

Young People's Health in Counties Manukau

A profile of aspects of young people's health in Counties Manukau

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By Counties Manukau Health
Private Bag 94052
South Auckland Mail Centre
Manukau City
New Zealand

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Executive Summary

This report describes aspects of the state of health of young people aged 10-24 years in Counties Manukau. The intent is to enable a reader to obtain a broad perspective of a number of important issues for youth health planning in the Counties Manukau (CM) region. Most young people in New Zealand are relatively healthy and many of the issues that affect their health depend on factors outside traditional healthcare. Hence this report includes broader information than just health service data.

Data was sourced from the Youth'12 survey for 1,455 secondary school students domiciled in the CM Health area. Analysis of these results, in sections as reported for the Youth'12 overview report, form the basis of this report with additional information gathered (e.g. about health service utilisation, education sector data) from other sources incorporated under these headings.

Sexual health and mental health were two important areas of young people's health not covered fully in this report. Sexual health services are provided regionally and data was not able to be extracted for each District Health Board separately. Information on aspects of mental health is presented from the Youth'12 survey. Further information on mental healthcare for young people is available as part of a larger 2014 CM Health report on populations who have received care for mental health disorders on CM Health's website¹.

Demography

It is estimated that there are approximately 120,000 young people aged 10-24 years living in the CM Health area, with the three age groups of 10-14 years, 15-19 years and 20-24 years each having 40,000 young people. Using prioritised ethnicity just over 35,000 young people are identified as NZ European or Other ethnicities, just under 35,000 are identified as one of the Pacific ethnicities, 25,000 as Maaori and 25,000 as one of the Asian ethnicities. At the time of the 2013 Census, 42% of CM Health young people lived in areas defined as the most socio-economically deprived quintile (NZDep2013).

Well over half of CM Health area students replied in the Youth'12 survey that NZ was their country of birth (70%). Nationally 42% reported they belonged to more than one ethnic group. Using prioritised ethnicity the largest ethnic group in the CM Health cohort of Youth'12 was Pacific (42%) and the percentage identified as of European ethnicity (23%) was less than half the national figure (47%).

¹ http://www.countiesmanukau.health.nz/About_CMDHB/Planning/Health-Status/Mental-Health/2014/Mental_Health_HNA_Overview_Web_Version_020514.pdf

Home and Families

More CM Health students reported in Youth'12 being happy with how they get along with family (83%) than nationally (72%). In both groups over 90% reported they felt that their mother or father cared a lot about them. CM Health students attending schools that were categorised as more socio–economically deprived reported much higher percentages than students from low deprivation schools for families worrying about not having enough money for food (25% compared with 8%) and living in a house with more than two people in each bedroom (23% compared with 3%).

School, Education and Training

CM Health students compared favourably with national percentages on schooling data in Youth'12 including having a higher percentage of students (91%) who planned to complete Year 13. The majority of CM Health students (90%) felt part of their school. However there were ethnic inequities in education sector data. Both nationally and for CM Health 66% of all alternative education students were Maaori and the rate of suspensions and stand downs for Maaori were twice the average for all ethnicities combined. Over 500 CM Health 5-21 year olds attend special education schools.

Healthcare access

About three quarters of young people reported in the Youth'12 survey that they had accessed some kind of healthcare in the past 12 months. A family doctor, medical clinic or GP was by far the most commonly accessed place for healthcare, 71% for CM Health students in the Youth'12 survey. CM Health students had a lower percentage report attending a hospital A&E (12%) than nationally (16%). Research on Youth'12 data showed nationally less students attended hospital A&E when health services were available in schools. PHO enrolment data demonstrates that over two thirds (71%) of all CM Health young people (10-24 years old) had contact with their general practice in the past 12 months. Nationally, and for CM Health, only about a third of the Youth'12 students who accessed healthcare in the past 12 months were offered the chance to talk in private with the health professional they saw and less than half were assured of the details remaining confidential.

Emergency department presentations

Health system records show that in the 12 months between July 2012 and June 2013 there were 17,800 emergency department (ED) presentations (anywhere in New Zealand) by young people from CM Health. Almost 90% of these were categorised as triage three and four (needing to be seen within 30 and 60 minutes respectively). Presentations by both males and females increased with age but more so for females. Female presentations increased from 400 per year for 10 year olds to 800 per year for 18 year olds. About 45% of all female presentations were by people who presented multiple times. The rate of ED presentations by Maaori (18.8 per 100 people per year) and Pacific (18.1/100 people/year) young people were higher than the rate for young people identified as NZ European/Other (14.5/100 people/year) and Asian ethnicities (6.8/100 people/year). Middlemore hospital had 17,400 ED

presentations by young people in the same time period, 13,800 of these by CM Health young people and 3,600 presentations by young people from other DHBs.

Hospitalisations

Approximately 11,000 CM Health young people are hospitalised per year, with this number being fairly constant over the five years 2008/09-2012/13. Female numbers again increase with age from an average of 1,250 per year for 10-14 year olds to 2,400 per year for 20-24 year olds. There are higher rates of hospital admissions for young people of Maaori (11.5 per 100 people per year) and Pacific (10.9/100 people/year) ethnicities than those identified as NZ European/Other (9.4/100 people/year) and Asian ethnicities (4.2/100 people/year). The diagnostic grouping of "Injury, Poisoning and certain consequences of other external causes" was responsible for the most hospitalisations by far, over a third (39%) of all male admissions and one in six (17%) of female admissions. Ambulatory sensitive hospitalisations made up about 20% of all young people's hospitalisations and housing related potentially avoidable hospitalisations about 11%.

Outpatient attendances

There were about 19,500 core medical and surgical outpatient attendances in the year July 2013-June 2013 for CM Health 10-24 year olds. The largest three volumes were orthopaedic surgery (4,200), ENT (2,200) and ophthalmology (1,600). Auckland DHB was the provider for 28% of attendances for CM Health young people. CM Health facilities had 16,400 outpatient attendances by young people in the same time period, including 2,300 by young people from other DHBs. Plastic surgery, a service CM Health provides for the region, had 1,100 outpatient attendances by young people from other DHBs.

PHO enrolment

In the year July 2012-June 2013 overall 94.5% of CM Health young people (113,900) were enrolled in a Primary Health Organisation (PHO). For those enrolled 13% were enrolled in practices sited outside Counties Manukau. Nearly two thirds (61%) of all Pacific young people attended a practice in Mangere/Otara and 50% of all Maaori young people attended a practice in Manukau. A high percentage of Maaori (57%) and Pacific (69%) young people enrolled in a PHO are domiciled in areas defined as the most socio-economic deprived quintile.

Nutrition and obesity

Over half (58%) of Youth'12 students from Counties Manukau had meals with their family five or more times a week. Only a quarter of CM Health students from the most socio-economically deprived schools eat breakfast every day, compared with nearly 60% from the least socio-economically deprived schools. Based on the New Zealand Health Survey, for CM Health the percentage of obese 15-24 year olds has increased from 16% in 2006 to 25% in 2013 for males and for females has more than doubled from 15% to 34%.

Emotional wellbeing

Although a high number (93%) of CM Health Youth'12 students reported feeling okay, satisfied or very happy with their life, one in four had deliberately self-harmed and one in fourteen had attempted suicide in the past 12 months. Females had higher percentages than males for both self-harm and attempted suicide, nationally and for CM Health. One in five CM students reported seeing a health professional in the past 12 months for emotional worries.

Smoking and alcohol

The number of 15-24 year olds smoking in Counties Manukau has dropped substantially since 2006. Measurements of current smokers aged 15-24 years in CM Health were 18% from the NZ Health Survey (data captured between 2011 and 2013) and 14% in the 2013 Census. In the Youth'12 survey the percentage of students who reported currently using alcohol was lower for CM Health (33%) than nationally (45%). In the NZ Health Survey the percentage of 15-24 year olds who reported hazardous drinking was lower for CM Health (17%) than nationally (25%).

Sexuality, sexual health and teenage deliveries

Counties Manukau students in Youth'12 had a lower percentage (86%) reporting that they were exclusively attracted to the opposite sex than the national figure (91%). Less than a quarter of students had ever had sex. Although discussing STIs with your partner was no different between sexually active students from CM Health and nationally, CM Health students reported lower rates of always using contraception to prevent pregnancy (45%) and lower rates of reporting always using condoms to prevent sexually transmitted diseases (38%) than reported nationally (58% and 46%).

The number of teenage pregnancies in CM Health appears to have been dropping since 2009. In 2013 there were 577 teenage deliveries, which were 7.2% of all deliveries.

Motor vehicles, violence and mortality

About a quarter of CM Health students in Youth'12 did not always wear a seatbelt and about one in five had been in a car driven dangerously in the previous month. CM Health students reported a higher percentage of seeing an adult hit a child in their home (21%) and of themselves being hit by an adult in their own home (20%) than reported nationally (14% for both).

CM Health's mortality rate was much higher for 20-24 year olds (70 per 100,000 per year) than 10-14 year olds (17 per 100,000 per year), with a similar pattern and rate nationally. Suicide and transport were the two leading causes of death for young people.

Community and Contribution

Nearly all (98%) CM Health Youth'12 students reported having fun with their friends some or all of the time. Less CM Health students had been in some paid employment

in the last 12 months (32%) than nationally (48%). CM Health students had a much higher percentage of students who attended a place of worship at least once weekly (46%) and also a much higher percentage who reported their spiritual beliefs were very important to them (51%) compared to nationally (26% and 28%).

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Abbreviations

ADHB	Auckland District Health Board
A&E	Accident and emergency
AE	Alternative education
AHRG	Adolescent Health Research Group
ASH	Ambulatory sensitive hospitalisations
CAPD	Continuous ambulatory peritoneal dialysis
CI	Confidence interval
CM	Counties Manukau
DHB	District Health Board
DMFT	Decayed, missing and filled teeth
ED	Emergency department
ENT	Ear, nose and throat
FY	Fiscal year (1 st July – 30 th June)
GP	General Practitioner
HRPAH	Hospital related potentially avoidable hospitalisation
ICD	International Classification of Disease
MMH	Middlemore hospital
MoH	Ministry of Health
MSD	Ministry of Social Development
NEET	Not in education, employment or training
NZ	New Zealand
NZDep	New Zealand small-area index of relative socio-economic deprivation
NZHS	New Zealand health survey
NMDS	National minimum data set
NNPAC	National non-admitted patient collection
PAH	Potentially avoidable hospitalisation
PHO	Primary health organisation
STI	Sexually transmitted Infection
UV	Ultra violet
WHO	World Health Organization

Introduction

Being in good health is important in enabling young people to take part in society and develop future societal roles. However developing a comprehensive, community wide, positive youth development framework involves more than just minimalising the presence and impact of diseases and illnesses by providing healthcare.

Most young people in New Zealand are relatively healthy. Many function at a very high level academically, in sports, the arts and in highly responsible jobs even though their brain is still developing. Behaviours of young people can result in them becoming unhealthy. In general young people's ability to assess the consequences of their decisions is less than adults, as the decision making part of the brain is not fully developed until the mid-20's (New South Wales Department of Health, 2010). This is thought to contribute to risk-taking behaviour for young people. Major causes of death, injury and illness for young people include "motor vehicle crashes, suicide, depression, drug and alcohol problems, obesity, inactivity, sexually transmitted infections and unwanted pregnancy" (Fleming and Elvidge, 2010). Most of these are preventable. The rates of these problems depend on many factors outside traditional healthcare. Therefore any analysis of young people's health needs to be informed by broader considerations than just health service factors. Where possible a report such as this, on young people's health, needs to contain information on factors which help to create resilience in young people, such as family connectedness and education, not just risk factors.

The saying that "it takes a village to raise a child" can be extrapolated to the notion that a strong healthy village will create strong healthy young people. Actions communities can take to enable growth of strong healthy young people have been described for New Zealand. The Youth Development Strategy Aotearoa (Ministry of Youth Affairs, 2002) describes a number of actions needed to reach the vision of:

"A country where young people are vibrant and optimistic through being supported and encouraged to take up challenges".

Key elements of this are young people being connected, a strengths-based approach and quality relationships. This has been reinforced more recently in 'Positive Youth Development in Aotearoa' (Jansen et al, 2011) which states the key approaches for communities to "weave connections" to enable whole person development of young people are

- i) strength-based,
- ii) building respectful relationships, and
- iii) building ownership and empowerment.

Clinical services still do have an important role in supporting young people to be healthy. Part of this is ensuring those who have highest need for clinical care receive it. There are existing health inequities with young people from lower socio-

economic groups, Maaori and Pacific young people and those who are refugees generally having lower levels of health. Other groups often have multiple health issues including difficulty accessing healthcare –and include those with significant disability or chronic illness, chronically abused or in care, from transient backgrounds, involved with justice services, sex workers, those with high levels of substance abuse, those in alternative education, young people attracted to the same sex and young parents (Fleming and Elvidge, 2010). Although reducing the health impacts for young people in these groups involves a multi-factorial and multi-sectorial approach, part of the role of those working in young people's health is to ensure young people in at risk groups receive quality healthcare in a way that is empowering to them.

The Maaori health and wellness model Te Whare Tapa Whā developed by Sir Mason Durie (Durie, 1994) is also helpful in considering broadly the things affecting young people's health. Te Whare Tapa Whā describes four dimensions of health with each dimension representing a wall of a house. The four dimensions are Taha Hinengaro (mental and emotional health), Taha Wairua (spiritual health), Taha Tinana (the capacity for physical health and development) and Taha whaanau (family and social health). This could be applied from a young person's view over time and in the 15 years of development between 10 and 25 years of age each individual will have the nature of these walls change. Many will experience times of weakening of one or maybe even all of the walls. Positive community actions can both help to build the walls stronger and assist at times when they are weaker. This could have an impact on the major causes of death, diseases and illnesses for young people identified above.

This report provides information for the reader to consider in relation to the strength of each of the walls for New Zealand and Counties Manukau Health young people. Some aspects can support more than one dimension at once, e.g. attending worship can build spiritual and social health, and having fun with family can build family and emotional health. Traditional healthcare has a role in supporting physical health. Improvements in physical health can lead to improvements in other areas. For example comprehensive school based health services can support improved education outcomes for some students (Fleming and Elvidge, 2010).

Purpose of this report

The purpose of creating this report was to provide those involved with planning and delivering services for young people in Counties Manukau with a broad overview of important aspects of young people's health. In obtaining data from a variety of sources, it is hoped it will enable the reader to get important information about areas of youth health without the need to search for the data. It was also intended to extend earlier work used for 'Whole of Systems planning' for youth health in Counties Manukau.

Definitions

This report covers information about people aged 10-24 years old and calls this group 'young people'. This definition is consistent with the World Health Organization, which in 1986 defined 10-19 year olds as adolescents, 10-24 year olds as young people and 15-24 year olds as youth (WHO, 1986). These definitions have been used subsequently (Bennet and William, 1990; United Nations, 1999; World Health Assembly, 2011). Some sections of this report focus only on certain ages within this range. In particular the Youth'12 survey involved only secondary school students so covers approximately the 13-18 year age range.

Report layout

As described further in the Methodology section, Youth'12 was the third national survey of health and well-being among secondary school students in New Zealand. The Youth'12 research team provided access to survey results for students living in Counties Manukau. Given the Youth'12 survey covers a wide range of risk and protective factors in relation to the health of young people, this report follows the headings used in the Youth'12 report. Information from the Youth'12 report is presented at the start of each of these sections then additional, related data gathered for this report is provided.

In presenting the Youth'12 data, there are sentences in italics which are a direct quote from the Youth'12 overview report. The italicised figures and information apply to national data only as these were questions that were not analysed for CM Health area students' responses but provide important context for youth health issues in Counties Manukau.

Methodology

A number of different sources were used to gather information for this report. These are described below.

Demography

The demography presented is based on estimated resident population projections from the 2006 Census. Although the 2013 Census information on usually resident population counts was available by the time of publication of this report, the data for estimated resident population projections was not. Statistics New Zealand recommends that estimated resident population projections are used for planning in health and social service sectors. Also estimated resident population projections are used for calculating DHB funding. A prioritised ethnicity version of the estimated resident population projections is produced for the Ministry of Health by Statistics NZ (most other sectors use total response census data). The projection used for this report was the medium prediction released by Statistics NZ and the Ministry of Health in 2013.

Estimated resident projections are available in five year age bands for the 10-24 year old age group – 10-14 years, 15-19 years and 20-24 years. These age bands have been used for analysis of data when available but in many instances other age bands apply (e.g. relating to school years) and are described in the relevant sections.

Unless specifically stated, ethnicity is prioritised as defined by the Ministry of Health ethnicity data protocols 2004 (Ministry of Health, 2004). The procedure stated for this start with people being asked “Which ethnic group do you belong to?” and instructed to “Mark the space or spaces that apply to you”. If three or more ethnicities are stated at least three ethnicities should be recorded. The priority system allocates one ethnic group to each respondent. The priority order is Maaori, Pacific, Asian, other groups except NZ European and NZ European. Therefore if someone stated Pacific and Asian and Maaori in that order the prioritisation process would record this as Maaori.

Differences between ethnicity recording in the Census and health system data are well recognised. Within health systems ethnicity data may vary as well. This was shown by a study of Waitemata DHB data that found children on the National Immunisation Register (NIR) who identified as Maaori were only identified as Maaori 63% of the time on the PHO register (Bramley and Latimer, 2007). The “gold standard” for correctly recording the identified ethnicity in New Zealand is the census question which was used by the NIR but not by PHOs to record ethnicity (Bramley and Latimer, 2007). This difference can create situations where the numerator and denominator are counted by different methods potentially creating inaccurate rates. A table in this report, Table 114, has mathematically impossible

rates of over 100% enrolment in PHOs in some groups. This is probably due to mismatch of health and census data.

Socio-economic Deprivation in New Zealand

NZDep is a small-area measure of socio-economic deprivation in New Zealand that is calculated from NZ census data. Each of the last five censuses has resulted in updates to the NZDep socio-economic deprivation data (NZDep91, NZDep96, NZDep2001, NZDep2006 and NZDep2013). By analysing nine variables (which measure income, home ownership, employment, communication, transport) every meshblock (a grouping of about 60-110 people) in New Zealand has been categorised into one of ten groups. NZDep is a relative rather than absolute measure so there will always be 10% of the population categorised as living in the most socio-economically deprived group. NZDep decile 1 is the 10% of the population living in the least socio-economically deprived areas and decile 10 is those people living in the most socio-economically deprived areas. NZDep data can also be cited as quintiles, with 20% of the population nationally living in each quintile.

A school's decile rating is calculated by the proportion of its students that are drawn from the various socio-economic communities. In a scale that is the opposite to the NZDep deciles, schools with the highest proportion of students from the most socio-economic deprived communities have a decile 1 score whilst schools with the lowest proportion of students from the most socio-economic deprived areas will be decile 10 (Ministry of Education, 2014d).

The national data for the Youth'12 survey is based on the socio-economic deprivation of the neighbourhood where the students live. The Counties Manukau Health data from the Youth'12 survey is based on the socio-economic deprivation of the schools attended by the students.

Youth'12 Survey

The Youth'12 survey is the third of three comprehensive national surveys of the health and well-being of New Zealand secondary school students, with the earlier two being in 2001 and 2007. They have been undertaken by the Adolescent Health Research Group (AHRG) which was formed in 1997 and describe their purpose to "promote the healthy development and wellbeing of New Zealand youth through scientific research that delivers high quality useable data to all stakeholders." (Clark et al, 2013a).

For the Youth'12 survey 125 New Zealand Schools with over 50 students were randomly selected to be invited to participate. Students within the school were also randomly selected (20% if the school role was greater than 150 and 30% if the school role was smaller than 150). Ninety-one schools took part in the survey. 8,500 of the 12,503 invited students took part. The most common reasons for not taking part were not being at school on the day of the survey, not wanting to take part and not being available at the time of the survey.

The survey questions were presented to students and answered on a tablet. At the time of the survey the student's height and weight were measured. Students provided their home address so their census meshblock could be identified for calculation of NZDep and then their address was deleted.

Information from the survey is presented in various reports. An overview is provided by "Youth'12 Overview" (Clark et al, 2013a) and detailed data for different groups are available from the "Youth'12 Prevalence Tables" report (Clark et al, 2013b). More details of the group and their many other reports and publications can be found at the group's website².

This report includes two types of information from the Youth'12 Survey. Results for the national cohort surveyed (New Zealand percentages) are taken from the Youth' 12 Overview report (Clark et al, 2013a) and the Youth' 12 prevalence tables (Clark et al, 2013b). The data specific to the 1,455 students domiciled in the Counties Manukau Health area was obtained by a special request to The Adolescent Health Research Group, University of Auckland. The data was supplied for 116 of the survey's questions and provided in excel spread sheets. Three aggregations of the data were supplied:

- results by gender,
- results by age (those 15 years and under and those 16 years and over), and
- results by the decile of the school the student attended (split into areas of low, medium and high socioeconomic deprivation).

Decile of the school attended by the student and decile of the neighbourhood they live in are both relevant to youth health issues. However a choice had to be made about the aggregation to be used for this report and as school health services are usually provided in relation to the decile of the school and this report is designed to inform health service planning including school services, school decile was deemed more relevant for this purpose than neighbourhood decile.

Ethnicity was not analysed for differences among the CM Health data from the Youth'12 survey. Advice from the AHRG team suggested the volumes would likely be too low for meaningful reporting on many survey answers. The Youth'12 Overview report itself (Clark et al, 2013a) warns of the need to be careful of interpreting the results when they relate to small groups. As Maaori was the fourth largest ethnicity by volume for CM Health there was particular concern that this report would not be a reliable source of information for Maaori youth. Reporting by ethnicity and not being able to report separately for Maaori was not felt to be appropriate.

In the narrative describing Youth'12 results in this report, when a sentence or paragraph is only referring to New Zealand level data, the sentence is in italics. This is directly quoted from the Youth'12 overview report (Clark et al, 2013a). This has

² <https://www.fmhs.auckland.ac.nz/en/faculty/adolescent-health-research-group.html>

been included as this can provide important context for youth health issues in Counties Manukau. In particular the Youth'12 overview reports on trends over time. The CM Health data was only requested for 2012 so trends could not be examined.

If there is a percentage given for both the New Zealand and Counties Manukau Health cohorts, this is shown as the New Zealand percentage first and then the percentage for the Counties Manukau Health cohort. E.g. If the percentages were 48% for New Zealand and 23% for Counties Manukau Health it would be shown as (48%/23%).

Education Sector Data

Engagement in education is an important protective factor for the well-being and healthy development of young people (Freudenberg and Ruglis, 2007). In this report 2013 education data on students in Alternative Education, Not Enrolled, Stand Downs, Suspensions and Special Education was provided by the Ministry of Education, Mangawhau office. The data was based upon the school being in the Counties Manukau Health area rather than the student being domiciled in the Counties Manukau Health area as this is generally how education data is aggregated. So this is a different cohort for instance from the sample for the Youth'12 Counties Manukau data or the health service utilisation data. However, it provides an indication of the quantum and patterns of young people affected. National data for 2012 was obtained from Ministry of Education websites for comparison.

Schools in the CM Health area were disaggregated by the Ministry of Education into the Auckland Council Local Board areas. There are differences in Local Board areas and District Health Board Boundaries. This means some people who are domiciled in the CM Health locality of Franklin live in areas covered by Waikato Regional Council and Hauraki District Council. There are also differences with respect to areas included in localities and local board within the Auckland Council boundaries. In particular the CM Health locality of Franklin does not include Drury and Beachlands whilst the Auckland Council local board area of Franklin does.

Emergency Department Attendance

Data about presentations to public hospital emergency departments (ED) is originally recorded on the patient management systems for clinical use in various New Zealand hospitals. Key fields from that data are sent from District Health Boards to the Ministry of Health in a set format and to set rules as part of the National Non-Admitted Patient Collection (NNPAC). An extraction of this NNPAC data, with the National Health Identifier encrypted so individuals are not identified, was used to provide a picture of ED utilisation for young people either

- 1) Domiciled in the Counties Manukau Health area or
- 2) Treated at Counties Manukau Health facilities.

Inpatient Hospitalisations

The inpatient discharge information presented in this report is also extracted from nationally collected data. Individual hospitals record their data on their own hospital systems and the data is then sent to the Ministry of Health in a standard way complying with standard rules. One of the rules is that if a person receives a general anaesthetic, IV anaesthetic or is treated in hospital for three hours or more they should be 'technically' admitted. This means a reasonable number of people who have never left an emergency department are counted as an inpatient event.

The national inpatient data collection is called the National Minimum Data Set. An extraction of this data, with the National Health Identifier encrypted so individuals are not identified, was used to provide a picture of inpatient hospital treatment. The discharge information related to young people either

- 1) Domiciled in the Counties Manukau Health area or
- 2) Treated at Counties Manukau Health facilities.

The data used in the inpatient hospitalisations section of this report only included casemix funded cases. In essence this limits to cases managed by medical, surgical and emergency department staff. A full description of the casemix rules for each individual year can be found at the Ministry of Health website³. The inpatient hospitalisations section of this report also explicitly excluded maternity and mental health services managed cases as this makes the report more comparable with other analyses of casemix funded hospitalisations.

Diagnoses were based upon the International Classification of Diseases (ICD) 10 principal diagnosis code, which had been grouped at the chapter level of the ICD 10 codes.

The technical process actually counts the number of hospital discharges. However commonly, including in this report, these events are called hospitalisations; in some reports they may even be called admissions. This is because when discussing reasons for hospitalisations it is much more logical to think of hospitalisations, for asthma for example, rather than the illness causing a discharge.

Outpatients

Outpatient data is also captured in the National Non-admitted Patient Collection (NNPAC) data and is routinely gathered by the Ministry of Health. However outpatient data is less consistently collected across DHBs than inpatient and emergency department presentation data, with only some fields being mandatory. Volumes reported depend heavily on definitions (e.g. how an allied health home visit by an occupational therapist is recorded).

³ <http://www.health.govt.nz/nz-health-statistics/data-references/weighted-inlier-equivalent-separations>

For the purposes of this report outpatient events described were defined as core medical and surgical outpatient events as these are usually recorded consistently across DHBs. Technically this meant data was excluded if

- 1) The purchase unit code started with “MS” or any letter other than “M” or “S”
- 2) It was a preadmit clinic
- 3) It was categorised as a nurse lead clinic
- 4) It was an allied health outpatient event
- 5) It was an Emergency Department event

This still included some special types of outpatient events (UV skin treatment, diabetes education, diabetes fundus screening, dialysis and termination of pregnancy). The volumes for these are described in this report but are then excluded before more detailed analysis of the remaining outpatient events is performed.

PHO Enrolment

Primary Health Organisation (PHO) enrolment information was extracted from an encrypted (anonymised) PHO capitation register. This is data recorded by primary care practices and sent via PHOs as a practice register to the New Zealand Ministry of Health as part of the recording for capitation funding purposes. Registers are updated quarterly.

Information can be extracted for all people enrolled in practices in the Counties Manukau Health area – even if domiciled out of the area, and for people domiciled in Counties Manukau Health, the PHO they were enrolled in - even if the PHO was outside of Counties Manukau. The PHO register for the quarter beginning 1 July 2013 was used to determine primary care enrolment as at the end of 2012/13 Financial Year (30 June 2013).

The PHO data extracted included the date of the last contact the young person had with the general practice they were enrolled with. This was used to calculate the time since the young person last had a clinical contact with their primary care practice. The data set used was for PHO enrolments as at 1 July 2013. Young people who were not enrolled in a PHO at that time (estimated 5.5%) would not be included in this analysis. Some primary care visits in June 2013 may have not yet been recorded by 1 July 2013, so the percentage with contact recorded is likely to be an undercount but this bias is presumed to apply equally across the subgroups described.

Oral Health

The oral health data was supplied by the Counties Manukau Health Portfolio Manager for Oral Health. For children up to Year 8 of school (approximately 12-13 years of age), the data is captured by the Auckland Regional Dental Service (ARDS) on a specialised database, Titanium, and then sent to the Ministry of Health as a

report. For adolescents up to 18 years of age, the data is captured by individual dentists and then sent to the Ministry of Health as a claim form. The Ministry of Health then sends a report on that data to the DHBs.

New Zealand Health Survey

The New Zealand Health Survey (NZHS) was used as a source of information for older young people in the Counties Manukau Health population for obesity, hazardous alcohol use and tobacco use. The data was available for the age range of 15-24 years only and to some extent complements the Youth'12 data which reflects the situation for those in secondary schools, a proportion of whom are younger than the data reported for the NZHS. The NZHS is run by the Ministry of Health and is part of the Programme of Official Social Statistics. Previous surveys were conducted in 1992/3, 1996/7, 2002/3, 2006/7. Since 2011 it has been run continuously and updates are reported annually. Some data represents several years of data combined. In this report data collected over 2011/12 and 2012/2013 is frequently used and is shown as 2011-13.

Mortality Data

Mortality data for New Zealand was from the NZ Child and Youth Mortality Review Committee, prepared by the NZ Mortality Review Data Group 2013. The report from which data was extracted for this report covered data from 2008-2012. Data on this is reported as CM Health and the rest of New Zealand, unlike most of this report which report on CM Health and the whole of New Zealand.

The mortality data for deaths in hospital was from the National Minimum Data Set where the patient discharge code was dead (DD) or discharge for organ donation (DO) and the person deceased in a Counties Manukau Health facility or had been a Counties Manukau Health domiciled young person prior to death.

Rounding

This report used unrounded data for its source data and for calculations. However in most parts of this report figures were rounded. This varied with the size of the numbers. For this reason some totals may differ slightly from the totals that would be calculated by adding the figures in the table.

Statistical Significance

If the 95% confidence intervals of two cohorts did not cross the result was considered to be statistically significant.

Limitations

This report covers important areas of young people's health for which existing data could be sourced and appropriately presented. However for some areas, data could not be meaningfully reported (including sexual health) because of limitations of the data available. For example sexual health services are provided regionally and laboratory data used for sexual health reporting are also reported regionally; both sources were unable to be separated out for Counties Manukau domiciled young people.

Data on young people receiving care for mental health disorders is available in a recent Counties Manukau Health report, "Populations Who Have Received Care for Mental Health Disorders", Counties Manukau Health. Information in that report is split into two age groups - young people aged 12-19 years (in line with the Prime Minister's Youth Mental Health project) and young people aged 18-24 years. The full report and an overview report are available on the Counties Manukau Health website⁴.

This report did not attempt to gather extra data by consultation with health providers, young people themselves or communities. Consultation with health providers and young people had already been recently undertaken during engagement about a review of the model of care for youth health services for Counties Manukau Health by the Innovate for Change consulting group. Their findings were summarised in their concluding report and are available for youth health planners at Counties Manukau Health. Consultation with communities was beyond the resource available for this report.

Also analysis was not attempted on

- National programs and their interaction with local programs
- Resources available for and limitation of future programs
- Costs and benefits of interventions and expected outcomes.

⁴ http://www.countiesmanukau.health.nz/About_CMDHB/Planning/Health-Status/Mental-Health/2014/Mental_Health_HNA_Web_version_branded_250314_v2.pdf And http://www.countiesmanukau.health.nz/About_CMDHB/Planning/Health-Status/Mental-Health/2014/Mental_Health_HNA_Overview_Web_Version_020514.pdf

Demography

As noted in the Methodology section, unfortunately the estimated resident population projections were not yet available from the 2013 Census at the time of writing this report. Therefore, projections based on the 2006 Census as supplied by the Ministry of Health in 2013 have been used to indicate the quantum and probable mix by age and ethnicity of young people living in the Counties Manukau Health area.

