Canterbury Youth – CDHB Profile 2010

Canterbury District Health Board
Te Poari Hauora ō Waitaha

Key points

- 72,260 people aged between 15 and 24 years live in Canterbury, making up 14.4% of the population. The youth age group will increase by 6,350 people and make up 13.7% of the Canterbury population by 2026.
- Youth are more ethnically diverse than the total Canterbury population, with 74.9% identifying as NZ European, 9.2% Māori, 5.5% Asian, 3.0% Pacific and 1.1% Middle Eastern, Latin American or African.
- A higher proportion of youth live in more deprived areas than the total population, have lower levels of income and are more likely to be concentrated in sales and service industries. Those industries are more likely to lose jobs during the recession.
- Youth are less likely to be employed full-time, more likely to be employed part-time or unemployed. Youth reliant on benefits increased 35% from 2007 to 2009, with the steepest rise in unemployment and sickness benefits.
- Attainment of a university entrance standard in education has increased from the 1990's to 2008, but under half of school leavers achieved that standard in 2008. Asian and European school leavers attain a university entrance standard at higher rates than Māori and Pacific school leavers. Rates of suspension from school are higher for Māori than for Pacific and European students.
- The prevalence of smoking among youth has been declining since 1999, but there remains a higher prevalence of smoking for Māori and Pacific youth than European and Asians. There is an increasing gradient in smoking prevalence among youth with increasing level of deprivation.
- Youth giving birth are more likely to smoke than other age groups, and Māori youth giving birth are more likely ot smoke than other ethnicities.
- In April 2008 youth enrolment in primary care in Christchurch was concentrated in tertiary education providers, several large general practice clinics (including Riccarton Clinic, Moorhouse Medical Centre, Papanui Medical Centre, Shirley Medical, Halswell Health, Barrington Medical Centre, Doctors on Riccarton, New Brighton Health Care, Lincoln Medical, Belfast North and High Street Medical Centre), and 198 Youth Health.

- Youth use the Emergency Department more than older adults, are more often self-referred, attend in the weekend or afterhours, and more often attend for traumatic injuries.
- 66% of youth in Canterbury used free oral health services in 2008, which was a higher rate than nationally.
- Chlamydia and genital warts are the most common sexually transmitted infections among youth. Teenage birth rates are lower among Canterbury youth than nationally, but there are higher rates for Māori and Pacific youth than for European and Asian youth.
- Youth in Canterbury have higher rates of hospitalisation and access to services for depression, bipolar affective disorder and some other mental health problems than youth nationally, but have lower rates for schizophrenia.
- Youth in Canterbury on sickness benefits are more likely to be suffering from mental health problems than in other areas of New Zealand.
- Suicide mortality has decreased in Canterbury from the 1990s to the early 2000s, and in 2004/05 was equal to the national rate of 20/100,000 youth per year.
- Youth are hospitalised at a lower rate than other age groups, and the rate of hospitalisation for youth increases with age. The most common reasons for admission are pregnancy and childbirth, musculoskeletal problems and injuries, and digestive system disorders. Rates of hospitalisation for unintentional injury and injuries from assaults are lower in Canterbury than nationally.
- Pharmaceutical and laboratory spending are lower for youth than for older adults. Spending on pharmaceuticals is higher for European youths than their proportion of the population.

Table of contents

Introduction

This profile of Canterbury youth analyses a collection of readily available data. It is not comprehensive as it covers areas for which data is accessible and broken down by age and by geographic area. It considers demography; socio-economic factors that can have a large impact on health including income, employment, and education; some risk/protective factors for health; and the health services that youth use. It is essential to note that this profile does represent any collection of the views of youth, which is a very important, but separate activity to this analysis. Further work is continuing to add data to this profile, including an analysis of the use of health services by youths on benefits as a group.

Youth is the period of transition from childhood to adulthood. The age that 'youth' applies to varies for different audiences, and there is no fixed boundary between childhood, youth and adulthood. Cultural, social, gender, financial and other individual and collective characteristics also influence definitions of youth. The United Nations definition of 'youth' is the period between the ages of 15 and 24 years [1], although the UN Convention on the Rights of the Child includes those up to 18 years of age [2]. This report uses the age range of 15 and 24 years where possible, although some data used encompasses ages outside this range.

In this profile Canterbury is used to mean the Canterbury District Health Board area, made up of Kaikoura District, Hurunui District, Waimakariri District, Christchurch City, Selwyn District, and Ashburton District.

Demographics

Age

According to the 2006 Census there were 69,780 youth aged 15 to 24 years in Canterbury. This made up 14.4% of the total population of Canterbury, and 11.8% of the 15 to 24 year old age group in all of New Zealand. Of these young people 549 lived in Kaikoura District, 990 in Hurunui District, 4,233 in Waimakariri District, 56,202 (80.5% of youth in Canterbury) in Christchurch City, 4,749 in Selwyn District, and 3,057 in Ashburton District. The 15 to 24 year age group represented a similar proportion of population in all of New Zealand, 14.3%, at the 2006 Census. The proportion of youth in the total Canterbury population had fallen in 2006 from 15.7% in 1996 and 14.7% in 2001.

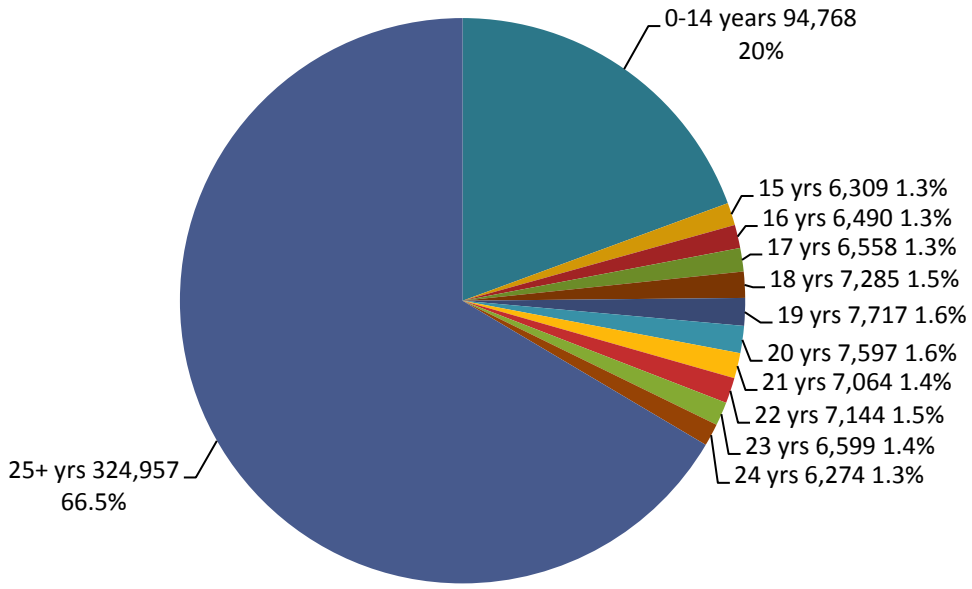
According to Statistics New Zealand projections, the number of youth in Canterbury is predicted to increase to 73,790 by 2011 and 74,770 in 2016, plateau to be 74,670 in 2021, before increasing again to be 78,610 by 2026. The proportion of the Canterbury population in the 15 to 24 year age group will remain steady in 2011 at around 14.4%, but will decline thereafter to be 13.9% in 2016, 13.4% in 2021 and 13.7% in 2026. The overall increase from 2006 to 2026 will be 11.2% (see Table 1). The number of youth projected to live in Canterbury in 2010 is 72,260 [3].

Table 1 Population projections for youth 2006-2026 – number of youth 15-24 years old and proportion of the population (Statistics New Zealand)

2006		2011		2016		2021		2026		% increase 2006-2026
No.	%	No.	%	No.	%	No.	%	No.	%	
69,780	14.4%	73,790	14.4%	74,770	13.9%	74,670	13.4%	78,610	13.7%	11.2%

According to the Canterbury PHO Register 69,037 youth were enrolled with a primary health organisation (PHO) in April 2010, which represented 14.1% of the total enrolled population in Canterbury (see Figure 1).

Figure 1 Age groups of Canterbury population, April 2010 (Canterbury PHO Register)

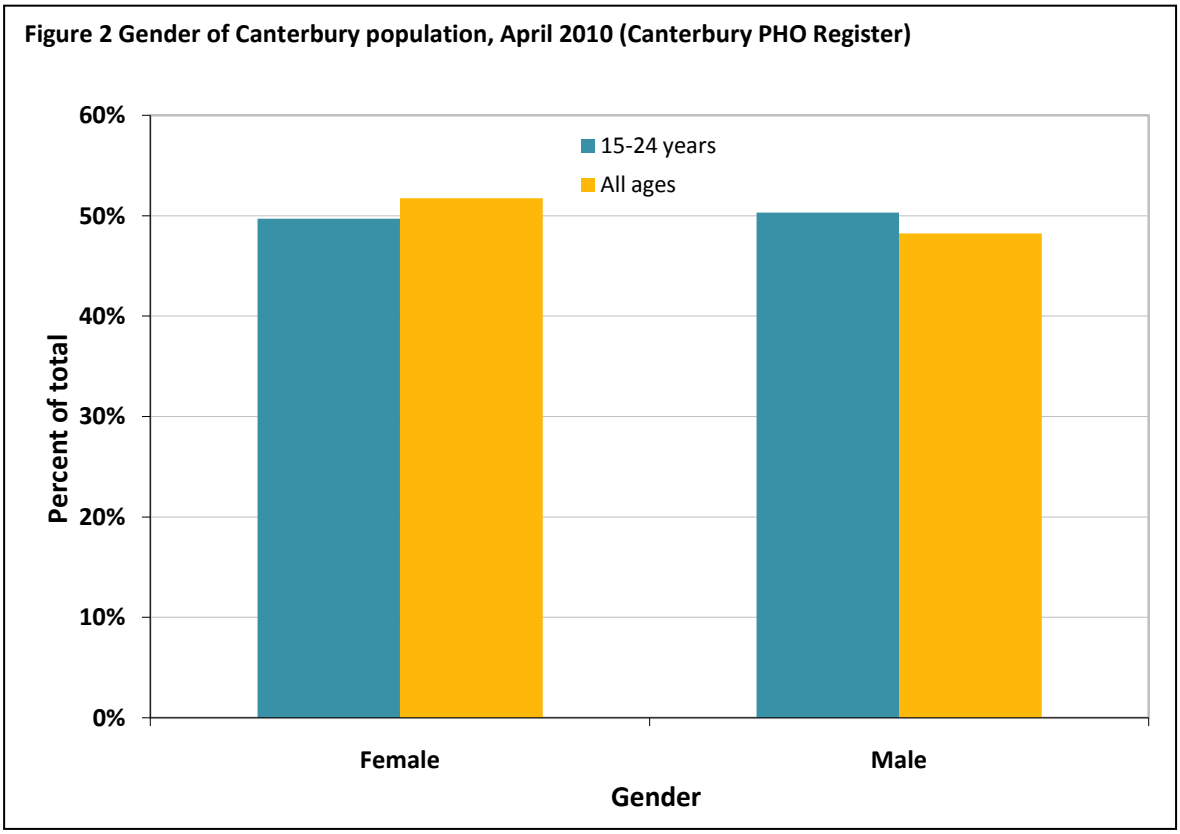


The 69,037 youth enrolled on the PHO register in April 2010 represent 95.54% of youth projected to live in Canterbury in 2010. This compares to 96.25% of all people in Canterbury enrolled on the PHO register (488,762 of the projected 507,800 people).

Gender

According to the Canterbury PHO Register 49.7% of youth enrolled with a PHO are female and 50.3% are male. The proportion of males is higher in the younger years and decreases with age and the opposite for females.

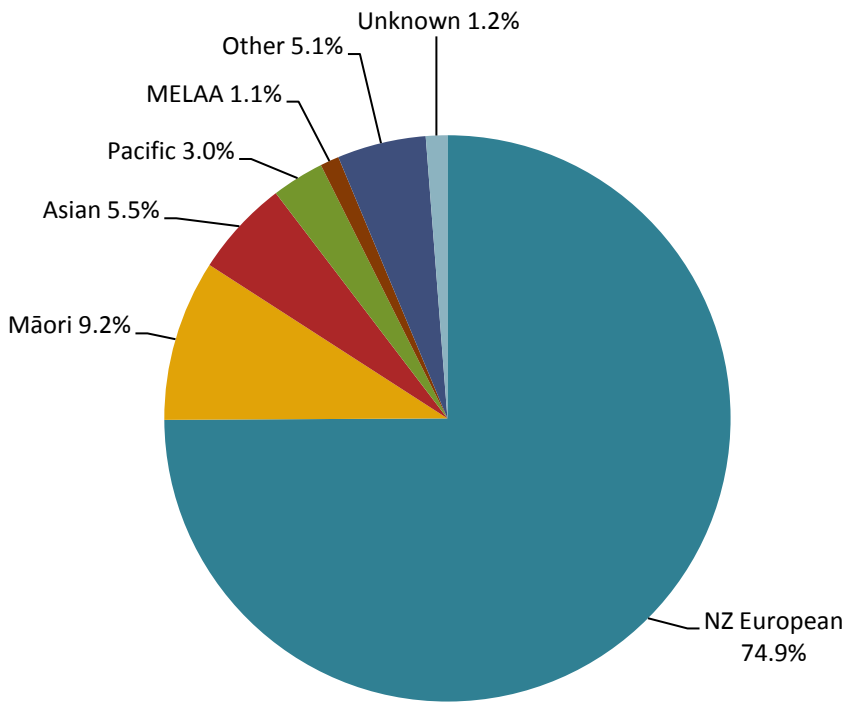
Figure 2 Gender of Canterbury population, April 2010 (Canterbury PHO Register)



Ethnicity

Of the 69,037 youth on the Canterbury PHO Register in April 2010 51,721 (74.9%) identified as NZ European, 6,348 (9.2%) as Māori, 3,813 (5.5%) as Asian, 2,064 (3%) as Pacific, 743 (1.1%) as Middle Eastern, Latin American or African (MELAA), 3,501 (5.1%) as other ethnicities and 847 (1.2%) were of unknown ethnicity (see Figure 3). Compared to the ethnicity of the youth population of all of New Zealand at the 2006 Census, the proportion of NZ European youth in Canterbury is higher than in the whole country, and the proportion of youth in all other ethnicities is lower.

Figure 3 Ethnicity of youth population, April 2010 (Canterbury PHO Register)



Compared to youth, in April 2010, according to the Canterbury PHO Register, the whole population of Canterbury had a greater proportion of NZ Europeans (82%), and a smaller proportion of Māori (6.4%), Pacific (2.2%), MELAA (0.9%) and Others (1.6%). The proportion identifying as Asian was the same for youth and the whole population (5.5%).

Rural/urban

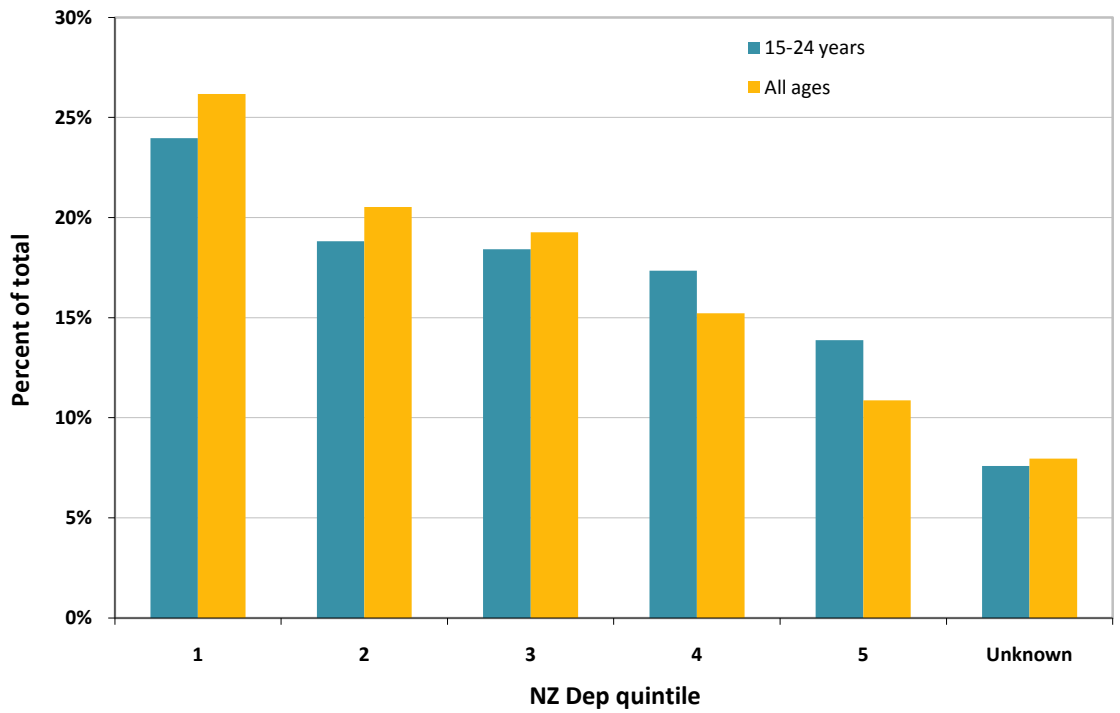
The youth population in Canterbury is relatively urban with 90.2% of youth living in urban areas [4]. Craig et al [4] attribute an increase in the number of young people living in urban areas after 17 years to the possibility of youth migrating to urban areas to access educational and employment opportunities at this age.

