COUNTIES MANUKAU HEALTH

Populations who have received care for mental health disorders

Prepared: Mental Health Services and Population Health Team

This report is available in pdf format on
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NOTE: Please read at least the Introduction section of this report before looking at the results. It is important to understand clearly what this report is about, and what it is not.

Acknowledgments

This information was compiled by Doone Winnard, Dean Papa, Mildred (Ai Wei) Lee, and Sai Boladuadua in collaboration with Sonya Russell, Sue Hallwright, Peter Watson and Tess Ahern.

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

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Abbreviations

CADS	Community Alcohol and Drug Services
CM Health	Counties Manukau Health
CMDHB	Counties Manukau District Health Board
CMHC	Community Mental Health Centre
DSM	Diagnostic and Statistical Manual of Mental Disorders
ICD	International Classification of Diseases
MOH	Ministry of Health
NHI	National Health Index
NMDS	National Minimum Data Set
NZDep06	New Zealand Deprivation Score 2006
NZHIS	New Zealand Health Information Service
NZMHS	New Zealand Mental Health Survey (Te Rau Hinengaro)
PHO	Primary Health Organisation
PRIMHD	Project for the Integration of Mental Health Data
SNZ	Statistics New Zealand
WHO	World Health Organization

Foreword

This report describes the findings of an analysis of linked datasets used to identify people living in the catchment population for Counties Manukau Health mental health services (the population living in the Counties Manukau DHB area plus people living in Otahuhu) who have received care for a mental health disorder. It builds on earlier work in Counties Manukau, linking data from

- the national mental health service data base, Programme for the Integration of Mental Health Dada (PRIMHD),
- the national minimum data set (NMDS) which records coded information about hospital discharges from publicly funded hospitals in New Zealand, and
- community pharmaceutical dispensing claims (PHARMS dataset).

It is acknowledged that this population is a subset of a wider population who have mental health disorders or mental health symptoms, some of whom have not sought treatment, not been diagnosed, or had a diagnosis made but are being treated non-pharmacologically in primary care (e.g. behavioural therapy). The study population is therefore described as 'the population identified as receiving care for mental health disorders' to differentiate it from the population 'who have mental health disorders'.

The principle results of this analysis and potential implications are described in the companion 'Key Findings' report, while this report provides more detail about the methodology and findings. Together these reports aim to inform mental health service planning by describing the populations receiving care for mental health disorders by ethnicity, gender, age, socioeconomic area, area of residence, area of primary care enrolment and diagnostic grouping..

The populations described are

- an 'overall mental health population' which draws on contact with mental health services as recorded in PRIMHD from 2008-2011 inclusive, dispensing of mental health medications from 2006 -2011 and mental health diagnoses related to hospitals admissions from 2002-2011
- a '2011 snapshot mental health population' which draws on contact with mental health services as recorded in PRIMHD, dispensing of mental health medications and mental health diagnosis related to hospitals admissions, any and all during 2011
- a '2011 mental health service contact population' identified as those with contact with mental health services as recorded in the PRIMHD dataset for 2011.

This report also provides

- more in-depth analysis of some of the diagnostic categories of the 2011 snapshot mental health population (those with depression/anxiety, psychotic disorders)
- review of primary care enrolment with the general practice team and aspects of health service utilisation (e.g. potentially avoidable hospitalisations) for various mental health populations
- analysis of the prevalence of selected long term conditions (diabetes, cardiovascular disease, chronic obstructive respiratory disease, and congestive heart failure; as identified through administrative datasets) amongst mental health populations and how it compares to the populations not identified as receiving care for mental conditions
- analysis by age group to assist in service planning
    - 18 years and over representing the age group for adult mental health services

- 12-19 years to recognise the unique needs of adolescents and assist in planning for the package of initiatives announced in 2012 under the Prime Minister's Youth Mental Health Project 2012-2016
- 20 to 24 years to recognise that young adults may have different needs from older adults, and
- 65 years and over to assist in planning for Mental Health Services for Older People.

Where appropriate, figures are compared with results from Te Rau Hinengaro, the first national New Zealand Mental Health Survey undertaken in 2006, the New Zealand Health Survey 2011/12, a Ministry of Health analysis of mental health and addiction service use for 2009/10 as recorded in PRIMHD, and for young people the Youth '07 and Youth '12 national surveys.

This work has a number of limitations, which are described in this report, and raises as many questions as it answers but provides a contribution to information for planning. Some discussion of findings is given in the Discussion section at the end of this report, along with identification of a number of questions but there is much that would benefit from consideration and interpretation by those working with populations receiving mental health care. We hope to facilitate such deliberations and follow this work with future iterations that describe those discussions and further explore some of the implications.

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Introduction

Background

Mental health disorders are common in New Zealand and worldwide. In the New Zealand Mental Health Survey (NZMHS), Te Rau Hinengaro, published in 2006 (Oakley Browne, Wells, & Scott, 2006) approximately one in five people had experienced symptoms within the previous year that were consistent with a mental health diagnosis as defined by DSM-IV criteria (the criteria used by mental health services) . This has major implications not only for the person affected themselves but for whaanau and families, friends and the wider community. It also has important implications for health service planning.

As noted by Thornley et al (Thornley, Papa, Jackson, & Hallwright, 2009) it does need to be acknowledged that such estimates of the prevalence of mental health disorders are based on Western medical approaches, and some may question the classification systems such as DSM-IV used in this approach and how these relate to the range of normal human experiences. In addition, the apparent increase in mental health disorders that has been described over time may be due to a true increase, or due to (or at least contributed to by) greater awareness of mental illness, improved diagnosis, changes in classification systems over time and/or recall bias. These issues are necessary caveats around any population analyses of mental health disorder.

In 2009 a previous Counties Manukau Health (CM Health) study by Thornley et al defined a new methodology for estimating the descriptive epidemiology of the population receiving care for mental health disorders using linked anonymised health data (Thornley et al., 2009). Although not formally validated, it provided a view of mental health care not previously available for CM Health, and insights into service use by different groups, relationships between services, and linkages between mental health and physical health.

This report builds on that work, linking data from

- the national mental health service data base, Programme for the Integration of Mental Health Dada (PRIMHD),
- the national minimum data set (NMDS) which records coded information about hospital discharges from publicly funded hospitals in New Zealand, and
- community pharmaceutical dispensing claims (PHARMS dataset).

It is important to acknowledge that the numbers calculated in this type of analysis depend very much on the definition of the pieces of information used for each condition – which medications, which diagnostic labels, over what period of time, etc. There will be people with the conditions being described who

- have not sought treatment,
- have not been diagnosed or
- have had a diagnosis made but are being treated non-pharmacologically in primary care (e.g. behavioural therapy) and not been under the care of mental health services or been admitted to hospital for any reason

and who therefore will not be counted in these analyses. In addition there will be some people who have been prescribed a 'mental health medication' for other reasons, who will therefore be counted in these analyses as receiving care for a mental health disorder when that is not actually the case. Steps taken to try to minimise this are described further in the methods section.

> The analyses in this report should therefore be seen as indicative figures for the population who have received some forms of care for a mental health disorder, to inform service planning where possible, and should be viewed as a subset of the true prevalence of mental health disorder in the Counties Manukau community.

The main aim of this report is to support planning of mental health services for the Counties Manukau population. Rather than detailed statistical analysis, it therefore focuses on describing the populations impacted and how these compare to the underlying population. The variables examined are described further in the Methods section (P 36).

Data from the PRIMHD and PHARMS datasets is now available for several years more than was available to Thornley et al, providing the opportunity to examine the populations identified in these datasets over a longer time period. Coverage of community pharmaceutical dispensing claims by NHI has now been relatively complete since 2006. Data about people receiving services from DHB-provided secondary care mental health providers in the hospital and community has been included in PRIMHD since 1 July 2008. Since 2011 service utilisation data from mental health community providers (NGOs) has increasingly been included in PRIMHD. It was hoped that this would be reflected in an extract of 2011 data, giving a more complete picture of mental health service utilisation than the previous work by Thornley, at which time there was no NGO data in PRIMHD. Unfortunately, early analysis demonstrated that most NGOs were still not reporting in PRIMHD for a significant proportion of 2011, so the PRIMHD coverage included in this report does remain largely related to DHB-provided secondary care services. The majority of these services are provided by staff employed by the DHB working in community settings.

Age groups reported

This study presents results for the overall 'adult' population as defined for mental health services (aged 18 years and over). It also presents analyses for several smaller age groups to assist in mental health service planning:

- 12 to19 years, to recognise the unique needs of adolescents and in particular to assist in planning for the package of initiatives announced in 2012 under the Prime Minister's Youth Mental Health Project 2012-2016
- 20 to 24 years, to recognise that young adults may have different needs from older adults and concern is often expressed that this group tend to miss out if there is a focus on youth and adults
- 65 years and over, to assist in planning for Older Adults Mental Health services.

Results of Te Rau Hinengaro, the New Zealand Mental Health Survey (2006), as context for this study

To give some indication of the difference between prevalence of service use as captured in this kind of study and the underlying population prevalence of mental health disorder, the results of this analysis can be compared with Te Rau Hinengaro, the first national New Zealand Mental Health Survey in 2006 (Oakley Browne et al., 2006). The sampling frame for Te Rau Hinengaro was New Zealanders aged over 15 years. It

assessed four groups of mental health disorders – mood, anxiety, substance use and eating disorders[1]. The survey was limited by not screening for psychotic and cognitive disorders (e.g. dementia) and exclusion of those living in institutions. The sample included 12,992 people, with 2,595 Maaori and 2,374 Pacific, and a response rate of 73.3%.

The results of Te Rau Hinengaro demonstrated a life time unadjusted prevalence of the mental health disorders assessed of 46.6%, and in the last 12 months, 20.7% were identified as having those mental health disorders. The difference between these two figures relates to the fact that the symptoms of some mental health disorders can be relatively short lived or wax and wane over time. The prevalence of the disorders identified varied by gender and ethnicity, with 12 months unadjusted prevalence for females of anxiety disorder of 2.0% (1.3% for males), major depression 7.1% for females (4.2% for males) and eating disorders 0.6% for females (0.3% for males). On the other hand, males had higher rates of substance use disorders (5.0%, women 2.2%) over the last 12 months. Maaori and Pacific ethnic groups had higher levels of the mental health disorders assessed than 'Other' groups; the 12 month unadjusted prevalence of any of those mental health disorders was 29.5% for Maaori, 24.4% for Pacific people and 19.3% for 'Others'. (Asian ethnicities were not reported separately in Te Rau Hinengaro; they were included in the 'Other' group).

However Te Rau Hinengaro found that much of the burden for Maaori and Pacific populations appeared to be due to the youthfulness of those populations and their relative socioeconomic disadvantage. After adjusting for sociodemographic correlates, there were no apparent ethnic differences in the prevalence of anxiety disorders in the past 12 months, but even with adjustments the prevalence of bipolar disorder remained higher for Maaori and Pacific people (Maaori 3.4%; Pacific people 2.7%; Others 1.9%), and substance use disorder was higher for Maaori (6.0%) (Pacific people 3.2%; Others 3.0%). Major depression demonstrated a different pattern, with Maaori and Others having a similar adjusted prevalence (5.7%, 5.8%), whereas Pacific people had a lower prevalence (3.5%).

Te Rau Hinengaro found that the prevalence of any 12-month disorder declined across the age groups from 28.6% in the youngest age group to 7.1% in the oldest age group. This pattern was seen across most individual disorders; the oldest age group always had the lowest prevalence.

The Te Rau Hinengaro survey also identified that those with the mental health disorders assessed often do not seek help from the health sector. Of respondents who reported a mental disorder within the last 12 months, only 36% had visited the health sector for assessment or treatment of such a disorder. This varied by severity (58% for serious disorders, 36% for moderate disorders and 18% for mild disorders). Reasons given for delays in seeking help were

- wanting to handle the problem themselves,
- the problem spontaneously resolved,
- thinking the problem would get better by itself, and
- cost.

Of Pacific people in the Te Rau Hinengaro sample who met the criteria for the DSM-IV disorders assessed in the last 12 months, only 25% had seen a mental health professional over the same period compared with

[1] Other modules assessed suicidal behaviours, health service use, chronic physical conditions, disability, psychological distress and alcohol use and its consequences in the past 12 months

33% of Maaori and 41% of 'Others', corrected for age and gender. Overall both Maaori and Pacific peoples were less likely than others to access treatment when severity was taken into account (9.4%, 8.0% and 12.6% respectively). This suggests there were barriers to access for Maaori and Pacific peoples.

Te Rau Hinengaro also found that there were very significant delays from the onset of the mental health disorders assessed to the time of first treatment and this varied widely between disorders. For example, a median delay of 1 year for major depression, 13 years for bipolar disorder, 16 years for alcohol abuse, 19 years for post-traumatic stress disorder through to an extreme of 38 years for specific phobias.

Although the percentage of people seeking help at the onset was low for most disorders, most people with ongoing mental disorders do eventually make treatment contact. However, post-traumatic stress disorder and bipolar disorder stand out as it was estimated that only just over half will ever make treatment contact. This underlines the fact there may be large numbers of people with mental health disorders in the community who do not receive care for that disorder from formal health services.

Other relevant population mental health studies in New Zealand

The Mental Health and General Practice Investigation (the MaGPIe study) was a study of the prevalence and types of common mental disorders among patients attending New Zealand general practices[2] (MaGPIe, 2003). Based on interviews that generated DSM-IV diagnoses, the 12-month prevalence rates of general practice attendees were 35.7% for any DSM-IV diagnosis, 11.3% for substance use disorders, 18.1% for depressive disorders and 20.7% for anxiety disorders. Depression and anxiety disorders were more common in females than males; substance use disorders were more common in males than females. Rates of disorder were highest in people aged under 44 (50% or more 12-month prevalence) and lowest in those aged 65 years and over (7.6% for men and 12.1% for women).

The Youth '07 survey was a national survey of the health and wellbeing of New Zealand secondary school students that was conducted in 2007. It included a random sample of more than 9,000 students and was representative of young people attending mainstream secondary schools (Adolescent Health Research Group, 2008). The majority (approximately three quarters) of students reported relatively high levels of mental and emotional well-being. However 14.7% of female students and 6.9% of male students reported significant current symptoms of depression (i.e. likely to have an impact on a student's daily life) and 11.2% of female students and 7.6% of male students showed indications of an underlying mental health issue (Adolescent Health Research Group, 2008; Fortune et al., 2010). Higher percentages reported feeling down or depressed most of the day for at least two weeks in a row during the last 12 months, and having seriously thought about suicide in the previous 12 months.

While not directly matching the age group targeted by the Prime Minister's Youth Mental Health Project and analysed for this study (12 to 19 years), the Youth'07 survey provides the most comparable New Zealand information on mental health issues for this age group. Application of the results of the Youth '07 survey to the CM Health population is explored further in the results section for young people aged 12 to 19 years (P 137). Initial results from the Youth'12 survey (based on very similar methodology to the Youth'07 survey) became available in July 2013 and are also discussed in the 12 to 19 years section. At this point the results are available at total population level; ethnic specific results will be available in the future.

[2] The authors of the MaGPie study note some aspects of the setting of the study may limit generalisability in that it included the more affluent areas of Wellington City and had a greater proportion of New Zealand educated doctors that elsewhere in the country.

Levels of significant depressive symptoms were higher than in 2007 for males (8.6%) but similar for females (16.2%).

It is important to acknowledge that the health service contact analysed in this current study covers only a subset of the broader spectrum of services which support young people with mental health concerns, which include health services in schools and alternative education providers, wider pastoral care teams in education settings (e.g. counsellors and social workers), and a range of youth development programmes in education and community settings.

The **New Zealand Health Survey** is now being undertaken annually and includes a question about whether people have ever been told by a doctor they have depression, bipolar disorder and/or anxiety disorder (Ministry of Health, 2012a). The unadjusted prevalence for the CM Health population in the 2011/12 survey was 9.2% (not significantly different from 10.1% in the 2006/07 survey); the aged-standardised prevalence was 9.6%. This was significantly lower than the age-standardised prevalence of 15.9% for New Zealand over all. The national results indicated that depression was the most common disorder, affecting 14% of adults, with 6% having ever been diagnosed with anxiety and 1% with bipolar disorder. The highest rates of being diagnosed with depression, anxiety and/or bipolar disorder were in those aged 25-74 years with lower rates in those aged 15-24 years and 75 years and over. Pacific (7%) and Asian (4%) adults were much less likely to have been diagnosed with a common mental disorder than those of other ethnicities. Maaori rates (16%) were not significantly different from the European/Other group (19%). Unadjusted rates were similar across socioeconomic areas but after adjusting for age, sex and ethnicity, those living in the most deprived areas were 1.7 times as likely to have been diagnosed with the disorders in question than those in the least deprived areas.

The **New Zealand Health Survey** also includes the 10 questions of the Kessler Psychological Distress Scale (K10); a score of 12 or more is strongly associated with having a depressive or anxiety disorder in the previous month and/or year. 7.8% of adults in the Counties Manukau sample had a level of psychological distress indicating likelihood of depressive/anxiety disorder, not significantly higher than the rate of 5.6% nationally. Nationally Maaori (9.1%) and Pacific (10.1%) adults had significantly higher levels than European/Other (4.9%) and Asian (6.5%) groups. People living in the most deprived areas were 3.5 times as likely to have high psychological distress as those in least deprived areas after adjustment.

The discordance between the rates of psychological distress and diagnosed depression, anxiety and/or bipolar disorder across ethnicities could be related to a range of factors, including differences in the way people interpret their own symptoms and deciding what needs external help, help seeking behaviour, access to appropriate services, the way diagnoses are made, and people's understanding and interpretation of their diagnoses.

Other mental health disorder prevalence information cited in New Zealand documents

Blueprint II (Mental Health Commission, 2012a) cites various figures from Te Rau Hinengaro but also describes the prevalence of depression among older people as '15–20% but this increases with age, with 40% of over 80-year-olds affected', citing a Waitemata DHB summary of evidence for models of service delivery. However it is unclear of the research on which this is based and it is certainly very different from the figures cited in Te Rau Hinengaro and the MaGPIe study. Recent Ministry of Health guidelines for

mental health and addiction services for older people (Ministry of Health, 2011) also cite depression as affecting 15–20 percent of older people but with no reference.

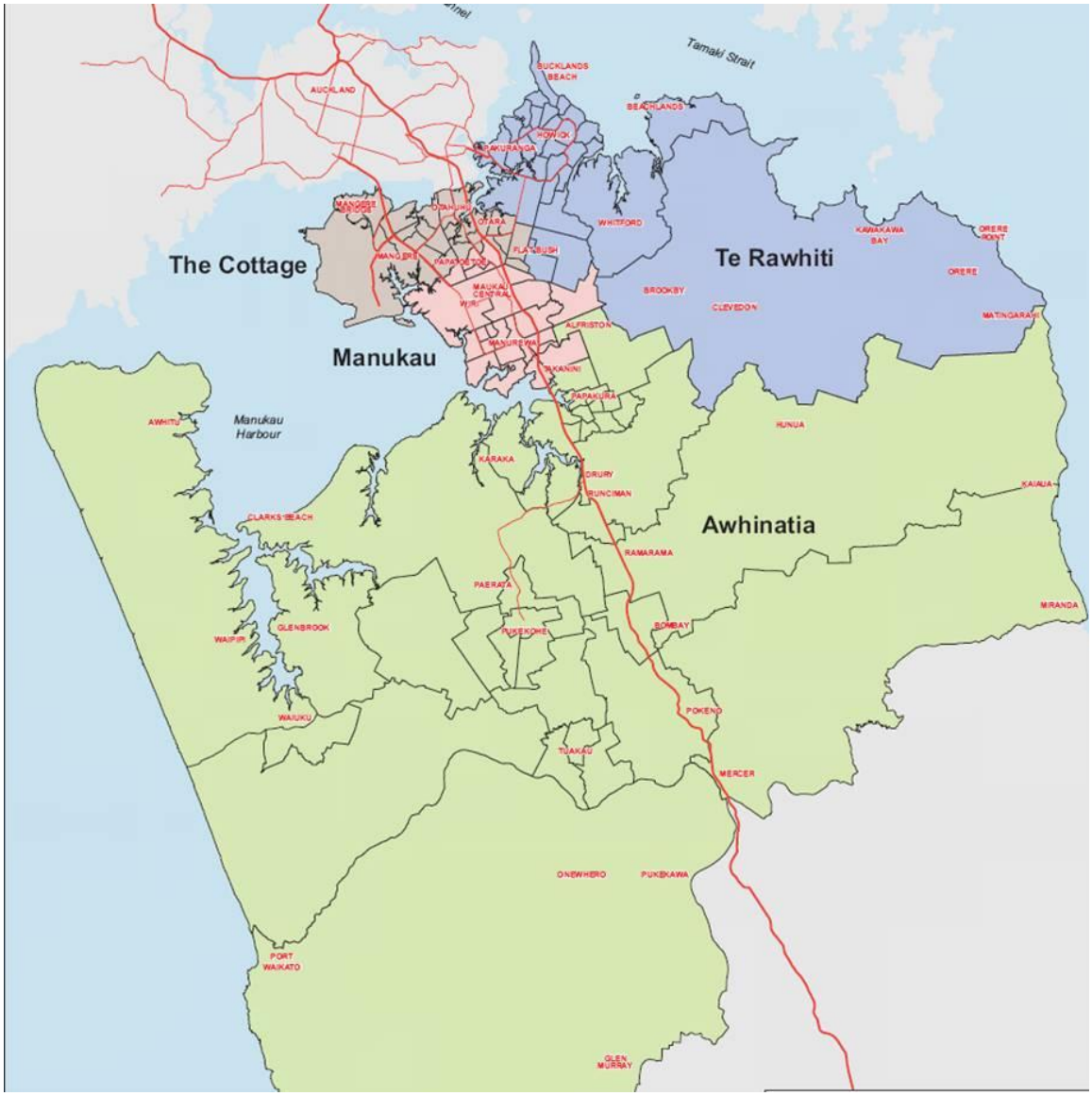
The 'Constructed Population' as context for this study

The analysis in this report uses the CM Health mental health service catchment area 'constructed population' as its denominator and context. This constructed population uses the linkage of administrative health data sets to identify a population living in the CM Health mental health services catchment area who are either in contact with some kind of health service over a period of 12 months and/or currently enrolled in a Primary Health Organisation (PHO) in that year (PHO enrolment being valid for three years). Because the populations analysed for this report are identified from the same administrative health datasets as the constructed population, using this population as the denominator for prevalence calculations and comparisons eliminates the numerator/denominator mismatch which would occur if an alternative population such as the estimated resident population were used as the denominator. The datasets drawn on for the constructed population and differences between the constructed population and the estimated resident population are described in more detail in the Methods section (P 36).

Since 2004 CMH has been divided into four mental health areas for Community Mental Health Centre (CMHC) service provision – Awhinatia , Manukau, Te Rawhiti and The Cottage (Figure 1). The Te Rawhiti CMHC area relates to the eastern area of CMH, Awhinatia the southern area, The Cottage the northern Mangere/Otara area and also includes Otahuhu[3] (which for other services is part of Auckland District Health Board (ADHB)), with Manukau being the central area. This report provides analysis for the service population of CMH mental health services so it includes the Otahuhu population in the numerator and denominator for The Cottage CMHC.

[3] Otahuhu is defined as including Domicile areas Otahuhu West (0625), Otahuhu North (0718), Fairburn(0719) and Otahuhu East(0720).

Figure 1 Map of the four Counties Manukau Health Community Mental Health Centre service areas



Source: Wang, K (2006) CM Health.

Since early 2012 CMH has been implementing a Localities strategy with the aim of providing more health care in the community, closer to where people live and work and improving integration of primary, community and secondary services . This model sees the Counties Manukau region split into four localities: Mangere/Otara, East, Franklin and Manukau. As the predominant thrust of the initial work through the CMH localities is integration of primary and secondary services, the work is based primarily on the population enrolled with the GPs working in a particular locality rather than the people living in a locality. This differs from the mental health CMHC areas which relate to the place where people live.

The implications for service delivery of the difference between enrolled locality and residential area will need to be continually addressed as the localities approach is implemented. Also of note, 16.5% of the residential population of the mental health services catchment area (CM Health plus Otahuhu) are enrolled in primary care practices outside of the CM Health area and a further 4% not enrolled and this needs to be taken into account for service planning and integration initiatives.

In addition to the inclusion of Otahuhu in the Cottage area, the other major difference between the geographical areas of the CMHC areas and the Localities strategy areas for primary care enrolment is that Takanini/Papakura/Drury is included in the Manukau enrolled locality, whereas most of that area is in the Awhinatia CMHC area.

This report provides information about the residential area of the population in question based on the four CMHC service areas, and the enrolled locality, based on the four CM Health service integration localities.

Comparing populations

Frequent commentary in CM Health documents is that the CM Health population is youthful, multi-ethnic and living in areas of high socioeconomic deprivation. This is of course important context for any description of a subset of the overall CM Health population. It is also important to recognise that the nature of the population is different for different age groups and geographical areas within the CM Health population and area.

In particular, the ethnic mix of the population changes with age. As demonstrated below (Figure 2) the child population aged 0-11 years is the most multi-ethnic, with a quarter of the population identified as European/Other ethnicities (by the methods described in this paper, see further P 43) while in those 65 years and over, two thirds of the population are of European/Other ethnicities. These proportions reflect differing birth rates, immigration patterns and the lower life expectancies of Maaori and Pacific peoples. The proportions of the different mental health populations constituted by different ethnicities can be compared with the patterns of the underlying constructed population; this is done throughout the paper in describing each mental health population.

The gender mix of the population also changes with age, the proportion of females increasing with age reflecting the longer life expectancy of women - 52.5% of the population aged 18 years and over being female, 54% female for those aged 65 years and over and 58% female aged 75 years and over.

In addition, the ethnic mix of the population varies substantially across the four residential CMHC areas and the DHB enrolled localities, as demonstrated below (Figure 3 and Figure 4), which is important context where the prevalence of conditions varies by ethnicity.

Figure 2 Ethnic mix of the mental health service catchment population for CM Health services (including Otahuhu) by age

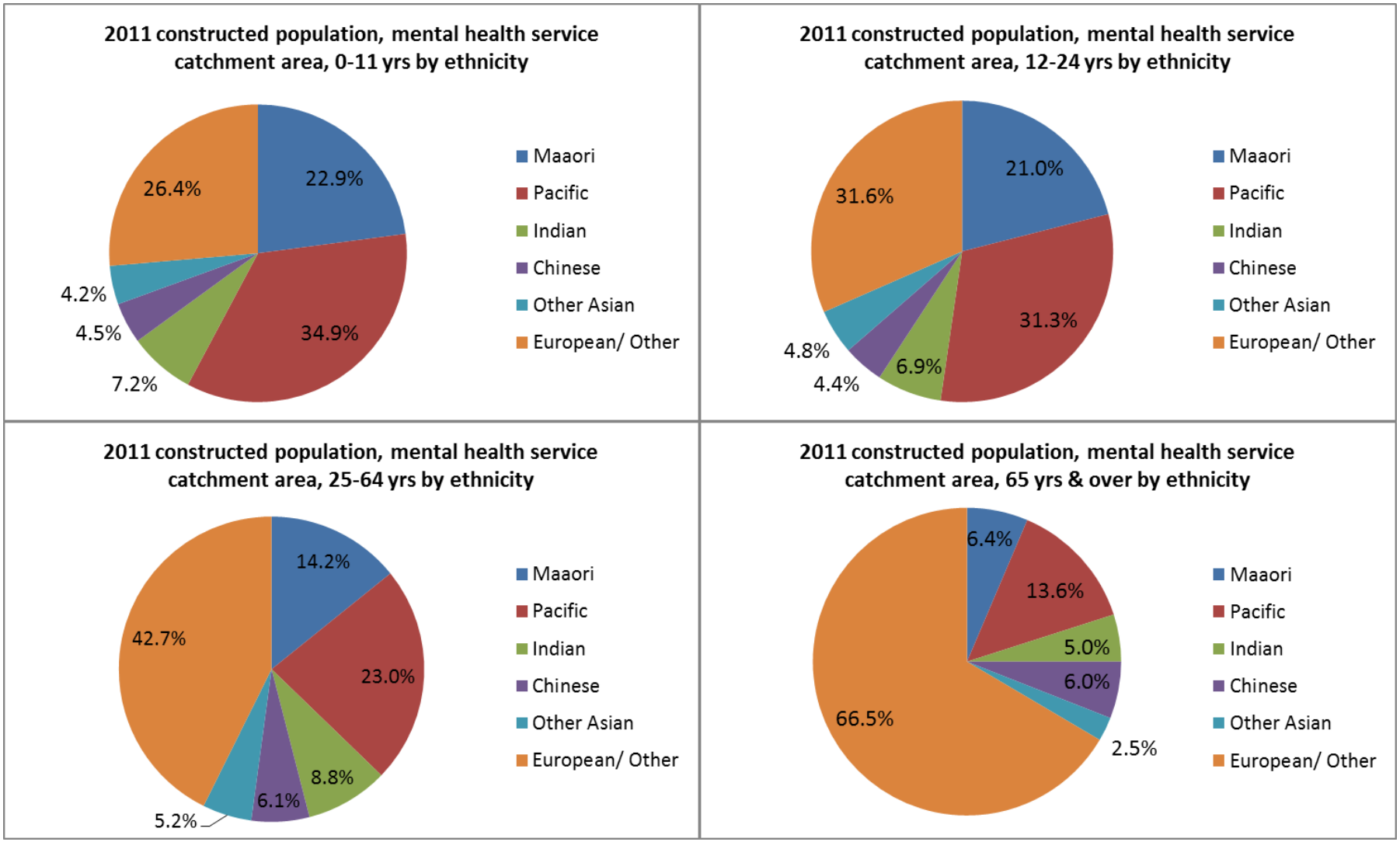


Figure 3 Ethnic mix of CMHC catchment populations aged 18 years and over

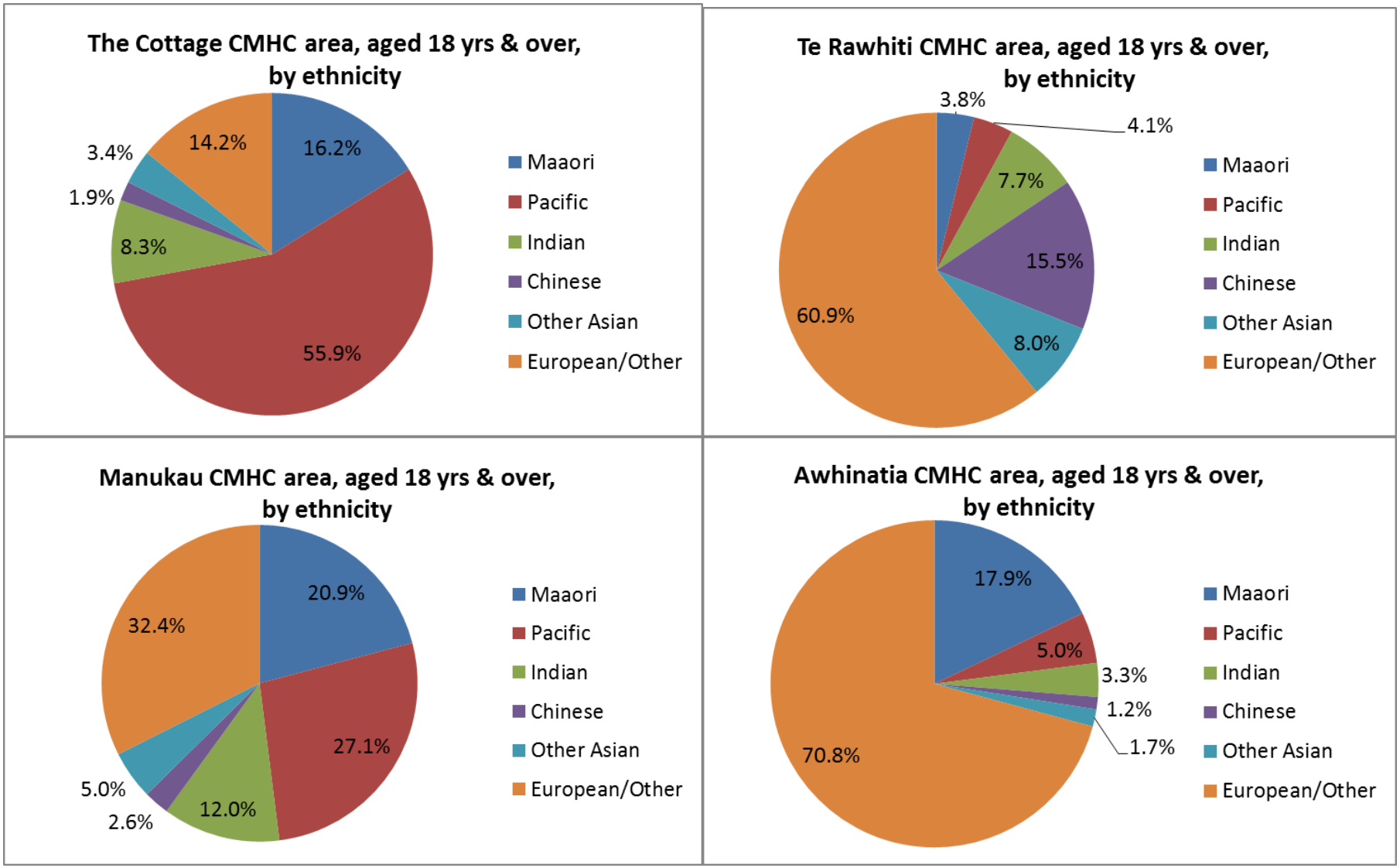
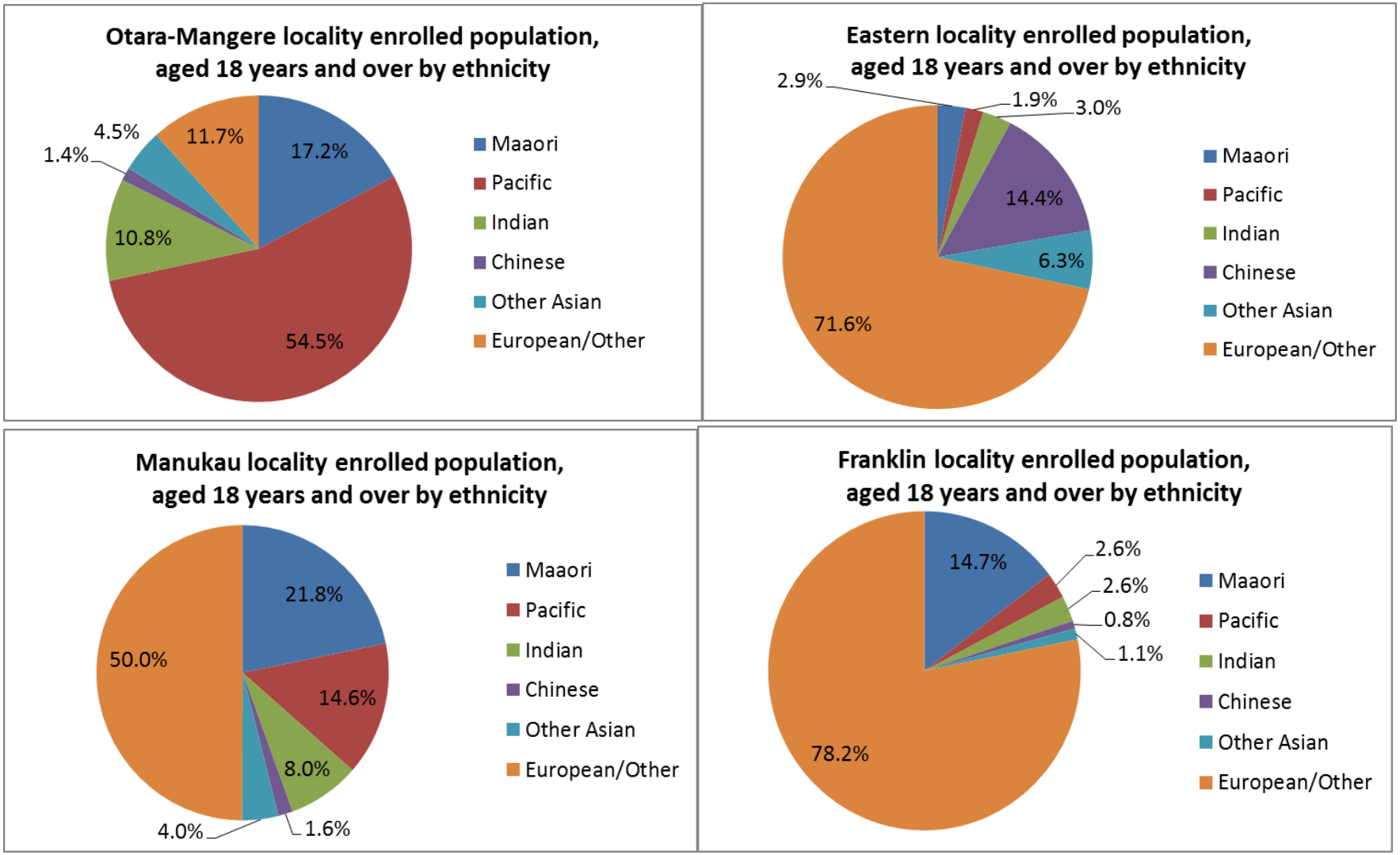


Figure 4 Ethnic mix of CMH localities enrolled populations aged 18 years and over



Purpose

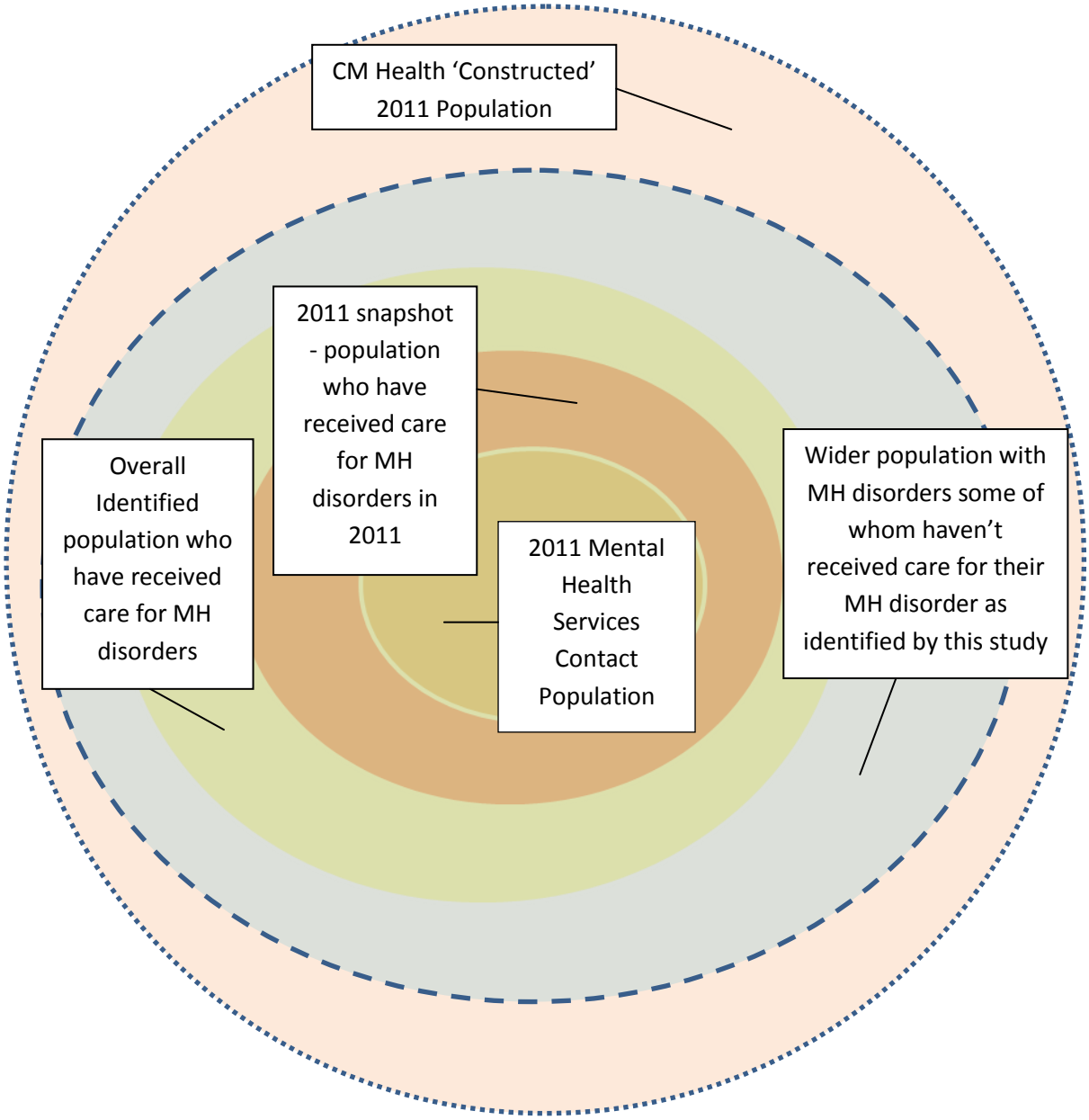
The report aims to provide descriptive epidemiology (by ethnicity, age, gender, deprivation, residential area and enrolled locality) for three populations who have received care for a mental health disorder

- an 'overall mental health population' which draws on contact with mental health services as recorded in PRIMHD from 2008-2011 inclusive, dispensing of mental health medications from 2006 -2011 and mental health diagnosis related to hospitals admissions from 2002-2011
- a '2011 snapshot mental health population' which draws on contact with mental health services as recorded in PRIMHD, dispensing of mental health medications and mental health diagnosis related to hospitals admissions, any and all during 2011
- a '2011 mental health service contact population' identified as those with contact with mental health services as recorded in the PRIMHD dataset for 2011.

These populations are progressive subsets of the overall CMH 'constructed' population, as shown in (Figure 5) below. Te Rau Hinengaro describes the 12 month prevalence of disorder as the most commonly reported in community surveys. A 12 month prevalence of receiving care for mental health disorder is also particularly useful for health service planning, and for this study provides a consistent window of time for extracting the data available for linkage. This report therefore focuses on the 2011 snapshot and mental health service contact populations for service planning, with the 'overall mental health population' being described to give this planning a broader context. For this reason the 2011 populations are described first in the age group sections, followed by the overall mental health population. The overall mental health population is less applicable for young people as they have not had time to 'accumulate' a history of health care for mental health disorders so this population is not described for the 12-19 and 20-24 year age groups.

It was also planned to describe a 'low prevalence/high need' population, as articulated in 'Rising to the Challenge' – the mental health and addiction service development plan 2012 – 2017, which articulates Government expectations about the direction for mental health and addiction service delivery over the next five years (Ministry of Health, 2012b). The term was also used to a lesser extent in 'Blueprint II: How things need to be'. the independent advice given in 2012 from the Mental Health Commission to Government and government agencies as guidance for what is needed to achieve the vision of improved mental health and wellbeing of all New Zealanders (Mental Health Commission, 2012a). It was proposed that for this study we would identify this population as those who had received a diagnosis of any psychotic disorder or a borderline personality disorder, and/or those who were receiving support from a mental health NGO deemed to provide support for daily living functions (as distinct from those providing treatment or crisis support services). However early analysis demonstrated that many of those NGOs were not reporting in PRIMHD during 2011 so this analysis was not possible.

Figure 5 The relationship between the CM Health 'Constructed' 2011 population and the various 'mental health' subset populations (circles not in proportion)



This report also provides

- more in-depth analysis of some of the diagnostic categories of the 2011 snapshot mental health population (those with depression/anxiety, psychotic disorders)
- review of primary care enrolment with the general practice team and aspects of health service utilisation (e.g. potentially avoidable hospitalisations) for various mental health populations
- Analysis of the prevalence of medical diagnoses (e.g. diabetes) amongst mental health populations and how it compares to the populations not identified as receiving care for mental conditions.

Methods

All population numbers in this report are rounded to the nearest ten. Actual numbers were used for calculating derived percentage and prevalence figures.

The denominator

The denominator for these populations was the 2011 Constructed Population for CM Health mental health services catchment area, as created by CMH analyst Dean Papa. This Constructed Population consists of any person resident in the mental health services catchment area who had a contact with a publicly funded health service in 2011 based on

- hospitalisation data (National Minimum Dataset),
- pharmaceutical information (PHARMS dispensing information),
- laboratory test data (indicates that a test was undertaken, not the actual result),
- outpatient visits data (National Non-admitted Patient Collection - NNPAC),
- the national mental health dataset (PRIMHD),
- the cancer registry,
- PHO enrolment (valid for three years from date of last contact unless transferred to another PHO), GMS claims, and
- no entry in the mortality dataset prior to 31st Dec 2011.

Data sets are linked by use of the encrypted National Health Index identifier (NHI). This encryption protects the identity of individual records. Only aggregated results are reported in this document and no contact with individuals was undertaken. Ethical approval for this anonymous analysis was therefore not required.

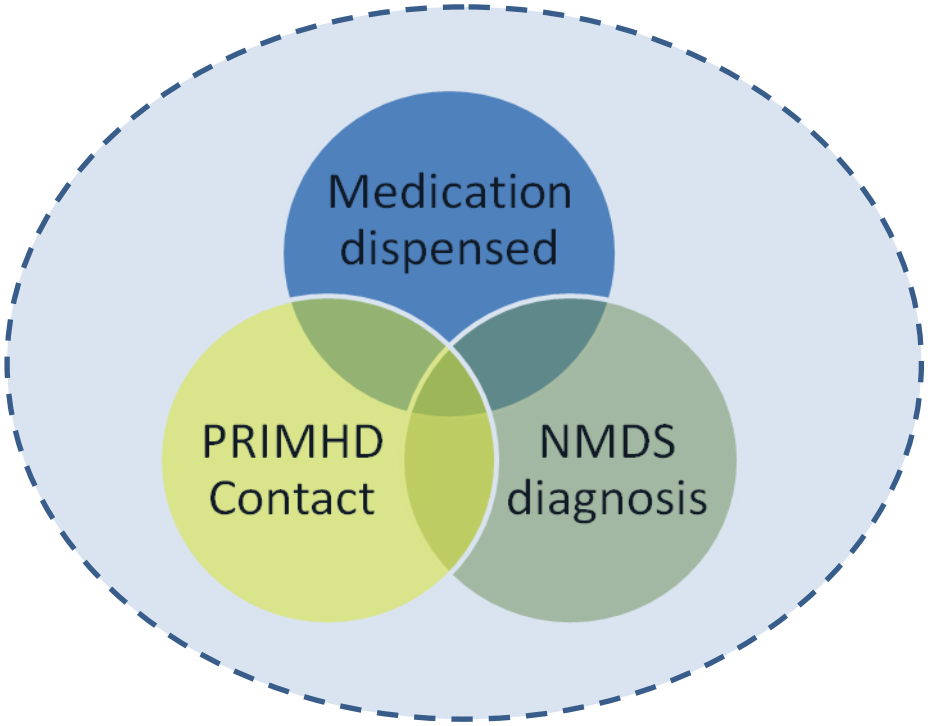
Comparisons between the constructed population and the estimated resident population for the years 2010-2012 have found the constructed population identifies approximately 10-12,000 more people living in the CM Health area that the population estimates. In contrast to the estimated resident population, which is based on projections from the most recent Census, the strength of the constructed population is that it counts people who have actually been documented to live in the area at the time of their last health service contact and documented to have health service contact or be enrolled in a PHO in the time period in question (in this case during 2011). Limitations of the constructed population are that it is likely to include some people who have moved overseas but remain on the PHO register for three years before being dis-enrolled, and miss some people who live in the area but who are not enrolled in a PHO or did not have health services contact in 2011.

Numerator variables

The prevalence of receiving care for a mental health disorder for the various populations described in this report was estimated by identifying people who

- received a diagnosis of a mental health disorder during a hospital admission as recorded in the National Minimum Data Set (NMDS) and/or
- were receiving a medication indicated for treatment of mental disorders as indicated from Pharmaceutical dispensing claims data; and/or
- were seen by a publicly funded mental health service as recorded in the PRIMHD dataset (Figure 6).

Figure 6 The relationship between the numerator variables used in this study (circles not in proportion)



The dotted circle represents the wider population who have mental health disorders who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies). It is also acknowledged that some people who are identified in this study as receiving care for a mental health disorder may be receiving that care (e.g. medication) for symptoms that are below the threshold for a formal diagnosis of mental health disorder if the DSM-IV criteria were applied. For the purposes of this study, they will be described as receiving care for a mental health disorder.

Most Ministry of Health administrative datasets geocode health service attendees' residential address to a census area unit and the codes that indicated residence in CM Health boundaries or Otahuhu were used to identify the CM Health population eligible for mental health services planned and funded by CM Health[4].

As noted previously different time periods were used for each parameter to identify three different mental health populations (see page 36).

For each of these populations, people were included if they were alive at the end of 2011. The 2011 'snapshot' could be considered as identifying a population receiving active care for a mental health disorder. This would approximate to the proportion of those identified by the 12 month prevalence in the Te Rau Hinengaro survey who sought help from health care services. As noted, the main population analyses presented relate to this snapshot population and those who accessed mental health services in 2011. The 'overall mental health population' identifies a wider contextual

[4] Services that are provided regionally, such as forensic mental health services and some services for the treatment and support of those with substance abuse disorders are funded by CM Health through 'interdistrict flows' (IDFs) – funding transfers between DHBs

population who may have had a mental health condition at any time between 2002 and 2011 and will include those whose condition has resolved. This will reflect a subset of the population of those Te Rau Hinengaro would have included as having a lifetime prevalence of the mental health disorders it assessed.

Datasets used to identify the populations receiving care for mental health disorders were:

(a) PHARMS dataset – Reimbursement claims for individuals who were dispensed a medicine from the NZ Pharmaceutical Schedule where a subsidy claim was made by a community pharmacy[5] are recorded in the PHARMS dataset from 2006 along with an NHI number recorded for the claim. Dispensing of medications used to treat mental health disorders such as antidepressants, antipsychotics, stimulants and drug used for the treatment of addiction (naltrexone, methadone and disulfiram) were used to identify those receiving care for mental health disorders (see further below and details in Appendix One).

(b) NMDS (National Minimum Data Set) - Records in the NMDS with a hospital discharge and a coded mental health diagnosis code (including both primary and secondary diagnoses for most categories) in the categories in Appendix One and/or an intentional self-harm injury code, were included as indicators of receiving care for a mental health disorder. People who attended an emergency department with a psychiatric related diagnosis and were not admitted to hospital or had a stay less than three hours are not captured by the NMDS and are not included in this analysis unless they also received a mental health related medication or were seen by mental health services as recorded in PRIMHD.

(c) PRIMHD (Programme for the Integration of Mental Health Data) - In 2000 the Mental Health Information National Collection (MHINC) dataset was initiated, being administered by the New Zealand Health Information Service (NZHIS) now called Analytical Services, Ministry of Health. Reporting of diagnosis category was only made mandatory from the 1st of July 2004 and the MHINC database was limited by lack of NGO reporting, variation in diagnostic accuracy (many submitted no diagnosis), and regional variation in consistency between DHBs. On 1 July 2008 the PRIMHD dataset was initiated to integrate mental health service provision and outcomes data into one national collection, and support views of data collection that provide a longitudinal perspective of service provision for an individual[6]. All forms of contact with secondary care mental health services are recorded in PRIMHD, including all the various services provided in community settings. There were also some mental health NGOs contributing data to PRIMHD in 2011 but this was limited and inconsistent so PRIMHD data for this study is considered to largely reflect contact with secondary care services.

[5] Also includes chemotherapy in a hospital but excludes use of non-subsidised medicines and those which were obtained from a hospital pharmacy.
[6] Ministry of Health (2010) PRIMHD Datamart. Data Dictionary. Wellington: Ministry of Health

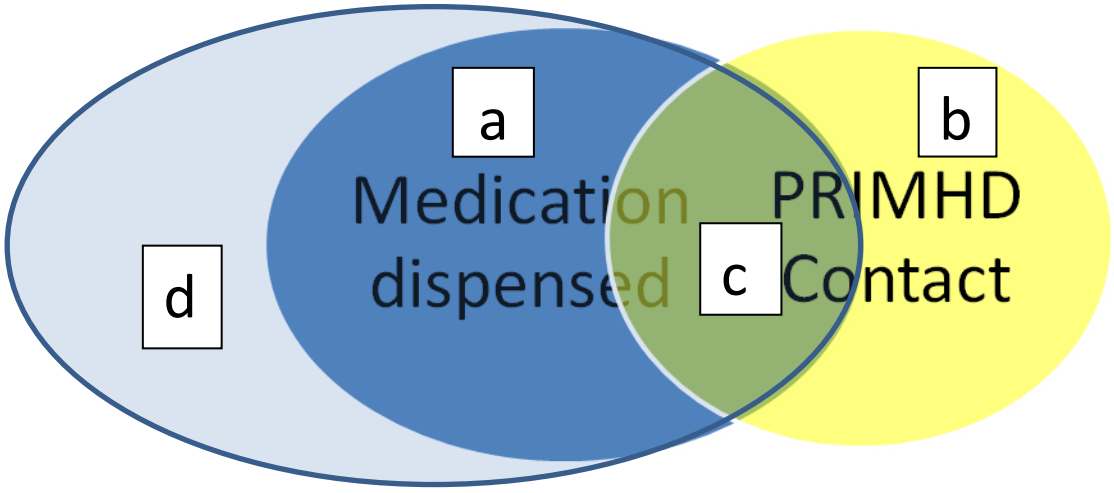
Estimating the quantum of people receiving non-pharmacological treatment in primary care

A key aspect of care for mental health disorders that is missing from this analysis is non-pharmacological treatment in primary care. One potential way to estimate the quantum of people who might be receiving such care is to extrapolate from the information this analysis does provide about the people being seen by mental health services who are not dispensed mental health medications.

As in (Figure 7) below, we can identify a subset of the population who are dispensed medications but not seen in mental health services (population 'a'). We can also identify a population 'b' who are seen in mental health services and not dispensed medications, along with those who are both seen in mental health services and prescribed medication (population 'c'). If we know what proportion of the population seen by mental health services 'b' represents, we might assume that the proportion in primary care is similar, and use this proportion to calculate the size of the primary care population with mental health disorders who are not prescribed medications. The size of population 'd' could be estimated as follows:

$$b/(b+c)\ \% = d/(a+d)\ \%$$

Figure 7 Estimating the quantum of people who might be receiving non-pharmacological treatment through primary care



This method is used in the analysis of the 2011 'snapshot' population to try to estimate the quantum of people who might be receiving non-pharmacological treatment in primary care in 2011. In order to justify this approach we got the opinion of some experienced primary care clinicians about what proportion of people seen in primary care would not be prescribed medications and how many others who are prescribed medications do not fill them and so would not be dispensed them and compared this with the figures for secondary care, Even though there may be a difference in access to 'talking therapies' in different settings, the primary care clinician group consulted felt that the proportion treated non-pharmacologically in primary care was likely to be similar to those treated non-pharmacologically by mental health services, roughly 50% in 2011.

Diagnostic categories

Diagnostic categories were assigned by grouping

- the diagnosis in PRIMHD (DSM-IV classification), and/or
- the diagnosis in NMDS (ICD-10-AM classification, primary or secondary code), and/or
- dispensed medications identified as most commonly used for mental health disorders.