Three age bands within the 10-24 year age group are described in the estimated resident population projections – 10-14 years, 15-19 years and 20-24 years. In 2006 the 20-24 years age band was smaller than the other two age bands. Between 2006 and 2012 it was estimated this age group grew by about 7,500 to become the same size as the younger age bands by 2012 (as shown in Figure 1). From 2012, essentially the three age bands, 10-14 years, 15-19 years and 20-24 years were estimated to be of similar size at around 40,000 young people each. These age bands are projected to remain similar in quantum through to 2018.

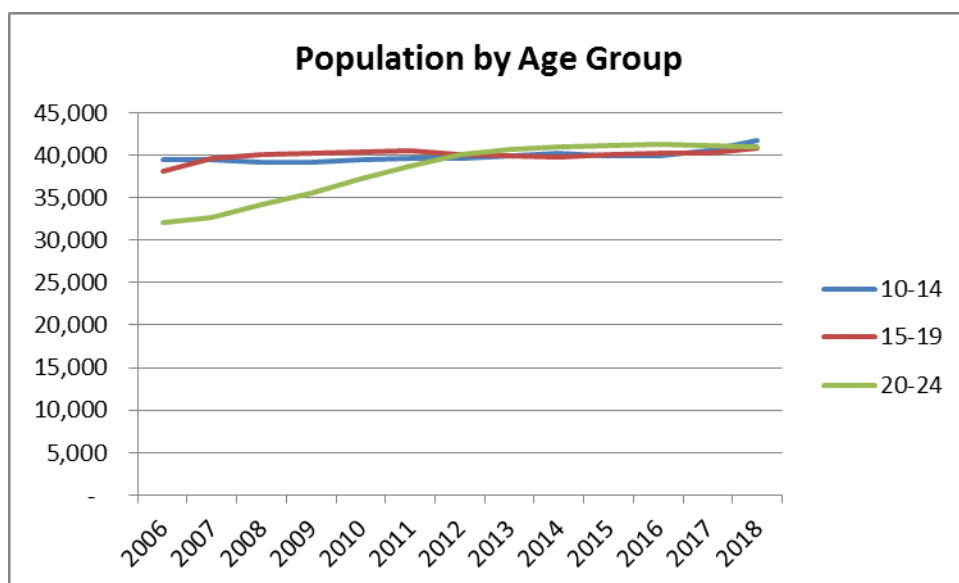


Figure 1: CM young people population projections by age group 2006-2018

Source: Estimated resident population projections from Statistics NZ, supplied 2013

The ethnic composition of the population of young people aged 10-24 years is projected to change quite substantially between 2006 and 2018 - as shown in Figure 2 below. The population of Pacific young people increases consistently throughout the period. Maaori and Asian young people are expected to have smaller increases

and NZ European/Other groups are expected to decrease by 5,000 between 2012 and 2018.

According to the projection populations, in 2013 for young people the number identified as Asian became higher than Maaori and by 2018 the number identified as Pacific ethnicities is projected to be greater than those in NZ European/Other groups.

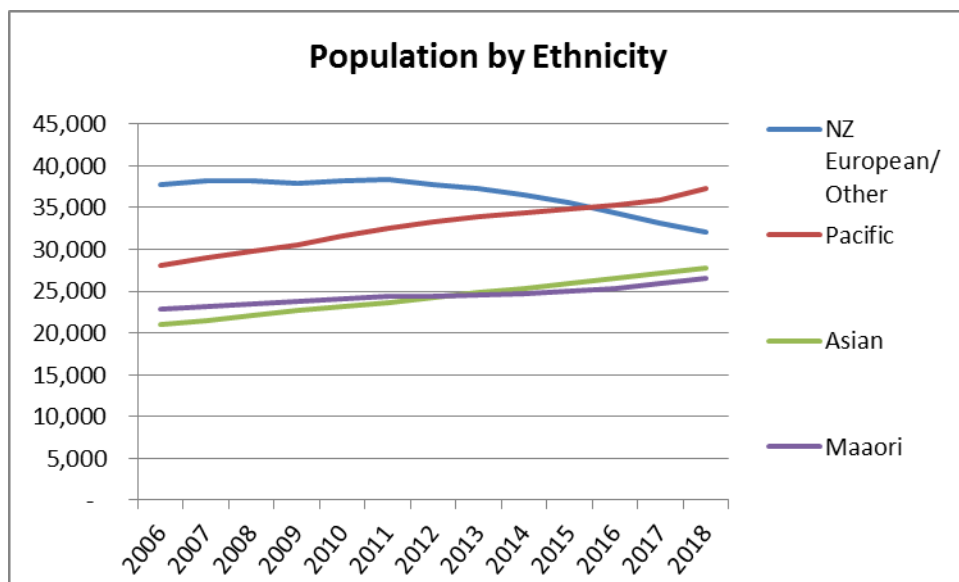


Figure 2: CM young people population projections by ethnicity, 2006-2018

Source: Estimated resident population projections from Statistics NZ, supplied 2013

The volumes for 2014 show the similarity of volumes across the age groups, gender and ethnic groups (Maaori and Asian very similar in size and Pacific and NZ European/Other very similar in size) (Tables 1-3).

Table 1: Counties Manukau projected population 10-24 years in 2014 by age group

Age Group (years)	Number	Percentage
10-14	40,220	33.2%
15-19	39,800	32.9%
20-24	41,040	33.9%
Total	121,060	

Source: Estimated resident population projections from Statistics NZ, supplied 2013

Table 2: Counties Manukau projected population 10-24 years in 2014 by gender

Gender	Number	Percentage
Male	61,920	51.1%
Female	59,140	48.9%
Total	121,060	

Source: Estimated resident population projections from Statistics NZ, supplied 2013

Table 3: Counties Manukau projected population 10-24 years in 2014 by ethnicity

Ethnicity	Number	Percentage
Maaori	24,750	20.4%
Pacific	34,420	28.4%
Asian	25,370	21.0%
NZ European/Other	36,520	30.2%
Total	121,060	

Source: Estimated resident population projections from Statistics NZ supplied 2013

It should be remembered that these projections are from the 2006 Census. When estimated resident population projections from Census 2013 are released later in 2014 they will supersede these figures.

Using the usually resident population from the 2013 Census, the NZDep2013 quintiles for CM Health young people were calculated. The results are shown in Tables 4 and Figure 3; 42% of CM Health young people were living in the most socio-economically deprived quintile, Quintile 5. Applied to the estimated resident population for 2014 this would equate to 51,000 young people living in Quintile 5 areas as shown in Table 5.

Table 4: Percentage of CM Health young people living in areas by socio-economic quintile and age group

Quintile	10-14 years	15-19 years	20-24 years	Total
1	16%	16%	14%	16%
2	15%	15%	14%	15%
3	12%	12%	12%	12%
4	14%	14%	17%	15%
5	43%	41%	43%	42%
Total	100%	100%	100%	100%

Source data: NZDep2013 Index of Deprivation, University of Otago, Wellington, analysed by CMDHB

Table 5: Number of CM Health young people living in areas by socio-economic quintile

Quintile	Total
1	19,000
2	18,000
3	15,000
4	18,000
5	51,000
Total	121,060

Source data: Population size from estimated resident population projections from Statistics NZ supplied 2013

Percentage of population resident in socio-economic deprivation areas from NZDep2013 Index of Deprivation, University of Otago, Wellington, analysed by CMDHB

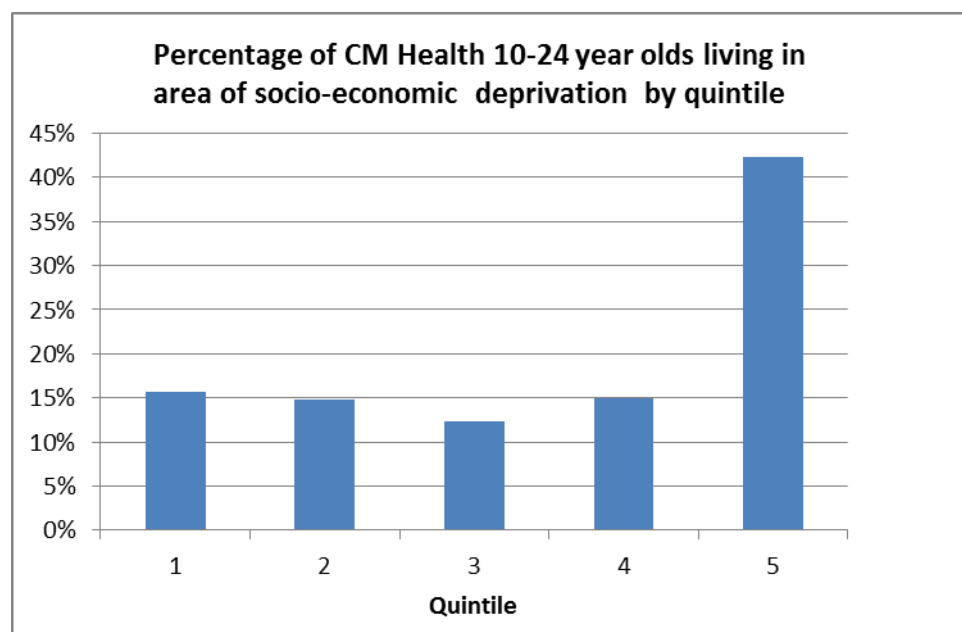


Figure 3: Percentage of CM Health young people by area of socio-economic deprivation

Source data: Census usually resident population 2013, Statistics NZ; NZDep2013 Index of Deprivation, University of Otago, Wellington, analysed by CM Health

Culture and Ethnicity

“The New Zealand population is growing and becoming more ethnically diverse, especially among young people. Young people aged between 12 and 24 make up 19% of the total population in New Zealand, with 11% aged between 12 and 18 (Extrapolated from 2006 Census data).” (Clark et al, 2013a)

Ethnic groups

Forty-two percent of students in Youth’12 reported [in the national Youth’12 cohort] that they belonged to more than one ethnic group, compared to 39% of students in 2007 and 29% of students in 2001.

In the Youth’12 survey students were asked “Which ethnicity do you belong to?” They could choose from a list of 23 ethnicities and could pick more than one. The list included ethnic groups of Other European, Other Pacific, Other Asian and Other. Using the Statistics New Zealand ethnicity prioritisation method (Ministry of Health, 2004) which allocates each person to only one ethnic group, students were then categorised into five ethnic groups: Maaori, Pacific, Asian, European and Other.

Compared to the ethnic breakdown for New Zealand respondents, Counties Manukau had a lower percentage of European students (47%/23%) as shown in Table 6. Although not statistically significant Counties Manukau also appears to have and a much higher percentage of Pacific students (14%/42%).

Table 6: Youth’12 survey percentage of cohort by prioritised ethnicity

Ethnicity	National Percentage (CI)	CM Health Percentage (CI)
European	47.3% * (40.8-53.7)	23.3% * (8.0-38.5)
Maaori	20.0% (16.9-23.1)	13.4% (9.1-17.8)
Pacific	14.3% (8.0-20.5)	42.1% (18.3-65.9)
Asian	12.4% (8.6-16.2)	14.9% (6.7-23.1)
Other	6.0% (5.2-6.8)	6.3% (3.3-9.2)

* Statistically significant difference between groups in National cohort and CM Health cohort and CM Health

All of the main ethnic groups, except Maaori, are made up of a number of smaller groups. Ethnicities making up the European group included students who identified as being New Zealand European, English, Australian, Dutch and/or other European

ethnicities. Ethnicities making up the Pacific group included students who identified as being Samoan, Tongan, Cook Island Maaori, Fijian, Niuean, Tokelauan and/or other Pacific ethnicities. The Asian group included students who belonged to ethnic groups geographically located from South East Asia through to Pakistan. Chinese and Indian ethnicities were the two largest in this group, both nationally (Clark et al, 2013a) and for CM Health area (Personal Communication, Dr Simon Denny). These main ethnic groups are consistent with those used in New Zealand census categorisations.

A list of the ethnic subgroups identified is shown in Table 7 sorted by percentage of respondents. As students could identify with more than one ethnicity field, the total adds up to greater than 100%. Multiple ethnicities were reported by 42% of students in the national data.

Table 7: Number of ethnicities reported for Youth'12 national data with multiple ethnicities reported

Response Options	Number	Percentage
New Zealand European	5,558	65.5
Maaori	1,701	20.0
English	1,408	16.6
Samoan	698	8.2
Other	620	7.3
Chinese	463	5.5
Other European	431	5.1
Tongan	372	4.4
Indian	366	4.3
Cook Island Maaori	296	3.5
Australian	269	3.2
Dutch	251	3.0
Fijian	196	2.3
Other Asian	163	1.9
Korean	161	1.9
Filipino	147	1.7
African	146	1.7
Niuean	120	1.4
Japanese	95	1.1
Other Pacific Peoples	86	1.0
Middle Eastern	72	0.8
Latin American	54	0.6
Tokelauan	53	0.6
Cambodian	31	0.4

Country of Birth

Students born in New Zealand made up about three-quarters (78%/70%) of respondents.

This is similar to 2007 but less than in 2001, when almost 89% of students [in the national Youth'12 cohort] were born in New Zealand.

Other countries where students were born included, an Asian nation for 6%/6% of students, a Pacific Island nation for 4%/13% and 2%/2% were born in Australia (Table 8). The proportion of Counties Manukau students born in a Pacific Island nation (13%) is less than a third of the number of students classified as Pacific by ethnic priority (42%). This means over two thirds of CM Health students who identified as Pacific were not born in a Pacific Island Nation. Specific analysis was not done but it is likely that most of the students of Pacific ethnicity in CM Health area who were not born in a Pacific Island nation were born in New Zealand.

Table 8: Youth'12 student's country of birth area

Country student was born in	National Percentage (CI)	CM Health Percentage (CI)
New Zealand	77.9% (74.4-81.4%)	69.7% (63.4-75.9)
Asian Nation	5.5% (3.0-8.0)	5.9% (1.7-10.1)
Pacific Island Nation	4.3% (2.0-6.6%)	13.0% (4.0-21.3%)
Australia	1.9% (1.6-2.2%)	1.5% (1.1-2.1%)
United Kingdom	2.5% (1.9-3.0%)	1.1% (0.3-1.9%)
Other	7.9% (6.6-9.2)	8.7% (3.5-13.9%)

Culture and Ethnicity Summary

In the Youth'12 survey the Counties Manukau cohort had a notably different ethnicity mix to the overall New Zealand cohort. The Youth'12 data shows the majority of secondary students in Counties Manukau were born in New Zealand and the percentage born in New Zealand was not statistically significantly different between Counties Manukau and the whole of New Zealand.

Home and Families

“Caring, supportive and safe families are critically important for young people. Overall, young people who report caring and supportive family relationships are happier, healthier and get on better in life” (McLaren, 2002 Cited by: Clark et al, 2013a; Resnick, Harris, & Blum, 1993 Cited by: Clark et al, 2013a).

Family relationships

The majority of students reported they were happy with how they got along with their family and Counties Manukau students (83%) were significantly more likely to have reported this than the national cohort of students (72%) (Table 9). Over two thirds (69%/73%) of students had fun with their families often or a lot.

Seventy-eight/79% of students felt close to their mother and/or father most of the time and over 90% felt that their mother and/or father cared a lot about them (93%/92%) (Figure 4).

Table 9: Percentage of students by answer reported on various family relationship questions

Relationship	National Percentage (CI)	CM Health Percentage (CI)
Happy with how get along with family	72.0% * (71.0-73.0)	82.5% * (78.7-86.4)
Had fun with families often or a lot	69.2% (67.7-70.8)	73.4% (69.5-77.5)
Felt close to mother and/or father most of the time	77.9% (76.5-79.3)	79.4% (75.8-83.1)
Felt that mother and /or father cared a lot about them	93.0% (92.3-93.7)	91.7% (90.2-93.2)

* Statistically significant difference between groups in National cohort and CM Health cohort and CM Health

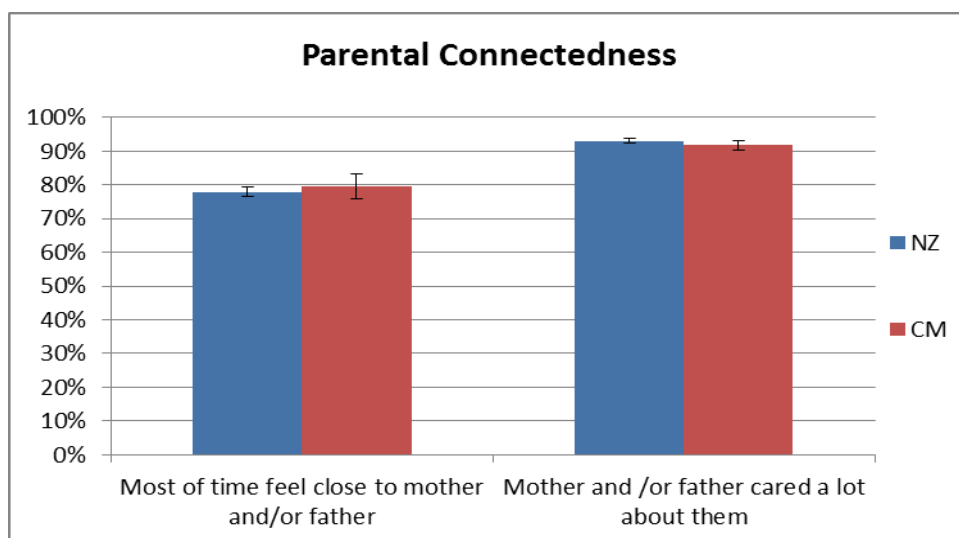


Figure 4: Student’s closeness to mother and/or father and whether mother and/or father cared about them a lot
 (Error bars represent 95% CIs)

Sixty-two percent of males and 55% of females [in the national Youth’12 cohort] said that they mostly got enough time with their mother and/or father.

Over half of the students reported they got enough time with their mother as “only sometime” or “hardly ever”. The percentages were 49%/45% of the students who reported that they got enough time with their mothers most of the time, 40%/43% only sometimes and 11%/11% hardly ever (Table 10).

Reasons given [in the national Youth’12 cohort] for not getting enough time with their mother included her being at work and being busy with housework, other children or family members.

Table 10: Percentage of students who felt they got enough time with their mother

Getting enough time with mother	National Percentage (CI)	CM Health Percentage (CI)
Most of the time	48.8% (47.3-50.4)	45.3% (41.1-49.4)
Only sometimes	40.3% (39.0-41.7)	43.9% (40.0-47.8)
Hardly ever	10.8% (9.8-11.7)	10.8% (8.7-12.9)

The numbers who reported that they got enough time with their father were lower than enough time with their mother. Thirty-seven /37% percent of students reported that they got enough time with their fathers most of the time (Table 11). The percentage was higher in males (42%/43%) than females (33%/33%) both nationally and in CM Health area.

Table 11: Percentage of students who felt they got enough time with their father most of the time by gender

Getting enough time with Father	Males	Females	Total
National Percentage	42.2% # (40.3-44.1)	33.2% # (31.3-35.2)	37.3% (35.7-38.9)
CM Health Percentage	42.8% † (35.9-49.6)	33.2% † (29.5-36.9)	37.1% (32.8-41.5)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

The most common reasons [in the national Youth'12 cohort] for not getting enough time was their father being at work, followed by him not living with them and being busy with housework, other children or family members.

Family background and circumstances

The number of students that reported living in one home was 71%/75% and for two or more homes 29%/25% (no statistically significant difference between national and CM Health cohorts).

For most students [in the national Youth'12 cohort], their mothers (91%) and/or fathers (73%) acted as their parent. However, grandparents (13%) and other relatives (17%) were also important caregivers, particularly among students living in more deprived neighbourhoods. For example, 26% of students in higher deprivation neighbourhoods had other relatives acting as a parent, compared to 14% in medium deprivation neighbourhoods and 11% in low deprivation neighbourhoods.

Twelve/16% percent of young people reported that their family often or always worries about not having enough money for food (Table 12). Analysis done on socio-economic level of deprivation was based on the students own address for the national data and on the school attended by the student in the CM Health area data. Nationally the figure was 18% for students from high deprivation neighbourhoods, 10% for students from middle deprivation neighbourhoods and 6% for students from low deprivation neighbourhoods; the high deprivation neighbourhoods were statistically significant to the other two groups (Table 13). For CM Health area the figure was 25% for students from high deprivation schools, 10% for students from middle deprivation schools and 8% for students from low deprivation schools; the high deprivation schools were statistically significant to the other two groups (Table 13).

Table 12: Percentage of students whose family often or always are worried about not having enough money for food

Often or always worry about food	National Percentage (CI)	CM Health Percentage (CI)
Overall	11.5% (9.8-13.2)	16.3% (11.2-21.4)

Table 13: Percentage of students whose family often or always are worried about not having enough money for food, by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Often or always worry about food	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	18.4% # (15.8-21.1)	10.3% # (8.8-11.8)	6.1% (4.9-7.2)
CM Health Percentage	24.5% † (21.5-27.5)	10.3% † (8.1-12.4)	8.3% (5.5-11.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

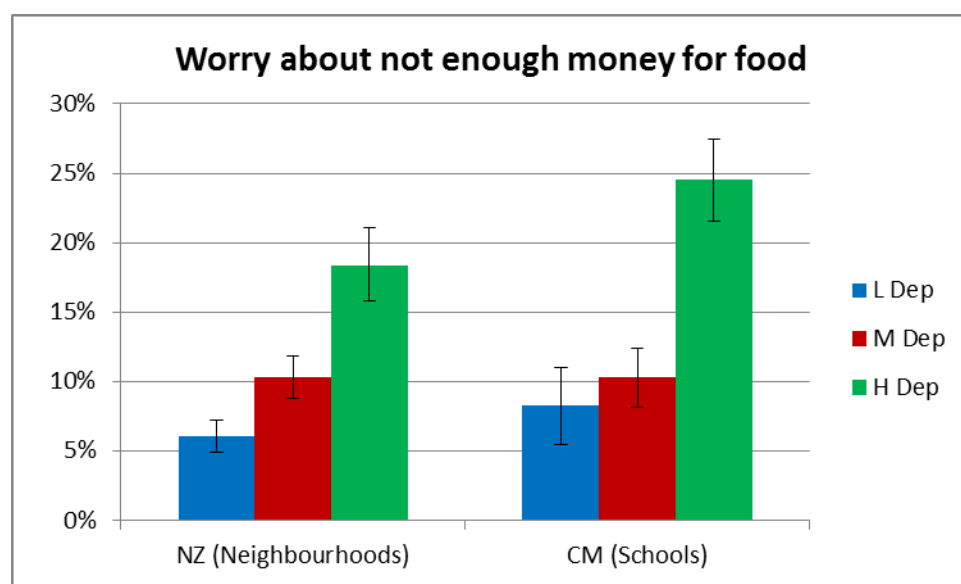


Figure 5: Percentage of students whose family is often or always worried about not having enough money for food by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

(Error bars represent 95% CIs)

Household crowding had similar results, with higher rates in students from high deprivation neighbourhoods/schools. Household crowding was defined in Youth'12 as having more than two people per bedroom. Other measures of overcrowding are used in other reports including the Canadian Occupancy Standard. A review of which

is the best to apply in New Zealand circumstances was published in 2011 (Goodyear et al, 2011).

The overall figure for household crowding for CM Health area students was 12.5%, more than double the national figure of 5.5% although this wasn't statistically significant (Table 14). Nationally students from high deprivation neighbourhoods reported having more than two people per bedroom 12% of the time, compared with students from middle deprivation neighbourhoods being 3% and students from low deprivation neighbourhoods 1%. (Table 15 and Figure 6) For CM Health students from high deprivation schools reported having more than two people per bedroom 23% of the time, compared with students from middle deprivation schools being 4% and students from low deprivation schools 3% (Table 15 and Figure 6).

The difference between students from high deprivation neighbourhoods/schools and middle deprivation neighbourhoods/schools was statistically significant for both the national cohort and the CM cohort (Table 15 and figure 6). Household crowding is associated with a range of negative health outcomes (Goodyear et al, 2011), and infectious diseases have been shown to occur with greater rate in overcrowded houses in New Zealand (Baker et al, 2000; Baker et al, 2008; Jaine et al, 2011).

Table 14: Percentage of students living in house with more than two people in each bedroom

	National Percentage (CI)	CM Health Percentage (CI)
More than two people in a bedroom		
Overall	5.5% (3.5-7.4)	12.5% (5.6-19.4)

Table 15: Percentage of students living in house with more than two people in each bedroom by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

More than two people in a bedroom	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	12.0% # (8.2-15.8)	3.3% # (2.4-4.2)	1.4% (0.9-1.9)
CM Health Percentage	22.5% † (19.3-25.6)	4.0% † (0.5-7.5)	3.2% (0.9-4.9)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

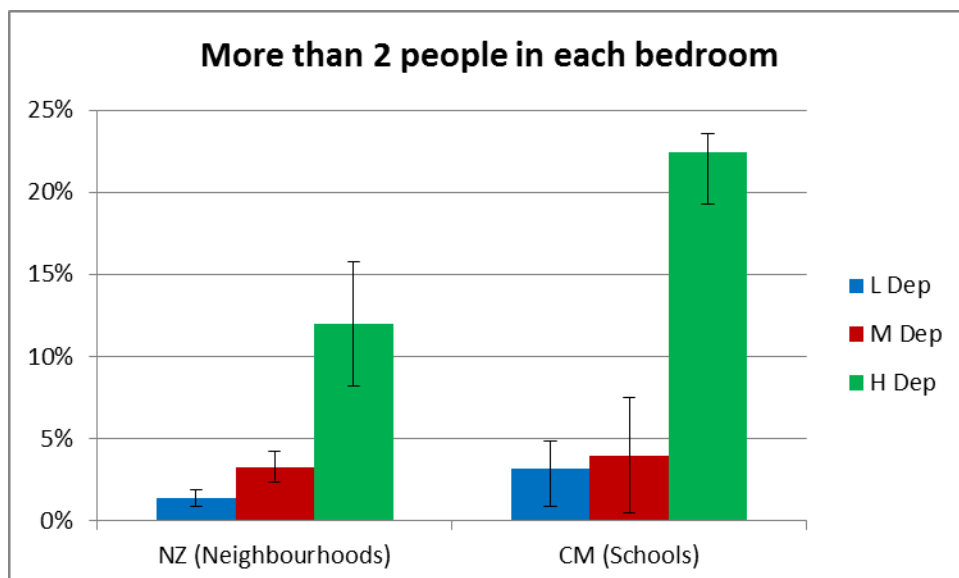


Figure 6: Percentage of students living in a house with more than two people in each bedroom by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health) (Error bars represent 95% CIs)

Overall, 12% of students [in the national Youth'12 cohort] reported that their living rooms were used as bedrooms (22% in high deprivation neighbourhoods, 9% in medium deprivation and 6% in low deprivation) and 6% reported garages used as bedrooms (10% in high deprivation neighbourhoods, 5% in medium deprivation and 3% in low deprivation neighbourhoods).

In the CM Health area 26% of students had either a living room or garage being used as a bedroom compared to 16% nationally; this was not a statistically significant difference (Table 16). Nationally the figure was 28% for students from high deprivation neighbourhoods, 13% for students from middle deprivation neighbourhoods and 8% for students from low deprivation neighbourhoods; the differences between each group were statistically significant (Table 17). For CM Health area the figure was 40% for students from high deprivation schools, 19% for students from middle deprivation schools and 11% for students from low deprivation schools; again the differences between groups were statistically significant (Table 17).

Table 16: Percentage of students living in a house which has garage or living room being used as bed room

Has a living room or garage being used as bed room	National Percentage (CI)	CM Health Percentage (CI)
Overall	16.1% (13.3-18.9%)	26.1% (16.9-35.3%)

Table 17: Percentage of students living in a house which has garage or living room being used as bed room by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Has a living room or garage being used as bed room	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	27.9% # (23.6-32.2%)	13.0% # (11.2-14.7%)	8.0% # (6.6-9.3%)
CM Health Percentage	39.6% † (34.8-44.3)	19.1% † (16.1-22.2)	11.3% † (8.6-13.9)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Moving home two or more times in the last 12 months was reported by 7%/ 8% of students (Table 18). Nationally the figure was 10% for students from high deprivation neighbourhoods, 7% for students from middle deprivation neighbourhoods and 5% for students from low deprivation neighbourhoods; the high deprivation neighbourhoods were statistically significant different to the other two groups (Table 19). For CM Health area the figure was 11% for students from high deprivation schools, 5% for students from middle deprivation schools and 5% for students from low deprivation schools; the high deprivation neighbourhoods were statistically significant different to the other two groups (Table 19).

Table 18: Percentage of students who moved house more than twice in the last 12 months

Moved two or more times in 12 months	National Percentage (CI)	CM Health Percentage (CI)
Overall	7.3% (6.5-8.1)	7.8% (5.6-10.0)

Table 19: Percentage of students who moved house more than twice in the past 12 months by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Moved two or more times in 12 months	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	10.2% # (8.7-11.7)	6.6% # (5.7-7.6)	5.0% (4.3-5.8)
CM Health Percentage	10.6% † (8.8-12.4)	5.2% † (3.0-7.3)	5.3% (3.1-7.6)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Comparisons between 2001, 2007, 2012 [in the national Youth'12 cohort]

The proportion of students who reported that their parents care a lot about them has remained high (greater than 90%) in all three surveys (2001, 2007 and 2012).

The percentage of male students getting enough time with at least one parent has remained similar since 2001 (63% in 2001, 62% in 2007 and 62% in 2012), but for female students this has declined (61% in 2001, 50% in 2007, and 55% in 2012).

The percentage of students reporting that parents worry about having enough money for food has increased across all age groups from 8% in 2001 and 2007 to 12% in 2012. This change was especially evident among younger students (15 years and under).

Home and Family Summary

The majority of students expressed in the survey that they were getting along well with family and over 90% reported that they felt their mother or father cared a lot about them. However over half expressed that they were not getting enough time with their mother or father. This information is contrary to a common perception of rebellious teenagers who want to minimise time with their family.

Students from high deprivation schools in the CM Health area, compared to students from low deprivation schools, had higher percentages of: families who worry about not having enough money for food, more than two people living in a room, living in a house which is using a living room or garage as a bedroom and moving more than twice in 12 months.

School

“Schools are important for the health and wellbeing of young people. Effective learning environments, adults having high expectations of students, adults providing appropriate caring relationships for students, safe school environments and opportunities for meaningful participation in school life are important factors” (Bernat & Resnick, 2006 Cited by: Clark et al, 2013a; Resnick, 2000 Cited by: Clark et al, 2013a).

School connectiveness

Eighty-two percent of students [in the national Youth’12 cohort] had attended only one high school, while 5% had attended three or more.

Twenty-nine percent of students [in the national Youth’12 cohort] liked school a lot (26% of males and 32% of females), 61% liked school a bit or thought school was okay (64% of males and 59% of females) and the remainder (10%) did not like school.

The majority of students (87%/90%) of students felt like they were part of their school.

More than a quarter of students (27%/31%) reported that adults (such as teachers, coaches and other adults) at their school care about them a lot (26%/26% of males and 29%/34% of females) (Table 20).

Table 20: Percentage of students who reported teachers at school care about them a lot by gender

Teachers care about then a lot	National Percentage (CI)	CM Health Percentage (CI)
Overall	27.2% (25.5-28.9)	31.1% (25.7-36.4)
Males	25.5% (24.0-27.0)	26.2% (20.2-32.3)
Females	28.6% (26.1-31.2)	34.4% (28.0-40.7)

Overall about half (52%/51%) of students reported that teachers are fair to students most of the time (50%/49% of males and 53%/52% of females).

Students from low deprivation neighbourhoods (nationally) and students from low deprivation schools (CM Health) reported higher percentages (56%/57%) of teachers treating students fairly compared to students from high deprivation neighbourhoods/schools (47%/48); these results were statistically significant (Table 22 and Figure 7).