Social indicators

Deprivation

The youth population of Canterbury live in less deprived areas than is the case for all New Zealand [4]. However, compared to the whole population of Canterbury, youth live relatively more deprived areas, with fewer in the lower (less deprived, 1-2) quintiles and more in the higher (more deprived, 4-5) quintiles (see Figure 4). In addition the proportion of youth in the less deprived quintiles decreases with increasing age (deprivation quintile 1: 15 years 30.2%, 24 years 18.1%), whereas the proportion in the higher quintiles increases with increasing age (deprivation quintile 5: 15 years 10.4%, 24 years 14.6%). This may be a phenomenon associated with youth leaving their parental home to live independently, but in more deprived areas.

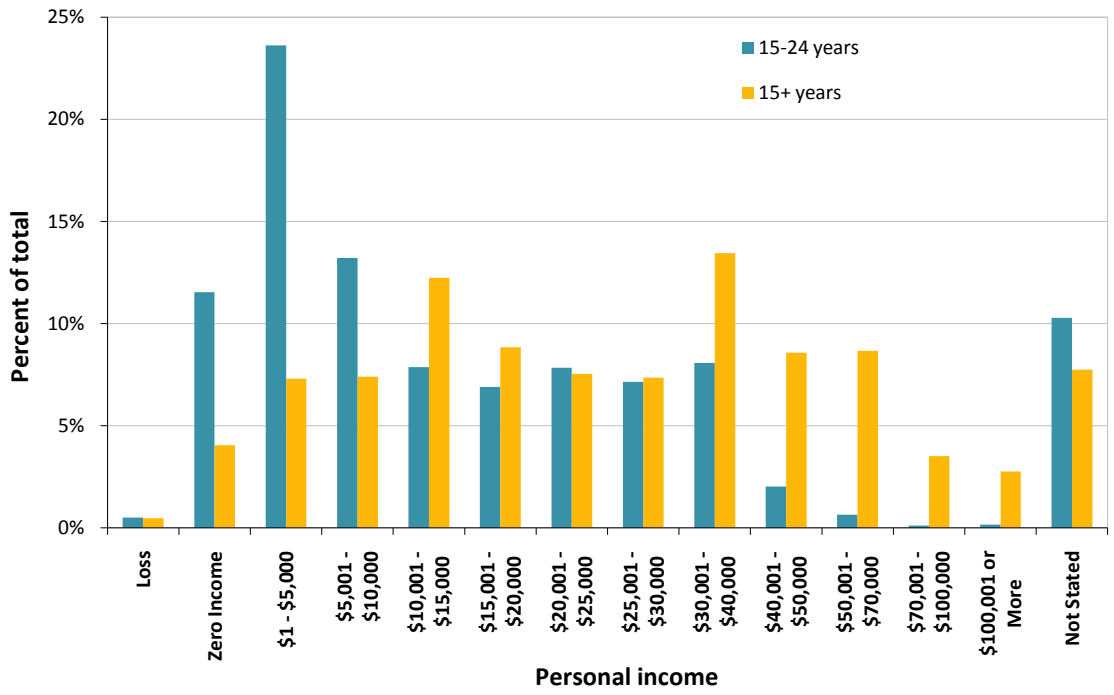
Figure 4 Deprivation profile, Canterbury, April 2010 (Canterbury PHO Register)



Income

According to the 2006 Census almost half (48.9%) of Canterbury youth had an annual personal income of less than $10,000 (including those who had no income or a loss). The proportion of the whole population of Canterbury over 15 years in this category was less than a fifth (19.3%) (see Figure 5). Conversely, the 3% of youth earned over $30,000 per year, compared to 37% of the whole population aged over 15 years.

Figure 5 Personal income, Canterbury, 2006 (Statistics NZ)

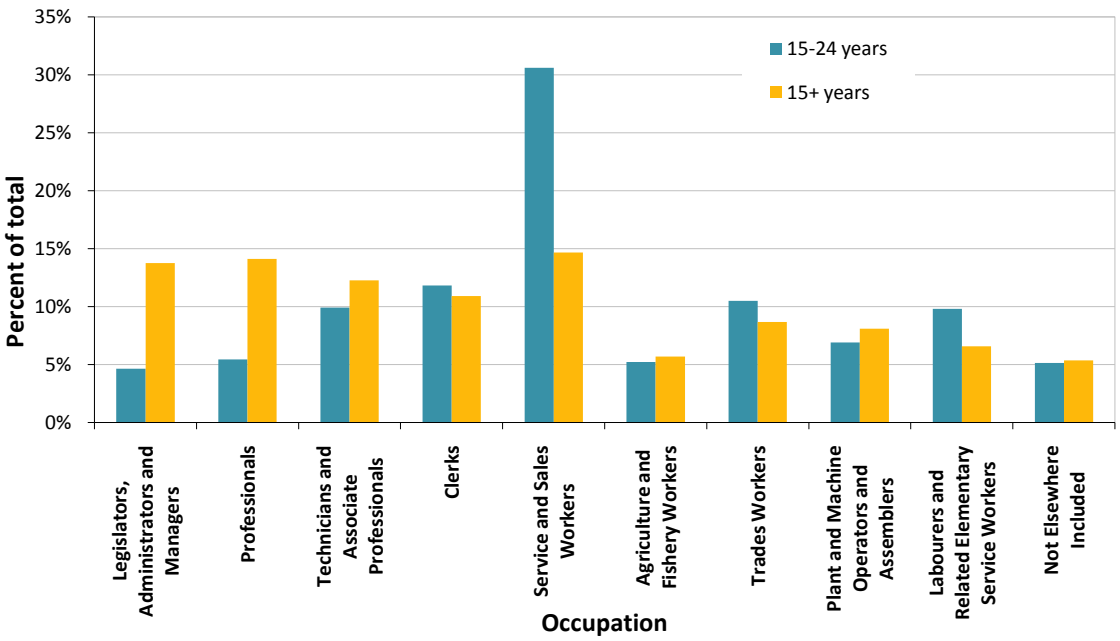


Occupation

According to the 2006 Census Canterbury youth who were employed were more frequently working as service and sales workers (30.6%), trades workers (10.5%) and labourers (9.8%) compared to the Canterbury population aged over 15 years (14.6%, 8.7%, 6.6% respectively). Canterbury youth were less frequently working as legislators, administrators and managers (4.6%), professionals (5.4%) and technicians (9.9%) compared to the Canterbury population aged over 15 years (13.7%, 14.1% and 12.3% respectively) (see Figure 6).

The occupations that youth tend to be concentrated in are also those that has experienced higher levels of job losses during the recession [5].

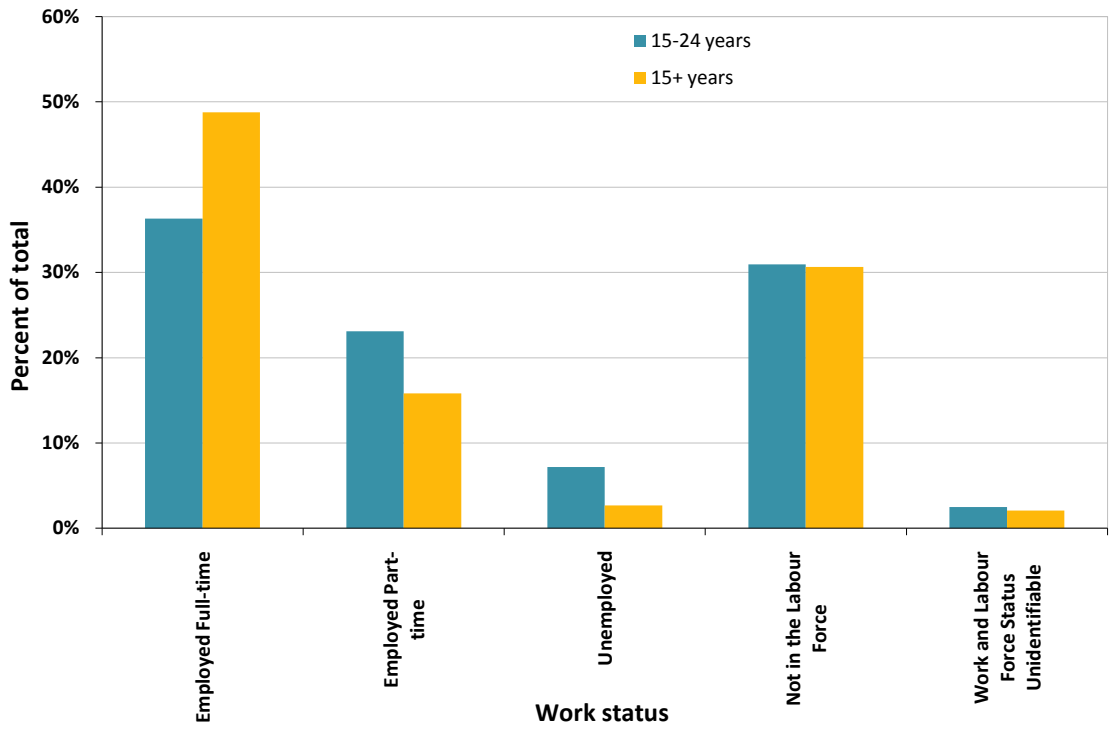
Figure 6 Occupation, Canterbury, 2006 (Statistics NZ)



Employment status

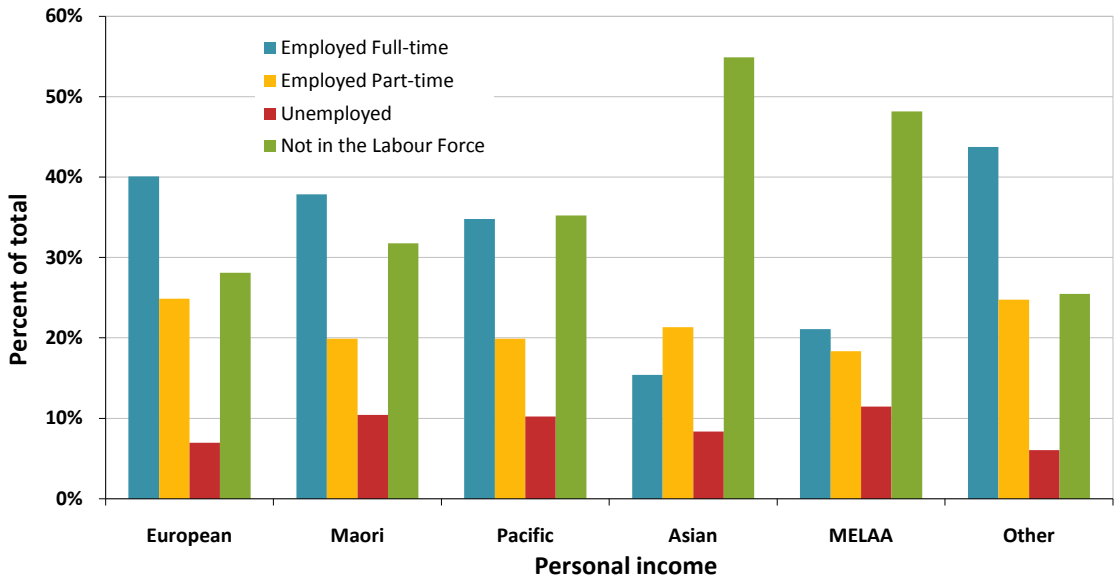
According to the 2006 Census 36.3% of Canterbury youth were employed full-time, compared to 48.7% of the Canterbury population aged over 15 years. However, more Canterbury youth were employed part-time (23.1%) than was the case in the Canterbury population aged over 15 years (15.8%). Unemployment was more frequent for Canterbury youth (7.2%) than for the Canterbury population aged over 15 years (2.7%). The proportion not in the labour force was similar for both groups (see Figure 7).

Figure 7 Employment status, Canterbury, 2006 (Statistics NZ)



In 2006 in Canterbury Maori and Pacific youth had slightly lower levels of full-time (37.8% and 34.8% respectively) and part-time (19.9% for both) employment and higher levels of unemployment (10.4% and 10.2% respectively) and not being in the labour force (31.8% and 35.2% respectively) than Eupoeans (40.1%, 24.9%, 6.9% and 28.1% respectively). Asian and MELAA youth had much lower levels of full-time employment (15.4% and 21.1% respectively), lower levels of part-time employment (21.3% and 18.3% respectively), higher levels of unemployment (8.3% and 11.5% respectively) and much higher levels of not being in the labour force (54.9% and 48.2% respectively) than Europeans (see Figure 8).

Figure 8 Employment status for youth, by ethnicity, Canterbury, 2006 (Statistics NZ)

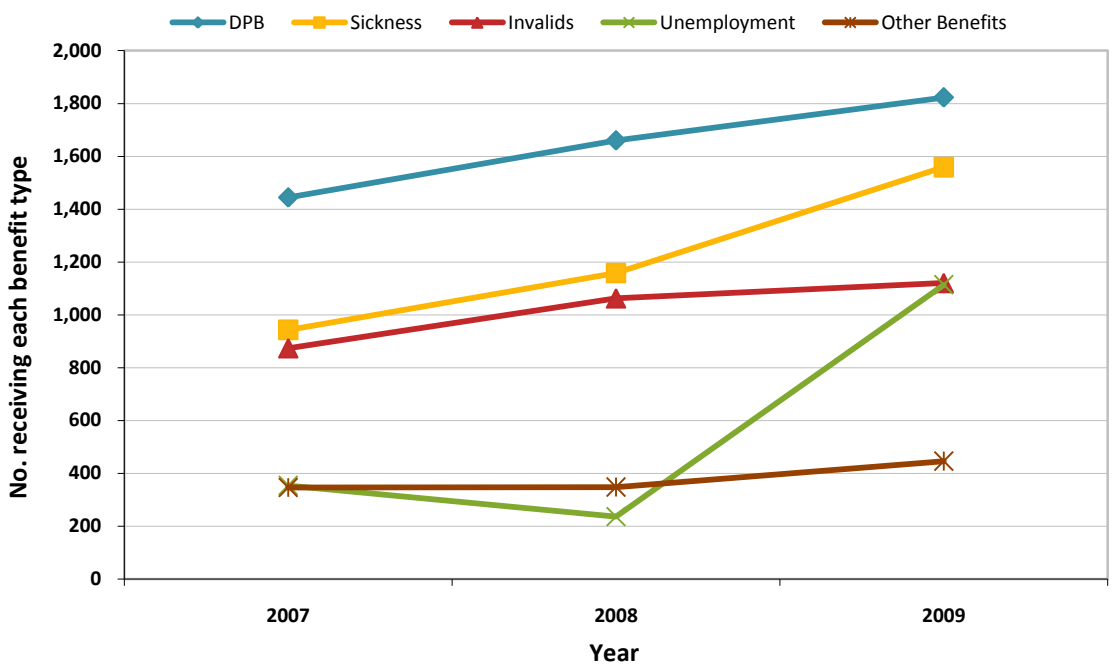


The economic recession has had a disproportionate effect on youth. Nationally, the youth unemployment rate almost doubled from 9.4% in the June 2006 quarter to 18.4% in the December 2009 quarter. The corresponding unemployment rates for the New Zealand population aged over 15 years were 3.6% in the June 2006 quarter and 6.8% in the December 2009 quarter. In addition, more youth are likely to have left the labour force and may, for example, be participating in training or study [5]. However, there has also been a significant rise in the number of youth not in employment, education or training, which rose 42% from 2007 to 2009 [5].

Benefits

The number of youth (in this case 16 to 24 year olds) reliant on benefits has increased from 3,961 in April 2007 to 4,465 in April 2008 and 6,063 in April 2009, an increase of 34.7% in three years. The number of youth has also increased in each of the types of benefit (see Figure 9). Comparing between benefits types, the proportion of youth reliant on the unemployment benefit and the sickness benefit have increased as proportions of the total number of benefits. The proportion of youth reliant on the unemployment benefit has risen at the quickest rate in the period from 2007 to 2009, going from 8.9% of the total to 18.4%, an increase from 354 to 1,114 individuals. The proportion of youth reliant on the sickness benefit has risen in the period from 2007 to 2009 from 23.8% of the total to 25.7%, an increase from 943 to 1,559 individuals.