The grouping of the diagnoses and medications into categories was based on the previous work undertaken by Thornley et al which was designed to allow comparison with the Te Rau Hinengaro survey, with review and update in 2012/13 in conjunction with the CM Health mental health team.

The categories included are

- Depressive disorders
- Bipolar disorder
- Anxiety disorders
- Psychotic disorders (includes schizophrenia)
- Personality disorders
- Eating disorders
- Substance abuse disorders
- Disorders with usual onset in childhood or adolescence (e.g. autistic spectrum disorder, ADHD)
- Complications of dementia (requiring mental health service contact or primary diagnosis from a hospital discharge)
- Intentional self-harm
- Other mental health disorders.

The general features of these categories are discussed below; Appendix One describes in detail the diagnoses and medications included in the categories. Depression and anxiety often occur together and treatment can be similar so in descriptions of diagnostic groups in this report, these conditions are grouped together.

All those identified through NMDS or PHARMS are grouped into one or more of the above categories by definition. People may be receiving a variety of medications that span a number of the diagnostic groups[7] where this is clinically indicated. In addition the diagnostic groups are derived in good part from information about medication dispensing and this may overstate diagnoses where the use of medication is outside of current best practice and/or there are emerging legitimate uses that have not been factored into the categories used for this analysis.

This may overstate the numbers in various groups, particularly the depressive disorders group, as anecdotally antidepressant medication may be used for symptom control in a variety of situations which could be termed 'sub-clinical' depressive disorder (not formally diagnosable). However including all of these people was considered preferable to excluding people from one or other group. People who are seen by mental health services as recorded by PRIMHD do not all have a

[7] except bipolar disorder where diagnosis or use of lithium was used to prioritise bipolar disorder over depressive disorders

recorded diagnosis(es) and may not be taking mental health medications, so they can be part of the identified populations receiving care for mental health disorders but be outside of these categories.

There are a range of 'F series' (Mental and Behavioural Disorders) ICD codes which were not included when identifying people for this analysis. This includes conditions such as mental retardation and tobacco dependence, as these are not typically considered mental health disorders in New Zealand. Most developmental disorders were not included but given that children with diagnosed or suspected Autistic Spectrum Disorder and ADHD are managed by medical services until aged 5 years and then mental health services, these conditions have been included.

Dementia is not in itself a mental health disorder but behavioural issues related to dementia may be assessed and managed by mental health services. It was elected to include those people requiring mental health service contact as recorded in PRIMHD with a DSM IV diagnosis of dementia or with an NMDS entry with a primary diagnosis of dementia but not if it was a secondary diagnosis. The intent of the latter is to capture those people who were admitted with issues primarily related to their dementia (which are assumed to be behavioural or social in nature) but not those who may have been admitted for another reason but were also coded to have dementia. Codes for delirium were excluded to minimise inclusion of those with transient symptoms.

The intentional self-harm ICD codes identify physical consequences of self-harm actions which range from relatively minor to consequences that have the potential to cause death. Self-harm episodes are not coded in PRIMHD, so this category is based on identification from NMDS only.

It is acknowledged that some people may be prescribed medications that are commonly used for mental health conditions for other indications (e.g. nortriptyline for smoking cessation; haloperidol as an anti-emetic in palliative care scenarios, amitriptyline for chronic pain). To try to mitigate this, some exclusions were added (e.g. less than 25mg of amitriptyline was excluded on the assumption this is more likely to reflect use for chronic pain than depression, and haloperidol where narcotics were dispensed concomitantly). These exclusions are noted in Appendix One. Otherwise dose and frequency of dispensing are not taken into account. It is therefore acknowledged that there will be some people who have been prescribed a 'mental health medication' for other reasons who will be counted in these analyses as receiving care for a mental health disorder when that is not actually the case.

Sodium Valproate (Epilim) was not included in the medication list for bipolar disorders given the indications for its use in epilepsy and chronic pain. Similarly, benzodiazepines were not included for anxiety disorders as they are frequently used to treat seizures and sleep disorders as well as anxiety disorders. This means some people will have been excluded from this analysis who were in fact receiving their medication for a mental health disorder.

Ethnicity

Ethnicity was derived from the constructed population. This draws on the ethnicity collected and coded against the various datasets used to form the constructed population; in particular the NHI and PHO enrolment. In the health system ethnicity is defined as self -identified and should be collected and recorded using Ministry of Health protocols, using the standard Census 2001 question

(Ministry of Health, 2004). Unfortunately it is recognised that few records in the PHO enrolment feature multiple ethnicities, despite Census data suggesting that in 2006 10% of all respondents and 20% of those aged under 15 years identified with multiple ethnicities[8]. This relates in part to the way ethnicity is recorded and stored in health IT systems, particularly those used in primary care.

Where people are identified with more than one ethnicity, this report uses the health sector method of presenting prioritised ethnic group, according to the Ministry of Health prioritised schedule (6) in the following order: Maaori, Pacific, Asian, European/Other.

Comparisons between NHI, PHO and estimated resident population (projections from Census 2006) data suggest that overall the health datasets under-identify Maaori and Asian groups and over-identify Pacific and European/Other groups (Winnard & O'Brien, 2012) with variance across age groups. In addition, if a person writes 'Fijian Indian' in the 'other' text box in the standard ethnicity question they will be identified as Indian, but if they tick Fijian and Indian as two separate categories, they will be prioritised as Fijian first and hence grouped with Pacific peoples. It is estimated there are approximately 6,000 people in Counties Manukau for whom the latter is an issue in the 2011 constructed population.

Socioeconomic deprivation

NZDep06 is a census-based small area index of socioeconomic deprivation, with a relative deprivation score assigned to each meshblock in New Zealand. It combines nine variables from the 2006 Census reflecting eight dimensions of socioeconomic deprivation. Meshblocks are geographical units, defined by Statistics New Zealand, containing a median of approximately 87 people in 2006. The variables that make up NZDep06 are listed in the (Table 1) below.

Table 1 NZDep06 variables

Dimension of deprivation	Variable description (in order of decreasing weight)
Income	People aged 18-64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Owned home	People not living in own home
Support	People aged <65 living in a single parent family
Employment	People aged 18-64 unemployed
Qualifications	People aged 18-64 without any qualifications
Living space	People living in equivalised* households below a bedroom occupancy threshold
Communication	People with no access to a telephone
Transport	People with no access to a car

*Equivalisation: method used to control for household composition.

Source: NZDep2006 Index of Deprivation (Vol 2007), University of Otago, Wellington

[8] Statistics New Zealand. National ethnic population projections: 2006 (base) – 2026. Accessed May 2013 from http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalEthnicPopulationProjections_HOTP06-26/Commentary.aspx

The deprivation index applies to areas, not individual people, but is used as a proxy for individual socio-economic status when individual level data for income, education and occupation are not available. However, caution is needed as there is a mix of people within meshblocks; not everyone living in a poor area will be poor themselves, and living in a wealthy area does not automatically mean a person is wealthy.

The NZ Deprivation index is often analysed by decile, where Decile 1 represents the 10% of meshblocks least socioeconomically deprived in NZ and Decile 10 the most socioeconomically deprived (note this is the opposite to the education setting decile system in New Zealand in which a Decide 1 school is in the most socioeconomically deprived area). Deciles can also be aggregated into five quintiles, so Quintile 5 is the equivalent of NZDep deciles 9 &10. This document reports area of residence by quintiles.

The current 'gold standard' for NZDep06 is Meshblock (MB) level assignment based on Census 2006 usually resident population; however this is not routinely available across all health datasets. Analysis can also be based on Census Area Unit (CAU, aggregated MBs) but CAU-based NZDep06 overestimates the volumes for higher deprivation areas compared with if a MB-based method is used (e.g. overall when MB analysis is used, 34% of the CM Health population were living in areas NZDep06 9 and 10 in 2006 compared with 43% if CAU is used; the difference is particularly marked when smaller areas such as localities are described).

This report therefore elects to use Meshblock derived assignment, accepting that approximately 10% of the adult constructed population are unable to be assigned an NZDep06 quintile using this method, based on health system data. This group are identified as a separate category in the relevant tables.

Primary care enrolment

The publicly funded contribution to the cost of primary care services from general practice in New Zealand is determined by capitation of a population enrolled with a practice via a Primary Health Organisation (PHO). Registers are updated quarterly. The PHO register for the first quarter 2012 was used to determine primary care enrolment as at the end of 2011.

Health service utilisation

National datasets of publicly funded inpatient (NMDS) and outpatient (NNPAC) hospital based services can be used to estimate health service utilisation for defined conditions. This study reports prevalence of housing related hospitalisation, ambulatory sensitive hospitalisation (ASH, postulated to be related to access to primary health care) and DNA ('Did Not Attend') for non-mental health outpatient services for the various populations receiving care for mental health disorders. These variables are defined in Appendix Two and Three.

Long term condition comorbidity

In New Zealand, for most conditions, there is no registry or list providing information about prevalence of conditions such as diabetes for the various DHB populations. Just as has been done to

identify the mental health populations for this report, relevant information from national datasets can be linked to identify populations with conditions which are associated with hospitalisation and/or use of medications and laboratory testing. The number calculated depends on the definition for each of those pieces of information for each condition – which blood tests, which medications, which admissions, how many of them, over what period of time, etc.

The conditions for which prevalence can be calculated using this methodology are obviously limited to those that are associated with particular kinds of health service use and it is important to note there will be people with such conditions who have not been diagnosed or who have had a diagnosis made but for various reasons are not taking medication or having the recommended laboratory tests, and who therefore will not be counted in these analyses. For example, some people with diet controlled diabetes may not be identified.

Algorithms for estimating populations with diabetes, cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), gout and congestive heart failure (CHF) are currently in use by CM Health (details in Appendix Four). With the exception of diabetes[9], the algorithms used have not been formally validated but can be seen as indicative of the levels of ill health and comorbidity in the population at a given point in time, and are described for the various populations receiving care for mental health disorders.

Prevalence estimates

Crude prevalence is essentially the proportion or percentage of a population that are identified with the condition or state in question. For example the crude prevalence of receiving care for depression for the 2011 snapshot is the percentage of the 2011 population (denominator being the constructed population) identified as receiving care for depression.

Age-standardisation is a way of accounting for the different age structures of population groups so that they can be more reliably compared. For instance because the Maaori and Pacific populations are younger (because of both higher birth rates and lower life expectancy), there are less people in the older age groups, so conditions that are more common in older age groups will be less common in Maaori than if those who identify as Maaori lived long enough to get those conditions. This needs to be taken into account if comparisons are being made between Maaori and other populations, so that 'apples are being compared with apples, not pears'. Age standardisation is a way of calculating the prevalence as if all the populations being compared had the same age structure.

The overall analysis presented in this paper refers to the population aged 18 years and over. Age-standardisation has been undertaken for the 18 years and over analyses to ensure that effects related to differences in structures of the adult populations are taken into account. For population subgroups over a narrow age range such as those aged 12-19 and 20-24 years, age-standardisation is not necessary, as the age structures within the narrow age-bands do not differ greatly between populations. Age standardisation has been applied to the 65 years and over population analysis because the significant disparities in life expectancies for Maaori and Pacific populations in Counties

[9] Thornley S, Marshall R, Jackson G, et al. Estimating diabetes prevalence in South Auckland: how accurate is a method that combines lists of linked health datasets? NZMJ 2010;123(1327):76-86

Manukau compared with other groups mean the age structure within that population subgroup does vary between ethnicities.

Where appropriate, confidence intervals have been used to assist in examining the significance of the variability of results[10]. Confidence intervals relate largely to sample size and this is important in making comparisons between subpopulations where small numbers may make comparisons less reliable. Where the confidence intervals of two estimates do not overlap, the difference could generally be described as significantly different.

[10] Statistical tests have not been employed to look at variability as their use relates to consideration of random error whereas in health service contexts, difference may be more related to systematic issues such as access to or acceptability of services, and sample size is a more relevant consideration.

Results

Section One

The Adult Services Population

(aged 18 years and over)

As noted previously, this report focuses on the 2011 snapshot and mental health service contact populations for service planning, with the 'overall mental health population' being described to give this planning a broader context. For this reason the 2011 populations are described first in this section, followed by the overall mental health population.

2011 Snapshot Mental Health Population aged 18 years and over

There were just over 35,000 adults aged 18 and over identified in the 2011 mental health population (Table 2), indicating people receiving care for a mental health disorder in 2011 as identified through medication, contact with mental health services or diagnosis when an inpatient (for any reason) in a public hospital. This equates to just under one in ten (9.6%) of the adult population aged 18 years and over in 2011. As described on P 41, if an estimate of those treated non-pharmacologically in primary care is added, the crude prevalence of receiving care for mental health disorder would increase to approximately 15.7% for the population aged 18 years and over.

This can be compared with results of the Te Rau Hinengaro survey. The 12 month unadjusted prevalence of mental health disorder identified in the Te Rau Hinengaro survey was 20.7% but as noted previously, Te Rau Hinengaro found there was a significant number of people with mental health disorders who did not have a mental health visit to a healthcare provider in the past 12 months; also some of those without identified mental health disorder did have such a visit. 36% of people with 12-month prevalence of anxiety, mood, substance use and eating disorders identified in the Te Rau Hinengaro survey had a mental health visit to a healthcare provider in the past 12 months and 5.7% of the population without those identified mental health disorders had such a visit. This gave a total of 11.7% of the whole population surveyed having had such a visit, noting that this would include primary care and other non-mental health service visits where no medication was prescribed, and also that Te Rau Hinengaro identified a more restricted group of disorders than this analysis; in particular it did not include psychotic disorders. .

Ethnicity

People identified as Maaori and European/Other ethnicities had a significantly higher prevalence of health care for mental health disorder in 2011 compared to those of Pacific and Asian ethnicities (Table 2, Figure 8 and Figure 9). The age-standardised prevalence for Maaori and European/Other groups was more than twice the prevalence for Pacific and Asian groups.

12% and 13% respectively of the Maaori and European/Other populations were identified as being part of the 2011 mental health population, whereas the figure for Asian and Pacific populations was only 3-6% (Crude prevalence, Table 2). Those of European/Other ethnicities constituted 44% of the underlying constructed population but 61% of the 2011 mental health population, while Pacific peoples and those of Asian ethnicities represented 23% and 19% respectively of the constructed population but only 11.5% and 10% of the 2011 mental health population.

Table 2 Mental health population aged 18 years & over 2011 snapshot by ethnicity and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Ethnicity	Female	Male	Total	% of CMDHB 2011 MH population	% of constructed population in this ethnic group	Crude preva-lence	Age-standardised prevalence (95% CI)
Maaori	3,330	2,870	6,200	17.6%	14.2%	11.9%	12.0% (11.7% - 12.3%)
Pacific	1,880	2,170	4,050	11.5%	22.8%	4.8%	4.9% (4.7% - 5.0%)
Indian	980	700	1,670	4.8%	8.0%	5.7%	5.8% (5.5% - 6.1%)
Chinese	550	260	810	2.3%	5.9%	3.7%	3.6% (3.3% - 3.8%)
Other Asian	540	390	930	2.6%	4.8%	5.3%	5.3% (4.9% - 5.6%)
European/ Other	13,620	7,910	21,530	61.2%	44.4%	13.2%	12.7% (12.5% - 12.9%)
Total	**20,900**	**14,280**	**35,180**	**100%**	**100%**	**9.6%**	**9.4% (9.3% - 9.5%)**

Figure 8 Mental health population aged 18 years & over 2011 snapshot compared with constructed population by ethnicity

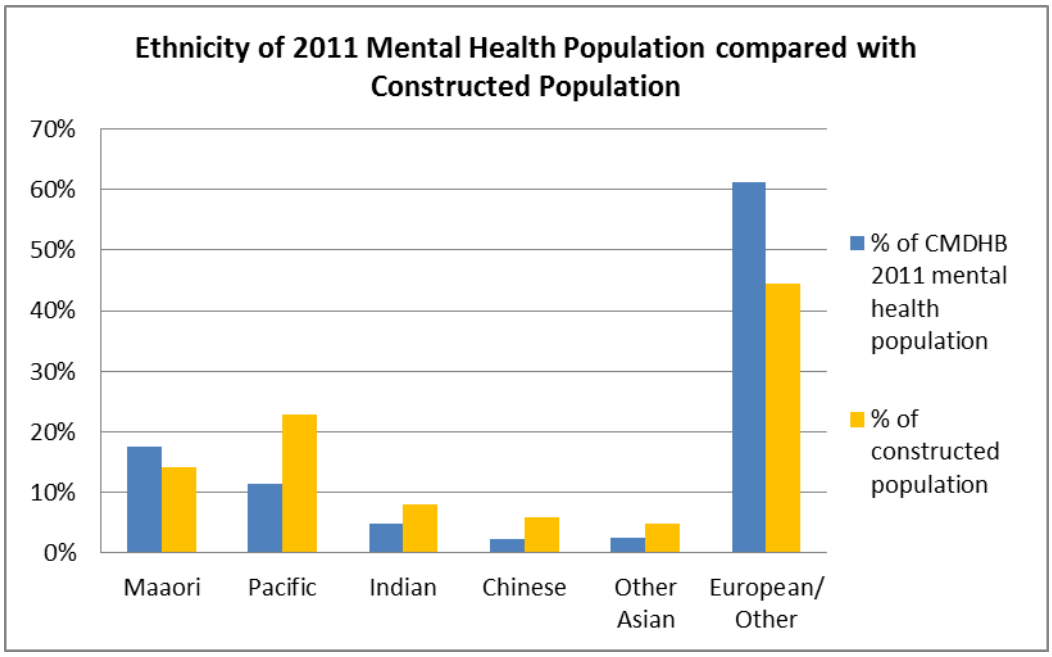
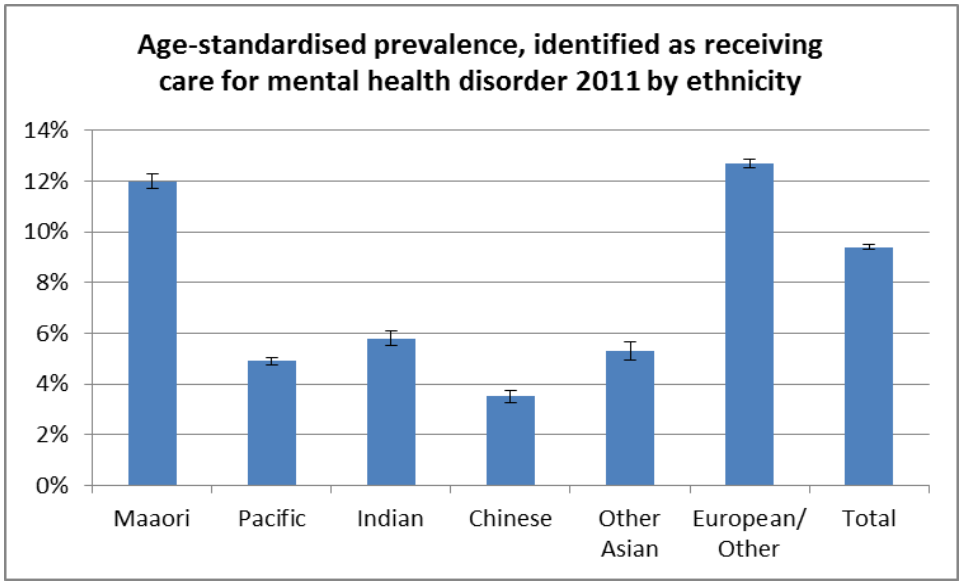


Figure 9 Age-standardised prevalence aged 18 years & over, identified as receiving care for mental health disorder 2011 by ethnicity



Age distribution

The age specific prevalence of identification in the population receiving care for mental health disorders in 2011 was significantly lower in the younger age groups compared with those aged 35 and over, with a further increase in those 75 years and over (Table 3, Figure 10 and Figure 11)). This differs from the Te Rau Hinengaro findings, in which the 12 month prevalence of any disorder declined across the age groups from 28.6% in the youngest age group (16-24 years) to 7.1% in those aged 65 years and over. This also differs from the age specific prevalence of mental health service contact in 2011 which more in keeping with Te Rau Hinengaro, declined with age apart from a rise after 75 years (see further P 86).

Table 3 Mental health population aged 18 years & over, 2011 snapshot by age group and gender

	Gender			**Comparison with constructed population**		**Prevalence of care for mental health conditions**
Age group (Yrs)	Female	Male	Total	% of CMDHB 2011 mental health population	% of constructed population in this age group	Crude (age specific) prevalence (95%CI)
18-24	1,960	1,960	3,910	11.1%	15.3%	7.0% (6.8% – 7.2%)
25-34	3,080	2,620	5,690	16.2%	18.7%	8.3% (8.1% – 8.5%)
35-44	4,130	2,930	7,060	20.1%	19.7%	9.7% (9.5% – 10.0%)
45-54	4,380	2,810	7,180	20.4%	18.8%	10.4% (10.2 %– 10.7%)
55-64	3,260	1,890	5,150	14.6%	13.6%	10.3% (10.1% – 10.6%)
65-74	2,060	1,180	3,240	9.2%	8.5%	10.4% (10.1% – 10.8%)
75 & over	2,040	910	2,950	8.4%	5.4%	14.8% (14.3% – 15.3%)
Total	**20,900**	**14,280**	**35,180**	**100%**	**100%**	**9.6% (9.5% – 9.7%)**

Figure 10 Mental health population aged 18 years & over 2011 snapshot age group compared with constructed population

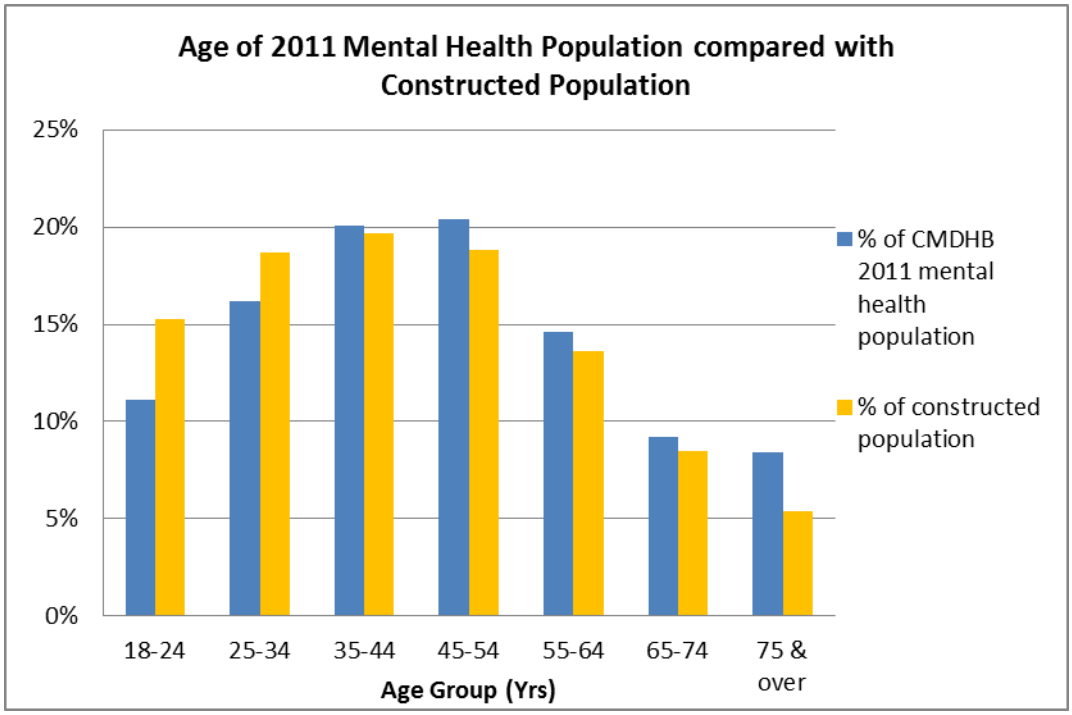
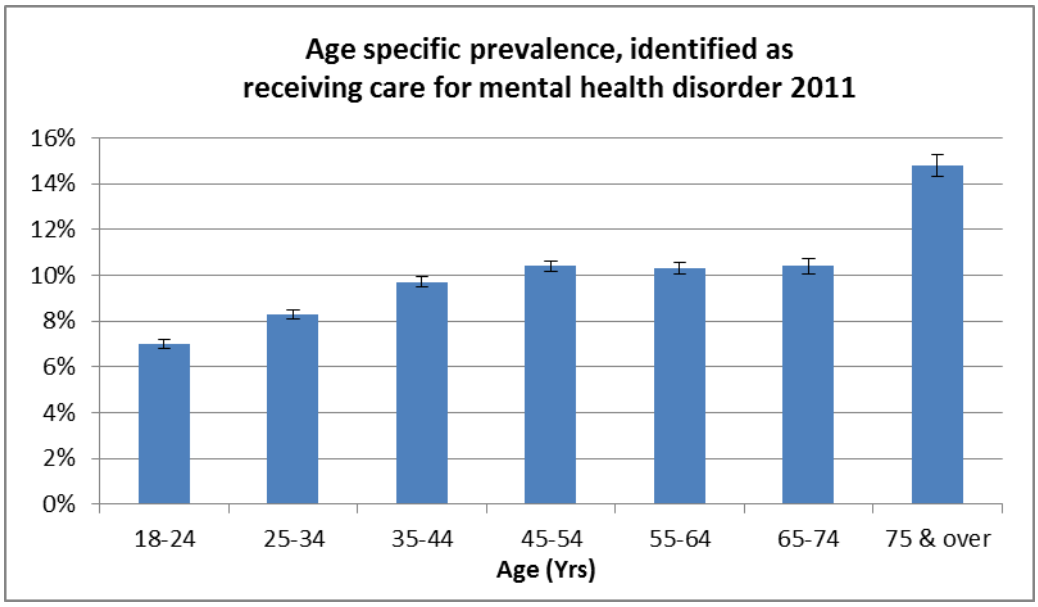


Figure 11 Age specific prevalence aged 18 years & over, identified as receiving care for mental health disorder 2011



Socioeconomic Distribution

The distribution across the NZDep06 quintiles of the population identified as receiving care for a mental health disorder in 2011 was similar to the underlying CMH population, concentrated in the more socioeconomically deprived areas, but with comparatively less living in the most deprived areas (quintile 5). This resulted in a significantly lower age-standardised prevalence in quintile 5 than in other areas (Table 4, Figure 12 and Figure 13).

This is quite different from the population in contact with mental health services in 2011, where there was a higher proportion living in the most socioeconomically deprived areas (see further P 88).

Te Rau Hinengaro found that people in the most socioeconomically deprived areas (NZDep01 quintile 5) had almost twice the 12 month prevalence of mental health disorder compared to people in the least deprived areas (quintile 1) (26% versus 15%). However there were only small differences in the percentage seeking help across various sociodemographic variables, with the conclusion that the findings indicated that, given a need for treatment, no marked inequality of access to healthcare treatment in relation to sociodemographic correlates was apparent.

Table 4 Mental health population aged 18 years & over 2011 snapshot by socioeconomic area and gender

	Gender			**Comparison with constructed population**		**Prevalence of care for mental health conditions**	
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB 2011 MH population	% of constructed population in this quintile	Crude prevalence	Age standardised prevalence (95% CI)
N/I*	1,920	1,830	3,740	10.6%	9.9%	10.4%	10.0% (9.7% - 10.3%)
1	4,220	2,270	6,490	18.4%	17.8%	9.9%	9.7% (9.4% - 9.9%)
2	3,470	1,960	5,420	15.4%	14.5%	10.2%	9.8% (9.5% - 10.0%)
3	2,900	1,730	4,630	13.2%	12.5%	10.1%	9.8% (9.5% - 10.1%)
4	3,340	2,230	5,570	15.8%	15.1%	10.0%	9.7% (9.5% - 10.0%)
5	5,060	4,270	9,330	26.5%	30.2%	8.4%	8.5% (8.3% - 8.7%)
Total	**20,900**	**14,280**	**35,180**	**100%**	**100%**	**9.6%**	**9.4% (9.3% - 9.5%**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 12 Mental health population aged 18 years & over 2011 snapshot by socioeconomic area compared with the constructed population

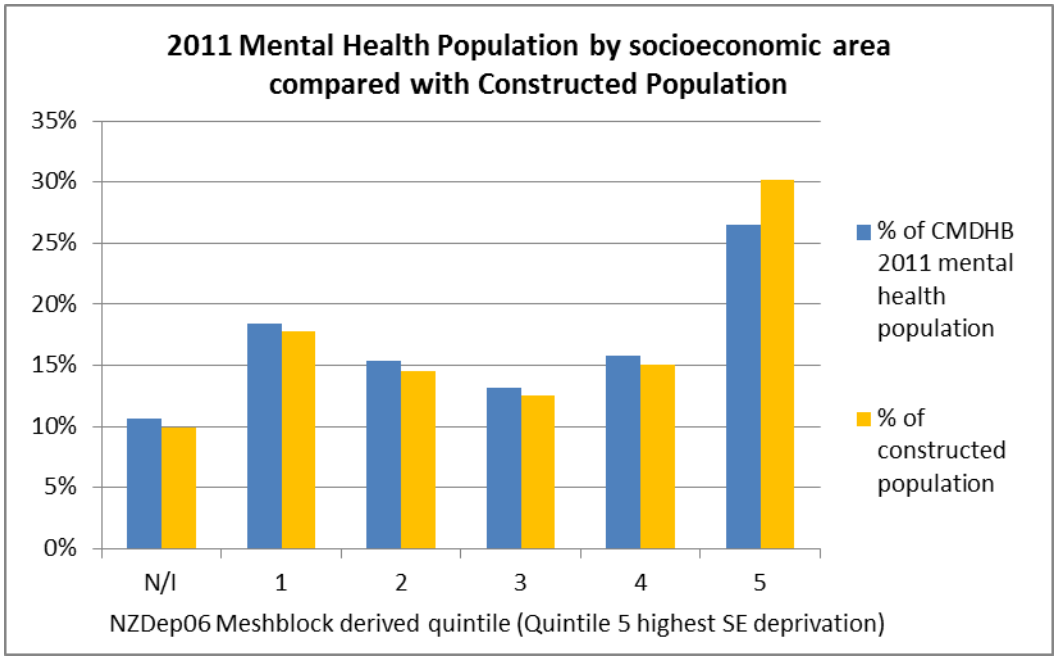
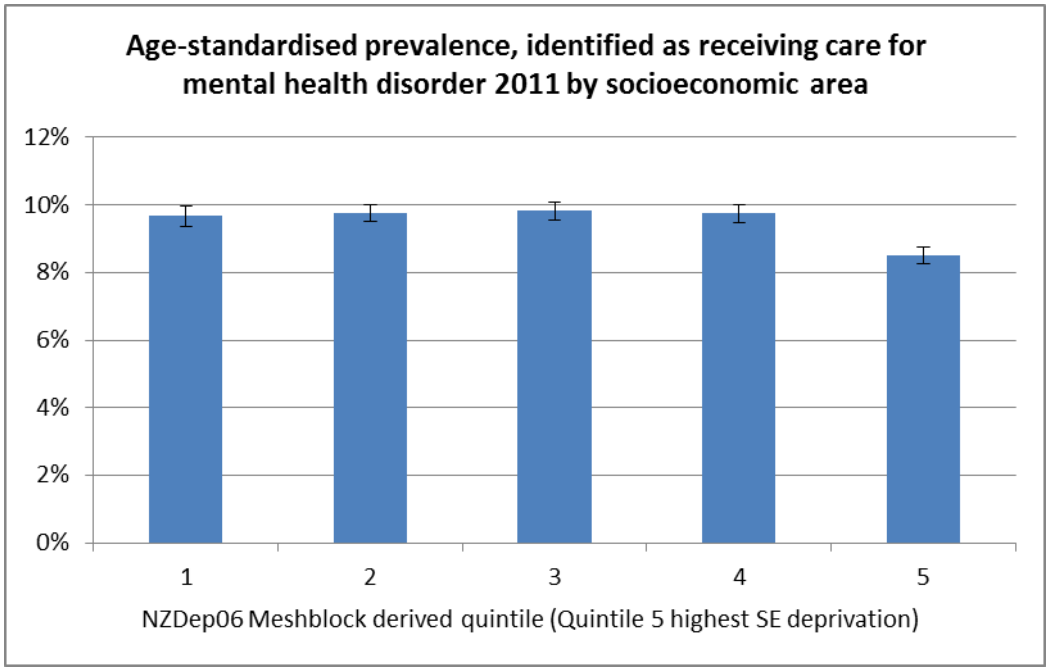


Figure 13 Age-standardised prevalence aged 18 years & over, identified as receiving care for mental health disorder 2011 by socioeconomic area



Distribution across the CM Health district

A higher proportion of the population identified as receiving care for a mental health disorder in 2011 were living in Awhinatia and less in the Cottage (including Otahuhu) CMHC areas compared to the underlying constructed population, resulting in the age standardised prevalence for Awhinatia being 1.6 times that of the Cottage (Table 5, Figure 14 and Figure 15)).

Table 5 Mental health population aged 18 years & over 2011 snapshot residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Residential location	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this residential locality	Crude prevalence	Age standardised prevalence (95% CI)
Awhinatia	5,870	3,620	9,480	26.9%	21.2%	12.2%	11.9% (11.7% - 12.1%)
Manukau	5,050	3,680	8,740	24.8%	24.8%	9.6%	9.5% (9.3% - 9.7%)
Te Rawhiti	6,490	3,610	10,110	28.7%	28.5%	9.7%	9.3% (9.1% - 9.4%)
The Cottage (incl Otahuhu)	3,410	3,280	6,680	19.0%	24.5%	7.4%	7.5% (7.3% - 7.7%)
CMDHB NFD*	90	90	180	0.5%	1.0%	5.0%	5.1% (4.3% - 5.8%)
Total	**20,900**	**14,280**	**35,180**	**100%**	**100%**	**9.6%**	**9.4% (9.3% - 9.5%)**

**Not Further Defined – data absent or unable to be mapped to CAU*

Figure 14 Mental health population aged 18 years & over 2011 snapshot residential location according to CMHC boundaries compared with constructed population

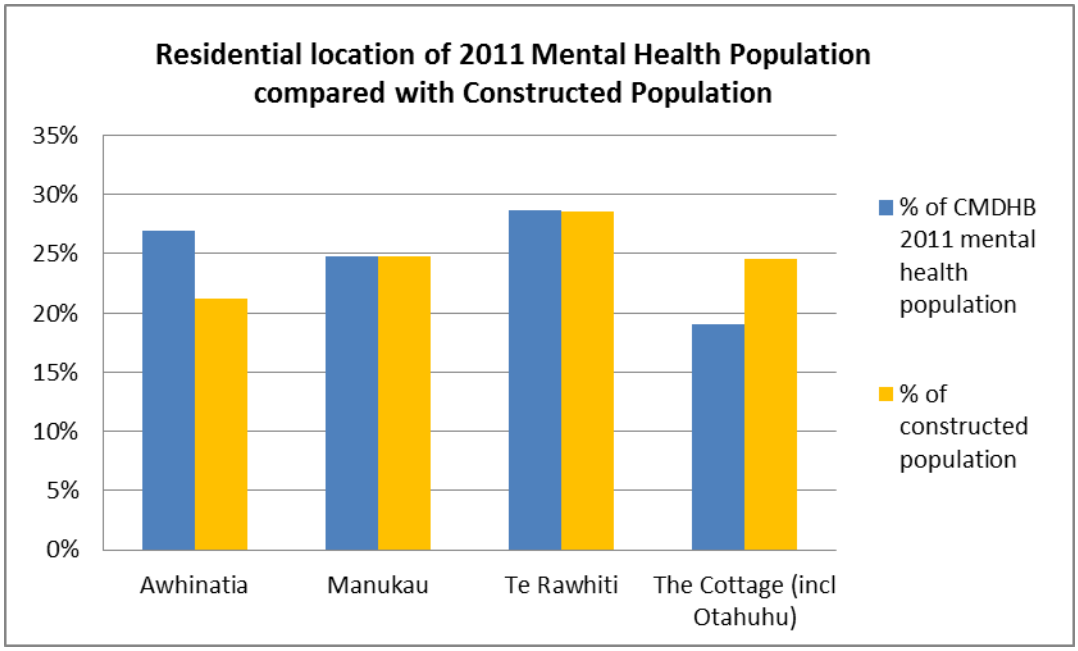
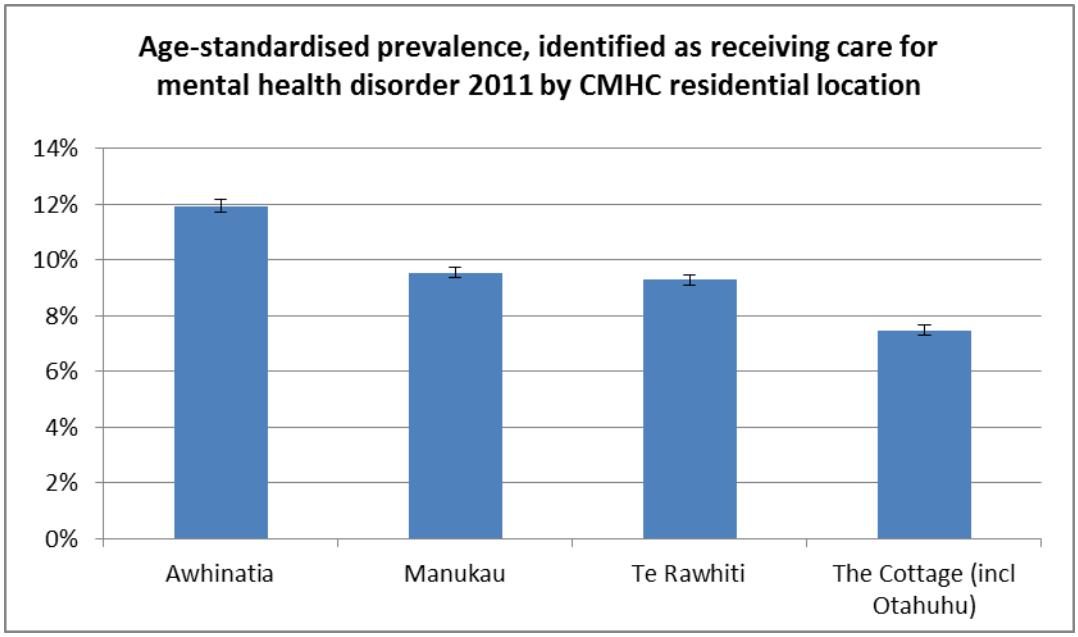


Figure 15 Age-standardised prevalence aged 18 years & over, identified as receiving care for mental health disorder 2011 by CMHC residential location



Enrolled locality for primary care

The age-standardised prevalence of care for a mental health disorder was significantly lower in the Mangere/Otara and Otahuhu enrolled populations (Table 6, Figure 16 and Figure 17).

Non-enrolment in a PHO is examined further under the Utilisation section (P 111), but of note (Table 6) a similar proportion of those identified in the mental health population were not enrolled (3.2%) as the total underlying constructed population (3.5% not enrolled). This will in part reflect the way the 2011 mental health population is defined - that inclusion in the population is defined through various forms of health service utilisation and the primary care sector (reflected in PHO enrolment) potentially play a key role in many referrals to mental health services and is a major contributor to prescriptions for mental health medications. This means those who are engaged with primary care (evidenced by enrolment) are more likely to get treatment or referral for their mental health problem and hence by definition be identified as part of the mental health population as identified by this study.

Note that while only 3.2% of the 2011 mental health population were identified as being not enrolled at the beginning of 2012, this still represents over 1,100 people identified as receiving care for a mental health disorder who were not engaged at that point with primary care but had health system contact that year regarding their mental health disorder. This is a quality improvement opportunity. A further 16% (5,520 people) were enrolled in practices beyond CM Health at the end of 2011; work with other DHBs will be important to influence their care.

Table 6 Mental health population aged 18 years & over 2011 snapshot enrolled locality for primary care by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this enrolled locality	Crude preva-lence	Age-standardised prevalence (95% CI)
Eastern	4,990	2,590	7,580	21.5%	19.5%	10.6%	10.1% (9.9% - 10.3%)
Franklin	2,370	1,320	3,690	10.5%	8.6%	11.7%	11.4% (11.0% - 11.7%)
Mangere/Otara	2,970	2,500	5,470	15.6%	22.6%	6.6%	6.7% (6.5% - 6.9%)
Manukau	7,210	4,610	11,820	33.6%	28.6%	11.3%	11.0% (10.8% - 11.1%)
Not enrolled	360	750	1,110	3.2%	3.5%	8.6%	8.5% (8.0% - 9.0%)
Otahuhu (ADHB)	700	700	1,410	4.0%	5.8%	6.6%	6.6% (6.2% - 6.9%)
Other*	2,310	1,800	4,110	11.7%	11.5%	9.8%	9.7% (9.4% - 9.9%)
Total	**20,900**	**14,280**	**35,180**	**100%**	**100%**	**9.6%**	**9.4% (9.3% - 9.5%)**

**beyond CMDHB and Otahuhu*

Figure 16 Mental health population aged 18 years & over 2011 snapshot enrolled locality for primary care compared with constructed population

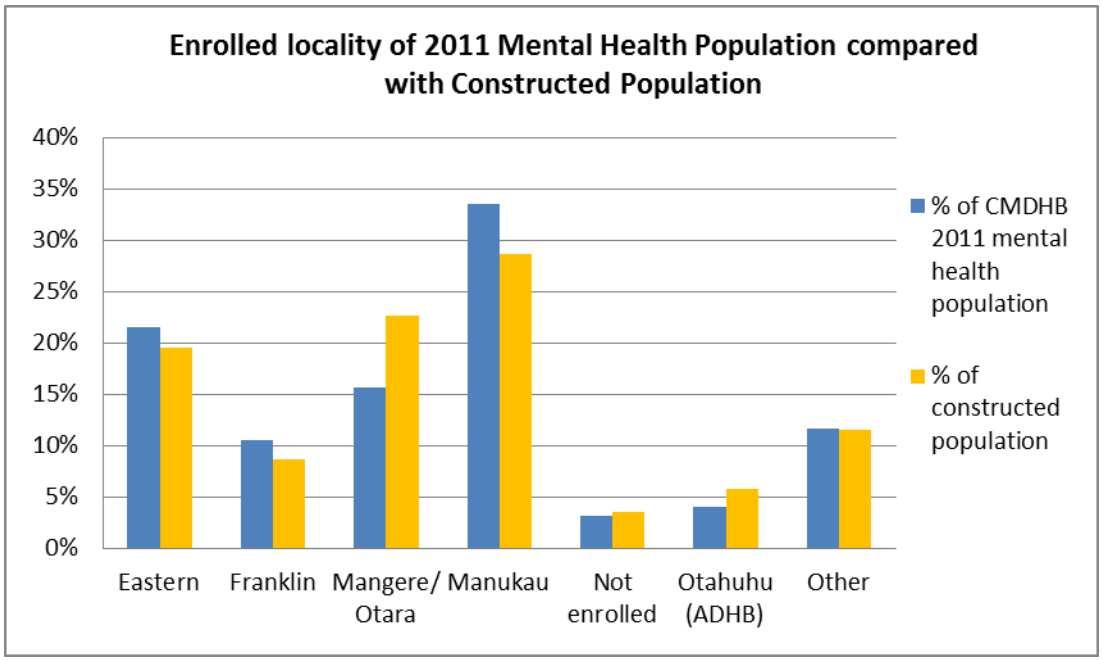
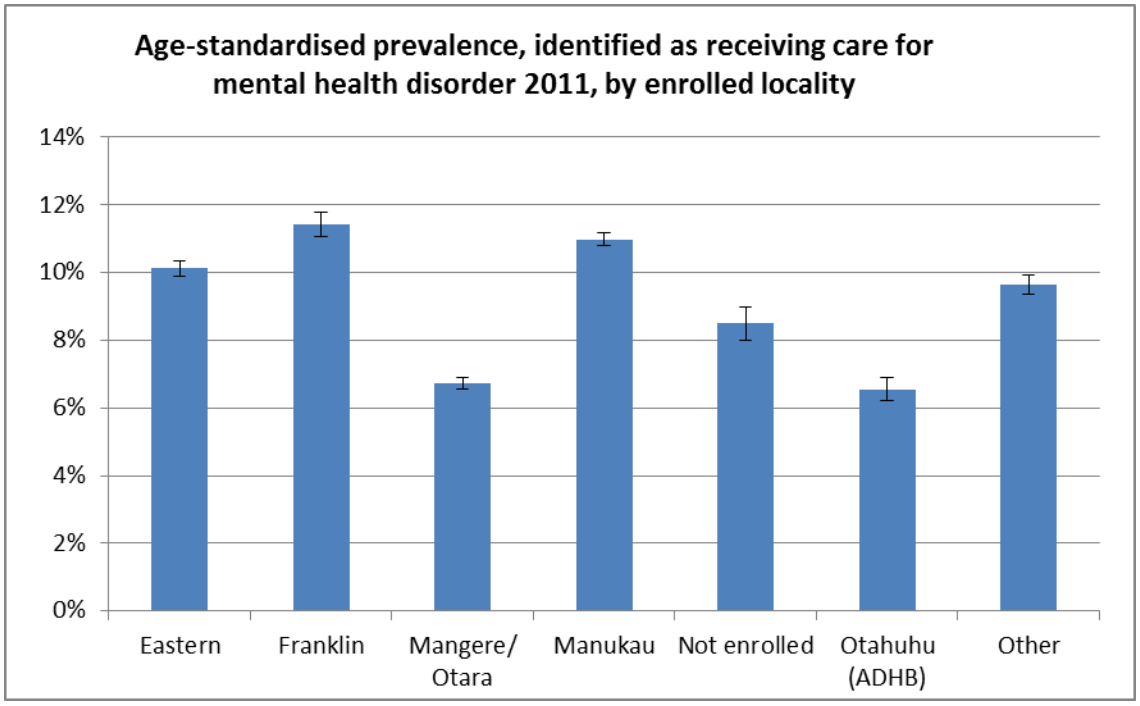


Figure 17 Age-standardised prevalence aged 18 years & over, identified as receiving care for mental health disorder 2011 by enrolled locality



Means of identification as part of the 2011 Mental Health Population aged 18 years and over

82% of the population identified as receiving care for a mental health disorder in 2011 were receiving mental health medication of some sort (28,960 people). 22% (6,380) of these people (18% of the total) also had contact with mental health services in 2011 (Table 7 and Table 8: Figure 18 and Figure 19). For 64% of the 2011 mental health population (22,460 people), a mental health medication was the only way they were identified as part of the mental health population.

Overall 35% of the population identified as receiving care for a mental health disorder (12,360) had some contact with mental health services in 2011. Of these, 48% (5,980) were not identified as receiving any mental health medication in 2011.

3.6% of people (1,260) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital, in 2011.

Table 7 Means of identification as part of the population aged 18 years & over receiving care for mental health disorder 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	250	22,580	**22,830**
No NMDS MH diagnosis		22,460	22,460
NMDS MH diagnosis	250	120	370
PRIMHD contact	5,980	6,380	**12,360**
No NMDS MH diagnosis	5,650	5,120	10,770
NMDS MH diagnosis	330	1,260	1,590
Total	**6,220**	**28,960**	**35,180**

Table 8 Means of identification as part of the population aged 18 years & over receiving care for mental health disorder 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**0.7%**	**64.2%**	**64.9%**
No NMDS MH diagnosis		63.8%	63.8%
NMDS MH diagnosis	0.7%	0.3%	1.0%
PRIMHD contact	**17.0%**	**18.1%**	**35.1%**
No NMDS MH diagnosis	16.1%	14.6%	30.6%
NMDS MH diagnosis	0.9%	3.6%	4.5%
Total	**17.7%**	**82.3%**	**100%**

Figure 18 Means of identification as part of the population aged 18 years & over receiving care for mental health disorder 2011, number of people per category (circles not in proportion)

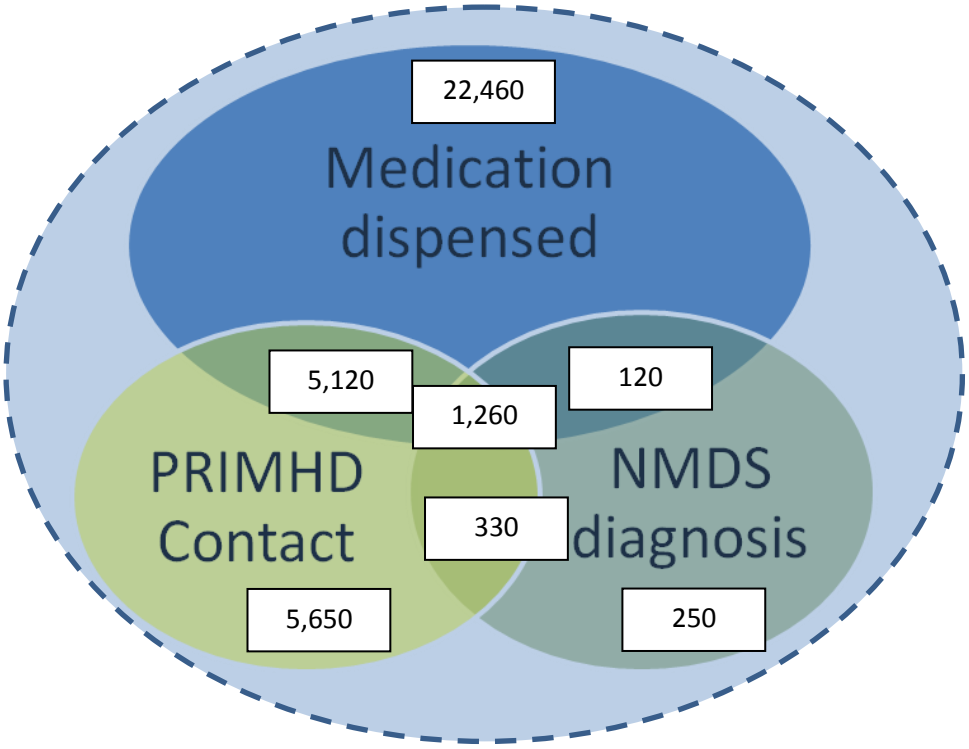
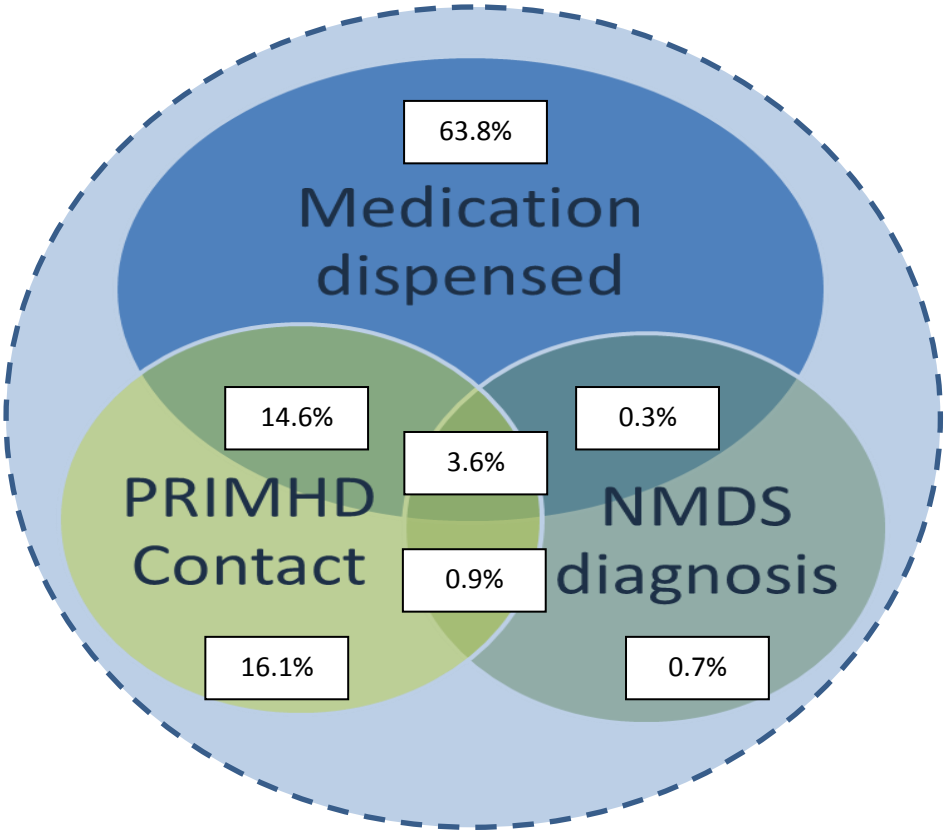


Figure 19 Means of identification as part of the population aged 18 years & over receiving care for mental health disorder 2011, category by percentage (circles not in proportion)



As noted previously, the dotted circle represents the wider population who have mental health disorders who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies). As described in the introduction, one potential way to estimate the quantum of people who might be receiving non-pharmacological treatment in primary care such care is to extrapolate from the information this analysis does provide about the people being seen by mental health services who are not dispensed mental health medications.

Of the 12,360 people seen by mental health services in 2011, 46% (5,650) were neither dispensed mental health medications in that year or received a mental health diagnosis when admitted to hospital (NMDS diagnosis). 22,460 people were dispensed medications and not seen in mental health services or featured in NMDS diagnoses; it is assumed these people were prescribed their medication through primary care. If roughly half of those seen in primary care were also not dispensed medication, that would identify another 22,460 people as receiving care for mental health disorder, in this case non-pharmacological treatment through primary care. The estimate of 50% was thought to be valid by the primary care clinicians consulted.

That would bring the population receiving care for mental health disorder in 2011 to about 57,600 (a crude prevalence of 15.7% for the population aged 18 years and over). This would mean approximately 21% of people with mental health disorders were seen by mental health services, rather than 35%.

Diagnoses

As noted, depression and anxiety often occur together and treatment can be similar so they are grouped together for this report. Depression/anxiety was by far the most common diagnostic group for those identified as receiving care for a mental health disorder in 2011, being identified (by use of relevant medication or actual diagnosis in PRIMHD or NMDS) for 72% of the 2011 mental health population, with a crude prevalence of 6.9% (Table 9, Figure 20 and Figure 21). As noted previously, people may be receiving a variety of medications that span a number of the diagnostic groups where this is clinically indicated. In addition there may be use of medication outside of current best practice and/or there are emerging legitimate used that have not been factored into the categories used for this analysis. These factors may overstate the numbers in various groups, particularly the depressive disorders group, as anecdotally antidepressant medication may be used for symptom control in a variety of situations which could be termed ‘sub-clincial’ depressive disorder (not formally diagnosable). However including all of these people was considered preferable to excluding people from one or other group. There were just under 25,300 people aged 18 years and over identified as receiving care for depression and/or anxiety in 2011; this group are described more fully on P 63. Those identified as receiving care for psychotic disorders are also described more fully on P 70.

The 12 month prevalence of any mood disorder in Te Rau Hinengaro was 7.9% and the prevalence of any anxiety disorder was 14.8%. The prevalence of depression and/or anxiety was not specifically described.