Table 21: Percentage of students who reported teachers treated them fairly

Teachers treated them fairly	National Percentage (CI)	CM Health Percentage (CI)
Overall	51.7% (49.7-53.6)	51.0% (47.2-54.8)

Table 22: Percentage of students who reported teachers treated them fairly by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Teachers treat students fairly	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	46.7% # (44.6-48.8)	52.3% (49.9-54.8)	56.3% # (53.1-59.5)
CM Health Percentage	48.3% † (44.3-52.4)	45.0% (41.0-44.9)	57.6% † (54.5-60.7)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

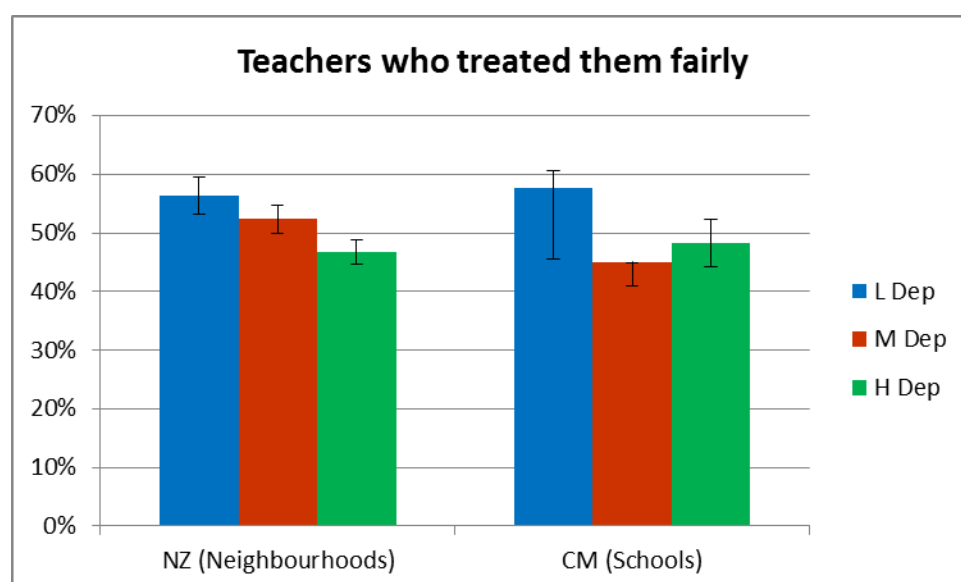


Figure 7: Percentage of teachers who treated students fairly by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)
(Error bars represent 95% CIs)

Expectation and achievement

Most students (90%/92%) reported that people at their school expect them to do well, 90%/91% of males and 92%/92% of females (Table 23).

Table 23: Percentage of students who felt that the school expected them to do well by gender

People expected them to do well	National Percentage (CI)	CM Health Percentage (CI)
Overall	91.3% (90.6-92.0)	91.7% (90.0-93.6)
- Males	90.2% (89.2-91.2)	90.9% (88.4-93.5)
- Females	92.2% (91.2-93.2)	92.3% (90.2-93.5)

The majority of students (93%/ of males and 97% of females) [in the national Youth'12 cohort] indicated that it was somewhat or very important for them to be proud of their school work and that students in their school try to get the best grades they can (57% of males and 56% of females). Four out of ten students report doing homework for at least one hour each day. This was reported by a greater proportion of females (47%) than males (31%).

A higher percentage of CM Health area students believed that they will complete Year 13 (Form 7) of school than the national average (87%/91%) (Table 24). CM males (93%) had higher levels of belief in completing year 13 than males nationally (83%). Nationally more females (91%) than males (83%) believed they would complete year 13 but for CM Health there was no statistically significant difference between males and females (Table 24).

Table 24: Percentage of students that expect that they would complete year 13 by gender

Students planned to complete school (i.e. finish year 13)	Males	Females	Total
National Percentage (CI)	83.3% * # (81.5-85.1)	90.8% # (89.6-92.1)	87.4% * (86.1-88.7)
CM Health Percentage (CI)	88.6% * (85.4-91.8)	93.4% (91.1-95.7)	91.4% * (89.1-93.8)

* Statistically significant difference between groups in National cohort and CM Health cohort and CM Health

Statistically significant difference between groups in National cohort

The percentage who stated their plans on leaving school were to go on to more education or training were higher for females nationally (71%) than for males nationally (56%) (Table 25). There was no difference statistically significant

difference between females (70%) and males (61%) in CM Health. Also there was no difference overall between National and CM Health area students (64%/66%) (Table 25).

Table 25: Percentage that expected they would go on to further education /training after school by gender

Expected to go on to more training/education when leave school	Males	Females	Total
National Percentage (CI)	56.4% # (54.0-58.9)	70.8% # (68.6-73.0)	64.2% (62.0-66.4)
CM Health Percentage (CI)	61.3% (55.0-67.7)	69.8% (64.9-74.7)	66.3% (61.5-71.2)

Statistically significant difference between groups in National cohort

After leaving school nationally 25% planned to start work or look for a job, 9% didn't know, had no plans or thought they will do nothing, whilst 1% intended to start a family.

Students living in higher deprivation neighbourhoods [in the national Youth'12 cohort] were less likely to believe that they will go on to more education or training (58%) and more likely to seek employment (32%) than students in lower deprivation neighbourhoods (69% of those in low deprivation neighbourhoods thought they will go on to more education or training and 20% thought they will seek employment).

Attendance

Ninety-five percent of students [in the national Youth'12 cohort] indicated that it was somewhat important or very important that they attend school every day.

Almost a quarter of students (23%/24%) had been truant from school for at least one day in the past year (Table 26). Nationally deliberately not attending school for a day in the last 12 months occurred more commonly among older students aged 17 years or older (31%) than younger students aged 13 and under (14%). CM Health area students 16 years and over (31%) were not statistically different in their prevalence of truancy in the last year to students 15 years and under (21%).

Table 26: Percentage of students truant from school in last year by age group

Truant from school in last year	Younger students NZ 13 and Under, CM 15 and under	Older students NZ 17 and older, CM 16 and older	Total
National Percentage (CI)	14.0% # (11.5-16.6)	31.4% # (28.6-34.3)	22.7% (20.7-24.7)
CM Health Percentage (CI)	21.0% (16.1-25.9)	30.7% (24.8-36.7)	24.1% (19.4-28.9)

Statistically significant difference between groups in National cohort

Nationally students from high deprivation neighbourhoods (30%) were more likely to be truant in the past 12 months than students from low deprivation neighbourhoods

(17%) (Table 27). CM Health area students from high deprivation schools (30%) were more likely to be truant in the past 12 months than students from low deprivation schools (18%).

Table 27: Percentage of students truant from school in last year by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Truant from school in last year	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	30.1% # (27.3-32.8)	20.8% (18.6-22.9)	17.3% # (15.2-19.4)
CM Health Percentage	29.8% † (24.6-35.0)	21.5% (17.5-25.4)	17.7% † (14.9-20.6)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Families and School

Almost all students [in the national Youth'12 cohort] (99%) said that it was important to their parents or caregivers that they go to school every day.

Sixty-two percent of families had helped the student with their homework in the past year, an activity that was more common among younger students (75% of those aged 13 and under).

About 44% of families had attended a school event in the past year. This was reported by a greater proportion of female students (47%) and students living in low deprivation neighbourhoods (49%).

School Safety

The majority of students (87%/88%) felt safe at school all or most of the time (Table 28). Nationally there was a statistically significant difference between students 17 and over (92% feeling safe) and students 13 and under (86% feel safe). CM Health area older students (16 and over) felt safe 90% of the time and younger students (15 and under) felt safe 87% of the time.

However, [in the national Youth'12 cohort] 9% of students said they had been afraid that someone at school would hurt or bother them in the past year, with higher rates among younger students.

Table 28: Percentage of students who feel safe all or most of the time by age group

Feel safe at school all or most of the time	Younger students NZ 13 and Under, CM 15 and under	Older students NZ 17 and older, CM 16 and older	Total
National Percentage (CI)	85.7% # (83.5-87.8)	92.0% # (90.7-93.4)	86.9% (85.3-88.4)
CM Health Percentage (CI)	86.6% (81.8-91.3)	90.1% (84.7-95.4)	87.7% (83.1-92.3)

Statistically significant difference between groups in National cohort

For all ages the percentages of students who reported being bullied at school weekly or more often was 6.2% nationally and 4.2 % for CM Health area (Table 29). This was higher for younger students (8.4%/ 5.5%) than older students (2.4% /1.3%). Ages for national data were 17 and over and 13 and under and for CM data were ages 16 and over and 15 and under.

Table 29: Percentage of students that were bullied at school weekly or more often in last 12 months by age group

Bullied at school	Younger students NZ 13 and Under, CM 15 and under	Older students NZ 17 and older, CM 16 and older	Total
National Percentage (CI)	8.4 # (6.9-9.8)	2.4 # (1.6-3.1)	6.2% (5.5-7.0)
CM Health Percentage (CI)	5.5% † (3.1-8.0)	1.3% † (0.4-2.1)	4.2% (2.4-5.9)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Comparisons between 2001, 2007, 2012 [in the national Youth'12 cohort]

The proportion of students who reported that teachers were fair most of the time has increased over time (43% in 2001, 49% in 2007, and 52% in 2012).

There were very small increases in:

- *Students feeling that people at school care about them a lot (23% in 2001, 25% in 2007 and 27% in 2012)*
- *Students who like school; a lot, a bit or it is okay (86% in 2001, 88% in 2007 and 90% in 2012)*

There was little change in the proportion of students being bullied at school weekly or more often (for boys 9% in 2001, 7% in 2007 and 7% in 2012; for girls approximately 5% across all three surveys).

School Summary

The Youth'12 survey data for CM students compares favourably with national data in relation to school aspects. The percentage of students who plan to complete year 13 is higher in the CM cohort (91%) than the national percentage. In none of the analysed questions was CM Health worse than nationally. The majority of CM Health students (90%) felt part of their school.

There were differences between groups. Both nationally and for the CM Health area students from high deprivation neighbourhoods/schools were more likely to be truant and less likely to report that teachers treat students fairly. Also in both groups older students were less likely to report being bullied.

Education and Training

“Outside the family, young people spend most of their time in schools and undertaking further education and training. Feeling positive about school and building sound learning skills greatly improves their chances of doing well in other parts of their lives, especially at work.” (Ministry of Youth Affairs, 2002)

Some young people will spend their whole time in the age group profiled in this report obtaining education. Others will vary in their time spent in education, job training, in the workforce or being in a state of transition between these. Education and training provide the opportunity for young people to develop skills for the future, as well as a variety of social experiences over the time spent in education and training. This not only increases chances of future employment but can also support the self-esteem of young people.

Engagement in education is an important protective factor for the well-being and healthy development of young people (Freudenberg and Ruglis, 2007). Young people not in mainstream education and employment often have multiple health issues and difficulty accessing healthcare (Fleming and Elvidge, 2010).

This section uses information from the Ministry of Education. For this data the definition of CM Health area is that the school is in the CM Health area rather than where the pupils live. Also the boundaries are based on council areas which differ from CM Health locality areas. This is why the Franklin area in this part of the report can be further defined as Franklin-Auckland, Franklin-Hauraki and Franklin-Waikato.

Alternative Education

According to Ministry of Education policy, alternative education aims to provide a constructive alternative to mainstream education for those who have been alienated from “mainstream” education. The reasons for being alienated could be being habitually truant or being behaviourally challenging and due to this, excluded from school (Ministry of Education, 2014a). The absolute number of students in alternative education does not necessarily indicate the amount of need in a community. This is because the number of places depends on the number contracted by the Ministry of Education. Therefore a 13-15 year old may be considered for alternative education but may not enter the service due to no place being available. Instead they may enter Correspondence school, remain as non-enrolled, or be categorised as an “extended exclusion”. In addition, whilst waiting for an alternative education place they may offend and due to the offence enter the youth justice system.

Earlier work by the Adolescent Health Research Group (Clark et al, 2010) has demonstrated that alternative education students have higher prevalence of

behaviours that place them at risk of poorer outcomes, such as drug and alcohol abuse and dangerous driving. They also found that healthcare services had not engaged alternative education students in preventative care. These issues may be improved by the New Zealand health system taking a more family and positive development based approach which has been shown to have more effective outcomes (Clark et al, 2010).

To provide alternative education, schools often cooperate and bring together their resources and form a consortium or cluster. One school is nominated as the lead or managing school and then a contract is made between schools and one or more alternative education providers. The providers based in the Counties Manukau area as at June 30 2013 are shown in Table 30 below.

Table 30: Alternative education providers in the Counties Manukau Health area as at June 30 2013

Consortium	Provider
AIMHI	Community Education Group – Takinini
	Highwire Trust - Papakura
	Te Aotea - Papakura
	Te Ara Poutama - Manurewa
	Te Ara Poutama - Pukekohe
Counties Manukau	Creative Learning Systems South- Manukau
	Crosspowers - Otara
	Quality Education Systems - Mangere
	Te Ara Poutama

Source: Centre for Youth Health, CM DHB, Centre for youth health in alternative education report: A report for CMH Funding and planning for the year ending 30 June 2013

Schools in CM Health enrolled 280 students in alternative education in 2013 (Table 31).

Table 31: Numbers of students enrolled in alternative education by consortium and school in 2013 for schools in CM Health area

Consortium	Enrolled School	Number of Students
AIMHI	Aorere College	2
	Mangere College	13
	Tangaroa College	11
AIMHI Total		26
Auckland City	Ambury Park Centre for Riding Therapy	3
Auckland City Total		3
Counties Manukau	James Cook High School	115
	Papakura High School	75
	Pukekohe High School	32
Counties Manukau Total		222
Manukau	Aorere College	29
Total		280

Source: Ministry of Education, Mangawhau Office

It is important to note the school which enrolled students into alternative education may not have been involved with the student prior to their enrolment in alternative education. Therefore the schools listed above are those that enrolled the students into alternative education rather than a list of those of schools being attended by students before commencing alternative education.

The split by ethnicity is shown below in Table 32. The denominator used for rates was the estimated resident population of 13, 14 and 15 year olds from the 2006 Census projected to 2013. This was used as a denominator as there was no standard way used to report an alternative education rate. The rate for Maaori is very high compared to the other ethnic groups. Both in CM Health and nationally 66% of all alternative education students are Maaori. This identifies a group of young people with potentially high health need.

Table 32: Number of students and rate for students beginning alternative education in 2013 in CM Health area by ethnicity (rate per 1,000 population aged 13-15 years)

Ethnicity	Number	Number of 13,14 and 15 year olds	Rate per 1,000
Maaori	187	5,200	35.9
Pacific	67	7,050	9.5
All others	26	11,650	2.3
Total	280	23,900	11.7

Source: Number of alternative education students from Ministry of Education, Mangawhau Office. Denominator from Statistics New Zealand

The number of days students were under alternative education is shown in Table 33 below. There is a large range in the amount of time spent in alternative education by the young people enrolled.

Table 33: Number of days in Alternative Education (AE) for young people beginning AE in 2013 in CM Health area

Days in AE	Number	Percentage
0-40	30	11%
41-80	33	12%
81-120	45	16%
121-160	29	10%
161+	69	25%
Open*	74	26%
Total	280	

*If still receiving AE on 22/4/2104 shown as Open
Source: Ministry of Education, Mangawhau Office

Non-Enrolled

A student is considered non-enrolled if they leave a school and do not enrol in another school in twenty days. As the Ministry of Education is responsible for ensuring 6 to 16 year olds attend school, once the Ministry is informed by the school via the school student enrolment register (ENROLE) that a young person is non-enrolled, a local Attendance Service Provider works to locate and assist the return to education of the student. This can involve families/whaanau, schools, iwi, Pasifika groups and other agencies. If not enrolled back into education, the student may receive an early leaving exemption from school. This allows the student to start a course or employment.

There were 217 students attending schools in CM Health area who were non-enrolled at some point in 2013 (Table 34). Of these students

- 163 (75%) were enrolled into or back in school,
- 46 (21%) enrolled in and attending alternative education
- 8 (4%) given an early leaving exemption from school and started a course or employment.

This is a group who are likely to have high health needs. Addressing the health need may enhance the opportunity for education or further training for the young person.

Table 34: Number of individuals non-enrolled in school by ethnicity and local board in 2013

Local Board	Maaori	Pacific	Others	Total
Auckland – Howick	9		12*	21
Auckland Mangere – Otahuhu	14	6		20
Auckland- Manurewa	53	18	10	81
Auckland – Otago Papatoetoe	7	15		22
Auckland – Papakura	27		12*	39
Franklin (Auckland, Waikato and Hauraki)	10		15*	21
Total	129	53	35	217

*Pacific and Other added together if either had total less than 5

Source: Ministry of Education, Mangawhau Office

The 2012 data for non-enrolment as a rate (per 1,000 students) by local board and ethnicity is shown in Table 35. The denominator for this was all enrolled students aged 6 or greater and less than 16. Apart from Howick the CM Health local boards have higher rates than New Zealand with four local board areas having rates over

double that of New Zealand. The four local boards with particularly high non-enrolment rates are the local boards which are recognised as having high prevalence of poverty, and lower educational attainment. “The Southern Initiative” is part of the Auckland Council’s Auckland Plan which covers many areas of well-being especially areas important to young people. This includes “providing clear pathways and support for young people to achieve in education and employment” (Winnard et al, 2013).

Table 35: Rate of students non-enrolled per 1,000 students aged 6-16 years by ethnicity and local board in 2012

Local Board	Maaori	Pacific	Asian	Other	European /Pakeha*	Total
Auckland – Howick	9.3	3.6			0.9	1.6
Auckland Mangere –Otahuhu	40.2	14.6	6.0		7.1	17.6
Auckland- Manurewa	27.7	12.5			4.7	16.1
Auckland – Otara Papatoetoe	30.2	11.6	2.7		22.6	13.4
Auckland – Papakura	22.4	21.0			4.2	12.1
Franklin- Auckland	18.2	10.0			2.9	6.9
New Zealand	14.3	8.8	1.1	3.3	2.1	5.5

*This is the category description used by the education sector

Source: Ministry of Education, 2014b

The rates for females and males are similar in each local area except for Mangere-Otahuhu where the male rate of 20.9 per 1,000 is 50% higher than the female rate of 14.3 per 1,000 (Table 36).

Table 36: Rate of students non-enrolled per 1,000 students aged 6-16 years by gender and local board in 2012

Local Board	Female	Male	Total
Auckland – Howick	1.3	1.9	1.6
Auckland Mangere – Otahuhu	14.3	20.9	17.6
Auckland- Manurewa	16.8	15.4	16.1
Auckland – Otara Papatoetoe	14.0	13.0	13.4
Auckland – Papakura	11.0	13.2	12.1
Franklin- Auckland	8.1	6.0	6.9
New Zealand	5.5	5.5	5.5

Source: Ministry of Education, 2014b

A likely contributing factor for the high rates in CM Health overall, and the particular local board affected, is due to socio-economic deprivation. The New Zealand data for 2012 shows that with an increase in school socio-economic deprivation there was an increase in non-enrolled rates (Table 37).

Table 37: Rate of students non-enrolled per 1,000 students aged 6-16 years by school quintile of socio-economic deprivation in 2012, national data

Quintile	Maaori	Pacific	Asian	Other	European /Pakeha*	Total
1	22.7	12.5	3.3	15.7	9.6	16.6
2	15.5	8.3	1.5	4.4	3.7	8.4
3	11.4	5.8	1.6	3.7	2.4	4.8
4	5.9	4.2	0.8	1.6	1.5	2.2
5	4.0	2.1	0.5	1.2	0.7	1.0
NZ Total	14.3	8.8	1.1	3.3	2.1	5.5

Note Quintile 1 is the most socio-economically deprived quintile in this table

*This is the category description used by the education sector

Source: Ministry of Education, 2014b

The number of students not enrolled disaggregated by their school attended prior is shown below in Table 38. This is the last school the student was enrolled with before they became non-enrolled.

Table 38: Number of students non-enrolled - by school attended prior to becoming not enrolled in 2013 for schools in CM Health area

School	Number	Percentage
James Cook High School	29	13%
Papakura High School	23	11%
Alfriston College	19	9%
Manurewa High School	12	6%
Pukekohe High School	11	5%
Southern Cross Campus	11	5%
Tuakau College	11	5%
Edgewater College	8	4%
Tangaroa College	8	4%
Rosehill College	7	3%
Waiuku College	5	2%
Roscommon School	5	2%
All Others*	85	31%
Total	217	

*42 schools had between 1 and 4 Students Non-enrolled in 2013

Source: Ministry of Education, Mangawhau Office

The above table gives total number non-enrolled, not a rate of non-enrolled. If non-enrolment is used as a proxy for high health need, it should therefore be used as a guide to absolute health need rather than a relative health need.

Stand Downs

A school can stand down a pupil for up to five days in a school term and 10 days in a school year. At the end of the stand down period a student automatically returns to the school. The number of stand downs by local board and ethnicity is shown in Table 39.

Table 39: Number of Stand downs in 2013 from CM Health area schools by local board and ethnicity

Local Board	Maaori	Pacific	Asian	Other	Asian or Other*	Asian Pacific or Other*	Total
Auckland – Howick	42	29	56	122			249
Auckland Mangere – Otahuhu	44	101			18		163
Auckland- Manurewa	265	168	14	45			492
Auckland – Otara Papatoetoe	102	265	53	27			438
Auckland – Papakura	225	53	5	84			367
Auckland – Franklin	119	19			144		282
Hauraki District – Franklin							0
Waikato District - Franklin	44					36	80
Total	841	627	137	466			2,071

*Where numbers for individual ethnicities are <5, numbers are combined

Source: Ministry of Education, Mangawhau Office

The stand down rate for CM Health region by ethnicity is shown in Table 40. The denominator for this is all enrolments aged greater than or equal to 5 to less than 20 years old. Of note the Maaori rate is nearly double the average rate for the CM Health area (Table 39). National figures by ethnicity were similar in 2013 (Table 41).

Table 40: Rate of Stand downs per 1,000 students aged 5-19 for CM Health area schools by Ethnicity 2013

Schools in CM Health area	Maaori	Pacific	Asian	Other	Total
Roll	19,272	26,999	16,998	26,889	90,158
Rate per 1,000 students	43.6	23.2	8.1	17.3	23.0

Source: Ministry of Education, Mangawhau Office

Table 41: Rate of Stand downs per 1,000 students aged 5-19 for New Zealand by Ethnicity 2013

New Zealand rate	Maaori	Pacific	Asian	Other	European / Pakeha	Total
Rate per 1,000 students	39.1	26.7	5.3	14.1	16.3	21.6

Source: Ministry of Education, 2014c

The most common reasons for stand downs across CM Health schools were physical assault on other students (29%), continual disobedience (15%), drugs (11%) and verbal assault on staff (11%) as shown in Table 42.

Table 42: Number of Stand downs in Counties Manukau Health area schools in 2013 by behaviour/reason for stand down

Behaviour reason for stand Down	Total	Percent of all stand downs
Alcohol	79	4%
Arson	5	0.2%
Continual Disobedience	321	15%
Drugs(Including substance abuse)	238	11%
Other harmful or dangerous behaviour	228	11%
Physical assault on other students	600	29%
Physical assault on Staff	58	3%
Sexual Harassment	11	0.5%
Sexual misconduct	10	0.5%
Smoking	54	3%
Theft	130	6%
Vandalism	51	2%
Verbal assault on other students	38	2%
Verbal assault on staff	227	11%
Weapons	21	1%
Total	2,071	100%

Source: Ministry of Education, Mangawhau Office

The number of stand downs by school is shown below in Table 43.

Table 43: Number of Stand downs in 2013 in CM Health region by school

School	Number	Percentage of CM Health stand downs
Aorere College	176	8.5%
Manurewa College	175	8.5%
Papakura High School	135	6.5%
Rosehill College	118	5.7%
Papatoetoe High School	115	5.6%
James Cook High School	107	5.2%
Waiuku College	93	4.5%
Pukekohe High School	71	3.4%
Pakuranga College	63	3.0%
All Others*	1,018	49.2%
Total	2,071	100%

*97 schools had between 1 and 62 stand downs in 2013

Source: Ministry of Education, Mangawhau Office

Table 43 above gives total stand downs, not a rate of stand downs. If Stand Down is used as a proxy for high health need, it should therefore be used as a guide to absolute health need rather than a relative health need.

Suspensions

A suspension is when a student is formally removed from a school until the suspension is reviewed by the board of trustees. The outcome of the review can include excluding the student (meaning the student can no longer enrol at that school) or expelling the student (meaning the student cannot enrol at any school).

The decisions made for the 316 suspensions across schools in the CM Health area in 2013 were

- Lifting the suspension without conditions 14,
- Lifting the suspension with conditions 118,
- Extending the suspension 48,
- Excluding the student 121,
- Expelling the student 15.

As shown in Table 44 below, 136 of the 316 suspensions (43%) for CM Health area were for Maori students. The rates by ethnicity are shown in Table 45.

Table 44: Number of suspensions in CM Health area schools in 2013 by local board and ethnicity

Local Board	Maori	Pacific	Asian	Other	Asian Pacific or Other*	Asian, Maaori or Other*	Total
Auckland – Howick	10	6	10	28			54
Auckland Mangere – Otahuhu	10				16		26
Auckland- Manurewa	44	14		9			67
Auckland – Otara Papatoetoe		49				19	68
Auckland – Papakura	31	6		11			48
Franklin -Hauraki District							0
Franklin- Waikato District	10				13		23
Auckland- Franklin	14				16		30
Total	136	92	11	77			316

*Where numbers for individual ethnicities are <5, numbers are combined

Source: Ministry of Education, Mangawhau Office

The rate of suspensions by ethnicities is provided below. The denominator for this was all enrolments aged greater than or equal to 5 to less than 20 years old. The Maaori rate for suspensions was slightly over double the average for CM Health area. This was very similar to the stand-down rate, shown in the section above, with Maaori rate was almost double the average rate. The New Zealand rates by ethnicity had a similar pattern in 2013 (Table 46).

Table 45: Rate of suspensions in 2013 per 1,000 students aged 5-19 years by ethnicity for CM Health area schools

CM Health area schools	Maaori	Pacific	Asian	Other	Total
Roll	19,272	26,999	16,998	26,889	90,158
Rate per 1,000 students	7.1	3.4	0.6	2.9	3.5

Source: Ministry of Education, Mangawhau Office

Table 46: Rate of suspensions in 2013 per 1,000 students aged 5-19 years by ethnicity for New Zealand

New Zealand rate	Maaori	Pacific	Asian	Other	European / Pakeha	Total
Rate per 1,000 students	9.1	4.3	0.7	2.4	2.9	4.3

Source: Ministry of Education, 2014c

The most common reasons for suspension across CM Health schools were drugs (24%), continual disobedience (22%), and physical assault on other students (16%) as shown in Table 47.

Table 47: Number of suspensions in 2013 by behaviour /reason for suspension

Behaviour reason for Suspension	Total	Percentage
Alcohol	6	2%
Continual Disobedience	68	22%
Drugs (Including substance abuse)	76	24%
Other harmful or dangerous behaviour	32	10%
Physical assault on other students	52	16%
Physical assault on Staff	15	5%
Sexual Harassment and Misconduct	8	3%
Theft	21	7%
Vandalism	4	1%
Verbal assault on other students	7	2%
Verbal assault on staff	9	3%
Weapons	18	6%
Total	316	100%

Source: Ministry of Education, Mangawhau Office

The number of suspensions by school is shown below in Table 48.

Table 48: Number of suspensions in CM Health area in 2013 by School

School	Number	Percentage
Pakuranga College	27	8%
Aorere College	21	7%
Rosehill College	18	6%
Sir Edmund Hillary	15	5%
Onewhero Area School	14	4%
Pukekohe High School	14	4%
James Cook High School	13	4%
Alfriston College	12	4%
Papakura College	11	3%
Clayton Park School	9	3%
Howick College	9	3%
Randwick Park School	9	3%
All Others*	144	46%
Total	316	

*45 schools had between 1 and 8 suspensions in 2013

Source: Ministry of Education, Mangawhau Office

The above table gives total suspensions, not a rate of suspensions. If suspension is used as a proxy for high health need, it should therefore be used as a guide to absolute health need rather than a relative health need.

Not in Education, Employment or Training (NEET)

Young people not in education, employment or training (NEET) may miss out on developing skills which could affect their long term employment possibilities. This may lead to an increase in risk taking and increased health needs.

NEET data can come from different sources. One source is the Ministry of Social Development (MSD) which is shown in Table 49. Their definition is people aged less than 19 years who are registered with the Ministry's youth service. The area for CM Health was defined by income service centres in Clendon, Highland Park, Hunters Corner, Mangere, Manukau, Manurewa, Otahuhu, Otara, Papakura, Papatoetoe, Pukekohe and Waiuku. Information was obtained via the Official Information Act.

In providing their data they noted that as at June 2014 82% of the young people registered in their scheme *were* involved with education, training or work based training. Unfortunately ethnicity was "Not Stated" for 70% of CM Health and 40% of National data so is not useful. CM had a slight female dominance (59%). Using estimated resident population for 16-18 year olds for CM Health and New Zealand as a denominator, CM Health appears to have higher rates for males (6.2%) and females (9.3%) than nationally (4.0% and 4.6% respectively).

Table 49: Numbers of under 19 year olds registered in Ministry of Social Development NEET Scheme as at September 2013 by age group and gender

	Age <18	Age 18	Male	Male %	Female	Female %	Total	Total %
National	6,800	1,200	3,800	4.0%	4,100	4.6%	8,000	4.3%
CM Health	1,620	260	760	6.2%	1,100	9.3%	1,880	7.8%

Source: Ministry of Social Development

Another source of NEET data, which reports national numbers three times higher than the MSD numbers, is the Household Labour Force Survey by Statistics NZ. This could have been sourced by ethnicity and age group for CM Health but was not due to the price requested for this. In December 2013 this classified nationally 25,000 15-19 year olds as NEET (8.1% of the population of that age) and 47,000 20-24 year olds (14.3% of population aged 20-24 years). For 15-24 year olds the percentage was 11.3% of the population of that age (Statistics New Zealand, 2014).

In 2011 the Household Labour Force Survey for New Zealand NEET percentage for those aged 15-24 years of 12.5% was just higher than the OECD average of 12.2%.

Special education schools

New Zealand students attend special schools for a variety of reasons and in a variety of different ways. The special schools may be set up to educate students with a specific disability such as deafness, visual impairment or a specific cause of disability such as cerebral palsy. Others special schools may serve students with severe behavioural or intellectual problems. Attendance can vary from mainstream, in a regular classroom in a regular school, to at a special facility. Some facilities are day only and there are also six residential special schools in New Zealand. Some students stay in special schools to the age of 21.

It is important to ensure that these young people receive assistance directly related to their disability but also receive “routine healthcare”, for example immunisations and dental care, along with consideration of wider risk and resilience as for other young people.

As shown in Table 50, there are a number of special schools with their base or satellite unit/s in the Counties Manukau Health area.

The Blind and Low Vision Education Network New Zealand provides education for children with low vision, and has students at three sites in CM Health. The Kelston Deaf Education Centre School provides education for hearing impaired students and has three satellite units in CM Health Area. Both of these may assist in service provision for students who are enrolled at other schools.

Mt Richmond, Parkside, Rosehill, Sir Keith Park and Sommerville schools provide services for students with intellectual disabilities, although a significant number of the students have physical disabilities as well.

Note: The roll numbers provided are the special school’s full roll across all locations, so the number at schools in CM Health would be lower for Kelston Deaf Education Centre, Mt Richmond School and Sommerville. The number of sites in CM is the number of satellites plus the main school and was obtained by phoning the schools in August 2014. Many of the satellites are physically adjacent to another satellite and in a main stream school and this is counted as two sites.