Figure 9 Youth (16 to 24 years) receiving benefits, Canterbury, 2007-2009 (New Zealand Child and Youth Epidemiology Service)



Education

Educational achievement by school leavers is shown in the two following figures (see Figure 10 and Figure 11). Figure 10 shows the proportion of school leavers who attained a university entrance standard by the time they left school in Canterbury and New Zealand over the period from 1995 to 2008. There was an increase early in that period until 1998, with a small decline after that until 2002, when the rate began to rise again, simultaneous with the introduction of NCEA. Canterbury has generally had a slightly higher proportion of school leavers attaining a university entrance standard than nationally. The average difference between Canterbury and New Zealand was 2.75 percentage points over the period.

Figure 10 Attainment of university entrance standard by school leavers, Canterbury and New Zealand 1995 – 2008 (New Zealand Child and Youth Epidemiology Service)

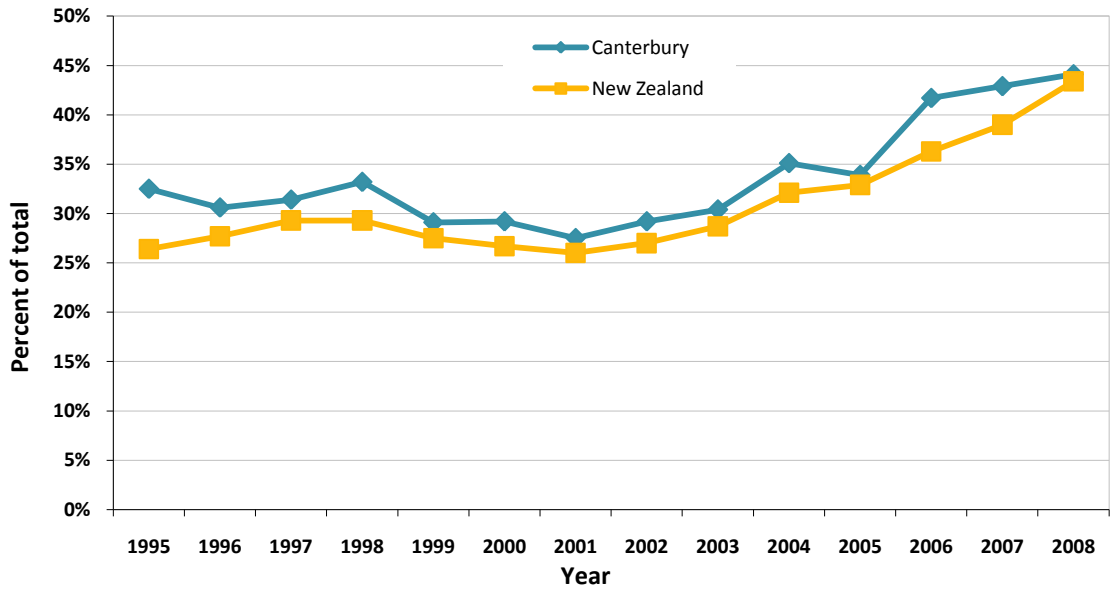
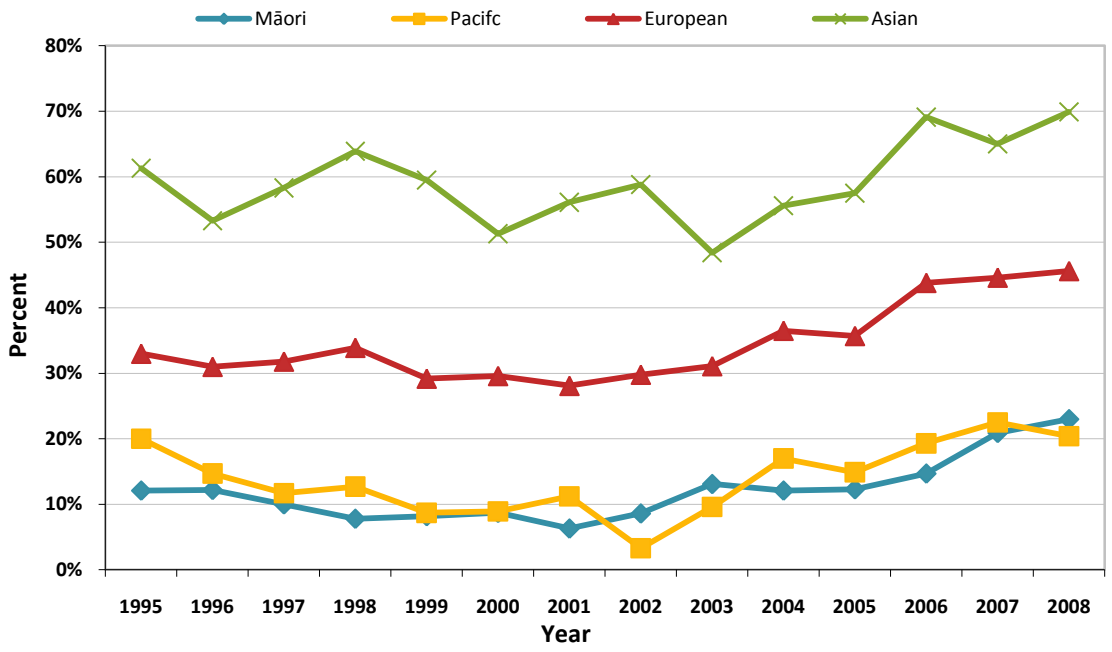


Figure 11 shows attainment of a university entrance standard by Canterbury school leavers by ethnicity, over the period from 1995 to 2008. A higher proportion of Asian school leavers achieved a university entrance standard than Europeans, Māori and Pacific school leavers over the period. A much lower proportion of Māori and Pacific school leavers attain a university entrance standard, although all ethnicities had increasing levels of achievement towards the end of the period.

Figure 11 Attainment of university entrance standard by school leavers, by ethnicity, Canterbury 1995 – 2008 (New Zealand Child and Youth Epidemiology Service)



The following two figures (see Figure 12 and Figure 13) describe levels of retention in school of youth at 16.5 and 17.5 years of age, which is an indicator of continuing participation in education (but which does not measure interest or engagement in education, or whether retained students are learning). Figure 12 shows school retention rates of students in Canterbury and New Zealand over the period from 2002 to 2008. There were slowly increasing retention rates over the period both in Canterbury and New Zealand, which was more the case for those aged 17.5 years. Canterbury had slightly higher retention rates than in New Zealand over the period, with an average difference of 1.1 percentage points for 16.5 year olds and 2.2 percentage points for 17.5 year olds.

Figure 12 Apparent senior school retention rates at age 16.5 and 17.5 years, Canterbury and New Zealand, 2002-2008 (New Zealand Child and Youth Epidemiology Service)

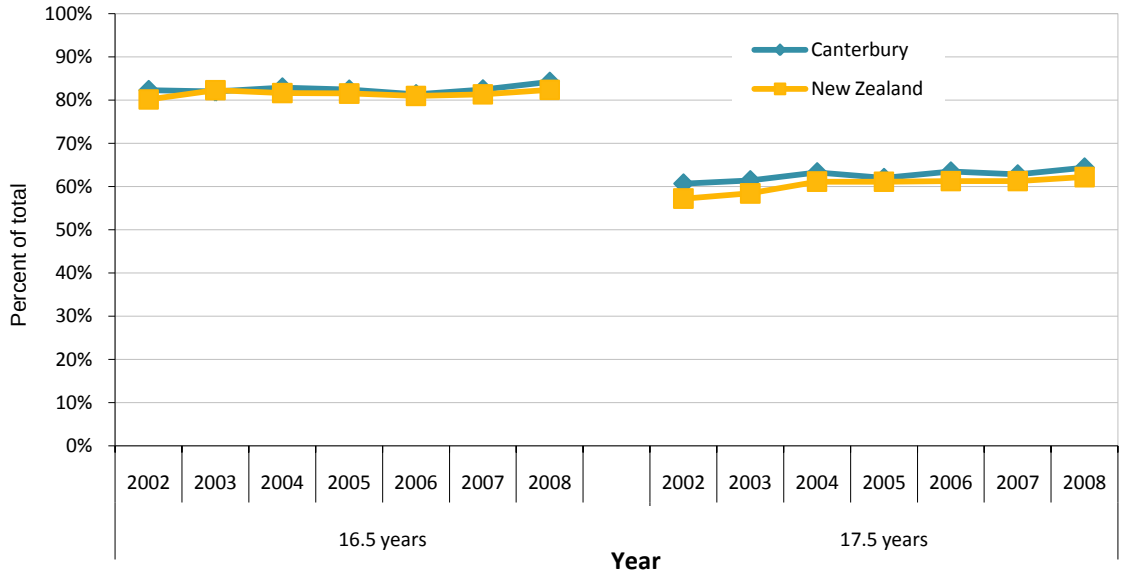
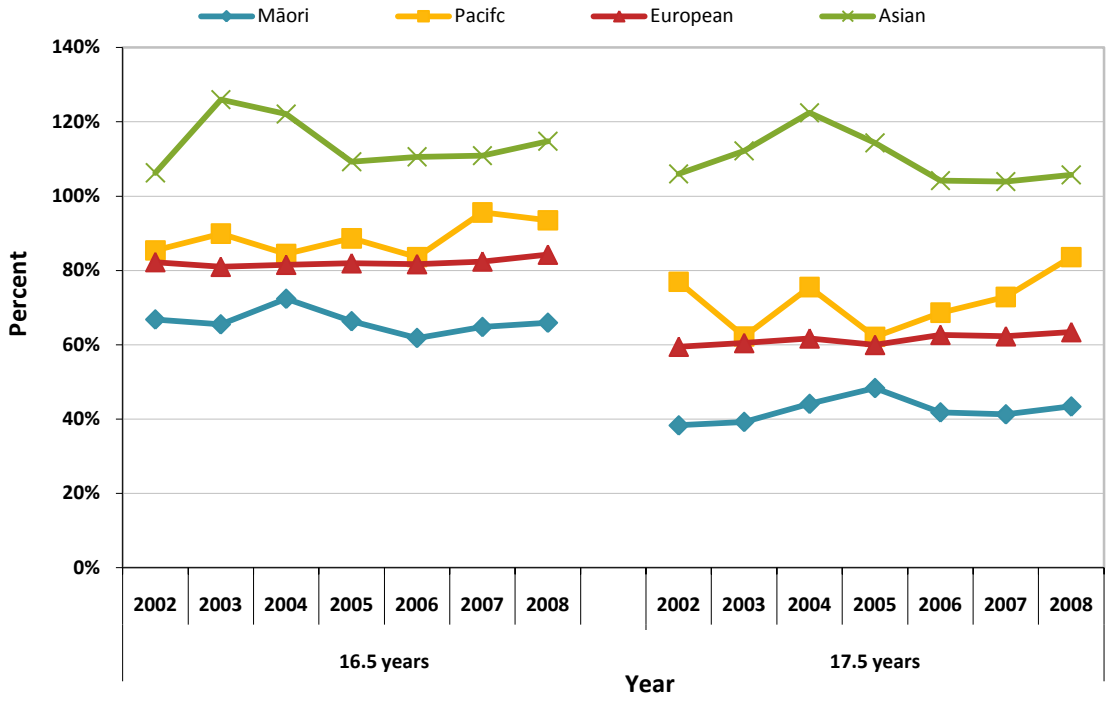


Figure 13 shows retention rates in Canterbury by the ethnicity, over the period from 2002 to 2008. There was a higher level of retention for Asian students than Pacific and European students over the period, with lower levels of retention for Maori students. It should be noted that as a result of migratory flows retention rates for some ethnic groups (particularly for Asian and Pacific students), may appear higher than reality. This also results in retention rates of greater than 100% for Asian students.

Figure 13 Apparent senior school retention rates at age 16.5 and 17.5 years, by ethnicity, Canterbury, 2002-2008 (New Zealand Child and Youth Epidemiology Service)



The following two figures (see Figure 14 and Figure 15) describe rates of suspension of youth from school from school. Figure 14 shows suspension rates of students in Canterbury and New Zealand over the period from 2000 to 2008. There were slowly decreasing suspension rates over the period both in Canterbury and New Zealand. Canterbury had a slightly lower suspension rate than nationally over the period, with an average difference between Canterbury and New Zealand of 0.9 per 1,000 students.

Figure 14 Age-standardised school suspension rates, Canterbury and New Zealand, 2000-2008 (New Zealand Child and Youth Epidemiology Service)

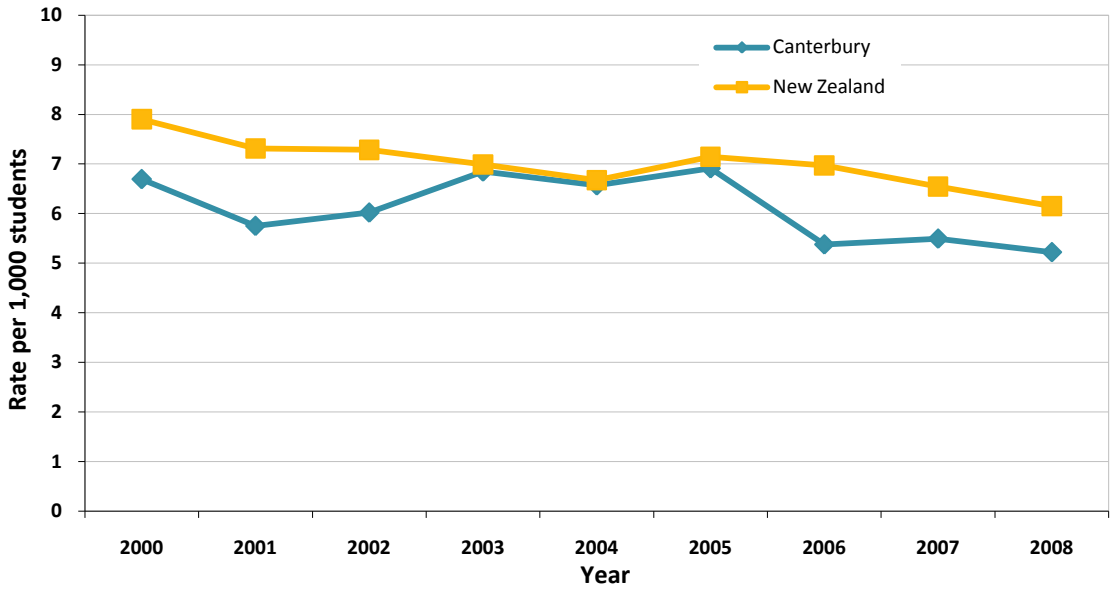
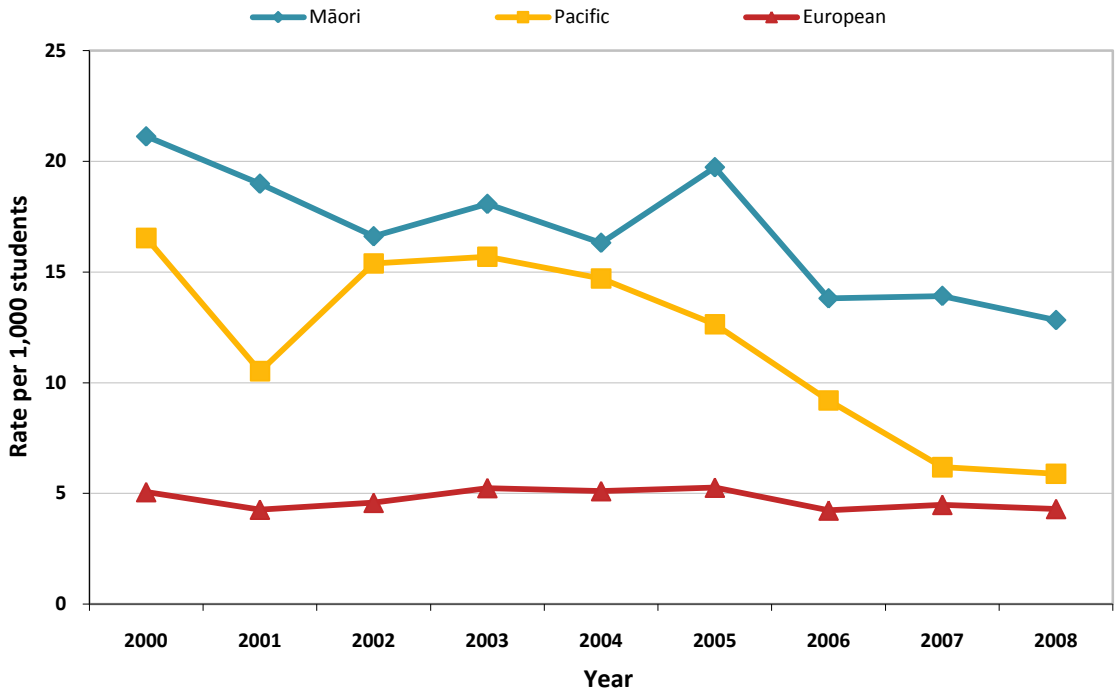


Figure 15 shows suspension rates in Canterbury by the ethnicity, over the period from 2000 to 2008. There was a higher rate of suspension for Maori students than Pacific and European students over the period.