Overall there was a preponderance of females in the 2011 snapshot mental health population at 59% of those identified (compared to 52.5% in the constructed population). In particular in several

conditions women represented 60% or more of those identified – 92% of those identified with eating disorders, 67% of those with depression/anxiety and 60% of those with bipolar disorder. However 67% of those identified with substance abuse and 67% of those with disorders with onset in childhood and/or adolescence were male. These gender results are largely consistent with the findings of Te Rau Hinengaro (as described in the Introduction section), except in that survey bipolar disorder occurred equally for females and males and the predominance of females in eating disorders was less marked.

There were 4,740 people (13% of the 2011 snapshot population) who did not have a diagnosis identified that was within the categories described. By definition these are people who were seen by mental health services in 2011 but were not given a diagnosis in these categories (people identified by PHARMS and/or NMDS diagnosis had to have medications or diagnoses within the categories described to be identified). This leaves 30,440 people with identified diagnoses in the categories described. Given there was a total of 34,740 diagnoses identified, this indicates there was a proportion of people who had two or more diagnoses. This is consistent with Te Rau Hinengaro which found that while most people only experience one disorder, comorbid disorders were common.

Table 9 Diagnostic categories for 2011 Mental Health Population aged 18 years & over by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total number of diagnoses	% of the MH population identified with this condition (not taking into account overlap)	Crude prevalence	% female
Depression/anxiety	16,940	8,350	25,290	71.9%	6.9%	67.0%
Bipolar disorder	480	310	790	2.2%	0.2%	60.4%
Personality disorder	120	60	180	0.5%	0.0%	67.0%
Psychotic disorder*	2,720	2,720	5,450	15.5%	1.5%	49.9%
Substance Abuse	510	1,010	1,510	4.3%	0.4%	33.5%
Eating Disorder	20	0	30	0.1%	0.0%	92.3%
Complications of Dementia	200	140	340	1.0%	0.1%	58.2%
Disorders onset child/adolescent	140	290	430	1.2%	0.1%	33.4%
Intentional Self-Harm	320	190	520	1.5%	0.1%	62.8%
Other MH	20	30	50	0.1%	0.0%	44.9%
Total diagnoses in these categories	*21,580*	*13,160*	*34,740*			
People with No diagnosis in these categories	1,800	2,940	4,740	13.5%	1.3%	38.0%

*includes schizophrenia

Figure 20 Percentage of the 2011 mental health population aged 18 years & over identified with various mental health conditions

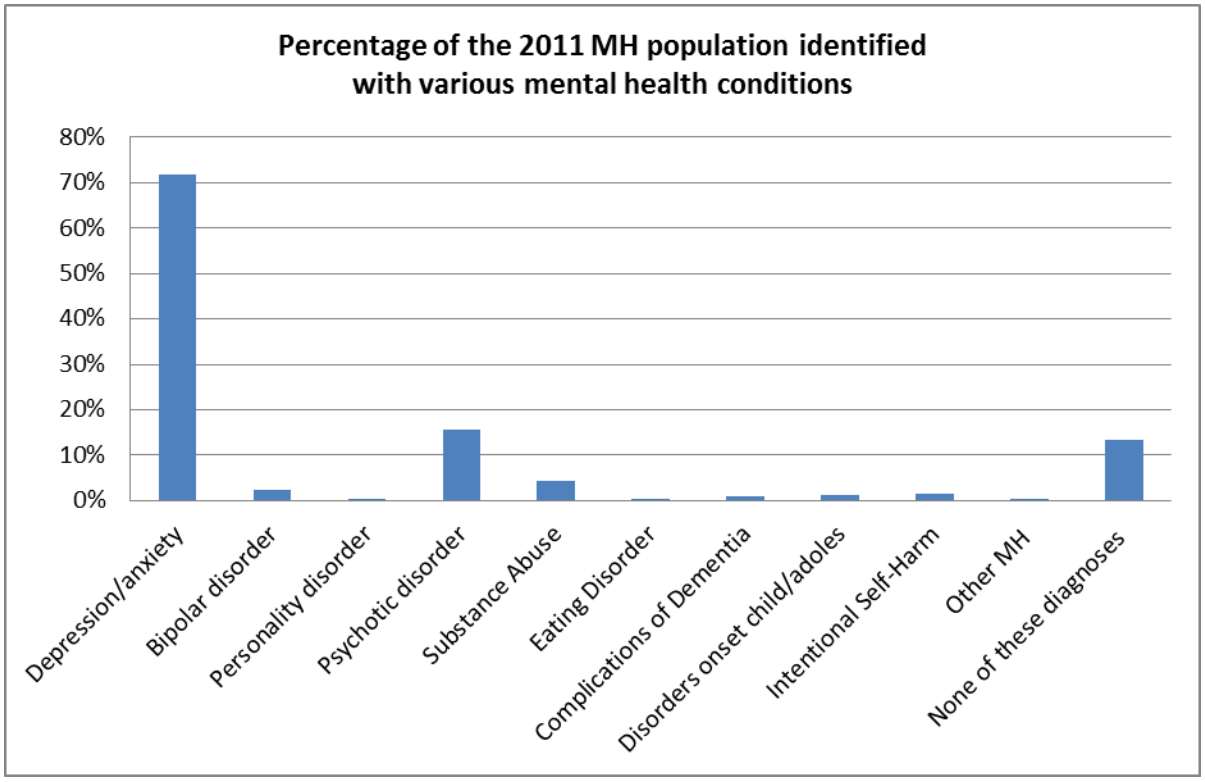
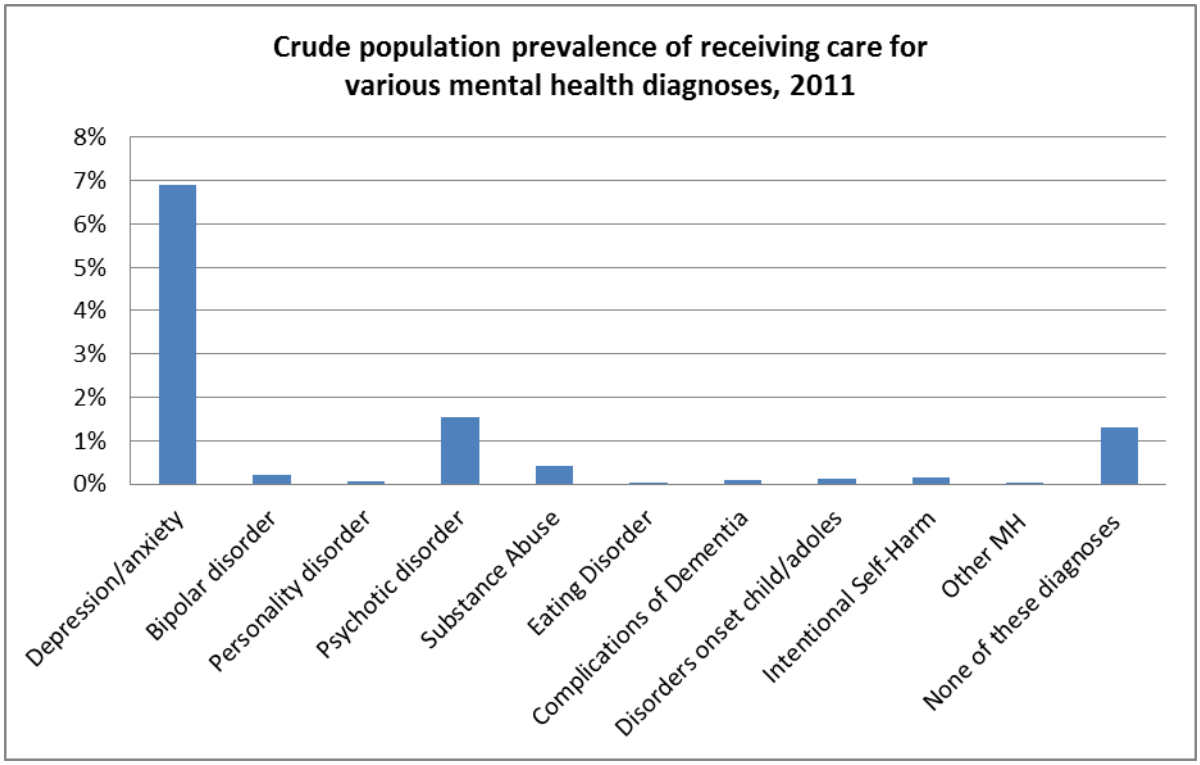


Figure 21 Crude prevalence of various mental health conditions 2011 in the population aged 18 years & over



People identified as receiving care for Depression and/or Anxiety in 2011

As noted, depression and anxiety often occur together and treatment can be similar. There were just under 25,300 people aged 18 years and over identified as receiving care for depression and/or anxiety in 2011. It is acknowledged that some of these will be people receiving antidepressants outside of current best practice and/or where there are emerging legitimate used that have not been factored into the categories used for this analysis (e.g. for symptom control in a variety of situations which could be termed 'sub-clinical' depressive disorder - not formally diagnosable).

Ethnicity

The age-standardised prevalence of receiving care for depression and/or anxiety in 2011 was much higher in those of European/Other ethnicities (10.3%) and also significantly higher in Maaori (6.2%) than those of Pacific and Asian ethnicities (2-4%) (Table 10, Figure 22 and Figure 23).

In Te Rau Hinengaro, although unadjusted 12 month prevalence of any disorder was highest for Maaori, second highest for Pacific people and lowest for Others, Pacific people had a lower prevalence of major depressive disorders. In the survey, after adjustment the Pacific prevalence (3.5%) was significantly below prevalences for both Maaori (5.7%) and Others (5.8%), although the unadjusted prevalence for Maaori was higher. Adjusted prevalence of anxiety disorders was not different between ethnic groups.

In the 2011 mental health population in this study, overall 16% of those identified as receiving care for depression and/or anxiety (4,110 people) were seen by Mental Health Services but this figure was 28% for Maaori, 22% for Pacific, and only 14-15% for those of other ethnicities (Table 10). This resulted in Maaori and Pacific peoples representing 12% and7% of those identified as receiving care for depression and/or anxiety respectively but 21% and 9.5% of those with depression and/or anxiety seen by Mental Health services. Those of European/Other ethnicities represented 71% of those identified as receiving care for depression and/or anxiety but 61% of those with depression and/or anxiety seen by Mental Health services (Table 10, Figure 22 and Figure 23).

Table 10 Population aged 18 years & over, identified as receiving care for depression/anxiety 2011 by ethnicity and gender

	Total	% of those identified as receiving care for depression and/or anxiety	Crude prevalence of receiving care for depression and/or anxiety	Age-standardised prevalence (95% CI)	Seen by MH services	% seen by MH services	% of those receiving care for depression and/or anxiety who were seen by MH services
Maaori	3,090	12.2%	5.9%	6.2% (6.0% - 6.5%)	850	27.6%	20.7%
Pacific	1,750	6.9%	2.1%	2.2% (2.1% – 2.3%)	390	22.3%	9.5%
Indian	1,280	5.0%	4.4%	4.4% (4.2% – 4.6%)	190	14.8%	4.6%
Chinese	610	2.4%	2.8%	2.6% (2.4% – 2.8%)	90	15.0%	2.2%
Other Asian	660	2.6%	3.8%	3.8% (3.5% – 4.0%)	100	15.1%	2.4%
European/ Other	17,910	70.8%	11.0%	10.3% (10.2% – 10.5%)	2,490	13.9%	60.5%
Total	**25,290**	**100%**	**6.9%**	**6.6% (6.5% – 6.75)**	**4,110**	**16.3%**	**100%**

Figure 22 Age-standardised prevalence aged 18 years & over, identified as receiving care for depression/anxiety 2011 by ethnicity

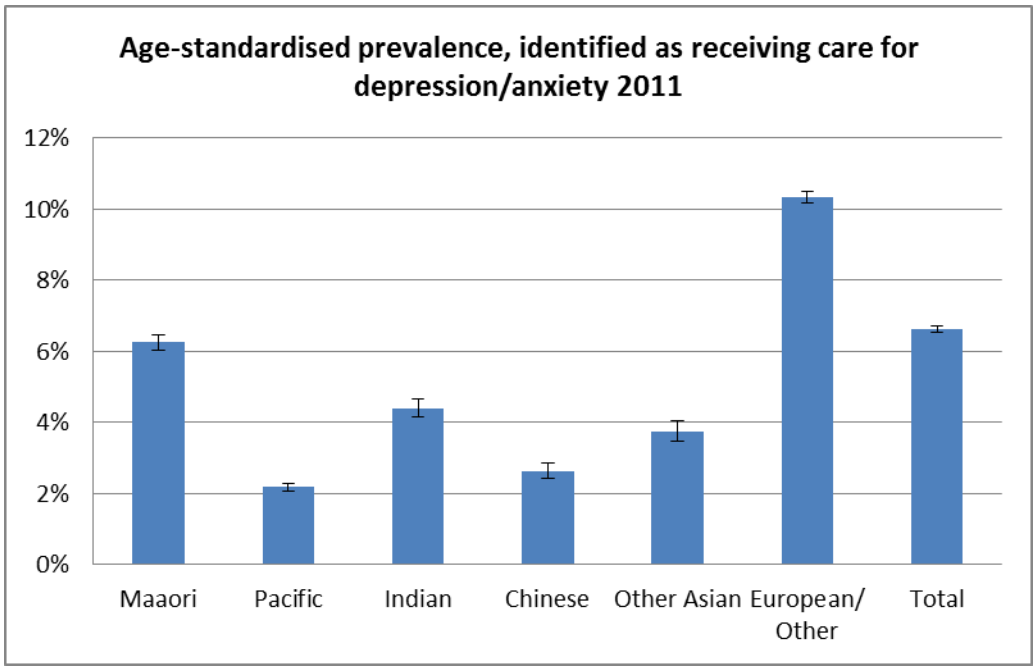
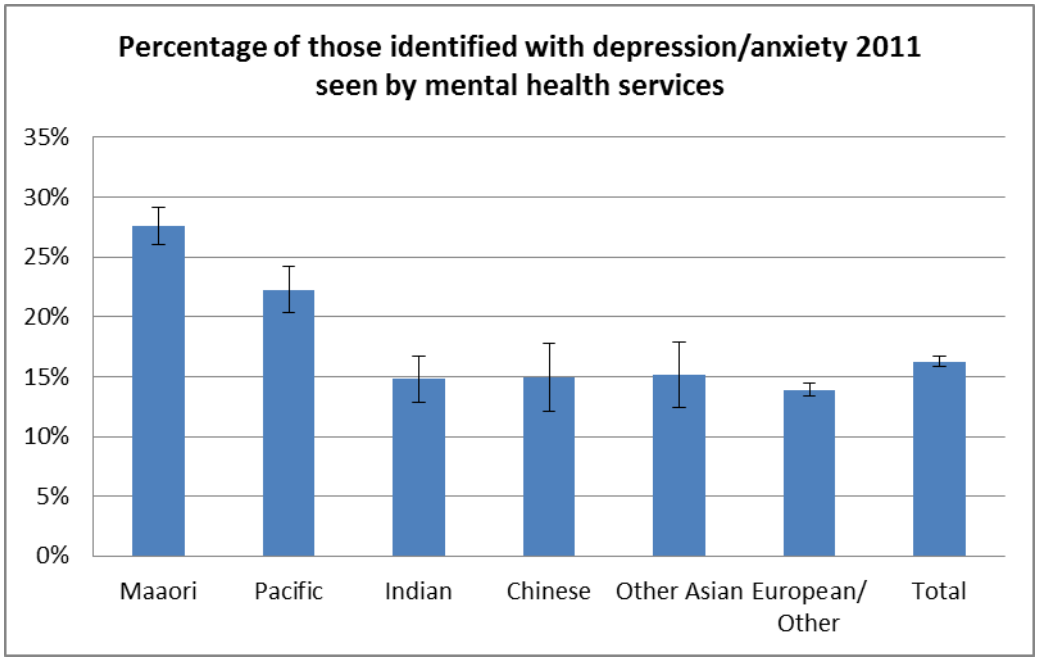


Figure 23 Percentage seen by Mental Health Services aged 18 years & over of those identified as receiving care for depression/anxiety 2011, by ethnicity



Age distribution

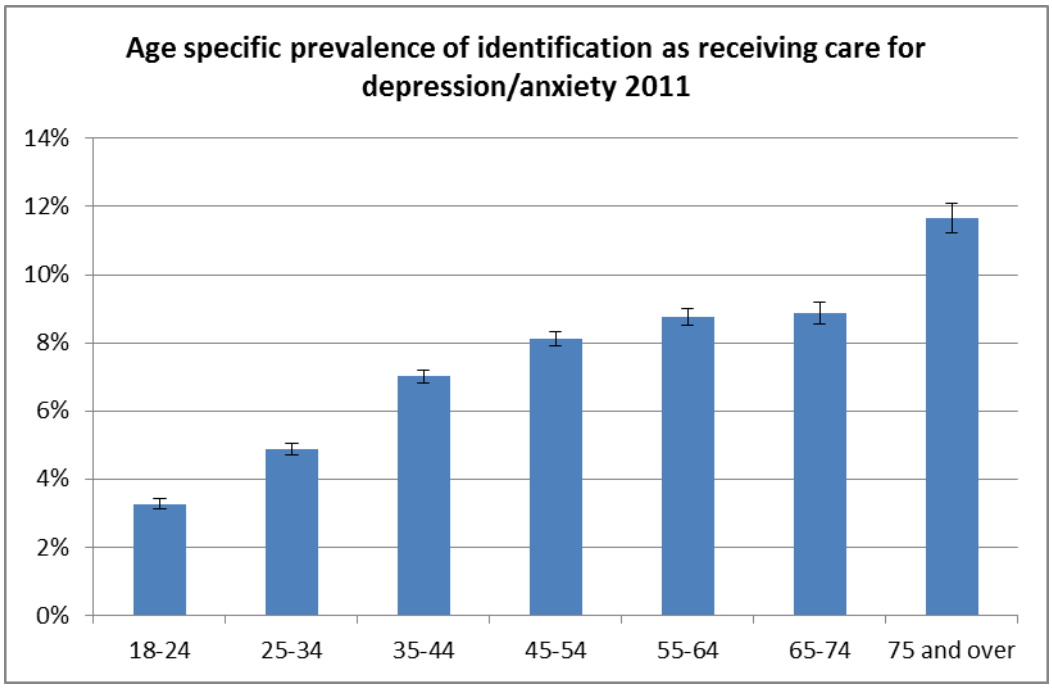
The age specific prevalence of identification as receiving care for depression and/or anxiety in the 2011 mental health population was significantly lower in the younger age groups compared with those aged 45 and over, with a further increase in those 75 years and over (Table 11 and Figure 24)

As noted previously this is the opposite of the pattern in Te Rau Hinegaro where 12 month prevalence of anxiety and mood disorders declined with age. This may be the result of a range of issues and would require further analysis and other research in order to establish whether it is definitional issues for this study (e.g. related to medication use for purposes other than depression/anxiety), true difference in prevalence of the conditions or different patterns of prescribing and/or referring.

Table 11 Population aged 18 years & over identified as receiving care for depression/anxiety 2011 by age group

Age group (Yrs)	Total	% of those identified as receiving care for depression and/or anxiety	Crude (age specific) prevalence (95% CI)
18-24	1,830	7.2%	3.3% (3.1% - 3.4%)
25-34	3,350	13.3%	4.9% (4.7% - 5.0%)
35-44	5,070	20.1%	7.0% (6.8% - 7.2%)
45-54	5,590	22.1%	8.1% (7.9% - 8.3%)
55-64	4,370	17.3%	8.8% (8.5% - 9.5%)
65-74	2,750	10.9%	8.9% (8.6% - 9.2%)
75 & over	2,330	9.2%	11.7% (11.2% - 12.1%)
Total	**25,290**	**100%**	**6.9% (6.8% - 7.0%)**

Figure 24 Age specific prevalence aged 18 years & over, identified as receiving care for depression/anxiety 2011



Socioeconomic Distribution

There was a significantly lower age-standardised prevalence of identification as receiving care for depression and/or anxiety in the 2011 mental health population for those living in the most deprived areas (Quintiles 4 & 5) (Table 12 and Figure 25).

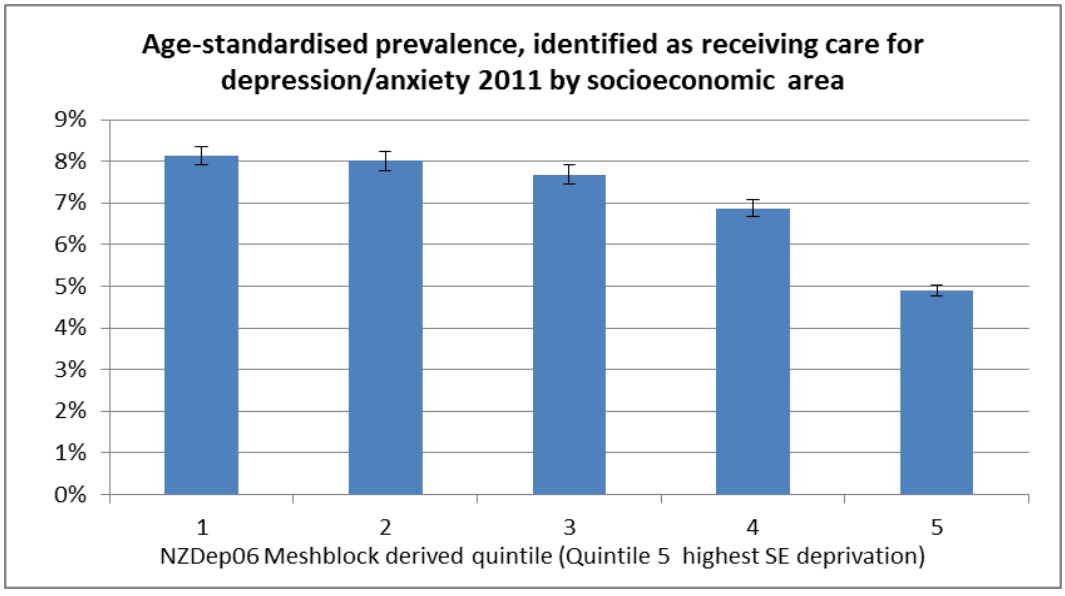
Te Rau Hiningaro did not report socioeconomic variables for individual conditions, but as noted previously the overall 12 month prevalence of any mental health disorder was higher in those living in more socioeconomically deprived areas in the Te Rau Hinengaro results. Like the prevalence of care by age, the different result for this analysis from that of Te Rau Hinengaor may be the result of a range of issues and would require further analysis and other research to explore this further.

Table 12 Population aged 18 years & over, identified as receiving care for depression/anxiety 2011 by socioeconomic area

NZDep06, Meshblock derived quintile	Total	% of those identified as receiving care for depression and/or anxiety	Crude prevalence	Age-standardised prevalence (95% CI)
N/I*	2,200	8.7%	6.1%	5.8% (5.5% -6.0%)
1	5,590	22.1%	8.6%	8.1% (7.9% - 8.3%)
2	4,530	17.9%	8.5%	8.0% (7.8% - 8.2%)
3	3,700	14.6%	8.1%	7.7% (7.4% -7.9%)
4	3,980	15.7%	7.2%	6.9% (6.7% - 7.1%)
5	5,310	21.0%	4.8%	4.9% (4.8% - 5.0%)
Total	**25,290**	**100%**	**6.9%**	**6.6% (6.5% - 6.7%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 25 Age-standardised prevalence aged 18 years & over, identified as receiving care for depression/anxiety 2011 by socioeconomic area



Distribution across the CM Health district

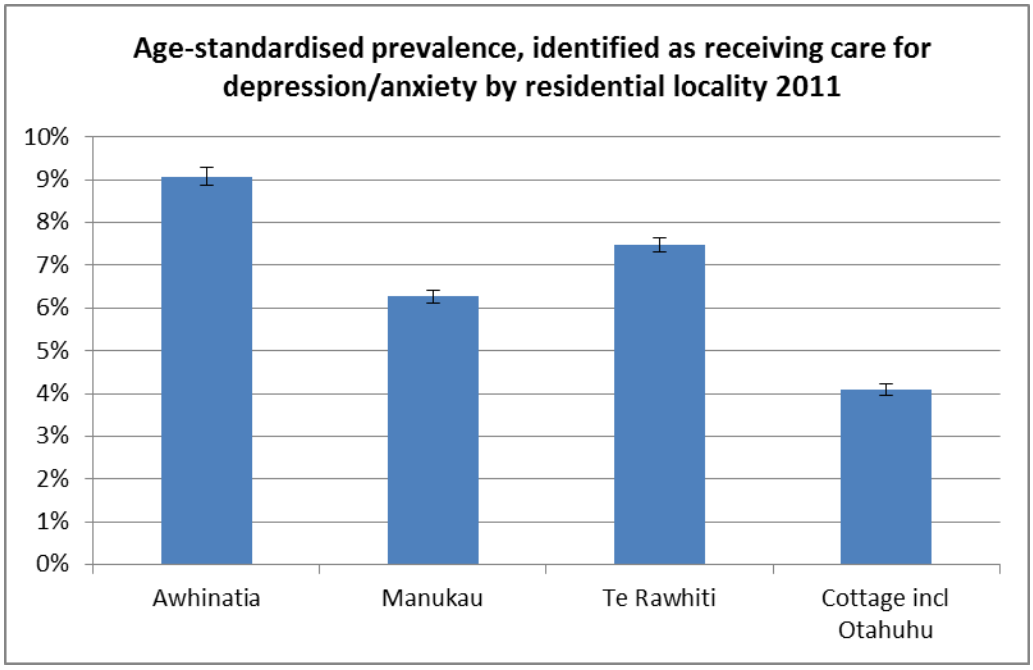
A significantly higher proportion of those identified as receiving care for depression and/or anxiety were living in Awhinatia and less in the Cottage (including Otahuhu) CMHC areas (Table 13 and Figure 26).

Table 13 Population aged 18 years & over, identified as receiving care for depression/anxiety 2011 residential location according to CMHC boundaries

Residential location	Total	% of those identified with depression and/or anxiety	Crude prevalence	Age-standardised prevalence (95% CI)
Awhinatia	7,410	29.3%	9.5%	9.1% (8.9% - 9.3%)
Manukau	5,790	22.9%	6.4%	6.3% (6.1% - 6.4%)
Te Rawhiti	8,330	32.9%	8.0%	7.5% (7.3% - 7.6%)
The Cottage (incl Otahuhu)	3,640	14.4%	4.0%	4.1% (4.0 - 4.2%)
CMDHB NFD*	120	0.5%	3.3%	3.4% (2.8% - 4.0%)
Total	**25,290**	**100%**	**6.9%**	**6.6% (6.5% - 6.7%)**

**Not Further Defined – data absent or unable to be mapped to CAU*

Figure 26 Age-standardised prevalence aged 18 years & over, identified as receiving care for depression/anxiety 2011 by CMHC residential location



Enrolled locality for primary care

The age-standardised prevalence of care for depression and/or anxiety was significantly higher in Franklin and lower in the Mangere/Otara and Otahuhu enrolled populations.

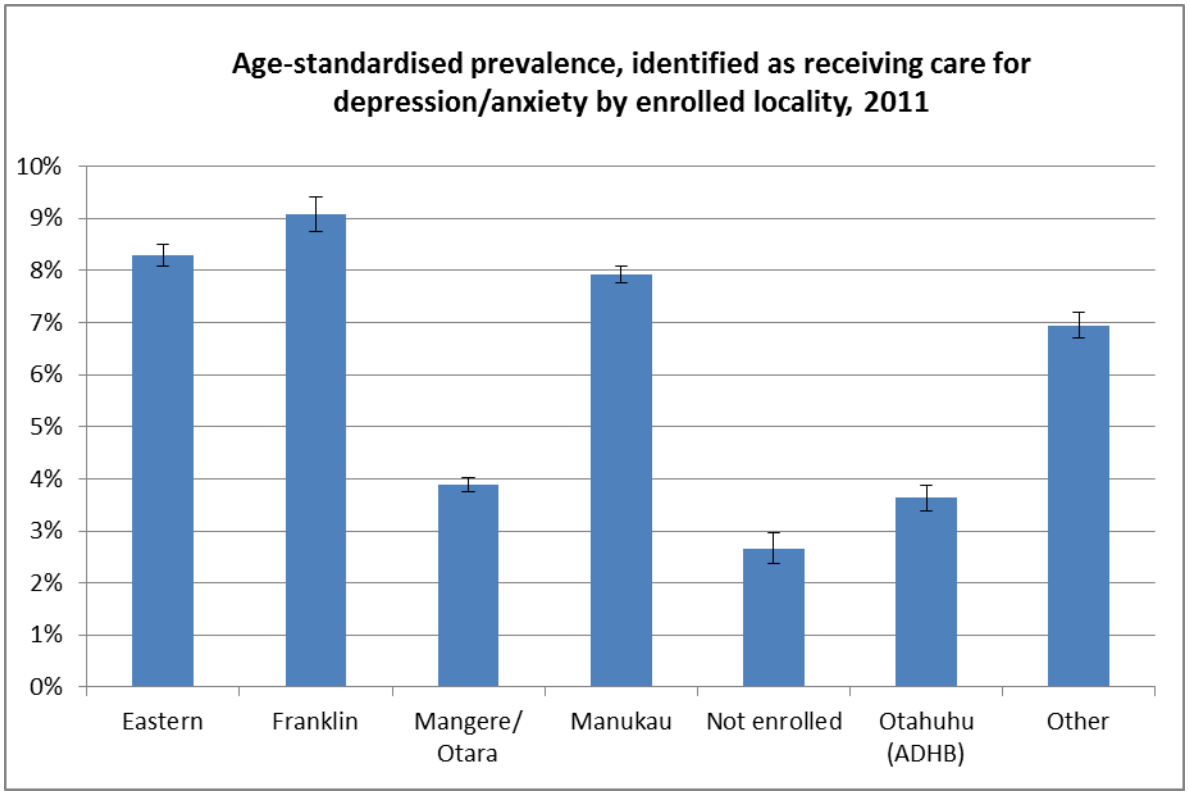
1.2% (320 people) of those identified as receiving care for depression and/or anxiety in 2011 were not enrolled in primary care at the beginning of 2012. 12% (3,000 people) were enrolled in practices beyond CM Health. This means work with other DHBs will be necessary to influence their care.

Table 14 Population aged 18 years & over, identified as receiving care for depression/anxiety 2011 by enrolled locality

Enrolled locality	Total	% of those identified with depression and/or anxiety	Crude prevalence	Age-standardised prevalence (95% CI)
Eastern	6,350	25.1%	8.9%	8.3% (8.1% - 8.5%)
Franklin	3,010	11.9%	9.6%	9.1% (8.7% - 9.4%)
Mangere/Otara	3,100	12.2%	3.7%	3.9% (3.7% - 4.0%)
Manukau	8,720	34.5%	8.3%	7.9% (7.8% - 8.1%)
Not enrolled	320	1.2%	2.5%	2.7% (2.4% - 3.0%)
Otahuhu (ADHB)	790	3.1%	3.7%	3.6% (3.4% - 3.9%)
Other*	3,000	11.9%	7.1%	6.9% (6.7% - 7.2%)
Total	**25,290**	**100%**	**6.9%**	**6.6% (6.5% - 6.7%)**

**beyond CMDHB and Otahuhu*

Figure 27 Age-standardised prevalence aged 18 years & over, identified as receiving care for depression/anxiety 2011 by enrolled locality



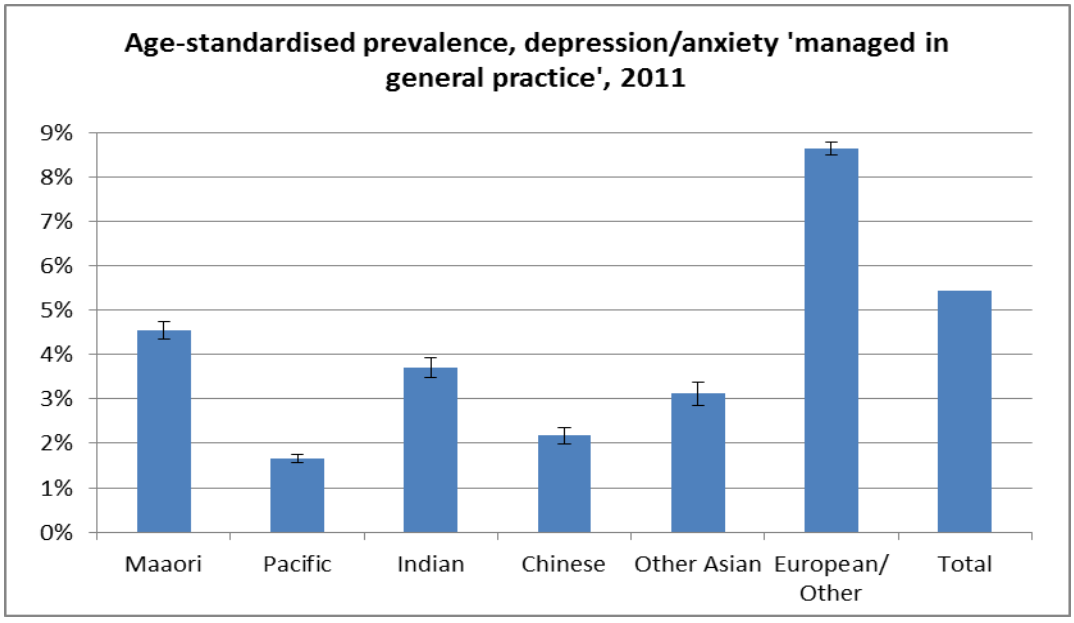
Those receiving care for depression and/or anxiety 'managed in general practice'

83% of those identified as receiving care for depression and/or anxiety in 2011 were identified only by medications dispensed – i.e. not seen by Mental Health services, or receiving a diagnosis of depression and/or anxiety in any admission to a public hospital in New Zealand; it is assumed these people were 'managed in general practice'. Nearly three quarters of this group were of European/Other ethnicities, with an age-standardised prevalence of 8.8% compared to 1.7-4.6% for other ethnicities (Table 15 and Figure 28). This compares with 61% being European/Other ethnicities of those receiving care for depression and/or anxiety who were seen by mental health services (21% were Maaori and 9.5% Pacific).

Table 15 Population aged 18 years & over, identified as receiving care for depression/anxiety 2011 'managed in general practice' by ethnicity

Of those with depression/anxiety 'managed in GP'	Total	% of total	Crude prevalence	Age-standardised prevalence (95% CI)
Maaori	2,200	10.5%	4.2%	4.6% (4.4% - 4.7%)
Pacific	1,330	6.4%	1.6%	1.7% (1.6% - 1.8%)
Indian	1,070	5.1%	3.6%	3.7% (3.5% - 3.9%)
Chinese	510	2.4%	2.4%	2.2% (2.0% - 2.4%)
Other Asian	550	2.6%	3.2%	3.1% (2.9% - 3.4%)
European/ Other	15,250	72.9%	9.4%	8.6% (8.5% - 8.8%)
Total	**20,910**	**100%**	**5.7%**	**5.4% (5.4% - 5.5%)**

Figure 28 Age-standardised prevalence aged 18 years & over, identified as receiving care for depression/anxiety 2011 'managed in general practice' by ethnicity



People identified as receiving care for Psychotic Disorders in 2011

There were approximately 5,450 people aged 18 years and over identified as receiving care for psychotic disorders as defined by this study in 2011 (by use of relevant medication or actual diagnosis in PRIMHD or NMDS in 2011), giving a crude prevalence of 1.5% (Table 16)).

There were a further 2,630 people identified as having received care for a psychotic disorder prior to but not during 2011, in the timeframes of data capture for this study (ie hospital admission where a psychotic disorders diagnosis was recorded at some point since 2002, medication used for psychotic disorder since 2006, and/or PRIMHD entry indicating secondary care mental health service use since July 2008). This would mean the crude prevalence of receiving care for a psychotic disorder at some point from 2002 is 2.2%. 1,200 of these 2,630 people were receiving other mental health care in 2011 as identified in this study (e.g. medication or admission classified as another diagnostic group). The analysis below focuses on those who received care identified as related to psychotic disorder during 2011.

Te Rau Hinengaro did not examine psychotic disorders so relevant data are not available for ethnic comparisons. Internationally the lifetime prevalence of schizophrenia has been assumed to be about 1%, with levels depending on whether ascertainment is through population surveys or registers/case notes; little population research has been conducted on other psychotic disorders (Perala, Suvisaari, Saarni, Kuoppasalmi, & al, 2007). However a Finnish study of adults aged 30 years and older reported in 2007 but undertaken in 2000 – 2004 reported a lifetime prevalence of 3.4% for any psychotic disorder when register diagnoses of non-responders to a population survey were included (8). The second Australian national survey of psychotic illness undertaken in 2010 reported a prevalence of only 0.34% for adults aged 18-64 years with psychotic illness in contact with public mental health services (Morgan et al., 2011); this study did not try to estimate what proportion of those with psychotic disorders this represented.

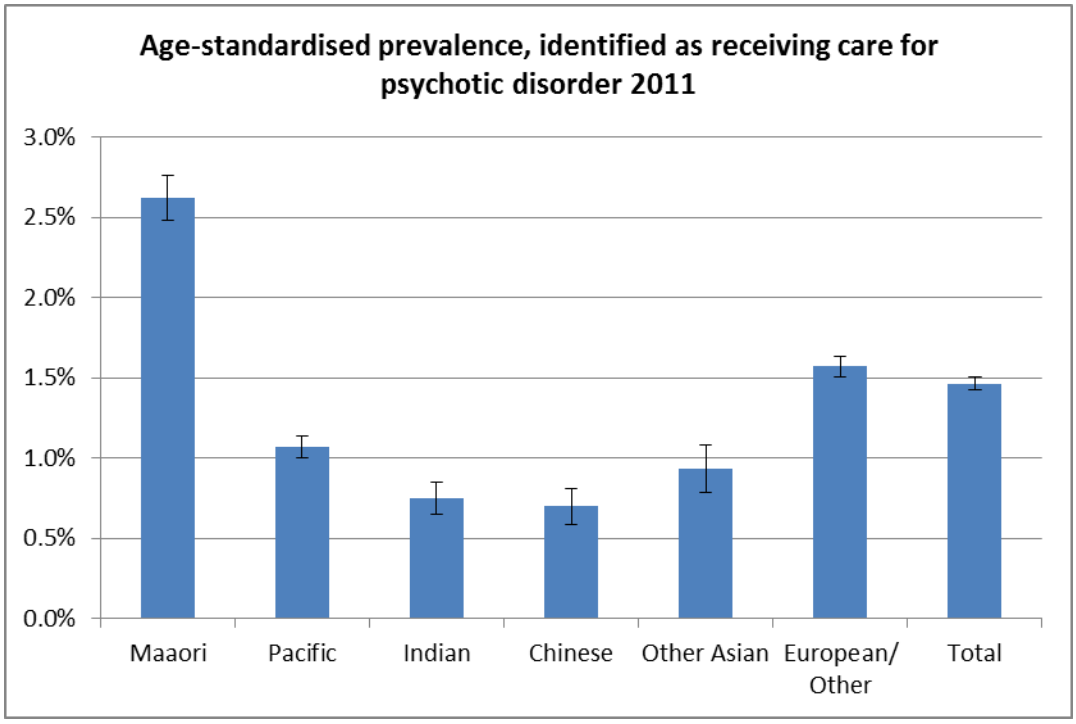
Ethnicity

The age-standardised prevalence of identification as receiving care for psychotic disorders was significantly higher for Maaori (2.6%), than those identified as European/Other ethnicities (1.6%) and those of Pacific and Asian ethnicities (0.7-1.1%) (Table 16 and Figure 29). Overall 50% of those identified as receiving care for psychotic disorders were female but this varied from 42.5% for Pacific peoples to 62.7% for those identified as Chinese (Table 16).

Table 16 Population aged 18 years & over, identified as receiving care for psychotic disorders 2011 by ethnicity and gender

	Female	Male	Total	% Female	% of those identified with psychotic disorder	Crude prevalence	Age-standardised prevalence (95% CI)
Maaori	600	760	1,360	44.4%	25.0%	2.6%	2.6% (2.5% – 2.8%)
Pacific	370	510	880	42.5%	16.2%	1.1%	1.1% (1.0% - 1.1%)
Indian	130	90	210	60.3%	3.9%	0.7%	0.8% (0.6% - 0.9%)
Chinese	100	60	150	62.7%	2.8%	0.7%	0.7% (0.6% - 0.8%)
Other Asian	80	80	160	51.2%	3.0%	0.9%	0.9% (0.8% - 1.1%)
European/ Other	1,440	1,240	2,680	53.7%	49.1%	1.6%	1.57% (1.51% - 1.64%)
Total	**2,720**	**2,720**	**5,450**	**50.0%**	**100%**	**1.5%**	**1.47% (1.43% - 1.51%)**

Figure 29 Age-standardised prevalence aged 18 years and older identified as receiving care for psychotic disorder 2011 by ethnicity



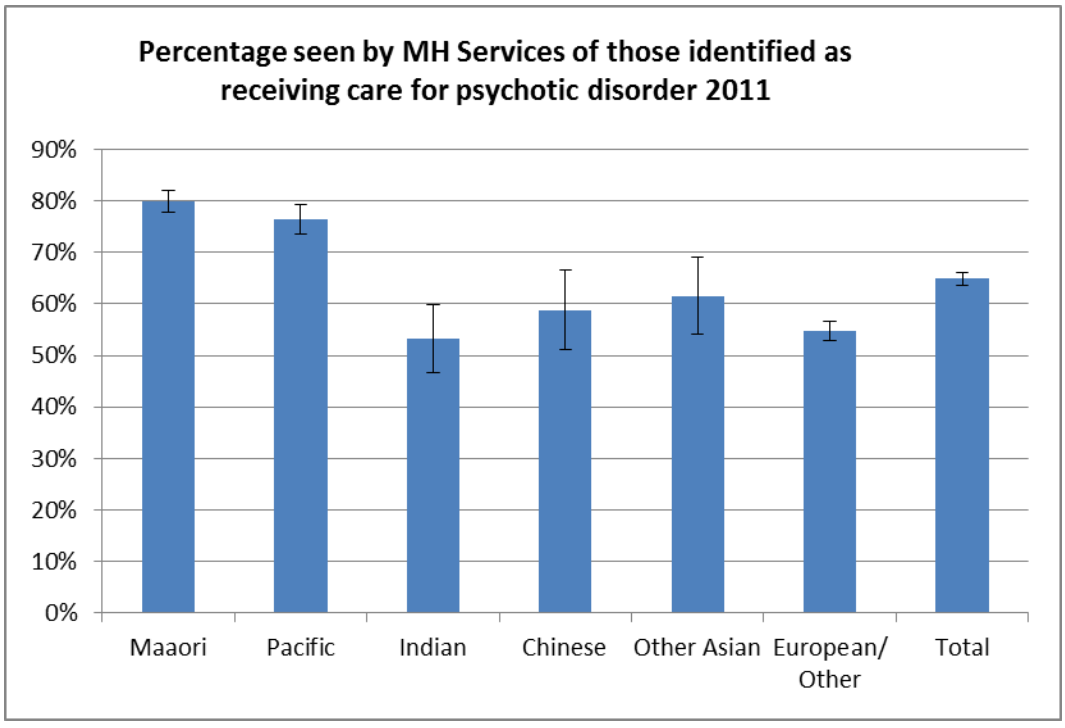
Overall 65% of those identified as receiving care for psychotic disorders in 2011 (3,530 people) were seen by Mental Health Services in 2011 but this figure was significantly higher at 76-80% for Maaori and Pacific peoples, and only 53-62% for those of other ethnicities (Table 17 and Figure 30). This resulted in Maaori representing 25% of those with psychotic disorders but 31% of those with psychotic disorders seen by Mental Health services, while those of European/Other ethnicities

represented 49% of those identified with psychotic disorders but 41.5% of those with psychotic disorders seen by Mental Health services (Table 16 and Table 17).

Table 17 Population aged 18 years & over identified as receiving care for psychotic disorders 2011, percentage seen by Mental Health Services in 2011

	Seen by MH services	% of total identified with psychotic disorder who were seen by MH services (95% CI)	Crude prevalence of psychotic disorder under care of MH services	% of the group with psychotic disorders seen by MH services
Maaori	1,090	80.0% (77.9% - 82.1%))	2.1%	30.8%
Pacific	670	76.4% (73.6% – 79.2%)	0.8%	19.0%
Indian	110	53.3% (46.6% - 60.0%)	0.4%	3.2%
Chinese	90	58.8% (51.0% - 66.6%)	0.4%	2.5%
Other Asian	100	61.6% (54.1% - 69.0%)	0.6%	2.9%
European/ Other	1,470	54.8% (53.0% – 56.7%)	0.9%	41.5%
Total	**3,530**	**64.9% (63.6% - 66.1%)**	**1.0%**	**100%**

Figure 30 Percentage seen by Mental Health Services of those aged 18 years & over identified as receiving care for psychotic disorder 2011



Age distribution

The age specific prevalence of those identified as receiving care for psychotic disorders in the 2011 mental health population was highest in those aged 75 years and over and those aged 25-54 years (Table 18 and Figure 31). The proportion in those aged 75 years and over may represent prescribing patterns in primary care and non-mental health secondary services for this age group as for those seen by mental health services with psychotic disorder, the prevalence in those aged 75 years and over was similar to those aged 55-74 years (Table 18 and Figure 32).

Table 18 Population aged 18 years & over, identified as receiving care for psychotic disorders 2011 by age group

Age group (Yrs)	Total	% of those identified with psychotic disorder	Crude (age specific) prevalence	Number seen by mental health services	Crude prevalence of psychotic disorder seen by MH services
18-24	500	9.2%	0.9% (0.8% - 1.0%	430	0.8% (0.7% - 0.8%)
25-34	1,060	19.4%	1.5% (1.4% - 1.6%)	860	1.2% (1.2% – 1.3%)
35-44	1,220	22.4%	1.7% (1.6% - 1.8%)	870	1.2% (1.1% - 1.3%)
45-54	1,150	21.1%	1.7% (1.6% - 1.8%)	720	1.0% (1.0% - 1.1%)
55-64	660	12.0%	1.3% (1.2% - 1.4%)	330	0.7% (0.6% - 0.7%)
65-74	430	7.8%	1.4% (1.2% - 1.5%)	190	0.6% (0.5% - 0.7%)
75 & over	430	7.9%	2.2% (2.0% - 2.4%)	140	0.7% (0.6% - 0.8%)
Total	**5,450**	**100%**	**1.5% (1.4% - 1.5%)**	**3,530**	**1.0% (0.9% - 1.0%)**

Figure 31 Age specific prevalence aged 18 years & over, identified as receiving care for psychotic disorder 2011

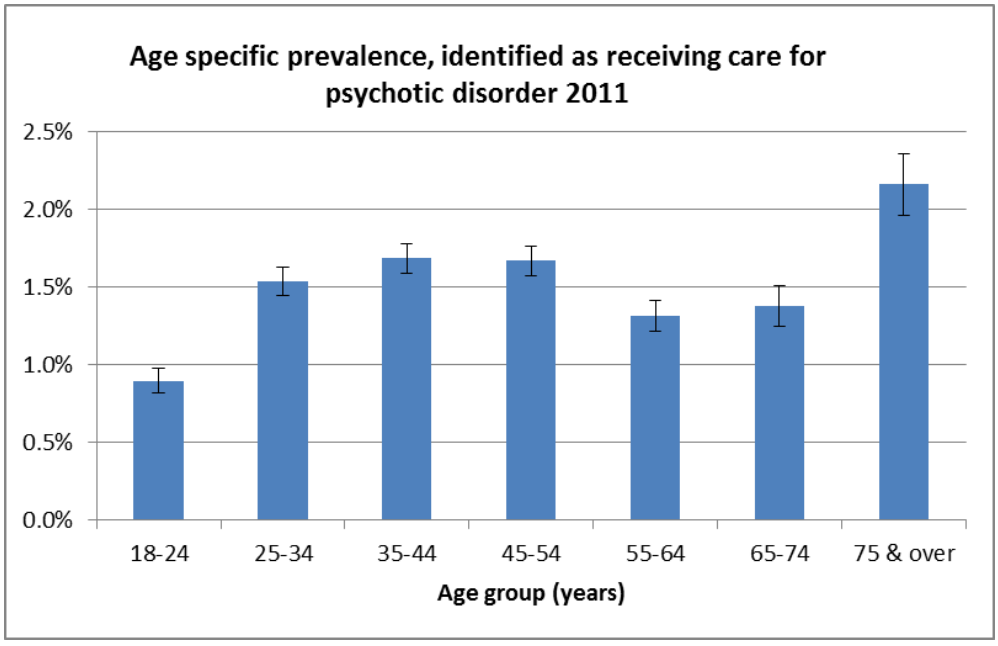
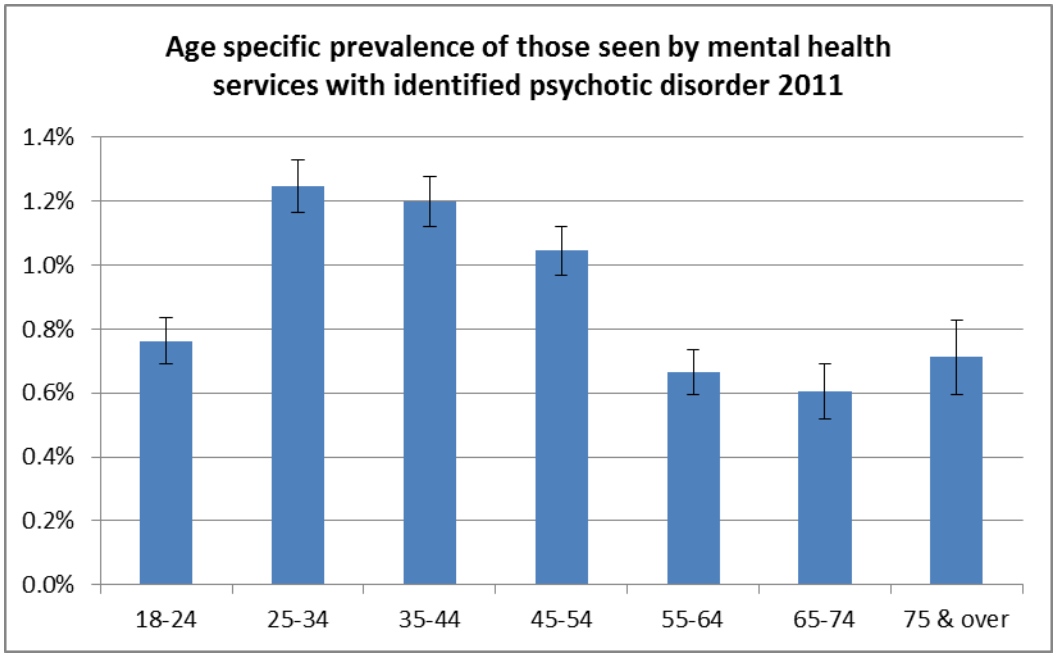


Figure 32 Age specific prevalence aged 18 years & over, identified as being seen by Mental Health Services and receiving care for psychotic disorder 2011



Socioeconomic Distribution

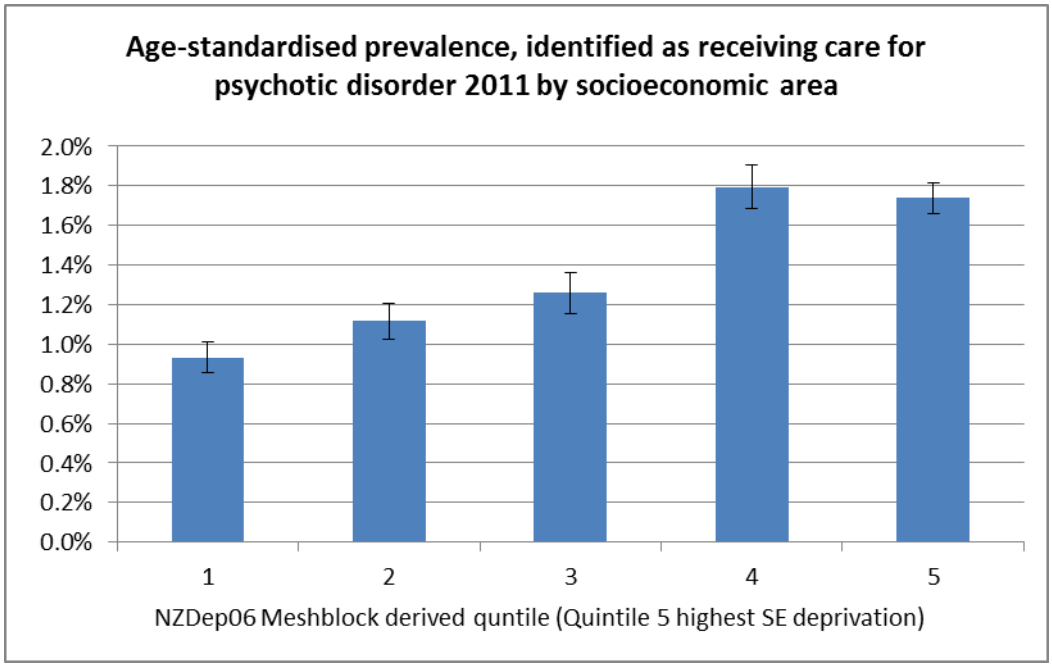
The prevalence of those identified as receiving care for psychotic disorder was significantly higher in those in the most socioeconomically deprived areas (Quintiles 4 and 5) (Table 19 and Figure 33).

Table 19 Population aged 18 years & over identified as receiving care for psychotic disorders 2011 by socioeconomic area

NZDep06, Meshblock derived quintile	Total	% of those identified with psychotic disorder	Crude prevalence	Age standardised prevalence (95% CI)
N/I*	710	13.1%	2.0%	1.9% (1.8% - 2.0%)
1	590	10.9%	0.9%	0.9% (0.85 – 1.0%)
2	620	11.3%	1.2%	1.1% (1% - 1.2%)
3	590	10.8%	1.3%	1.3% (1.2% - 1.4%)
4	1,020	18.8%	1.8%	1.8% (1.7% - 1.9%)
5	1,910	35.1%	1.7%	1.7% (1.7% - 1.8%)
Total	**5,450**	**100%**	**1.5%**	**1.5% (1.43% - 1.51%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 33 Age-standardised prevalence aged 18 years & over, identified as receiving care for psychotic disorder 2011 by socioeconomic area



Distribution across the CM Health district

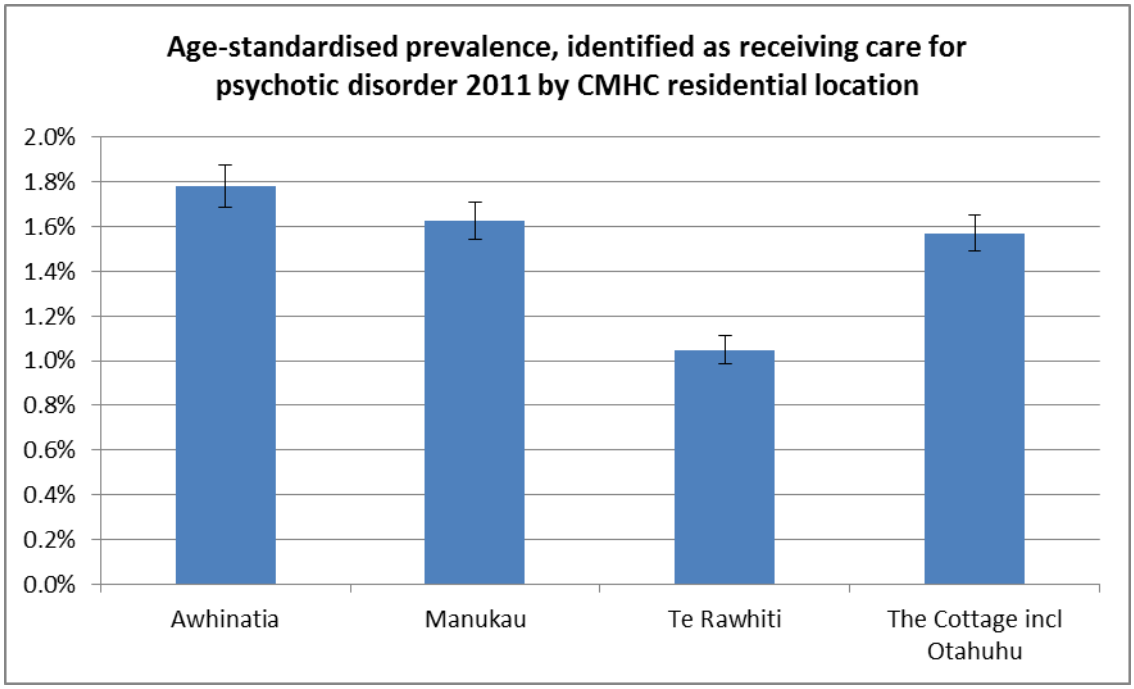
The prevalence of identification as receiving care for psychotic disorder was significantly lower for those living in Te Rawhiti.