Table 50: Numbers of students aged 5-21 year olds in special education schools in CM Health area as at 1 July 2013 by school and gender

School Name	Location within Counties Manukau	Number of sites in CM	Female	Male	Total
Blind and Low Vision Education Network NZ	National school based in Manurewa	3	16	25	41
Kelston Deaf Education Centre	Regional schools with satellites in Pukekohe and Flat Bush	3	46	57	103*
Mt Richmond School	Otahuhu	7	34	88	122*
Parkside School	Pukekohe	11	42	83	125
Rosehill School	Manurewa/Papakura	11	50	115	165
Sir Keith Park School	Mangere	9	52	86	138
Sommerville School	Crosses ADHB and CM Health areas	5	64	143	207*
Total			304	597	901*

Source: Ministry of Education, Mangawhau Office

* Includes number for locations in ADHB areas

Note - The age range for this is 5-21 years old students

Education and Training summary

Maaori students in schools in the CM Health area have twice the rate of suspensions and stand downs compared to the average for CM Health. Maaori students also have a higher rate for non-enrolment and in 2013 had a higher rate in alternative education. This inequity by ethnicity was similar in national data. The number of 5-21 year olds enrolled in special schools in CM Health is probably over 500.

Health and Access to Healthcare

“Adolescence is generally a stage of life that is associated with good health and the majority of adolescent health problems are preventable” (Viner et al, 2012 Cited by: Clark et al, 2013a)

General Health

A high number of students in the Youth’12 survey (91%/ 88%) reported that their general health was excellent, very good or good. This was despite the fact that 20% /16% of the students reported that they had a chronic health condition and 9%/7% reported they had a chronic disability.

Analysis of the 2007 Youth survey results (Denny et al, 2013) found that nationally 18% of students had either a chronic health problem or a chronic disability. Among these 18% of students, 35% reported that their disability or illness impacted either their ability to do activities or impacted on their ability to socialise. If these figures were applied to the 120,000 CM Health young people then 21,600 (18% of 120,000) had a chronic illness or disability and 7,500 (35% of 21,600) young people had a chronic health problem or chronic disability that impacted their ability to perform activities and/or socialise. Arguably it is the young people with chronic illness or disability that impacts significantly on their activities who require specialist youth health services.

Access to Healthcare

About three quarters (79%/75%) of young people had received some form of healthcare in the last 12 months. The most common place students accessed healthcare was a family doctor, medical clinic or GP clinic (74%/71%). Other places students reported attending were a school health clinic (22%/18%), a hospital Accident and Emergency (A&E) department (16%/12%) and an after-hours A&E clinic (14%/14%) (Table 51 and Figure 8).

The percentage visiting a hospital A&E department was statistically significantly lower for Counties Manukau than nationally whilst the after-hours A&E use was similar. This could be due to a decreased clinical need for hospital A&E services and could relate to health services provided elsewhere, such as GP services and school clinics, helping young people to manage their health so they do not need to attend a hospital A&E. Of note, research by the Adolescent Research Group using Youth’12 data, showed an association between schools which provided health services and less hospital A&E attendance by the students (Denny et al, 2014). The association was stronger in schools which had greater than 2.5 hours of nursing time per 100 students and in schools which performed routine HEEADSSS assessments. A HEEADSSS assessment is a psychosocial risk assessment tool (Denny et al, 2014) that

asks questions on Home, Education, Employment, Eating, Activities, Drugs, Sexuality, Suicide and Safety (Yeo et al,2005).

The New Zealand Health Survey conducted over 2011-13 had similar results with 15-24 year olds who had visited a GP in the last 12 months being 69% nationally and 68% for CM Health.

Table 51: Percentage of students accessing healthcare in last 12 months by type of healthcare

Accessed in past 12 months	National Percentage (CI)	CM Health Percentage (CI)
Any	79.1% (77.5-80.7)	74.8% (70.7-78.7)
A General Practitioner	74.2% (72.5-75.9)	71.1% (67.5-74.8)
School Health Clinic	18.2% (15.2-21.2)	22.1% (16.2-28.0)
Hospital A&E Dept.	15.8%* (14.3-17.3)	12.1%* (10.4-13.8)
After hours A&E	14.3% (12.2-16.3)	13.6% (8.3-18.8)
Pharmacy	29.2% (26.7-31.8)	23.1% (18.2-28.0)
Sexual Health Service	4.3% (3.6-5.0)	3.1% (1.9-4.3)
Alternative Health Worker	3.4% (2.7-4.0)	2.3% (1.0-3.6)
Youth centre	1.0% (0.7-1.3)	0.8% (0.2-1.5)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

The alternative health worker in Table 51 could have been a naturopath, homeopath, acupuncturist, herbalist and aromatherapist but it did not include a traditional healer such as a tohunga or fofo.

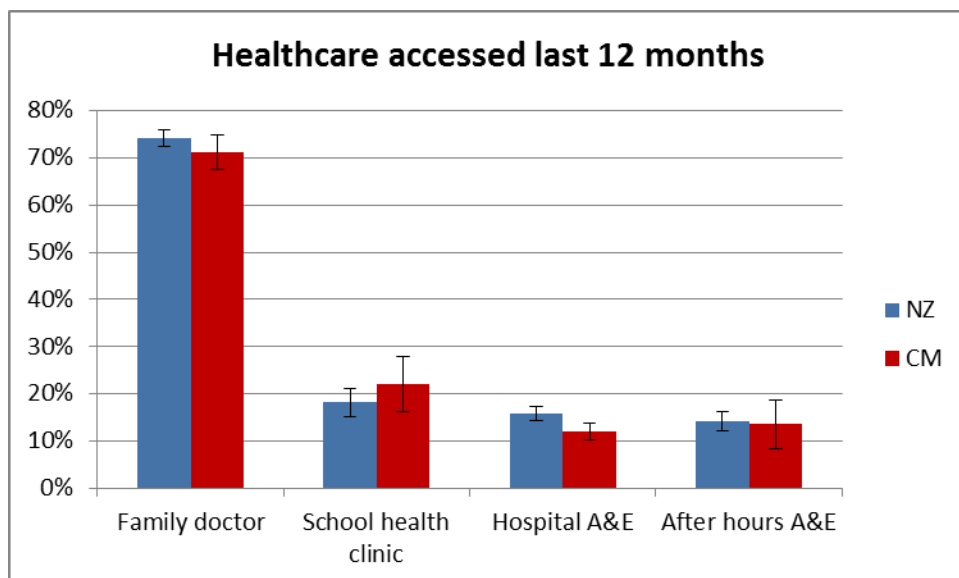


Figure 8: Percentage of NZ and CM Health students to access healthcare in past 12 months by type of healthcare

(Error bars represent 95% CIs)

“It is important to note that being seen in private and reassured of confidentiality is key to young people discussing important Health issues” (Clark et al, 2013a).

However of the students who had accessed healthcare in the last 12 months, only 37%/32% reported having the chance to talk with a doctor or other health professional in private (Table 52) and only 46%/45% had been assured that their healthcare services would be confidential (Table 53). Both of these were more likely to be reported by older students. Even for the older CM Health students, those aged 16 and over, less than half reported having the chance to meet with the health professional in private. Also only just over half (53%) of these older CM Health students reported being assured the services would be confidential.

Table 52: Percentage of students who got a chance to talk to the health provider in private (Not with parents) by age group

Talked with health provider in private	Younger students NZ 13 and Under, CM 15 and under	Older students NZ 17 and older, CM 16 and older	Total
National Percentage	23.3% # (20.8-25.7)	57.5% # (53.6-61.4)	36.8% (34.9-38.7)
CM Health Percentage	26.7% † (23.3-30.2)	44.2% † (38.9-49.7)	32.4% (29.0-35.8)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Table 53: Percentage of students who were assured on confidentiality by health provider by age group

Health Provider assured confidentiality	Younger students NZ 13 and Under, CM 15 and under	Older students NZ 17 and older, CM 16 and older	Total
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National Percentage	35.6% # (32.8-38.3)	55.7% # (51.5-59.9)	46.0% (43.6-48.3)
CM Health Percentage	41.6% † (35.4-47.9)	52.5% † (43.4-61.5)	45.1% (39.6-50.6)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

One in five students reported that they had been unable to access healthcare when they needed to at some time in the last 12 months (19%/21%) (Table 54). Nationally this was more common among female students (21%) than male students (16%) and more common among students from high socio-economic deprivation neighbourhoods (22%) compared with students from low deprivation neighbourhoods (16%) (Table 55 and Figure 9). For CM Health students from high deprivation schools a higher percentage (24%) reported they not been able to access healthcare when they need to than students from low deprivation schools (16%) (Table 55 and Figure 9).

Table 54 : Percentage of students unable to access healthcare past 12 months by gender

Unable to access healthcare sometime in past 12 months	Males	Females	Total
National Percentage	15.6% # (14.3-16.8)	21.1% # (19.6-22.6)	18.6% (17.6-19.6)
CM Health Percentage	17.4% (12.7-22.0)	23.0% (19.1-26.8)	20.7% (17.5-23.9)

Statistically significant difference between groups in National cohort

Table 55: Percentage of students unable to access healthcare past 12 months by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health))

Unable to access healthcare sometime in past 12 months	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	22.0% # (20.3-23.6)	18.3% (17.0-19.5)	15.5% # (13.9-17.1)
CM Health Percentage	23.7% † (20.5-27.0)	21.5% (19.9-23.2)	16.2% † (12.9-19.5)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

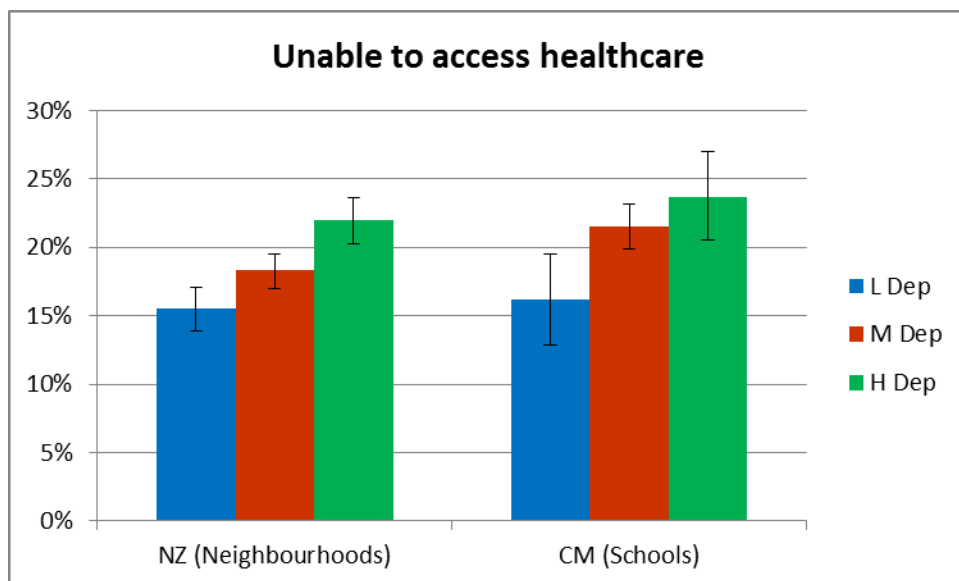


Figure 9: Percentage of students unable to access healthcare past 12 months by socio-economic deprivation of neighbourhood (for national data) or school (for CM Health)
(Error bars represent 95% CIs)

Those who had been unable to access healthcare were asked to indicate one or more reasons why they had not been able to access healthcare. The most common reasons were (Table 56):

- hoping that the problem would go away or get better over time (51%/54%);
- not wanting to make a fuss (46%/46%);
- having no transport to get there (28%/33%);
- they were too scared 27%/32% (being too scared was the reason with the biggest difference between females (34%/41%) and males (14%/13%) for both the national and the CM cohort);
- they were too embarrassed (30%/30%);
- they did not know how (23%/27%).

Table 56: Percentage of students unable to access healthcare past 12 months by reason

Reason unable to access healthcare sometime in past 12 months	National Percentage (CI)	CM Health Percentage (CI)
Hoping to get better	51.1% (47.7-54.4)	53.6% (44.1-63.1)
Not wanting to make a fuss	46.2% (43.2-49.1)	46.4% (37.6-55.1)
No transport	27.7% (25.4-30.0)	33.0% (28.6-37.3)
Too Scared- Male	14.3% # (11.7-17.0)	13.4% † (6.6-20.3)
Too Scared – Female	33.9% # (30.7-37.2)	41.3% † (36.3-46.3)

Too Embarrassed	29.6% (26.9-32.2)	29.9% (24.0-35.9)
Did not know how	23.0% (20.5-25.4)	27.5% (21.7-33.2)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

The New Zealand Health Survey conducted over 2011-13 had a slightly different measurement of “experienced unmet need for primary health care in the past 12 months”. NZHS results for 15-24 year olds being 23% nationally and 18% for CM Health (Not statistically significantly different).

Access to Dental Care

Almost all students responding to the Youth'12 survey (94%/94%) had seen a dentist in the last two years. Most (72%/70%) reported having had a tooth filled, 24%/26% reported experiencing pain in their teeth or mouth that had kept them awake at night and 14%/14% reported that they had had teeth removed due to decay or gum infection.

About 10% of students [in the national Youth'12 cohort] had been unable to access dental care when they needed to at some time in the last 12 months. This was more common among students living in high deprivation neighbourhoods (13%), compared with those living in medium (9%) and low (7%) deprivation neighbourhoods.

Health and access to healthcare in Youth'12 summary

The most common place for students to access healthcare was the family doctor, medical clinic or GP clinic which was accessed by over two thirds in the last 24 months. CM Health students reported attending a hospital A&E less than the national percentage. One in five young people reported not accessing healthcare in the last 12 months when they needed it. The majority of young people who do access care were not being assured of confidentiality and the chance to talk in private. The most common reasons for not accessing healthcare were hoping that the problem would go away and not wanting to make a fuss.

Emergency Department Presentations

Counties Manukau Resident Youth View

There were 17,800 presentations to a public hospital emergency department (ED) by young people aged 10-24 years resident in CM Health in FY 2012/13, (July 2012-June 2013). This includes people who were subsequently admitted (under care for more than 3 hours) and those seen and discharged.

There was an average of 49 presentations per day. There was a small variation by day with an average of 48 presentations on school days, 53 on weekends, 52 on public holidays and 43 on other school holidays (Table 57).

Table 57: Average daily number of ED presentations for CM Health domiciled young people aged 10-24 years FY 2012/13 by type of day to hospital ED aged 10-24 FY 2012/13

Type of day	Average number of Presentations by CM Health young people
Weekend	53.3
Public Holiday	51.8
School Holiday	43.3
School Day	48.2
Yearly	48.9

The majority of these presentations were at Middlemore hospital 13,800 (77%), with another 2,300 (13%) at other Auckland region emergency departments and 1,800 (10%) at NZ emergency departments outside the Auckland region. (Table 58 and Table 59)

An Australasian-wide system is used in emergency departments to triage patients to five groups based on the recommended maximum time a patient should wait before be seen by a doctor (Triage 1 - 2 minutes, Triage 2 - 10 minutes, Triage 3 - 30 minutes, Triage 4 - 60 minutes and Triage 5 - 120 minutes). Of the 17,800 presentations by young people 15,750 (88%) were triage 3 and 4. (Tables 58 and 59)

Table 58: ED presentations for CM Health domiciled young people age 10-24 years FY 2012/13 by treatment DHB and triage score

Treating DHB	Triage Score					Total
	1	2	3	4	5	
CM Health	103	800	6,450	6,000	430	13,800
Other Auckland DHB	28	200	800	1,150	160	2,300
Outside Auckland	9	100	550	850	250	1,750
Total	140	1,100	7,750	8,000	850	17,800
Percent	1%	6%	43%	45%	5%	

Source: NNPAC, Ministry of Health, Analysed by CM Health

Table 59: Percentage of triage scores for place of treatment for ED presentations of CM Health domiciled young people age 10-24 years FY 2012/13

Treating DHB	Triage Score					Total
	1	2	3	4	5	
CM Health	1%	6%	47%	44%	3%	77%
Other Auckland DHB	1%	8%	34%	50%	7%	13%
Outside Auckland	1%	5%	30%	49%	14%	10%
Total	1%	6%	43%	45%	5%	

Source: NNPAC, Ministry of Health, Analysed by CM Health

The volume of presentations per year of age for the 2012/13 FY increased notably between ages of 15 and 17 years (Figure 10), with the increase larger in females than males, so that the volume of presentations for all 20-24 years olds was 70% more than that of all 10-14 years olds (Table 60).

Table 60: Number of ED presentations for CM Health young people by age group and gender

Age Group (Years)	Male	Females	Total
10-14	2,400	1,900	4,300
15-19	2,900	3,200	6,100
20-24	3,250	4,200	7,450
Total	8,550	9,300	17,800

Source: NNPAC, Ministry of Health, Analysed by CM Health

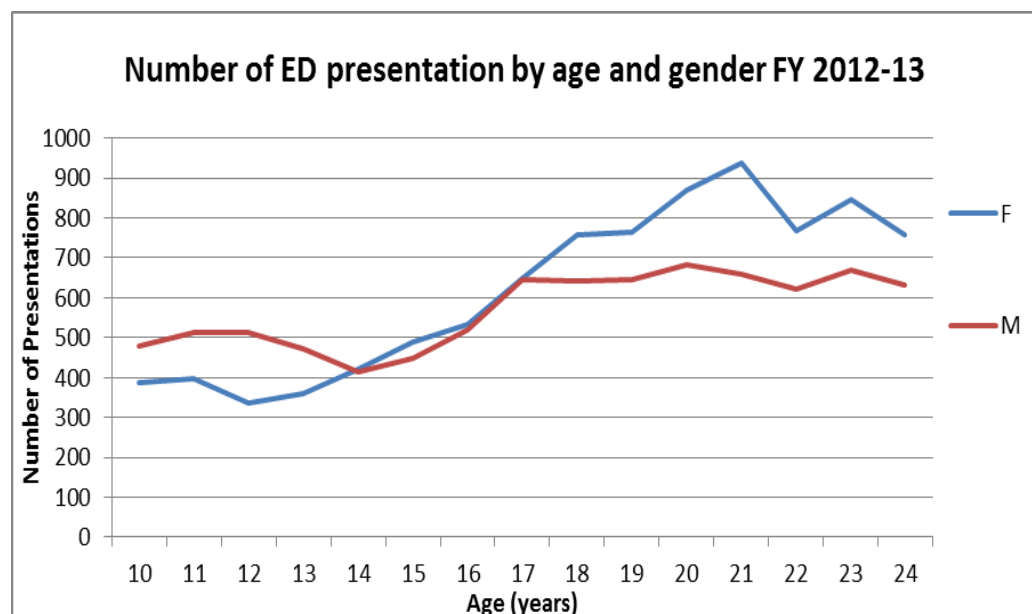


Figure 10: Number of ED presentations for CM Health domiciled young people by age, FY 2012/13

Source: NNPAC, Ministry of Health, Analysed by CM Health

There was a noticeable difference between the ethnic ratios of the underlying population and the presentations to emergency departments. The total number of presentations for Pacific young peoples was higher than for NZ European/Other groups despite the underlying population being of similar size. Similarly Maaori had a higher number of presentations than those identified as Asian despite similar population size (Table 60).

Expressed as a rate of presentation per 100 young people per year, as shown in Table 62, Maaori and Pacific had a similar total rate at 18.8 and 18.1 respectively. The NZ European/Other rate was less at 14.5 and the rate for those identified as Asian much lower at 6.8. The rates also demonstrate an increase across the age groups from 10.8 presentations per 100 young people per year for those aged 10-14 years to 18.3 per 100 young people per year for those aged 20-24 years (Table 62).

Table 61: ED presentations for CM Health domiciled young people age 10-24 years FY 2012/13 by ethnicity and age group

Age Group (Years)	Maaori	Pacific	Asian	NZ European/Other	Total	Percent
10-14	1,050	1,650	400	1,200	4,300	24%
15-17	850	1,100	252	1,050	3,300	18%
18-19	750	900	200	950	2,800	16%
20-24	1,950	2,500	800	2,200	7,400	42%
Total	4,650	6,150	1,700	5,400	17,800	
Percent	26%	34%	9%	30%	100%	

Source: NNPAC, Ministry of Health, Analysed by CM Health

Table 62: Rate of ED presentations per year for CM Health domiciled young people age 10-24 years FY 2012/13 by ethnicity and age group per 100 young people per year.

Age Group (Years)	Maaori	Pacific	Asian	NZ European/Other	Total
10-14	11.7	13.6	5.4	10.5	10.8
15-19	20.0	17.9	5.3	16.6	15.3
20-24	26.1	23.3	9.2	16.0	18.3
Total	18.8	18.1	6.8	14.5	14.8

Source: NNPAC, Ministry of Health, Analysed by CM Health

In addition to the 'event' view above, it is also possible to describe a 'person' view. There were 13,600 CM Health domiciled young people aged 10-24 years who presented to an emergency department somewhere in NZ in 2012/13. Of these 2,660 (22%) presented more than once in that year and these people who presented twice or more were responsible for 7,000 (39%) of all presentations. Only 160 individuals (1.1% of 13,600) presented between 5 and 16 times but this was responsible for 5.8% of all the presentations (Table 63).

Table 63: Number of presentations for CM Health young people who presented to an ED in FY 2012/13

Number of Presentations	Number of people	% of all people	Total number of presentations	% of all ED presentations
1	10,870	79.9%	10,870	61.0%
2	1,950	14.3%	3,900	21.8%
3	460	3.4%	1,370	7.7%
4	170	1.2%	660	3.7%
5 to 8	140	1.0%	800	4.6%
9 to 16	20	0.1%	220	1.2%
Total	13,600	100%	17,800	100%

Source: NNPAC, Ministry of Health, Analysed by CM Health

More females presented twice or more compared to males. The number of individual females and individual males for FY 2012/13 was the same at 6,800 as shown in Table 64. However, 1,500 females presented twice or more as opposed to 1,150 males. 43% of all female ED presentations and 34% of all male presentations were by individuals who were seen more than once in the 12 months July 2012 to June 2013 (Table 64). The higher number of multiple presentations by females is the reason the total number of presentations is higher, as shown by Table 65.

Table 64: Number of individual CM Health young people who presented to an ED in FY 2012/13 by gender and the number of presentations by the individual

Number of Presentations	Males	Females	Percent of all Males	Percent of all Females
1	5,600	5,300	82.5%	77.4%
2	890	1,050	13.0%	15.6%
3	183	273	2.7%	4.0%
4	64	102	0.9%	1.5%
5 to 8	52	87	0.8%	1.3%
9 to 16	6	14	0.1%	0.2%
All	6,800	6,800	100%	100%

Source: NNPAC, Ministry of Health, Analysed by CM Health

Table 65: Number of presentations to ED for CM Health young people in FY 2012/13 by gender and the number of presentations by the individual

Number of Presentations	Number of Male presentations	Number of Female Presentations	Percent of all Male ED presentations	Percent of all Female ED presentations
1	5,600	5,300	65.7%	56.7%
2	1,780	2,100	20.7%	22.8%
3	549	819	6.4%	8.8%
4	256	408	3.0%	4.4%
5 to 8	290	520	3.4%	5.6%
9 to 16	70	139	0.8%	1.7%
All	8,600	9,300	100%	100%

20-24 year olds were more likely to present to ED multiple times than 10-14 year olds (Table 66). Young people aged 20-24 years made up 44% (1,160/2,660) of the total population who attended more than once compared with only 22% (580/2,660) of the population aged 10-14 years.

Table 66: Number of individual CM Health young people who presented multiple times (>1) to EDs in 12 the 12 months of FY 2012/13, by age and gender

Age Group (Years)	Male	Female	Total
10-14	320	260	580
15-19	390	520	900
20-24	450	710	1,160
Total	1,150	1,500	2,660

Source: NNPAC, Ministry of Health, Analysed by CM Health

ED presentations were able to be linked (anonymously) to PHO enrolment information. 7% of all young people's presentations to an ED in FY 2012/13 were by people not enrolled with a PHO (as at the first quarter of FY 2013/14) (Table 67). The number of individuals from each location was also calculated. As shown in Table 67 the percent of individuals from each location essentially matched the percent of all presentations to ED from the location.

Table 67: Number of young people's presentations to ED and number of individuals in FY 2012/13 by the location of their GP practice

Practice Location	Number of presentations	Percent of presentations	Number of individuals	Percent of Individuals
Eastern	1,700	10%	1,300	10%
Franklin	950	5%	750	6%
Mangere /Otara	5,500	31%	4,100	30%
Manukau	5,050	28%	3,700	27%
Not enrolled	1,250	7%	1,100	8%
Otahuhu	850	5%	650	5%
Other	2,500	14%	1,950	15%
Total	17,800	100%	13,600	100%

Source: NNPAC, Ministry of Health, Analysed by CM Health

Middlemore Hospital Service View

Instead of taking a Counties Manukau domiciled view a Middlemore health service view can be taken. There were 17,400 presentations for young people aged 10-24 years to Middlemore Hospital (MMH) emergency departments (Kidz First and Adult) in the 2012/13 financial year (July 2012- June 2013). This includes people who were subsequently admitted (under care for more than 3 hours) and those seen and discharged. It includes all those who presented to MMH, whether they were Counties Manukau residents or living in another DHB area. There was a daily average of 47 presentations on school days, 51 on weekends, 47 on public holidays and 42 on other school holidays (Table 68).

Table 68: Average number of presentations to MMH ED by day of week, young people aged 10-24 years FY 2012/13

Type of day	Average number of Presentations to MMH facilities
Weekend	51.1
Public Holiday	47.0
School Holiday	41.6
School Day	47.4
Yearly	47.7

Source: NNPAC, Ministry of Health, Analysed by CM Health

As previously stated an Australasian-wide system is used in emergency departments to triage patients to five groups based on the recommended maximum time a patient should wait before be seen by a doctor (triage1 - 2 minutes, triage 2 - 10 minutes, triage 3 - 30 minutes, triage4 - 60 minutes and triage 5 - 120 minutes). For the 17,400 MMH presentations, 6.5% were triage 1 or 2 and 90% were triage 3 or 4 (Table 69).

Table 69: Number of Presentations to MMH ED by young people aged 10-24 years FY 2012/13 by Triage Score

Triage Score	Number of Presentations to MMH facilities	Percent of total presentations
1	135	0.8%
2	1,000	5.7%
3	7,900	45.3%
4	7,800	45.0%
5	600	3.3%
Total	17,400	

Source: NNPAC, Ministry of Health, Analysed by CM Health

Of the 17,400 presentations, 13,800 (79%) were by Counties Manukau domiciled young people, 2,500 (14%) by young people living in other parts of Auckland and 1,150 (7%) by young people domiciled outside of Auckland (Table 70).

Table 70: Number of ED presentations to MMH by DHB of Domicile young people 10-24 years FY 2012/13

DHB of domicile	Number of presentations	Average Presentations per day
CM Health	13,800	37.8
Other Auckland DHBs	2,450	6.8
Out of Auckland	1,150	3.2
Total	17,400	47.7

Source: NNPAC, Ministry of Health, Analysed by CM Health

There were more presentations to ED in older age groups than younger age groups, those 10-14 years constituted 21% of ED presentations in the 2012/13 FY while those 20-24 years constituted 44% (Table 71).

The 6,400 presentations by young people of Pacific ethnicity meant they had the largest number of ED presentations by ethnic group. NZ European/Other had a slightly higher number (4,900), than Maaori (4,400) and Asian groups (1,700) had the smallest numbers. (These numbers are not translated into rates as there is no clear denominator for the MMH facilities view).

Table 71: Number of ED presentations to MMH young people aged 10-24 years FY 2012/13 by ethnicity and age group

Age Group	Maaori	Pacific	Asian	NZ European/ Other	Total	Percent of total
10-14	880	1,550	350	900	3,700	21%
15-17	830	1,150	250	1,000	3,300	19%
18-19	770	950	200	900	2,800	16%
20-24	1,900	2,700	850	2,100	7,600	44%
Total	4,400	6,400	1,700	4,900	17,400	
Percent of total	25%	37%	10%	28%	100%	

Source: NNPAC, Ministry of Health, Analysed by CM Health

Emergency Department presentations Summary

There were 17,800 emergency department presentations by young people from CM Health in FY 2012/13. Almost 90% of these were triage three and four, meaning they were required to be seen in 30 minutes and 60 minutes respectively. Presentations by both male and female increased with age but more so for females. Female presentations increased from 400 per year for 10 year olds to 800 per year for 18 year olds. About 45% of all female presentations were by people who presented twice or more to an EC somewhere in NZ in that year. There were ethnic inequities with ED presentations by Maaori (18.8 per 100 people per year) and Pacific (18.1/100 people/year) young people higher than the rate for NZ European /Other (14.5/100 people/year) and Asian young people (6.8/100 people/year). Middlemore hospital had 17,400 ED presentations by young people in the same time period, 13,800 of these by CM Health young people and 3,600 presentations by young people from other DHBs.

Inpatient hospitalisations

Counties Manukau domiciled young people aged 10-24 years had approximately 11,000 casemix funded hospitalisations (anywhere in NZ) per year over the five FYs 2008/09 – 2012/13 (July 2008 and June 2013). This 11,000 per year excluded cases that are not casemix funded and also excluded cases which were managed by Mental Health or Maternity services. The numbers were fairly static each year except for 20-24 year olds (Table 72). There was a 10% increase in the number of 20-24 year old hospitalisations between 2009/10 and 2010/11 and then the number plateaued at the higher level. This increase could be due to a population increase, as the 20-24 year old age group was projected to increase from 2006 to 2012 and then remain static (as covered in the demography section of this report (Figure 1)).

The younger age group, 10-14 year olds, had less hospitalisations per year (approximately 2,800 per year), than 15-19 year olds (4,000 per year) and 20-24 year olds (4,200 per year) over the five FYs 2008/09–2012/13 (Table 72).

Table 72: Number of hospitalisations for CM Health young people by year and by age group FYs 2008/09 - 2012/13

Age group	2008/09	2009/10	2010/11	2011/12	2012/13
10-14	2,850	2,800	2,800	2,900	2,800
15-19	4,050	3,850	4,050	4,100	3,850
20-24	3,900	3,900	4,350	4,400	4,350
Total	10,900	10,600	11,200	11,400	11,000

Source: NMDS, Ministry of Health, Analysed by CM Health

The average number of hospitalisations per year by ethnicity is shown in Table 73.

Table 73: Average number of hospitalisations for CM Health young people per year by ethnicity FYs 2008/09 - 2012/13

Ethnicity	Average Hospitalisations per year	Percentage of hospitalisations
Maaori	2,800	25%
Pacific	3,650	33%
Asian	1,000	9%
NZ European / Other	3,500	32%
Total	11,000	

Source: NMDS, Ministry of Health, Analysed by CM Health

When expressed as a rate (hospitalisations per 100 people) Pacific and Maaori young people had higher rates and Asian groups lower rates than the average total population rate for CM Health young people as shown in Table 74. Given the demography of an increasing percentage of CM young people being of Pacific ethnicities, if hospitalisations for Pacific young people continue at this higher rate, it

could lead to an increase in hospitalisations for the population aged 10-24 years despite a static overall size for the population of that age.

Table 74: Hospitalisation rate per 100 young people per year by ethnicity FY 2008/09 – 2012/13

Ethnicity	Hospitalisation rate (per year per 100 people)
Maaori	11.5
Pacific	10.9
Asian	4.1
NZ European / Other	9.4
Total	9.2

Source: NMDS, Ministry of Health, Analysed by CM Health

There were more female young people hospitalised than male young people hospitalised as shown in Table 75. In total for the five years examined, 52.6% of the hospitalisations were female and 47.3% male.