Figure 15 Age-standardised school suspension rates, by ethnicity, Canterbury, 2000-2008 (New Zealand Child and Youth Epidemiology Service)

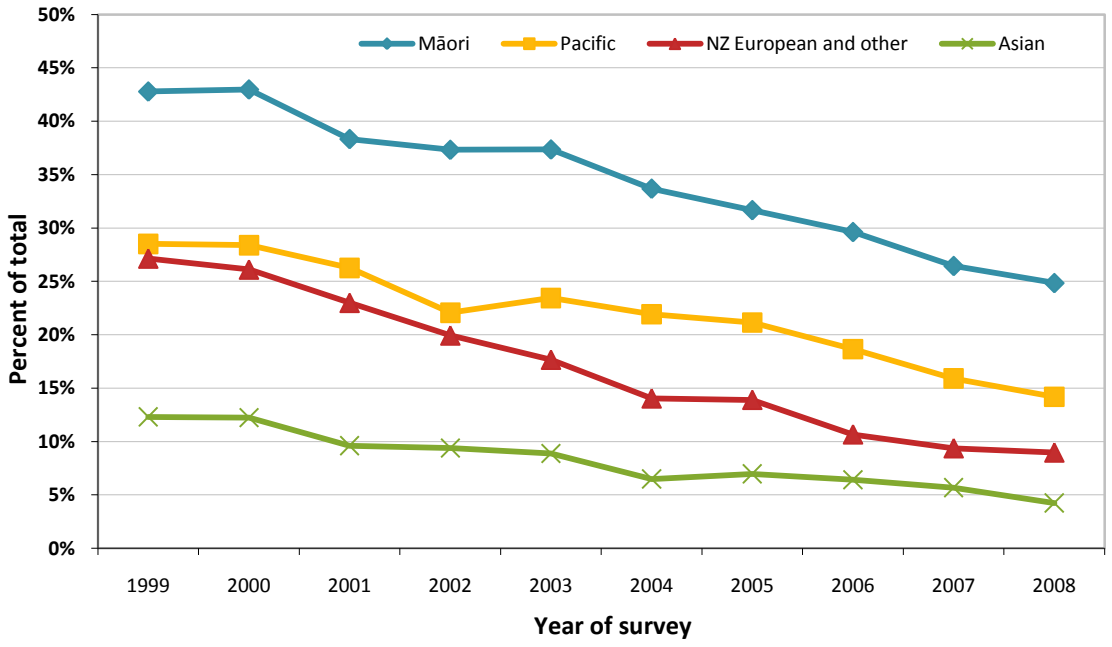


Risk and protective factors

Smoking

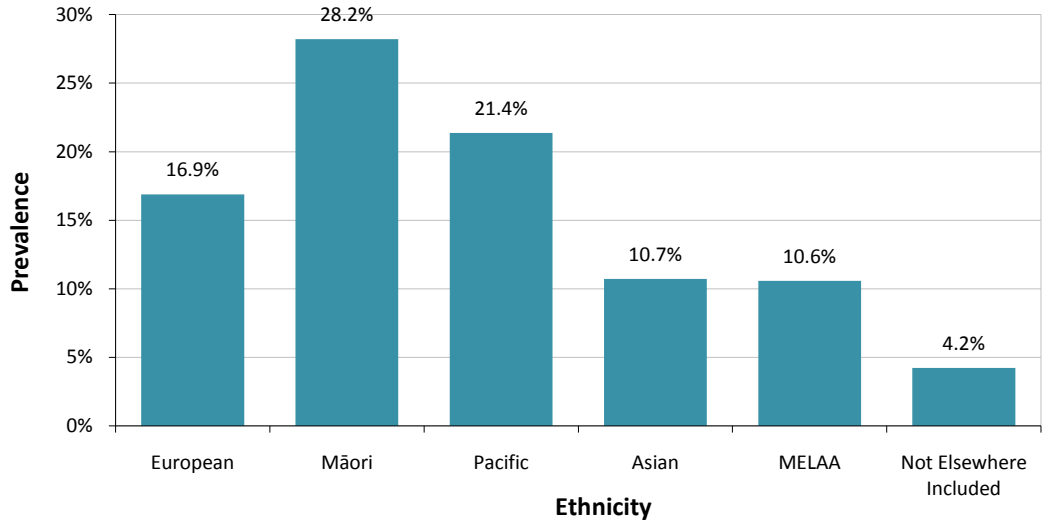
The prevalence of regular smoking (smoking daily, weekly or monthly) in Canterbury Year 10 students (14 and 15 year olds) in the Action on Smoking and Health survey in 2008 was 10.6%. The prevalence for girls was higher (12%) than for boys (8.9%), and higher for Māori (24.9%) than for Pacific (14.2%), NZ European (9.0%) and Asian (4.2%) students. The prevalence of regular smoking has been declining for both sexes and all ethnic groups over the period from 1999 to 2008 (see Figure 16).

Figure 16 Regular smoking, Year 10 students, 1999-2008 (Action on Smoking and Health)



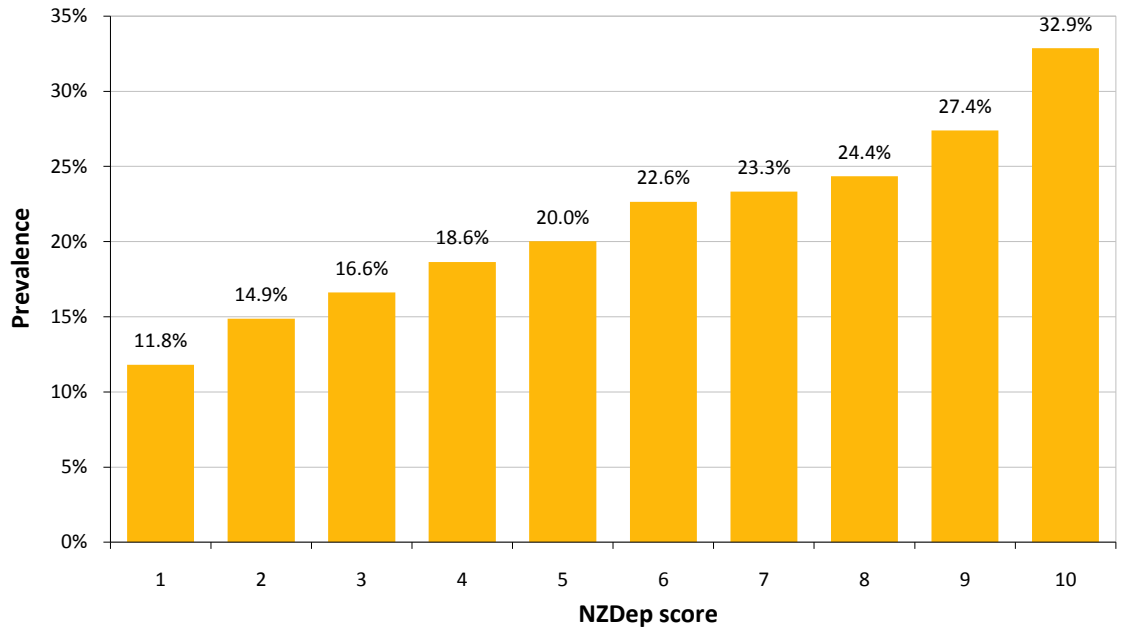
According to the 2006 Census the prevalence of regular smoking for youth (aged 15 to 24 years) was 17.2%, compared to 14.9% for the Canterbury population aged over 15 years. The prevalence was higher for Maori (28.3%), Pacific (21.4%) and European (16.9%) compared to Asian (10.7%) and MELAA (10.6%) youth (see Figure 17).

Figure 17 Regular smoking in youth, by ethnicity, Canterbury, 2006 (Statistics NZ)



The prevalence of smoking was higher for youth living in areas of higher deprivation. The prevalence of smoking for those living in areas with a deprivation score of 1 was 11.8% while for those living in areas with a deprivation score of 10 it was 32.9% (see Figure 18).

Figure 18 Regular smoking in youth, by deprivation, Canterbury 2006 (Statistics NZ)



Around 30% of Canterbury young women aged under 20 years giving birth were identified as having used tobacco on admission to hospital for childbirth. The figure for 20 to 24 year old women was

around 23% (see Figure 19). The proportion of young Māori women giving birth who were identified as having used tobacco was higher (around 39%) than for European, Pacific and Asian young women (see Figure 20).

Figure 19 Tobacco use in youth giving birth, Canterbury and New Zealand, 2004-2008 (New Zealand Child and Youth Epidemiology Service)

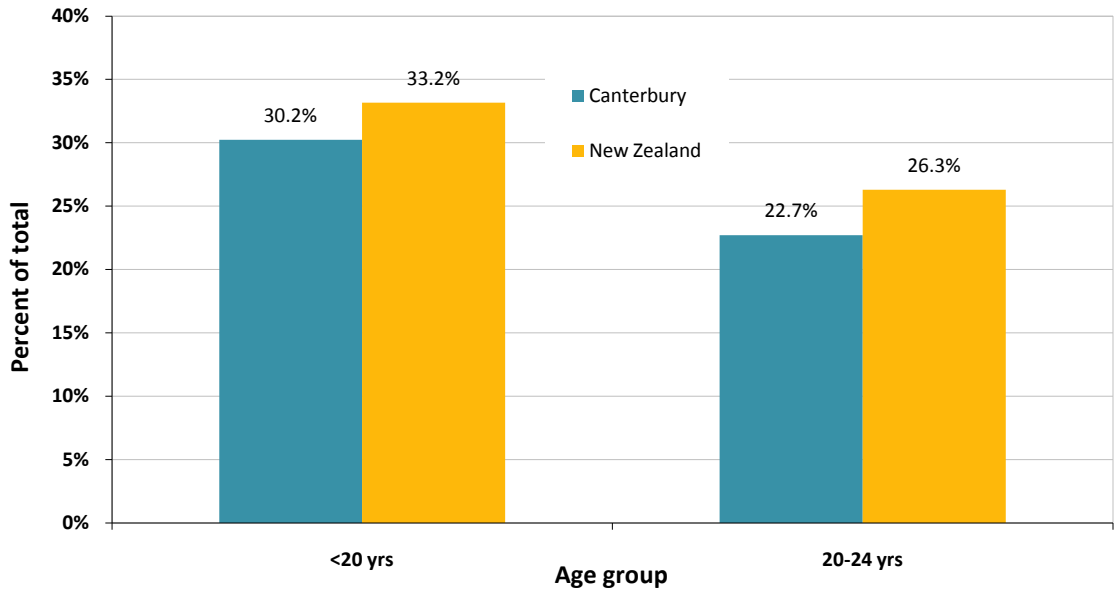
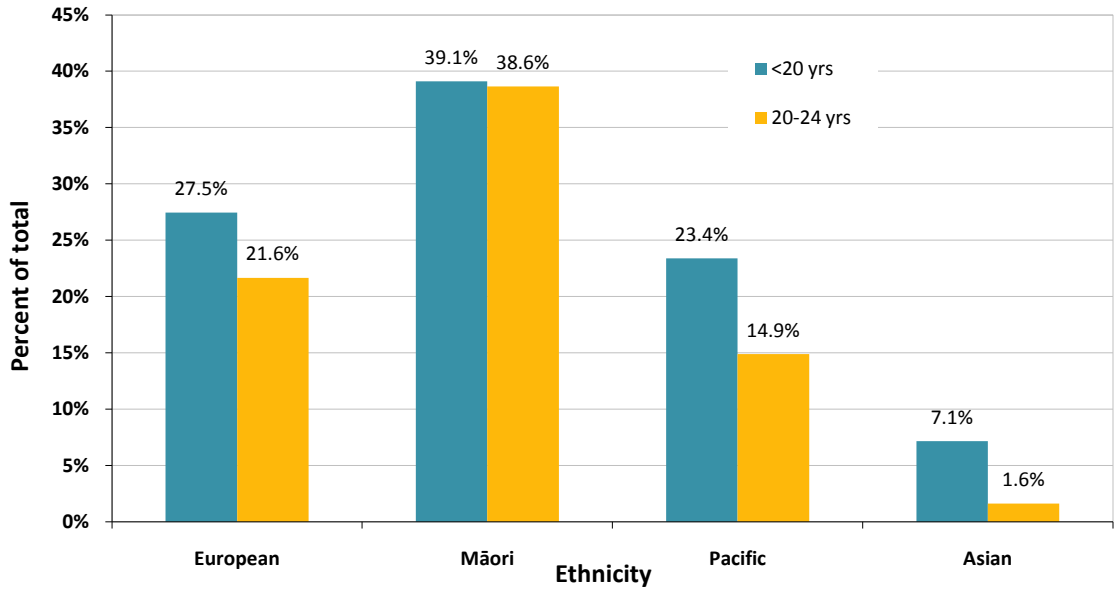


Figure 20 Tobacco use in youth giving birth, by ethnicity, Canterbury, 2004-2008 (New Zealand Child and Youth Epidemiology Service)



Alcohol

Alcohol use by youth in Christchurch has previously been found to reflect usage in New Zealand [6]. In 2001 81% of youth (in this case 13 to 18 year olds) had ever drunk alcohol; 20% of males and 16% of females had drunk alcohol at least weekly; and 46% of males and 38% of females had had at least one episode of binge drinking in the previous four weeks.

In 2007 national data for alcohol use showed 72% of youth (13 to 18 year olds) had ever drunk alcohol; 32% of males and 27% of females had drunk alcohol at least weekly; and 36% of males and 33% of females had had at least one episode of binge drinking in the previous four weeks.

Drugs

The proportion of ever using marijuana by youth (13 to 18 year olds) in Christchurch was found to be 42% for males and 38% for females in 2001. Weekly use of marijuana was 12% for males and 5% for females. The male rates were higher in Christchurch than nationally (ever 39%, weekly 8%) [6].

Youth and health services

Primary care

Enrolment in primary care (see below) provides some of the picture of where youth may access primary health care services. However, several barriers for youth to access primary health care services have been described. Mathias [7] in a critical appraisal of the literature around youth specific primary health care stated that the barriers included the cost of doctor's visit/prescriptions, concerns of confidentiality, embarrassment, distance to travel, inconvenient times, and lack of cultural appropriateness. Others have pointed to concerns about confidentiality and trust, a sense of shame or embarrassment, and lack of knowledge of services provided and how to access them as barriers to youth seeking help in primary health care [8, 9]. Bernard, Quine et al [8] in a study of Australian adolescents and health providers also found that primary health care providers regarded these access issues as of less significance than did youth, while health providers regarding structural barriers, such as opening hours, cost and transport as more significant than did youth.

Youth, for the reasons outlined above, may wish to access primary health care services other than those in which they are enrolled, particularly if they are enrolled with a "mainstream" primary care

provider. The extent to which this effects youth utilisation of primary health care services is difficult to quantify.

In the national Youth '07 study [10], the health providers where youth (secondary school students) usually got health care from were:

- 87.6% from a family doctor, medical centre or GP clinic;
- 3.7% from nowhere;
- 2.6% from a school health-centre;
- 1.9% from a hospital emergency department;
- 1.6% from an after-hours clinic;
- 0.7% from an alternative health worker;
- 0.4% from a family planning or sexual health clinic;
- 0.3% from a youth centre; and
- 1.3% from other places.

In the same study, 82.9% of youth had gone for health care within the last 12 months. In terms of access to health care for youth:

- 16.8% were unable to access health care when needed in the previous 12 months;
- 35.5% could talk to a health provider in private; and
- 45.5% had confidentiality assured by the health provider.

Among reasons for being unable to access health care for youth:

- 55% did not want to make a fuss;
- 39.1% couldn't be bothered;
- 32.2% said it cost too much;
- 29.9% were too scared;
- 28.2% were worried it wouldn't be kept private;
- 26.9% had no transport to go there;
- 23.1% couldn't get an appointment;
- 21.8% didn't know how to access care; and
- 21.4 did not feel comfortable with the health professional.

Youth are likely to access services that suit their specific health, privacy and social needs, particularly for the issues such as drug and alcohol use, sexual health and mental health. These issues tend to be

both the most important to youth, and the most difficult for primary health care providers, particularly “mainstream” providers, to address [8].