Table 20 Population aged 18 years & over, identified as receiving care for psychotic disorders 2011 by residential location as defined by CMHC boundaries

Residential location	Total	% of those identified with psychotic disorder	Crude prevalence	Age standardised prevalence (95% CI)
Awhinatia	1,410	25.8%	1.8%	1.8% (1.7% - 1.9%)
Manukau	1,490	27.4%	1.6%	1.6% (1.5% - 1.7%)
Te Rawhiti	1,130	20.8%	1.1%	1.0% (1.0% - 1.1%)
The Cottage (incl Otahuhu)	1,410	25.8%	1.6%	1.6% (1.5% - 1.7%)
CMDHB NFD*	10	0.2%	0.3%	0.3% (0.1% - 0.5%)
Total	**5,450**	**100%**	**1.5%**	**1.5% (1.43% - 1.51%)**

**Not Further Defined – data absent or unable to be mapped to CAU*

Figure 34 Age-standardised prevalence aged 18 years & over, identified as receiving care for psychotic disorder 2011 by CMHC residential location



Enrolled locality for primary care

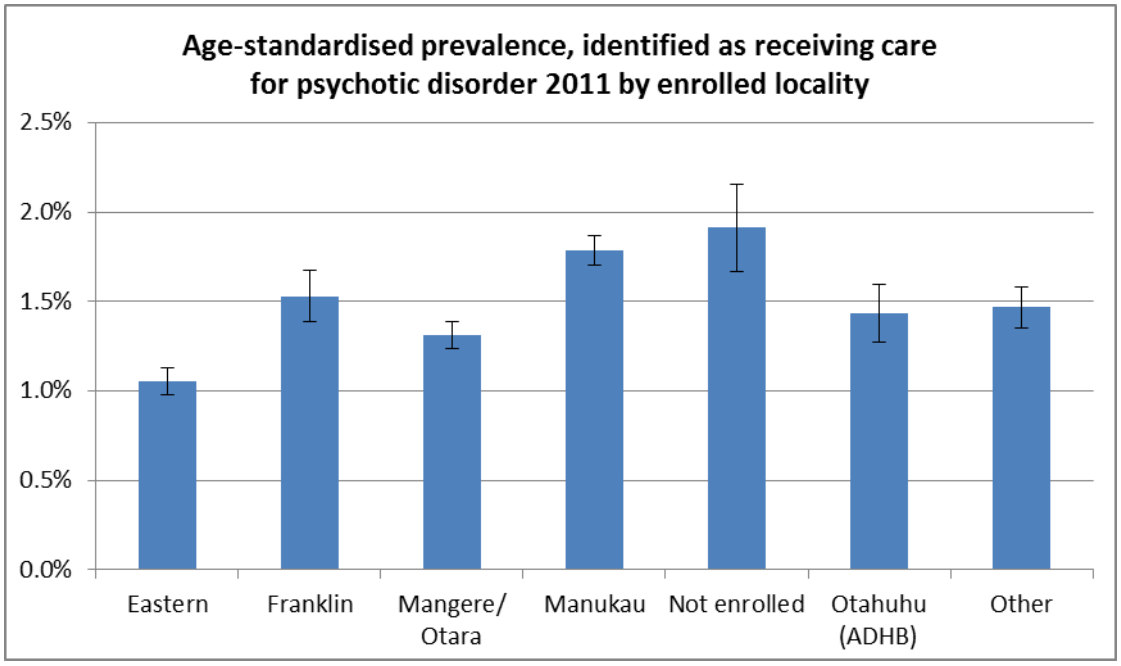
For the CM Health localities, the highest volume and prevalence of those identified as receiving care for psychotic disorder was in the Manukau enrolled locality. Of note 240 people, 4.5% of those identified as receiving care for psychotic disorders, were not enrolled with primary care and a further 620 (11.4%) were enrolled with practices beyond CMDHB at the end of 2011. This means efforts to improve enrolment and work with other DHBs will be important to influence their care (Table 21 and Figure 35).

Table 21 Population aged 18 years & over, identified as receiving care for psychotic disorders 2011 by enrolled locality

Enrolled locality	Total	% of those identified with psychotic disorder	Crude prevalence	Age-standardised prevalence (95% CI)
Eastern	790	14.5%	1.1%	1.1% (1.0% - 1.1%)
Franklin	500	9.2%	1.6%	1.5% (1.4% - 1.7%)
Mangere/Otara	1,080	19.9%	1.3%	1.3% (1.2% - 1.4%)
Manukau	1,900	34.9%	1.8%	1.8% (1.7% - 1.9%)
Not enrolled	240	4.5%	1.9%	1.9% (1.7% - 2.2%)
Otahuhu (ADHB)	310	5.7%	1.5%	1.4% (1.3% - 1.6%)
Other*	620	11.4%	1.5%	1.5% (1.4% - 1.6%)
Total	**5,450**	**100%**	**1.5%**	**1.5% (1.43% - 1.51%)**

**beyond CMDHB and Otahuhu*

Figure 35 Age-standardised prevalence aged 18 years & over, identified as receiving care for psychotic disorder 2011 by enrolled locality



Means of identification as part of the 2011 Psychotic Disorders Population

98% of the population identified as receiving care for a psychotic disorder in 2011 were receiving mental health medication of some sort in 2011, the majority antipsychotics but also antidepressants, methylphenidate and drugs for treatment of substance abuse.

65% of people had contact with mental health services in 2011 (Table 22 and Table 23, Figure 36 and Figure 37) and 98% of these people in contact with mental health services were also receiving mental health medications in 2011. This compares to 92% in the Australian study of people with psychotic disorders seen by public mental health services in 2010 (Morgan et al., 2011).

14.7% of those identified as receiving care for psychotic disorders (800 people) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital, in 2011. This proportion is higher than for other mental health populations examined, indicating a greater breadth of health system contact for people identified as receiving care for psychotic disorders.

Table 22 Means of identification as part of the population receiving care for psychotic disorders 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact		**1,910**	**1,910**
No NMDS MH diagnosis		**1,890**	**1,900**
NMDS MH diagnosis	**<10**	**20**	**20**
PRIMHD contact	**80**	**3,460**	**3,530**
No NMDS MH diagnosis	**50**	**2,650**	**2,700**
NMDS MH diagnosis	**30**	**800**	**830**
Total	**90**	**5,360**	**5,450**

Table 23 Means of identification as part of the population receiving care for psychotic disorders 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**0%**	**35.0%**	**35.1%**
No NMDS MH diagnosis		34.7%	34.8%
NMDS MH diagnosis		0.3%	0.3%
PRIMHD contact	**1.5%**	**63.4%**	**64.9%**
No NMDS MH diagnosis	0.9%	48.7%	49.6%
NMDS MH diagnosis	0.5%	14.7%	15.3%
Total	**1.6%**	**98.4%**	**100%**

Figure 36 Means of identification as part of the population receiving care for psychotic disorders 2011, number of people per category (circles not proportionate)

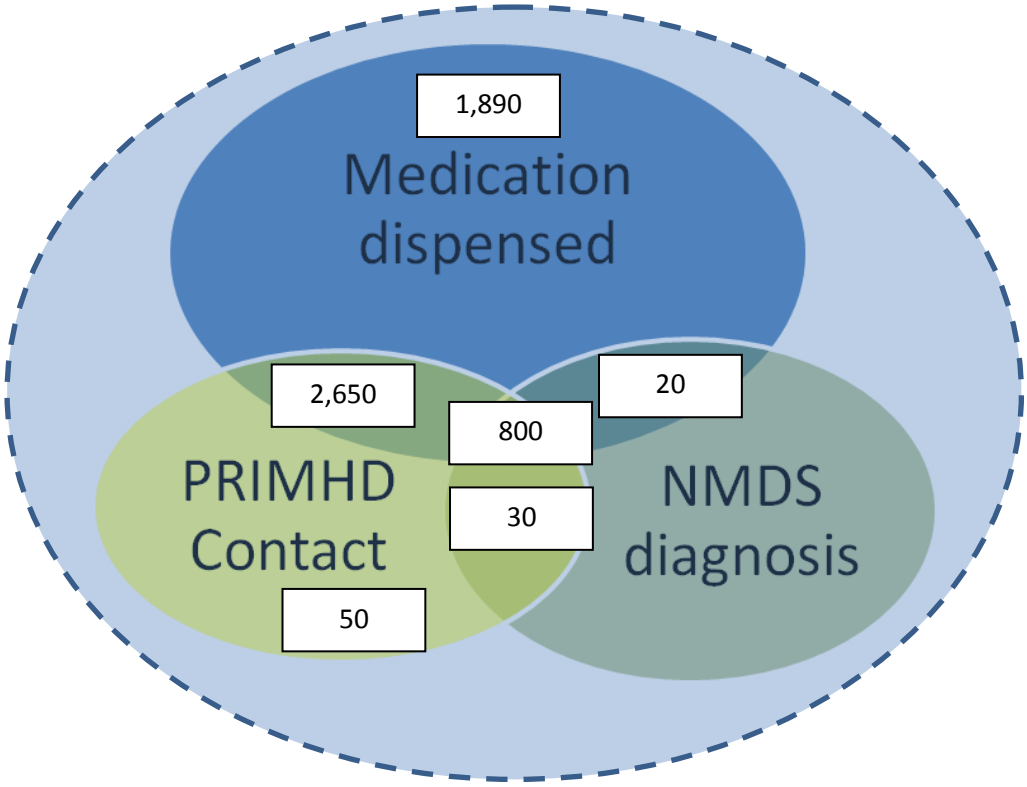
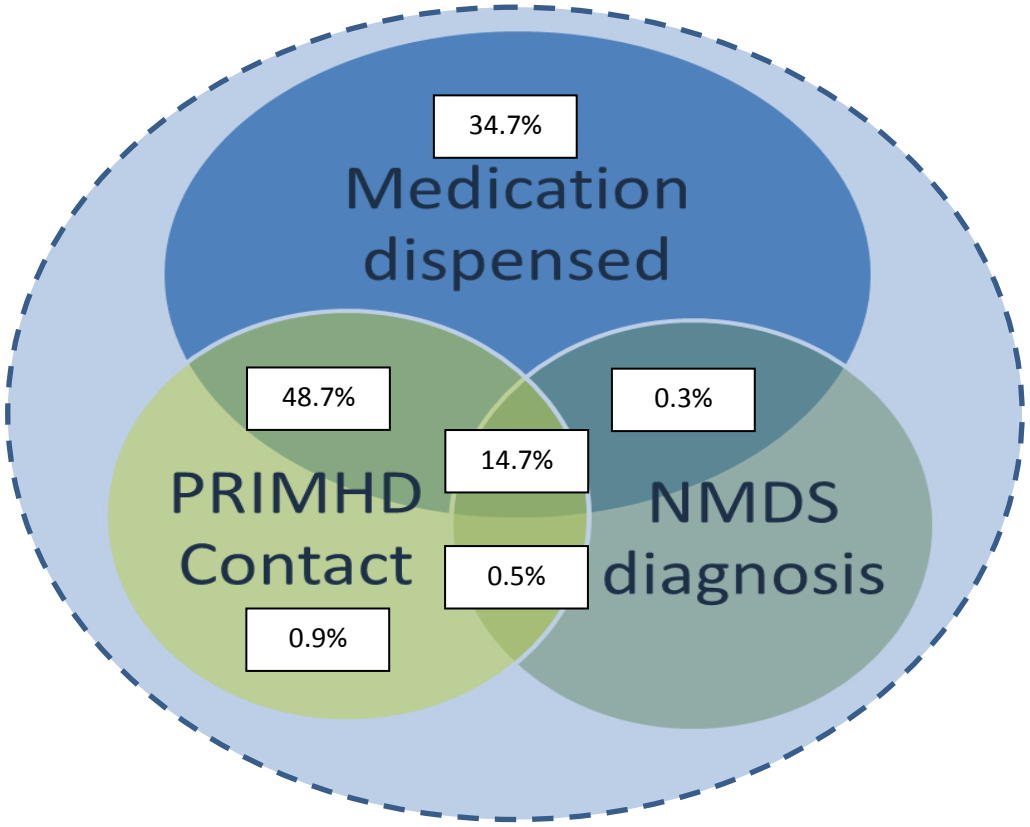


Figure 37 Means of identification as part of the population receiving care for psychotic disorders 2011, category by percentage (circles not proportionate)



Specific Diagnoses within the Psychotic Disorders 2011 Group

Even for those 3,530 people with contact recorded in PRIMHD, many did not have a recorded diagnosis. 55% of those recorded in PRIMHD in 2011 did not have a recent diagnosis in PRIMHD. Of those who did, the common diagnoses are described below (Table 24).

Table 24 Common psychotic disorder diagnoses for those aged 18 years & over identified as receiving care for psychotic disorders and seen by mental health services in 2011

Diagnosis	Number of people identified with this diagnosis in PRIMHD	Percentage of total number of people identified as receiving care for psychotic disorder and seen by mental health services 2011
29530 Schizophrenia Paranoid Type	900	25.5%
2989 Psychotic Disorder NOS	180	5.0%
29570 Schizoaffective Disorder	100	2.9%
29510 Schizophrenia Disorganised Type	100	2.9%
29590 Schizophrenia Undifferentiated	100	2.8%

Similar categories and quantums (percentages) are found if the last diagnoses in NMDS are examined for the group receiving secondary mental health service care as indicated by a record in PRIMHD.

Of note, those dispensed Clozapine at some point since 2006 were much more likely to have a diagnosis recorded in PRIMHD (only 17% with no diagnosis; 55% had a diagnosis of paranoid schizophrenia). 48% of those dispensed Olanzapine and 38% of those dispensed Risperidone had a diagnosis recorded, again most commonly paranoid schizophrenia. This is in contrast to those dispensed Quetiapine where only 14% had a PRIMHD diagnosis.

'Progression' in the development of diagnosis can be seen by examining diagnoses over time. For example if historical records are examined for those with a recent diagnosis of paranoid schizophrenia in PRIMHD, a progression from no diagnoses, then less definitive diagnoses can be seen before the 'label' of paranoid schizophrenia is given (Table 25).

Table 25 Psychotic disorder diagnoses over time for those aged 18 years & over identified with Paranoid schizophrenia, receiving care for psychotic disorders and seen by mental health services 2011

Most recent PRIMHD Diagnosis		2nd to last PRIMHD Diagnosis	3rd to last PRIMHD Diagnosis	4th to last PRIMHD Diagnosis	5th to last PRIMHD Diagnosis	6th to last PRIMHD Diagnosis
900 people identified with Paranoid schizophrenia	**Same diagnosis**	300	150	90	60	30
	No diagnosis	510	690	760	815	840

As might be expected 'patterns of care' are more closely linked to secondary services for those dispensed more specific / specialist only medications. For example 97% of those dispensed clozapine at some point since 2006 had mental health service contact in 2011, whereas of those dispensed haloperidol only 43% had mental health service contact in 2011 and only 57% since PRIMHD records began in July 2008. Other medications had an intermediate pattern, for example olanzapine where 78% had service contact in 2011 and 93% at some point since July 2008 and quetiapine where 51% had contact in 2011 and 71% at some point since July 2008.

Medications used for treatment in those with psychotic disorders

The most common medications used in those with psychotic disorders were quetiapine, risperidone, citoprolam, olanzapine, paroxetine, fluoxetine, clozapine and venlafaxine. Many of those dispensed paroxetine, fluoxetine and/or citoprolam had also been dispensed quetiapine or risperidone. Of the total group identified as receiving care for psychotic disorders (those receiving that care in 2011 and those receiving care in previous years as identified by this study), 57.7% received medications classed as antidepressants at some point. For those identified as receiving care for psychotic disorders in 2011, 42.2% were receiving antidepressants in 2011.

Those identified as receiving care for psychotic disorder 'managed in general practice'

35% of those identified with psychotic disorders were identified only by medications dispensed – i.e. not seen by Mental Health services, or receiving a diagnosis of psychotic disorder in any admission to a public hospital in New Zealand; it is assumed these people were 'managed in general practice'. This proportion was considerably lower for those who were Maaori or Pacific (20% and 23% respectively) than those of other ethnicities (38-46%) (Table 26 and Figure 38). There may be range of reasons for these patterns which would require further investigation.

Table 26 Population aged 18 years & over, identified as receiving care for psychotic disorders 2011 'managed in general practice' by ethnicity

Ethnicity	Total	% of total who were 'managed in general practice'	% of those identified as receiving care for psychotic disorder
Maaori	270	14.2%	19.8%
Pacific	200	10.6%	22.7%
Indian	100	5.2%	45.8%
Chinese	60	3.3%	41.2%
Other Asian	60	3.3%	38.4%
European/ Other	1,200	63.3%	44.7%
Total	**1,890**	**100%**	**34.7%**

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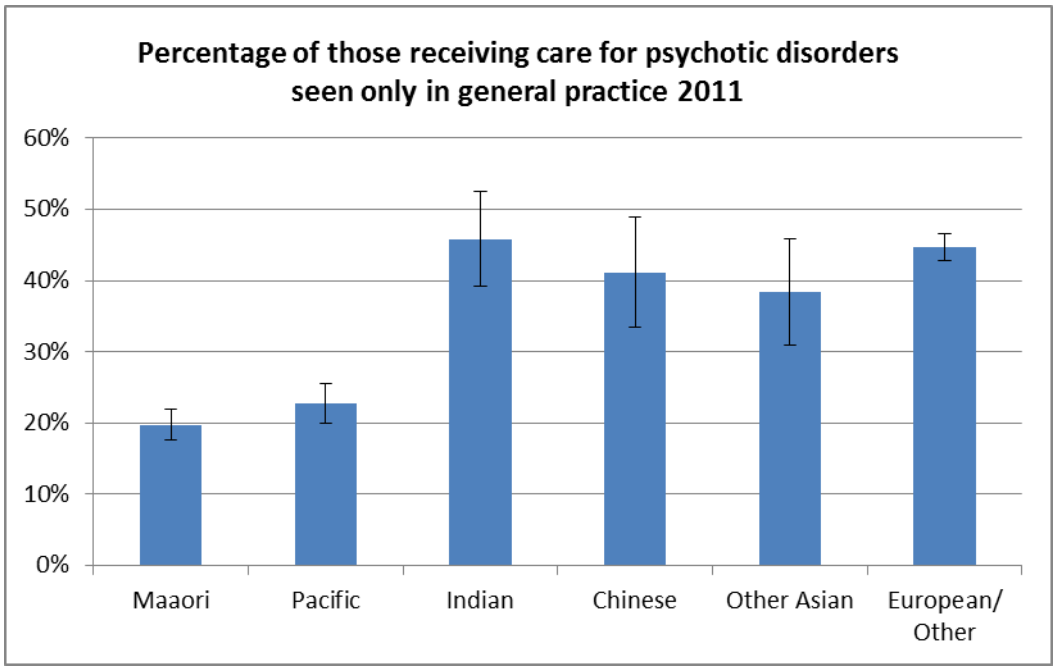
Figure 38 Percentage of those 18 years & over identified as receiving care for psychotic disorders 2011 seen only in general practice



2011 Mental Health Service Contact Population

Of the 35,180 adults aged 18 years and over who were identified as receiving care for a mental health disorder in 2011, 35% (just under 12,400 people) were in in contact with mental health services in 2011 as documented in the PRIMHD database (Table 28). This population are described in more detail below.

Ethnicity

Maaori adults had a much higher prevalence of contact with mental health services in 2011 than adults of other ethnicities. Overall the crude prevalence of contact with mental health services for a mental health disorder was 3.4%, but this varied by ethnicity at 7.2% for Maaori, 3.0% for Pacific, 3.1% for European/Other groups and less than 2% for those of Asian ethnicities. The age standardised prevalence of mental health service contact for Maaori (6.9%) was twice or more than that of other ethnic groups. The age-standardised prevalence for those of European/Other ethnicities was also significantly higher than those of Pacific and Asian ethnicities (Table 27, Figure 39, Figure 40).

This pattern is consistent with that observed in national data from PRIMHD for 2009/10 released by the Ministry of Health in 2013 (Ministry of Health, 2013) although the Maaori prevalence of mental health service contact was even higher than other groups in this study. In the national data the Maaori rate was approximately 1.5 times the European/Other group, 1.7 times the Pacific rate, and more than 5 times the Asian rate. Of note in the national study the data for those aged 65 years and over was incomplete because mental health and addiction services for older people are funded as disability support services in the Southern and Central regions and have limited capture in PRIMHD; this would have a differential impact on ethnicity because of the ethnic mix of those 65 years and over.

Maaori adults represented 30% of those in contact with mental health service compared with 14% of the underlying constructed population. Those of Asian ethnicities underrepresented only 8.5% of the Mental Health Service Contact Population compared with 18.6% of the underlying constructed population.

Table 27 Mental health service contact population aged 18 years & over, 2011 snapshot by ethnicity and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
Ethnicity	Female	Male	Total	% of CMDHB 2011 MH service contact population	% of constructed population in this ethnic group	Crude preva-lence	Age standardised prevalence (95% CI)
Maaori	1,630	2,120	3,760	30.4%	14.2%	7.2%	6.9% (6.7% – 7.1%)
Pacific	850	1,650	2,500	20.2%	22.8%	3.0%	2.9% (2.8%– 3.0%)
Indian	250	250	510	4.1%	8.0%	1.7%	1.7% (1.6% – 1.9%)
Chinese	140	90	230	1.8%	5.9%	1.1%	1.1% (1.0% – 1.2%)
Other Asian	150	160	310	2.5%	4.8%	1.8%	1.8% (1.6% – 2.0%)
European/ Other	2,630	2,430	5,060	40.9%	44.4%	3.1%	3.4% (3.3% – 3.5%)
Total	**5,660**	**6,700**	**12,360**	**100%**	**100%**	**3.4%**	**3.5% (3.4% – 3.5%)**

Figure 39 Mental health service contact population aged 18 years & over, 2011 snapshot by ethnicity compared with the constructed population

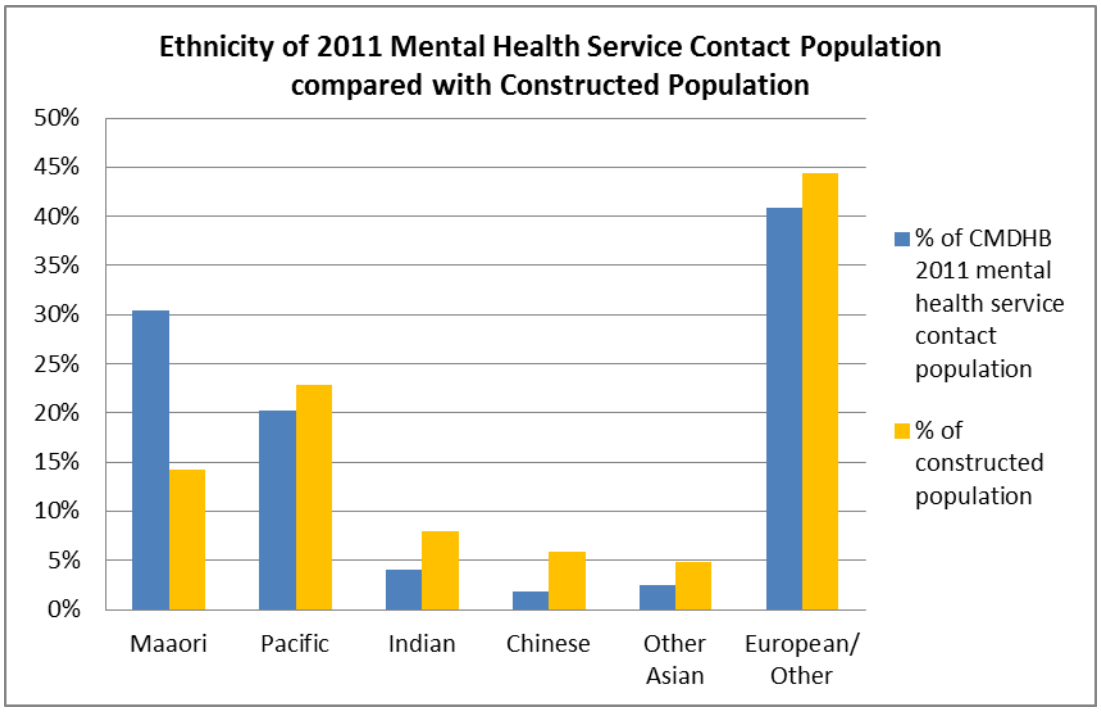
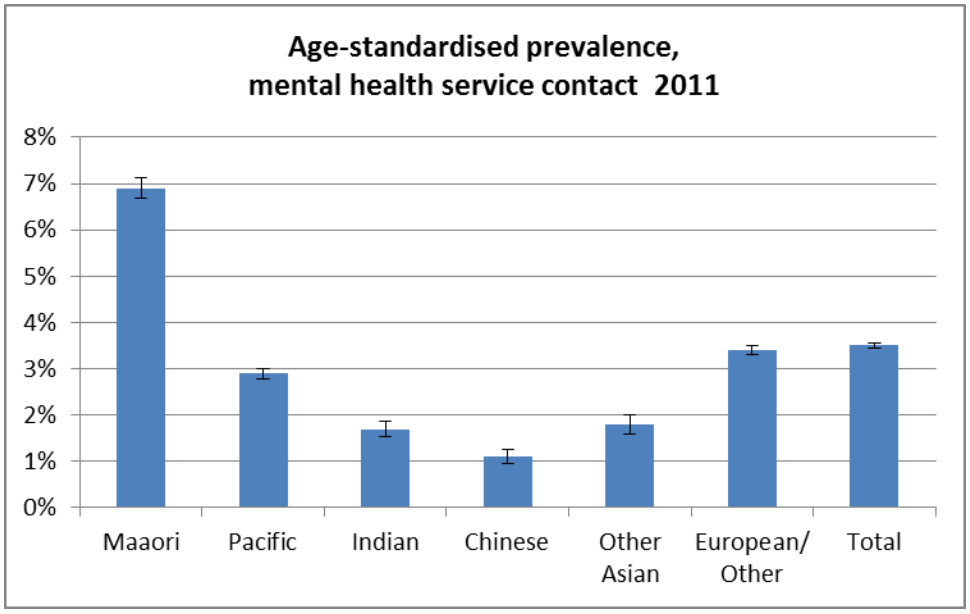


Figure 40 Age-standardised prevalence of mental health service contact aged 18 years & over, 2011 snapshot by ethnicity



Age distribution

The age specific prevalence of mental health service contact in 2011 was higher in the younger age groups compared with those aged 45 to 74 years. Approximately 4.5% of those aged 18-34 years had contact with mental health services in 2011, compared with less than 2% for those aged 55 – 74 years. 66% of the mental health service contact population were less than 45 years of age compared with 54% of the underlying constructed population. However also of note the age specific prevalence for those aged 75 and over was twice that of those aged 65 – 74 years (Table 28 and Figure 41 and Figure 42). .

This pattern of increase in those aged 75 years and over is consistent with national data from PRIMHD for 2009/10 released by the Ministry of Health in 2013, even though in that study the data for those aged 65 years and over was incomplete because mental health and addiction services for older people are funded as disability support services in the Southern and Central regions and have limited capture in PRIMHD (Ministry of Health, 2013) and so likely underestimated that rate in the older age groups.

Table 28 Mental health service contact population aged 18 years & over, 2011 snapshot, by age group and gender

Age group (Yrs)	Female	Male	Total	% of CMDHB 2011 MH service contact population	% of constructed population in this age group	Crude (age specific) prevalence
18-24	1,090	1,470	2,550	20.6%	15.3%	4.6% (4.4% – 4.7%)
25-34	1,270	1,730	3,000	24.3%	18.7%	4.4% (4.2% – 4.5%)
35-44	1,180	1,470	2,650	21.4%	19.7%	3.7% (3.5% – 3.8%)
45-54	910	1,110	2,030	16.4%	18.8%	2.9% (2.8% – 3.1%)
55-64	480	460	930	7.5%	13.6%	1.9% (1.8% – 2.0%)
65-74	310	230	530	4.3%	8.5%	1.7% (1.6% – 1.9%)
75 & over	430	240	670	5.4%	5.4%	3.4% (3.1%– 3.6%)
Total	**5,660**	**6,700**	**12,360**	**100%**	**100%**	**3.4% (3.3% – 3.4%)**

Figure 41 Mental health service contact population aged 18 years & over, 2011 snapshot, age group compared with constructed population

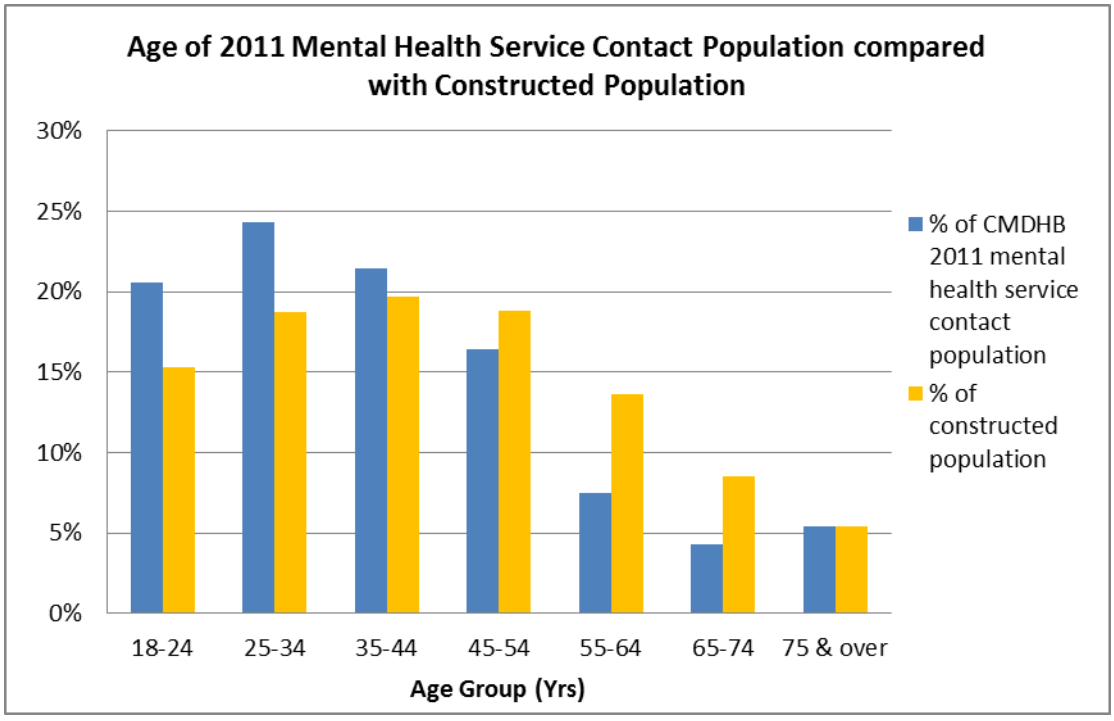
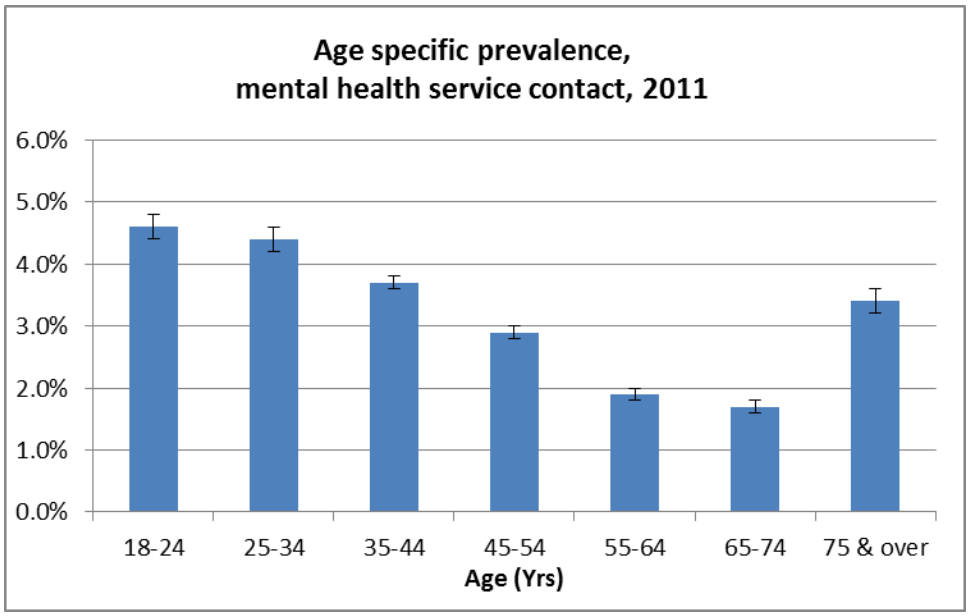


Figure 42 Age specific prevalence aged 18 years & over, mental health service contact 2011



Socioeconomic distribution

A greater proportion of those in contact with mental health services in 2011 lived in the more socioeconomically deprived areas (Quintiles 4 & 5) compared with the underlying population (55%% compared to 45%), and less in the more affluent areas (Quintiles 1 & 2, 20% compared to 32%). This resulted in the crude and age-standardised prevalence of mental health service contact for those living in the most socioeconomically deprived area (Quintile 5) being essentially twice that of those living in the most affluent area (Quintile 1) (Table 29, Figure 43 and Figure 44).

Table 29 Mental health service contact population aged 18 years & over, 2011 snapshot, by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB 2011 MH service contact population	% of constructed population	Crude preva-lence	Age standardised prevalence (95% CI)
N/I*	620	1,110	1,740	14.0%	9.9%	4.8%	4.8% (4.6% – 5.0%)
1	700	560	1,270	10.2%	17.8%	1.9%	2.2% (2.1% – 2.4%)
2	670	580	1,250	10.1%	14.5%	2.3%	2.5% (2.4% – 2.6%)
3	650	640	1,280	10.4%	12.5%	2.8%	3.0% (2.8% – 3.1%)
4	960	1,090	2,050	16.6%	15.1%	3.7%	3.7% (3.6% – 3.9%)
5	2,060	2,720	4,780	38.6%	30.2%	4.3%	4.3% (4.1% – 4.4%)
Total	**5,660**	**6,700**	**12,360**	**100%**	**100%**	**3.4%**	**3.5% (3.4% – 3.5%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 43 Mental health service contact population aged 18 years & over, 2011 snapshot, by socioeconomic area compared with the constructed population

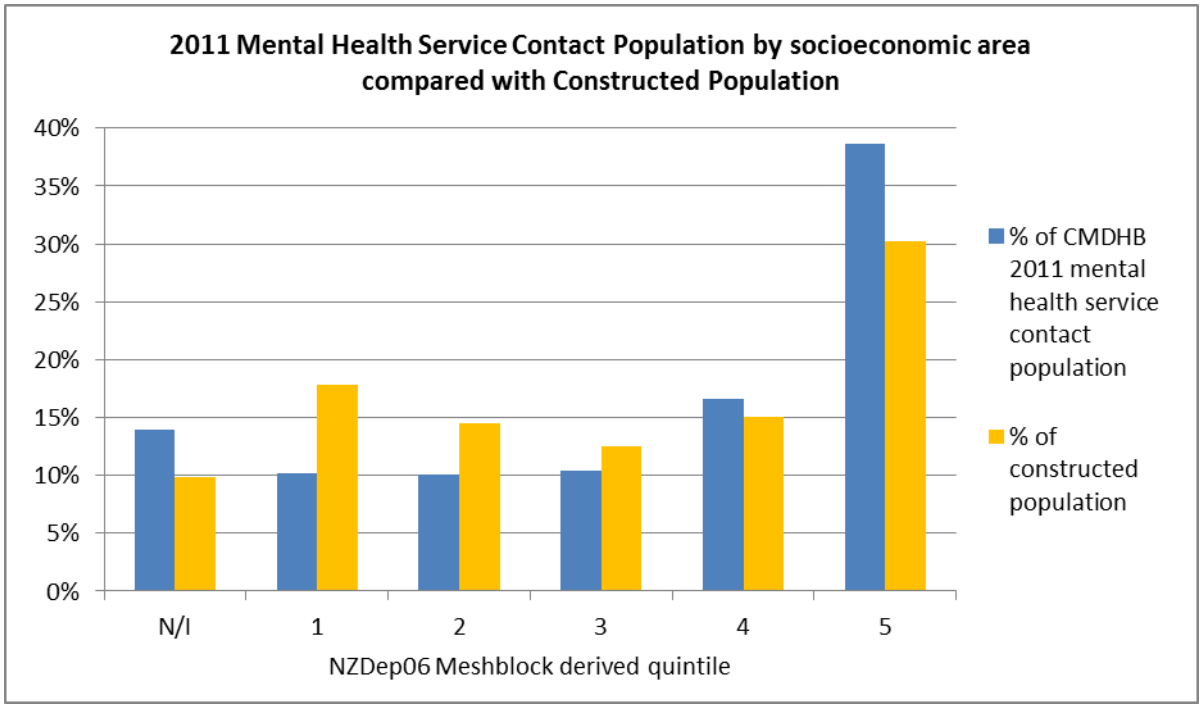
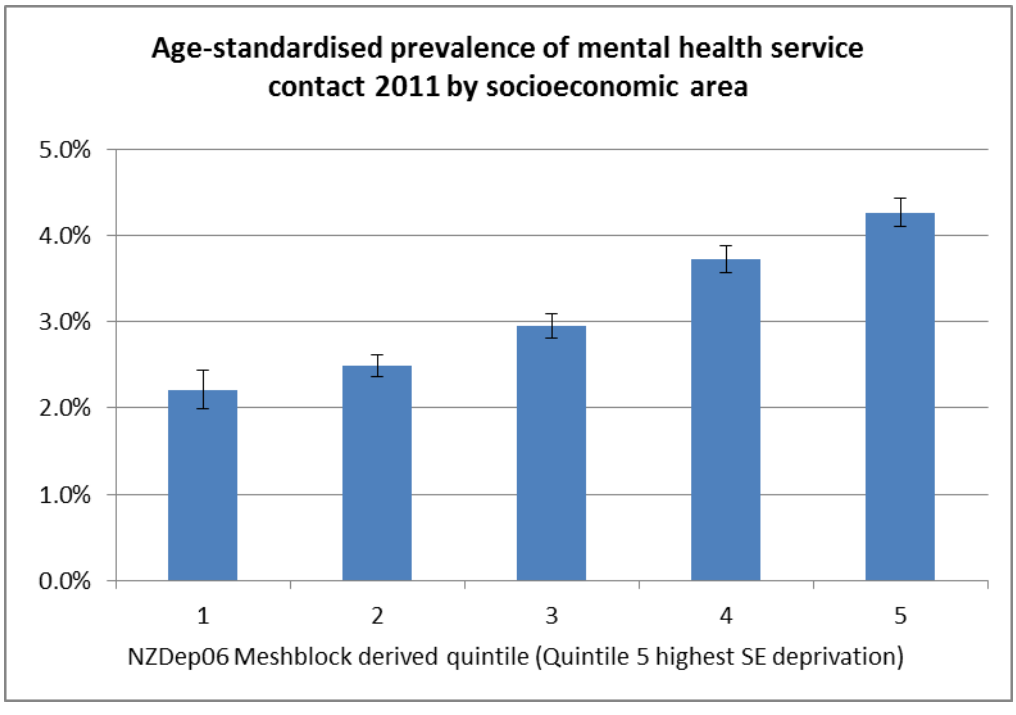


Figure 44 Age-standardised prevalence aged 18 years and older, mental health service contact 2011 by socioeconomic area



This contrasts with the population who were identified as receiving care for mental health disorder in 2011 by medications only where the prevalence in Quintile 1 (7.9%) was twice the prevalence in Quintile 5 (4.0%) (data not shown).

Distribution across the CM Health district

In contrast to the overall population identified as receiving care for a mental health disorder in 2011, those in contact with mental health services were just as likely to live in The Cottage catchment areas as Manukau and Awhinatia. They were less likely to living in Te Rawhiti, than the underlying constructed population; the age-standardised prevalence of mental health service contact for residents of Te Rawhiti was only 65-70% of that the other CMHC residential localities (Table 30, Figure 45 and Figure 46).

Table 30 Mental health service contact population aged 18 years & over, by residential location according to CMHC boundaries and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
Residential location	Female	Male	Total	% of 2011 CMDHB MH service contact population	% of constructed population in this residential locality	Crude preva-lence	Age-standardised prevalence (95% CI)
Awhinatia	1,290	1,390	2,680	21.7%	21.2%	3.4%	3.7% (3.6% – 3.8%)
Manukau	1,580	2,030	3,600	29.2%	24.8%	4.0%	4.0% (3.9% – 4.1%)
Te Rawhiti	1,400	1,130	2,530	20.5%	28.5%	2.4%	2.6% (2.5% – 2.7%)
The Cottage (including Otahuhu)	1,370	2,100	3,470	28.1%	24.5%	3.9%	3.8% (3.7% – 4.0%)
CMDHB NFD*	20	50	70	0.6%	1.0%	2.1%	2.0% (1.6% – 2.5%)
Total	**5,660**	**6,700**	**12,360**	**100%**	**100%**	**3.4%**	**3.5% (3.4 %– 3.5%)**

*Not Further Defined – data absent or unable to be mapped to CAU

Figure 45 Mental health service contact population) aged 18 years & over, 2011 snapshot, residential location according to CMHC boundaries compared with constructed population

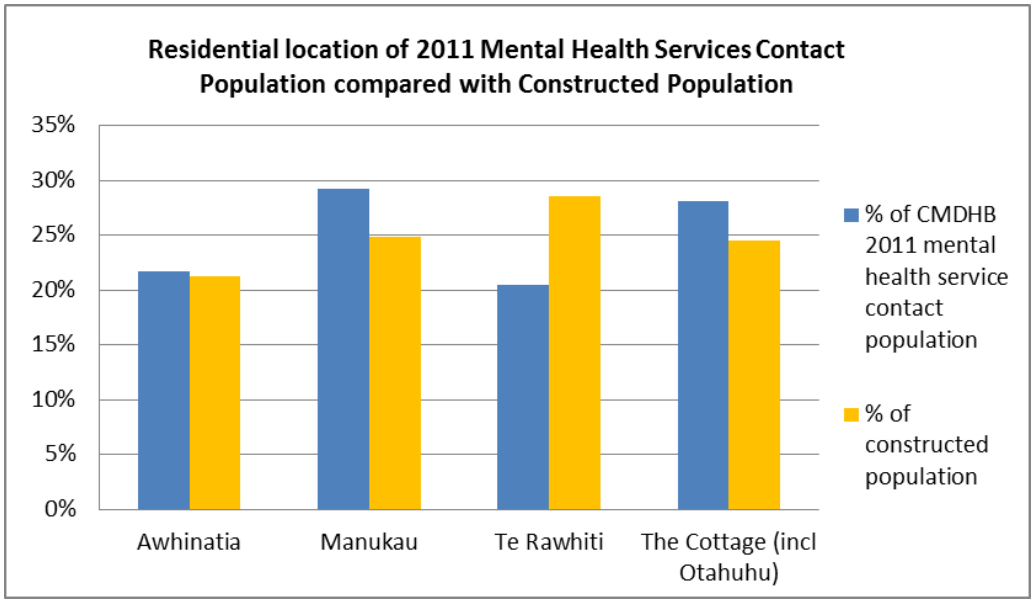
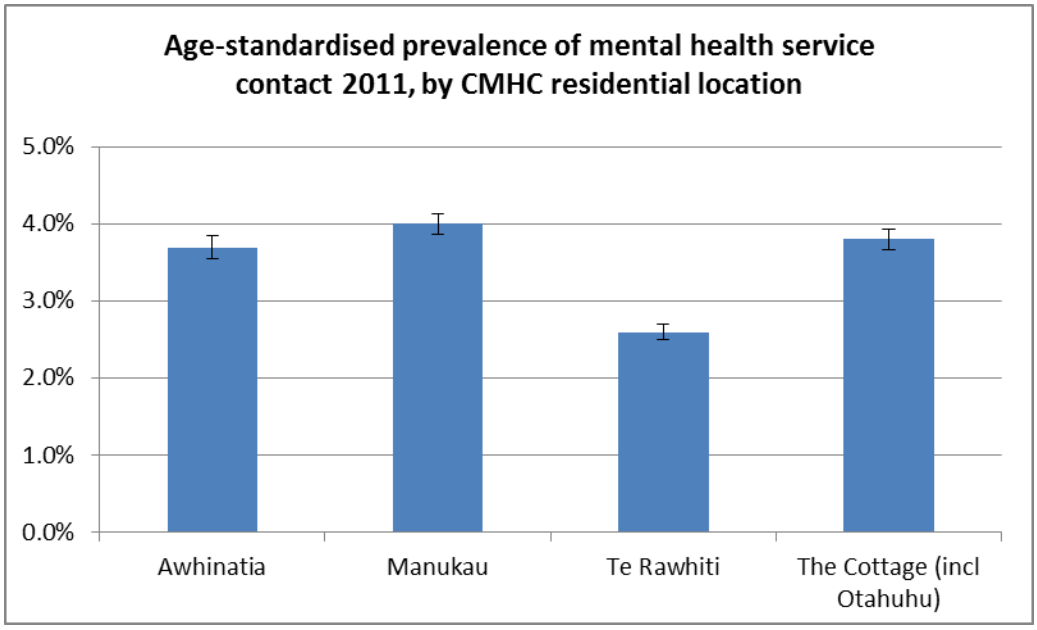


Figure 46 Age-standardised prevalence, aged 18 years and older, mental health service contact 2011 by CMHC residential location



Enrolled locality for primary care

The age-standardised prevalence of mental health service contact was significantly higher for those not enrolled than other groups. There were just over 800 people identified in contact with mental health services in 2011 (6.6%) who were not enrolled in a PHO as at the end of that year. Remedying this is an important opportunity to improve their access to primary care services. For those who were enrolled, people in contact with Mental Health services in 2011 were more likely to be enrolled in the Manukau locality than other localities (Table 31, Figure 47 and Figure 48).

In total there were 2,890 adults who had contact with mental health services in 2011 who were either enrolled with practices outside CMDHB or not enrolled (23.5%). This means nearly one in four of those aged 18 years and over in contact with mental health services in 2011 would be unlikely to have their care influenced through current localities approaches with CM Health practices indicating that work with other DHBs and efforts to improve enrolment will be important to improve their care.

Table 31 Mental health service contact population aged 18 years & over, 2011 snapshot, enrolled locality for primary care and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
Enrolled locality	Female	Male	Total	% of CMDHB 2011 MH service contact population	% of constructed population	Crude preva-lence	Age-standardised prevalence (95% CI)
Eastern	1,030	740	1,770	14.3%	19.5%	2.5%	2.7% (2.5 – 2.8)
Franklin	470	420	890	7.2%	8.6%	2.8%	3.2% (2.9 – 3.4)
Mangere/Otara	1,220	1,620	2,840	23.0%	22.6%	3.4%	3.4% (3.2 – 3.5)
Manukau	1,840	2,120	3,960	32.1%	28.6%	3.8%	3.9% (3.8 – 4.0)
Not enrolled	180	630	810	6.6%	3.5%	6.3%	5.9% (5.5 – 6.3)
Otahuhu (ADHB)	280	410	690	5.6%	5.8%	3.2%	3.3% (3.0 – 3.5)
Other*	630	760	1,390	11.3%	11.5%	3.3%	3.4% (3.3 – 3.6)
Total	**5,660**	**6,700**	**12,360**	**100%**	**100%**	**3.4%**	**3.5% (3.4 – 3.5)**

**beyond CMDHB and Otahuhu*

Figure 47 Mental health service contact population aged 18 years & over, 2011 snapshot, enrolled locality for primary care compared with constructed population

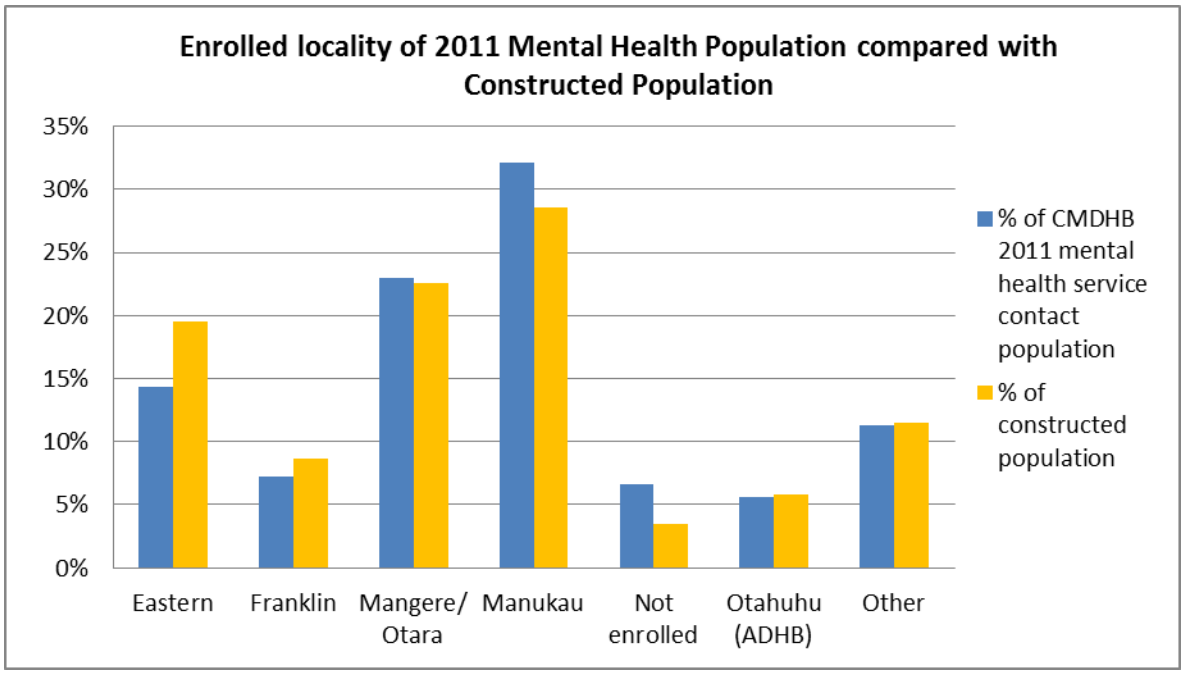
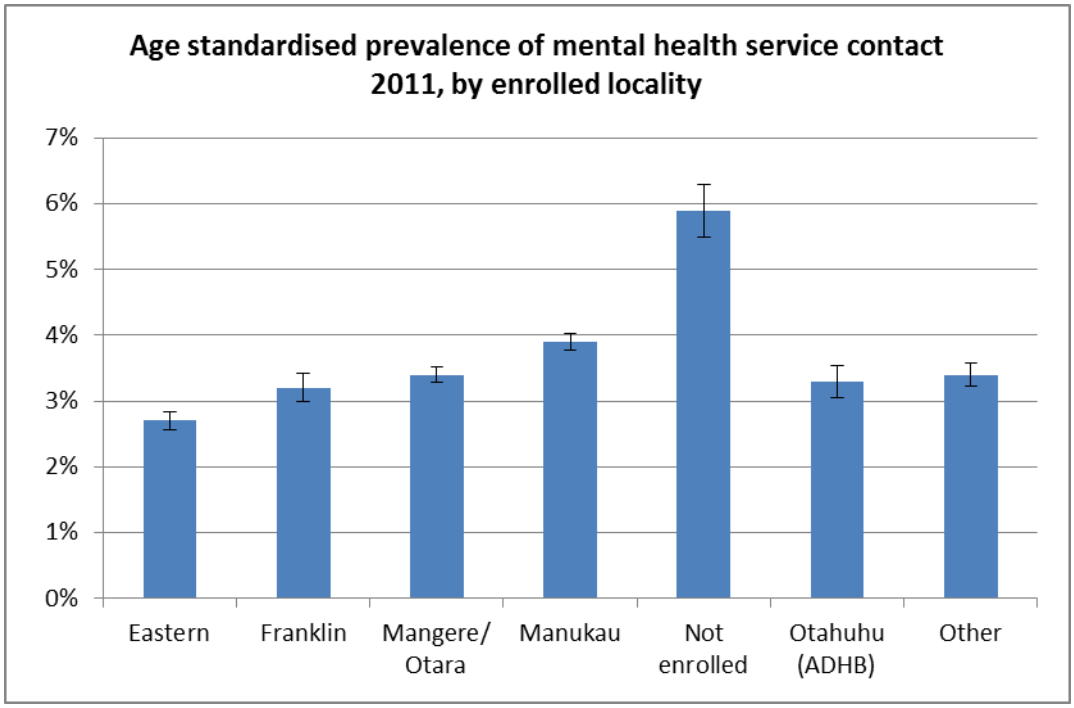


Figure 48 Age-standardised prevalence aged 18 years & over, mental health service contact 2011 by enrolled locality



Appearance in related data sets in 2011 – mental health medications and NMDS mental health diagnoses

48% of those aged 18 years and over seen by mental health services in 2011 were not receiving any mental health medications in the categories described. This is higher than for the other Northern Region DHBs[11], which ranged from 41.4% to 43.5%. This may be because of different prescribing patterns or it may be that people are not filling their prescriptions for a variety of reasons. 13% were discharged from a public hospital in 2011 and had a mental health diagnosis in the categories described coded for that hospitalisation (primary or secondary diagnosis) (Table 32 and Table 33, Figure 49 and Figure 50).

Table 32 Appearance in related data sets in 2011, mental health service contact population aged 18 years & over 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No NMDS MH diagnosis	5,650	5,120	10,770
NMDS MH diagnosis	330	1,260	1,590
Total	**5,980**	**6,380**	**12,360**

[11] People living in Otahuhu are included in Auckland DHB rather than the catchment for CM Health for these figures.