Table 75: Number of hospitalisations for CM Health young people by year by gender FY 2008/09 - 2012/13

Gender	2008/09	2009/10	2010/11	2011/12	2012/13
Male	5,200	5,100	5,300	5,400	5,100
Female	5,700	5,500	5,900	6,000	5,950
Total	10,900	10,600	11,200	11,400	11,000

Source: NMDS, Ministry of Health, Analysed by CM Health

This pattern by gender was different across the age groups. For 10-14 year olds there were more male hospitalisations than female hospitalisations per year but for the age groups 15-19 and 20-24 years there were more female hospitalisations per year (Table 76).

Table 76: Number of hospitalisations for CM Health young people per year by gender and age group FY 2008/09 - 2012/13

Age group	Average yearly number of Male hospitalisations	Male % of age group	Average yearly number of Female hospitalisations	Female % of age group
10-14	1,550	55%	1,250	44%
15-19	1,850	46%	2,150	54%
20-24	1,800	43%	2,400	57%
Total	5,200	47%	5,800	53%

Source: NMDS, Ministry of Health, Analysed by CM Health

For the five year FYs 2008/09 – 2012/13 on average 21% of hospitalised young people were discharged from Medical teams, 27% discharged from an Emergency Department team and 52% from Surgical teams (Table 77). Not all of the young people discharged from Medical and Surgical teams necessarily went to a physical bed in a Medical or Surgical ward; they may have been under the care of the Medical or Surgical team at the time of discharge and been located in the emergency department.

Table 77: Average number of hospitalisations for CM Health young people per year by health specialty FY 2008/09 – 2012/13

Specialty	Average number of hospitalisations per year	Percent of hospitalisations
Medical	2,300	21%
Emergency	3,000	27%
Surgical	5,700	52%
Total	11,000	100%

Source: NMDS, Ministry of Health, Analysed by CM Health

For Counties Manukau domiciled young people aged 10-24 years, 72% of those hospitalised were discharged from Middlemore hospital and 18% from Auckland DHB facilities over the five FY 2008/09 – 2012/13 as shown in Table 78. However the pattern varied over the age groups; for 10-14 year olds 53% were discharged from MMH and 35% from Auckland DHB facilities, whereas for 20-24 year olds 81% of hospitalisations were at Middlemore.

Table 78: Average number of hospitalisations for CM Health young people per year by discharge hospital and age group FY 2008/09 – 2012/13

Hospital	10-14 year olds		15-19 year olds		20-24 year olds		10-24 year olds	
	Dischs.	%	Dischs.	%	Dischs.	%	Dischs.	%
MMH	1,500	53	3,000	75	3,400	81	7,900	72
MSC	250	9	250	7	250	6	750	7
ADHB	1,000	35	600	15	450	10	2,000	18
Other	100	3	150	3	150	4	350	3
Total	2,850		4,000		4,250		11,000	

Source: NMDS, Ministry of Health, Analysed by CM Health

Counties Manukau Health has two facilities providing casemix funded hospitalisations. Most of Counties Manukau’s hospitalisations were discharged from Middlemore Hospital (7,900) and a much smaller number from Manukau Super Clinic (750), which was built in 1997 as an outpatient and elective services facility (Table 79). The number of bed days, the sum of all the midnights spent in hospital, was also much larger for Middlemore (13,000) than Manukau Super Clinic (400).

Table 79: Number of hospitalisations and bed days per year for CM area youth treated by CM Health by facility FY 2008/09 -2012/13

Facility	Hospitalisations	Bed days
Middlemore	7,900	13,000
Manukau super clinic	750	400
Total	8,600	13,400

Source: NMDS, Ministry of Health, Analysed by CM Health

The diagnoses of the young people who were hospitalised

All hospitalisations at a publically funded hospital are coded after discharge with the diagnoses of the conditions responsible for or requiring care during the hospitalisation. The coding system currently used is the International Classification of Diseases (ICD) version 10. These codes can be grouped into similar diagnoses.

As shown in Table 81, the two groups of diagnoses with the largest number of hospitalisations were the rather broad groups of diagnoses of "Injury and position and certain other consequences of external causes" (3,050 hospitalisations per year) and "Symptoms, signs and abnormal clinical findings, not elsewhere classified" (1,200 hospitalisations per year). The next three largest groups of diagnoses were related to systems: diseases of the respiratory system (1,000 per year), diseases of the digestive system (900) and diseases of the genitourinary system (800).

As stated in the section above the total number of hospitalisations was relatively stable over the five years. Each year about 11,000 young people were hospitalised. However as shown in the Table 80 the groups of diagnoses "Mental and behavioural disorders" and "Diseases of the skin and subcutaneous tissue" appear to be increasing over the time period. (It is important to remember this data excluded non casemix funded cases and cases managed by Maternity or Mental health services, so the hospitalisations counted include situations where for example a young person was under the care of a medical team after a suicide attempt and was coded as having a mental and behavioural disorder. Only relatively small numbers of inpatient hospitalisations for young people are directly managed under mental health services).

Table 80: Numbers of CM Health hospitalisation of young people aged 10-24 for "Mental and behavioural disorders" and "Diseases of the skin and subcutaneous tissue" by year FY 2008/09-2012/13

Group of diagnoses	2008/ 09	2009/ 10	2010/ 11	2011/ 12	2012/ 13
Mental and behavioural disorders	122	140	154	201	212
Diseases of the skin and subcutaneous tissue	554	603	737	711	673

Apart from groups that are clearly gender related (e.g. pregnancy and childbirth); some diagnostic groups had quite different volumes for males and females. The average volume of hospitalisations per year by these groupings is shown below in Table 81.

Table 81: Average number of hospitalisations for CM young people per year by ICD diagnostic group and gender FY 2008/09 - 2012/13

Diagnosis	Number of hospitalisations		
	Male	Female	Total
Injury poisoning and certain other consequences of external causes	2,050	1,000	3,050
Symptoms, signs and abnormal clinical laboratory findings, not elsewhere classified	400	800	1,200
Diseases of the respiratory system	450	550	1,000
Diseases of the digestive system	400	500	900
Diseases of the genitourinary system	200	600	800
Pregnancy childbirth and puerperium	0	650	650
Diseases of the skin and subcutaneous tissue	350	300	650
Certain infectious and parasitic diseases	200	300	550
Disease of the musculoskeletal system	200	200	400
Diseases of the nervous system	150	150	300
Diseases of the circulatory system	150	100	250
Neoplasms	100	100	200
Diseases of the ear and mastoid process	100	100	200
Mental and behavioural disorders	75	75	150
Disease of the blood and blood forming organs	100	60	160
Endocrine, nutritional and metabolic disease	70	80	150
Factors influencing health status and contact with the health system	70	70	140
Congenital malformations, deformations and chromosomal abnormalities	70	60	130
Disease of the eye and adnexa	60	60	120
Total	5,200	5,800	11,000

Source: NMDS, Ministry of Health, Analysed by CM Health

The marked differences in number of hospitalisations between females and males for three of the top five volume diagnoses between females and males further varied within the age bands of each gender. Injury, poisoning and external causes diagnoses were the highest volume diagnostic group for both genders. However these diagnoses made up on average 39% of all male hospitalisations and only on average 17% of all female hospitalisations. In the older male age groups, the percentage of these diagnoses increased whilst for females the percentage decreased (Table 82). This is important from a young people's health perspective with over 40% of 15-24 year old all male hospitalisations essentially been due to injury/poisoning.

Table 82: Number of hospitalisations of CM Health young people per year due to “Injury, poisoning and external causes” by gender FY 2008/09 – 2012/13

Age group (years)	Average number of males per year	% of male all hospitalisations	Average number of females per year	% of all female hospitalisations
10-14	490	31.3%	250	20.9%
15-19	770	41.5%	400	18.8%
20-24	760	42.5%	350	14.4%
Total	2,050	38.8%	1,000	17.4%

Source: NMDS, Ministry of Health, Analysed by CM Health

The next largest diagnostic group was “Symptoms, signs and abnormal clinical laboratory findings, not elsewhere classified” Again there was a gender pattern with this group making up 7% of all male hospitalisations and 13.5% all female hospitalisations as shown in Table 83.

Table 83: Number of hospitalisations for CM Health young people due to the diagnostic grouping of "Symptoms, signs and abnormal laboratory findings – not elsewhere classified" per year by gender FY 2008/09- 2012/13

Age group (years)	Average number of males per year	% of male all hospitalisations	Average number of females per year	% of all female hospitalisations
10-14	120	13.1%	170	13.1%
15-19	130	7.2%	300	13.9%
20-24	150	8.2%	310	12.9%
Total	400	7.7%	800	13.3%

Source: NMDS, Ministry of Health, Analysed by CM Health

Diseases of respiratory system and digestive system were the next largest groups of diagnoses and did not show the degree of gender variation (Tables 84 and 85).

Table 84: Number of hospitalisations for CM Health young people due to the diagnostic grouping of "Diseases of the Respiratory System" per year by gender FY 2008/09- 2012/13

Age group (years)	Average number of males per year	% of male all hospitalisations	Average number of females per year	% of all female hospitalisations
10-14	150	9.7%	140	11.1%
15-19	150	7.9%	190	9.1%
20-24	140	7.7%	190	8.1%
Total	450	8.4%	550	9.1%

Source: NMDS, Ministry of Health, Analysed by CM Health

Table 85: Number of hospitalisations for CM Health young people due to the diagnostic grouping of "Diseases of the Digestive System" per year by gender FY 2008/09- 2012/13

Age group (years)	Average number of males per year	% of male all hospitalisations	Average number of females per year	% of all female hospitalisations
10-14	130	8.5%	110	8.9%
15-19	140	7.7%	150	7.0%
20-24	160	8.7%	210	8.9%
Total	400	8.3%	500	8.2%

Source: NMDS, Ministry of Health, Analysed by CM Health

Genitourinary diagnoses were similar for both genders for 10-14 year olds (4.0% for males ,5.5% of events for females,), but about 3.5% of male 15-24 year old hospitalisations compared to about 12% of 15-24 year old female hospitalisations were due to diseases of the genitourinary system as shown in Table 86.

Table 86: Number of hospitalisations of CM Health young people due to "Disease of the genitourinary system" diagnoses per year by gender FY 2008/09 – 2012/13

Age group (years)	Average number of males per year	% of male all hospitalisations	Average number of females per year	% of all female hospitalisations
10-14	60	4.0%	70	5.6%
15-19	60	3.3%	250	11.9%
20-24	70	3.8%	300	12.6%
Total	200	3.7%	600	10.8%

Source: NMDS, Ministry of Health, Analysed by CM Health

The group of diagnoses of "Pregnancy, childbirth and puerperium" was 10% of 15-19 year old female hospitalisations and 19% for 20-24 year old females. (It is important to remember this data excluded non casemix funded cases and cases managed by Maternity services. Therefore the number of all hospitalisations for "Pregnancy, childbirth and puerperium" represents early pregnancy complications admissions but not birth events).

Table 87: Number of hospitalisations of CM Health young people due to "Pregnancy, childbirth and puerperium" diagnoses by gender FY 2008/09 -2012/13

Age group (years)	Average number of females per year	% of all female hospitalisations
10-14	2	0.2%
15-19	220	10.2%
20-24	450	18.8%
Total	670	11.6%

Source: NMDS, Ministry of Health, Analysed by CM Health

The number of hospitalisations for pregnancy, childbirth and puerperium has been decreasing over the five FYs 2008/09 - 2012/13.

Table 88: Number of hospitalisations for CM Health young people aged 10-24 years for “Pregnancy, childbirth and puerperium” diagnoses FY 2008/09 - 2012/13 by year

Age group (years)	2008/09	2009/10	2010/11	2011/12	2012/13
10-14	1	5	2	1	1
15-19	260	230	230	190	170
20-24	500	420	490	430	410
Total	770	660	720	620	580

Source: NMDS, Ministry of Health, Analysed by CM Health

The remaining groups of diagnoses with smaller numbers showed much less gender difference (Table 81) apart from disease of the blood and blood forming organs, 100 males and 60 females). The 10-14 age group had more hospitalisations for disease of the ear and mastoid process, and congenital malformations and chromosomal abnormalities than older groups and less hospitalisations for mental and behavioural disorders.

Ambulatory sensitive and Housing-related potentially avoidable hospitalisations

Hospitalisations for people with particular diagnoses have been identified as being potentially avoidable by public health measures or through primary healthcare (Jackson and Tobias, 2001). It is noted that only a proportion of these might actually have been avoided (Jackson and Tobias, 2001).

Ambulatory sensitive hospitalisations are based on the principal diagnosis ICD 10 code and certain age and admissions restrictions (see Appendix Two). Potentially avoidable hospitalisations (PAH) are also based on ICD 10 codes and a subset of these is recognised as Housing-related potentially avoidable hospitalisations (HRPAH) (Jackson et al, 2011) (see Appendix Three). HRPAH are hospitalisations for a package of respiratory and infectious conditions, where there is a strong potential link between the quality of housing and admission to hospital.

There is considerable cross over between ambulatory sensitive hospitalisations and potentially avoidable hospitalisation but the definitions are not identical or subsets of one another. A personal communication received whilst producing this report indicated there are different versions of definition in New Zealand. At a high level the difference in definition may not necessarily alter the numbers significantly but to make comparisons, over time or between groups, it would be important to check the definitions match.

About 2,300 hospitalisations per year, 20% of all young people's hospitalisations, were categorised as ambulatory sensitive hospitalisations for the years 2008/09 – 2012/13. The highest volume conditions for ambulatory sensitive hospitalisations (ASH) were cellulitis (450/year), upper respiratory tract and ENT infections (240/year), gastroenteritis/dehydration (240/year), asthma (230/year) and kidney/urinary infections (220/year) as shown in Table 89 below. For males the highest numbers of hospitalisations were for cellulitis whilst for females it was for urinary tract infections.

Table 89: Number of ambulatory sensitive hospitalisations per year by gender FY 2008/09-2012/13

Condition	Average number of males per year	Average number of females per year	Total
Cellulitis	260	190	450
Upper respiratory tract and ENT infections	110	130	240
Gastroenteritis/dehydration	140	100	240
Asthma	140	90	230
Kidney Urinary infections	15	200	220
All others	440	490	930
Total	1,020	1,290	2,310

Source: NMDS, Ministry of Health, Analysed by CM Health

About 1,200 hospitalisations per year, 11% of all young people’s hospitalisations, were categorised as HRP AH. Top volume conditions HRP AH definitions were cellulitis (460/year), asthma (203/year), gastroenteritis (200/year), respiratory infections-pneumonia (150/year) and Acute rheumatic fever/rheumatic heart disease (70/year) as shown in Table 90. As stated above the definition of ASH and PAH vary. Although overall the number of ASH was greater than HRP AH, for cellulitis there was slightly more HRP AH than ASH.

Table 90: The number of housing related potentially avoidable hospitalisations per year by gender FY 2008/09-2012/13

Condition	Average number of males per year	Average number of females per year	Total
Cellulitis	270	190	460
Asthma	90	140	230
Gastroenteritis	80	120	200
Respiratory infections - Pneumonia	80	70	150
Rheumatic fever /Heart Disease	40	30	70
All others	70	60	130
Total	620	610	1,230

Several conditions that are defined as ‘housing related potentially avoidable hospitalisations (HRP AH)’ showed age/ gender differences. Males predominated in cellulitis with an average of 270 hospitalisations for per year for males and 190 for females over the five years examined (FY 2008/09 – 2012/13) as shown in Table 91. On the other hand, pneumonia hospitalisations were quite similar (80 per year for males and 70 for females).

Table 91: Number of CM Health young people hospitalisations for cellulitis and pneumonia per year by gender FY 2008/09 – 2012/13

Illness	Average number of males per year	Average number of females per year
Cellulitis*	270	190
Pneumonia*	80	70

* As defined for HRP AH

Source: NMDS, Ministry of Health, Analysed by CM Health

Overall for 10-24 year olds there were on average less male hospitalisations per year for asthma, (90) than females (140). When analysed by age group the numbers were small. Females appear to predominate more in the older age groups.

Table 92: Number of hospitalisations for CM Health young people for asthma* by age group and gender. FY 2008/09- 2012/13

Age group (years)	Average number of males per year	Average number of females per year
10-14	40	30
15-19	25	50
20-24	30	50
Total	90	140

* As defined for HRPAAH

Source: NMDS, Ministry of Health, Analysed by CM Health

Overall for 10-24 years there were less male hospitalisations per year for gastroenteritis (80 per year) than females (120 per year). The analysed by age groups the numbers were small. As for asthma above the females appear to predominate in older age groups.

Table 93: Number of hospitalisations for CM Health young people for gastroenteritis* by age group and gender FY 2008/09 - 2012/13.

Age group (years)	Average number of males per year	Average number of females per year
10-14	20	20
15-19	30	40
20-24	30	50
Total	80	120

* As defined for HRPAAH

Source: NMDS, Ministry of Health, Analysed by CM Health

Inpatient Hospitalisations Summary

CM young people had about 11,000 hospitalisations per year between 2008/09 and 2012/13 with the total number being fairly static each year over this period. There were higher rates of hospital admissions for those of Maaori (11.5 per 100 people per year) and Pacific (10.9/100 people/year) ethnicities than European / other (9.4/100 people/year) and Asians (4.2/100 people/year). Female numbers increased with age from 1,250 per year for 10-14 year olds to 2,400 per year for 20-24 year olds. The diagnostic grouping of "Injury, Poisoning and certain consequences of other external causes" was responsible for the most hospitalisations , over a third (39%) of all male admissions and one in six (17%) of female admissions. Ambulatory sensitive hospitalisations made up about 20% of all young people's hospitalisations and housing related potentially avoidable hospitalisations about 11%.

Outpatient visits

As noted in the methodology section, the definition of an outpatient event can vary. It may, or may not, be considered to include domiciliary visits, allied health visits, pre-admission clinics, emergency department visits and 'did not attends' (DNAs) – appointments booked for which the person did not show. Different DHBs record these various visits in different ways (for example ADHB do not record DNAs in the data submitted to NN PAC whereas CM Health does). Therefore analysis for this report was applied to core medical and surgical outpatient services which are more consistently reported. Unfortunately this process removed most of the oncology services and therefore these volumes are not described in this part of the report. ADHB operates some services as a national, tertiary and regional provider and hence some CM domiciled patients are seen at ADHB outpatient appointments. Similarly MMH has some tertiary/regional services such as Plastic Surgery. The volumes of CM Health domiciled patients seen in DHBs other than ADHB and CM Health was very small and excluded from the analysis.

Counties Manuka Resident Youth View for Outpatient attendances

Overall in the year between 1 July 2012 and 30th June 2013 there were 25,295 outpatient appointments provided by the core medical and surgical services at Auckland DHB and CM Health facilities for CM Health young people aged 10-24 years. Among these there were 3,440 appointments which were identified by special codes based on the specific services provided at the appointment. These special services are described further later (Table 98).

After removing 3,440 of the special codes, there were 21,855 outpatient appointments. Of these 2,434 were DNAs at CM Health. The 19,421 core surgical and medical appointments attended by CM Health domiciled young people aged 10-24 years in FY 2012/13 are shown in Table 94 split by the medical and surgical specialty the young person attended and the DHB that provided the treatment.

Table 94: Number of outpatient visits for CM Health young people by speciality and DHB of treatment FY 2012/13

Speciality	CM Health	ADHB	Total
Orthopaedic surgery	3,892	340	4,232
Otorhinolaryngology (ENT)	2,104	133	2,237
Ophthalmology	551	1,074	1,625
Plastic surgery	1,399	0	1,399
Paediatric Medicine	1,133	14	1,147
Renal Medicine	952	189	1,141
General surgery	664	77	741
Gynaecology	509	122	631
Diabetology	93	534	627
Dermatology	545	27	572
Cardiology	393	132	525
Respiratory medicine	359	164	523
Dental surgery	0	522	522
Specialist Paed. Haematology	0	463	463
Gastroenterology	319	116	435
General medicine	383	0	383
Rheumatology	229	102	331
Neurology	45	282	327
Specialist Paed. Surgery	0	317	317
Haematology	91	200	291
Endocrinology	203	26	229
Urology	147	8	155
Immunology	0	142	142
Specialist Paed. Neurology	0	132	132
Neurosurgery	0	101	101
All others	28	165	193
Total	14,039	5,382	19,421

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NN PAC, Ministry of Health, Analysed by CM Health

The top volume outpatient categories show a difference over the different age groups. This is likely to be due to both a change in the clinical conditions with age (e.g. decreasing ENT problems with age and increasing Gynaecology problems) and the way services have been established (e.g. specialist paediatric services with age limits). Tables 95-97 below show the volumes for each age group by speciality.

Table 95: Number of outpatient events for CM Health 10-14 year olds by specialty and DHB of treatment FY 2012/13 (all specialties with totals >100)

Speciality	CM Health	ADHB	Total
Orthopaedic surgery	1,876	186	2,062
Otorhinolaryngology (ENT)	955	81	1,036
Paediatric Medicine	950	7	957
Ophthalmology	185	303	488
Plastic surgery	424	0	424
Diabetology	0	380	380
Specialist Paed. Surgery	0	261	261
Renal medicine	137	106	243
Specialist Paed. Haematology	0	218	218
Dermatology	145	19	164
Dental surgery	0	157	157
All other specialties	64	475	538
Total	4,735	2,193	6,928

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NNPAC, Ministry of Health, Analysed by CM Health

Table 96: Number of outpatient visits for CM Health 15-19 year olds by specialty and DHB of treatment FY 2012/13 (all specialties with total > 100)

Speciality	CM Health	ADHB	Total
Orthopaedic surgery	1,137	120	1,257
Otorhinolaryngology (ENT)	698	33	731
Ophthalmology	170	310	480
Plastic surgery	466	0	466
Renal medicine	336	75	411
Cardiology	182	59	241
General surgery	216	23	239
Specialist Paed. Haematology	0	238	238
Dermatology	229	8	237
Dental Surgery	0	232	232
Diabetology	47	151	198
Respiratory Medicine	130	66	196
Gynaecology	168	26	194
Paediatric Medicine	177	7	184
Gastroenterology	148	29	177
General Medicine	161	0	161
Neurology	18	134	152
All other specialities	248	281	529
Total	4,531	1,792	6,323

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NNPAC, Ministry of Health, Analysed by CM Health

Table 97: Number of outpatient visits for CM Health 20-24 year olds by specialty and DHB of treatment FY 2012/13 (all specialities with total > 100)

Speciality	CM Health	ADHB	Total
Orthopaedic surgery	879	34	913
Ophthalmology	196	461	657
Plastic surgery	509	0	509
General Surgery	439	54	493
Renal medicine	479	8	487
Otorhinolaryngology (ENT)	451	19	470
Gynaecology	309	82	391
Cardiology	202	57	259
Respiratory Medicine	226	22	248
Haematology	63	174	237
General Medicine	218	0	218
Gastroenterology	169	8	177
Neurology	27	146	173
Dermatology	171	0	171
Endocrinology	130	15	145
Rheumatology	137	1	138
Dental surgery	0	133	133
Urology	95	5	100
All other specialities	62	77	139
Total	4,773	1,397	6,170

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NN PAC, Ministry of Health, Analysed by CM Health

Table 98: Number outpatient visits for CM Health young people with “special” codes FY 2012/13

Special Codes	CM Health	ADHB	DNA*	Total
Dermatology – UV treatment	371	0	83	454
Diabetes -Education and care	301	0	101	402
Diabetes- Fundus Screening	164	61	42	267
(CAPD, home based and in centre dialysis)	1,355	221	0	1,576
Termination of pregnancy**	0	741	0	741
Total	2,191	1,023	226	3,440

* Note, the Auckland data did not record DNAs so all DNAs apply to Counties Manukau Health provided services only

** The termination of pregnancy does not capture those performed privately

Source: NN PAC, Ministry of Health, Analysed by CM Health

The number of outpatient appointments attended was slightly larger for 10-14 year olds than for the older age groups as shown in Table 99. This is in contrast to emergency department presentations and hospital admissions which increase in the older age groups. The 15-19 year olds had the lowest percentage of outpatient visits at Auckland DHB as shown in Table 99.

Table 99: Number of medical and surgical outpatient attendances for CM Health young people FY 2012/13 by age group and DHB providing the service

Age Group (years)	CM Health	Percentage	ADHB	Percentage	Total
10-14	4,735	68.3%	2,193	31.7%	6,928
15-19	4,773	77.4%	1,397	22.6%	6,170
20-24	4,531	71.7%	1,792	28.3%	6,323
Total	14,039	72.3%	5,382	27.7%	19,421

Source: NNPAC, Ministry of Health, Analysed by CM Health

For the CM Health domiciled patients seen at CM Health facilities, about 95% of the outpatient attendances were at Manukau Super Clinic and 5% at Middlemore as shown in Table 100. Those seen at Auckland were split, 54 % between Auckland City hospital (which means they could be seen at Grafton or at Greenlane Clinical Centre) and 46% at Starship. These patterns will likely reflect the physical site of the specialties being accessed for the different age groups.

Table 100: Number of outpatient visit for CM Health young people by treatment facility FY 2012/13

Hospital	Number Outpatient Visits	% for the DHB	% overall
Starship	2,488	46.2%	12.8%
Auckland City Hospital	2,894	53.8%	14.9%
Auckland sites total	5,382		27.7%
Middlemore	694	4.9%	3.6%
Manukau Super Clinic	13,345	95.1%	68.7%
CM Health Sites total	14,039		72.3%
Grand Total	19,421		

Source: NNPAC, Ministry of Health, Analysed by CM Health

Counties Manukau Health Service view for Outpatient Attendances

Outpatient numbers can also be shown from a view of Counties Manukau as the provider.

Overall in the year between 1 July 2012 and 30th June 2013 there were 21,794 outpatient appointments provided by the core medical and surgical services at CM Health facilities for young people aged 10-24 years. Among these there were 2,201 appointments which were identified by special codes based on the specific services provided at the appointment. These special services are described further later (Table 106).

After removing 2,201 of the special codes, there were 19,593 outpatient appointments. Of these 3,225 were DNAs at CM Health. Therefore there were 16,368 core surgical and medical appointments attended by young people aged 10-24 years in FY 2012/13 at CM Health facilities. Most (86%) young people were domiciled in CM Health as shown in Table 101. An additional 13% were domiciled in the Auckland region - 8% Auckland DHB domiciled young people and 5% domiciled in Waitemata DHB and just 2% were from DHBs outside the Auckland region.

Table 101: Number outpatient visits attended by young people 10-24 year old at CM Health facilities FY 2012/13 by DHB of domicile

DHB of young person	Number of attendances	Percent of attendances
Counties Manukau Health	14,039	86%
Auckland	1,270	8%
Waitemata	743	5%
All other DHBs	316	2%
Total	16,368	100%

The largest volume specialities for 10-24 year olds attended at CM Health facilities were Orthopaedics (4,300), Plastic surgery (2,500) and ENT (2,200). The medical or surgical specialty the young person attended and whether the young person was from CM Health or another DHB is shown in Table 102. The most notable service provided to other DHBs is plastic surgery, with 45% of attendances young people from other DHBs. Two other services with high volumes provided to other DHBs are renal medicine (428 attendances) and orthopaedics (404 attendances).

Table 102: Number outpatient visits attended by young people 10-24 year old at CM Health facilities FY 2012/13 by speciality

Speciality	CM Health	Other DHB	Total
Orthopaedic surgery	3,892	404	4,296
Plastic surgery	1,399	1,130	2,529
Otorhinolaryngology (ENT)	2,104	103	2,207
Renal Medicine	952	428	1,380
Paediatric medicine	1,133	37	1,170
General Surgery	664	28	692
Ophthalmology	551	14	565
Dermatology	545	17	562
Gynaecology	509	40	549
Cardiology	393	17	410
General Medicine	383	16	399
Respiratory Medicine	359	29	388
Gastroenterology	319	16	335
Rheumatology	229	9	238
Endocrinology	203	5	208
Urology	147	15	162
All Others	257	21	278
Total	14,039	2,329	16,368

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NN PAC, Ministry of Health, Analysed by CM Health

The top volume outpatient categories show a difference over the different age groups. This would likely be due to both a change in the clinical conditions with age (e.g. decreasing ENT problems with age and increasing Gynaecology problems) and the way services have been established (e.g. specialist paediatric services with age limits). Tables 103-105 below show the volumes for each age group by speciality.

Table 103: Number outpatient visits attended by young people 10-14 year old at CM Health facilities FY 2012/13 by speciality (all specialties with totals >100)

Speciality	CM Health	Other DHB	Total
Orthopaedic surgery	1,876	153	2,029
Otorhinolaryngology (ENT)	955	39	994
Paediatric medicine	950	27	977
Plastic surgery	424	301	725
Renal Medicine	137	65	202
Ophthalmology	185	2	187
Dermatology	145	4	149
All Others	63	0	63
Total	4,735	591	5,326

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NN PAC, Ministry of Health, Analysed by CM Health

Table 104: Number outpatient visits attended by young people 15-19 year old at CM Health facilities FY 2012/13 by speciality (all specialties with totals >100)

Speciality	CM Health	Other DHB	Total
Orthopaedic surgery	1,137	128	1,265
Plastic surgery	466	425	891
Otorhinolaryngology (ENT)	698	23	721
Renal Medicine	336	169	505
Dermatology	229	4	233
General Surgery	216	11	227
Cardiology	182	7	189
Paediatric Medicine	177	9	186
Ophthalmology	170	6	176
Gynaecology	168	8	176
General medicine	161	5	166
Gastroenterology	148	4	152
Respiratory medicine	130	18	148
All Others	313	15	328
Total	4,531	832	5,363

Table 105: Number outpatient visits attended by young people 20-24 year old at CM Health facilities FY 2012/13 by speciality (all specialties with totals >100)

Speciality	CM Health	Other DHB	Total
Orthopaedic surgery	879	123	1,002
Plastic surgery	509	404	913
Renal Medicine	479	194	673
Otorhinolaryngology (ENT)	451	41	492
General Surgery	439	17	456
Gynaecology	309	32	341
Respiratory medicine	226	11	237
General medicine	218	11	229
Cardiology	202	10	212
Ophthalmology	196	6	202
Gastroenterology	169	12	181
Dermatology	171	9	180
Rheumatology	137	8	145
Endocrinology	130	2	132
Urology	95	9	104
All Others	163	17	180
Total	4,773	906	5,679

* Most oncology volumes were excluded in classifying core medical and surgical services

Source: NN PAC, Ministry of Health, Analysed by CM Health

The outpatient attendances at CM Health facilities excluded due to “special codes” were almost exclusively just CM Health domiciled young people as shown in Table 106.

Table 106: Number outpatient visits attended by young people 10-24 year old at CM Health facilities FY 2012/13 by speciality with “special” codes

Special Codes	CM Health	Other DHB	Total
Dermatology – UV treatment	371	1	372
Diabetes -Education and care	301	5	306
Diabetes- Fundus Screening	164	2	166
(CAPD, home based and in centre dialysis)	1,355	2	1,357
Total	2,191	10	2,201

Source: NNPAC, Ministry of Health, Analysed by CM Health

The number of outpatient appointments attended was slightly higher for 20-24 year olds than for the younger age groups as shown in Table 107. This is in contrast to the number of CM Health domiciled outpatients attendances which was highest in 10-14 year olds. Overall 14% of the outpatient attendances by young people are from other DHBs. In the 10-14 year age group only 11% of outpatient attendances to CM Health facilities were by young people from other DHBs.

Table 107: Number of medical and surgical outpatient attendances for CM Health young people FY 2012/13 by age group and DHB providing the service

Age Group (years)	CM Health	Percent	All others	Percent	Total	Percent
10-14	4,735	89%	591	11%	5,326	33%
15-19	4,531	84%	832	16%	5,363	33%
20-24	4,773	84%	906	16%	5,679	35%
Total	14,039	86%	2,329	14%	16,368	

Source: NNPAC, Ministry of Health, Analysed by CM Health

For the young people attending outpatients at CM Health facilities, about 95% of the outpatient attendances were at Manukau Super Clinic and 5% at Middlemore as shown in Table 108. For young people from other DHBs 92% of their outpatient attendances were at Manukau Super Clinic.