The World Health Organisation (WHO) advocates for youth-friendly services that are relevant to youth, and that reach young people “who are growing up in difficult circumstances as well as those who are well protected by their communities” [11]. WHO proposed a framework of characteristics of youth-friendly services, including that they should be equitable (all youth can access health services), accessible (youth are able to obtain the services provided), acceptable (services are provided in a way that meets the expectations of youth), appropriate (the services that are needed are provided), and effective (the right services are provided in the right way and they make a positive contribution) [12, 13].

Several international models of providing health services for youth have been described by Tylee, Haller et al [13] as follows:

- An adolescent health centre, often in a hospital that provides inpatient services and a venue for a drop-in service for youth and acts as a referral centre for nearby health facilities, providing staff training and research;
- A community-based health facility that provides health services for youth within a service for other age groups (for example a general practice or family-planning clinic) or as a stand alone activity;
- A school or tertiary institution-based service that provides preventive and curative service in or nearby a school or university/polytechnic;
- A community-based centre that provides health services along with other services, such as recreation or skills training and have links with referral health facilities nearby;
- Pharmacies and shops that sell health products such as contraception, but do not provide other health services;
- An outreach service that provides information and health activities.

Evidence suggests youth-specific health services enhance access and utilisation of primary care and mental health services within primary care, although it is less clear if these services result in better health outcomes for youth [7, 13]. Outside youth-specific health services there is a risk of fragmentation of services among many providers, poor access, and lack of appropriate training for staff to ensure effective care for youth [14].

A New Zealand study [15] found health screening and preventive counselling from health care providers was low regardless of location, but youth using used the school-based health care were more likely to received private and confidential health care and preventive screening than going to other providers.

Effective health services for youth also need to coordinate with other providers and link to other sectors, in order to support action across the spectrum of health and developmental issues for youth. This inter-sectoral approach between health service providers, providers of other services (such as employment and social welfare agencies), planners and policy makers is needed to ensure the best outcomes for youth [16].

Figures 21 to 24 represent youth enrolment in primary care practices in Canterbury, with the number of youth enrolled represented by the size of each circle, and the proportion of youth in the total practice population represented by the colours filling the circles. Table 6 in Appendix 1 gives a list the numbers and proportions of youth enrolled in each practice.

Figure 21 Enrolment in primary care practices – Christchurch-Lincoln, April 2010 (Canterbury PHO Register)

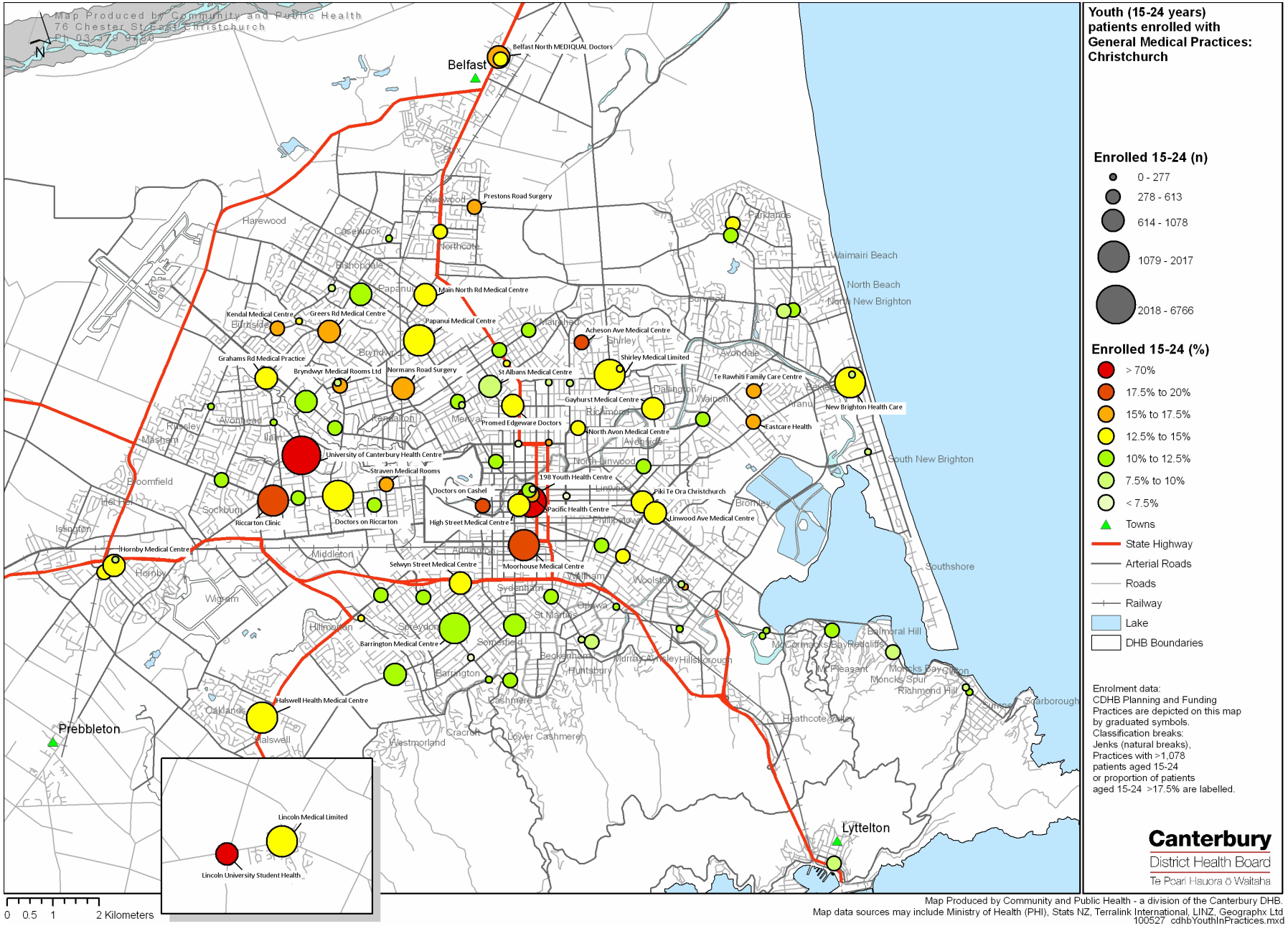


Figure 22 Enrolment in primary care practices – Kaikoura-Hurunui, April 2010 (Canterbury PHO Register)

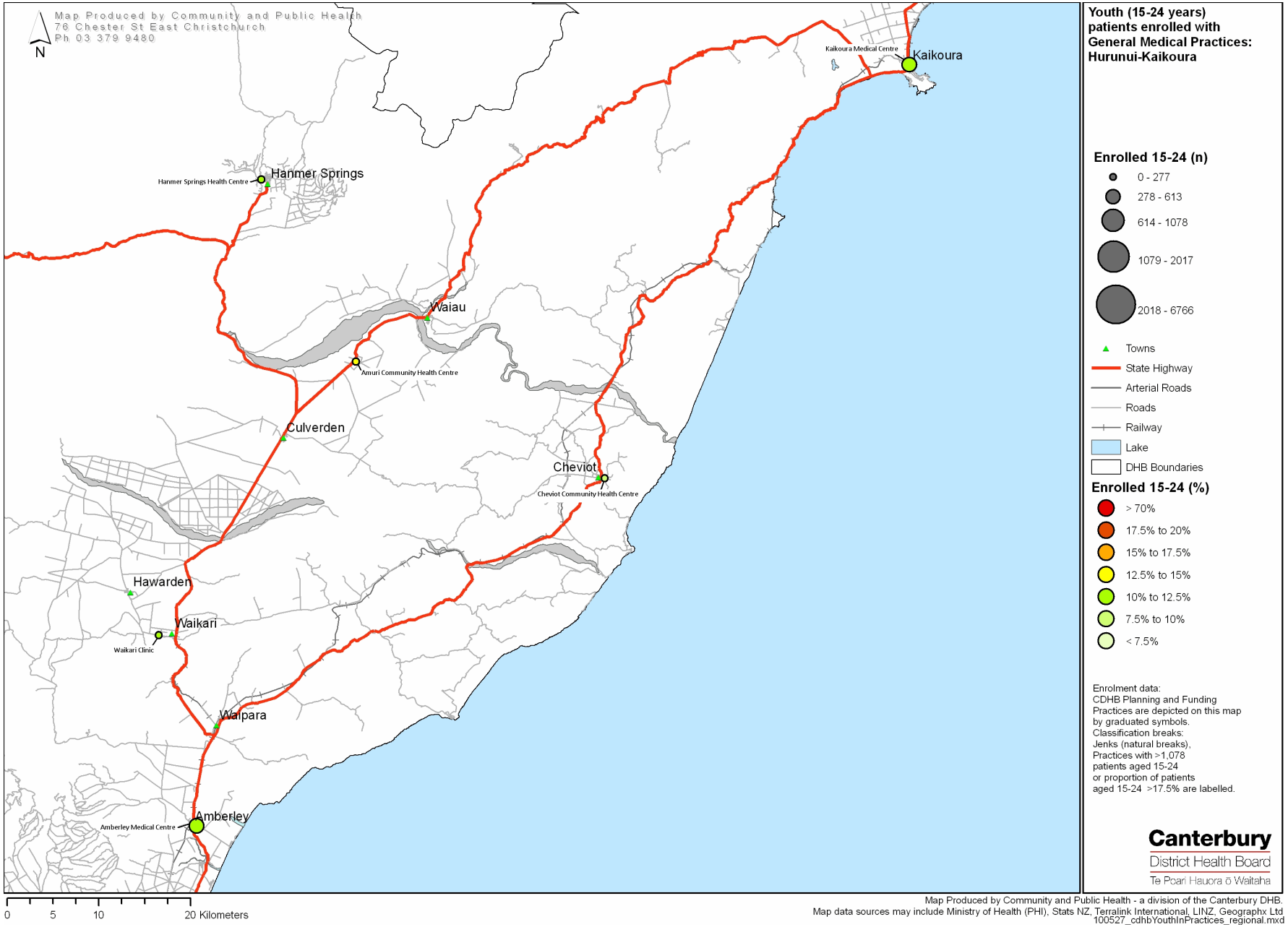


Figure 23 Enrolment in primary care practices – Waimakariri, April 2010 (Canterbury PHO Register)

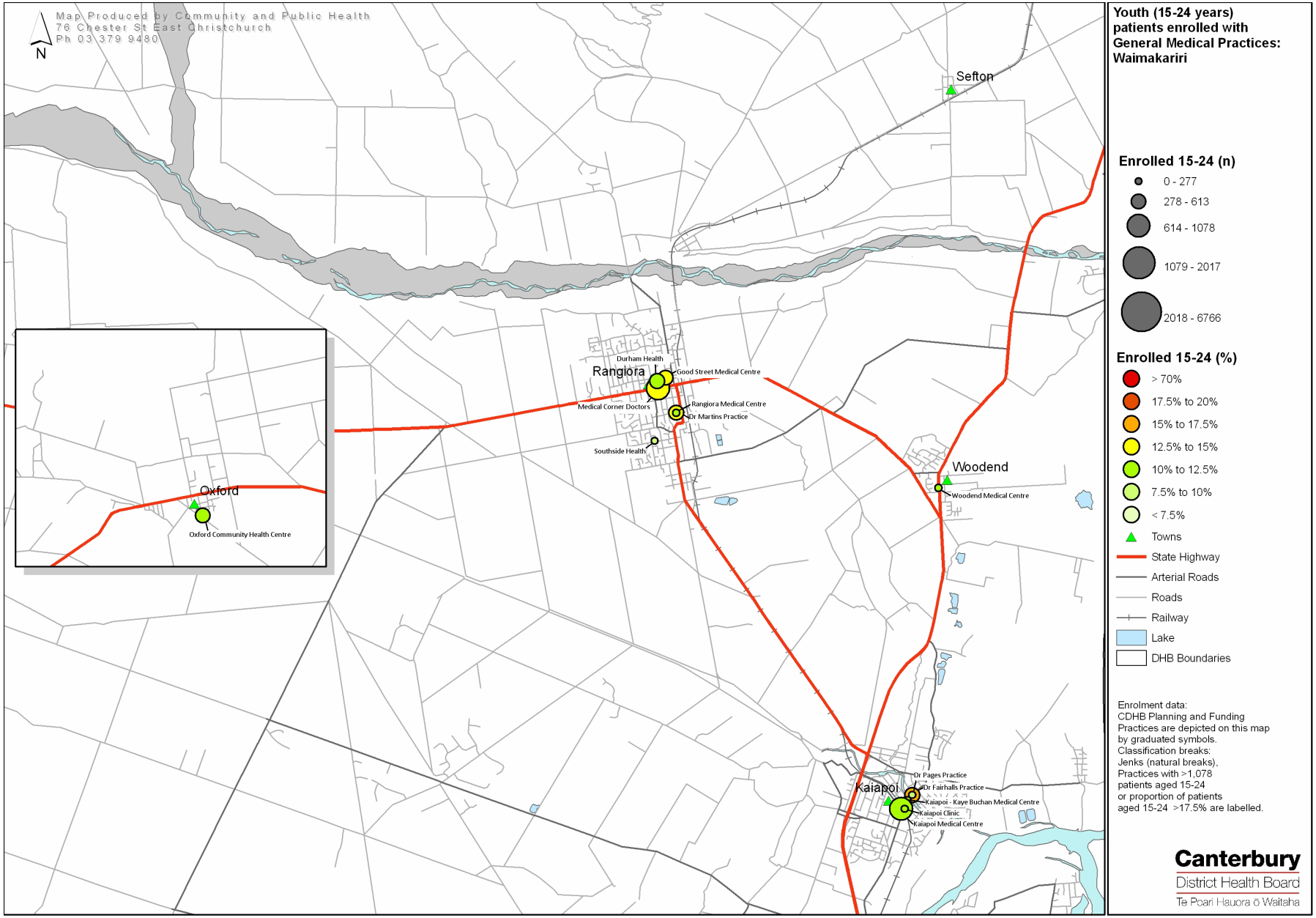
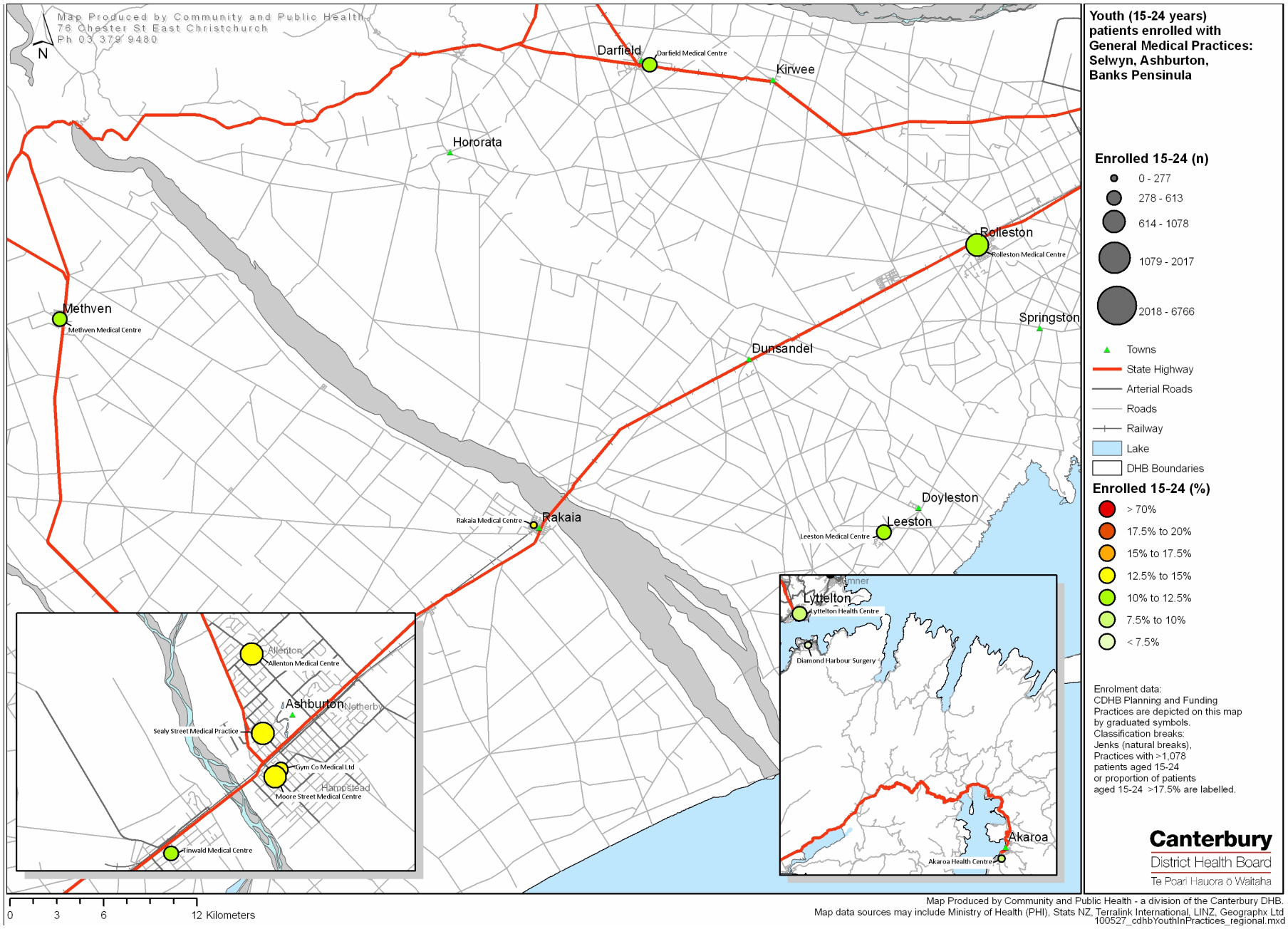