Table 33 Appearance in related data sets in 2011, mental health service contact population aged 18 years & over 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No NMDS MH diagnosis	45.7%	41.4%	87.2%
NMDS MH diagnosis	2.7%	10.2%	12.8%
Total	**48.4%**	**51.6%**	**100%**

Figure 49 Appearance in related data sets in 2011, mental health service contact population aged 18 years & over 2011, number of people per category (circles not proportionate)

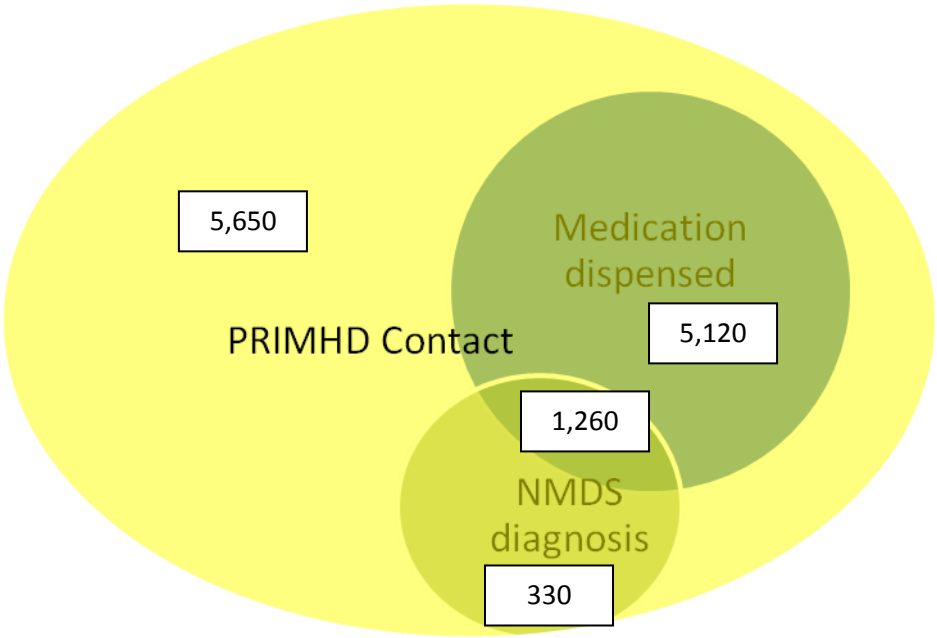
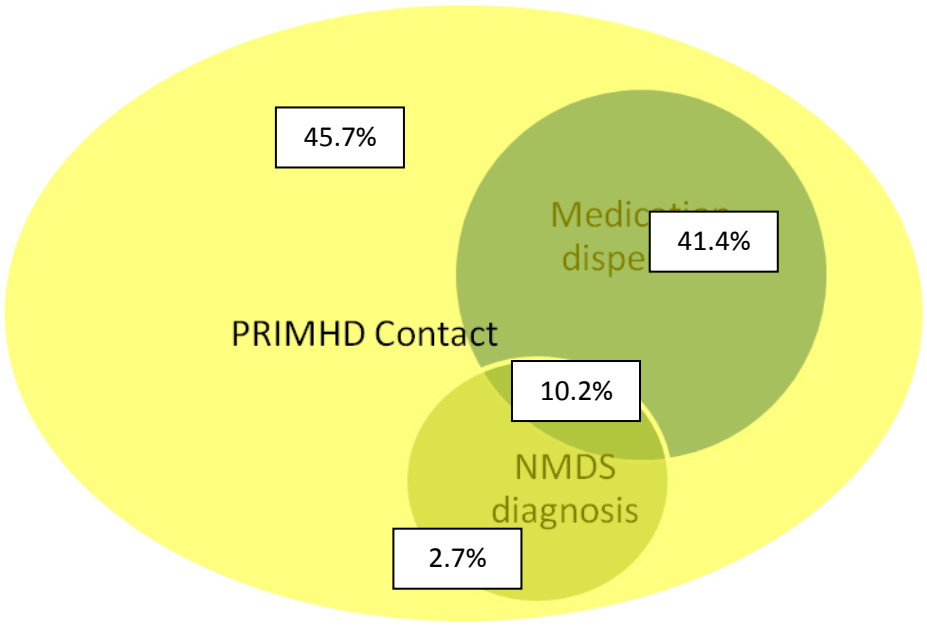


Figure 50 Appearance in related data sets in 2011, mental health service contact population aged 18 years &over 2011, category by percentage (circles not proportionate)



Diagnoses

Over a third (38%) of people aged 18 years and over seen by mental health services in 2011 didn't have a diagnosis identified within the categories described (by use of relevant medication or actual diagnosis in PRIMHD or NMDS). For those who did have a diagnosis identified, depression/anxiety and psychotic disorders were the most common diagnoses, being identified for 33% and 29% of the population respectively. As noted previously, people may be receiving a variety of medications that span a number of the diagnostic groups and there may be overstatement of the numbers in various groups, particularly the depression/anxiety disorders group, but this was considered preferable to excluding people from one or other group. Substance abuse was also relatively common at 11% (Table 34 and Figure 51).

Overall females constituted 46% of the population seen by mental health services in 2011 (i.e. the opposite gender pattern from the overall population receiving care for mental health disorders in 2011). This is reasonably consistent with Te Rau Hinengaro which found that males had lower rates of any mental health visits than females (including non-health sector visits), but higher rates of any healthcare sector visits, and mental health specialty visits were marginally higher for males than females, but the difference wasn't statistically significant. In the present analysis 92% of those with eating disorders and 60% or more of those with depression/anxiety, bipolar disorder, personality disorder and intentional self-harm. However 69% of those identified with substance abuse and 64% of those with disorders with onset in childhood and/or adolescence were male. Also 62% of those without an identified diagnosis within the categories describe were male.

As noted, 4,740 people aged 18 years and over seen by mental health services in 2011 didn't have an identified diagnosis within the categories described. This leaves 7,620 people with identified diagnoses in the categories described. Given there was a total of 10,770 diagnoses identified, this indicates there was likely a substantial proportion of people who have two or more diagnoses.

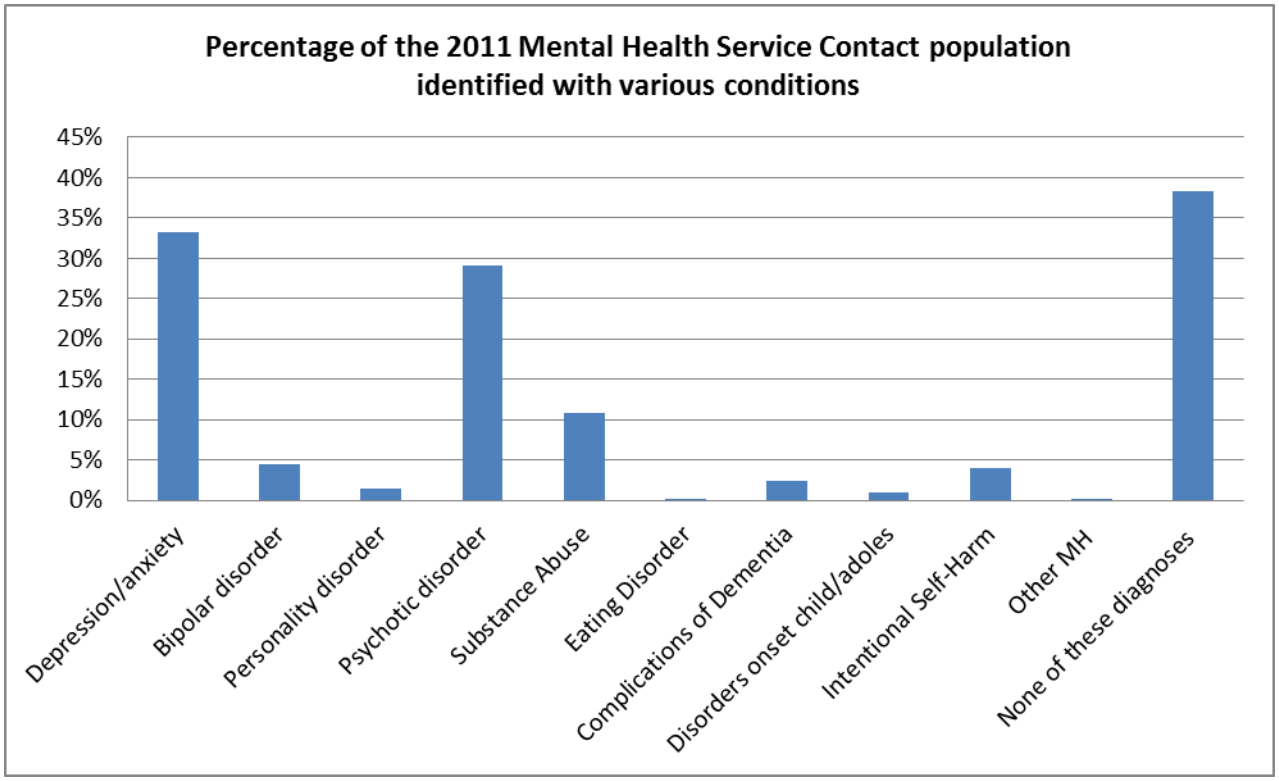
Table 34 Diagnostic categories for 2011 mental health service contact population aged 18 years and over, by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total	% % of the MH service contact population identified with this condition (not taking into account overlap)	% female
Depression/anxiety	2,500	1,620	4,110	33.3%	60.7%
Bipolar disorder	340	220	550	4.5%	61.1%
Personality disorders	120	60	180	1.4%	67.4%
Psychotic disorders	1,700	1,910	3,600	29.1%	47.1%
Substance Abuse	420	930	1,350	10.9%	31.4%
Eating Disorders	20	0	20	0.2%	91.7%
Behavioural complications of Dementia	180	130	310	2.5%	57.4%
Disorders onset child/adolescent	40	80	120	1.0%	35.8%

Intentional self-harm	320	180	500	4.1%	63.3%
Other MH	10	10	20	0.2%	50.0%
Total diagnoses in these categories	*5,640*	*5,120*	*10,770*		
People with No Diagnosis in these categories	1,800	2,940	4,740	38.3%	38.0%

Figure 51 Percentage of the 2011 mental health service contact population aged 18 years & over identified with various mental health conditions



Comorbid Long Term Conditions (LTC) in those receiving care for mental health disorders 2011

The interaction between long term conditions such as diabetes and mental health is complex and has been attracting increasing attention. 'Blueprint II: Making Change Happen' (the companion to Blueprint II: How things need to be) cites research suggesting at least 30% of people with long-term physical health conditions also have mental health issues such as depression, anxiety and/or substance abuse (Cimpean & Drake 2011 cited in (Mental Health Commission, 2012b). Mental health problems can complicate people's physical health conditions greatly and impact on their ability to manage their own condition effectively, leading to poorer health outcomes and increased health system costs (Naylor et al., 2012). Living with a long term condition can give rise to many concerns which may result in reactive anxiety and depression. In addition medications used for mental health disorders may increase the risk of obesity and subsequently diabetes, and cardiovascular disease. It could also be argued that if someone is in contact with the health sector for their long term condition, they may be more likely to be diagnosed and receive treatment for their mental health condition and vice versa, and that would be reflected in a study such as this which is based on health system contact.

The comorbidity of long term conditions such as diabetes with mental health disorder can be looked at in two ways:

- of the people identified in the 2011 mental health population (aged 18 years and over), what percentage were identified as having diabetes (or other long term conditions)
- of the people identified with diabetes in 2011, what percentage were also identified as being part of the 2011 mental health population (i.e. having indicators of an active mental health disorder as defined by this study).

Both of these views are presented below.

The relationships can be further explored through logistic regression to assess whether the conditions are independently associated, and Thornley et al did undertake this for diabetes in their earlier study. They found that diabetes wasn't independently associated with identification with mental health disorder once ethnicity, age, gender and deprivation were taken into account; antipsychotic use was significantly associated with prevalence of diabetes.

While that understanding is important, the aim of the analysis below is inform planning by attempting to get some understanding the quantum of people affected so that the implications for integration of mental and physical health care can be considered. More detailed analysis may be considered for the range of conditions presented below in the future.

Diabetes

There were just under 4,000 people identified as both having diabetes and being part of the mental health population in 2011.

Diabetes in the mental health population

The crude prevalence of identified diabetes in the 2011 mental health population was 11.2%, ranging from 9.1% for those identified as European/Other ethnicities up to 23.6% for those identified as Indian (Table 35). This compares with a crude prevalence of 8.7% for the constructed population of the same age who were not identified as receiving care for a mental health disorder,

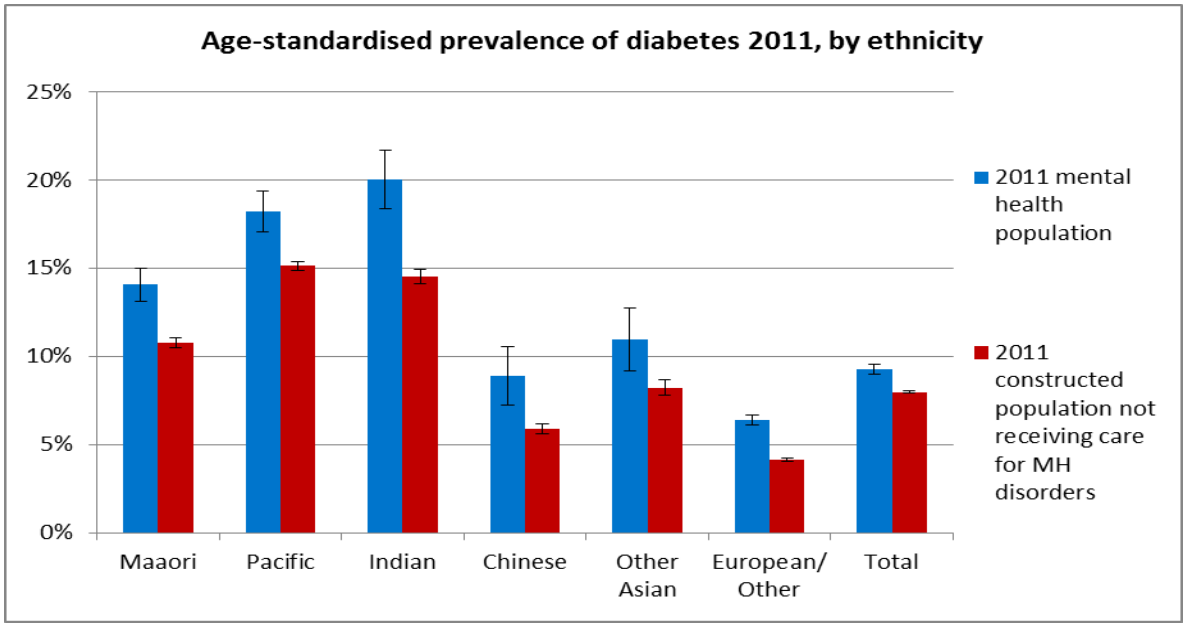
ranging from 5.8% for those identified as European/Other ethnicities up to 13.2% for those identified as Indian.

The age-standardised prevalence of identified diabetes for those identified as receiving care for a mental health disorder in 2011 (9.3%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (8.0%) at a population level (Table 35 and Figure 52). Differences remained significant for all ethnicities.

Table 35 Prevalence of diabetes in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of diabetes in 2011 MH population	Crude prevalence of diabetes in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of diabetes in 2011 MH population	Age-standardised prevalence of diabetes in 2011 constructed population who were not identified with MH disorders
Maaori	740	11.8%	8.6%	14.1% (13.1% - 15.0%)	10.8% (10.5% - 11.1%)
Pacific	640	15.8%	13.1%	18.2% (17.1% - 19.4%)	15.1% (14.9%- 15.4%)
Indian	400	23.6%	13.2%	20.0% (18.4% - 21.7%)	14.5% (14.1% - 14.9%)
Chinese	110	13.7%	6.9%	8.9% (7.3%- 10.6%)	5.9% (5.6%- 6.2%)
Other Asian	110	12.2%	7.3%	11.0% (9.2% - 12.8%)	8.2% (7.8% - 8.7%)
European/ Other	1,950	9.1%	5.8%	6.4% (6.1% - 6.7%)	4.1% (4.0% - 4.2%)
Total	**3,950**	**11.2%**	**8.7%**	**9.3% (9.0% - 9.6%)**	**8.0% (7.9%- 8.1%)**

Figure 52 Age-standardised prevalence of diabetes in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified care for mental health disorder, by ethnicity



Because some of the medications used for the treatment of depression and psychosis tend to result in significant weight gain, the prevalence of identified diabetes in people identified as receiving care for these conditions in 2011 was examined.

For those receiving care for depression and/or anxiety the age standardised prevalence of identified diabetes (8.9%) was significantly higher than the prevalence in the population without mental health disorder (8.0%) but not significantly different from the overall 2011 mental health population (9.3%). This will reflect the fact that the population with depression/anxiety represent such a large proportion of the mental health population and therefore drive the overall mental health population prevalence rate.

Table 36 Prevalence of diabetes in the mental health population receiving care for depression/anxiety aged 18 years & over, 2011 snapshot, compared with prevalence in the 2011 mental health population and the population without identified care for mental health disorder, by ethnicity

Ethnicity	Total	Crude prevalence of diabetes in those receiving care for depression/ anxiety in 2011	Age standardised prevalence of diabetes in those receiving care for depression/ anxiety in 2011	Age-standardised prevalence of diabetes in 2011 MH population	Age-standardised prevalence of diabetes in 2011 constructed pop who were not identified with MH disorders
Maaori	460	14.9%	14.0% (12.9% -15.2%)	14.1% (13.1% - 15.0%)	10.8% (10.5% - 11.1%)
Pacific	460	21.3%	19.6% (17.9% - 21.2%)	18.2% (17.1% - 19.4%)	15.1% (14.9% - 15.4%)
Indian	460	25.9%	21.1% (19.0% - 23.3%)	20.0% (18.4% - 21.7%)	14.5% (14.1% - 14.9%)
Chinese	460	12.5%	7.1% (5.6% – 8.7%)	8.9% (7.3% - 10.6%)	5.9% (5.6% - 6.2%)
Other Asian	460	12.7%	10.1% (8.2% – 12.0%)	11.0% (9.2% - 12.8%)	8.2% (7.8% - 8.7%)
European/ Other	460	9.3%	6.4% (6.1 – 6.7)	6.4% (6.1%- 6.7%)	4.1% (4.0% - 4.2%)
Total	460	11.8%	**8.9% (8.6% – 9.2%)**	**9.3% (9.0 5- 9.6%)**	**8.0% (7.9% - 8.1%)**

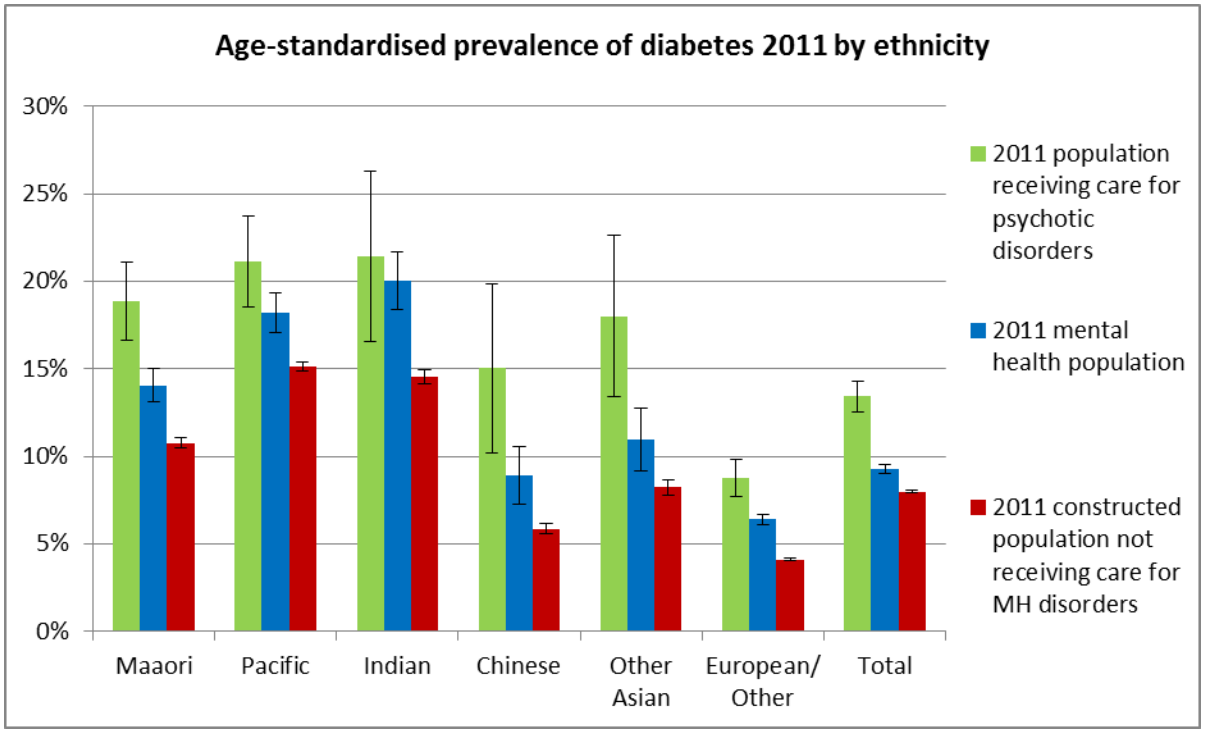
For those identified as receiving care for psychotic disorders, the age standardised prevalence of identified diabetes (13.4%) was significantly higher than the overall 2011 mental health population (9.3%) at a population level. Smaller numbers for Pacific and Asian ethnicities (giving wider confidence intervals) resulted in the differences not being significant for those ethnicities, but differences remained significant for Maaori and European/Other groups (Table 37 and Figure 53).

Some of the increased identification of diabetes in the population being treated for psychotic disorders may be definitional, relating to frequent screening with HbA1c blood tests because of the perceived risk of diabetes. This could falsely categorise people as being identified with diabetes because of the algorithm used to 'diagnose' diabetes in this study (if someone has four HbA1c tests in two years they would be categorised as having diabetes).

Table 37 Prevalence of diabetes in the mental health population receiving care for psychotic disorders aged 18 years & over, 2011 snapshot, compared with prevalence in the 2011 mental health population and the population without identified care for mental health disorder, by ethnicity

Ethnicity	Total	Crude prevalence of diabetes in those receiving care for psychotic disorders in 2011	Age standardised prevalence of diabetes in those receiving care for psychotic disorders in 2011	Age-standardised prevalence of diabetes in 2011 MH population	Age-standardised prevalence of diabetes in 2011 constructed pop who were not identified with MH disorders
Maaori	220	16.5%	18.9% (16.6% - 21.1%)	14.1% (13.1% - 15.0%)	10.8% (10.5% - 11.1%)
Pacific	170	19.6%	21.2% (18.6% – 23.7%)	18.2% (17.1% - 19.4%)	15.1% (14.9% - 15.4%)
Indian	50	25.2%	21.4% (16.6% – 26.3%)	20.0% (18.4%- 21.7%)	14.5% (14.1% - 14.9%)
Chinese	30	20.3%	15.0% (10.2% – 19.9%)	8.9% (7.3% - 10.6%)	5.9% (5.6% - 6.2%)
Other Asian	30	16.5%	18.0% (13.4% – 22.6%)	11.0% (9.2% - 12.8%)	8.2% (7.8% - 8.7%)
European/ Other	310	11.6%	8.8% (7.7% – 9.8%)	6.4% (6.1% - 6.7%)	4.1% (4.0% - 4.2%)
Total	**820**	**15.0%**	**13.4% (12.6% – 14.3%)**	**9.3% (9.0% - 9.6%)**	**8.0% (7.9% - 8.1%)**

Figure 53 Age-standardised prevalence of diabetes in population receiving care for psychotic disorders aged 18 years & over, 2011 snapshot, compared with prevalence in mental health population and population without identified care for mental health disorder, by ethnicity



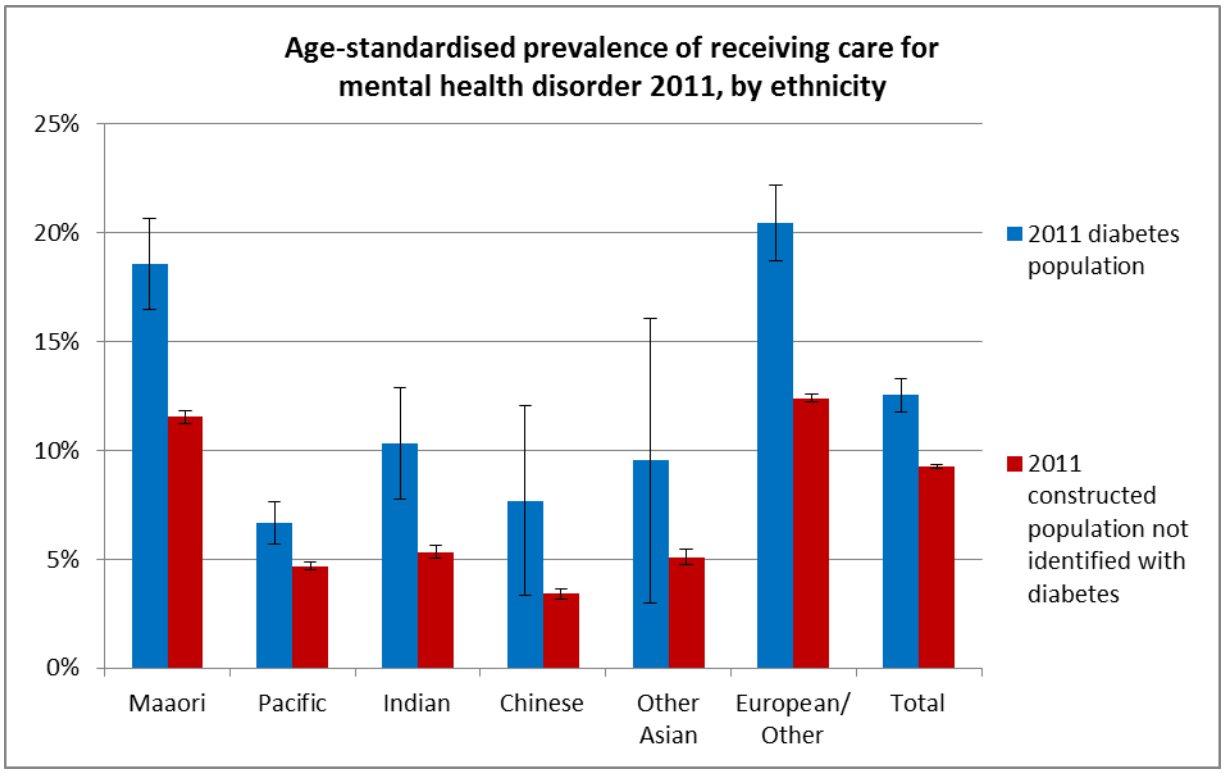
Mental health disorder in the population with diabetes

For those people identified as having diabetes, 12% of them were identified as receiving care for a mental health disorder in 2011 whereas the figure was 9.3% for those not identified as having diabetes (Crude prevalence, Table 39). The age-standardised rate of 12.5% of receiving care for a mental health disorder in 2011 in those with diabetes was significantly higher than the rate of 9.3% for those not identified as having diabetes at a population level. Smaller numbers for Chinese and Other Asian ethnicities (giving wider confidence intervals) resulted in the differences not being significant for those ethnicities, but differences remained significant for other ethnicities (Table 38 and Figure 54).

Table 38 Prevalence of receiving care for mental health disorder in the diabetes population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified diabetes, by ethnicity

Ethnicity	Total	Crude prevalence of receiving care for MH disorder in 2011 diabetes population	Crude prevalence of receiving care for MH disorder in 2011 constructed population without diabetes	Age-standardised prevalence of receiving care for MH disorder in 2011 diabetes population	Age-standardised prevalence of receiving care for MH disorder in 2011 constructed population without diabetes
Maaori	740	15.6%	11.5%	18.6% (16.5% – 20.7%)	11.5% (11.2% – 11.8%)
Pacific	640	5.8%	4.7%	6.7% (5.7% – 7.7%)	4.7% (4.5% – 4.8%)
Indian	400	9.7%	5.0%	10.3% (7.7% – 12.9%)	5.3% (5.0% – 5.6%)
Chinese	110	7.1%	3.5%	7.7% (3.3% – 12.1%)	3.4% (3.2% – 3.7%)
Other Asian	110	8.5%	5.0%	9.5% (3.0% – 16.1%)	5.1% (4.7% – 5.4%)
European/ Other	1,950	19.3%	12.8%	20.4% (18.7% – 22.2%)	12.4% (12.2% – 12.6%)
Total	**3,950**	**12.0%**	**9.3%**	**12.5% (11.8% – 13.3%)**	**9.3% (9.2% – 9.4%)**

Figure 54 Age-standardised prevalence of receiving care for mental health disorder in the diabetes population aged 18 years and older, 2011 snapshot, compared with prevalence in the population without identified diabetes, by ethnicity



Cardiovascular Disease (CVD)

There were just over 2,000 people identified as both having CVD and being part of the mental health population in 2011.

CVD in the mental health population

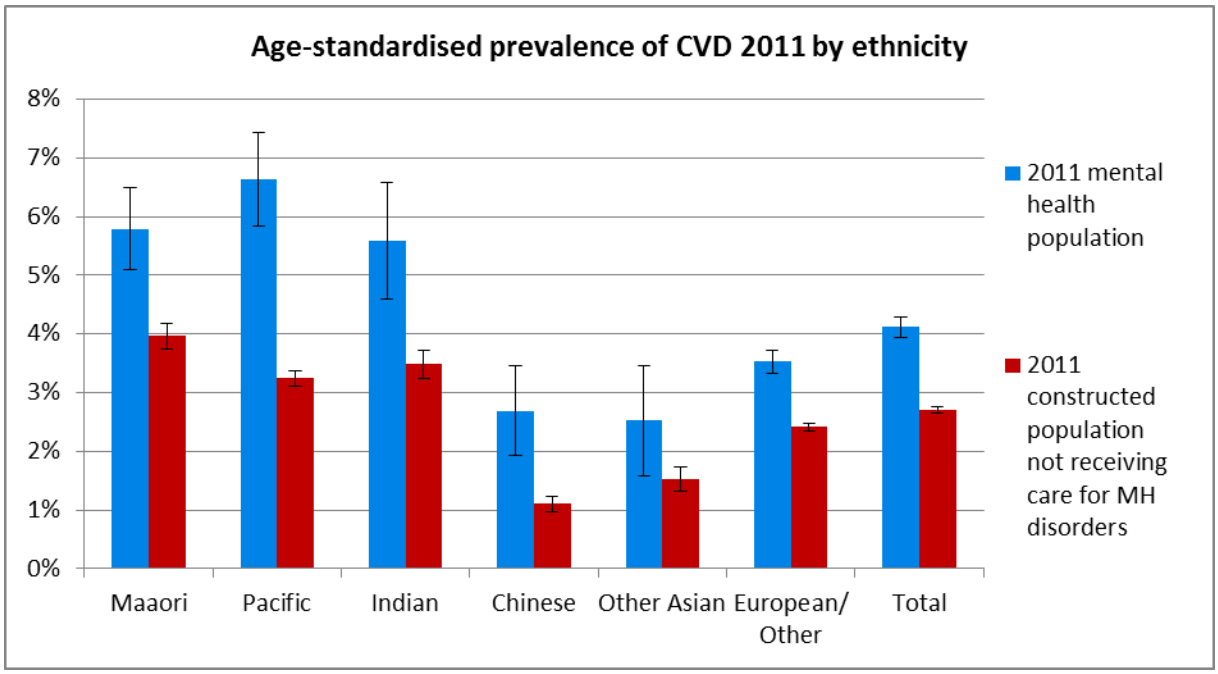
The crude prevalence of identified CVD in the 2011 mental health population was 5.8%, ranging from 2.8% for those identified as Other Asian ethnicities up to 6.5% for those identified as European/Other ethnicities. This compares with a crude prevalence of 3.0% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 1.2% for those identified as Chinese and Other Asian ethnicities up to 3.9% for those identified as European/Other ethnicities (Table 39)

The age standardised prevalence of identified CVD for those identified as receiving care for a mental health disorder in 2011 (4.1%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (2.7%) at a population level (Table 40 and Figure 55). Differences remained significant for the all of the ethnic groups except those of Other Asian ethnicities where numbers were small.

Table 39 Prevalence of CVD in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of CVD in 2011 MH population	Crude prevalence of CVD in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of CVD in 2011 MH population	Age-standardised prevalence of CVD in 2011 constructed population who were not identified with MH disorders
Maaori	250	4.0%	2.8%	5.8% (5.1% – 6.5%)	4.0% (3.7% -4.2%)
Pacific	220	5.4%	2.6%	6.6% (5.8%– 7.4%)	3.2% (3.1% – 3.4%)
Indian	110	6.4%	2.8%	5.6% (4.6% – 6.6%)	3.5% (3.2% – 3.7%)
Chinese	40	5.1%	1.2%	2.7% (1.9% – 3.5%)	1.1% (1.0% – 1.2%)
Other Asian	30	2.8%	1.2%	2.5% (1.6% – 3.5%)	1.5% (1.3% – 1.7%)
European/ Other	1,400	6.5%	3.9%	3.5% (3.3% – 3.7%)	2.4% (2.4% – 2.5%)
Total	**2,040**	**5.8%**	**3.0%**	**4.1% (3.9% – 4.3%)**	**2.7% (2.65% – 2.75%)**

Figure 55 Age-standardised prevalence of CVD in the mental health population aged 18 years and older, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity



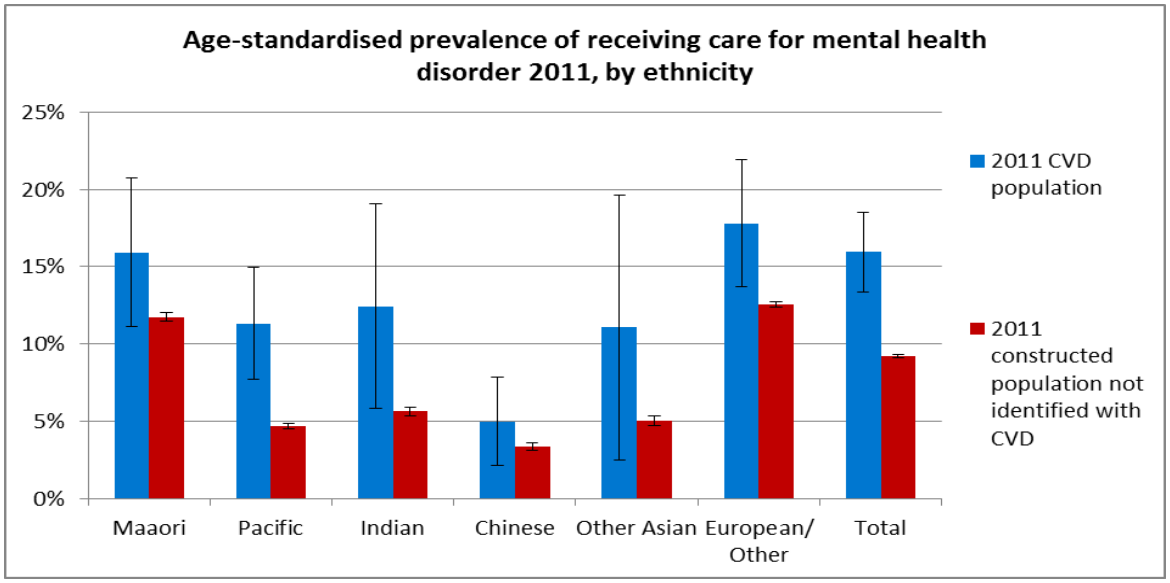
Mental health disorder in the population with CVD

For those people identified as having CVD, 16.8% of them were identified as receiving care for a mental health disorder in 2011 whereas the figure was 9.3% for those not identified as having CVD (Crude prevalence, Table 41). The age-standardised rate of 15.9% of receiving care for a mental health disorder in 2011 in those with CVD was significantly higher than the rate of 9.2% for those not identified as having CVD at a population level (Table 40 and Figure 56). Differences were significant for those of Pacific and European/Other ethnicities but not other ethnic groups.

Table 40 Prevalence of receiving care for mental health disorder in the CVD population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified CVD, by ethnicity

Ethnicity	Total	Crude prevalence of receiving care for MH disorder in 2011 CVD population	Crude prevalence of receiving care for MH disorder in 2011 constructed population without CVD	Age-standardised prevalence of receiving care for MH disorder in 2011 CVD population	Age-standardised prevalence of receiving care for MH disorder in 2011 constructed population without CVD
Maaori	250	16.5%	11.8%	15.9% (11.1% – 20.7%)	11.8% (11.5% – 12.1%)
Pacific	220	9.6%	4.7%	11.3% (7.7% – 14.9%)	4.7% (4.5% – 4.8%)
Indian	110	12.2%	5.5%	12.4% (5.8% – 19.1%)	5.6% (5.4% – 5.9%)
Chinese	40	13.8%	3.6%	5.0% (2.1% – 7.8%)	3.4% (3.1% – 3.6%)
Other Asian	30	11.8%	5.2%	11.1% (2.5% – 19.6%)	5.0% (4.7% – 5.4%)
European/ Other	1,400	20.1%	12.9%	17.8% (13.7% – 21.9%)	12.5% (12.4% – 12.7%)
Total	**2,040**	**16.8%**	**9.3%**	**15.9% (13.4% – 18.5%)**	**9.2% (9.1% – 9.3%)**

Figure 56 Age-standardised prevalence of receiving care for mental health disorder in the CVD population aged 18 years & over, 2011 compared with prevalence in the population without identified CVD, by ethnicity



Chronic Obstructive Pulmonary Disease (COPD)

There were just under 1,200 people identified as both having COPD and being part of the mental health population in 2011.

COPD in the mental health population

The crude prevalence of identified COPD in the 2011 mental health population was 3.4%, ranging from 0.7% for those identified as Chinese up to 3.9% for those identified as European/Other ethnicities. This compares with a crude prevalence of 1.4% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 0.4% for those identified as Chinese and Other Asian ethnicities up to 2.2% for those identified as Maaori (Table 41).

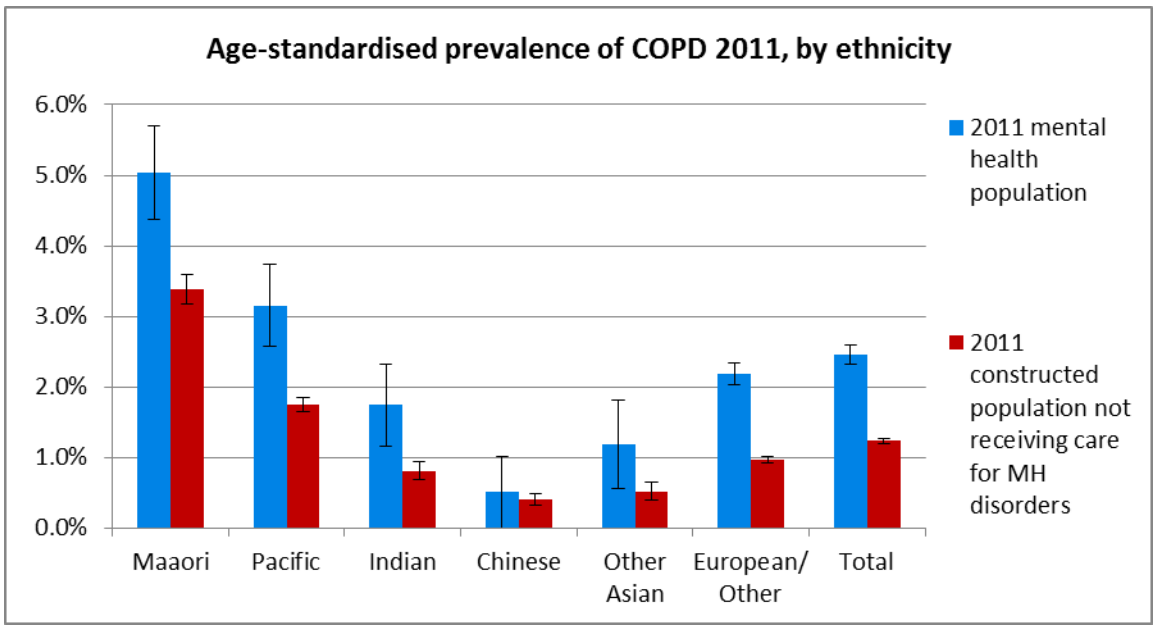
The age-standardised prevalence of identified COPD for those identified as receiving care for a mental health disorder in 2011 (2.4%) was twice the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (1.2%) at a population level (Table 41 and Figure 57). Differences remained significant for ethnic groups except those identified as Chinese and Other Asian ethnicities where numbers were small.

This picture is consistent with what is known about smoking rates in those with mental health conditions compared with the general population. At the 2006 Census just under 21% of New Zealand adults were smoking daily, 22% in Counties Manukau, with much higher prevalence in Maaori and higher in Pacific peoples (47% and 30% respectively in Counties Manukau). Health target data from CM Health inpatient mental health services suggests 40-60% of those admitted smoke. Pathways Trust have been very active in promoting smokefree in their NGO mental health services and they have data documenting client smoking rates of 90% in 2004, dropping to 62% in 2009 and 51% in 2012 (personal communication, Michelle Lee, CMDHB Smokefree service).

Table 41 Prevalence of COPD in the mental health population aged 18 years and older, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of COPD in 2011 MH population	Crude prevalence of COPD in 2011 constructed population who were not identified with MH disorders	Age- standardised prevalence of COPD in 2011 MH population	Age-standardised prevalence of COPD in 2011 constructed population who were not identified with MH disorders
Maaori	210	3.3%	2.2%	5.0% (4.4% – 5.7%)	3.4% (3.2 – 3.6)
Pacific	100	2.5%	1.3%	3.2% (2.6% – 3.7%)	1.7% (1.6 – 1.8)
Indian	30	2.0%	0.6%	1.7% (1.2% – 2.3%)	0.8% (0.7 – 0.9)
Chinese	10	0.7%	0.4%	0.51% (0-1.0%)	0.4% (0.3 – 0.5)
Other Asian	10	1.3%	0.4%	1.2% (0.6% – 1.8%)	0.5% (0.4 – 0.6)
European/ Other	830	3.9%	1.6%	2.2% (2.0 – 2.3)	0.97% (0.93 – 1.01)
Total	**1,190**	**3.4%**	**1.4%**	**2.4% (2.3% – 2.6%)**	**1.23% (1.20% – 1.27%)**

Figure 57 Age-standardised prevalence of COPD in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity



Mental health disorder in the population with COPD

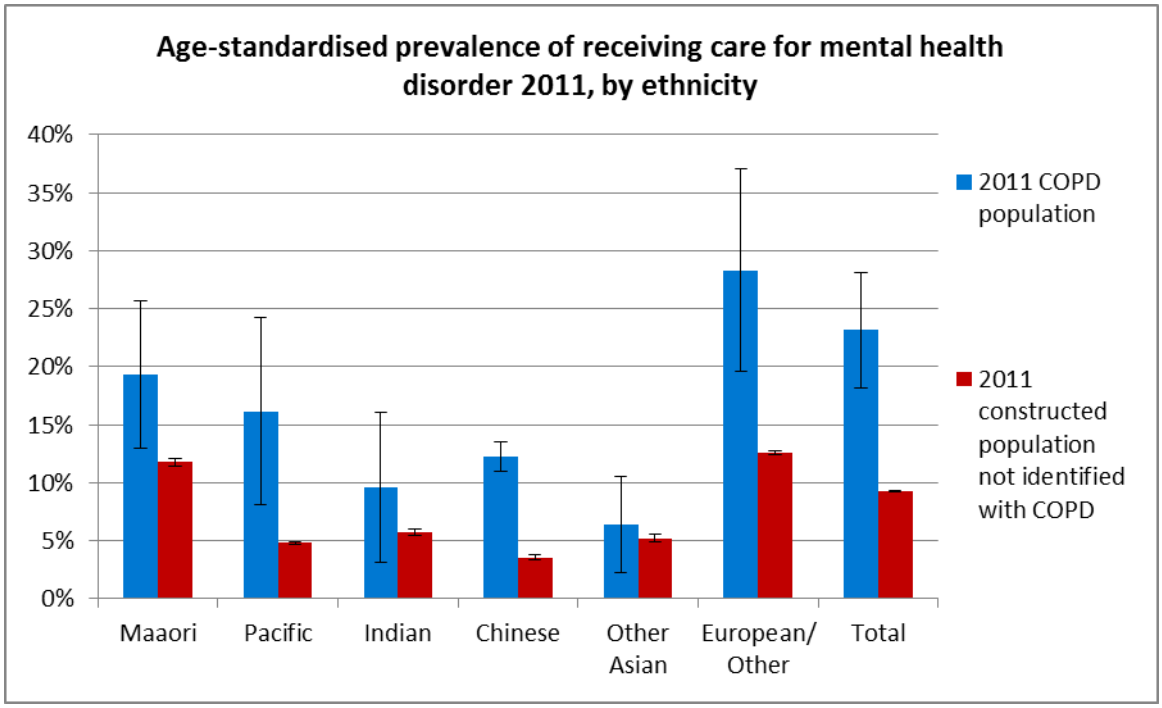
For those people identified as having COPD, 20.5% of them were identified as receiving care for a mental health disorder in 2011 whereas the figure was 9.4% for those not identified as having COPD (Crude prevalence, Table 42)

The age-standardised rate of 23.1% of receiving care for a mental health disorder in 2011 in those with COPD was 2.5 times the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (9.3%) at a population level (Table 42 and Figure 58). Differences remained for ethnic groups except for those identified as Indian and Other Asian ethnicities.

Table 42 Prevalence of receiving care for mental health disorder in the COPD population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified COPD, by ethnicity

Ethnicity	Total	Crude prevalence of receiving care for MH disorder in 2011 COPD population	Crude prevalence of receiving care for MH disorder in 2011 constructed population without COPD	Age-standardised prevalence of receiving care for MH disorder in 2011 COPD population	Age-standardised prevalence of receiving care for MH disorder in 2011 constructed population without COPD
Maaori	210	16.8%	11.8%	19.3% (12.9% – 25.7%)	11.8% (11.5% – 12.1%)
Pacific	100	9.2%	4.8%	16.2% (8.1%– 24.2%)	4.8% (4.7% – 5.0%)
Indian	30	16.8%	5.6%	9.6% (3.1%– 16.1%)	5.7% (5.5% – 6.0%)
Chinese	10	6.1%	3.7%	12.3% (11.0% – 13.5%)	3.6% (3.3%– 3.8%)
Other Asian	10	16.0%	5.2%	6.4% (2.2% – 10.5%)	5.2% (4.9% – 5.6%)
European/ Other	830	26.7%	13.0%	28.3% (19.6% – 37.0%)	12.5% (12.4% – 12.7%)
Total	**1,190**	**20.5%**	**9.4%**	**23.1% (18.2% – 28.1%)**	**9.3% (9.2% – 9.4%)**

Figure 58 Age-standardised prevalence of receiving care for mental health disorder in the COPD population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified COPD, by ethnicity



Congestive Heart Failure (CHF)

There were just under 800 people identified as both having CHF and being part of the mental health population in 2011. Of note the algorithm for identifying CHF is limited to detecting those who are admitted to hospital and receive a discharge code for CHF as many of the medications used are not specific for CHF and there are not specific laboratory tests that assist in identifying those with CHF.

CHF in the mental health population

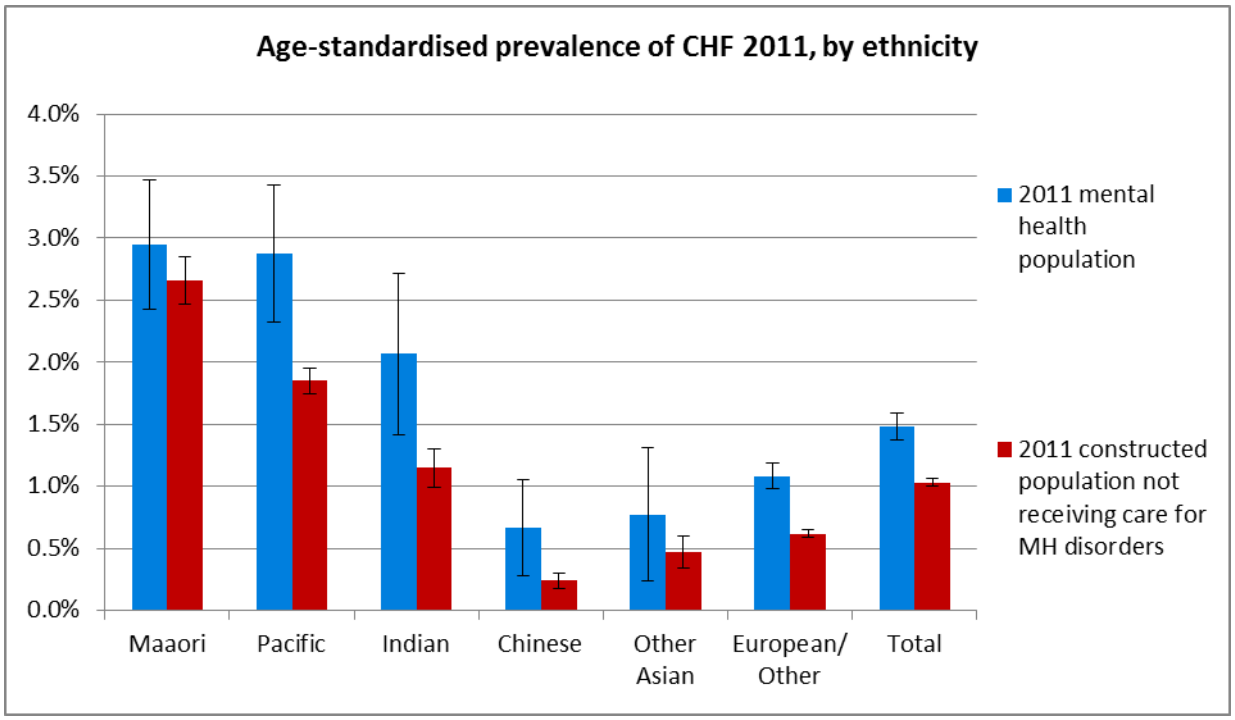
The crude prevalence of identified CHF in the 2011 mental health population was 2.3%, ranging from 0.8% for those identified as Other Asian ethnicities up to 2.4% for those identified as Pacific and European/Other ethnicities. This compares with a crude prevalence of 1.2% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 0.3% for those identified as Chinese and Other Asian ethnicities up to 1.7% for those identified as Maaori (Table 43).

The age-standardised prevalence of identified CHF for those identified as receiving care for a mental health disorder in 2011 (1.5%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (1%) at a population level (Table 43 and Figure 59). Differences remained significant for those identified as Pacific, Indian and European/Other ethnicities.

Table 43 Prevalence of CHF in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of CHF in 2011 MH population	Crude prevalence of CHF in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of CHF in 2011 MH population	Age- standardised prevalence of CHF in 2011 constructed population who were not identified with MH disorders
Maaori	130	2.1%	1.7%	3.0% (2.4% – 3.5%)	2.7% (2.5% – 2.9%)
Pacific	100	2.4%	1.5%	2.9% (2.3 %– 3.4%)	1.9% (1.7% – 2.0%)
Indian	40	2.2%	0.8%	2.1% (1.4% – 2.7%)	1.1% (1.0% – 1.3%)
Chinese	10	1.2%	0.3%	0.7% (0.3% – 1.1%)	0.24% (0.17% – 0.3%)
Other Asian	10	0.8%	0.3%	0.8% (0.2% – 1.3%)	0.5% (0.3% -0.6%)
European/ Other	510	2.4%	1.1%	1.1% (1.0% – 1.2%)	0.62% (0.59% – 0.65%)
Total	**790**	**2.3%**	**1.2%**	**1.5% (1.4%- 1.6%)**	**1.03% (1.00% – 1.06%)**

Figure 59 Age-standardised prevalence of CHF in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity



Mental health disorder in the population with CHF

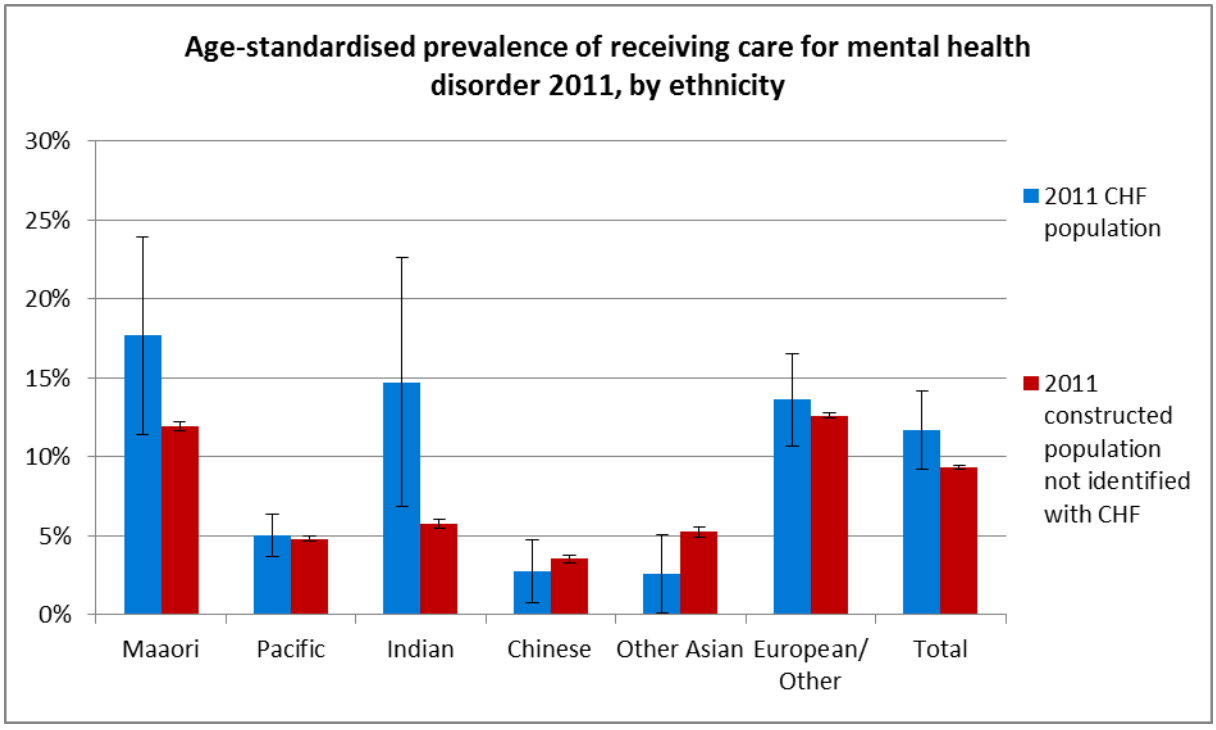
For those people identified as having CHF 17.1% of them were identified as receiving care for a mental health disorder in 2011 whereas the figure was 9.5% for those not identified as having CVD (Crude prevalence, Table 44).