Table 108: Number of outpatient visit by young people by treatment facility FY 2012/13

Source: NNPAC, Ministry of Health, Analysed by CM Health

Hospital	CM Health	Percent	All others	Percent	Total	Percent
Middlemore	694	5%	184	8%	878	5%
Manukau Super Clinic	13,345	95%	2,145	92%	15,490	95%
Total	14,039		2,329		16,368	

Outpatient visits summary

There were about 19,500 core medical and surgical outpatient attendances per year for CM Health 10-24 year olds. The largest three volumes were orthopaedic surgery (4,200), ENT (2,200) and ophthalmology (1,600). Auckland DHB was the provider for 28% of attendances. CM Health facilities had 16,400 medical and surgical outpatient attendances in 2012/13 and 86% of these were to CM Health domiciled young people. Of the 2,500 Plastic surgery outpatient attendances 1,100 were by young people from other DHBs.

PHO enrolment

Analysis of Primary Health Organisation (PHO) enrolment data as at 1 July 2013 showed that 113,909 CM Health domiciled young people were enrolled in a Primary Health Practice somewhere in New Zealand. As the estimated resident population was 120,580 for 2013, this meant 94.5% of CM Health young people were enrolled with a PHO.

The CM Health area is divided into four localities and primary care practices are each affiliated with one of the four localities, in the main depending on where they are physically located, but also in some cases depending on PHO/provider relationships. Of the enrolled young people 14,811 (13%) were enrolled with practices not physically based in Counties Manukau (either Otahuhu or beyond). Also of note is that 5,200 young people who were not domiciled in CM Health were enrolled with practices physically located in CM Health.

The suburb of Otahuhu is physically in Auckland DHB but there is a large number of CM Health young people enrolled in PHOs through practices in Otahuhu, both in absolute numbers (5,550) and as a percentage (61%; 5,550/9,150) of all young people enrolled in Otahuhu practices. The numbers are included in the Table 109 below as any CM Health actions to improve young people's health are likely to need to include this group.

Table 109: Number of young people aged 10-24 years enrolled in PHOs on 1 July 2013 by locality of GP practice

Locality of practice	CM Health resident	Non CM Health resident	Total
Eastern	19,150	1,000	20,150
Franklin	9,700	200	9,900
Mangere/ Otara	35,900	2,850	38,750
Manukau	34,350	1,150	35,500
Otahuhu (ADHB)	5,550	3,600*	9,150
Other	9,250	Not applicable	
Total	113,900	8,800	

Includes all CM Health young people wherever registered in New Zealand and Non CM Health residents attending practices in CM Health area or Otahuhu.

*Technically CM Health not involved with these young people at all, but stated to show how 61% of young people attending Otahuhu locality practices are CM Health domiciled.

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

Ethnicity varied between locality both in absolute numbers (Table 110) and in the proportions (Table 111). Over half (61%) of the entire enrolled Pacific young people domiciled in Counties Manukau were enrolled in the Mangere/Otara locality and 50% of all enrolled Maaori young people were enrolled in Manukau (Table 111). Those of Asian and NZ European/ Other ethnicities had a wider spread of distribution of their population between localities.

Table 110: Number of CM Health young people enrolled in PHOs on 1 July 2013 by locality of GP practice and ethnicity

Locality of practice	Maaori	Pacific	Asian	NZ European/ Other	Total
Eastern	700	454	4,400	13,600	19,150
Franklin	2,150	350	450	6,750	9,700
Mangere/ Otara	6,500	22,550	4,100	2,750	35,900
Manukau	10,800	7,250	4,350	12,000	34,350
Otahuhu (ADHB)	500	2,900	2,000	230	5,550
Other	950	3,300	2,200	2,750	9,250
Total	21,550	36,750	17,500	38,050	113,900

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

Table 111 below displays what percentage of each ethnic group is in each locality. E.g. 3% of all Maaori enrolments are in the Eastern locality.

Table 111: Percentage of each ethnic group enrolled in PHOs on 1 July 2013 for CM Health young people at each locality

Locality of practice	Maaori	Pacific	Asian	NZ European / Other	Total
Eastern	3%	1%	25%	36%	17%
Franklin	10%	1%	3%	18%	9%
Mangere/ Otara	30%	61%	23%	7%	32%
Manukau	50%	20%	25%	32%	31%
Otahuhu (ADHB)	2%	8%	11%	1%	5%
Other	4%	9%	13%	7%	8%
Total	100%	100%	100%	100%	100%

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

In the demography section Tables 4 and 5 and Figure 3 showed that 43% of Counties Manukau Health young people lived in the most socio-economically deprived quintile. Using the PHO registration data this could also be examined by ethnicity. As shown in Table 112 this produced a very similar figure with 39% in quintile 5 given that 6% were unknown. Much higher proportions of young people identified as Maaori (57%) and Pacific (69%) enrolled in PHOs are domiciled in areas categorised as Quintile 5. This is consistent with total population proportions by ethnicity living in Quintile 5 areas.

Table 112: Percentage of each ethnicity enrolled in PHOs on 1 July 2013 for CM Health young people by socio-economic deprivation meshblock quintile

Ethnicity	NZDep Quintile						Total
	Unknown	1	2	3	4	5	
Maaori	5%	6%	6%	9%	17%	57%	100%
Pacific	4%	2%	3%	4%	17%	69%	100%
Asian	6%	19%	20%	19%	19%	17%	100%
NZ European/ Other	7%	34%	23%	15%	10%	10%	100%
Total	6%	16%	13%	11%	15%	39%	100%

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

Over half (57%) of CM Health PHO enrolled young people who lived in the most socio-economically deprived quintile were of Pacific ethnicity.

Table 113: The ethnic percentages of each meshblock quintile of socio-economic deprivation enrolled with PHOs on 1 July 2013 for CM Health young people

Ethnicity	Unknown	1	2	3	4	5	Total
Maaori	18%	7%	9%	15%	22%	27%	19%
Pacific	25%	4%	8%	13%	36%	57%	32%
Asian	15%	18%	24%	26%	20%	7%	15%
NZ European/ Other	41%	72%	59%	46%	23%	9%	33%
Total	100%	100%	100%	100%	100%	100%	100%

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

There have been concerns raised about the percentage of the resident population who are not enrolled in a PHO, particularly among Maaori. PHO enrolment is a Ministry of Health mandated national Maaori Health Plan indicator. The PHO enrolment data, used for this analysis, divided by the estimated resident population projection (from Statistics NZ via the Ministry of Health) is shown below in Table 114. Of note the figures are over 100% for Pacific and NZ European/Other groups, while low figures are seen for those identified as Maaori and Asian. Part of this is likely due to ethnicity mismatch where the ethnicity recorded in the PHO ethnicity data differs from what would be recorded for that person through the Census process; e.g. people identified as Pacific, when they are Maaori or other ethnicities and as NZ European when they are Maaori or Asian.

This highlights the importance of identifying potential miscategorisation of ethnicity as distinct from people missing out on advantages of PHO enrolment because of non-enrolment.

Table 114: PHO enrolment coverage on 1 July 2013 for CM Health estimated resident population of young people by age group and ethnicity

Age Group	Maaori	Pacific	Asian	NZ European / Other	Total
10-14	82%	110%	78%	109%	97.5%
15-19	88%	107%	68%	107%	95.0%
20-24	94%	109%	66%	92%	91.0%
Total	88%	108%	71%	102%	94.5%

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

PHO enrolment summary

Overall 94.5% of the estimated population of CM Health young people (113,900) were enrolled in a Primary Health Organisation (PHO). For those enrolled, 13% were enrolled in practices sited outside Counties Manukau. Nearly two thirds (61%) of all Pacific young people attended a practice in Mangere/Otara and 50% of all Maaori young people attended a practice in Manukau. A high percentage of Maaori (57%) and Pacific (69%) young people enrolled in a PHO are domiciled in the most socio-economic deprived quintile.

Last contact with enrolled General Practice

In the Youth'12 survey the proportion of students who reported they went to a family doctor, medical centre or GP clinic in the last 12 months was 71% for the Counties Manukau cohort and 74% for the whole of NZ cohort. These results are consistent with analysis of PHO enrolment register data for date of last contact which found 71% of Counties Manukau resident young people had contact with their general practice in the last 12 months.

There are two important limitations to the data.

- 1) The data is only for young people who are enrolled with a PHO. Therefore about 5.5% of young people are missing from this data. They may or may not have had contact with a general practice in the last 12 months.
- 2) The very last date the young person had contact with their general practice may have not been entered in time for the data collection. This means the number of young people who had contact with their general practice may be higher than stated.

Confidence intervals were not calculated so statistical significance of differences cannot be commented upon. The percentage of females who had contact with their general practice in the last 12 months appeared to be higher than males, 75% and 67% respectively (Figure 11).



Figure 11: Percentage of CM young people aged 10-24 years who had contact with their general practice over the last 12 months as at 1 July 2013 by gender

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

With increasing age the percentage of females who had contact with their general practice over the last 12 months appeared to increase (Figure 12).

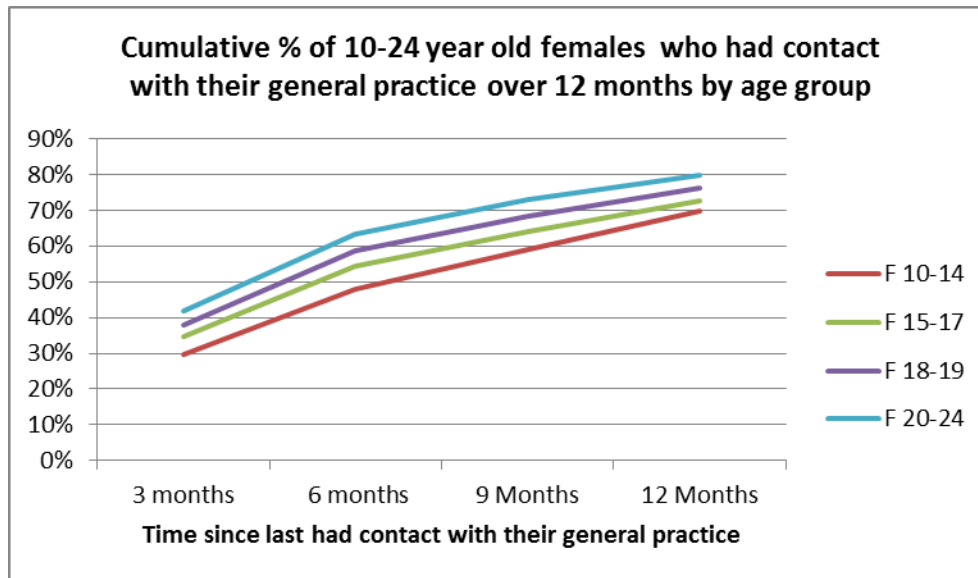


Figure 12: Percentage of CM Health females aged 10-24 years who had contact with their general practice over the last 12 months as at 1 July 2013 by age group

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

However for males, those aged 10-14 years appeared to have higher percentages that had contact with their general practice over the last 12 months than the older young people age groups as shown in Figure 13.

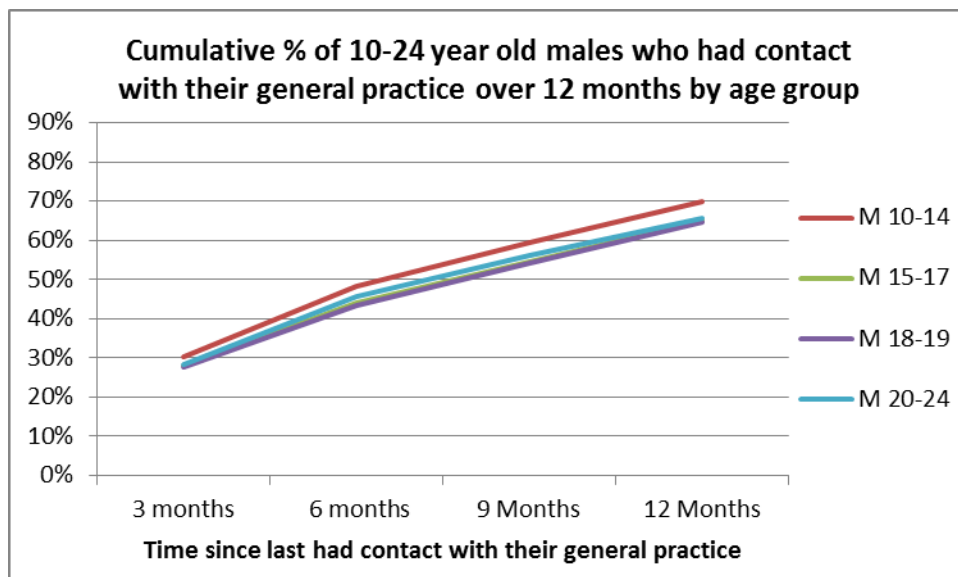


Figure 13: Percentage of CM Health males aged 10-24 years who had contact with their general practice over the last 12 months as at 1 July 2013 by age group

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

For young people aged 10-14 years the time since they last had contact with their general practice was equal for females and males (Figure 14), whereas for 20-24 year olds, a higher percentage of females had contact with their general practice more recently over the last 12 months than males (Figure 15).



Figure 14: Percentage of CM Health young people aged 10-14 years who had contact with their general practice over the last 12 months as at 1 July 2013 by gender

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

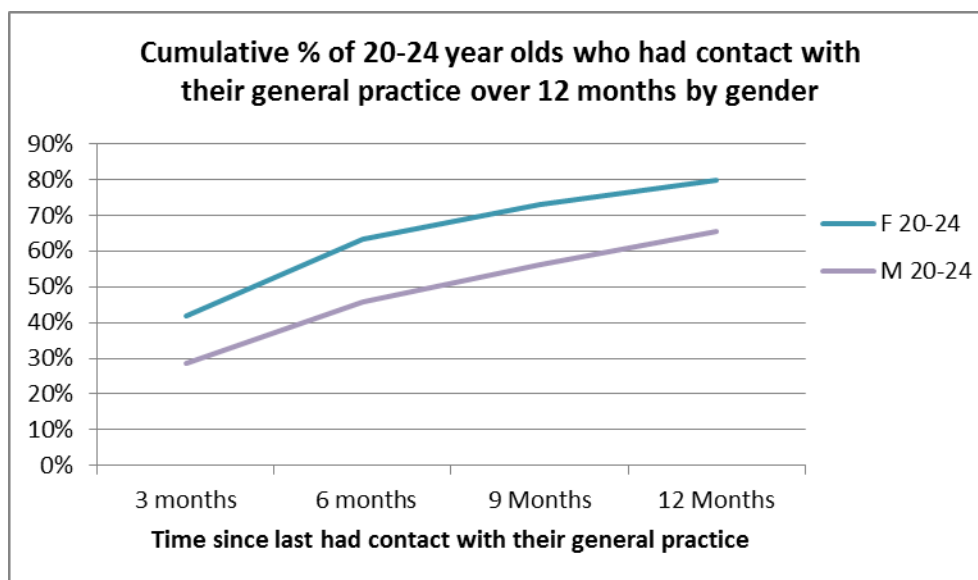


Figure 15: Percentage of CM Health young people aged 20-24 years who had contact with their general practice over the last 12 months as at 1 July 2013 by gender

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

Young people of Maaori, Pacific and Asian ethnicities appeared to have had very similar times since they last had contact with their general practice. The NZ European/Other group appeared to have percentages about 5% higher as shown in Figure 16.

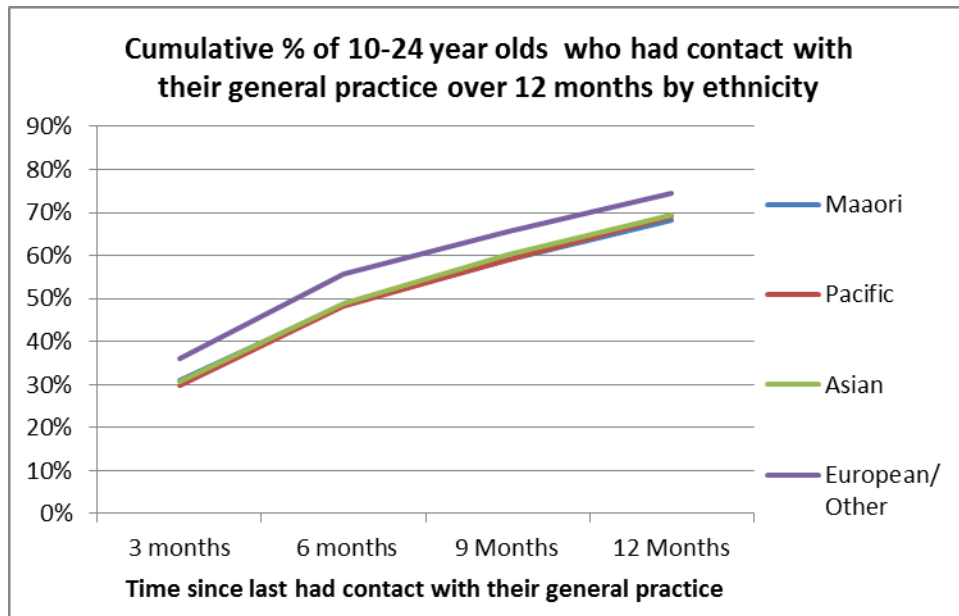


Figure 16: Percentage of CM Health young people aged 10-24 years who had contact with their general practice over the last 12 months as at 1 July 2013 by ethnicity

Source: PHO enrolment registered data, Ministry of Health, Analysed by CM Health

GP visits summary

The data shows most young people (at least 71%) do have contact with their general practice in a 12 month period. This is contrary to what some people may believe; that young people never go to their general practice. Also the Youth'12 data shows young people attend general practice services much more than they attend other groups of healthcare providers and possibly even more than all other healthcare providers combined.

Oral Health

Dental care is funded and organised differently to many other aspects of healthcare in New Zealand. Up to 18 years of age dental care is funded by the Health budget. Adults 18 years and over can only access funded dental care in three situations

- 1) They are very highly medically compromised or have special needs or disabilities. The treatment is usually provided at hospital based dental services.
- 2) Community service card holders can access Emergency Dental Care or Relief of Pain Services. In CM this is supplied at two CM Health sites and at six contracted dental services.
- 3) Dental care for trauma (funded by ACC).

For under 18 year olds dental care can be considered in three age groups, Pre-school (1-4 years of age), School (5-12 or 13 years of age – Year 8) and Adolescent Dental Services (12 or 13 years of age until 18th birthday). Orthodontic care is not publically funded in New Zealand at any age.

On leaving primary school students dental care is transferred to Adolescent Dental services. Adolescents receive dental care at mobile school dental clinics (about 55% of dental work) with the rest provided by private dentists working in contracted practices. There were 78 contracted dental practices in Counties Manukau in 2013. As demonstrated in Table 115, the percentage estimated to be enrolled is lower in adolescents than in young children.

Table 115: Number of under 18 year olds in Counties Manukau who were enrolled with dental services on 31 Dec 2013

	Children Birth-Year 8 of school (0- 12/13 years)	Adolescents (13-17 years)
Enrolled patient group as at 31 Dec 2013	101,262	28,866
Estimated total eligible numbers	111,045	35,645
Percentage enrolled	91%	81%

Source: Enrolment Ministry of Health, Eligible population Statistics NZ

A key measure of dental health is the number of decayed, missing or filled teeth for Year 8 students. Maaori and Pacific DMFT scores at age 12-13 years are twice non-Maaori, non-Pacific. This means Maaori and Pacific young people start their secondary education period of life with poorer oral health outcomes (Table 116).

Table 116: Mean Decayed, Missing and filled teeth (DMFT) Score for Year 8 Children (12/13 years) living in Counties Manukau by ethnicity in 2013

Ethnicity	Yr 8 DMFT Score 2013
Maaori	1.63
Pacific	1.79
All Other	0.89
Total	1.27

Source: Ministry of Health

Nutrition and Physical Activity

“Healthy eating and physical activity are essential for having the energy needed to do well in school and in daily activities. Good nutrition and exercise habits during adolescence set positive patterns for adulthood and are important factors in preventing chronic disease in later life” (Clark et al, 2013a)

Nutrition

Overall about half of the students in the Youth’12 survey cohorts (54%/42%) reported they always eat breakfast. This was more commonly reported by male students (61%/51%) than female students (49%/35%) (Table 117); this was statistically significant for national data but not statistically significant for CM Health. Nationally students from high socio-economic deprivation neighbourhoods (41%) were much less likely to always have breakfast than students from low deprivation neighbourhoods (63%) CM Health students from high socio-economic deprivation schools (26%) were much less likely to always have breakfast than students from low deprivation schools (59%) (Table 118 and Figure 17).

Table 117: Percentage of students who always eat breakfast by gender

Always eat breakfast	Males	Females	Total
National Percentage (CI)	61.3% # (57.8-64.7)	48.6% # (44.2-53.0)	54.4% (51.0-57.7)
CM Health percentage (CI)	50.7% (40.3-61.2)	35.5% (25.0-46.0)	41.5% (31.0-52.1)

Statistically significant difference between groups in National cohort

Table 118: Percentage of students who always eat breakfast by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Always eat breakfast	Students from high deprivation neighbourhoods / schools	Students from middle deprivation neighbourhoods/ schools	Students from low deprivation neighbourhoods/ schools
National Percentage	41.2% # (36.4-45.9)	57.9% # (55.0-60.7)	63.2% (60.1-66.2)
CM Health Percentage	26.0%† (22.1-29.9)	47.4% † (43.8-51.0)	59.3%† (55.1-63.5)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

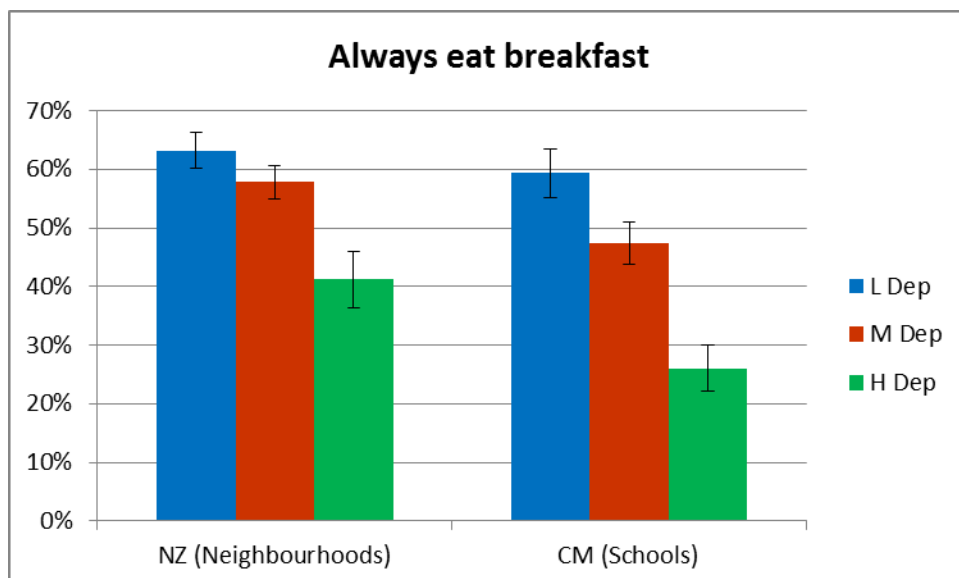


Figure 17: Percentage of students who always eat breakfast by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health data) school
(Error bars represent 95% CIs)

Thirty nine percent of students [in the national Youth'12 cohort] reported that they usually get lunch from shops or had takeaways. This was more common among students from high deprivation neighbourhoods, where 52% bought their lunch from shops or had takeaways.

About a third of CM Health students reported consuming soft drink four or more times a week and more than one in ten reported consuming fast food or takeaways four or more times a week (Table 119).

Table 119: Percentage of students who ate less healthy food items more than four times a week

Items eaten four or more times a week	National Percentage (CI)	CM Health Percentage (CI)
Soft drink	23.1% (20.4-25.7)	32.4% (24.4-40.4)
Fast food	6.4% (5.0-7.8)	10.9% (6.3-15.6)
Takeaways	6.5% (4.7-8.2)	13.1% (7.1-19.2)

Only (30% /32%) percent of students reported eating the current recommendation of two or more servings of fruit and three or more servings of vegetables a day in the past week.

Family meals

“Eating meals as a family is associated with positive outcomes for young people” (Clark et al, 2013).

Over half of students (62%/59%) reported that their family ate meals together five or more times in the past week (Table 120). Nationally students from lower socio-economic deprivation neighbourhoods were more likely to eat family meals together (66%) than students from higher deprivation neighbourhoods (58%) (Table 121). In the CM Health area the difference between students from low deprivation schools (63%) and students from high deprivation schools (55%) was not statistically significant.

Table 120: Percentages of families who eat together five or more times per week

Family eat together 5 times or more per week	National Percentage (CI)	CM Health Percentage (CI)
Overall	62.3% (61.1-63.6)	58.6% (55.2-62.1)

Table 121: Percentages of families that eat together five times or more per week by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Family eat together 5 times or more per week	Students from high deprivation neighbourhoods / schools	Students from middle deprivation neighbourhoods/ schools	Students from low deprivation neighbourhoods/ schools
National Percentage	58.2%# (56.0-60.5)	62.3% (60.5-64.2)	66.2% # (64.4-68.0)
CM Health Percentage	55.4% (51.8-59.1)	57.8% (55.5-60.1)	63.3% (58.8-67.8)

Statistically significant difference between groups in National cohort

Physical activity

The percentage of students who reported engaging in at least 20 minutes of vigorous physical activity on three or more occasions in the last week was 62%/57%. Males reported this more often (69%/68%) than females (57%/50%) (Table 122). Nationally this was statistically significantly higher for students from low socio-economic deprivation neighbourhoods (66%) than those from high deprivation (57%) neighbourhoods (Table 123). For CM Health area this was statistically significantly higher for students attending low deprivation schools (62%) than students attending high deprivation schools (54%). It was also more common among younger students than older students nationally, 66% of those aged 13 and under compared to 54% of those aged 17 and over (Table 124). The CM Health percentages of 59% for 15 years and under and 52% 16 years and over were not statistically significantly different.

Table 122: Percentage of students engaging in at least 20 minutes of physical exercise three or more times a week by gender

20 minutes of vigorous activity 3 or more times a week	Males	Females	Total
National Percentage (CI)	68.5% # (66.2-70.8)	56.5% # (53.9-59.1)	61.9% (59.9-64.0)
CM Health percentage (CI)	67.6% † (63.4-71.7)	50.1% † (46.2-54.0)	57.2% (53.8-60.5)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Table 123: Percentage of students engaging in at least 20 minutes of physical exercise three or more times a week by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

20 minutes of vigorous activity 3 or more times a week	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	56.7%# (54.2-59.3)	62.7% # (60.5-65.0)	66.3% # (63.5-69.1)
CM Health Percentage	53.6%† (49.7-57.5)	55.9% (51.1-60.6)	62.4%† (57.8-67.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Table 124: Percentage of students engaging in at least 20 minutes of physical exercise three or more times a week by age group

20 minutes of vigorous activity 3 or more times a week	Younger students (NZ 13 and under, CM 15 and under)	Older students (NZ 17 and over, CM 16 and over)
National Percentage	65.6% # (63.0-68.2)	54.1% # (50.3-57.9)
CM Health Percentage	59.5% (56.1-62.9)	52.1% (45.2-59.0)

Statistically significant difference between groups in National cohort.

However the percentage of students who had met the current recommendation of 60 minutes of physical activity a day in the last week overall (10%/10%), for males (14%/14%) and females (6%/7%), was markedly lower than the percentage for exercising vigorously 20 minutes three times a week.

For Counties Manukau students, 32% reported walking to or from school six or more times in a week.

Leisure Activities

Students [in the national Youth'21 cohort] participated in diverse leisure activities. Many spent three or more hours each day with friends (32%), watching television (28%), texting (29%) or playing computer games (20%). Texting on cell phones was more common among female students (35%) than male students (23%), while playing computer games was more common among male students (32%) than female students (9%). Other leisure activities included reading for fun (26%) and involvement in music, art, dance or drama (31%).

Overweight and Obesity

Youth'12 Survey data on overweight and obesity

Body mass index was calculated for each student in the Youth'12 survey by measuring their height and weight on the day they filled in the survey. The percentage of students that were obese or overweight was just over a third nationally (37%) and nearly half (48%) for the CM Health area.

There were no statistically significant differences between the prevalence of obesity by gender (Table 125) or age group (Table 126) nationally or for the CM Health area. However obesity was markedly higher in lower socio-economic areas. Nationally 22% of students from high socio-economic deprivation neighbourhoods were obese compared to 7% in low deprivation neighbourhoods (Table 127). In the CM Health area 37% of students from high deprivation schools were obese compared to 8% of students from low deprivation schools.

In the [in the national Youth'12 cohort] there was little variation in the level of obesity between students from urban and rural backgrounds.

Table 125: Percentage of obese students by gender

Obese	Males	Females	Total
National Percentage (CI)	12.1% (9.9-14.2)	13.1% (9.6-16.6)	12.6% (10.1-15.1)
CM Health percentage (CI)	18.9% (10.7-27.2)	24.3% (13.5-35.0)	22.1% (12.7-31.5)

Table 126: Percentage of obese students by age group

Obese	Younger students (NZ 13 and under, CM 15 and under)	Older students (NZ 17 and over, CM 16 and over)
National Percentage	12.7% (10.0-15.4)	11.5% (8.6-14.5)
CM Health Percentage	22.4% (13.3 -31.6)	21.4% (10.6-32.3)

Table 127: Percentage of obese students by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Obese	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	21.9% # (17.2-26.6)	9.7% # (8.3-11.0)	7.0% # (5.8-8.2)
CM Health Percentage	36.6% † (31.4-41.7)	11.6% † (9.0-14.1)	7.6% (5.2-9.9)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

The Counties Manukau Health students showed a notable mismatch in their assessment of their weight and their actual weight. This is shown in the tables below. Table 128 shows the distribution of students' perception of their weight. Table 129 shows the distribution of actual body size. Figure 18 shows the percentage of students whose self-assessment of their weight was very over weight and the much higher percentage that were measured as obese.