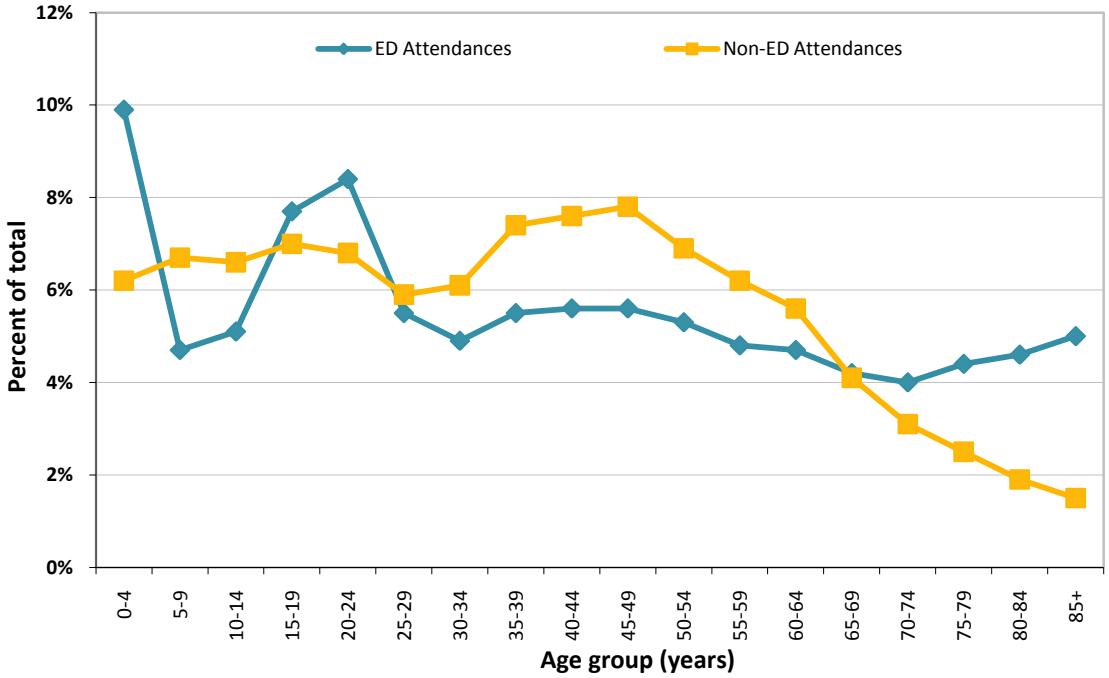
Figure 24 Enrolment in primary care practices – Selwyn-Ashburton, April 2010 (Canterbury PHO Register)



Emergency Department use

Youth made up 14.4% of the total population of Canterbury in 2006, but they made up 16.1% of all attendances at the Christchurch Hospital Emergency Department (ED) in Christchurch Hospital in 2008/09. Conversely they represented 13.8% of all non-attendances[1] at the ED (see Figure 25).

Figure 25 Emergency department attendance by age group, 2008/09 (CDHB Planning & Funding)



Some other characteristics of youth presenting at the Christchurch Hospital ED:

- 44.1% were self-referrals (they brought themselves to ED, rather than, for example, coming after referral from a GP or presenting by ambulance), compared to 34% for those over 25 years. When 'self-referral' also includes 'Family/friends' and 'Employer' 64.7% were self referrals, compared to 44.3% for those over 25 years;
- 69.1% attended after hours and in the weekend, compared to 57.4% those aged over 25 years;

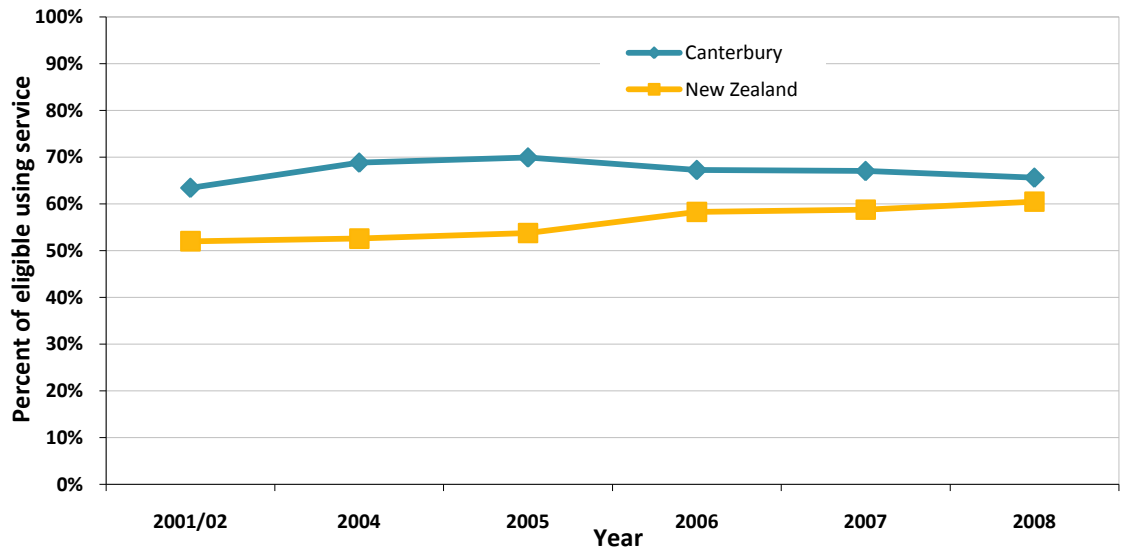
[1] Non-attendances are the proportion of the age-group population who did not present at ED during the year.

- 94.8% of youth were assigned a triage code of 3,4 or 5, compared to 84% of those over 25 years;
- 50.2% of youth were assigned a trauma code, compared to 27.6% of those over 25 years.

Oral health

Dental services are available free to adolescents from Year 9 (13-14 years) until the 18th birthday. Utilisation of this service, which is provided by general dental practitioners under their contracts with the DHB, was 65.6% in 2008, compared to a national figure of 60.5%. Utilisation of free dental services in Canterbury had been increasing from 2001/02 to 2005 when there was a peak of 69.9% utilisation, and thereafter declined slightly. Nationally utilisation of dental services has risen over time from 50.2% in 2001/02 (see Figure 26).

Figure 26 Utilisation of oral health services by youth (Year 9 to 17 years), Canterbury and New Zealand, 2001-2008 (Ministry of Health)



A survey in Canterbury [17] found that a lower proportion of Māori (59%) and Pacific (50%) adolescents had accessed oral health services than Others (72%) in 2006. Of those adolescents who did not access dental services, 31% were happy with the current general dental practice system, 47% (with higher proportions among Māori and Pacific adolescents) would have preferred a school-based service, and 20% a specific teenage service in the community.

Sexual health

The Institute of Environmental Science and Research (ESR) conduct surveillance of sexually transmitted infections (STIs) by collecting data from sexual health clinics, family planning clinics, and student and youth health clinics, based on voluntary reporting. In Canterbury in 2008, there were sexual health clinics in Christchurch and Ashburton, and several family planning clinics (Christchurch, Hornby, Rangiora and Ashburton) and student and youth health clinics (the 198 Youth Health Centre in Christchurch, Canterbury and Lincoln Universities, and CPIT).

Comparisons by age and/or ethnicity must be made with caution as attendance at these clinics may be different for different age and ethnic groups, the clinics have no specific catchment areas, and other health providers such as general practitioners also diagnose and treat STIs.

In 2008 there were 77,003 visits to these clinics, of which 23,322 (30.3%) were for youth. Of the visits for youth, 13,560 (58.1%) were at family planning clinics, 3,471 (14.9%) were at sexual health clinics and 6,291 (27%) were at student and youth health clinics. A large proportion of the visits to student and youth health clinics did not identify the age (or ethnicity) of the clinic attendees. Removing student and youth health clinics there were 32,284 visits to family planning and sexual health clinics, of which 17,031 (52.8%) were for youth. Of all attendances at sexual health and family planning clinics, 87.6% were for females and 12.4% for males; 80.8% were for Europeans, 5.9% for Māori, 1.1% for Pacific, 8.8% for Other and 3.3% for attendees of unknown ethnicity.

Table 2 summarises diagnoses of STIs by the number of diagnosed youths and the proportion of total diagnoses that were for youth, for each type of STI.

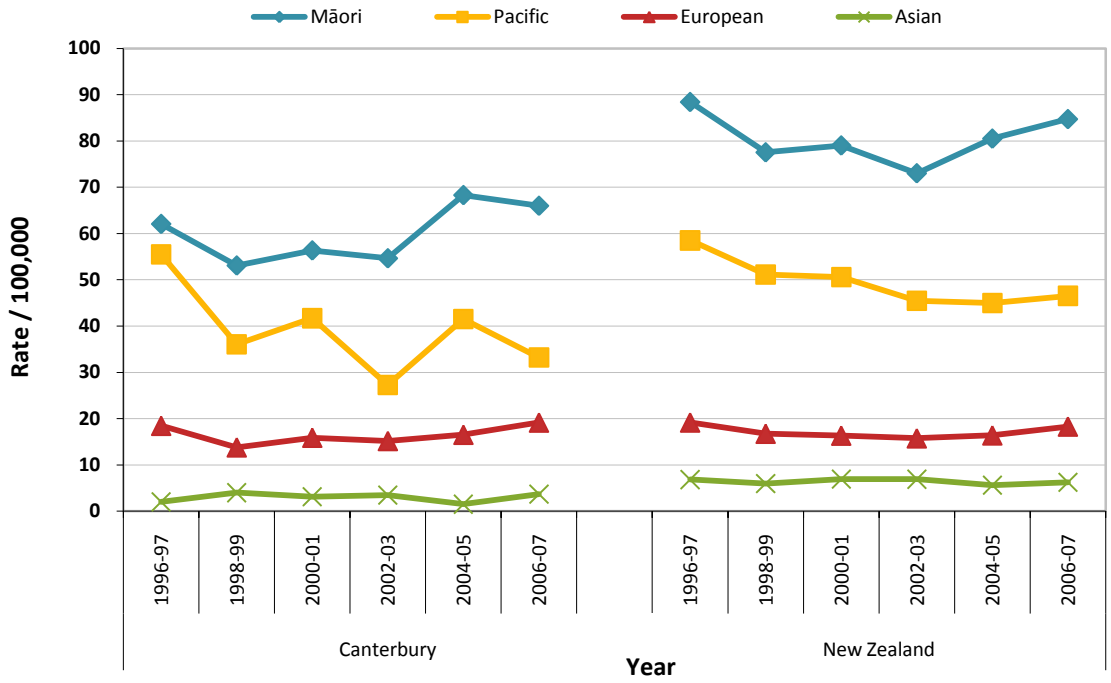
Table 2 Sexually transmitted infections, Canterbury, 2008 (Institute of Environmental Science and Research Ltd)

	Chlamydia	Gonorrhoea	Genital herpes (1st presentation)	Genital warts (1st presentation)	NSU* (males only)
Total number of youth	**640**	**90**	**80**	**334**	**29**
Proportion of visits that were for youth	77.0%	68.7%	50.3%	66.7%	38.7%

*NSU – non-specific urethritis

Figure 27 presents births in 15 to 19 year olds, and shows rates for Maori and Pacific teens in Canterbury were two to four times higher than for Europeans over the period from 1996 to 2007, but lower than for Māori and Pacifc teens nationally. The rate for Asian teens was lower than for other ethnicities in Canterbury and lower in Canterbury than nationally. The rate of teenage births for European teens was similar in Canterbury to the national rate.

Figure 27 Teenage birth rates in Canterbury and New Zealand, 1996-2007 (New Zealand Child and Youth Epidemiology Service)

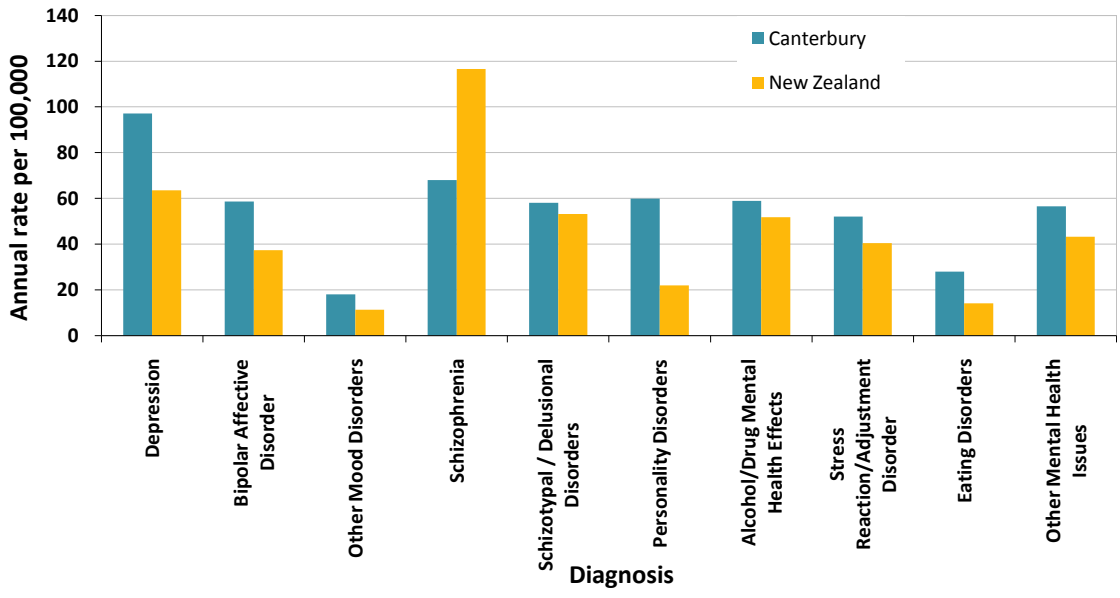


Mental health

In the period from 2004 to 2008, youth in Canterbury were admitted to hospital for several mental health problems at a higher rate than nationally. This included depression, bipolar affective disorder, personality disorder and eating disorders. In the same period youth in Canterbury were admitted much at a much lower rate for schizophrenia than nationally (see Figure 28).

Youth were hospitalised in Canterbury for depression and bipolar affective disorder at more than one and a half times the national rate (RR[2] 1.53 and 1.57 respectively), for personality disorders at almost two and a three quarter times the national rate (RR 2.73), and for eating disorders at almost two times the national rate (RR 1.98 – this may have been influenced by having a dedicated service for eating disorders in Canterbury). Conversely, youth were hospitalised in Canterbury for schizophrenia at under two thirds the national rate (RR 0.58).

Figure 28 Hospitalisation for mental health disorders in Canterbury and New Zealand, 2004-2008 (New Zealand Child and Youth Epidemiology Service)

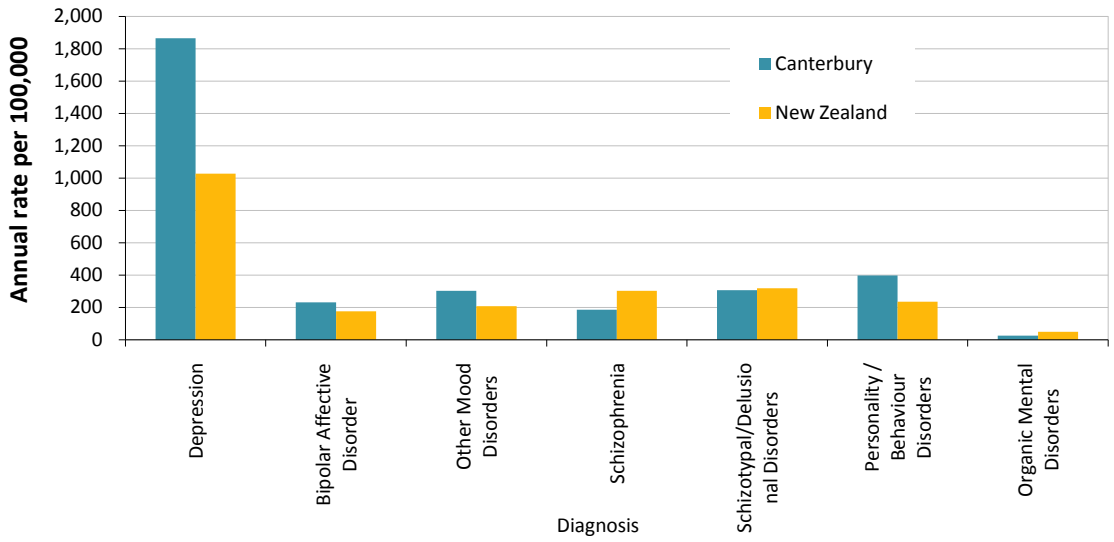


This broad pattern was also seen for youth accessing mental health services in the period from 2005 to 2007. Youth in Canterbury accessed mental health services at a higher rate for

[2] RR is rate ratio, calculated by dividing one rate by another. In this case the rate for Canterbury is divided by the rate for New Zealand

depression (RR 1.81), bipolar affective disorder (RR 1.31), other mood disorders (RR 1.47) and personality/behaviour disorders (RR 1.61) than nationally, but at a lower rate for schizophrenia (RR 0.68) and organic mental disorders (RR 0.51) (see Figure 29).