The age-standardised rate of 11.7% of receiving care for a mental health disorder in 2011 in those with CHF was not significantly higher than the rate of 9.3% for those not identified as having CHF at a population level. The difference was significant for those identified as Indian (Table 44 and Figure 60).

Table 44 Prevalence of receiving care for mental health disorder in the CHF population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified CHF, by ethnicity

Ethnicity	Total	Crude prevalence of receiving care for MH disorder in 2011 CHF population	Crude prevalence of receiving care for MH disorder in 2011 constructed population without CHF	Age-standardised prevalence of receiving care for MH disorder in 2011 CHF population	Age-standardised prevalence of receiving care for MH disorder in 2011 constructed population without CHF
Maaori	130	14.1%	11.8%	17.7% (11.4% – 23.9%)	11.9% (11.6% – 12.2%)
Pacific	100	7.6%	4.7%	5.0% (3.7% – 6.4%)	4.8% (4.7% – 5.0%)
Indian	40	14.7%	5.5%	14.7% (6.9%– 22.6%)	5.7% (5.5% – 6.0%)
Chinese	10	16.1%	3.6%	2.8% (0.8% – 4.7%)	3.5% (3.3% – 3.%8)
Other Asian	10	11.7%	5.2%	2.6% (0.1% – 5.0%)	5.3% (4.9% – 5.6%)
European/ Other	510	24.7%	12.9%	13.6% (10.7% – 16.5%)	12.6% (12.5% – 12.8%)
Total	**790**	**17.1%**	**9.3%**	**11.7% (9.3% – 14.1%)**	**9.3% (9.2% – 9.4%)**

Figure 60 Age-standardised prevalence of receiving care for mental health disorder in the CHF population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified CHF, by ethnicity



Utilisation

Thornley et al found that those they identified as receiving care for mental health disorder had twice the odds of Ambulatory Sensitive Hospitalisation (ASH) and Housing Related Potentially Avoidable Hospitalisations (HRPAH), even when adjusted for demographic variables such as ethnicity and deprivation. This is consistent with international work documenting increased service use, particularly for those with comorbid mental and physical health conditions (Naylor et al., 2012). The analysis below attempts to quantify aspects of this for the Counties Manukau populations identified in this study, along with PHO enrolment and non-attendance for non-mental health Outpatient appointments which were not available for the earlier study by Thornley et al.

PHO enrolment

PHO non-enrolment in the 2011 mental health population

There were just over 1,100 people not enrolled in a PHO at the beginning of 2012 who were identified as receiving care for a mental health disorder in 2011.

The crude prevalence of PHO non-enrolment in the 2011 mental health population was 3.2%, ranging from 1.9% for those identified as European/Other ethnicities up to 6.6% for those identified as Pacific ethnicities (Table 45). This compares with a crude prevalence of 3.5% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 3.1% for those identified as European/Other ethnicities up to 4.6% for those identified as Other Asian ethnicities.

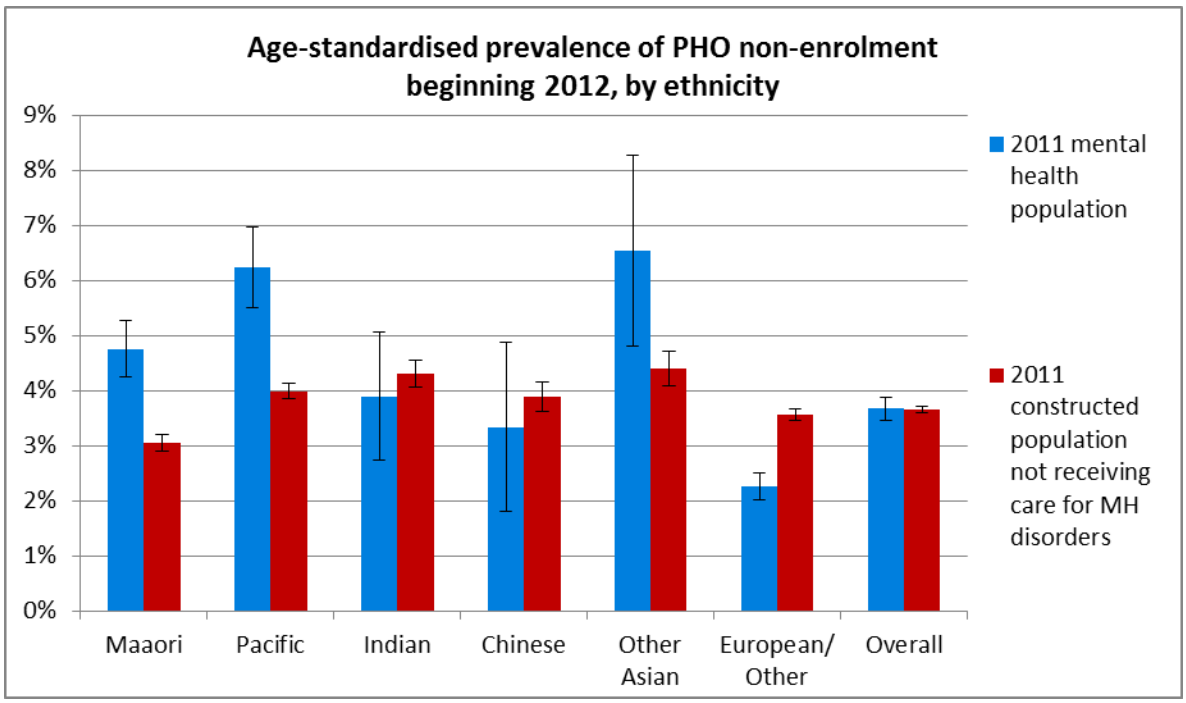
The age-standardised prevalence of PHO non-enrolment for those identified as receiving care for a mental health disorder in 2011 (3.7%) was not significantly different than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (3.7%) at a population level (Table 45 and Figure 61). There were differences for ethnic groups, with non-enrolment being higher in the mental health population for those of Maaori, Pacific and Other Asian ethnicities but lower in those of European/Other ethnicities.

As noted previously, the fact those identified as receiving care for a mental health disorder in 2011 were as likely to be enrolled as those in the constructed population who were not receiving care for a mental health disorder is likely in part to reflect definitional issues. Inclusion in the population is defined through various forms of health service utilisation and the primary care sector (reflected in PHO enrolment) potentially plays a key role in many referrals to mental health services and is a major contributor to prescriptions for mental health medications. This means those who are engaged with primary care (evidenced by enrolment) are more likely to get treatment or referral for their mental health problem and hence by definition be identified as part of the mental health population as identified by this study.

Table 45 PHO non-enrolment in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Of 2011 MH population who were not enrolled at the beginning of 2012, % this ethnicity	Crude prevalence of PHO non-enrolment in 2011 MH population	Crude prevalence of PHO non-enrolment in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of PHO non-enrolment in 2011 MH population	Age-standardised prevalence of PHO non-enrolment in 2011 constructed population not identified with MH disorders
Maaori	320	29%	5.1%	3.2%	4.8% (4.2% – 5.3%)	3.0% (2.9% – 3.2%)
Pacific	270	24%	6.6%	4.0%	6.2% (5.5% – 7.0%)	4.0% (3.9% – 4.1%)
Indian	50	4%	2.9%	4.2%	3.9% (2.7% – 5.1%)	4.3% (4.1% – 4.5%)
Chinese	20	2%	2.6%	3.9%	3.3% (1.8% – 4.9%)	3.9% (3.6% – 4.2%)
Other Asian	50	5%	5.8%	4.6%	6.6% (4.8% – 8.3%)	4.4% (4.1%– 4.7%)
European/ Other	400	36%	1.9%	3.1%	2.3% (2.0% – 2.5%)	3.6% (3.5% – 3.7%)
Total	**1,110**	**100%**	**3.2%**	**3.5%**	**3.7% (3.5% – 3.9%)**	**3.7% (3.6% – 3.7%)**

Figure 61 Age-standardised prevalence of PHO non-enrolment in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified care for mental health disorder, by ethnicity



PHO non-enrolment in the 2011 mental health service contact population

There were just over 800 people not enrolled in a PHO at the beginning of 2012 who had contact with mental health services in 2011, as recorded in PRIMD.

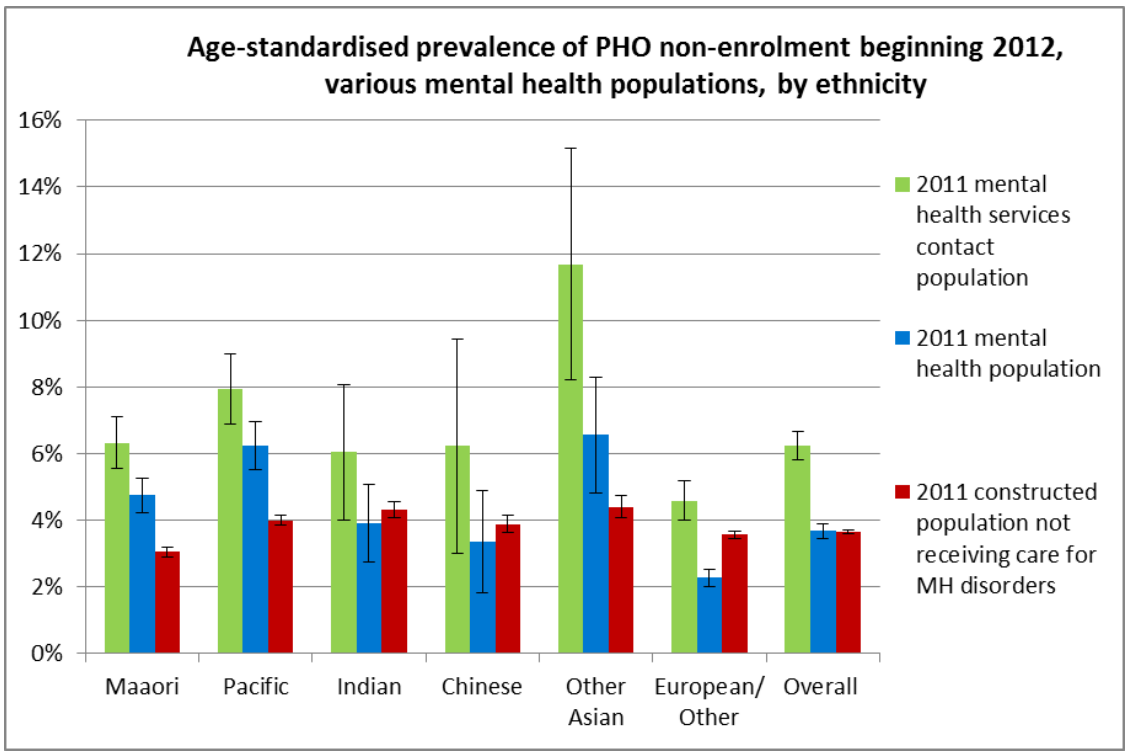
The crude prevalence of PHO non-enrolment in the 2011 mental health services contact population was 6.6%, ranging from 4.4% for those identified as European/Other ethnicities up to 13.5% for those identified as Other Asian ethnicities although numbers were small for the latter group. This compares with a crude prevalence of 3.2% for the wider population who were identified as receiving care for a mental health disorder in 20111, ranging from 1.9% for those identified as European/Other ethnicities up to 6.6% for those identified as Pacific ethnicities (Table 46).

The age standardised prevalence of PHO non-enrolment for the 2011 mental health services contact population (6.2%) was significantly higher than the prevalence for the wider population who were identified as receiving care for a mental health disorder in 2011 and the population without identified care for mental health disorder (3.7%) at a population level (Table 46 and Figure 62). Differences remained significant for Maaori and European/Other ethnicities but not other ethnic groups.

Table 46 PHO non-enrolment in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Of 2011 MH service contact population who were not enrolled at the beginning of 2012, % this ethnicity	Crude prevalence of PHO non-enrolment in 2011 MH service contact population	Age standardised prevalence of PHO non-enrolment in 2011 MH service contact population	Age standardised prevalence of non-PHO enrolment in 2011 MH population	Age standardised prevalence of PHO non-enrolment in 2011 constructed population who were not identified with MH disorders
Maaori	280	34%	7.3%	6.3% (5.5% – 7.1%)	4.8% (4.2% – 5.3%)	3.0% (2.9% – 3.2%)
Pacific	230	28%	9.1%	7.9% (6.9% – 9.0%)	6.2% (5.5% – 7.0%)	4.0% (3.9% – 4.1%)
Indian	30	4%	6.3%	6.0% (4.0% – 8.1%)	3.9% (2.7% – 5.1%)	4.3% (4.1% – 4.5%)
Chinese	20	2%	6.6%	6.2% (3.0% – 9.4%)	3.3% (1.8% – 4.9%)	3.9% (3.6% – 4.2%)
Other Asian	40	5%	13.5%	11.7% (8.2% – 15.1%)	6.6% (4.8% – 8.3%)	4.4% (4.1% – 4.7%)
European/ Other	220	27%	4.4%	4.6% (4.0% – 5.%2)	2.3% (2.0% – 2.5%)	3.6% (3.5% – 3.7%)
Total	**810**	**100%**	**6.6%**	**6.2% (5.8% – 6.6%)**	**3.7% (3.5% – 3.9%)**	**3.7% (3.6% – 3.7%)**

Figure 62 PHO non-enrolment in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity



Ambulatory Sensitive Hospital (ASH) admissions

Hospitalisations can be categorised into those which are considered potentially avoidable and those more likely to be unavoidable, with a subgroup of potentially avoidable hospitalisations being termed Ambulatory Sensitive Hospitalisations (ASH). ASH reflect hospitalisations for conditions which are considered sensitive to preventive or treatment interventions in primary care.

ASH admissions in the 2011 mental health population

There were just under 2,300 people who had one or more ASH admissions in 2011 for the population identified as receiving care for a mental health disorder in 2011.

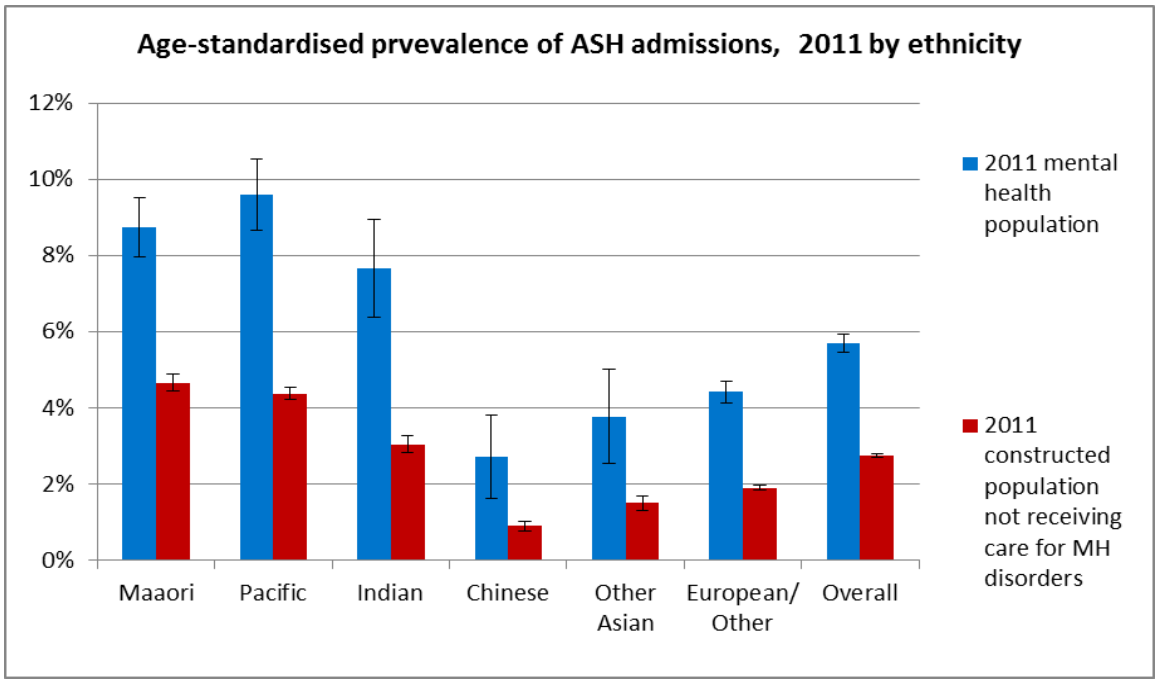
The crude prevalence of having had an ASH admission(s) in the 2011 mental health population was 6.4%, ranging from 3.7% for those identified as Chinese up to 8.7% for those identified as Pacific. This compares with a crude prevalence of 2.9% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 1.0% for those identified as Chinese up to 4.0% for those identified as Pacific (Table 47).

The age-standardised prevalence of having had an ASH admission(s) for those identified as receiving care for a mental health disorder in 2011 (5.7%) was twice the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (2.8%) at a population level (Table 47 and Figure 63). Differences remained significant for all of the ethnic groups.

Table 47 Prevalence of having had ASH admission(s) in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of having had ASH admission(s) in 2011 MH population	Crude prevalence of having had ASH admission(s) in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of having had ASH admission(s) in 2011 MH population	Age-standardised prevalence of having had ASH admission(s) in 2011 constructed population who were not identified with MH disorders
Maaori	490	7.8%	4.0%	8.7% (8.0% – 9.5%)	4.7% (4.4% – 4.9%)
Pacific	360	8.7%	4.0%	9.6% (8.7% – 10.5%)	4.4% (4.2% – 4.5%)
Indian	130	7.9%	2.7%	7.7% (6.4% – 9.0%)	3.0% (2.8% – 3.3%)
Chinese	30	3.7%	1.0%	2.7% (1.6% – 3.8%)	0.9% (0.8% – 1.0%)
Other Asian	40	4.0%	1.3%	3.8% (2.6%– 5.0%)	1.5% (1.3% – 1.7%)
European/ Other	1,220	5.7%	2.4%	4.4% (4.1% – 4.7%)	1.9% (1.8% – 2.0%)
Total	**2,260**	**6.4%**	**2.9%**	**5.7% (5.5% – 5.9%)**	**2.8% (2.7% – 2.8%)**

Figure 63 Age standardised prevalence of having had ASH admission(s) in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in the population without identified care for mental health disorder, by ethnicity



ASH admissions in the 2011 mental health service contact population

There were 950 people who had one or more ASH admission(s) in 2011 for the mental health service contact population in 2011.

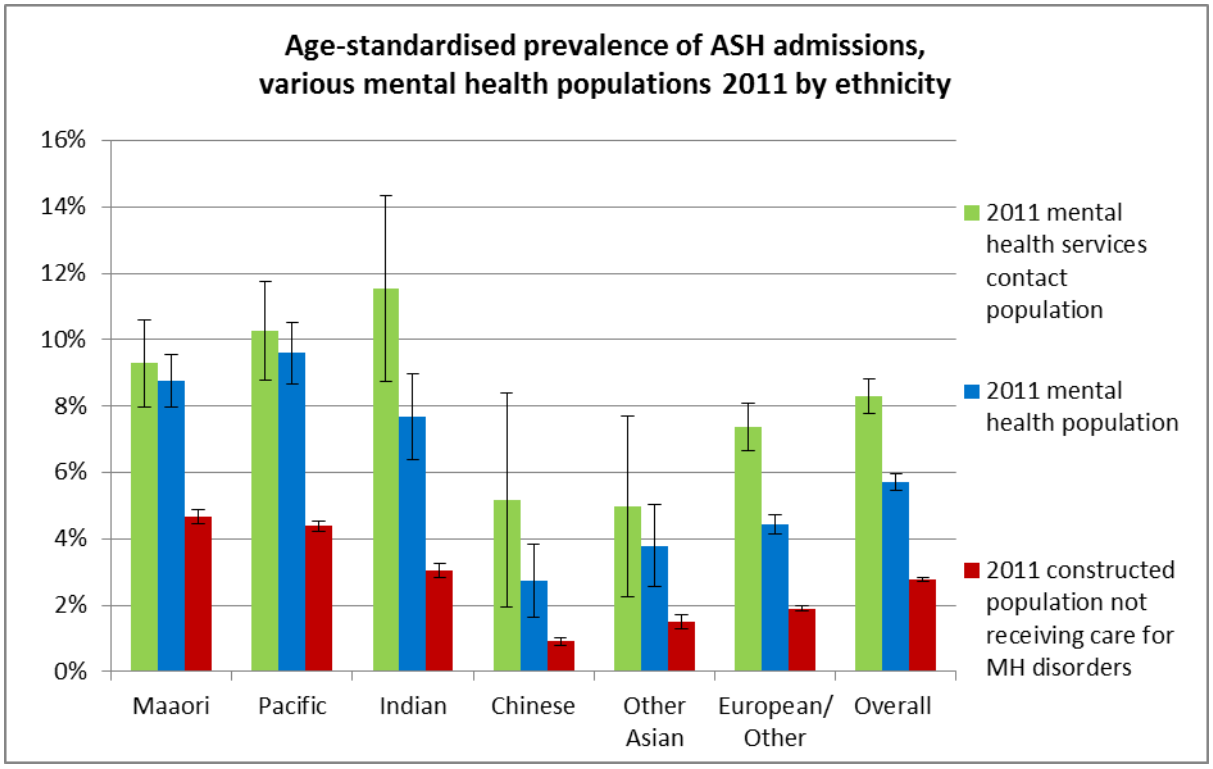
The crude prevalence of having had an ASH admission(s) in the 2011 mental health service contact population was 7.7%, ranging from 4.2% for those identified as Other Asian ethnicities up to 9.9% for those identified as Indian (Table 48).

The age standardised prevalence of having had an ASH admission(s) for those in the 2011 mental health service contact population (8.3%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (2.8%) and the wider population identified as receiving care for a mental health disorder in 2011 (5.7%) at a population level (Table 48 and Figure 64). Differences between the mental health service contact population and the wider population identified as receiving care for a mental health disorder in 2011 remained significant for the European/Other group but not those of other ethnicities. Differences between the mental health service contact population and the population not identified as receiving care for a mental health disorder in 2011 were significant for all ethnicities.

Table 48 Prevalence of having had ASH admission(s) in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of having had ASH admission(s) in 2011 MH service contact population	Age standardised prevalence of having had ASH admission(s) in 2011 MH service contact population	Age-standardised prevalence of having had ASH admission(s) in 2011 MH population	Age-standardised prevalence of having had ASH admission(s) in 2011 constructed population who were not identified with MH disorders
Maaori	270	7.1%	9.3% (8.0% – 10.6%)	8.7% (8.0% – 9.5%)	4.7% (4.4% – 4.9%)
Pacific	190	7.6%	10.3% (8.8% – 11.7%)	9.6% (8.7% – 10.5%)	4.4% (4.2% – 4.5%)
Indian	50	9.9%	11.5% (8.7% – 14.3%)	7.7% (6.4% – 9.0%)	3.0% (2.8% – 3.3%)
Chinese	10	4.4%	5.2% (1.9% – 8.4%)	2.7% (1.6% – 3.8%)	0.9% (0.8% – 1.0%)
Other Asian	10	4.2%	5.0% (2.3% – 7.7%)	3.8% (2.6% – 5.0%)	1.5% (1.3% – 1.7%)
European/ Other	420	8.3%	7.4% (6.6% – 8.1%)	4.4% (4.1% – 4.7%)	1.9% (1.8% – 2.0%)
Total	**950**	**7.7%**	**8.3% (7.8% – 8.8%)**	**5.7% (5.5% – 5.9%)**	**2.8% (2.7% – 2.8%)**

Figure 64 Prevalence of having had ASH admission(s) in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity



Housing related, potentially avoidable hospitalisations (HRPAH)

In addition to ASH, another subgroup of "potentially avoidable" hospitalisations is those considered potentially avoidable due to housing-related factors. The conditions included in the HRPAH subgroup are those where it is considered likely that there is a link between the condition and overcrowding or the ambient temperature in the house (respiratory conditions and infectious diseases).

HRPAH admissions in the 2011 mental health population

There were 970 people who had one or more HRPAH admission for the population identified as receiving care for a mental health disorder in 2011.

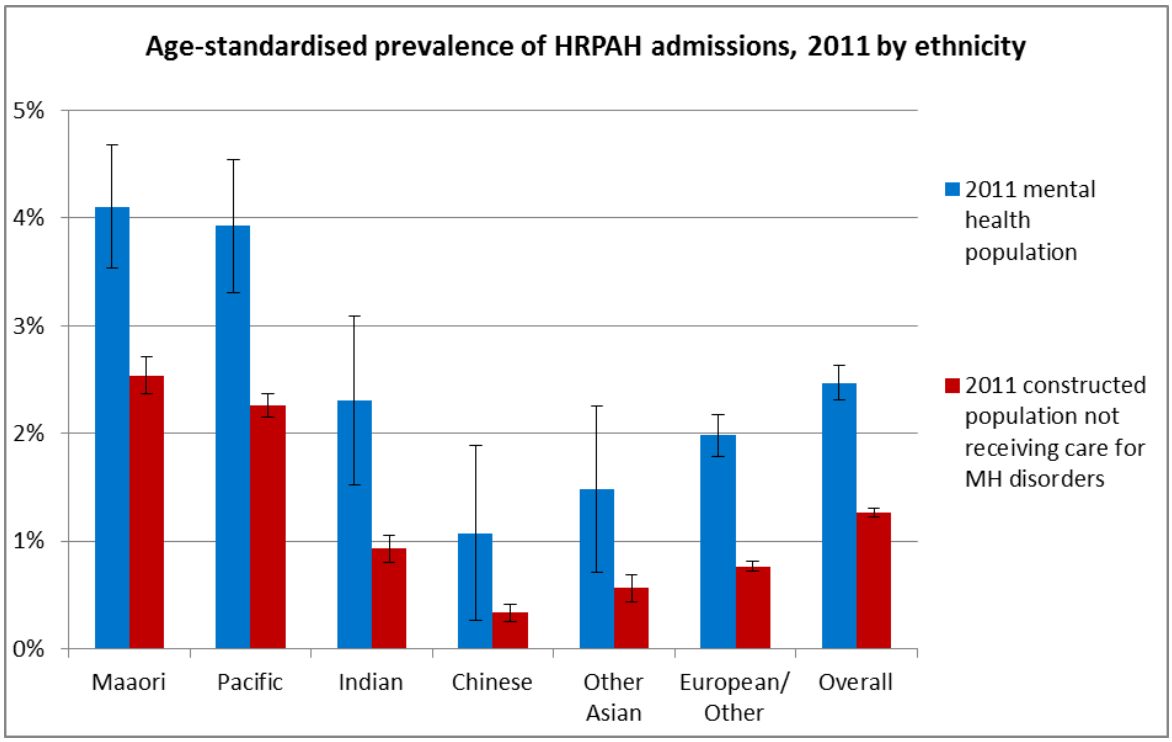
The crude prevalence of having had a HRPAH admission(s) in the 2011 mental health population was 2.8%, ranging from 1.1% for those identified as Chinese up to 3.6% for those identified as Maaori and Pacific peoples. This compares with a crude prevalence of 1.3% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 0.4% for those identified as Chinese up to 2.2% for those identified as Maaori (Table 49).

The age-standardised prevalence of having had a HRPAH admission(s) for those identified as receiving care for a mental health disorder in 2011 (2.5%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (1.3%) at a population level (Table 49 and Figure 65) . Differences remained significant for most of the ethnic groups (except for Chinese and Other Asian groups).

Table 49 Prevalence of having had HRPAH admission(s) in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of having had HRPAH admission(s) in 2011 MH population	Crude prevalence of having had HRPAH admission(s) in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of having had HRPAH admission(s) in 2011 MH population	Age-standardised prevalence of having had HRPAH admission(s) in 2011 constructed population who were not identified with MH disorders
Maaori	220	3.6%	2.2%	4.1% (3.5% – 4.7%)	2.5% (2.4% – 2.7%)
Pacific	150	3.6%	2.0%	3.9% (3.3% – 4.5%)	2.3% (2.2% – 2.4%)
Indian	40	2.3%	0.8%	2.3% (1.5% – 3.1%)	0.9% (0.8% – 1.1%)
Chinese	10	1.1%	0.4%	1.1% (0.3% – 1.9%)	0.3% (0.3% – 0.4%)
Other Asian	10	1.5%	0.5%	1.5% (0.7% – 2.3%)	0.6% (0.4% – 0.7%)
European/ Other	540	2.5%	0.9%	2.0% (1.8% – 2.2%)	0.8% (0.7% – 0.8%)
Total	**970**	**2.8%**	**1.3%**	**2.5% (2.3% – 2.6%)**	**1.3% (1.2% – 1.3%)**

Figure 65 Age-standardised prevalence of having had HRPAH admission(s) in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity



HRPAH admissions in the 2011 mental health service contact population

There were 400 people who had one or more HRPAH admissions for the mental health service contact population in 2011.

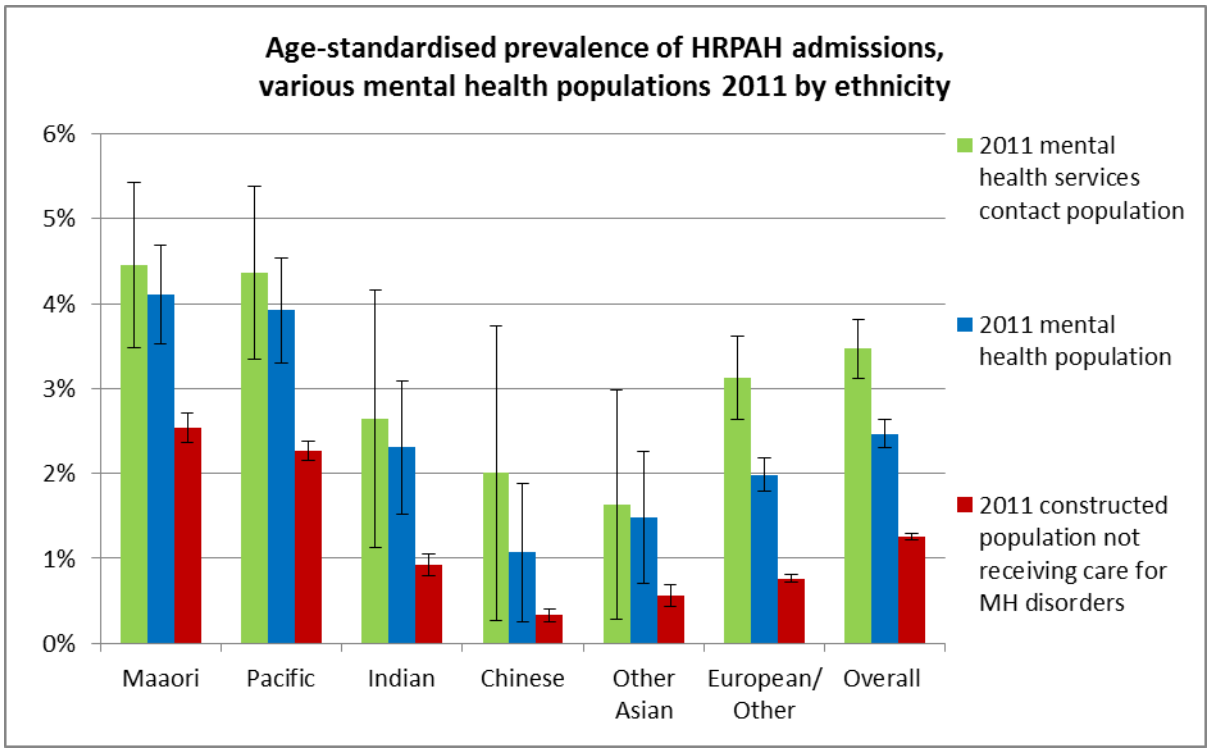
The crude prevalence of having had a HRPAH admission(s) in the 2011 mental health service contact population was 3.2%, ranging from 1.6% for those identified as Other Asian ethnicities up to 3.3% for those identified as Maaori (Table 50).

The age-standardised prevalence of having had a HRPAH admission(s) for those in the 2011 mental health service contact population (3.5%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (1.3%) and the wider population identified as receiving care for a mental health disorder in 2011 at a population level (2.5%) (Table 50 and Figure 66). Differences between the mental health service contact population and the wider population identified as receiving care for a mental health disorder in 2011 remained significant for the European/Other group but not those of other ethnicities. Differences between the mental health service contact population and the population not identified as receiving care for a mental health disorder in 2011 were significant for Maaori and those identified as Pacific and European/Other ethnicities.

Table 50 Prevalence of having had HRPAH admission(s) in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of having had a HRPAH admission(s) in 2011 MH service contact population	Age-standardised prevalence of having had HRPAH admission(s) in 2011 MH service contact population	Age-standardised prevalence of having had HRPAH admission(s) in 2011 MH population	Age-standardised prevalence of having had HRPAH admission(s) in 2011 constructed population who were not identified with MH disorders
Maaori	130	3.3%	4.5% (3.5% – 5.4%)	4.1% (3.5% – 4.7%)	2.5% (2.4% – 2.7%)
Pacific	80	3.2%	4.4% (3.3% – 5.4%)	3.9% (3.3% – 4.5%)	2.3% (2.2% – 2.4%)
Indian	10	2.4%	2.6% (1.1% – 4.2%)	2.3% (1.5% – 3.1%)	0.9% (0.8% – 1.1%)
Chinese	10	2.2%	2.0% (0.3% – 3.7%)	1.1% (0.3% – 1.9%)	0.3% (0.3% – 0.4%)
Other Asian	10	1.6%	1.6% (0.3% – 3.0%)	1.5% (0.7% – 2.3%)	0.6% (0.4% – 0.7%)
European/ Other	170	3.4%	3.1% (2.6% – 3.6%)	2.0% (1.8% – 2.2%)	0.8% (0.7% – 0.8%)
Total	**400**	**3.2%**	**3.5% (3.1% – 3.8%)**	**2.5% (2.3% – 2.6%)**	**1.3% (1.2% – 1.3%)**

Figure 66 Prevalence of having had HRPAH admission(s) in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity



Did Not Attends (DNAs) for non-mental health outpatient appointments

Non-mental health DNAs in the 2011 mental health population

There were just over 2,900 people who had one or more DNAs for non-mental health outpatient appointments for the population identified as receiving care for a mental health disorder in 2011.

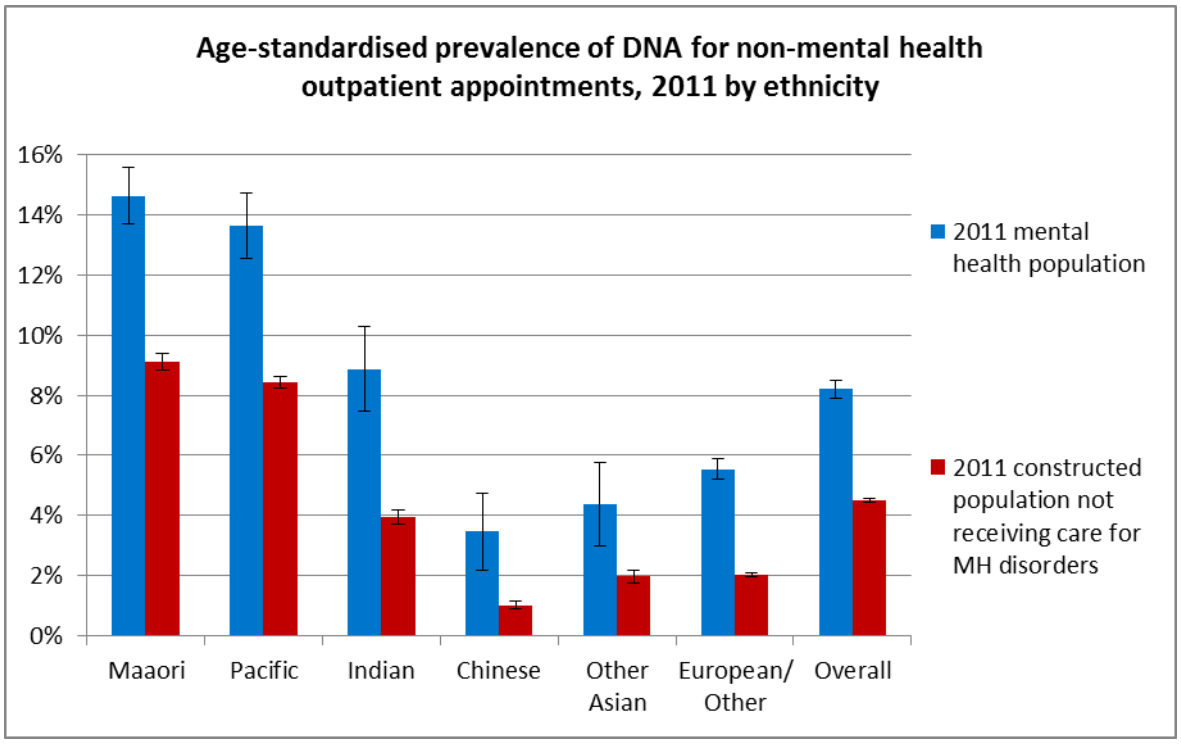
The crude prevalence of having had one or more DNAs for non-mental health outpatient appointments in the 2011 mental health population was 8.3%, ranging from 4.4% for those identified as Other Asian ethnicities up to 14.2% for those identified as Maaori. This compares with a crude prevalence of 4.6% for the constructed population of the same age who were not identified as receiving care for a mental health disorder, ranging from 1.1% for those identified as Chinese up to 8.6% for those identified as Maaori (Table 51).

The age-standardised prevalence of having had one or more DNAs for non-mental health outpatient appointments for those identified as receiving care for a mental health disorder in 2011 (8.2%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (4.5%) at a population level (Table 51 and Figure 67). Differences remained significant for all ethnic groups.

Table 51 Prevalence of having had non-mental health DNAs in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of having had non-MH DNAs in 2011 MH population	Crude prevalence of having had non-MH DNAs in 2011 constructed population who were not identified with MH disorders	Age-standardised prevalence of having had non-MH DNAs in 2011 MH population	Age-standardised prevalence of having had non-MH DNAs in 2011 constructed population who were not identified with MH disorders
Maaori	890	14.2%	8.6%	14.6% (13.7% – 15.6%)	9.1% (8.8% – 9.4%)
Pacific	530	13.0%	8.0%	13.6% (12.6% – 14.7%)	8.4% (8.2% – 8.6%)
Indian	160	9.4%	3.7%	8.9% (7.5% – 10.3%)	4.0% (3.7% – 4.2%)
Chinese	40	4.5%	1.1%	3.5% (2.2% – 4.8%)	1.0% (0.9% – 1.2%)
Other Asian	40	4.4%	2.0%	4.4% (3.0% – 5.8%)	2.0% (1.7% – 2.2%)
European/ Other	1,270	5.9%	2.2%	5.5% (5.2% – 5.9%)	2.0% (1.9% – 2.1%)
Total	**2,920**	**8.3%**	**4.6%**	**8.2% (7.9% – 8.5%)**	**4.5% (4.4% – 4.6%)**

Figure 67 Age-standardised rate of having had non-mental health DNAs in the mental health population aged 18 years & over, 2011 snapshot, compared with prevalence in population without identified care for mental health disorder, by ethnicity



Non-mental health outpatient appointments the 2011 mental health service contact population

There were 1,370 people who had one or more DNAs for non-mental health outpatient appointments for the mental health service contact population in 2011.

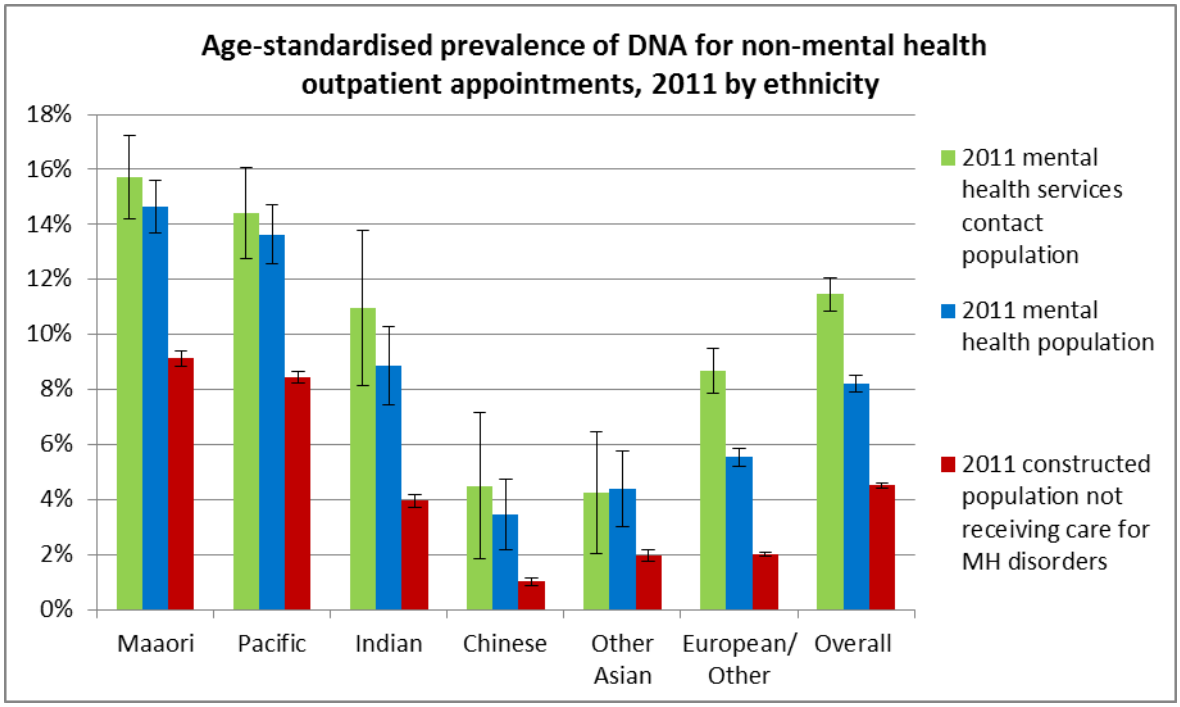
The crude prevalence of having had one or more DNAs for non-mental health outpatient appointments in the 2011 mental health service contact population was 11.1%, ranging from 4.4% for those identified as Chinese up to 14.2% for those identified as Maaori (Table 52).

The age-standardised prevalence of having had one or more DNAs for non-mental health outpatient appointments for those in the 2011 mental health service contact population (11.5%) was significantly higher than the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (4.5%) and the wider population identified as receiving care for a mental health disorder in 2011 at a population level (8.2%) (Table 52 and Figure 68). Differences between the mental health service contact population and the wider population identified as receiving care for a mental health disorder in 2011 remained significant for the European/Other group but not those of other ethnicities. Differences between the mental health service contact population and the population not identified as receiving care for a mental health disorder in 2011 were significant for all ethnic groups except those identified as Other Asian ethnicities

Table 52 Prevalence of having had non-mental health DNAs in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity

Ethnicity	Number	Crude prevalence of having had non-MH DNA in 2011 MH service contact population	Age-standardised prevalence of having had non-MH DNA in 2011 MH service contact population	Age-standardised prevalence of having had non-MH DNA in 2011 MH population	Age-standardised prevalence of having had non-MH DNA in 2011 constructed population who were not identified with MH disorders
Maaori	530	14.2%	15.7% (14.2% – 17.2%)	14.6% (13.7% – 15.6%)	9.1% (8.8% – 9.4%)
Pacific	310	12.2%	14.4% (12.8% – 16.1%)	13.6% (12.6% – 14.7%)	8.4% (8.2% – 8.6%)
Indian	50	10.5%	11.0% (8.1% – 13.8%)	8.9% (7.5% – 10.%3)	4.0% (3.7% – 4.2%)
Chinese	10	4.4%	4.5% (1.8% – 7.1%)	3.5% (2.2% – 4.8%)	1.0% (0.9% – 1.2%)
Other Asian	10	4.5%	4.2% (2.1% – 6.4%)	4.4% (3.0% – 5.8%)	2.0% (1.7% – 2.2%)
European/ Other	450	8.9%	8.7% (7.9% – 9.5%)	5.5% (5.2% – 5.9%)	2.0% (1.9% – 2.1%)
Total	**1,370**	**11.1%**	**11.5% (10.9% – 12.0%)**	**8.2% (7.9% – 8.5%)**	**4.5% (4.4% – 4.6%)**

Figure 68 Rate of having had non-mental health DNAs in the mental health service contact population aged 18 years & over, 2011 snapshot, compared with prevalence in 2011 mental health population and the population without identified care for mental health disorder, by ethnicity



Overall Mental Health Population aged 18 years and over

As noted in the introduction, this report focuses on the 2011 snapshot and mental health service contact populations for service planning. However it also identifies an 'overall mental health population' which draws on cumulative health service contact - contact with mental health services as recorded in PRIMHD from 2008-2011 inclusive, dispensing of mental health medications from 2006 -2011 and mental health diagnosis related to hospitals admissions from 2002-2011 to give the 2011 planning view a broader context. The section below describes this 'overall mental health population' aged 18 years and over.

18% of the population (just over 65,000 people) aged 18 and over, alive at the end of 2011, were identified in the 'overall' mental health population (Crude prevalence, Table 54), indicating either an active mental health disorder or such a disorder in the past 3-10 years as identified through medication, contact with mental health services or diagnosis when an inpatient (for any reason) in a public hospital.

This compares with the 39.5% unadjusted 'lifetime prevalence' of mental health disorder identified in the Te Rau Hinengaro survey. It might be expected that younger people would have a lower 'lifetime prevalence' as they have had less time to accumulate a history of health disorders, but as noted in Te Rau Hinengaro, in reality most people experience the onset of their mental health disorder early in their lives. In addition older people may forget earlier episodes of illness and/or have different explanations about mental health symptoms which may have influenced their identification of mental health symptoms and health care seeking behaviour, and therefore influence mental health survey results. Also as noted previously, Te Rau Hinengaro found there was a significant number of people who were identified as having mental health disorders who had not had a health sector visit or treatment for their condition.

Ethnicity

People identified as Maaori and European/Other ethnicities had a significantly higher prevalence of health care for mental health disorder in the period examined for this study compared to those of Pacific and Asian ethnicities. The age-standardised prevalence for Maaori and European/Other groups was basically twice or more than other ethnic groups (Table 53, Figure 69 and Figure 70).

The overall crude prevalence of identified mental health disorder was just under 18%. Nearly a quarter of the Maaori and European/Other populations were identified as having received care for a mental health disorder in the past 3-10 years, whereas the figure for Asian and Pacific populations was only 7-13% (Crude prevalence, Table 53).

Table 53 Mental health population aged 18 years and older, total identified, by ethnicity and gender.

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Ethnicity	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this ethnic group	Crude preva-lence	Age-standardised prevalence (95% CI)
Maaori	6,870	5,470	12,340	18.9%	14.2%	23.7%	23.6% (23.2% – 24.0%)
Pacific	4,180	4,550	8,730	13.4%	22.8%	10.4%	10.4% (10.2% – 10.6%)
Indian	2,190	1,480	3,660	5.6%	8.0%	12.5%	12.4% (12.1% – 12.8%)
Chinese	1,080	490	1,570	2.4%	5.9%	7.3%	7.0% (6.6% – 7.3%)
Other Asian	1,100	710	1,810	2.8%	4.8%	10.3%	10.3% (9.8% – 10.7%)
European/ Other	22,850	14,400	37,250	57.0%	44.4%	22.9%	22.6% (22.3% – 22.8%)
Total	**38,270**	**27,090**	**65,360**	**100%**	**100%**	**17.8%**	**17.6% (17.5% – 17.7%)**

Figure 69 Mental health population aged 18 years & over, total identified, compared with constructed population by ethnicity

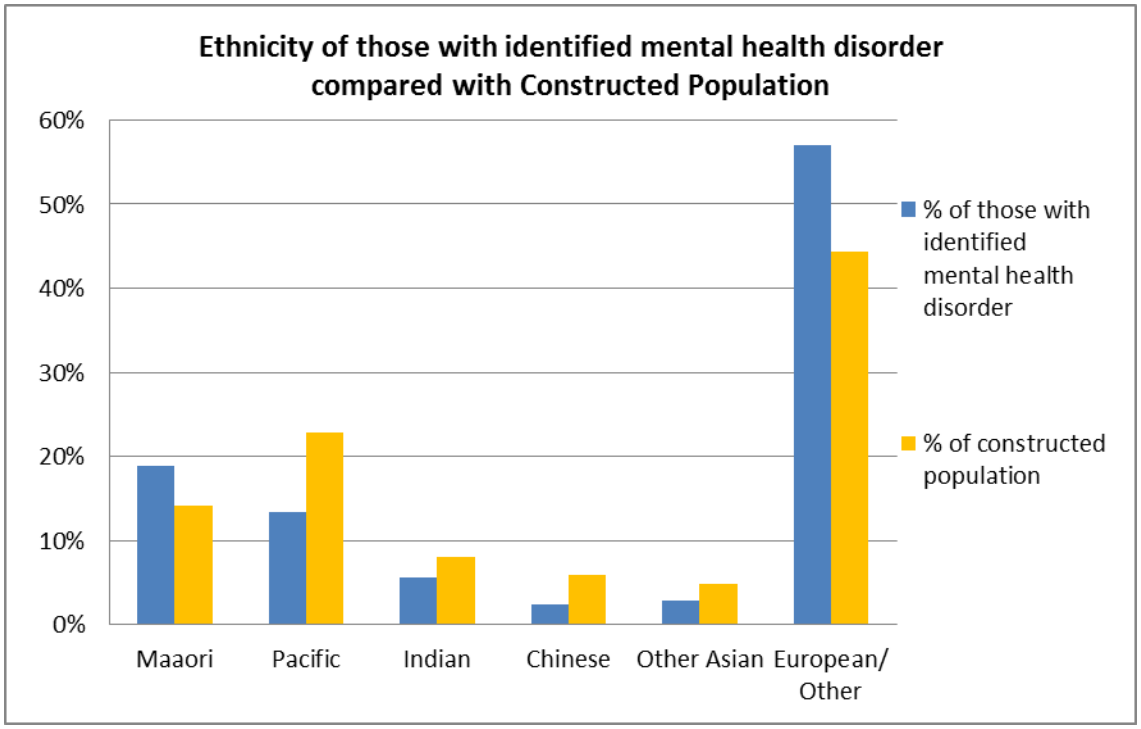
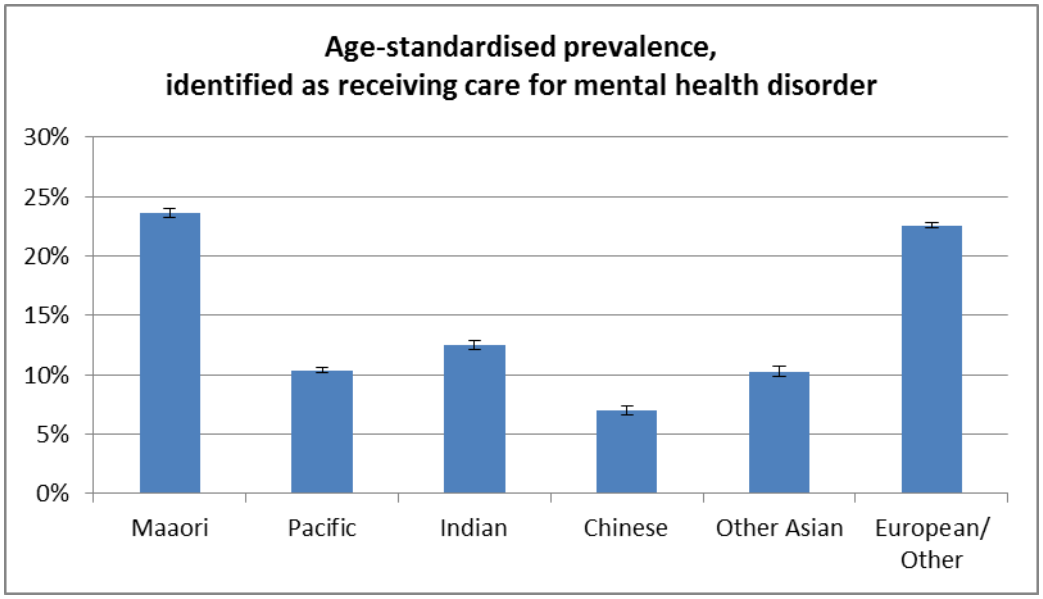


Figure 70 Age-standardised prevalence aged 18 years & over, total identified as receiving care for mental health disorder by ethnicity



Age distribution

If the age distribution of the mental health population matched the underlying population, the prevalence by age group would be essentially the same across the different ages. As demonstrated in (Table 54, Figure 71 and Figure 72) the prevalence of identification as having care for a mental health disorder is lower in younger people aged 18-34 years and higher in those 75 years and over.