Table 128: Percentage of CM Health area students' self-assessment of their own weight into one of five categories

	Very under weight	Somewhat under weight	About right weight	Somewhat over weight	Very over weight
Male	4.1% (1.2-7.0)	18.5% (16.2-20.9)	55.7% (51.6-60.0)	17.7% (14.2-21.1)	3.9% (2.5-5.4)
Female	2.6% (1.0-4.2)	11.5% (9.1-13.9)	50.2% (45.6-54.8)	29.9% (26.4-33.3)	5.8% (4.2-7.4)
Total	3.2% (1.2-5.2)	14.3% (12.3-16.4)	52.4% (48.5-56.4)	25.0% (22.5-27.5)	5.1% (3.8-6.3)

Table 129: Percentage of CM Health area students by actual BMI measured on the date student filled in Youth 12'Survey, in four categories

	Under weight	Normal	Over weight	Obese
Male	3.8% (2.0-5.5)	53.1% (42.8-63.3)	24.2% (20.5-28.0)	18.9% (10.7-27.2)
Female	3.4% (1.7-5.1)	45.0% (31.0-59.1)	27.3% (21.8-32.8)	24.3% (13.5-35.0)
Total	3.5% (2.2-4.9)	48.3% (36.5-60.1)	26.1% (21.9-30.2)	22.1% (12.7-31.5)

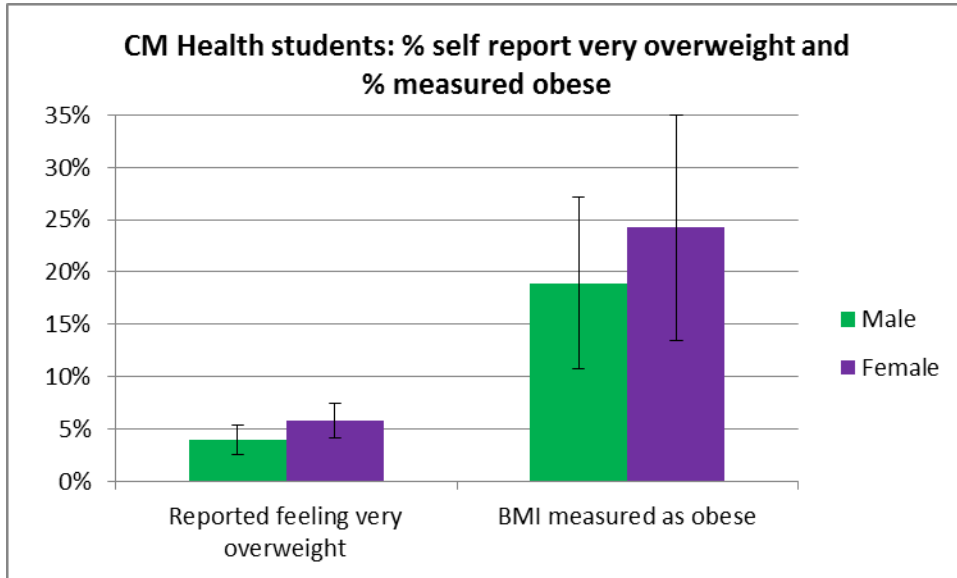


Figure 18: Percentage of CM Health students who reported being very overweight and percentage who were obese by gender
 (Error bars represent 95% CIs)

This mismatch is consistent with previous work with the adult population in Counties Manukau as part of the Let's Beat Diabetes (LBD) programme. Similar discrepancies were found between self-reported body size in an LBD community survey and a measured sample in the New Zealand Health Survey.

New Zealand Health Survey Data on overweight and obesity

Results from the New Zealand Health Survey (NZHS) give complementary information about obesity to that of the Youth'12 survey, for young people aged 15-24 years. In addition, data for young people in the overweight (but not obese) category is available from the NZHS.

The results from the NZ Health Survey for the cohorts collected over 2011/12 and 2012/13 combined showed that 22.4% of Counties Manukau 15-24 year olds in the sample cohort were overweight (Table 130) and another 30.2% were obese (Table 131). Nationally there were 25.4% overweight and 20.3% obese 15-24 year olds. The percentage for BMI of 30-35 and for all obese were statistically significantly higher for CM Health than the national percentage. Figure 19 shows a graph of the percentage of overweight and obese CM Health young people.

Table 130: Percentage of overweight 15-24 year olds in NZ and CM Health 2011-13 NZ Health Survey

Category	National Percentage (CI)	CM Health Percentage (CI)
Overweight (Excludes obese)	25.4% (23.5-27.4)	22.4% (19.9-28.8)

Source: New Zealand Health Survey, Ministry of Health

Table 131: Percentage of obese 15-24 year olds in NZ and CM Health 2011-13 NZ Health Survey

Category	National Percentage (CI)	CM Health Percentage (CI)
Obese BMI 30-35	12.4% * (10.8-14.0)	19.0% * (14.3-24.5)
Obese BMI 35-40	5.3% (4.4-6.2)	6.6% (3.9-10.2)
Obese BMI 40+	2.6% (2.0-3.3)	4.6% (2.1-8.8)
All obese	20.3% * (18.3-22.2)	30.2% * (23.8-37.4)

* Statistically significant difference between groups in National cohort and CM Health cohort

Source: New Zealand Health Survey, Ministry of Health

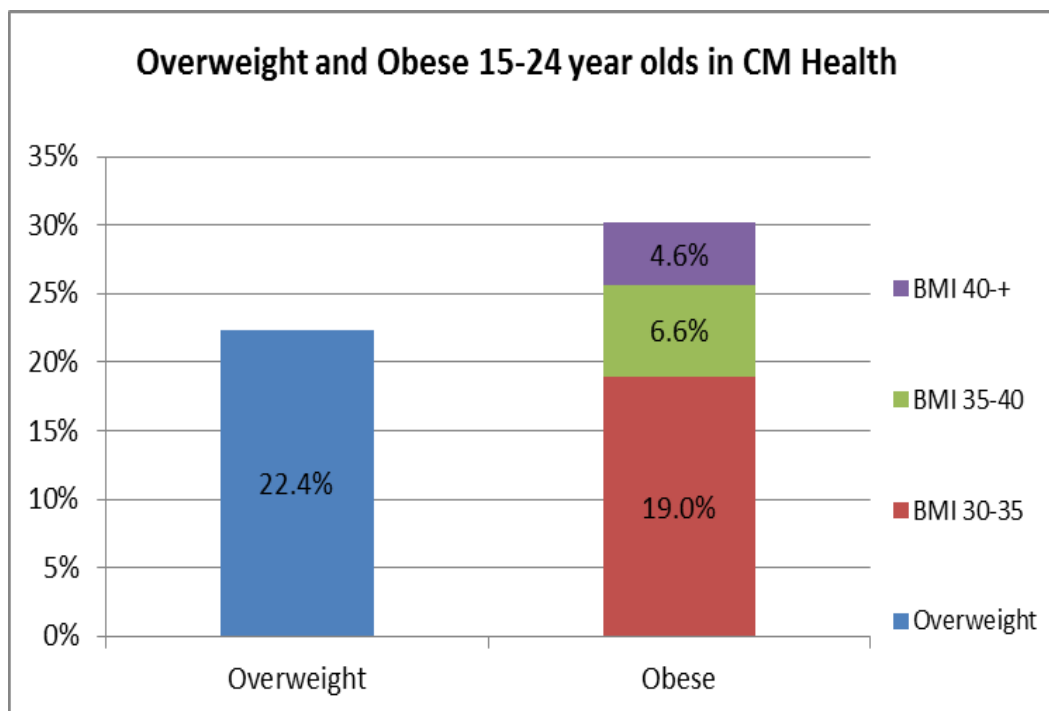


Figure 19: Percentage of overweight and obese 15-24 year olds in CM Health 2011-13

Source: New Zealand Health Survey, Ministry of Health

Between 2006 and 2011-13 the percentage of obese 15-24 year olds in CM Health nearly doubled – from 16% to 30%. Table 132 shows that in 2006 a similar percentage of males and females in CM Health were obese. However by 2011-13, whilst the absolute percentage of obese males increased by 9% (from 15.9% to 24.9%), the absolute percentage of obese females increased by 19% (from 15.8% to 34.9%). This means in seven years the proportion of obese females aged 15-24 years in the CM Health sample increased from just less than one in six being obese to over one in three being obese.

Table 132: Percentage of obese 15-24 year olds in 2006 compared to 2011-13 for CM by gender

	2006	2011-3	P value
Male	15.9%	24.9%	0.13
Female	15.8%	34.9%	0.01*
Total	15.8%	30.2%	<0.01*

Source: New Zealand Health Survey, Ministry of Health

*Statistically significant as value is less than 0.05

The national figures have also increased (Table 133) but Counties Manukau's 14% increase has been larger than New Zealand's 6% increase.

Table 133: Percentage of obese 15-24 year olds in 2006 compared to 2011-13 for NZ by gender

	2006	2011-13	P value
Male	13.0%	18.7%	<0.01*
Female	15.9%	21.7%	<0.01*
Total	14.4%	20.2%	<0.01*

Source: New Zealand Health Survey, Ministry of Health

*Statistically significant as value is less than 0.05

Nutrition, physical activity and obesity summary

The data on nutrition, physical activity and obesity in CM Health young people showed some notable statistics. Over half (58%) of Youth'12 students from Counties Manukau had meals with their family five or more times a week. Only a quarter of students from high deprivation schools reported always eating breakfast. Forty-eight percent of CM students are either overweight or obese. For older young people (aged 15-24 years) females have had a rapid increase in the prevalence of obesity.

Emotional Wellbeing

“Emotional wellbeing is an important component of Health. Students who feel happy and able to cope with problems generally have a greater capacity too well at school, to enjoy life and to contribute to their families and communities. Emotional distress, depression and suicidal behaviours are often under recognised in adolescents and cause considerable harm; and yet these are issues that can be addressed” (Merry & Stasiak, 2011 Cited by: Clark et al, 2013a).

Of note, research which included Youth’12 data, showed an association between schools which provided health services and less depression and suicide risk in the students attending the schools (Denny et al, 2014). Certain aspects that made the association stronger was when the health team was on site, there was more than 2.5 hours of nursing time per 100 students and the health professionals had postgraduate youth health training.

Life satisfaction and emotional wellbeing

A high percentage of students in the Youth/12 cohorts (92%/92%) reported feeling okay, satisfied or very happy with their life. Nationally this was statistically higher for males (94%) than females (90%) but for CM Health males (94%) compared to females (91%) the difference was not significant (Table 134). Overall about three quarters of students reported having good emotional wellbeing (76%/77%), based on their responses to the WHO-5 questionnaire (WHO-5 scores of good (13-17), very good (>17-21) and excellent (>21-25)). Males from both the national and CM Health cohorts (82%/85%) had a significantly higher percentage reporting good emotional wellbeing than females (71%/73%) (Table 135).

Table 134: Percentage of students feeling okay, satisfied or very happy with their life by gender

Life satisfaction	Males	Females	Total
National Percentage (CI)	93.7% # (92.9-94.6)	90.2% # (89.1-91.3)	91.8% (91.0-92.6%)
CM Health Percentage (CI)	94.2% (92.0-96.6)	91.3% (88.0-94.6)	92.5% (89.7-95.2)

Statistically significant difference between groups in National cohort

Table 135: Percentage of students with good emotional wellbeing on WHO-5 questionnaire by gender

Good emotional wellbeing	Males	Females	Total
National Percentage (CI)	82.1% # (80.9-83.3)	71.3% # (69.3-73.2)	76.2% (74.8-77.5%)
CM Health Percentage (CI)	84.9%† (82.0-88.0)	72.5%† (65.9-79.2)	77.5% (73.2-81.8)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

18%/ 21% of students had seen a health professional in the previous 12 months due to emotional worries (Table 136). Nationally this was statistically significantly higher for females (22%) than males (14%), but it was not statistically significantly different between CM Health females (23%) and males (17%).

Table 136: Percentage of students who had seen a health professional in the last 12 months due to emotional worries by gender

Seen a health professional in previous 12 months due to emotional worries	Males	Females	Total
National Percentage (CI)	13.6% # (12.1-15.1)	22.4% # (20.9-23.9)	18.4% (17.1-19.7)
CM Health Percentage (CI)	17.3% (13.2-21.3)	22.8% (19.9-25.6)	20.6% (17.5-23.6)

Statistically significant difference between groups in National cohort

In the national cohort 10.9% (CI 9.8-11.9%) of young people reported difficulty trying to access healthcare for emotional worries.

Depressive symptoms

The Youth'12 survey analysis included determining the percentage of students who, at the time they filled in the survey, had current depressive symptoms. This was done using the Reynolds Adolescent Depression Scale – Short Form (RADS-SF) (Milfont et al, 2008; Reynolds, 2002). This found more female students (16%/16%) reported symptoms of depression which are likely to be clinically significant (i.e. likely to have an impact on a student's daily life) than male students (9%/7%) Table 137).

Table 137: Percentage of students who had current depressive symptoms when they filled in the survey by gender

Current depressive symptoms	Males	Females	Total
National Percentage (CI)	8.6% # (7.5-9.7%)	16.2% # (14.6-17.8)	12.8% (11.6-13.9)
CM Health Percentage (CI)	7.5% † (5.0-9.9%)	16.3% † (11.9-20.7%)	12.8% (9.6-16.0%)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

In addition, [in the national Youth'12 cohort] 38% of female and 23% of male students reported feeling down or depressed most of the day for at least two weeks in a row during the last 12 months.

Deliberate self-harm

Deliberate self-harm was reported by about a quarter of all students. Females had a higher rate of self-harm than the males, both nationally (29% versus 18%) and for CM Health (31% versus 22%) (Table 138).

Table 138: Percentage of students who had deliberately self-harmed in the previous 12 months by gender

Deliberate self-harm last 12 months	Males	Females	Total
National Percentage (CI)	17.9% # (16.6-19.2)	29.1% # (27.4-30.8)	24.0% (22.7-25.4)
CM Health percentage (CI)	22.0% † (20.0-24.0)	30.9% † (28.1-33.7)	27.3% (25.3-29.1)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Males in CM Health had a higher percentage (22%) who reported they had deliberately harmed themselves in the previous 12 months than nationally (18%) (Table 139).

Table 139: Percentage of students who had deliberately self-harmed in the previous 12 months: Males only

	National Percentage (CI)	CM Health Percentage (CI)
Deliberate self-harm last 12 months		
- Males	17.9% * (16.6-19.2)	22.0% * (20.0-24.0)

*Statistical significant difference between National and CM Health result

Suicidal ideation and attempts

Having seriously thought about suicide in the previous 12 months was reported by 21%/23% percent of female students which was significantly higher than the percentage reported by males students 10%/11%, both nationally and for CM Health (Table 140).

Table 140: Percentage of students who had seriously thought of suicide in the past 12 months by gender

Serious thoughts of suicide in the last 12 months	Males	Females	Total
National Percentage (CI)	9.8% # (8.8-10.8)	20.7% # (18.9-22.4)	15.7% (14.5-17.0)
CM Health percentage (CI)	11.3% † (9.1-13.5)	23.3% † (20.7-25.8)	18.5% (16.6-20.4)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Counties Manukau students (7.4%) were statistically significantly more likely to have made a suicide attempt over the last 12 months than students nationally (4.5%) (Table 141). Also Counties Manukau female students (10%) were statistically significantly more likely to have made a suicide attempt than female students nationally (6%) (Table 141). Females had a higher percentage of attempted suicides than males nationally (6.2% versus 2.4%) and in CM Health Area (9.7% and 4.1%) (Table 142). This high rate of suicide attempts in Counties-Manukau is important as suicide was the leading cause of deaths in New Zealand for 15-19 year olds (31% of total deaths for this age group in 2008-2012).

Table 141: Percentage of students who had made a suicide attempt in the past 12 months

Attempted suicide	National Percentage (CI)	CM Health Percentage (CI)
Both Genders	4.5%* (3.8-5.2)	7.4%* (5.9-9.0)
Males	2.4% (1.8-3.0)	4.1% (0.8-5.8)
Females	6.2% * (5.2-7.3)	9.7% * (7.4-12.0)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Table 142: Percentage of students who had made a suicide attempt in the past 12 months by gender

Attempted suicide	Males	Females
National Percentage (CI)	2.4% # (1.8-3.0)	6.2% # (5.2-7.3)
CM Health percentage (CI)	4.1% † (0.8-5.8)	9.7% † (7.4-12.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Comparisons between 2001, 2007, 2012 Youth'12 surveys

Approximately three quarters of students [in the national Youth'12 cohort] reported good emotional wellbeing in 2007 and 2012 (not measured in 2001).

The percentage of males with significant depressive symptoms (using RADS-SF) dropped from 2001 to 2007 and then increased again in 2012 while significant depressive symptoms among females remained relatively stable (males 9% in 2001, 7% in 2007 and 9% in 2012; females 15% in 2001, 15% in 2007 and 16% in 2012). Fewer students reported having made a suicide attempt in the previous 12 months in 2007 and 2012 (approximately 5% of students in both 2007 and 2012) than in 2001 (8%).

Emotional wellbeing summary

Although most CM Health students reported feeling okay, satisfied or very happy with their life there were also some who reported recent negative events: one quarter had deliberately self-harmed and over one in fourteen a suicide attempt in the past 12 months. One in five CM students reported seeing a health professional in the past 12 months for emotional worries indicating young people do engage with the health system for emotional concerns.

Substance Use and Gambling

“Use of alcohol and other drugs by adolescents is significant in terms of problems and risks during adolescence (including mental health difficulties and risks such as unsafe driving), as well as in terms of later life issues. For example, most adult smokers start smoking cigarettes during their teenage years and people who do not begin smoking during adolescence are less likely to become smokers as adults.” (Clark et al, 2013a)

Cigarette Smoking

In 2012, 11%/11% of students in the Youth’12 survey cohorts reported that they currently smoked cigarettes at least occasionally, while just under 5%/4% of students reported smoking cigarettes weekly or more often.

Thirty-one percent of students [in the national Youth’21 cohort] who currently smoke buy their own cigarettes and around half (49%) of these students are not routinely asked to show identification (ID). Many current smokers (61%) had tried to cut down or give up smoking.

The New Zealand Health Survey (NZHS) and Census 2013 also provide information on young people’s smoking in Counties Manukau. In the NZHS 15-24 year olds were asked whether they were current smokers (at least monthly and 100 in lifetime), daily smokers (every day and at least 100 in lifetime) or ex-smokers (used to smoke and currently does not). The decrease in current smokers and daily smokers demonstrated in the NZHS 2006 and 2011-13 surveys is shown for CM Health in Table 143 and nationally in Table 144.

Counties Manukau had a drop in current smokers among 15-24 year olds from 29% in the 2006 survey to 18% in 2011-13 and in daily smokers from 27% to 15%. Nationally current smokers dropped from 23% to 21% and daily smokers from 21% to 18%. The largest percentage drop was for male current smokers in Counties Manukau (from 33% to 16%).

Table 143: Counties Manukau Health smoking percentages from New Zealand Health Survey for 15-24 year olds in 2006 and 2011-13 by gender

Category		2006	2011-13	P value
Current smokers	Male	33.4%	15.9%	0.02*
	Female	24.0%	19.5%	
	Total	28.8%	17.8%	0.03*
Daily Smokers	Male	32.7%	11.7%	0.01*
	Female	20.1%	17.2%	
	Total	26.5%	14.5%	0.01*
Ex-Smokers	Male	1.5%	1.1%	
	Female	8.8%	5.9%	
	Total	5.0%	3.6%	

Source: New Zealand Health Survey, Ministry of Health

*Statistically significant as value is less than 0.05

Table 144: New Zealand smoking percentages from New Zealand Health Survey for 15-24 year olds in 2006 and 2011-13 by gender

Category		2006	2011-13	P value
Current smokers	Male	23.3%	19.7%	
	Female	23.5%	21.3%	
	Total	23.4%	20.5%	0.02*
Daily Smokers	Male	21.7%	16.6%	
	Female	19.7%	18.7%	
	Total	20.7%	17.6%	0.04*
Ex-Smokers	Male	3.4%	5.8%	0.02*
	Female	6.4%	6.2%	
	Total	4.9%	6.0%	

Source: New Zealand Health Survey, Ministry of Health

*Statistically significant as value is less than 0.05

In the Census someone is defined as a regular smoker if they smoke at least one cigarette a day. Reflecting the drops in the NZHS smoking prevalence, regular smoker percentages for CM Health 15-24 year olds were lower in the 2013 Census (14%) than the 2006 Census (21%) (Table 145). Unlike the NZ Health Survey results, the decrease in the census prevalence was larger in CM Health females than males.

Table 145: Smoking percentage from census for 15-24 year olds for CM Health and NZ by census year and gender

Regular smokers		2006	2013
CM Health	Male	21.7%	14.5%
	Female	21.3%	12.7%
	Total	21.5%	13.7%
National	Male	20.0%	14.8%
	Female	17.9%	12.7%
	Total	18.9%	13.7%

Source: 2006 and 2013 Census, Statistics NZ

Alcohol

Youth'12 Survey alcohol information

Fifty-seven percent of students [in the national Youth'12 cohort] had ever tried alcohol, 8% drink alcohol weekly or more frequently.

In the Youth'12 survey alcohol was currently used by less CM Health students (33%) than nationally (45%) (Table 146). The definition of a current drinker was a student who continued to drink (at the time of the survey), beyond their first experiences with alcohol.

A lower percentage (15%) of CM Health students reported binge drinking (five or more alcoholic drinks within four hours) in the last four weeks than nationally (23%) (Table 146).

Table 146: Percentage of students who reported currently using alcohol and percentage who reported binge drinking in last four weeks

Alcohol Use	National Percentage (CI)	CM Health Percentage (CI)
Current use	45.4%* (42.1-48.7)	32.6%* (27.3-37.9)
Binge drinking in the last four weeks	22.6%* (20.4-24.7)	15.4%* (12.9-17.9)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Among current drinkers [in the national Youth'12 cohort], 69% had consumed alcohol in the last four weeks and 18% consumed alcohol weekly or more often. Students who were current drinkers reported a range of problems that had occurred after drinking alcohol, including unsafe sex (12%), unwanted sex (5%), or injuries (15%). Eleven percent of current drinkers had been told by friends or family that they needed to cut down their drinking.

The two most frequent sources of alcohol amongst drinkers were parents (60%/43%) and friends (44%/54%) (Table 147). (Students could report more than one source). However students in the CM Health cohort, compared to the national cohort, were significantly less likely to report parents as a source and significantly more likely to report friends as a source. Other important sources of alcohol were getting someone else to buy alcohol for them (30%/30%) and buying the alcohol themselves (11%/10%).

Table 147: Alcohol sources for students who were current drinkers

Alcohol Source	National Percentage (CI)	CM Health Percentage (CI)
Parents	60.1% * (56.9-69.3)	43.1% * (31.0-55.3)
Friends	43.8% * (41.6-46.0)	53.9% * (48.0-59.9)
Someone to buy it for them	29.7% (27.9-31.4)	29.9% (24.9-34.8)
Bought it themselves	10.8% (9.5-12.1)	9.9% (6.2-13.6)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

New Zealand Health Survey Alcohol Information

The New Zealand Health Survey asked about hazardous drinking (Score of 8 or more on 10 question AUDIT-Alcohol Use Disorders Identification Test). Hazardous drinking of CM Health 15-24 year olds reduced from 25% in the 2006 survey to 17% in the 2011-13 survey but this difference was not statistically significant. For females the percentage reduced in CM Health from 22.8% to 8.8% and nationally from 27% to 18% (both statistically significant) (Table 148). In the national sample male hazardous drinking reduced a statistically significant amount (42% to 31%), however for the Counties Manukau cohort the decrease was not statistically significant (27% to 25%) (Tables 149 and 148).

Table 148: Percentage of Counties Manukau Health 15-24 year olds reporting hazardous drinking - in 2006 and 2011-13 NZ Health Surveys by gender

	2006	2011-13	P value
Male	27.1%	25.1%	
Female	22.8%	8.8%	0.02*
Total	25.0%	16.8%	

Source: New Zealand Health Survey, Ministry of Health

*Statistically significant as value is less than 0.05

Table 149: Percentage of New Zealand 15-24 year olds reporting hazardous drinking – in 2006 and 2011-13 NZ Health Surveys by gender

	2006	2011-13	P value
Male	42.2%	31.4%	<0.01*
Female	27.1%	17.9%	0.02*
Total	34.7%	24.9%	<0.01*

Source: New Zealand Health Survey, Ministry of Health

*Statistically significant as value is less than 0.05

Other substance use - Youth'12 survey

Twenty-three percent of students [in the national Youth'12 cohort] have ever used marijuana.

In the Youth'12 survey students the percentage who reported currently using marijuana was 13%/11% and 3%/2% of students reported using marijuana weekly or more often.

Twenty-one percent of all students [in the national Youth'12 cohort] who had ever used marijuana reported using it before or during school. Thirty-four percent of current users had tried to cut down or give up using it.

'Other' drug use is uncommon. Party pills (4%) and ecstasy (3%) were the most common other drugs ever used by all students. Most students who reported using

ecstasy had used it only once. The use of other drugs, such as LSD (acid), heroin, methamphetamine ('P'), or speed, was uncommon. Less than 1% of students reported ever using 'P' and most of these students reported only having used it once.

Gambling

Twenty-four percent of students [in the national Youth'12 cohort] had gambled in the past year and 10% had gambled in the last four weeks. Gambling was more common among male students (26% of males and 23% of females had gambled in the last 12 months). The most common forms of gambling reported by students who had gambled in the last 12 months were bets with friends (17%), Instant Kiwi (9%), Lotto (4%), and/or cards or coins (e.g. poker) (6%). Very few of these students spend more than \$20 a week (4%) or more than 30 minutes a day gambling (2%).

Comparisons between 2001, 2007, 2012 Youth'12 surveys

There has been a significant decline in the use of cigarettes, alcohol and marijuana reported by students [in the national Youth'12 cohort]. The proportion of students who had ever tried smoking cigarettes decreased (53% in 2001, 32% in 2007 and 23% in 2012) and smoking cigarettes weekly also decreased (16% in 2001, 8% in 2007 and 5% in 2012). These changes are particularly noticeable among younger students. Binge drinking has also followed a similar downward trend with 40% of students reporting binge drinking in the last four weeks in 2001, compared to 34% in 2007 and 23% in 2012.

Similarly, the percentage of students who had ever tried marijuana has decreased, especially among younger students. Thirty-nine percent of students had ever tried marijuana in 2001, compared with 27% in 2007 and 23% in 2012.

Substance use and Gambling summary

The number of 15-24 year olds smoking in Counties Manukau has dropped substantially since 2006. Measurements of current smokers aged 15-24 years in CM Health were 18% from the NZ Health Survey (data captured between 2011 and 2013) and 14% in the 2013 Census. In the Youth'12 survey percentages of students who reported currently using alcohol was lower for CM Health (33%) than nationally (45%). In the NZ Health Survey the percentage of 15-24 year olds who reported hazardous drinking was lower for CM Health (17%) than nationally (25%).

Gender Identity, Sexuality and Sexual Health

“Adolescence is the period of life when most people begin to experience strong romantic attractions and sexual feelings. It is also a time when some young people are questioning or further developing their gender and sexual identity.” (Clark et al, 2013a)

Gender Identity

About 1% of students [in the national Youth’12 cohort] reported that they were transgender (a girl who feels like she should have been a boy, or a boy who feels like he should have been a girl e.g. Trans, Queen, Fa’afafine, Whakawāhine, Tangata ira Tane, Genderqueer). Ninety-six percent were not transgender and approximately 3% were not sure.

Sexual attractions

Less CM Health area students (86%) reported being exclusively attracted to the opposite sex than nationally (92%) (Table 150). The figure was significantly lower for CM Health females (85%) than nationally (91%) but was not statistically significantly different between CM Health males (88%) and national males (93%).

Table 150: Percentage of students who were exclusively attracted to the opposite sex

Sexual attracted exclusively to opposite sex	National Percentage (CI)	CM Health Percentage (CI)
All students	91.9% * (90.9-92.9)	86.3% * (82.4-90.3)
- Male student responders	93.2% (92.0-94.5)	88.2% (83.1-93.4)
-Females student responders	90.8% * (89.7-92.0)	85.1%* (81.2-89.0)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Four/6% percent of students were attracted to the same-sex or both sexes and 4%/8% were either not sure of their sexual attractions or were attracted to neither sex (Table 151).

Table 151: Percentage of students attracted to same or both sexes and percentage of students not sure of sexual attraction or not attracted to either sex

Sexual attraction	National Percentage (CI)	CM Health Percentage (CI)
Sexual attracted to same or both sexes	3.8% (3.3-4.2)	6.1% (4.1-8.1)
Not sure of Sexual attraction or not attracted to either sex	4.3% (3.6-5.1)	7.6% (4.6-10.5)

Sexual behaviours

Just over three-quarters of students had never had sexual intercourse. There was little difference between males and females and between national and CM health percentages for ever having sexual intercourse or being currently sexually active (defined as having had sex in the last three months). Twenty-five/23% percent of male students and 24%/21% of female students reported ever having had sex, while 18%/17% of male students and 19%/16% of female students reported being currently sexually active (Table 152).

Table 152: Percentage of students who had ever had sex and percentage of students who had sex in the last 3 months by gender

Had sexual intercourse	National Percentage (CI)	CM Health Percentage (CI)
Ever- Males	24.9% (22.5-26.2)	23.0% (17.2-28.8)
Ever- Females	24.0% (21.9-26.0)	20.9% (17.8-24.0)
Last 3 months- Males	18.3% (16.3-20.4)	17.1% (12.4-21.8)
Last 3 months- Females	19.3% (17.5-21.0)	16.1% (12.5-19.7)

Sexually active students were asked about prevention of sexually transmitted infections and contraceptive use. Of those who were sexually active 44%/49% had talked with their partner about preventing sexually transmitted infections. The percentages of students who reported using contraception all of the time to prevent pregnancy (58%/45%), and the percentage who reported using condoms all of the time to protect against sexually transmitted infections (46% /38%), were lower for CM Health than nationally (Table 153).

Table 153: Percentage of students who took sexual health and pregnancy protection actions

Sexual health and pregnancy protection	National Percentage (CI)	CM Health Percentage (CI)
Discussed with partner STIs	44.2% (40.9-47.6)	49.3% (43.3-55.4)
Always used contraception to prevent pregnancy	58.2% * (54.3-62.1)	44.6% * (36.6-52.6)
Always used condoms to prevent STIs	45.5%* (42.9-48.1)	37.7% * (34.0-41.4)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

CM Health had a higher percentage (32%) of currently sexually active students who reported that they did not use or only sometimes used condoms or other contraception than nationally (17%) (Table 154). CM Health females were significantly more likely to report this (38%) than females nationally (18%) (Table 154). Nationally this was higher among students from high socio-economic deprivation neighbourhoods (24%) than students from low deprivation neighbourhoods (11%) (Table 155). CM Health had higher percentages report not using contraception or using it only sometimes in students from high deprivation schools (40%) than students from low deprivation schools (15%) (Table 155).

Table 154: Percentage of students who did not use contraception or only sometimes used contraception by gender

Not use contraception or only sometimes use contraception	National Percentage (CI)	CM Health Percentage (CI)
All students	17.5% * (14.6-20.4)	31.9% * (24.3-39.5)
Male Students	17.2% (14.4-19.9)	24.2% (14.2-34.1)
Female students	17.8% * (13.7-21.9)	37.6% * (26.4-48.7)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Table 155: Percentage of students who did not use contraception or only sometimes used contraception, by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Not use contraception or only sometimes use contraception	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	24.2% # (18.7-29.6)	16.5% (13.5-19.5)	11.1% # (8.3-13.9)
CM Health Percentage	40.0% † (33.8-46.2)	26.8% (13.9-39.7)	15.0% † (9.0-21.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Comparisons between 2001, 2007, 2012 Youth'12 surveys

[in the national Youth'12 cohort]

The proportion of students who reported ever having had sex was similar in 2001 and 2007 (approximately a third), but was lower in 2012 (24%). This decrease was most apparent among younger students. The 2012 question about having ever had sex explicitly told students not to count abuse or unwanted sexual experiences, whereas in 2007 and 2001 this was not stated. Hence, the apparent reduction in students who have ever had sex may partly reflect this change.

Future analyses will explore this question in more depth. The percentage of sexually active students who always use contraception (to prevent pregnancy) has remained unchanged at about 60% across the three surveys. Reported condom use (to prevent sexually transmitted disease or infection) was broadly similar in 2001 (49%), 2007 (45%) and in 2012 (46%).

Gender Identity, Sexuality and Sexual Health summary

CM had a lower percentage of students than nationally state that they were attracted exclusively to the opposite gender. Less than a quarter of students had ever had sex. Although discussing STIs with your partner was no different between sexually active students from CM Health and nationally, the reporting of condom use to prevent STIs and contraception to prevent pregnancy was lower for the CM Health cohort than national percentages. The percentage of CM Health students stating they did not use contraception or used it only sometimes was much higher in students from high deprivation schools.