Figure 29 Youth accessing mental health services for mental health disorders in Canterbury and New Zealand, 2005-2007



For youths on sickness benefits, in January 2010, 1,657 individual youths (16 to 24 years) in Canterbury were reliant on the sickness benefit. This was 23.3% of the total 7,109 people in Canterbury on the sickness benefit. Nationally, 18.3% of sickness beneficiaries were youth, and the Canterbury proportion the highest of the country's eleven regions. In January 2010, 70.3% of youth on sickness benefits had a psychological or psychiatric disorder, of whom 40.3% (28.3% of the total youth sickness beneficiaries) had depression. The comparable figures nationally were that 54% of youth receiving sickness benefits had a psychological or psychiatric disorder, of whom 35% (19% of the total youth sickness beneficiaries) had depression [18].

In March 2010, 66.8% of youth sickness beneficiaries identified as NZ European, 20.1% as Māori, 1.8% as Pacific, 6.2% other and 5.1% unspecified. Compared to the proportion of the youth population for each ethnicity, Māori youth (9.1% of the 16-24 year old population) were over-represented, and Pacific (3.0%) and NZ Eurpoean (75.1%) youth were underrepresented. However, NZ European youths on a sickness benefit were more likely to have a psychological or psychiatric disorder (74%) than the average for all youth on a

sickness benefit (71.0%), whereas Māori (64.4%) and Pacific (41.4%) youths were less likely to have a psychological or psychiatric disorder (see Figure 30) [18].

Figure 30 Sickness beneficiaries in Canterbury, 16 to 24 years, March 2010 (Ministry of Social Development)

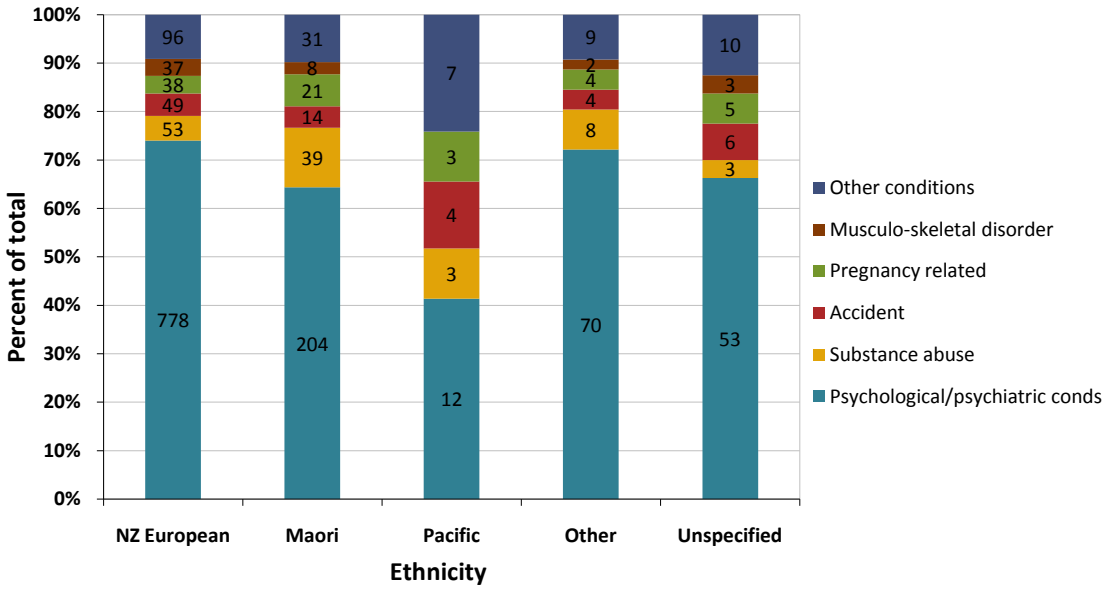
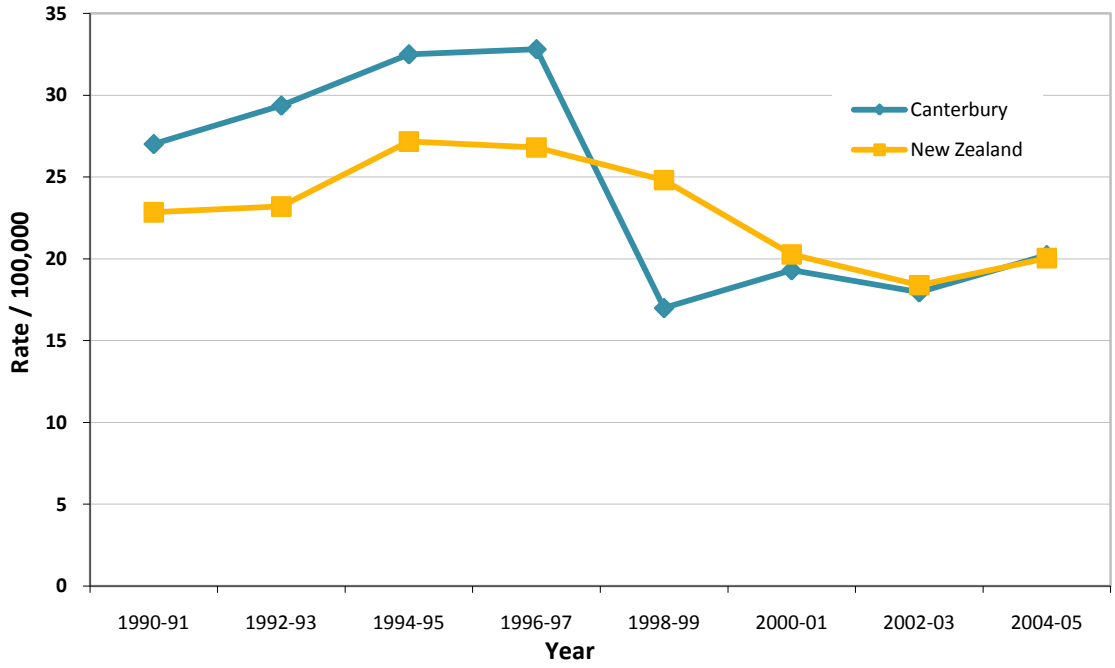


Figure 31 shows the rate of suicide mortality in Canterbury and New Zealand in the period from 1990 to 2005. Prior to 1997 the rate in Canterbury was higher than nationally, before declining to less than the national rate and then more closely approximating the national rate from 2000 onwards. According to the Canterbury DHB Health Needs Assessment [19] in the period from 2003 to 2005 the rate of suicide mortality was higher for male youth (24.8/100,000) than for female youth (11.3/100,000), reflecting a similar difference nationally. Nationally, the suicide mortality rate is higher for Māori than for other ethnicities.

Figure 31 Suicide mortality for youth, Canterbury and New Zealand 1990-2005 (New Zealand Child and Youth Epidemiology Service)



Hospitalisation

The total number of unique admissions for youth in 2009 was 9,618. This represents a hospitalisation rate of 13,399.3 per 100,000 people in the age group in 2009. This compares to a hospitalisation rate of 20,626.3 per 100,000 for 0 to 14 year olds (including the hospitalisations associated with being born) and 22,634.6 per 100,000 for those aged over 25 years. The rate of hospitalisation for youth increased with age, going from 7,719 per 100,000 for 15 year olds to 16,369 per 100,000 for 24 year olds (see Figure 32).

Figure 32 Hospitalisations by age, 2009 (CDHB Planning and Funding from National Minimum Dataset)

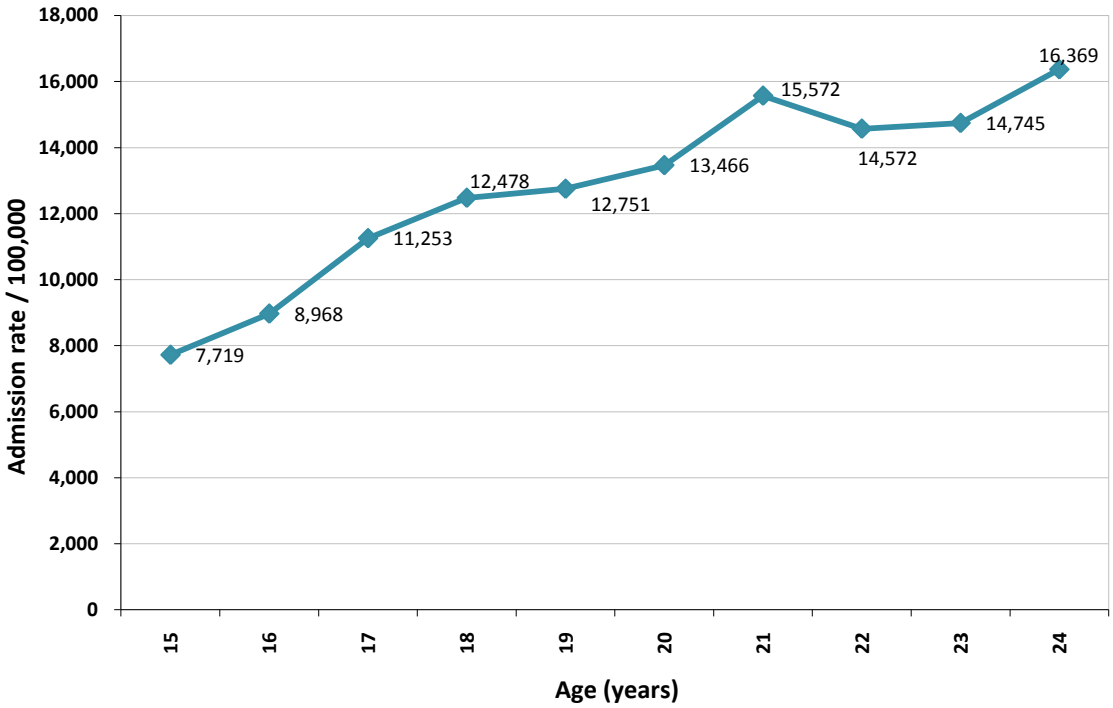
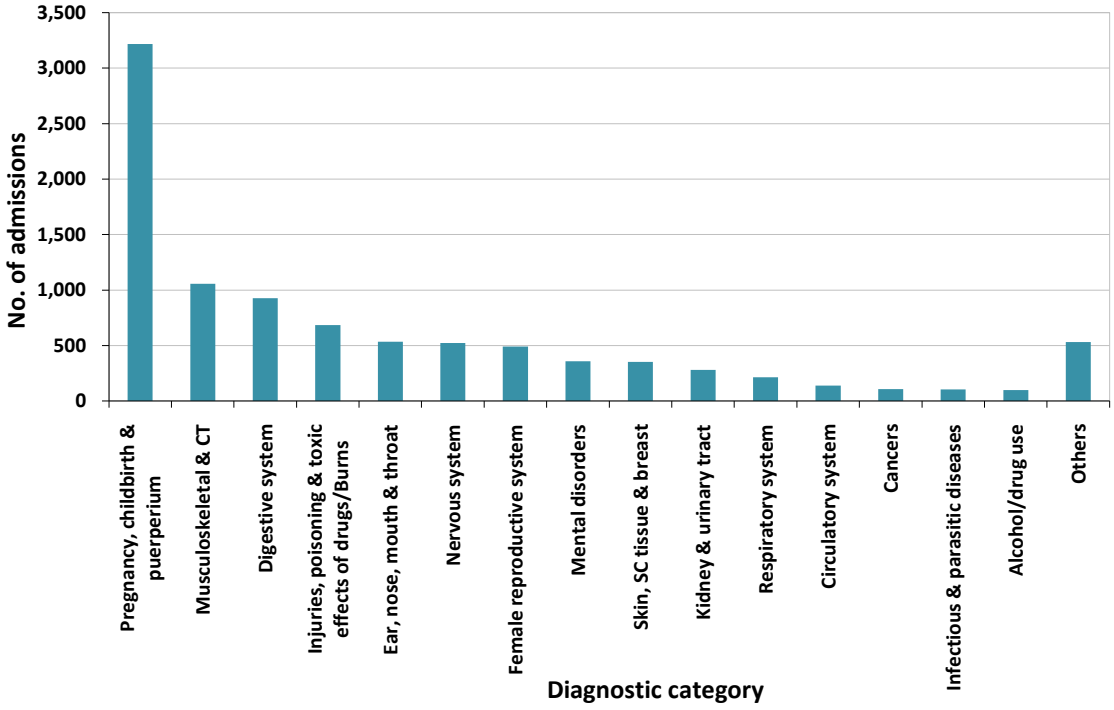


Figure 33 shows causes of admission to hospital for youth in 2009 by major diagnostic category. A third (33.4%) of admissions for youth in 2009 were related to pregnancy, childbirth and the puerperium. Disorders of the musculoskeletal system and connective tissue were the cause of 11.0% of admissions, many of which will have been related to previous injuries. Injuries (including burns, poisoning and the toxic effects of drugs) themselves were the cause of 7.1% of admissions. Disorders of the digestive system were the cause of 9.6% of admissions. Disorders of the nervous system, female reproductive system and the ear, nose, mouth and throat all caused between 5% and 6% of admissions each, and each of the other diagnostic categories were the cause of less than 5% of

admissions each. Of these mental disorders and alcohol and drug use (including organic mental disorders caused by alcohol and drug use) were the cause of 3.7% and 1.0% of admissions, respectively.

Figure 33 Causes of hospitalisation for youth by major diagnostic category, Canterbury, 2009 (CDHB Planning and Funding from National Minimum Dataset)



According to the Canterbury DHB Health Needs Assessment [19] in the period from 2003 to 2005 the rate of hospitalisation for unintentional injury in Canterbury was 1,243/100,000, which was lower than the national rate of 1,507/100,000 (see

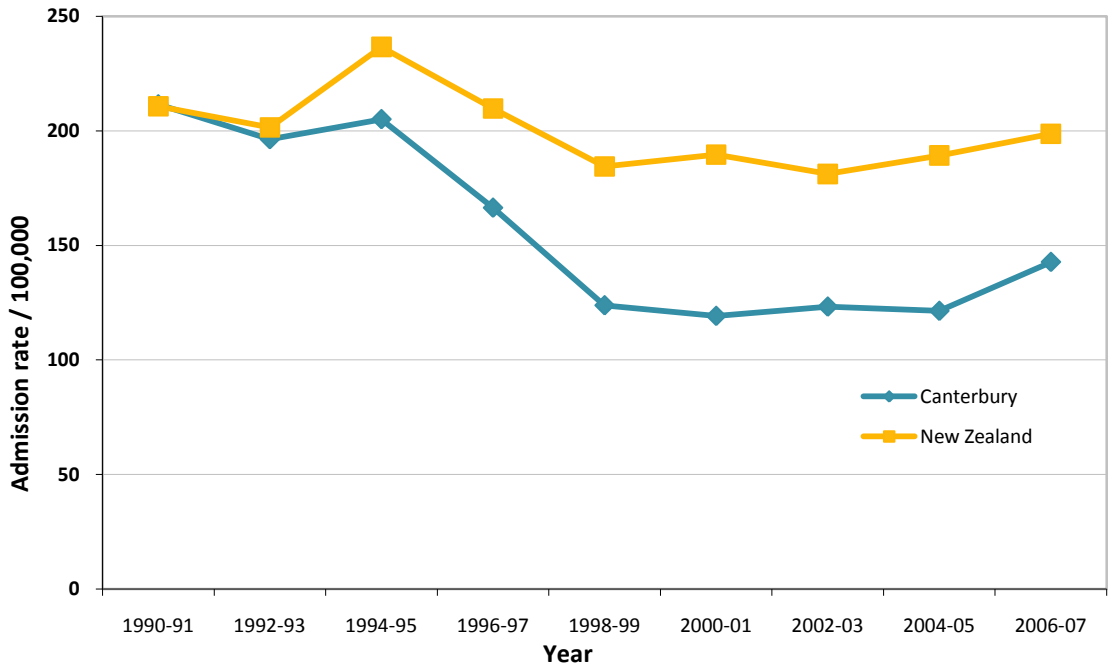
Table 3). The rate was significantly higher for male youth (1,811/100,000) than for female youth (649/100,000), reflecting a difference in the national figures. Nationally, the rate of hospitalisation for unintentional injury was higher for Pacific and Māori youth than for other ethnicities. In Canterbury, the rate for Pacific youth (1,634/100,000) was higher than for other ethnicities, but the rate for Maori youth (1,035/100,000) was lower.