Table 54 Mental health population aged 18 years & over, total identified, by age group and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Age group (Yrs)	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this age group	Crude (age specific) prevalence (95% CI)
18-24	4,270	4,160	8,430	12.9%	15.3%	15.1% (14.8% – 15.3%)
25-34	6,380	5,010	11,390	17.4%	18.7%	16.6% (16.3% – 16.9%)
35-44	7,780	5,540	13,320	20.4%	19.7%	18.4% (18.1% – 18.7%)
45-54	7,770	5,250	13,020	19.9%	18.8%	18.9% (18.6% – 19.2%)
55-64	5,600	3,520	9,120	14.0%	13.6%	18.3% (18.0% – 18.6%)
65-74	3,370	2,120	5,490	8.4%	8.5%	17.7% (17.3% – 18.1%)
75 & over	3,100	1,490	4,590	7.0%	5.4%	23.0% (22.4% – 23.6%)
Total	**38,270**	**27,090**	**65,360**	**100%**	**100%**	**17.8% (17.7% – 17.9%)**

Figure 71 Mental health population aged 18 years & over, total identified, age group compared with constructed population

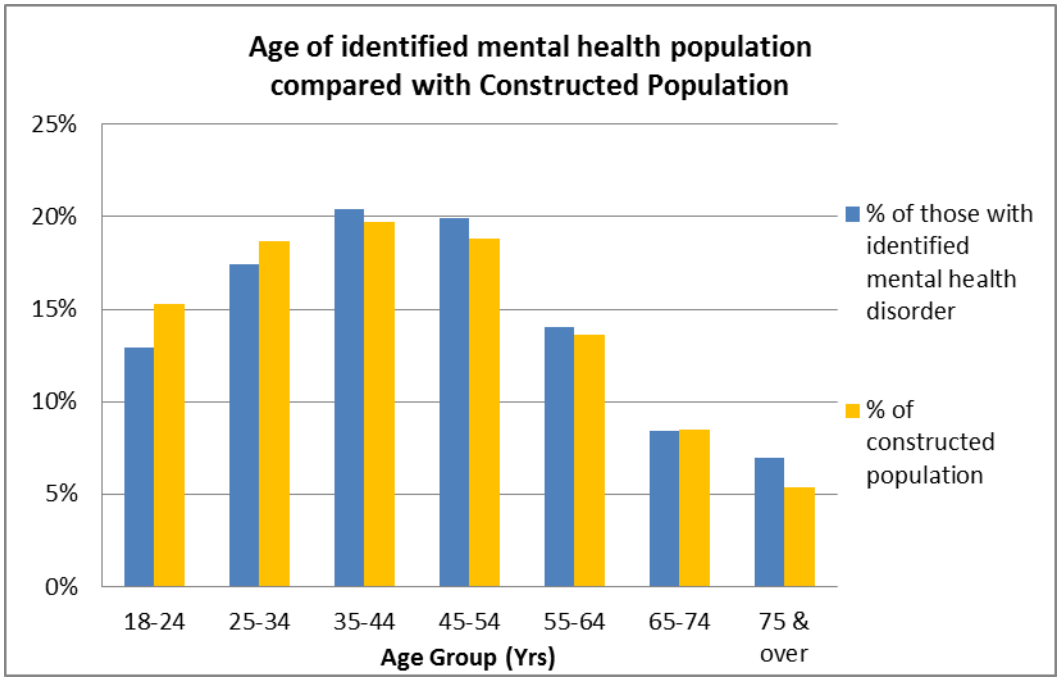
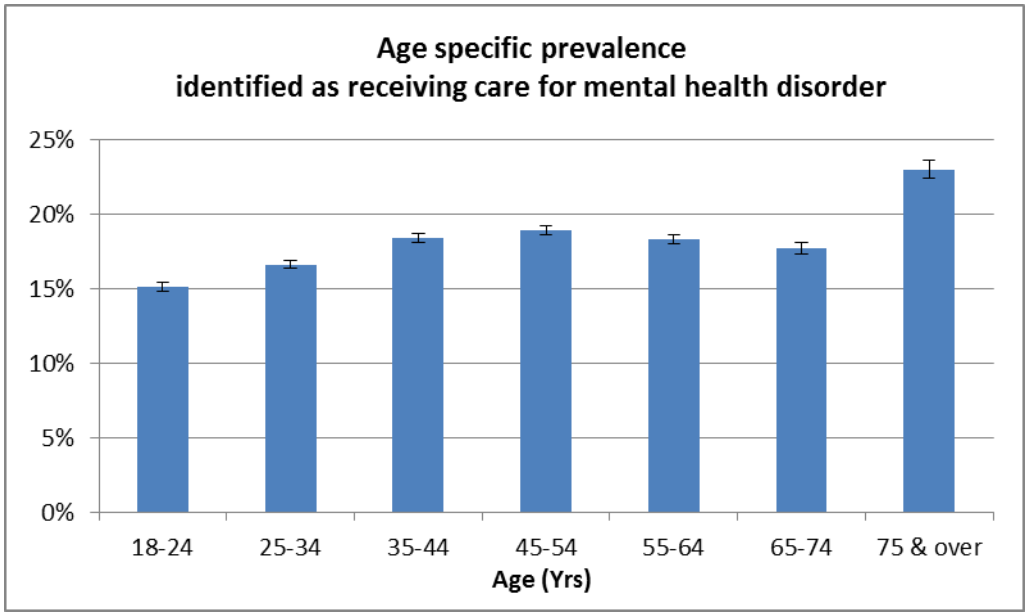


Figure 72 Age specific prevalence aged 18 years & over, identified as receiving care for mental health disorder



Socioeconomic distribution

The distribution across the NZDep06 quintiles of the population identified as receiving care for a mental health disorder was similar to the underlying CMH population, concentrated in the more socioeconomically deprived areas, but with a significantly lower age-standardised prevalence in the most socioeconomically deprived area (Quintile 5) compared with Quintiles 1 - 4 (Table 55, Figure 73 and Figure 74).

Table 55 Mental health population aged 18 years & over, total identified, by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this quintile	Crude prevalence	Age standardised prevalence (95% CI)
N/I*	3,360	3,050	6,410	9.8%	9.9%	17.7%	17.3% (16.9% – 17.7%)
1	7,360	4,350	11,710	17.9%	17.8%	17.9%	17.8% (17.4% – 18.1%)
2	6,070	3,750	9,810	15.0%	14.5%	18.4%	18.0% (17.6% – 18.3%)
3	5,260	3,280	8,540	13.1%	12.5%	18.7%	18.4% (18.0% – 18.8%)
4	6,160	4,240	10,400	15.9%	15.1%	18.7%	18.4% (18.1% – 18.7%)
5	10,060	8,420	18,490	28.3%	30.2%	16.7%	16.7% (16.5% – 17.0%)
Total	**38,270**	**27,090**	**65,360**	**100%**	**100%**	**17.8%**	**17.6% (17.5% – 17.7%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 73 Mental health population aged 18 years & over, total identified, by socioeconomic area compared with the constructed population

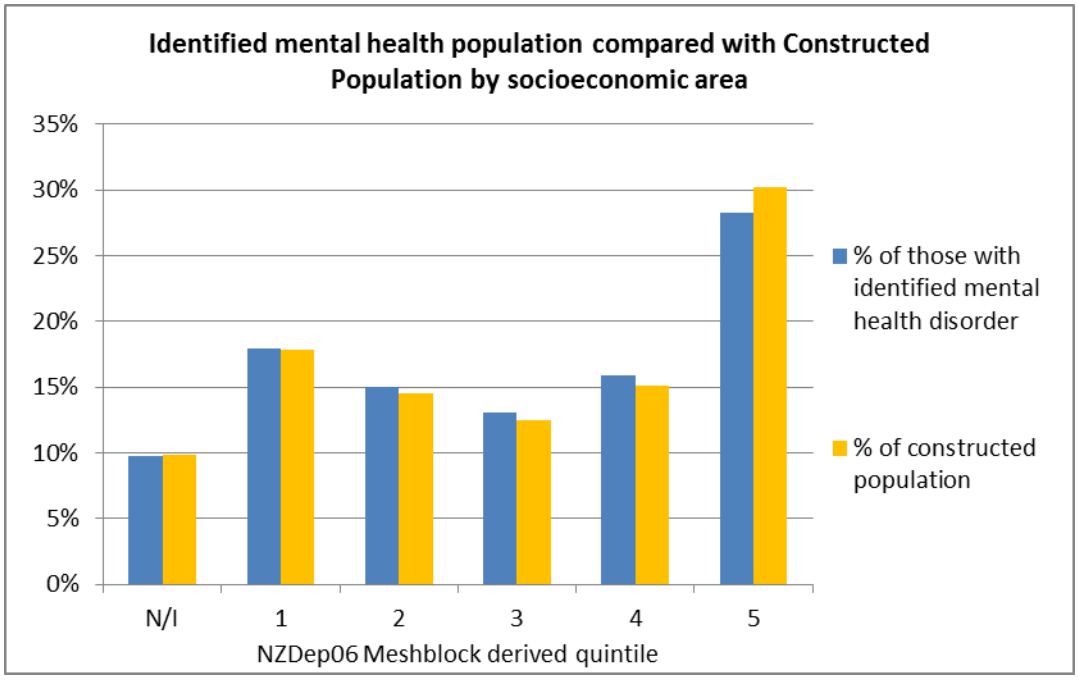
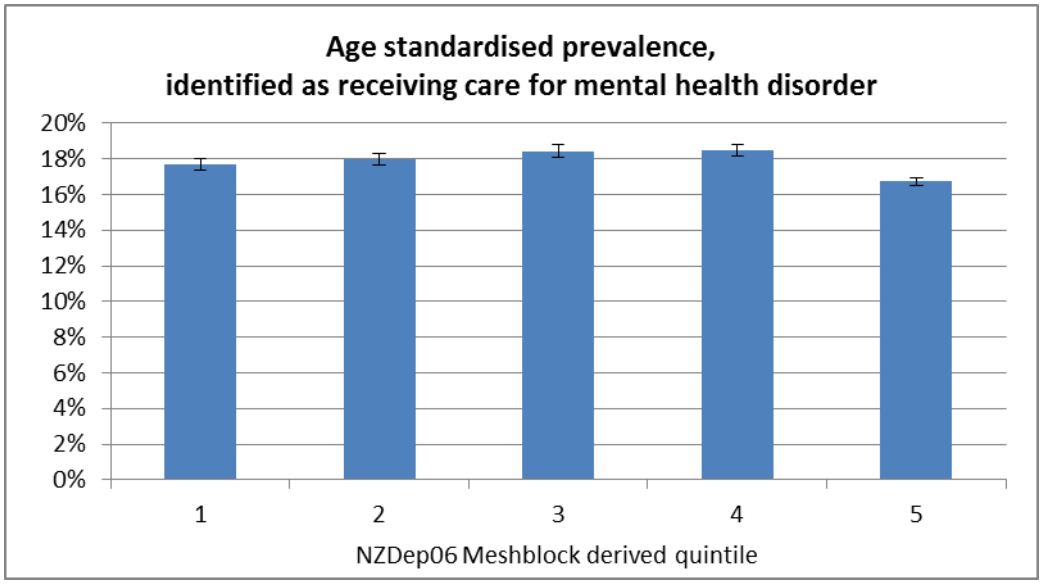


Figure 74 Age-standardised prevalence aged 18 years & over, population identified as receiving care for mental health disorder, by socioeconomic area



Distribution across the CM Health district

A higher proportion of the population identified as receiving care for a mental health were living in Awhinatia and less in the Cottage (including Otahuhu) CMHC areas compared to the underlying constructed population, resulting in the age-standardised prevalence for Awhinatia being 1.5 times that of the Cottage (Table 56, Figure 75 and Figure 76).

Table 56 Mental health population aged 18 years & over, total identified, residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Residential location	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this residential locality	Crude preva-lence	Age standardised prevalence (95% CI)
Awhinatia	10,440	6,670	17,110	26.2%	21.2%	21.9%	21.9% (21.6% – 22.2%)
Manukau	9,550	7,050	16,600	25.4%	24.8%	18.3%	18.2% (17.9% – 18.4%)
Te Rawhiti	11,330	6,860	18,190	27.8%	28.5%	17.4%	17.0% (16.7% – 17.2%)
The Cottage (including Otahuhu)	6,700	6,280	12,980	19.9%	24.5%	14.4%	14.5% (14.2% – 14.7%)
CMDHB NFD*	240	240	480	0.7%	1.0%	13.4%	13.4% (12.3% – 14.5%)
Total	**38,270**	**27,090**	**65,360**	**100%**	**100%**	**17.8%**	**17.6% (17.5% – 17.7%)**

**NFD refers to data absent or unable to be mapped to CAU*

Figure 75 Mental health population aged 18 years & over, total identified, residential location according to CMHC boundaries compared with constructed population

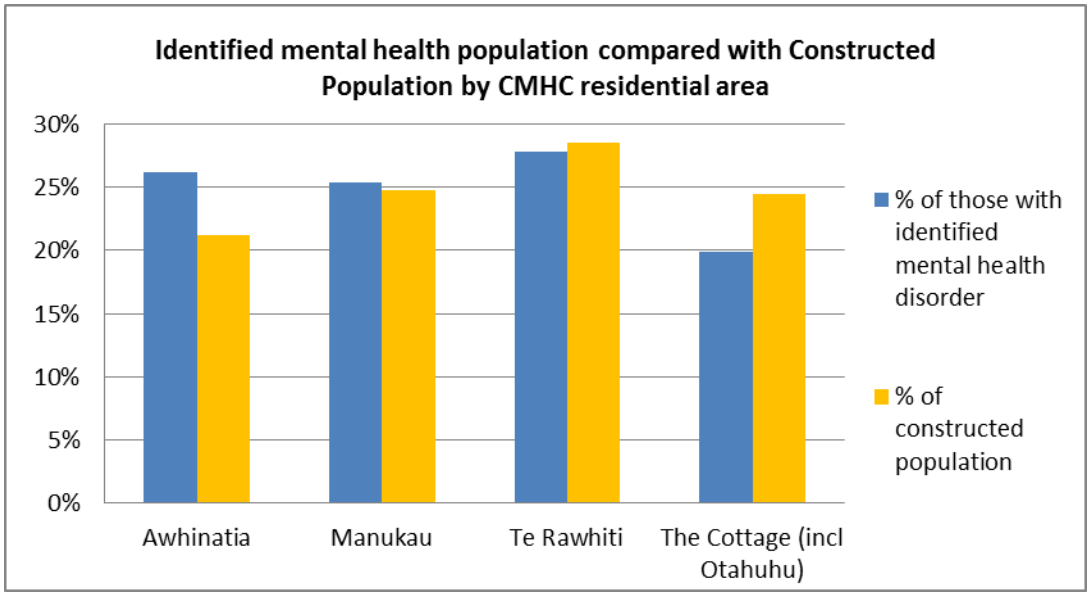
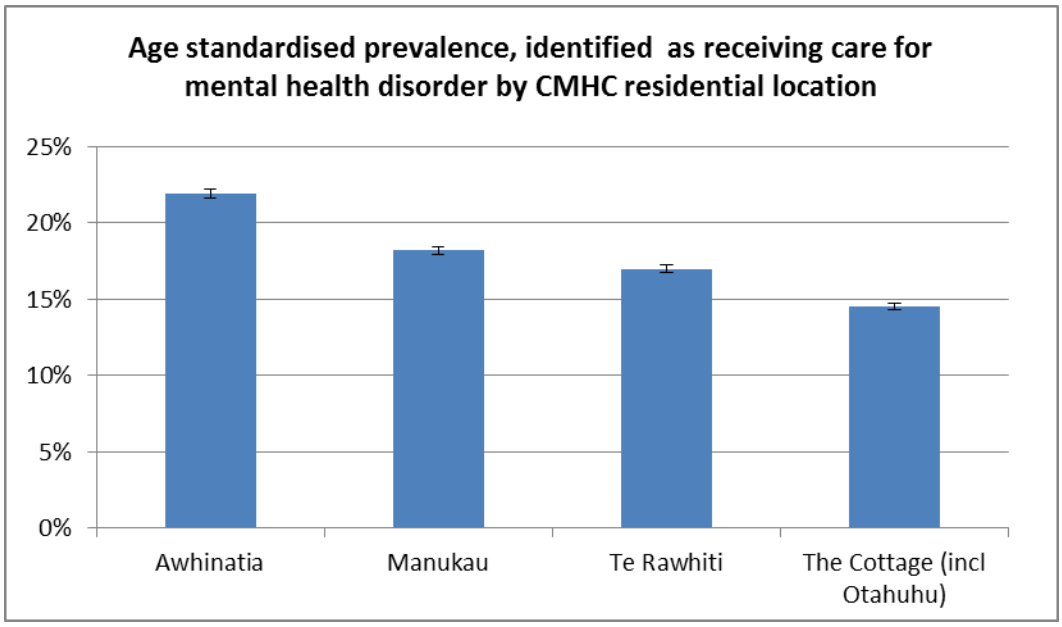


Figure 76 Age-standardised prevalence aged 18 years & over, identified as receiving care for mental health disorder by CMHC residential location



Enrolled locality for primary care

The age-standardised prevalence of care for a mental health disorder was significantly lower in the Mangere/Otara and Otahuhu enrolled populations (Table 57 and Figure 78).

Non-enrolment in a PHO is examined further under the Utilisation section (P 108), but of note the prevalence of being identified in the mental health population in the non-enrolled population was similar to Mangere/Otara and Otahuhu and lower than the other enrolled localities. This will in part reflect the way the mental health population is defined - that inclusion in the population is defined

through various forms of health service utilisation and the primary care sector (reflected in PHO enrolment) potentially play a key role in many referrals to mental health services and is a major contributor to prescriptions for mental health medications. Those who are engaged with primary care (evidenced by enrolment) are more likely to get treatment or referral for their mental health problem and hence by definition be identified as part of the mental health population.

Note that while only 2.6% of the overall mental health population were identified as being not enrolled at beginning of 2012, this still represents just over 1,700 people identified with a history of mental health disorder who were not engaged at that point with primary care. This is a quality improvement opportunity. A further 10,110 were enrolled practices outside of the CM Health localities, so work with other DHBs will be important to influence their care.

Table 57 Mental health population aged 18 years and older, total identified, enrolled locality for primary care by gender

	Gender			**Comparison with constructed population**		**Prevalence of care for mental health conditions**	
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude preva-lence	Age-standardised prevalence (95% CI)
Eastern	8,470	4,830	13,290	20.3%	19.5%	18.6%	18.1% (17.8% – 18.4%)
Franklin	4,180	2,510	6,700	10.2%	8.6%	21.3%	21.3% (20.8% – 21.8%)
Mangere/Otara	6,170	5,270	11,430	17.5%	22.6%	13.8%	13.9% (13.7% – 14.1%)
Manukau	13,290	8,820	22,110	33.8%	28.6%	21.1%	20.8% (20.6% – 21.1%)
Not enrolled	610	1,100	1,710	2.6%	3.5%	13.3%	13.1% (12.5% – 13.7%)
Otahuhu (ADHB)	1,420	1,330	2,740	4.2%	5.8%	12.9%	12.8% (12.4% – 13.3%)
Other*	4,130	3,240	7,370	11.3%	11.5%	17.5%	17.4% (17.1% – 17.8%)
Total	**38,270**	**27,090**	**65,360**	**100%**	**100%**	**17.8%**	**17.6% (17.5% – 17.7%)**

**beyond CMDHB and Otahuhu*

Figure 77 Mental health population aged 18 years and older, total identified, enrolled locality for primary care compared with constructed population

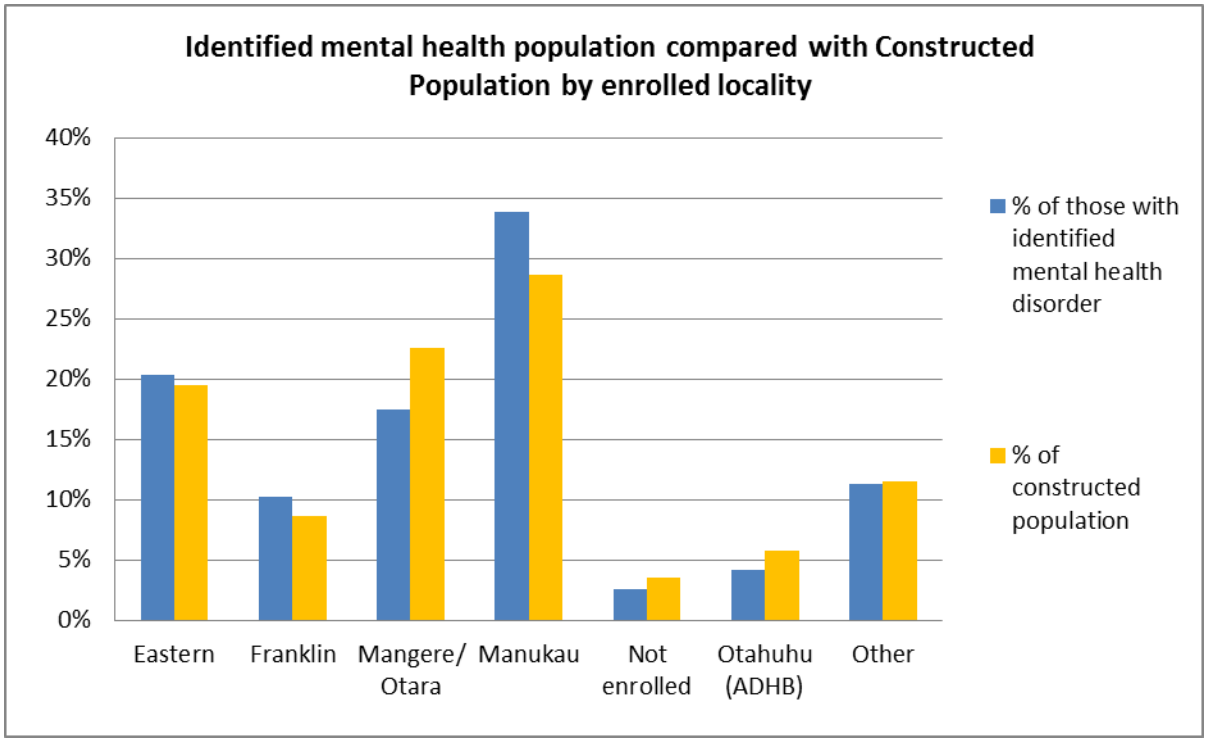
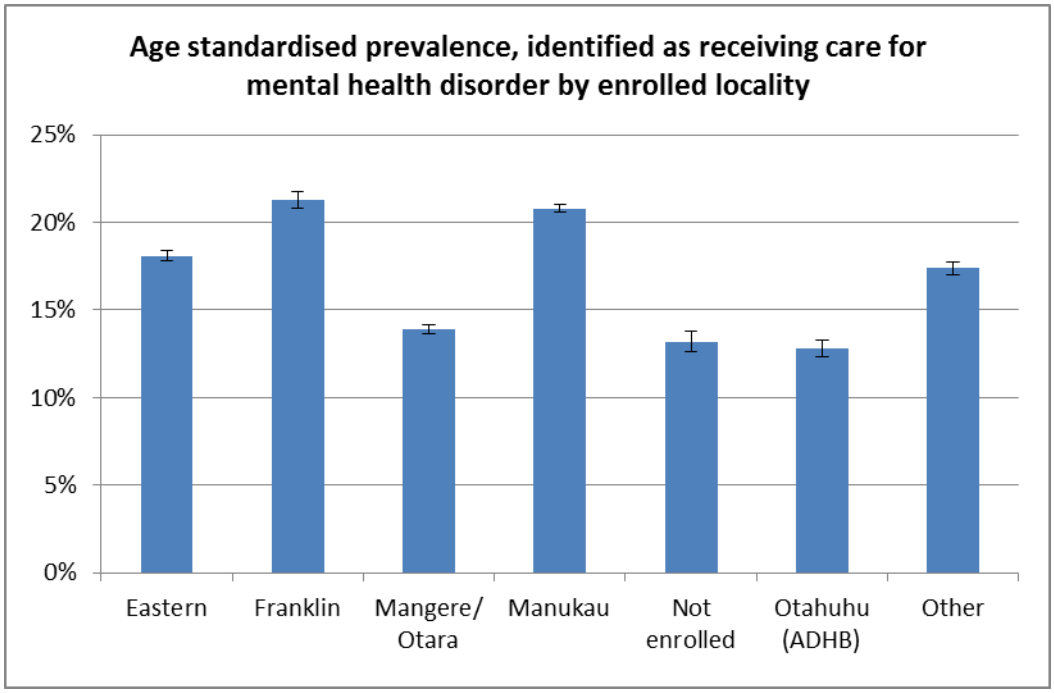


Figure 78 Age-standardised prevalence aged 18 years & over, identified as receiving care for mental health disorder, by enrolled locality



Means of identification as part of the Mental Health population aged 18 years and over

78% of the mental health population (50,790 people) were receiving mental health medication of some sort. 24% (12,120) of these people (19% of the total) also had contact with mental health services at some point from 2008 - 2011. For 56% of the total mental health population (36,810 people), a mental health medication was the only way they were identified as part of the mental health population.

Overall 36.3% of the identified mental health population (23,750 people) had some contact with mental health services from 2008-2011. Of these, 49% (11,630) were not identified as receiving any mental health medication in the period 2006-2011 (Table 58 and Table 59, Figure 79 and Figure 80).

7.5% of people (4,890) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital.

Table 58 Means of identification as part of the population aged 18 years & over receiving care for mental health disorder, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	2,940	38,670	41,610
No NMDS MH diagnosis		36,810	37,090
NMDS MH diagnosis	2,670	1,860	4,530
PRIMHD contact	11,630	12,120	23,750
No NMDS MH diagnosis	10,210	7,230	17,440
NMDS MH diagnosis	1,420	4,890	6,310
Total	**14,570**	**50,790**	**65,360**

Table 59 Means of identification as part of the population aged 18 years & over receiving care for mental health disorder, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**4.5%**	**59.2%**	**63.7%**
No NMDS MH diagnosis		56.3%	56.7%
NMDS MH diagnosis	4.1%	2.8%	6.9%
PRIMHD contact	**17.8%**	**18.5%**	**36.3%**
No NMDS MH diagnosis	15.6%	11.1%	26.7%
NMDS MH diagnosis	2.2%	7.5%	9.7%
Total	**22.3%**	**77.7%**	**100%**

Figure 79 Means of identification as part of the population aged 18 years and over receiving care for mental health disorder, number of people per category (circles not proportionate)

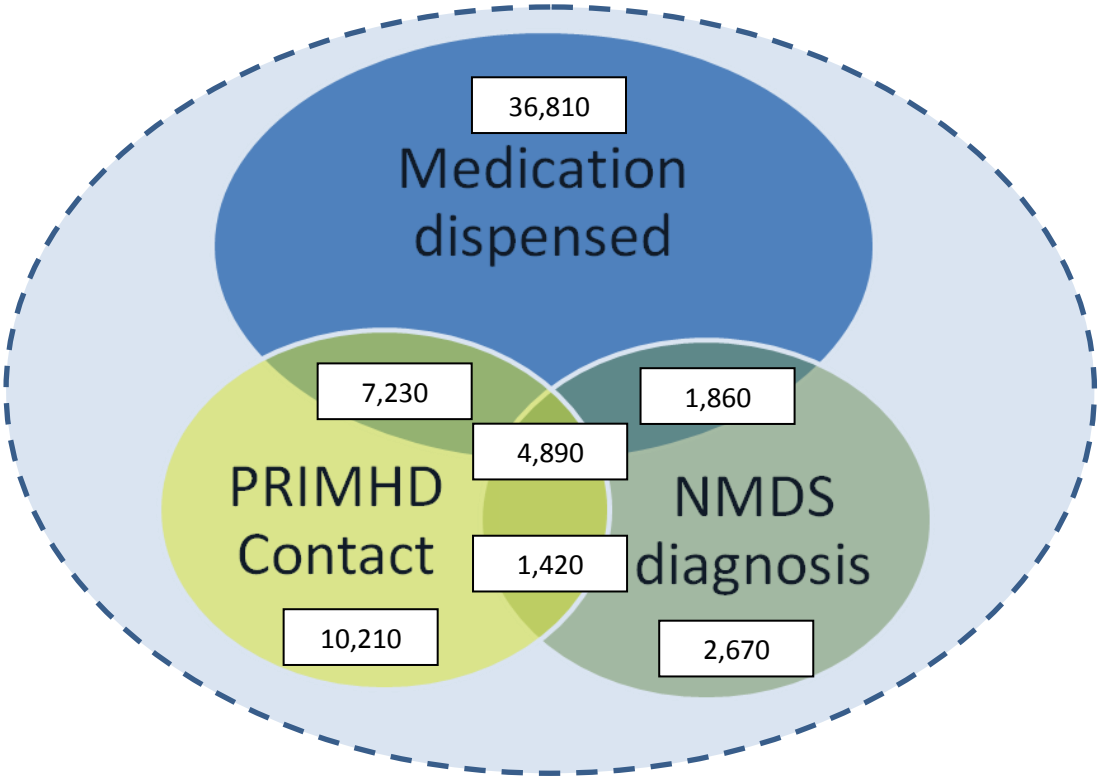
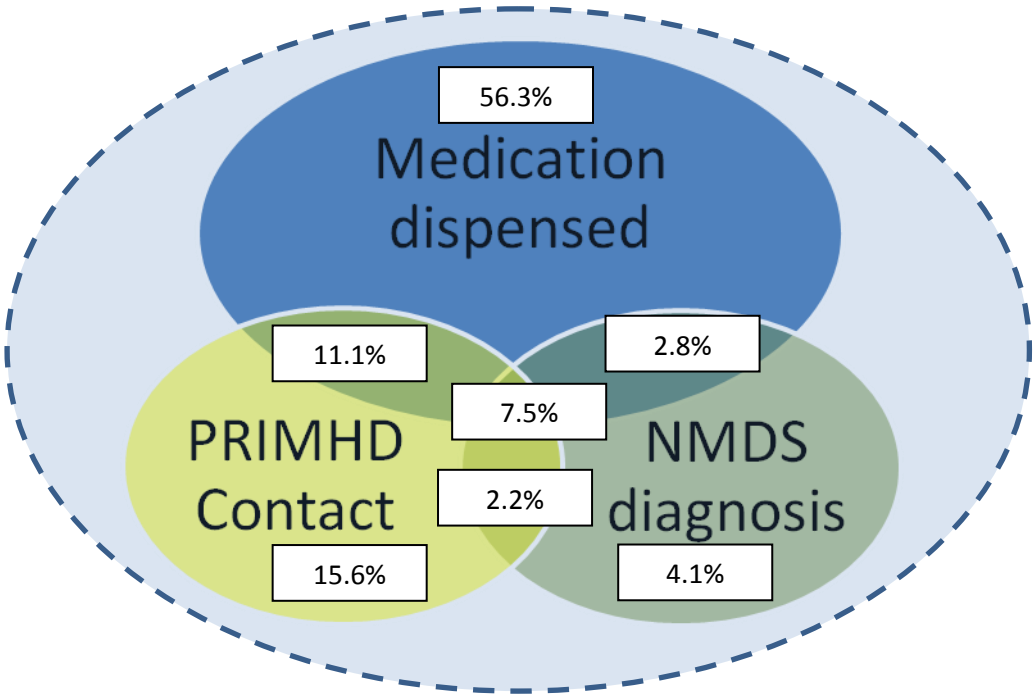


Figure 80 Means of identification as part of the population aged 18 years and over receiving care for mental health disorder, category by percentage (circles not proportionate)



As noted previously, the dotted circle represents the wider population who have mental health disorders who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies).

Diagnoses

As noted, depression and anxiety often occur together and treatment can be similar so they are grouped together for this report. Depression/anxiety was by far the most common diagnostic group for those identified as receiving care for a mental health disorder, being identified by use of relevant medication or actual diagnosis in PRIMHD or NMDS for 75% (48,950 people) of the mental health population, with a crude prevalence of 13.3% (Table 60, Figure 81 and Figure 82). People may be receiving a variety of medications that span a number of the diagnostic groups and there may be overstatement of the numbers in various groups, particularly the depressive disorders group, but this was considered preferable to excluding people from one or other group.

Overall there was a preponderance of females in the mental health population at 59% of those identified (compared to 52.5% in the constructed population). In particular in several conditions women represented 60% or more of those identified – 90% of those identified with eating disorders, 65% of those with depression/anxiety, and 60% of those with bipolar disorder. However 65% of those identified with substance abuse and 71% of those with disorders with onset in childhood and/or adolescence were male.

There were 8,940 people (14% of the overall mental health population identified by this study) who did not have a diagnosis identified that was within the categories described. By definition these are people who were seen by mental health services in the period July 2008 – December 2011 but were not given a diagnosis in these categories (people identified by PHARMS and/or NMDS diagnosis had to have medications or diagnoses within the categories described to be identified). This leaves 56,420 people with identified diagnoses in the categories described. Given there was a total of 71,740 diagnoses identified, this indicates there were a substantial proportion of people who have two or more diagnoses.

Table 60 Diagnostic categories for Mental Health Population aged 18 years & over, by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total number of diagnoses	% of the MH population identified with this condition (not taking into account overlap)	Crude prevalence	% female
Depression/anxiety	32,030	16,920	48,950	74.9%	13.3%	65.4%
Bipolar disorder	990	650	1,640	2.5%	0.4%	60.3%
Personality disorder	440	340	780	1.2%	0.2%	56.5%
Psychotic disorder	4,160	3,920	8,080	12.4 %	2.2%	51.5%
Substance Abuse	1,370	2,530	3,910	6.0%	1.1%	35.2%
Eating Disorder	100	10	110	0.2%	0.0%	89.6%
Behavioural complications of Dementia	400	270	670	1.0%	0.2%	59.2%
Disorders onset child/adolescent	290	730	1,010	1.6%	0.3%	28.5%
Intentional self-harm	2,290	1,240	3,520	5.4%	1.0%	64.9%
Other MH	210	230	440	0.7%	0.1%	47.6%
Total Diagnoses in these categories	44,000	27,740	71,740			
People with No Diagnosis in these categories	3,020	5,920	8,940	13.7%	2.4%	33.8%

Figure 81 Percentage of the mental health population aged 18 years & over, identified with various mental health conditions

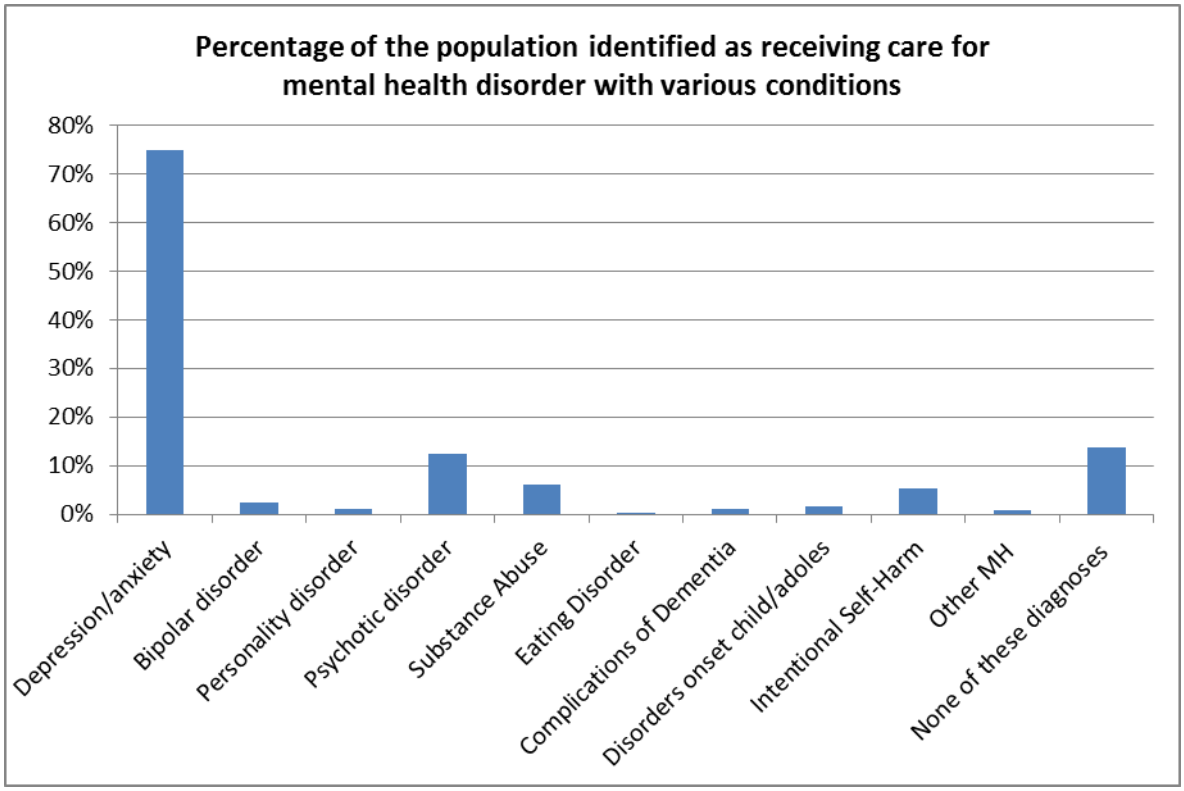
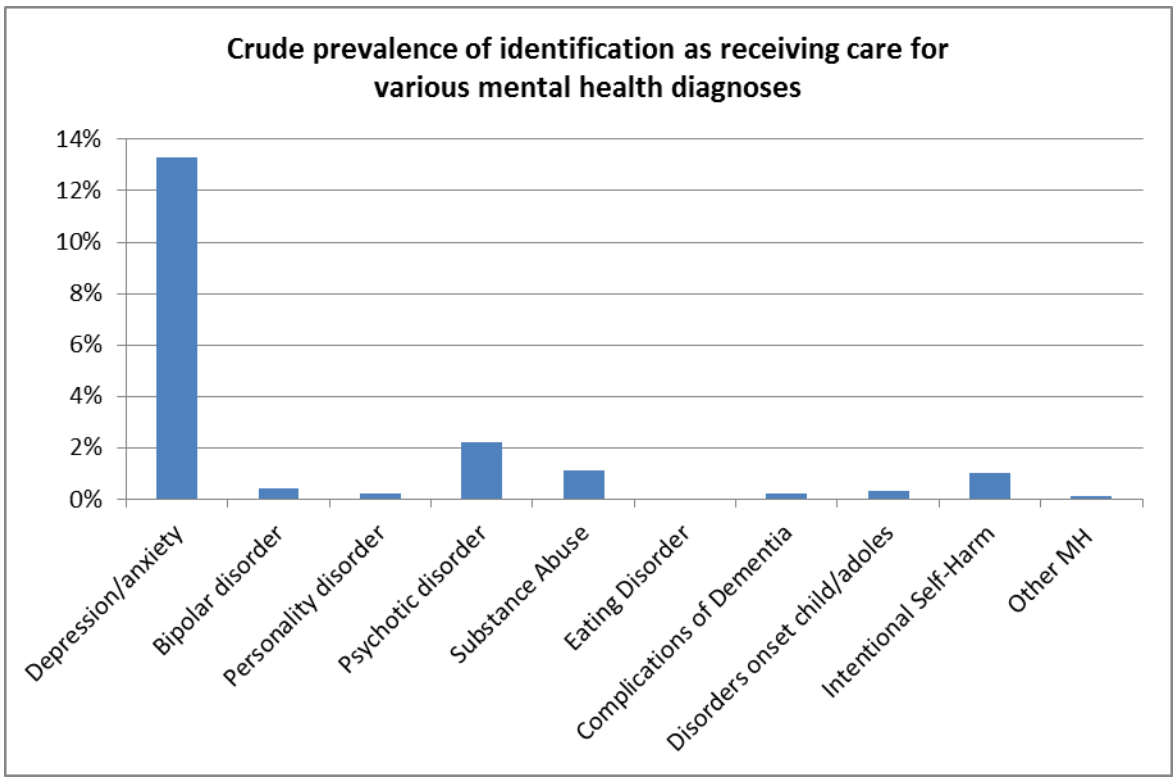


Figure 82 Crude prevalence of identification as receiving care for various mental health conditions in the population aged 18 years & over



Results

Section Two

Young People Aged 12 to 19 years

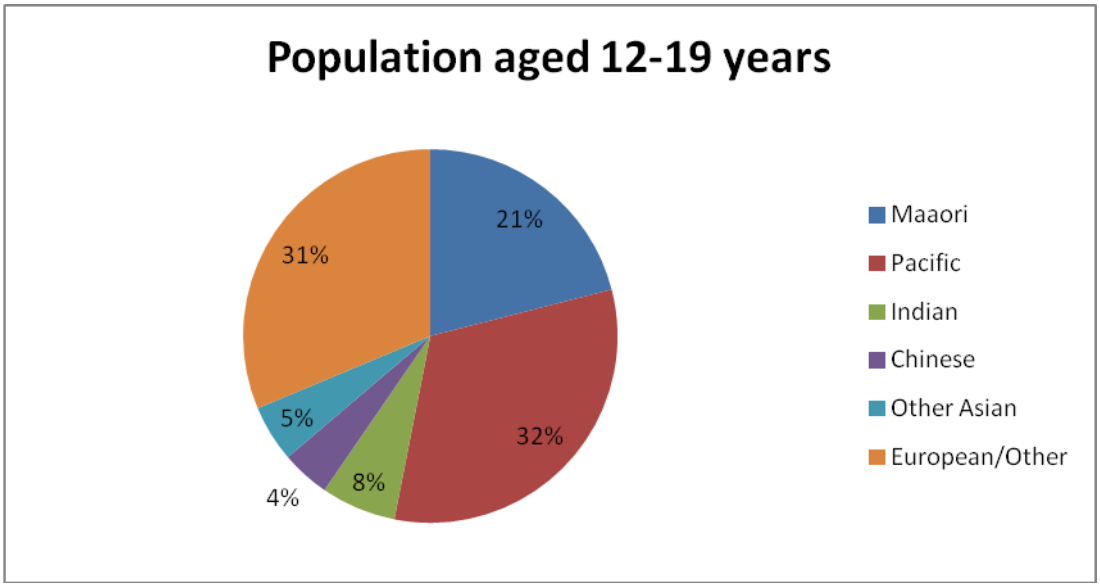
(Target population for the

Prime Minister's Youth Mental Health Project)

2011 Constructed population aged 12 to 19 years

The population of young people aged 12 to 19 years is one of the most multi-ethnic of the various age groups in the CM Health population, as demonstrated below (Figure 83), with a third of the population identified as Pacific, a third identified as European/Other ethnicities, one fifth identified as Maaori, and smaller proportions identifying as Indian, Chinese and Other Asian groups.

Figure 83 Ethnicity of CM Health mental health services catchment population aged 12 to 19 years, constructed population 2011



This is important context for understanding the proportion of the mental health populations constituted by young people of different ethnicities; that proportion is compared with the pattern of the underlying constructed population in the descriptions in this section.

Application of the Youth'07 and Youth'12 results to the CM Health population

Youth'07 was a national survey conducted in 2007 in 96 secondary schools throughout New Zealand. It collected information from a total of 9,107 secondary school students from Years 9 to 13 and was representative of young people attending mainstream secondary schools. The goal of the survey was to provide current and accurate national data on the health and wellbeing of New Zealand's young people to better inform policy and programmes for young people[12].

The majority of students (approximately three quarters) reported relatively high levels of mental and emotional well-being. However, just over one in ten (10.6%) students reported significant current symptoms of depression (i.e. likely to have an impact on a student's daily life) on the embedded Reynolds Adolescent Depression Scale– Short Form (RADS-SF) questionnaire. Females were more

[12] Adolescent Health Research Group, (2008*).* Youth '07: The Health and Wellbeing of Secondary School Students in New Zealand. Technical Report. Auckland: The University of Auckland.

likely to report significant depressive symptoms (14.7 %) compared with males (6.9%)[13]. 16.5% of students reported that they had seen a health professional for emotional health worries within the previous 12 months, and 14% had seriously thought about suicide in the previous 12 months. Maaori (11.1%) and Pacific (10.8%) students were more likely than NZ European students (7.4%) to have made suicidal plans in the last 12 months and more likely to have attempted suicide (Maaori 6.9%, Pacific 8.2%, NZ European 3.6%). However neither Maaori or Pacific students were more likely to report significant depressive symptoms than NZ European (9.3%) students; Asian students had a higher prevalence of depressive symptoms (13.5%).

In addition, the Youth'07 survey reported that just under one in ten students (9.3%) had Strengths and Difficulties Questionnaire (SDQ)[14] scores above the 90th percentile, consistent with an underlying mental health issue. A greater proportion of female students (11.2%) than male students (7.6%) indicated an underlying mental health issue. A greater proportion of Maaori students (11.7%) than NZ European students (8.1%) indicated an underlying mental health issue; other ethnic specific results for the SDQ scores have not been reported.

Pacific students (32%) were more likely than students of any other ethnic group to report excellent psychological well-being as measured by the WHO-5 Well-being Scale.

Using very similar methodology to Youth'07, the Youth'12 survey was undertaken in 2012 and the initial results were released in July 2013. Ethnic specific results are not yet available, but the overall results give a prevalence of significant depressive symptoms of 16.2% for females and 8.6% for males.

While the age band targeted for the Prime Minister's Youth Mental Health Project is wider than the population surveyed for the Youth'07 and Youth'12 studies, the Youth'07 and Youth'12 results are the best indication available of potential mental health need for the adolescent population in New Zealand.

As in Table 61 below, if the Youth'07 ethnic specific results for depressive symptoms are applied to the population aged 12 to 19 years old for the catchment population for CMH mental health services this would equate to approximately 7,000 young people in the CMH mental health catchment area (including Otahuhu) potentially having significant depressive symptoms in 2011. As shown in (Table 62), if the SDQ results are applied to 12 to 19 year old population this would equate to approximately 6,200 young people in the CMDHB mental health catchment area (including Otahuhu) potentially having an underlying mental health issue. While the Youth'12 figures are similar to the Youth'07 results, they would increase the estimate of the population aged 12 to 19 years impacted for Counties Manukau in 2011 by over one thousand to approximately 8,150.

[13] Fortune, S., Watson, P., Robinson, E., Fleming, T., Merry, S., & Denny, S. (2010). Youth'07: The health and wellbeing of secondary school students in New Zealand: Suicide behaviours and mental health in 2001 and 2007. Auckland: The University of Auckland.

[14] The SDQ is a brief emotional and behavioural screening questionnaire designed to screen for child and adolescents psychiatric disorders. It is divided into four difficulties scales and a pro-social scale. The difficulties or problem scales include emotional symptoms, conduct problems, hyperactivity/inattention and peer relationship problems. The pro-social scale measures positive social behaviours towards others.

Table 61 Depression estimates for CM Health mental health service catchment population (including Otahuhu) aged 12 to 19 years using Youth'07 results

Ethnicity	Estimated female constructed population	Estimated male constructed population	Total constructed population	Prevalence of female depression (Youth '07)	Prevalence of male depression (Youth '07)	Estimated number females with depression	Estimated number males with depression	Total number estimated with depression*
Maaori	6,950	6,920	13,860	16.4%	4.9%	1,140	340	1,480
Pacific	10,430	10,730	21,150	14.9%	6.5%	1,550	700	2,250
Indian	2,070	2,220	4,290	18.0%	7.0%	370	160	530
Chinese	1,350	1,420	2,770	18.0%	8.0%	240	110	360
Other Asian	1,630	1,630	3,260	18.0%	9.0%	290	150	440
European/ Other	10,220	10,390	20,610	12.7%	6.5%	1,300	680	1,970
Total	**32,640**	**33,300**	**65,940**	**14.7%**	**6.9%**	**4,900**	**2,130**	**7,030**

** Totals are derived by adding female and male numbers together. A similar overall total results if the population prevalence (both genders, all ethnicities combined) of 10.6% is applied to the total constructed population number*

Table 62 Potential number of young people aged 12 to 19 years with underlying mental health issues 2011 for CM Health mental health service catchment population (including Otahuhu) using Youth'07 SDQ results

Estimated female constructed population	Estimated male constructed population	Total constructed population	Prevalence of underlying MH issue, female (Youth '07)	Prevalence of underlying MH issue, male (Youth '07)	Estimated number females with underlying MH issue	Estimated number males with underlying MH issue	Total number estimated with underlying MH issue
32,640	33,300	65,940	11.2%	7.6%	3,660	2,530	6,190

As noted previously, this report focuses on the 2011 snapshot and mental health service contact populations for service planning and these populations for the 12 to 19 years age group are described below. The 'overall mental health population' drawing on further years of health service data is less applicable for young people as they have not had time to 'accumulate' a history of health care for mental health disorders so this population is not described for the 12 to 19 age group. It is also important to acknowledge that the health service contact analysed in this study covers only a subset of the broader spectrum of services which support young people with mental health concerns, which include health services in schools and alternative education providers, wider pastoral care teams in education settings (e.g. counsellors and social workers), and a range of youth development programmes in education and community settings.

2011 Snapshot Mental Health Population aged 12 to 19 years

In 2011 there were just over 3,700 young people aged 12 to 19 years of age identified as receiving care for a mental health disorder (Table 64) as identified through medication, contact with mental health services or diagnosis when an inpatient (for any reason) in a public hospital during 2011.

Ethnicity

Young people identified as Maaori and European/Other ethnicities had a significantly higher prevalence of care for mental health disorder in 2011 compared to those of Pacific and Asian ethnicities (Table 63, Figure 84 and Figure 85).

9% and 7% respectively of the Maaori and European/Other populations were identified as receiving care for a mental health disorder, whereas the figure for Asian and Pacific populations was only 2-4% (Crude prevalence, Table 63). Those of Maaori and European/Other ethnicities constituted 21% and 31% of the underlying constructed population but 34% and 39% of those identified as receiving care for a mental health disorder respectively.

Table 63 Mental health population aged 12 to 19 years, 2011 snapshot, by ethnicity and gender.

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Ethnicity	Female	Male	Total	% of CMDHB 2011 mental health population	% of constructed population in this ethnic group	Crude prevalence (95% CI)
Maaori	580	710	1,280	34.3%	21.0%	9.3% (8.8% - 9.7%)
Pacific	310	460	770	20.6%	32.1%	3.6% (3.4% - 3.9%)
Indian	60	50	110	2.8%	6.5%	2.4% (2.0% - 2.9%)
Chinese	20	30	50	1.4%	4.2%	1.8% (1.3% - 2.3%)
Other Asian	40	30	70	1.9%	4.9%	2.2% (1.7% - 2.6%)
European/ Other	690	780	1460	39.0%	31.3%	7.1% (6.7% - 7.4%)
Total	**1,690**	**2,050**	**3,740**	**100%**	**100%**	**5.7% (5.5% - 5.8%)**

Figure 84 Mental health population aged 12 to 19 years, 2011 snapshot, compared with constructed population by ethnicity

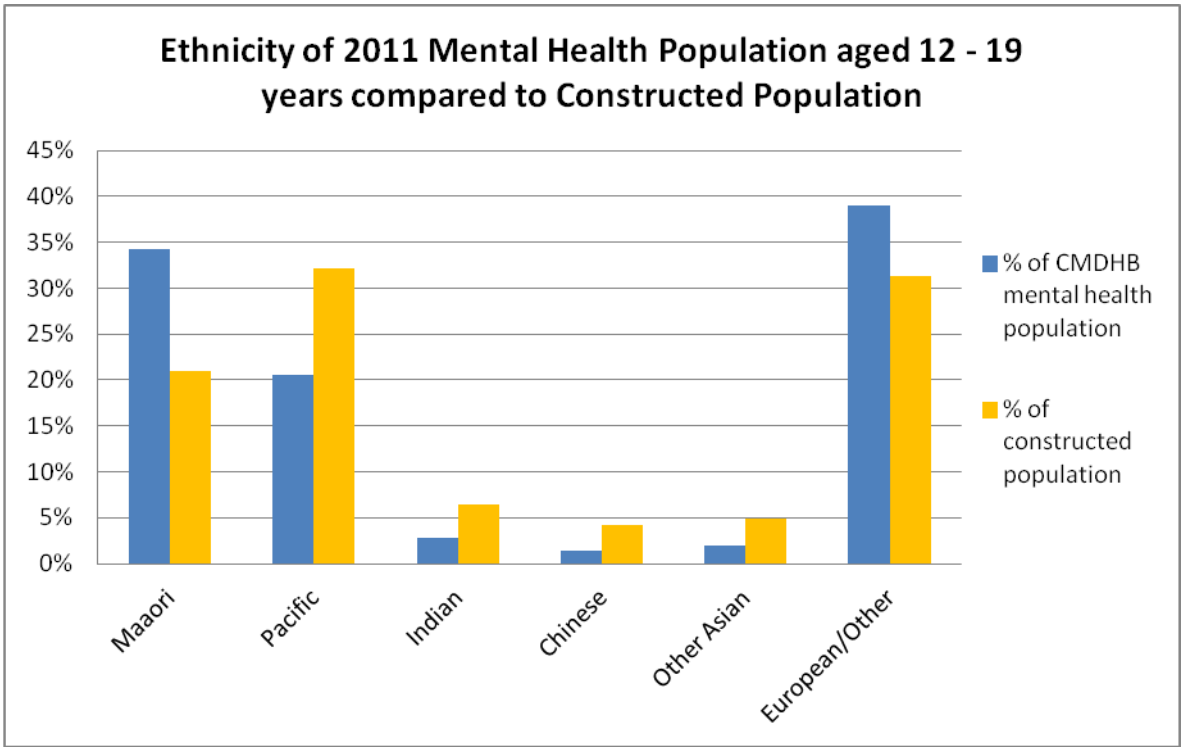
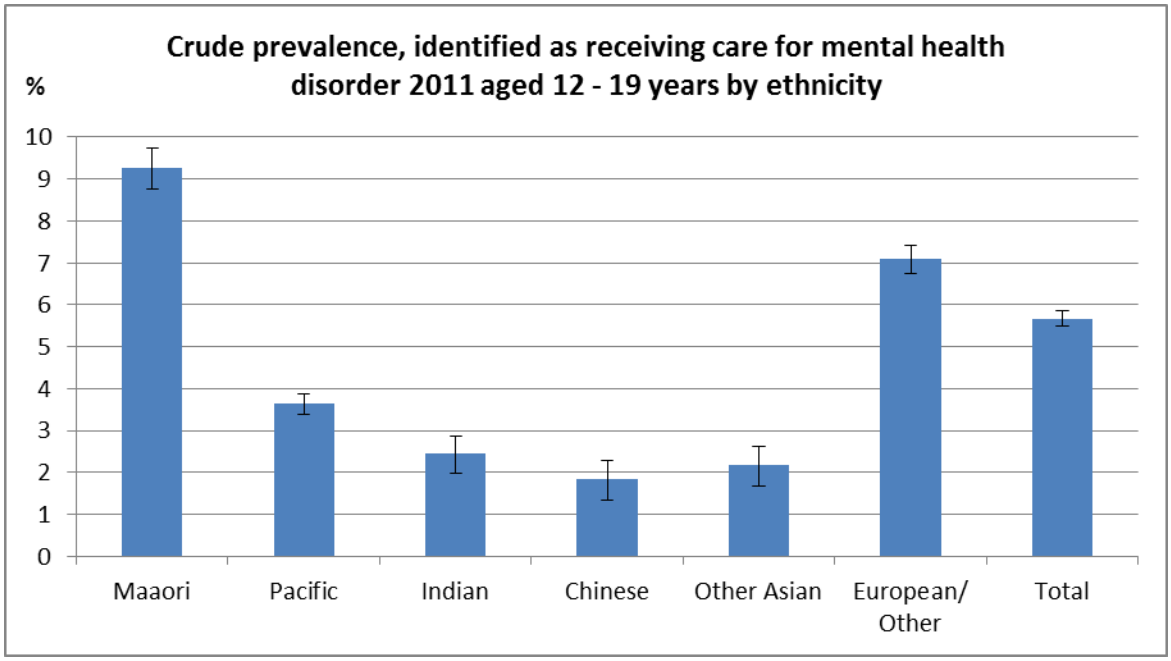


Figure 85 Crude prevalence aged 12 to 19 years, population identified as receiving care for mental health disorder 2011 by ethnicity



Age distribution

The age specific prevalence of identification in the population receiving mental health care in 2011 was lower in the 12 to 14 year age group compared with those aged 15 to 19 (Table 64, Figure 86 and Figure 87).

Table 64 Mental health population aged 12 to 19 years, 2011 snapshot, by age group and gender.