Volumes of Counties Manukau young women giving birth

Teenage pregnancy has been associated with a number of negative outcomes including poor educational achievement, poor physical health and poor mental health as well as social isolation and poverty. (Paranjothy, 2009 Cited by: Boladuadua, 2013). Research in Christchurch, New Zealand found early motherhood was associated with lower educational incomes and poorer economic situations at age 25 (Boden et al, 2008). Children of teenage parents are more likely to become teenage parents themselves in the future (Botting, 1998 Cited by: Boladuadua, 2013). This report counts only deliveries so does not include all teenage pregnancies as miscarriages and terminations are not counted.

There has been a decrease in the number of teenage young women giving birth in CM Health between 2007 and 2013. There were 838 teenage deliveries in 2007 and 577 for 2013 (Table 156). In 2013 there appeared to be a drop in deliveries to CM Health women of all ages. The total number of deliveries for all ages in 2013, 7,974, was over 400 less than the smallest volume in the previous 6 years, (8,417 in 2009). The percentage of deliveries which were to teenagers also decreased from 10% in 2007 to 7% in 2013 (Table 156).

Table 156: Number of deliveries from CM Health domiciled women per year 2007-2013

Year	2007	2008	2009	2010	2011	2012	2013
Teenage Deliveries	838	861	779	731	715	698	577
All Deliveries	8,683	8,650	8,417	8,522	8,583	8,635	7,989
Teenage Percentage	9.7%	10.0%	9.3%	8.6%	8.3%	8.1%	7.2%

Source: NMDS, Ministry of Health, Analysed by CM Health

As shown in Figure 20 there appears to be a decrease in deliveries for all women 20 years and younger. This decrease does not appear to be matched by an increase in deliveries in the age groups 21-22 years and 23-24 years. (The data in Figure 20 covers 2 year age groups and hence the 19-20 group include teenage 19 year olds, who had 236 deliveries in 2013, and non-teenage 20 year olds who had 298 deliveries in 2013.)

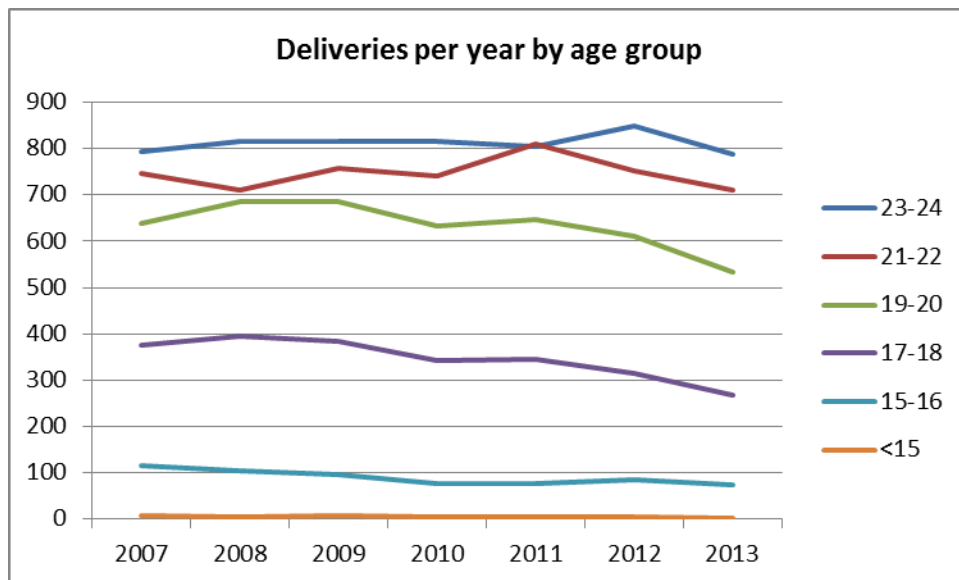


Figure 20: Number of deliveries for CM Health domiciled women 10-24 years old by age group 2007-2013

Source: NMDS, Ministry of Health, Analysed by CM Health

Maaori have a greater percentage of their deliveries occurring in both the 15-19 and 20-24 year age groups. Figure 21 below shows that 20% of Maaori deliveries in 2007 were to women aged 15-19 years and this had lowered to 15% of deliveries by 2013. Figure 22 suggests that the percentage of deliveries in the 20-24 year age group for Maaori women in Counties Manukau appears to be increasing.

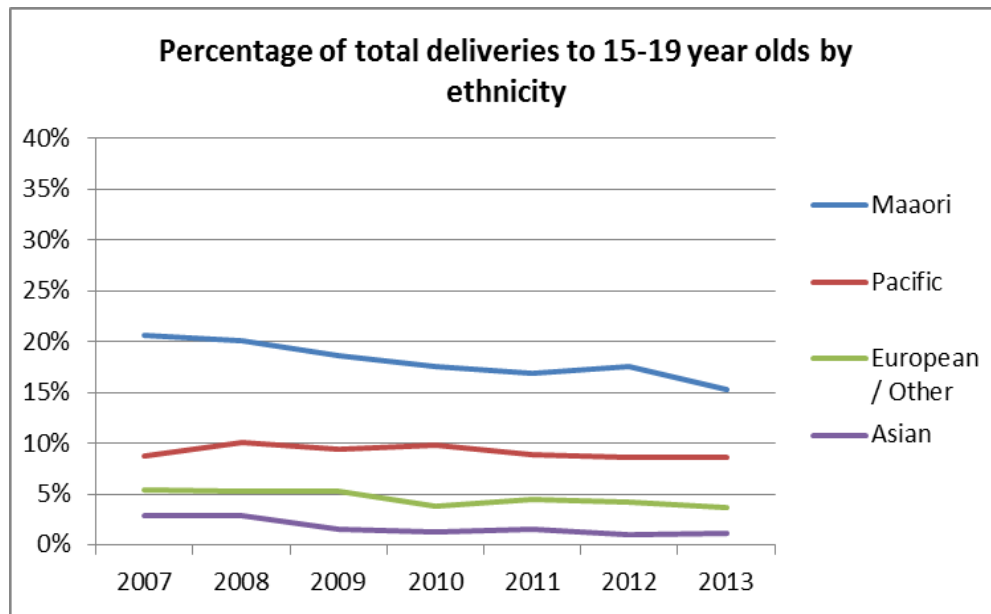


Figure 21: For each ethnicity the percentage of all deliveries that were by women aged 15-19 years for CM Health women 2007 to 2013

Source: NMDS, Ministry of Health, Analysed by CM Health

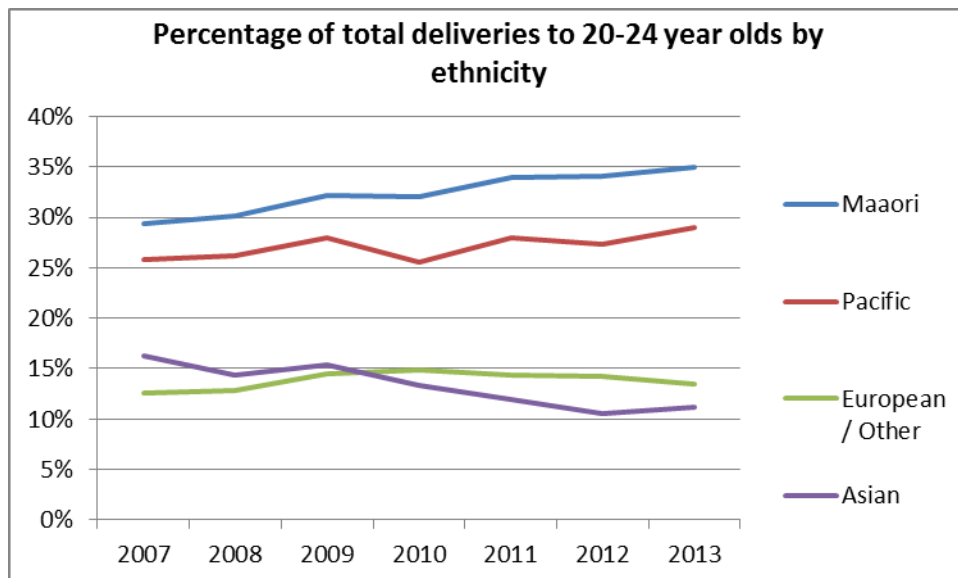


Figure 22: For each ethnicity the percentage of all deliveries that were by women aged 20-24 years for CM Health women 2007 to 2013

Source: NMDS, Ministry of Health, Analysed by CM Health

Motor Vehicle Risk Behaviours and Violence

“Motor vehicle crashes are the leading cause of death among young people in New Zealand. Violence, including witnessing violence, is associated with a range of poor health outcomes for young people.” (Clark et al, 2013a)

Motor vehicle risk behaviours

Seventy-four /72% percent of students in the Youth’12 survey always wore a seatbelt when driving or being driven in a car (Table 157). Student’s age or gender did not change this. However, students from high socio-economic deprivation neighbourhoods in the national cohort were less likely to wear a seatbelt (68%) than students from low deprivation neighbourhoods nationally (78%) (Table 158). In CM Health area students from high deprivation schools were less likely to wear a seatbelt (62%) than students from low deprivation schools nationally (81%). As transportation is one of the leading causes of death in young people in New Zealand (see Mortality section and table 171 for details), this highlights an area of risk to CM Health young people.

Table 157: Percentage of students who always wear a seatbelt

Always wear a seat belt	National Percentage (CI)	CM Health Percentage (CI)
All students	73.9% (72.0-75.7)	72.3% (64.7-79.9)

Table 158: Percentage of students who always wear a seatbelt by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Always wear a seat belt	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	67.8% # (64.9-70.6)	76.1%* # (74.1-78.1)	77.5% (75.7-79.2)
CM Health percentage	61.8% † (53.7-70.0)	83.3% * † (80.3-86.3)	81.1% (78.1-84.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

About one in five students reported that in the last month they been driven in a car in way that could be dangerous; 18%/20% by someone who had been drinking and 18%/18% had been driven in a car dangerously (e.g. speeding, car chases, and burnouts) (Table 159).

Table 159: Percentage of students who were driven by someone who had been drinking and percentage driven by someone driving dangerously

In the last month driven by	National Percentage (CI)	CM Health Percentage (CI)
Someone who had been drinking	18.4% (17.2-19.7)	19.6% (17.4-21.8)
Someone driving dangerously	17.6% (16.6-18.7)	17.7% (16.0-19.4)

Of students who could drive 4%/4% had driven in the last month after drinking more than two glasses of alcohol.

Witnessing violence

CM Health area students were more likely (21%) to see an adult hitting or hurting children in their home in the last 12 months than students nationally (14%) (Table 160). 11% of CM Health area students had witnessed adults hitting or physically hurting other adults in their home in the last 12 months which was not statistically significantly different to the national rate of 7%.

About half (50%/49%) had seen adults yell at a child and just under half (48%/46%) had seen adults yell at each other in their home in the last 12 months.

Table 160: Percentage of students who had seen acts of violence in their own home in the last 12 months

Violence they had seen in last 12 months in their own home	National Percentage (CI)	CM Health Percentage (CI)
Adults hitting or hurting children	13.9%* (12.4-15.4)	20.8%* (15.7-25.8)
Adults hitting or hurting adults	7.4% (6.5-8.4)	10.9% (8.1-13.7)
Adults yell at children	50.0% (48.2-51.8)	49.4% (46.8-52.0)
Adults yell at each other	48.3% (46.9-49.8)	45.7% (43.2-48.3)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Students witnessing adults hurt a child in the last 12 months in their own home were more common among students from high deprivation neighbourhoods nationally and students from high deprivation schools in the CM Health area than students from middle and low deprivation neighbourhoods and schools (Table 161).

Table 161: Percentage of students who had seen an adult hurting a child in their own home in the last 12 months by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Seen adult hurting a child in their own home in the last 12 months	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	19.2% # (16.6-21.8)	12.9% # (11.6-14.2)	10.0% (8.6-11.4)
CM Health Percentage	28.5% † (25.1-32.0)	15.9% † (12.8-18.9)	13.2% (9.4-17.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Students witnessing adults hurting other adults in their own home were more common among students from high socio-economic deprivation neighbourhoods nationally and students from high deprivation schools in the CM Health area than students from middle and low deprivation neighbourhoods and schools (Table 162).

Table 162: Percentage of students who had seen adults hitting each other in their own home in the last 12 months by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Seen adults hitting other adults in their own home in the last 12 months	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	11.0% # (9.1-12.8)	6.5% # (5.7-7.4)	5.1% (4.1-6.0)
CM Health Percentage	15.2% † (13.3-17.1)	7.8% † (6.8-8.8)	7.0% (4.9-9.2)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Percentages of students witnessing adults yelling at children in their own home and those witnessing adults yelling at other adults in their own home did not show any statistically significant differences with socio-economic deprivation (Tables 163 and 164).

Table 163: Percentage of students who had seen an adult yell at a child in their own home in the last 12 months by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Seen adult yell at a child in their own home in the last 12 months	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	51.6% (48.6-54.6)	48.9% (46.3-51.5)	49.9% (47.9-51.9)
CM Health Percentage	51.3% (47.4-55.4)	50.0% (44.4-55.6)	46.5% (44.3-48.7)

Table 164: Percentage of students who had seen adults yell at each other in their own home in the last 12 months by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Seen adults yell at each other in their own home in the last 12 months	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	47.4% (44.7-50.0)	48.5% (46.7-50.3)	49.0% (47.1-51.0)
CM Health Percentage	42.8% (40.2-45.4)	50.2% (47.9-52.5)	47.5% (44.4-50.5)

Experiencing violence

Thirty-three percent of students [in the national Youth'12 cohort] report being hit or physically harmed by anyone in the last 12 months.

More CM Health area students (20%) reported being physically harmed on purpose by an adult in their home in the last 12 months than students nationally (14%) (Table 165). This was more commonly reported by younger students, both in CM Health and nationally (Table 166). Younger secondary school students from the CM Health area had almost a one in a four chance of being physically harmed by an adult in their home in the last year (Table 166).

Table 165: Percentage of students who had experience violence themselves in their own home in the last 12 months

Violence experienced by student in last 12 months	National Percentage (CI)	CM Health Percentage (CI)
Physically harmed by adult intentionally at their home	14.1% * (12.9-15.4)	20.1% * (16.9-23.1)
-Males	13.8% * (12.4-15.2)	18.8% * (15.3-22.3)
-Females	14.4% * (12.8-16.0)	20.9% * (16.9-24.9)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Table 166: Percentage of students who had experience violence themselves in their own home in the last 12 months by age groups

Violence experienced by student in last 12 months	Younger children (NZ <13, CM 15 and Under)	Older children (NZ 17 and older, CM 16 and older)
National Percentage	16.8% # (14.5-19.1)	10.1% # (8.0-12.3)
CM Health Percentage	23.1% † (19.4-26.7)	14.1% † (11.1-17.1)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

About one in six students (14%/18%) reported being in a serious physical fight in the last 12 months.

Three percent of students [in the national Youth'12 cohort] reported having carried a weapon such as a knife at least once over the last 12 months. This was more common among males than females.

Sexual Abuse and Coercion

The percentage of students who had ever been touched in a sexual way or been made to do unwanted sexual things was higher in Counties Manukau (18%) than nationally (15%) (Table 167). Both nationally and for CM Health this was higher for females (20/22%) than for males (9%/13%) (Table 168). Among the students who had experienced this, 37%/37% reported it was severe (pretty bad, really bad or terrible) and 57%/61% had told no-one about it (Table 169).

Table 167: Percentage of students who have ever been touched in a sexual way or made to do unwanted sexual things

Touched in a sexual way or made to do unwanted sexual things	National Percentage (CI)	CM Health Percentage (CI)
All students	14.8% * (13.7-15.9)	18.3% * (16.1-20.5)

*Statistically significant difference between groups in National cohort and CM Health cohort and CM Health result

Table 168: Percentage of students who have ever been touched in a sexual way or made to do unwanted sexual things by gender

Touched in a sexual way or made to do unwanted sexual things	Males	Females
National Percentage	9.0% # (7.9-10.2)	19.5 # (18.2-20.8)
CM Health Percentage	12.9 † (9.9-15.9)	22.1% † (20.2-23.9)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Table 169: For students who have ever been touched in a sexual way or made to do unwanted sexual things the percentage who said it was severe and the percentage who told no one about it

Touched in a sexual way or made to do unwanted sexual things	National Percentage (CI)	CM Health Percentage (CI)
Said that it was severe	36.7% (33.2-40.2)	37.1% (29.4-44.9)
Told no one about it	57.0% (53.4-60.5)	60.7% (51.1-70.3)

Harassment or bullying via cell phone or internet

Some students [in the national Youth'12 cohort] received nasty or threatening messages over the past year on their mobile phone (12%) and/or on the internet (9%) and received unwanted sexual material (e.g. pornographic images, videos or words) on their mobile phone (8%) and/or on the internet (6%).

Comparisons between 2001, 2007, 2012 Youth'12 surveys

There have been reductions in the proportions of students [in the national Youth'12 cohort] reporting risky motor vehicle use. The proportion of students who always use a seatbelt rose from 66% in 2001 to 74% in 2007 and has remained at this level (74%) in 2012. The proportion of students who reported being driven by someone who had been drinking alcohol fell from 28% in 2001 to 23% in 2007 and then to 18% in 2012. Reports of being driven dangerously also fell from 39% in 2001, to 24% in 2007 and 18% in 2012.

There have been significant reductions in the proportions of students who report being hit or physically harmed by someone on purpose in the last 12 months from 45% in 2001, to 41% in 2007 and down still further to 29% in 2012.

There have been changes in the percentages of students who had seen adults hitting or physically harming another adult at home in the last 12 months: 6% in 2001, 10% in 2007 and 7% in 2012.

The proportion of male students who reported sexual abuse and coercion fell from 12% in 2001 to 5% in 2007, and remained at 5% in 2012. The proportion of females reporting sexual abuse and coercion has reduced across the three time periods (24% in 2001, 19% in 2007 and 15% in 2012).

Motor vehicle Risk Behaviours and Violence summary

About a quarter of CM Health students do not always wear a seatbelt and about one in five had been in a car driven dangerously in the previous month. CM Health students are more likely than students nationally to see adults hitting children in their home and also more likely to be hit by an adult in their own home. As stated at the beginning of this section; "Violence, including witnessing violence, is associated with a range of poor health outcomes for young people." (Clark et al, 2013a)

Mortality

The number of deaths and the age-specific mortality rates for the 2008-2012 period for the CM Health population and the rest of NZ are shown in Table 170 below (rate per 100,000 population per year). There is a statistically significant increase in mortality rates between the 10-14 age group and the two older age groups both for the population of the CM Health area and for the rest of New Zealand. The rates for each age group for the CM Health population are similar to those for the rest of New Zealand. The total number of deaths for 10-24 year olds over the five years 2008-2012 was 262 for CM Health and 1,868 for the rest of New Zealand

Table 170: Number of deaths in young people 2008-2012 and the age-specific mortality rate (per 100,000 per year) by age group for CM and rest of NZ

Age group	CM Number	CM Rate	Rest of NZ Number	Rest of NZ rate
10-14	33	16.8 (11.6-23.6)	202	15.8 (13.6-18.0)
15-19	99	49.3 (40.1-60.0)	792	56.6 (52.7-60.6)
20-24	130	70.1 (58.1-82.2)	874	62.8 (58.7-67.0)
All young people	262		1,868	

Source: New Zealand Mortality Review Data Group, 2013 (www.otago.ac.nz/nzmr/dg/)

Nationally the leading causes of death for young people were Transport-related (unintentional traffic “accidents” which includes pedestrian injuries), Other Unintentional injury, Suicide and Neoplasms (Table 171). At the start of the motor vehicle section Clark et al, 2013a are quoted as saying that motor vehicles are the leading cause of mortality in young people. The numbers below suggest that suicide may be the leading cause. Details such as definitions of transportation, suicide, the definition of young people and the time period used, will all affect the relative numbers. The NZ Mortality data review group, (NZ mortality data review group, 2013) comment that deaths from traffic accidents for NZ 15-24 year olds dropped from 135 in 2008 to 75 in 2012 and this difference was statistically significant for both 15-19 year olds and 20-24 year olds. This report refers to suicide and transportation each as one of the leading causes.

Table 171: Leading causes of death for New Zealand young people 2008-2012 by age group

Age group	Transport	Other Unintentional Injury	Suicide	Neoplasms
10-14	20%	13%	16%	17%
15-19	28%	13%	31%	7%
20-24	27%	11%	32%	8%

Source: New Zealand Mortality Review Data Group, 2013 (www.otago.ac.nz/nzmr/dg/)

For the seven years July 2006 to June 2013 there were 93 deaths recorded for Counties Manukau domiciled young people in New Zealand hospitals. Of these 53 occurred at Middlemore, 35 at Auckland and 5 at other hospitals.

Community and Contribution

“Positive relationships, safe environments, having things to do and having opportunities to contribute are important for the wellbeing of young people” (Blum, 1998 Cited by: Clark et al, 2013a; McLaren, 2002 Cited by: Clark et al, 2013)

Friends and peers

In the Youth’12 survey students domiciled in the CM Health area reported similar percentages to the national cohort on questions related to friends and peers. Nearly all students reported having fun with friends some or all of the time (99%/98%) (Table 172). Over 90% of students (91%/93%) had a friend or friends to whom they could talk about anything (Table 173). Nearly all (97%/96%) had friends who helped them and looked out for them some or all of the time (Table 174). These proportions were similar regardless of students’ age or neighbourhood or school socio-economic deprivation.

However, there were gender differences with female students more likely to have a friend to whom they could talk about anything and to have friends who helped them or looked out for them (Tables 173 and 174).

Table 172: Percentage of students who had friends who they had fun with some or all of the time

	National Percentage (CI)	CM Health Percentage (CI)
Had friends who had fun with some or all of the time	98.9% (98.7-99.2)	98.3% (97.9-98.7)

Table 173: Percentage of students who had friends who had friends they could talk to about anything by gender

Had friends who they could talk to about anything	Males	Females	Total
National Percentage	89.1% # (88.0-90.1)	93.3% # (92.5-94.1)	91.4% (90.7-92.1)
CM Health Percentage	91.9% (89.9-94.0)	93.5% (91.4-95.7)	92.9% (91.7-94.1)

Statistically significant difference between groups in National cohort

Table 174: Percentage of students who had friends who helped them and looked out for them by gender

Had friends who helped them and looked out for them	Males	Females	Total
National Percentage	95.6% # (95.0-96.2)	97.6% # (97.2-98.0)	96.7% (96.3-97.1)
CM Health Percentage	94.2% † (92.4-96.1)	97.4% † (96.2-98.6)	96.1% (95.2-97.1)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Neighbourhoods

Twelve percent of students [in the national Youth'12 cohort] reported that there was nothing to do in their neighbourhood. This proportion was much higher (37%) among students from rural communities. Most students (88%) liked the neighbourhood where they lived and trusted people in their neighbourhood (85%).

Just over half (54%/52%) students reported that they felt safe in their community all of the time.

Contributions at home

Many students [in the national Youth'12 cohort] did chores to help their families or looked after younger family members. Forty percent of students did chores for the family for one or more hours a day and about 24% of students looked after younger siblings for one or more hours a day. Eight percent of students did extra work around the home because another person at home was disabled or sick or could not do things.

Helping out the family either by doing chores or looking after younger siblings was more common among students from neighbourhoods with high levels of deprivation.

Employment

The cohort of CM Health young people had a lower percentage (32%) who reported having had paid employment in the past 12 months than students in the national cohort (48%) (Table 175).

Table 175: Percentage of students with paid employment in the last 12 months

Having some paid employment in past 12 months	National Percentage (CI)	CM Health Percentage (CI)
All students	48.3% * (44.7-52.0)	31.5% * (24.5-38.5)

* Statistically significant difference between groups in National cohort and CM Health cohort and CM Health

[In the national Youth'12 cohort] the 48% included students who had a regular part-time job (26%) and/ or had occasional work during the school term (15%) and/or had a school holiday job (19%). In addition, 19% of all students had worked in a family business without payment in the last 12 months. Regular paid part-time employment was more common among older students and students from rural areas. Seventy-five percent of students in paid or unpaid employment had worked less than 10 hours in the last week. About 5% of those in employment had worked 20 hours or more in the last week and about one in ten of those in employment had been injured at work in the past year.

Worship and spiritual beliefs

Thirty-one percent of students [in the national Youth'12 cohort] reported feeling that they belonged to their church, mosque or temple.

CM Health area students had a higher percentage of students (46%) who reported that they attended a place of worship weekly or more often than students nationally (26%) (Table 176). CM Health students also had a higher percentage (51%) who reported that their spiritual beliefs or religious faith were very important to them than nationally (28%) (Table 177).

Table 176 : Percentage of students attending worship weekly or more often by gender

Worship attendance	National Percentage (CI)	CM Health Percentage (CI)
Attended worship weekly or more often	25.8% * (21.3-30.3)	45.6% * (32.4-58.8)
- Males	23.5% (19.0-28.1)	41.5% (27.1-55.9)
- Females	27.6% * (22.1-33.1)	48.4% * (34.8-61.9)

* Statistically significant difference between groups in National cohort and CM Health cohort and CM Health

Table 177: Percentage of students whose spiritual beliefs or religious faith were very important to them- by gender

Spiritual beliefs or religious faith were very important to them	National Percentage (CI)	CM Health Percentage (CI)
All students	28.1%* (23.5-32.6)	50.9%* (38.1-63.7)
- Males	26.1% * (21.4-30.8)	46.9% * (31.0-62.7)
- Females	29.6% * (24.3-34.9)	53.5% * (41.8-65.3)

Nationally students from high socio-economic deprivation neighbourhoods were more likely (43%) to report that their spiritual beliefs or religious faith was very important to them than students from low deprivation neighbourhoods (19%) (Table 178). For CM Health students from high deprivation schools, nearly three quarters (71%) reported their spiritual beliefs or religious faith were very important to them compared to a third (33%) of students from low deprivation schools.

Table 178: Percentage of students whose spiritual beliefs or religious faith were very important to them by socio-economic deprivation of neighbourhood (for national data) and school (for CM Health)

Students who reported that their spiritual beliefs or religious faith were very important to them	Students from high deprivation neighbourhoods/schools	Students from middle deprivation neighbourhoods/schools	Students from low deprivation neighbourhoods/schools
National Percentage	43.3% # (35.5-51.2)	24.0% # (20.7-27.4)	19.1% (16.8-21.5)
CM Health Percentage	71.3% † (65.1-77.4)	35.3% † (28.3-42.3)	33.4% (23.8-43.0)

Statistically significant difference between groups in National cohort

† Statistically significant difference between groups in CM Health cohort

Other community participation

Forty-five percent of students [in the national Youth'12 cohort] were involved in a sports team in their community, 23% of students belonged to a church group and 28% of students had helped others in their community in the last 12 months. Overall, 68% of students belonged to at least one community-run group including church groups.

Comparisons between 2001, 2007, 2012 Youth'12 surveys

The proportion of students [in the national Youth'12 cohort] with a paid part-time job dropped considerably from 42% in 2001 and 39% in 2007 to 26% in 2012.

There was a decrease in the percentage of students reporting that there was nothing to do in their neighbourhood, from 16% in 2001 to 11% in 2007, and it has remained at approximately that level in 2012 (12%).

Community and Contribution summary

Nearly all students reported having fun with their friends some or all of the time. Less CM Health students had been in some paid employment in the last 12 months (32%) than nationally (48%). CM Health students had a much higher percentage of students who worshipped at least once weekly (46%) and also a much higher percentage who reported their belief was very important to them (51%) compared to nationally (26% and 28%). For students attending high deprivation schools in CM health, nearly three-quarters stated their spiritual beliefs or religious faith were very important to them.

Appendices

Appendix One: Canadian National Occupancy Standard

Under the Canadian National Occupancy Standard (CNOS), a household is said to be crowded if the dwelling requires extra bedrooms in order to meet the following criteria.

- There should be no more than two people per bedroom; parents or couples share a bedroom.
- Children aged less than five years, either of same or opposite sex, may reasonably share a bedroom.
- Children aged less than 18 years, of the same sex, may reasonably share a bedroom.
- A child aged five to 17 years should not share a bedroom with one aged under five years of the opposite sex.
- Single adults aged 18 years and over, and any unpaired children, require a separate bedroom.

(Goodyear et al, 2011)

Appendix Two: Ambulatory sensitive hospitalisations definition

Filter/Exclusions

Exclude neonate age < 29 days for ASH

Acute /arranged admission types only except for Dental where Electives are to be included.

Same day ED cases meeting the 3 hour rule (sub group to put in place a work programme around a recommendation for the 09/2010 Planning

Primary Rural Facilities

WIES11c

NZDEP06

Age Group

A >= 15 yrs

B all ages

C < 15 yrs

6mth <= D < 15 yr

15mth <= E < 15 yr

F > 5 yrs

Table 179: List of qualifications for ambulatory sensitive hospitalisations

Condition	Principal Diagnosis Codes	Age group	ASH Weight	Include Electives
Angina and chest pain	I20, R072-R074	A	0.5	No
Asthma	J45-J46	B	1	No
Bronchiectasis	J47	C	1	No
Cellulitis	H000, H010, J340, L01-L04, L08, L980	B	1	No
Cervical cancer	C53	A	1	No
Congestive heart failure	I50, J81	A	1	No
Constipation	K590	B	1	No
Dental conditions	K02, K04, K05	B	1	Yes
Dermatitis & eczema	L20-L30	B	1	No
Diabetes	E10-E14, E162	A	1	No

Condition	Principal Diagnosis Codes	Age group	ASH Weight	Include Electives
Epilepsy	G40-G41, O15, R560, R568	A	1	No
Gastroenteritis/dehydration	A02-A09, R11	B	1	No
GORD (Gastro-oesophageal reflux disease)	K21	B	1	No
Hypertensive disease	I10-I15, I674	A	1	No
Kidney/urinary infection	N10, N12, N136, N309, N390	F	1	No
Myocardial infarction	I21-I23;I241	A	0.5	No
Nutrition Deficiency and Anaemia	D50-D53, E40-E46, E50-E64, M833*	B	1	No
Other ischaemic heart disease	I240, I248,I249, I25	A	0.5	No
Peptic ulcer	K25-K28	A	1	No
Respiratory infections - Pneumonia	J13-J16, J18	B	1	No
Rheumatic fever/heart disease	I00-I02,I05-I09	B	1	No
Sexually transmitted Infections	A50-A59,A60, A63, A64, I980, M023, M031, M730, M731, N290, N341	A	1	No
Stroke	I61, I63-I66	A	0.5	No
Upper respiratory tract and ENT infections	J00-J04, J06, H65-H67	B	1	No
Vaccine-preventable disease - Meningitis, Whooping Cough, Hep B, Pneumococcal disease, Other	A33-A37, A403, A80, B16, B18	D	1	No
Vaccine-preventable disease - MMR	B05, B06,B26, M014, P350**	E	1	No

* Adult only (age 15+)

** All ages

Appendix Three: Housing-related potentially avoidable hospitalisations definitions

Table 180: Housing-related potentially avoidable hospitalisations (HRPAHs)

Condition	Principal Diagnosis Codes
Asthma	J45-J46
Cellulitis	H000, H010, H050, J340, K122, L01-L04, L08, L980
Chronic obstructive respiratory disease	J40-44, J47
Gastroenteritis	A01-A09
Immunisation preventable – tetanus, diphtheria, whooping cough, polio, Hib, measles, mumps, rubella	A33-A37, A413, A80, A492, B05, B06, B26, B9631, B9639, G000, M014, P350
Meningococcal infection	A39, M010, M030
Respiratory infections – Upper respiratory tract, influenza, bacterial pneumonia, acute bronchitis, bronchiolitis	J00, J06, J10-11, J13-J16, J18, J20, J21
Rheumatic fever/heart disease	I00-I09
Tuberculosis	A150-A199, B900-B909, M011, P370

Source: Jackson et al, 2011

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