Table 3 Hospitalisation for unintentional injury in youth, rate per 100,000, 2005–07 (Health and Disability Intelligence Unit)

	Canterbury	New Zealand
Female	648.6 (598.8 - 701.4)	770.2 (751.7 - 789.1)
Male	1,810.7 (1,728.8 - 1,895.4)	2,237.2 (2,205.8 - 2,269.1)
Total	1,243.5 (1,194.8 - 1,293.6)	1,507.5 (1,489.2 - 1,526.0)

Figure 34 shows the rate of hospitalisation from injuries caused by assault over the period from 1990 to 2007, in Canterbury and New Zealand. The rate of hospitalisation for injuries caused by assault in youth in Canterbury has been lower than that in New Zealand since 1994-95 and remains about three quarters of the national rate.

Figure 34 Hospitalisation for injuries from assault of youth, Canterbury and New Zealand 1990-2007 (New Zealand Child and Youth Epidemiology Service)



Pharmaceutical and laboratory use

Tables 4 and 5 show the use of pharmaceuticals for youth, by the type of drug and by the ethnicity of the recipients of the script, respectively.

The total pharmaceutical cost for youth was over $5 million dollars in 2009, which represents s $70.72 per person in the 15 to 24 year age group. This compares to $53.47 per person in the 0-14 year age group and $372.34 per person in the over 25 year age group. Table 4 shows that drugs for nervous system disorders were the highest cost, followed by drugs for disorders of the alimentary tract and metabolism and the respiratory system and allergies. Table 5 shows that by cost European youth were prescribed a higher proportion of pharmaceuticals (81.4%) compared to the NZ European proportion of the population (74.9%).

Table 4 Pharmaceutical use for youth, Canterbury, 2009 (CDHB)

Type	No. of Scripts	Reimbursement cost (excl GST)
Alimentary Tract and Metabolism	17,681	$722,700.40
Blood and Blood Forming Organs	2,504	$34,464.22
Cardiovascular System	1,838	$42,330.25
Dermatologicals	27,346	$407,521.05
Extemporaneously Compounded Preparations & Galenicals	534	$20.33
Genito-Urinary System	35,135	$488,038.17
Hormone Preparations - Systemic Excl Contraceptive Hormones	5,281	$84,672.97
Infections - Agents for Systemic Use	48,714	$469,105.18
Musculoskeletal System	13,724	$190,676.71
Nervous System	54,249	$1,603,958.01
Oncology Agents and Immunosuppressants	1,304	$279,604.69
Respiratory System and Allergies	29,372	$643,774.32
Sensory Organs	5,023	$39,548.59
Special Foods	164	$47,582.64
Unknown	739	$22,101.88
Total	243,608	$5,076,099.41

Table 5 Pharmaceutical use by youth, by ethnicity, Canterbury, 2009 (CDHB)

Ethnicity	No. of Scripts	Reimbursement cost (excl GST)	%
European	192,205	$4,134,160.76	81.4%
Maori	17,201	$357,775.58	7.0%
Asian	6,459	$168,203.19	3.3%
Pacific	4,381	$69,821.29	1.4%
MELAA	2,210	$38,352.31	0.8%
Other	4,339	$68,375.77	1.3%
Unspecified	16,813	$239,410.51	4.7%
Total	243,608	$5,076,099.41	

The cost of laboratory testing for youth in 2009 was $2,432,606, which represented $33.89 per person in the 15 to 24 year age group. This compares to $10.05 per person in the 0-14 year age group and $59.24 per person in the over 25 year age group.

Appendix 1

Table 6 Youth enrolment in primary care practices, April 2010 (Canterbury PHO Register)

Practice	Total 15-24 yrs	Youth as % of clinic	% of youth in Canterbury	Total patients all ages
University of Canterbury Health Centre	6,766	77.1%	9.8%	8,776
Riccarton Clinic	2,017	17.8%	2.9%	11,332
Moorhouse Medical Centre	1,518	19.9%	2.2%	7,624
Papanui Medical Centre	1,500	13.4%	2.2%	11,191
Shirley Medical Ltd	1,396	14.8%	2.0%	9,444
Halswellhealth	1,319	12.6%	1.9%	10,482
Barrington Medical Centre	1,248	10.4%	1.8%	12,039
Doctors On Riccarton	1,195	14.4%	1.7%	8,311
198 Youth Health Centre	1,158	89.8%	1.7%	1,290
New Brighton Health Care	1,157	13.8%	1.7%	8,364
Lincoln Medical	1,136	12.8%	1.6%	8,865
Belfast North MEDIQUAL Doctors	1,078	17.2%	1.6%	6,272
High Street Medical Centre	1,076	13.7%	1.6%	7,879
Normans Road Surgery	1,041	15.7%	1.5%	6,615
Medical Corner Doctors	1,016	14.7%	1.5%	6,894
Ilam Medical Centre Ltd	993	11.7%	1.4%	8,476
Lincoln University Student Health	969	72.0%	1.4%	1,345
Linwood Avenue Medical Centre	925	13.5%	1.3%	6,843
Piki Te Ora Christchurch	922	14.4%	1.3%	6,401
Allenton Medical Centre	903	12.7%	1.3%	7,134
Christchurch Sth Health Centre Ltd	889	10.5%	1.3%	8,471
Kaiapoi Medical Centre	879	11.1%	1.3%	7,935
Greers Road Medical Centre	837	15.9%	1.2%	5,261
St Albans Medical Centre	830	9.9%	1.2%	8,367
Moore Street Medical Centre	826	13.3%	1.2%	6,195
Main North Road Medical Centre	808	13.0%	1.2%	6,226
Hornby Medical Centre	791	12.5%	1.1%	6,353
ProMed Edgeware Doctors	789	14.8%	1.1%	5,323
Hoon Hay Medical Centre	744	10.2%	1.1%	7,277
Grahams Road Medical Practice Ltd	720	14.3%	1.0%	5,032
Rolleston Medical Centre	720	11.5%	1.0%	6,262
Gayhurst Medical Practice	688	13.0%	1.0%	5,297
Sealy Street Medical Practice	672	13.6%	1.0%	4,958
Selwyn Street Medical	655	13.7%	0.9%	4,766
Harewood Medical Centre	654	11.8%	0.9%	5,561
North Avon Medical Centre	613	13.5%	0.9%	4,528
Prestons Road Surgery	605	16.9%	0.9%	3,588
Amyes Road Medical Centre	600	13.7%	0.9%	4,379
Straven Medical Rooms	573	16.5%	0.8%	3,473
Merivale Medical Practice	560	10.2%	0.8%	5,502

Darfield Medical Centre Ltd	556	11.1%	0.8%	5,004
Ferry Road Medical Centre	536	11.9%	0.8%	4,503
Amberley Medical Centre	514	11.1%	0.7%	4,632
Parklands Medical Ltd	511	12.0%	0.7%	4,249
Redwood Clinic	502	12.6%	0.7%	3,978
EastCare Health	500	15.2%	0.7%	3,297
Waltham Health Centre	494	11.9%	0.7%	4,159
Woodham Road Health Care	477	11.4%	0.7%	4,192
Upper Riccarton Medical Centre	476	11.6%	0.7%	4,110
Templeton Medical	476	10.4%	0.7%	4,593
Durham Health	473	11.7%	0.7%	4,032
Queenspark Healthcare	470	14.8%	0.7%	3,175
Lincoln Road Medical Practice	462	11.3%	0.7%	4,074
Travis Medical Centre	457	9.1%	0.7%	5,043
Kendal Medical Centre	453	16.1%	0.7%	2,819
Leeston Medical Centre Ltd	453	12.1%	0.7%	3,731
Wainoni Medical Centre	434	12.0%	0.6%	3,606
Kaikoura Medical Centre	432	12.1%	0.6%	3,576
Redcliffs Medical Centre	418	9.4%	0.6%	4,425
Bryndwr Medical Rooms Ltd	411	15.1%	0.6%	2,718
Good Street Medical Centre	399	13.0%	0.6%	3,073
Yaldhurst Family Doctors	399	11.1%	0.6%	3,587
Mt Pleasant Medical Centre	394	10.1%	0.6%	3,911
Methven Medical Centre	393	12.1%	0.6%	3,249
Helios Integrative Medical Centre	392	9.5%	0.6%	4,111
Riccarton Medical Practice	390	10.5%	0.6%	3,716
Dr Martins Practice	384	13.5%	0.6%	2,848
Roimata Medical Practice	369	14.2%	0.5%	2,606
Mairehau Medical Centre	366	12.1%	0.5%	3,015
Pacific Health Clinic	362	16.8%	0.5%	2,161
Belfast Medical Centre	359	14.0%	0.5%	2,562
Fendalton Medical Centre	354	11.8%	0.5%	2,997
Gym Co Medical Ltd	349	14.5%	0.5%	2,405
QEII Medical Centre	345	10.7%	0.5%	3,227
The Clinic	337	11.2%	0.5%	3,020
Cashmere Health + Physio	327	11.8%	0.5%	2,781
Doctors on Cashel	321	17.8%	0.5%	1,806
Oxford Community Health Centre	319	10.0%	0.5%	3,191
Tinwald Medical Centre	315	10.1%	0.5%	3,132
Innes Road Medical Rooms	307	11.0%	0.4%	2,801
Lyttelton Health Centre	307	9.7%	0.4%	3,171
Dr Fairhalls Practice	306	15.4%	0.4%	1,986
Salisbury Health Centre	303	10.1%	0.4%	3,010
Acheson Avenue Health Centre	296	17.5%	0.4%	1,692
Te Rawhiti Family Care Centre	296	17.1%	0.4%	1,736

Christian C. and Medical Centre	296	12.3%	0.4%	2,406
Rakaia Medical Centre	277	13.1%	0.4%	2,120
Avonhead Surgery - Dr Kathy Davey	276	14.3%	0.4%	1,934
Burnside Medical Clinic	270	13.4%	0.4%	2,017
Bishopdale Medical	266	7.5%	0.4%	3,543
Hillmorton Medical Centre	263	14.9%	0.4%	1,760
Avonhead Surgery - Dr Susan Shand	261	11.9%	0.4%	2,200
Opawa Surgery	255	12.2%	0.4%	2,086
St Martins Medical Practice	254	9.1%	0.4%	2,784
Golf Links Road Family Drs	249	14.0%	0.4%	1,780
Amuri Community Health Centre	216	12.9%	0.3%	1,672
New Brighton Village Health Care	206	9.5%	0.3%	2,166
Woolston Christian Medical Centre	204	16.3%	0.3%	1,250
Southside Health	204	8.5%	0.3%	2,393
Mansfield Health Practice	202	10.5%	0.3%	1,923
Cranford Street Medical Practice	187	13.2%	0.3%	1,422
Sumner Health Centre	187	9.1%	0.3%	2,062
Rangiora Medical Centre	181	10.3%	0.3%	1,754
Christchurch Family Clinic	162	17.3%	0.2%	937
Waikari Clinic	160	10.5%	0.2%	1,526
Woolston Medical Rooms	160	9.2%	0.2%	1,741
Akaroa Health Centre	139	8.1%	0.2%	1,717
Kaiapoi - Kaye Buchan Medical Centr	134	11.7%	0.2%	1,145
Sumner Medical Rooms	126	10.0%	0.2%	1,254
Kingdom Clinic	121	11.9%	0.2%	1,015
Dr Pages Practice	120	8.4%	0.2%	1,426
Cheviot Community Health Centre	118	9.8%	0.2%	1,203
Waimairi Road Medical Rooms	117	10.0%	0.2%	1,174
Ferrymead Medical Centre	116	10.5%	0.2%	1,105
Hills Road Medical Centre	116	9.6%	0.2%	1,204
Hornby Surgery Ltd	112	9.2%	0.2%	1,215
Merivale Village Medical Care	111	8.8%	0.2%	1,265
Settlers Health Centre	105	10.9%	0.2%	965
Hanmer Springs Health Centre	102	11.1%	0.1%	915
The Surgery	102	9.0%	0.1%	1,133
South New Brighton Medical Centre	101	8.6%	0.1%	1,168
Cashmere Medical Practice	95	11.5%	0.1%	829
Kaiapoi Clinic	92	11.0%	0.1%	839
Casebrook Surgery	85	11.2%	0.1%	762
Gloucester Sports Clinic	80	5.3%	0.1%	1,508
Woodend Medical Centre	78	11.6%	0.1%	670
Diamond Harbour Surgery	57	6.6%	0.1%	866
Clyde Road Surgery	53	7.6%	0.1%	700
Menz Medical	22	3.4%	0.0%	647
The Light House	19	4.5%	0.0%	425

Canterbury Clinic	0	0.0%	0.0%	2
Somerfield Medical Centre	0	0.0%	0.0%	93

References

[1] United Nations. World Youth Report 2003. The global situation of young people. New York: Department of Economic and Social Affairs of the United Nations Secretariat; 2004.

[2] Youth and the United Nations. Frequently asked questions [FAQs/Q&A] 2010 [cited 2010 27 May]; Available from: http://www.un.org/esa/socdev/unyin/qanda.htm

[3] Statistics New Zealand. DHB Single Year Age-Sex Projections 2006-2026 (2009 Update). Wellington: Statistics New Zealand; 2009.

[4] Craig E, Anderson P, Jackson C. The Health Status of Children and Young People in Canterbury. Auckland: New Zealand Child and Youth Epidemiology Service; 2008.

[5] Department of Labour. The impact of the recession on young people. Wellington: Department of Labour; 2010.

[6] Adolescent Health Research Group. Christchurch Regional Report: A Profile of Student Health and Wellbeing. Auckland: University of Auckland; 2003.

[7] Mathias K. Youth-specifc primary health care - access, utilisation and health outcomes. Christchurch: New Zealand Health Technology Assessment; 2002.

[8] Bernard D, Quine S, Kang M, Alperstein G, Usherwood T, Bennett D, et al. Access to primary health care for Australian adolescents: How congruent are the perspectives of health service providers and young people, and does it matter? Australian and New Zealand Journal of Public Health. 2004;28(5):487-92.

[9] Booth M, Bernard D, Quine S, Kang M, Usherwood T, Alperstein G, et al. Access to health care among Australian Adolescents: Young people's perspectives and their socio-demographic distribution. Journal of Adolescent Health. 2004;34(1):97-103.

[10] Adolescent Health Research Group. Youth'07: The Health and Wellbeing of Secondary School Students in New Zealand. Technical Report. Auckland: University of Auckland; 2008.

[11] World Health Organisation. Adolescent Friendly Health Services - An Agenda for Change. Geneva: World Health Organisation; 2002.

[12] World Health Organisation. Quality Assessment Guidebook: a guide to assessing health services for adolescent clients. Geneva: World Health Organisation; 2009.

[13] Tylee A, Haller DM, Graham T, Churchill R, Sanci LA. Youth-friendly primary-care services: how are we doing and what more needs to be done? The Lancet. 2007 2007/5/11;369(9572):1565-73.

[14] Denny S. Young people in Counties Manukau DHB. Auckland: Counties Manaku District Health Board. KidzFirst Community Health - Centre for Youth Health; 2004.

[15] Denny S, Balhorn A, Lawrence A, Cosgriff J. Student access to primary health care and preventive health screening at a school-based health centre in South Auckland, New Zealand. New Zealand Medical Journal. 2005;118(1218):1561-77.

[16] Ministry of Health. Evaluation of Youth One Stop Shops. Wellington: Ministry of Health; 2009.

[17] Regional Co-ordination Service for Adolescent Oral Health. Attitudes to, and utilisation of dental care by Canterbury adolescents – 2006. Christchurch: Canterbury District Health Board; 2007.

[18] Ministry of Social Development. Work and Income Canterbury Health Strategy 2010. Christchurch: Work and Income, Ministry of Social Development; 2010.

[19] Health and Disability Intelligence Unit. Canterbury DHB Health Needs Assessment. Wellington: Health & Disability Intelligence Unit, Health & Disability Systems Strategy Directorate, Ministry of Health; 2008.