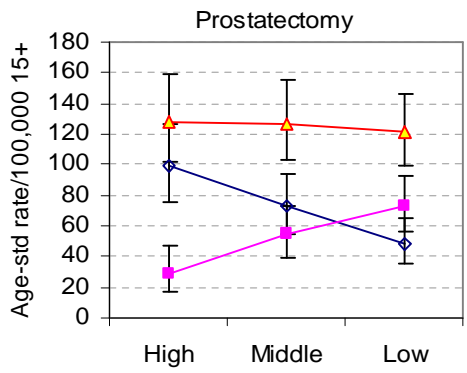
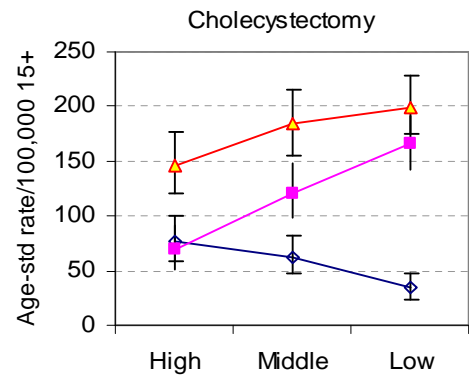
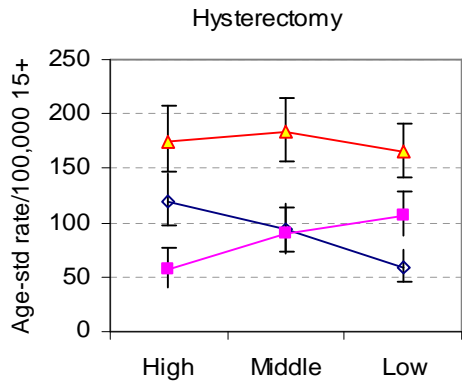
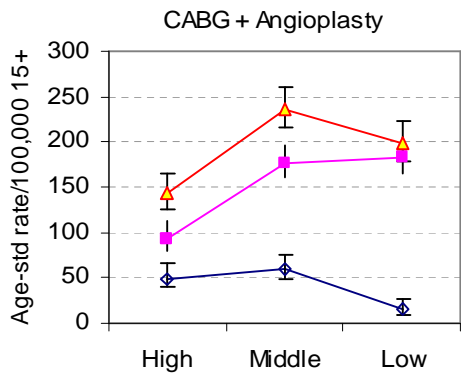
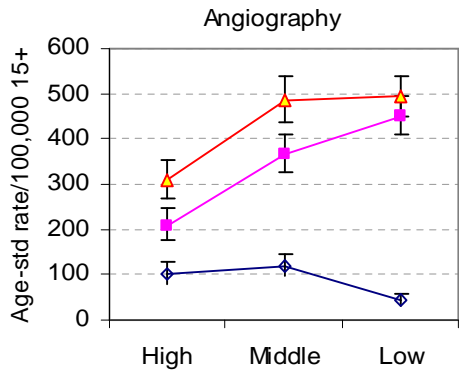
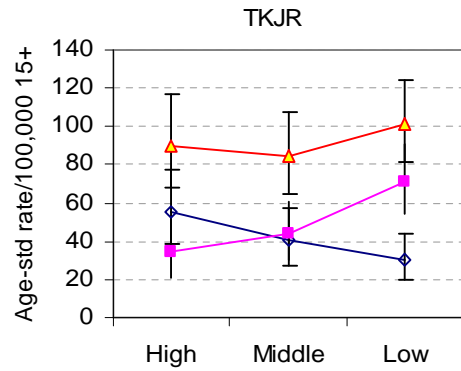
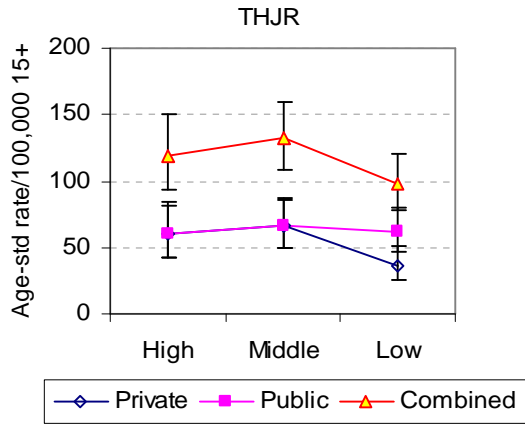
This section uses the 2001 private hospital data set from NZHIS, combined with public hospital data for the same year for some of specified procedures used in this document. Both acute and elective surgery are included, and ACC cases are excluded from both sets. The NZDep01 scores have been divided into 3 groups – low (most deprived, deciles 8, 9, 10), middle (4-7) and high (deciles 1-3), based on the domicile of the patient. Three groups allows enough cases for analysis in each group, and covers some of the misallocation likely were quintiles or deciles to be used on the private hospital data set.

Results for Counties Manukau residents for key procedures are shown in the figure overleaf.

- For privately funded surgery residents living in the most deprived areas were least likely to be operated on, while those from the least deprived areas were most likely to receive an operation.
- For public hospitals the opposite pattern appears – the lower socio-economic groups are more likely to have a procedure than their counterparts living in the less deprived areas.
- Combining the procedure rates for public and private surgery evens out the deprivation trends, giving relatively similar intervention rates across the deprivation areas. Areas showing a different pattern were cardiac surgery and gall bladder removal.
- Residents of the least deprived areas have a significantly lower cardiac surgery operative rate than their counterparts in the more deprived areas even after combining private and publicly funded surgery. This applied for angiography, CABG and angioplasties. The lower rate is consistent with the epidemiological data around risk factors, disease prevalence and mortality rates (see discussion page 21), with the large increase in Maaori provision in the public system in recent years a particularly welcome sign of improving equity of access.
- Residents of less deprived areas also had a significantly lower rate of cholecystectomy. This is likely to be due to the lower rates of risk factors for gall bladder stone formation in this population – particularly obesity and diet.

Whilst the data is less complete than one would like, and is several years old, it does point to a reasonably equitable picture of access to elective surgery. The changes documented in this report over the past few years will have further enhanced this position. For example, in this 2001 analysis there is relatively little public hospital deprivation gradient in hip or knee replacement surgery – people from high and low deprivation areas were getting similar intervention rates. By 2005/06, with the large increase in procedures performed, clearly prioritised by need for surgery, a significant gradient now exists, with people living in more deprived areas achieving significantly higher intervention rates (see Figure 24 and Figure 27). Barriers to access to surgery have been reduced.

Counties Manukau residents, 2001, private and publicly funded key procedures by NZDep01 group



Source: NMDS, private dataset form NZHIS. Analysis by CMDHB. Ages 15+, age-standardised to NZ 2001 population. Acute and electives included. NZDep01 divided into 3 groups – High = deciles 1-3, middle = 4-7, Low = 8-10. 95% confidence intervals shown.