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Age group (Yrs)	Female	Male	Total	% of CMDHB 2011 mental health population	% of constructed population in this age group	Crude (age specific) prevalence (95% CI)
12-14	360	620	980	26.1%	37.3%	4.0% (3.7% - 4.2%)
15-19	1,340	1,430	2,770	73.9%	62.7%	6.7% (6.4% - 6.9%)
Total	**1,690**	**2,050**	**3,740**	**100%**	**100%**	**5.7% (5.5% - 5.8%)**

Figure 86 Mental health population aged 12 to 19 years, 2011 snapshot, age group compared with constructed population

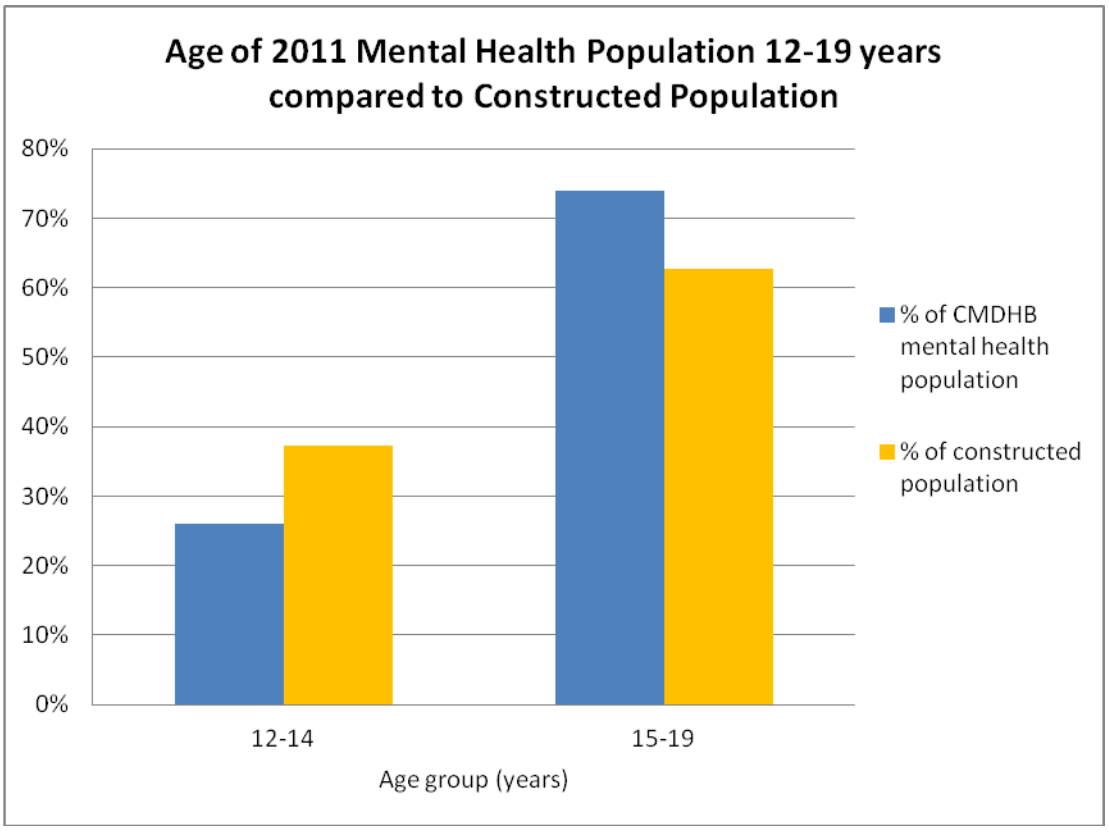
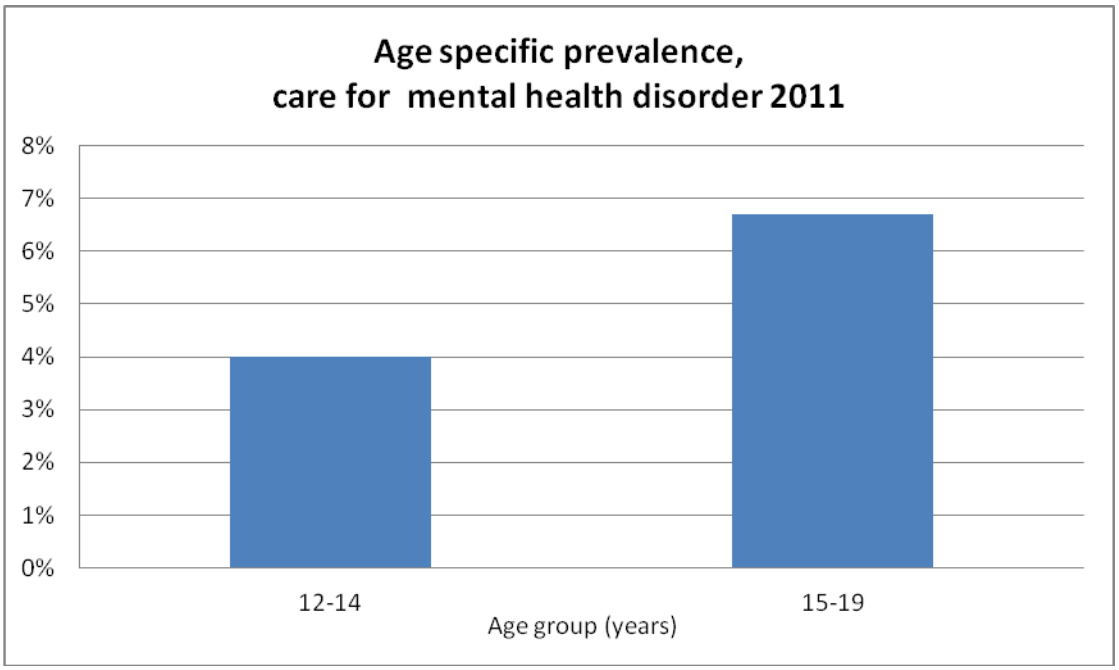


Figure 87 Age specific prevalence, 12 to 19 years, identified as receiving care for mental health disorder 2011



Socioeconomic distribution

Young people identified as receiving care for a mental health disorder in 2011 were living in areas distributed across the NZDep spectrum in a similar pattern to the underlying population, with nearly 40% living in Quintile 5, the most socioeconomically deprived areas (Table 66, Figure 88 and Figure 89). This is reflected in the lack of significant differences between the prevalences across the NZDep06 categories.

Table 65 Mental health population aged 12 to 19 years, 2011 snapshot, by socioeconomic area and gender

	Gender			**Comparison with constructed population**		**Prevalence of care for mental health conditions**
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB 2011 mental health population	% of constructed population in this quintile	Crude prevalence (95% CI)
N/I*	180	220	400	10.8%	9.1%	6.8% (6.1% - 7.4%)
1	250	280	530	14.3%	15.5%	5.2% (4.8% - 5.6%)
2	230	250	480	12.8%	12.6%	5.8% (5.3% - 6.3%)
3	180	230	420	11.1%	10.5%	6.0% (5.5% - 6.6%)
4	250	260	510	13.5%	14.2%	5.4% (4.9% - 5.8%)
5	590	810	1,400	37.5%	38.3%	5.6% (5.3% - 5.8%)
Total	**1,690**	**2,050**	**3,740**	**100%**	**100%**	**5.7% (5.5% - 5.8%)**

*Not Identified – Meshblock data absent or unable to be mapped to NZDep06

Figure 88 Mental health population aged 12 to 19 years, 2011 snapshot by socioeconomic area compared with the constructed population

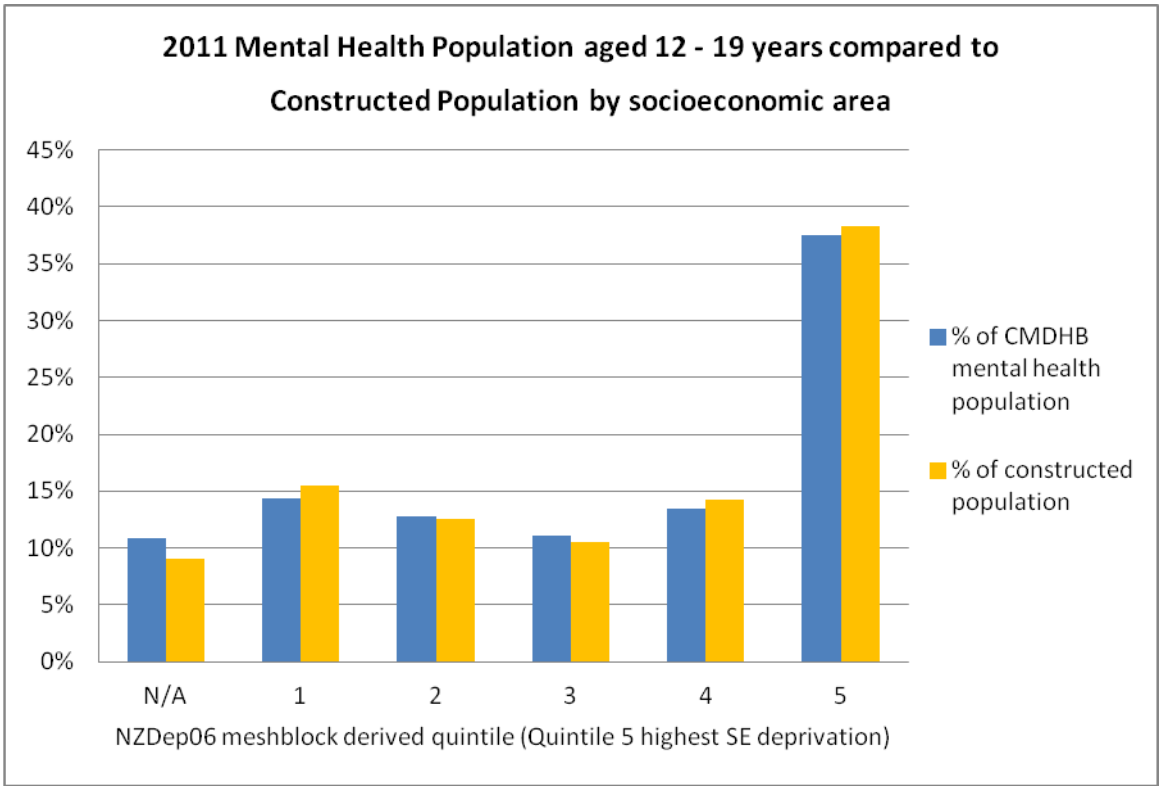
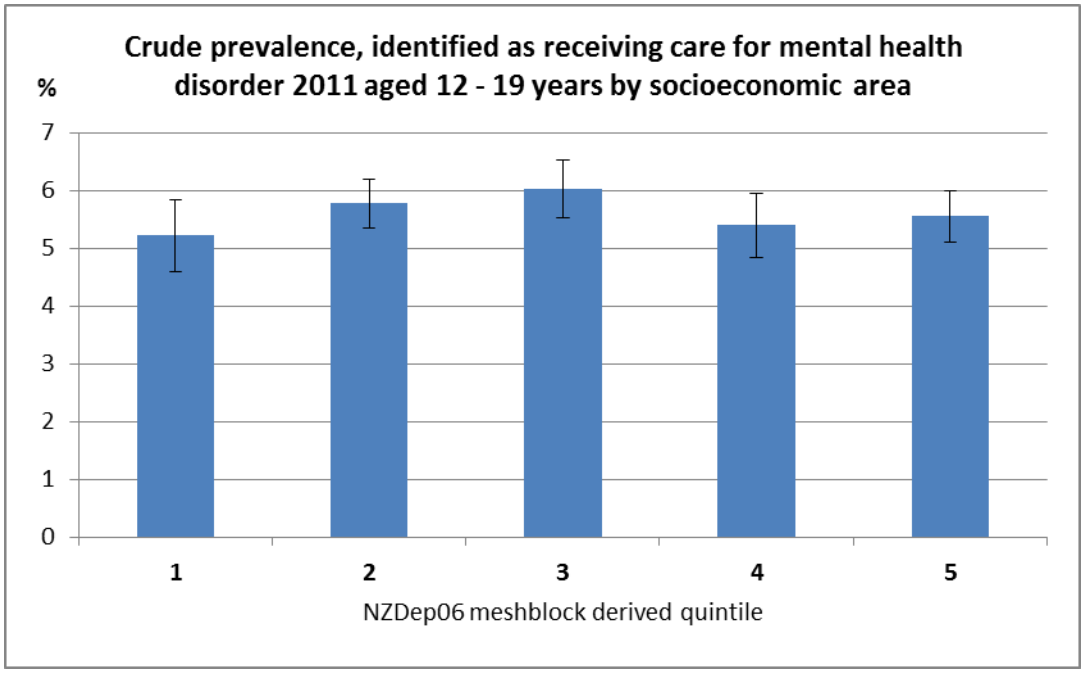


Figure 89 Crude prevalence of identification as receiving care for a mental health disorder aged 12 to 19 years, 2011 snapshot by socioeconomic area



Distribution across the CM Health district

A significantly greater proportion of young people aged 12 to 19 years identified as receiving care for a mental health disorder in 2011 were living in Awhinatia and less in the Cottage (including Otahuhu) CMHC areas compared to the underlying constructed population, resulting in the prevalence for Awhinatia being 1.6 times that of the Cottage (Table 66, Figure 90 and Figure 91).

Table 66 Mental health population aged 12 to 19 years, 2011 snapshot residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Residential location	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this residential locality	Crude prevalence (95% CI)
Awhinatia	440	490	930	25.0%	20.2%	7.0% (6.6% - 7.5%)
Manukau	450	560	1,010	27.0%	25.6%	6.0% (5.7% - 6.4%)
Te Rawhiti	420	480	900	24.2%	24.4%	5.6% (5.3% - 6.0%)
The Cottage (incl Otahuhu)	380	510	890	23.8%	29.9%	4.5% (4.2% - 4.8%)
Total*	**1,680**	**2,040**	**3,720**	**100%**	**100%**	**5.7% (5.5% - 5.9%)**

**This total number does not include a small number (40) of people who were unable to be mapped to a CAU.*

Figure 90 Mental health population aged 12 to 19 years, 2011 snapshot residential location according to CMHC boundaries compared with constructed population

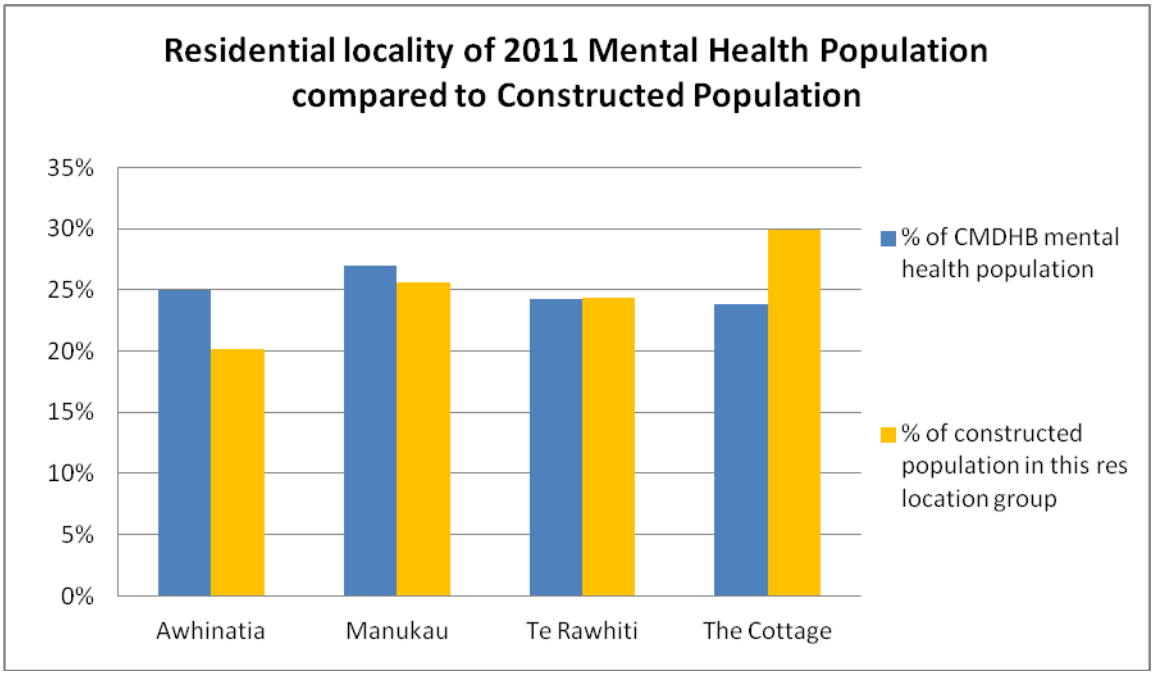
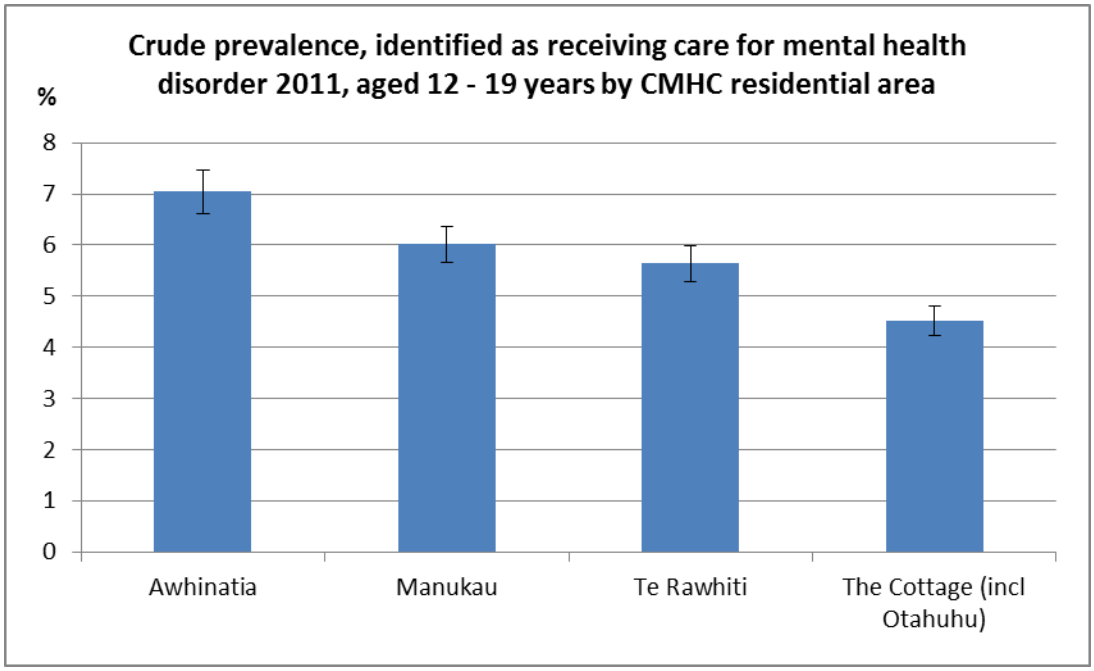


Figure 91 Crude prevalence of identification as receiving care for a mental health disorder 2011, aged 12 to 19 years by CMHC residential area



Enrolled locality for primary care

There was a lower prevalence of young people identified as receiving care for a mental health disorder in 2011 in the Mangere/Otara and Otahuhu enrolled populations (Table 67, Figure 92 and Figure 93).

The highest prevalence of being identified as receiving care for mental health disorder was in young people not enrolled. There were 200 young people aged 12 to 19 years identified as receiving care for a mental health disorder in 2011 (5.5%) who were not enrolled at the end of 2011. There were also 560 (15%) who were enrolled outside CMDHB practices (Table 67).

This means the care of one in five of the young people identified would be unlikely to be influenced by work with and through CM Health practices, indicating that work with other DHBs will be important in the implementation of the primary care aspects of the Prime Minister's Youth Mental Health initiative.

Table 67 Mental health population 12 to 19 years, 2011 snapshot enrolled locality for primary care by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude prevalence (95% CI)
Eastern	290	360	650	17.3%	15.7%	6.3% (5.8% - 6.7%)
Franklin	150	190	340	9.0%	8.3%	6.2% (5.5% - 6.8%)
Mangere/ Otara	360	450	800	21.5%	29.5%	4.1% (3.9% - 4.4%)
Manukau	560	620	1,190	31.8%	27.5%	6.6% (6.2% - 6.9%)
Not enrolled	80	130	200	5.5%	3.8%	8.2% (7.2% - 9.3%)
Otahuhu (ADHB)	50	70	120	3.3%	6.1%	3.1% (2.6% - 3.6%)
Other*	210	230	440	11.7%	9.3%	7.1% (6.5% - 7.8%)
Total	**1,690**	**2,050**	**3,740**	**100%**	**100%**	**5.7% (5.5% - 5.8%)**

**beyond CMDHB and Otahuhu*

Figure 92 Mental health population aged 12 to 19 years, 2011 snapshot enrolled locality for primary care compared with constructed population

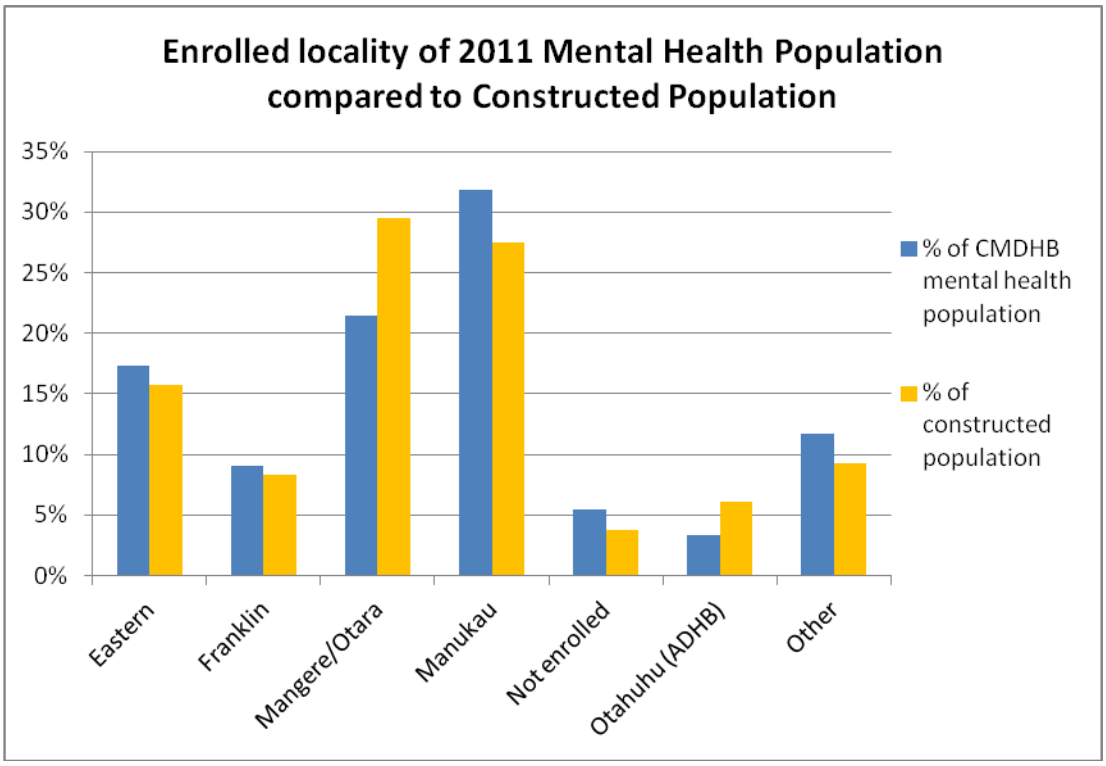
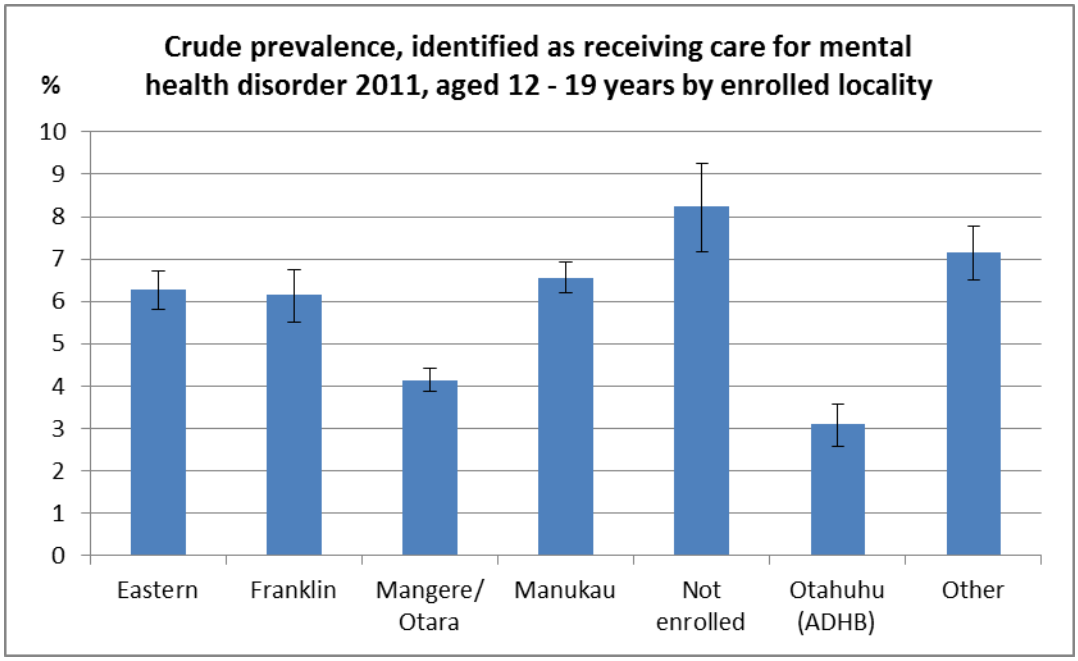


Figure 93 Crude prevalence of identification as receiving care for a mental health disorder 2011, aged 12 to 19 years by enrolled locality



Means of identification as part of the 2011 Mental Health population aged 12 to19 years

34% of the 2011 mental health population for young people aged 12 to 19 years were receiving mental health medication of some sort (1,260 people) (Table 68, Table 69 and Figure 94, Figure 95); this compares with 82% for the 2011 mental health population 18 years and older. Just under half of these young people (590, 16% of the total) also had contact with mental health services. For 18% of the total 2011 mental health population aged 12 to19 years (660), a mental health medication was the only way they were identified as part of the mental health population; this compares with 64% for the 18 years and older mental health population.

Overall 81% of the population identified as receiving care for a mental health disorder (3,030) had some contact with mental health services in 2011; this compares with 35% for the 2011 mental health population 18 years and older. Of these, 81% (2,440) were not identified as receiving any mental health medication in 2011.

3% of young people (100) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital.

Table 68 Means of identification as part of the population aged 12 to 19 years receiving care for mental health disorder 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	40	670	710
No NMDS MH diagnosis		660	660
NMDS MH diagnosis	40	10	50
PRIMHD contact	**2,440**	**590**	**3,030**
No NMDS MH diagnosis	2,290	490	2,780
NMDS MH diagnosis	150	100	260
Total	**2,480**	**1,260**	**3,740**

Table 69 Means of identification as part of the population aged 12 to19 years receiving care for mental health disorder 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	1%	18%	**19%**
No NMDS MH diagnosis		18%	18%
NMDS MH diagnosis	1%	0%	1%
PRIMHD contact	**65%**	**16%**	**81%**
No NMDS MH diagnosis	61%	13%	74%
NMDS MH diagnosis	4%	3%	7%
Total	**66%**	**34%**	**100%**

Figure 94 Means of identification as part of the population aged 12 to 19 years receiving care for mental health disorder 2011, number of people per category (circles not proportionate)

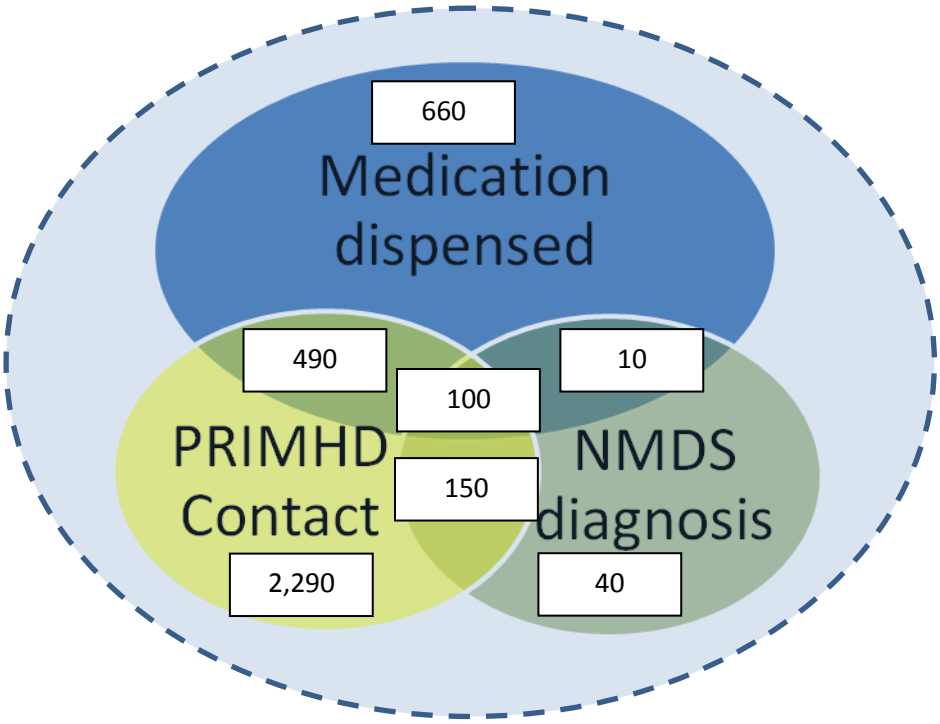
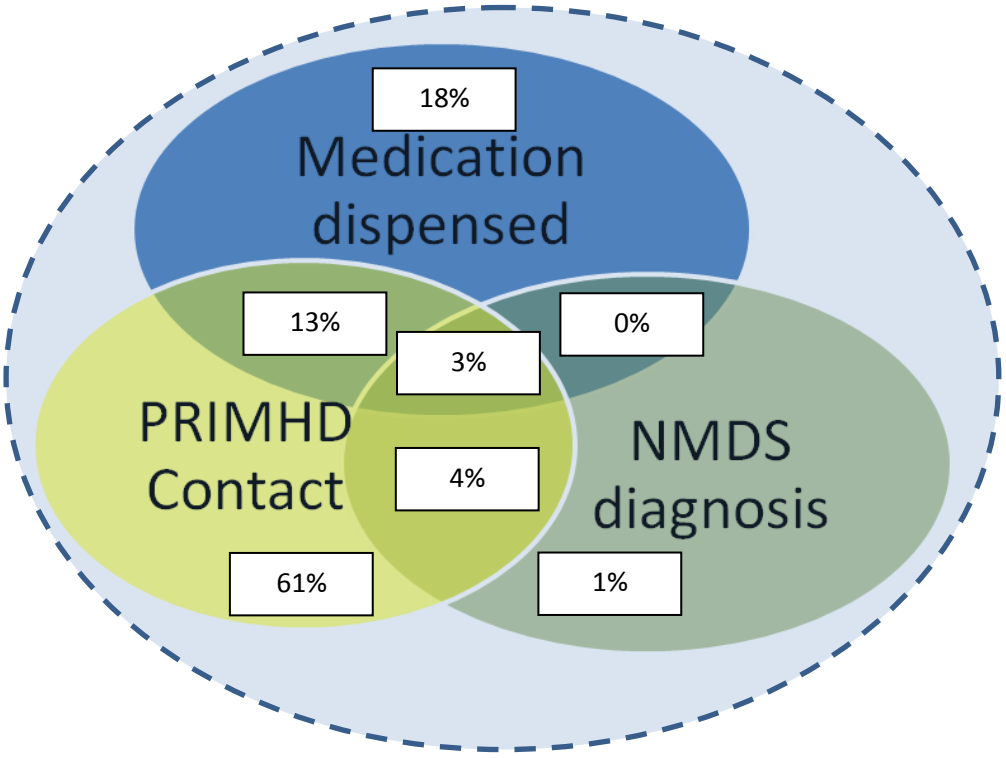


Figure 95 Means of identification as part of the population aged 12 to 19 years receiving care for mental health disorder 2011, number of people per category (circles not proportionate)



The dotted circle represents the 2011 mental health population aged 12 to 19 years who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies).

Diagnoses

56% of the 2011 mental health population aged 12 to 19 years did not have an identified diagnosis (by use of relevant medication or actual diagnosis in PRIMHD or NMDS) within the categories described. This is a very different from older age groups where a much larger percentage had a diagnosis identified (as defined in this study). This will partly reflect the fact that a much lower percentage of young people of this age were on mental health medications compared to older groups, and these medications were a significant part of how the diagnostic categories were defined for this study.

In addition, it is recognised that many mental health conditions have a development trajectory through adolescence. For instance prevalence of schizophrenia increases gradually and peaks in the early 20s and mental health clinicians are often reluctant to 'label' young people with specific mental health disorders until there is sufficient weight of evidence that they do indeed fill the diagnostic criteria (personal communication Dr Peter Watson).

For those who did have a diagnosis in PRIMHD and/or NMDS or were dispensed a mental health medication in the categories used in this study, depression/anxiety was the most common diagnosis, accounting for 23% of the 2011 mental health population aged 12 to 19 years, followed by disorders

with onset in childhood and/or adolescence at 14% and psychotic disorders and intentional self-harm at 7% and 5% respectively (Table 70 and Figure 96).

Overall females constituted 45% of the population seen by mental health services in 2011 but 94% of those with eating disorders, 77% of those with personality disorder, 71% of those with intentional self-harm and 61 to 63% of those with depression/anxiety and bipolar disorder (Table 70). However 83% of those identified with disorders with onset in childhood and/or adolescence, 74% of those with substance abuse and 60% of those with psychotic disorders were male.

As noted, 2,080 young people aged 12 to 19 years identified as receiving care for a mental health disorder in 2011 did not have an identified diagnosis within the categories described (Table 70). This leaves 1,660 people with identified diagnoses in the categories described. Given there were a total of 2,000 diagnoses identified, this indicates there were a proportion of young people who had two or more diagnoses.

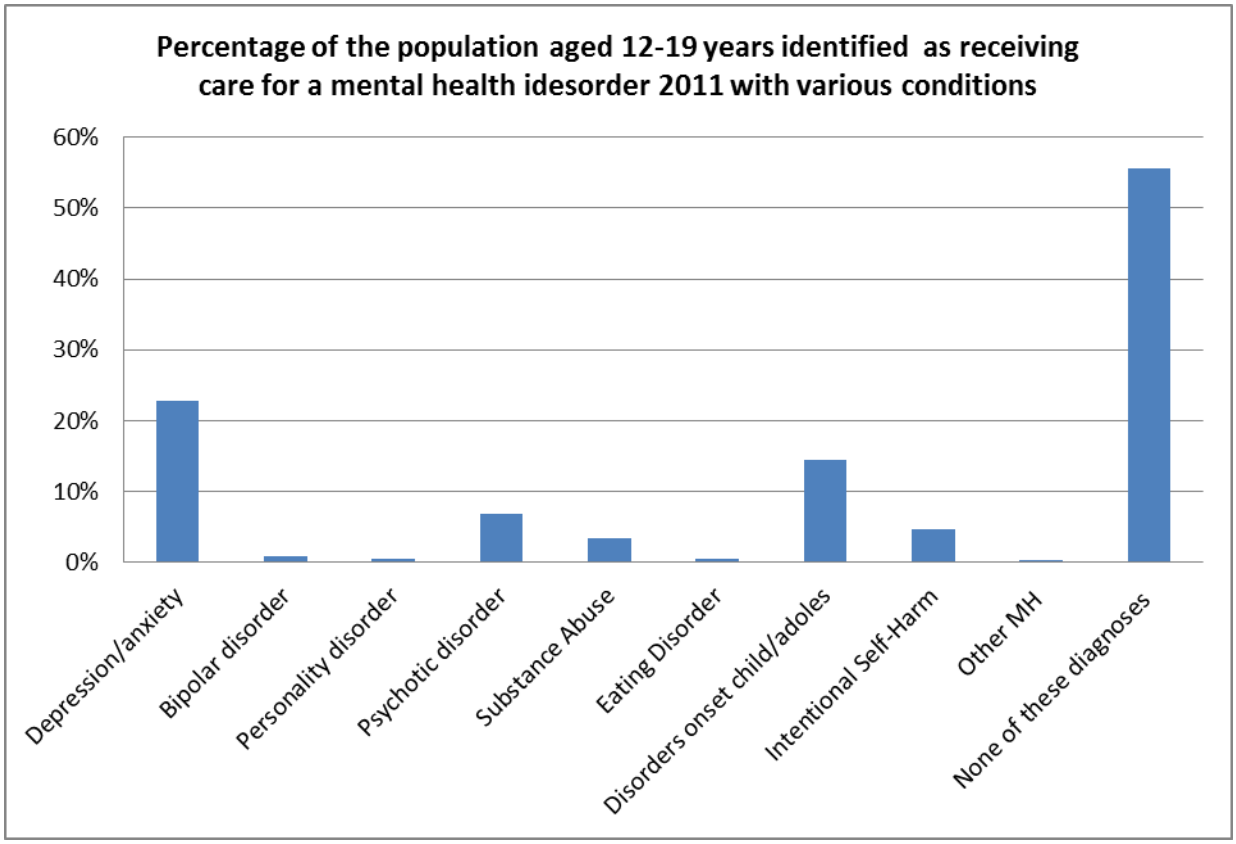
Table 70 Diagnostic categories for the 2011 Mental Health Population, aged 12 to 19 years by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total	% (not taking into account overlap)	% female
Depression/anxiety	540	310	850	22.7%	63.5%
Bipolar disorder	20	10	30	0.7%	61.5%
Personality disorder	10	0	10	0.3%	76.9%
Psychotic disorder	100	150	250	6.7%	40.0%
Substance abuse	30	90	130	3.3%	26.4%
Eating disorder	20	0	20	0.5%	94.4%
Disorders onset child/adolescent	90	450	540	14.4%	17.4%
Intentional self-harm	120	50	170	4.5%	70.6%
Other MH	0	10	10	0.2%	37.5%
Total Diagnoses in these categories	930	1,070	2,000		
People with No Diagnosis in these categories	950	1,140	2,080	55.7%	45.4%

*includes schizophrenia

Figure 96 Percentage of the 2011 mental health population, aged 12 to 19 years identified with various mental health conditions



2011 Mental Health Service Contact Population aged 12 to 19 years

In 2011, of the 3,740 young people aged 12 to 19 years of age who were identified as receiving care for a mental health disorder in 2011, 81% (3,040 young people) were in contact with mental health services, as documented in the PRIMHD database (Table 72).

Ethnicity

Maaori young people had a much higher prevalence of contact with mental health services in 2011 than young people aged 12-19 years of other ethnicities. Overall the prevalence of mental health disorder having contact with mental health services was 4.6%, but was 8.4% for Maaori, 4.7% for European/Other groups, 3.4% for Pacific and 2% for those of Asian ethnicities (Table 71, Figure 97 and Figure 98).

Maaori young people represented 38.5% of those in contact with mental health services compared 21% of the underlying constructed population (Table 71 and Figure 97). Those of Asian ethnicities represented only 6% of the Mental Health (MH) Service Contact Population compared with 16% of the underlying constructed population and young people of Pacific ethnicities represented 23% of the population in contact with the mental health services compared to 32% of the underlying constructed population.

Table 71 Mental health service contact population aged 12 to 19 years, 2011 snapshot by ethnicity and gender

	Gender			**Comparison with constructed population**		**Prevalence of mental health service contact**
Ethnicity	Female	Male	Total	% of CMDHB 2011 mental health service contact population	% of constructed population in this ethnic group	Crude prevalence (95% CI)
Maaori	530	640	1,170	38.5%	21.0%	8.4% (8.0% - 8.9%)
Pacific	280	430	710	23.4%	32.1%	3.4% (3.1% - 3.6%)
Indian	60	30	90	2.9%	6.5%	2.1% (1.6% - 2.5%)
Chinese	20	20	40	1.4%	4.2%	1.6% (1.1% - 1.9%)
Other Asian	30	20	50	1.7%	4.9%	1.6% (1.1% - 1.9%)
European/ Other	490	480	970	32.0%	31.3%	4.7% (4.4% - 5.0%)
Total	**1,410**	**1,630**	**3,040**	**100%**	**100%**	**4.6% (4.4% - 4.8%)**

Figure 97 Mental health services contact population aged 12 to 19 years, 2011 snapshot compared with constructed population by ethnicity

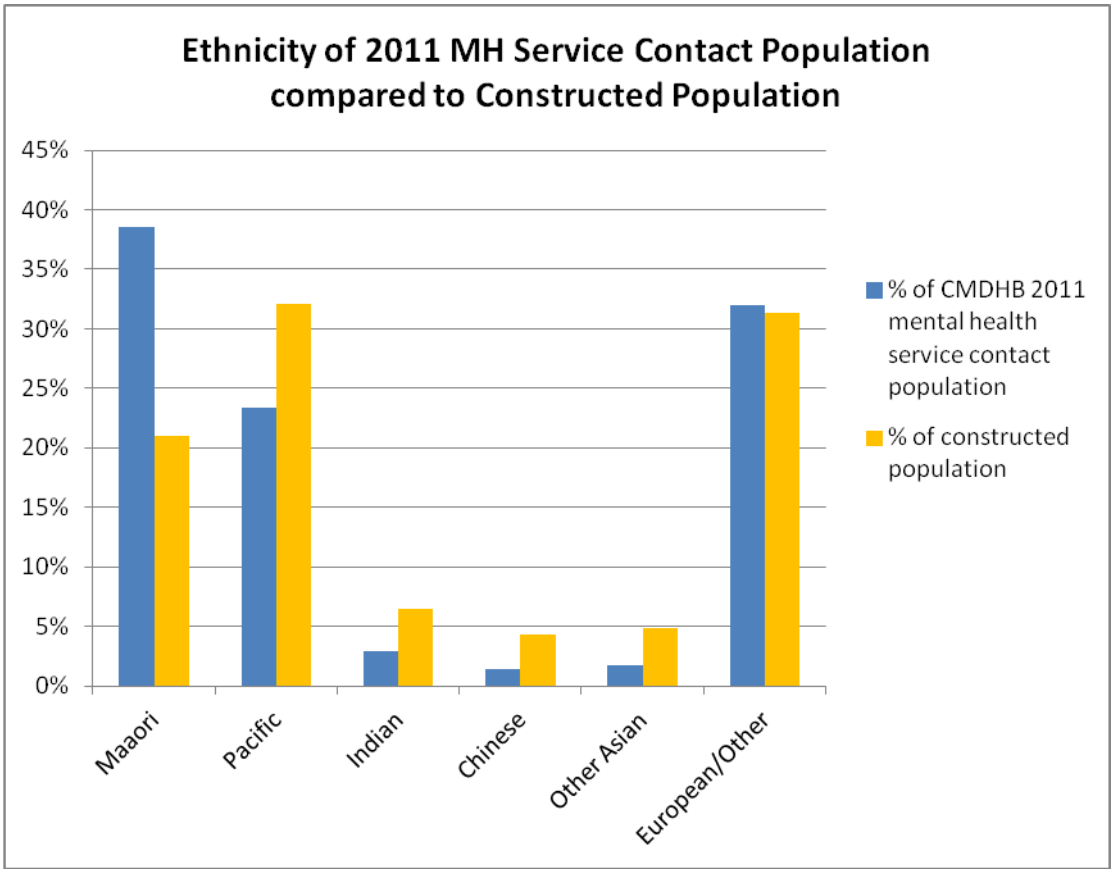
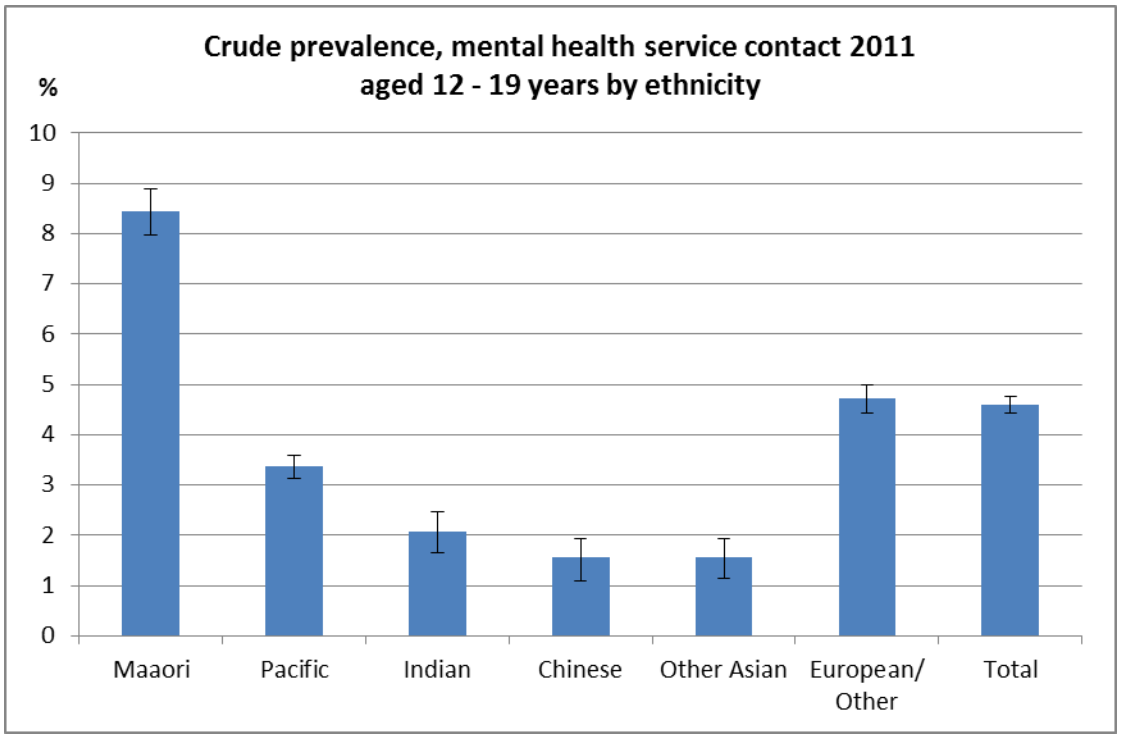


Figure 98 Crude prevalence of Mental Health Service contact in 2011 aged 12 to 19 years, by ethnicity



Age distribution

The population with mental health disorder having contact with mental health services was older than the underlying constructed population. 5.4% of young people aged 15 to 19 years had mental health service contact compared to 3.2% for the younger group aged 12-14 years (Table 72, Figure 99 and Figure 100).

Table 72 Mental health service contact population aged 12 to 19 years, 2011 snapshot by age group and gender.

Age group (Yrs)	Female	Male	Total	% of CMDHB 2011 mental health service contact population	% of constructed population in this age group	Crude prevalence (95% CI)
12-14	320	460	780	25.8%	37.3%	3.2% (3.0% - 3.4%)
15-19	1,080	1,170	2,250	74.2%	62.7%	5.4% (5.2% - 5.7%)
Total	**1,410**	**1,630**	**3,040**	**100%**	**100%**	**4.6% (4.4% - 4.8%)**

Figure 99 Age of 2011 Mental Health Service Contact Population compared to Constructed Population

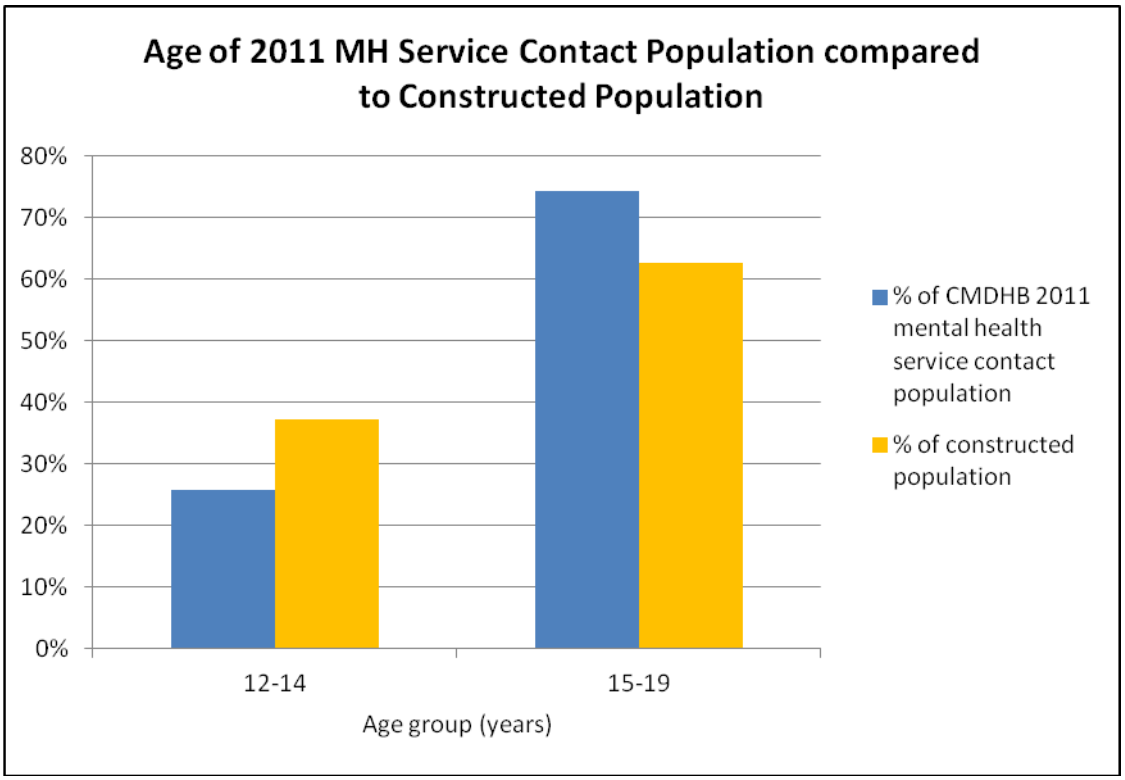
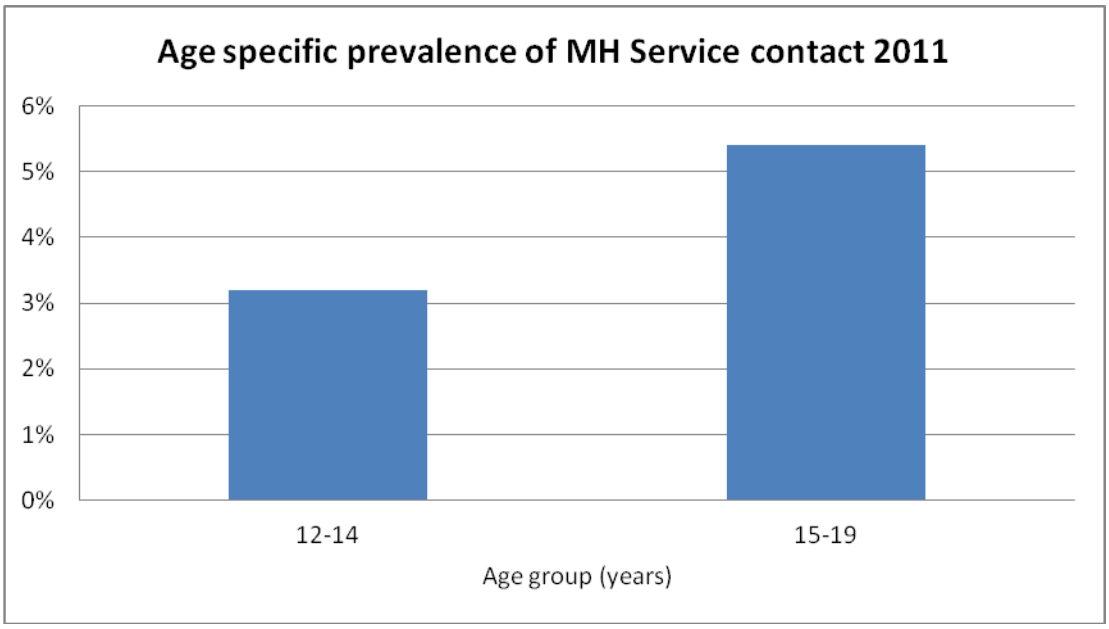


Figure 100 Age specific prevalence of Mental Health Service contact in 2011, aged 12 to 19 years



Socioeconomic distribution

The prevalence of mental health service contact for young people aged 12-19 years living in the most socioeconomically deprived areas was significantly higher than those living in more affluent areas. The prevalence for those living in Quintile 5 (5%) was one and a half times that of those living in the Quintile 1(3%) (Table 73, Figure 101 and Figure 102).

Table 73 Mental health service contact population aged 12 to 19 years, 2011 snapshot by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB 2011 mental health service contact population	% of constructed population	Crude prevalence (95% CI)
N/I*	160	190	350	11.6%	9.1%	5.9% (5.3% - 6.4%)
1	170	170	340	11.0%	15.5%	3.3% (2.9% - 3.6%)
2	170	160	330	10.9%	12.6%	4.0% (3.6% - 4.4%)
3	140	180	320	10.5%	10.5%	4.6% (4.1% - 5.1%)
4	220	210	430	14.1%	14.2%	4.6% (4.2% - 5.0%)
5	540	730	1270	41.8%	38.3%	5.0% (4.8% - 5.3%)
Total	**1,400**	**1,630**	**3,030**	**100%**	**100%**	**4.6% (4.4% - 4.8%)**

*Not Identified – Meshblock data absent or unable to be mapped to NZDep06

Figure 101 Mental health service contact population aged 12 to 19 years, 2011 snapshot by socioeconomic area compared with the constructed population

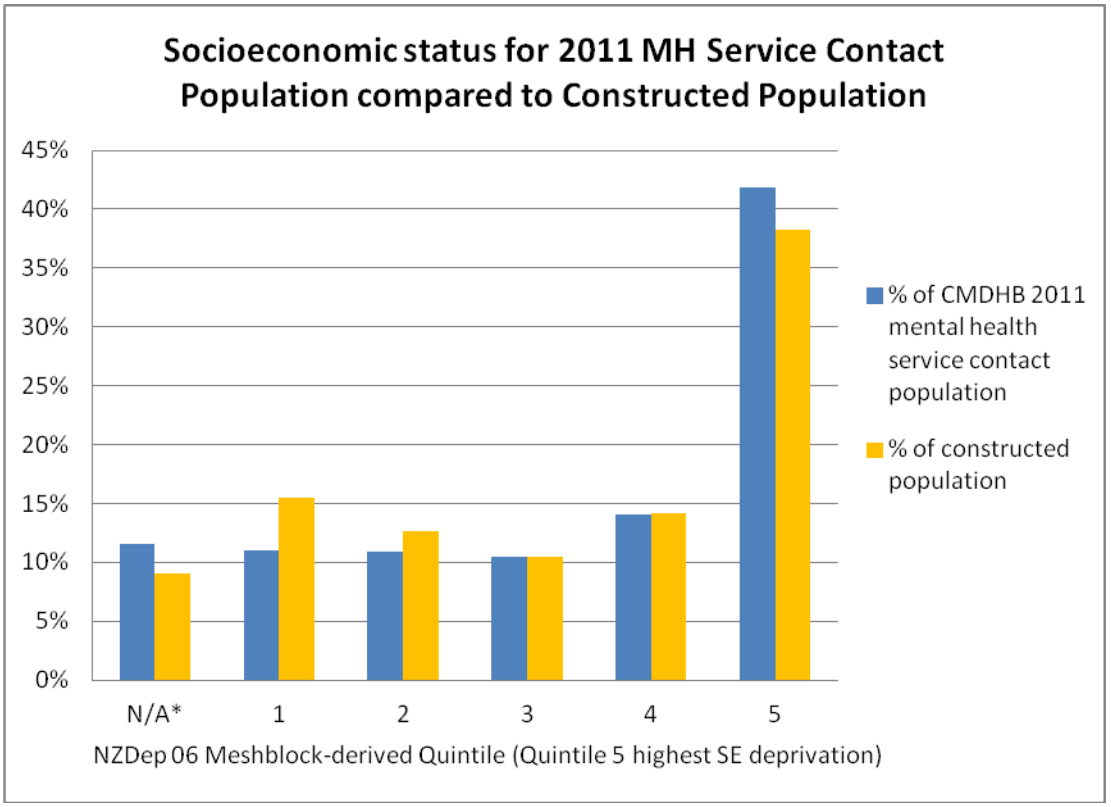
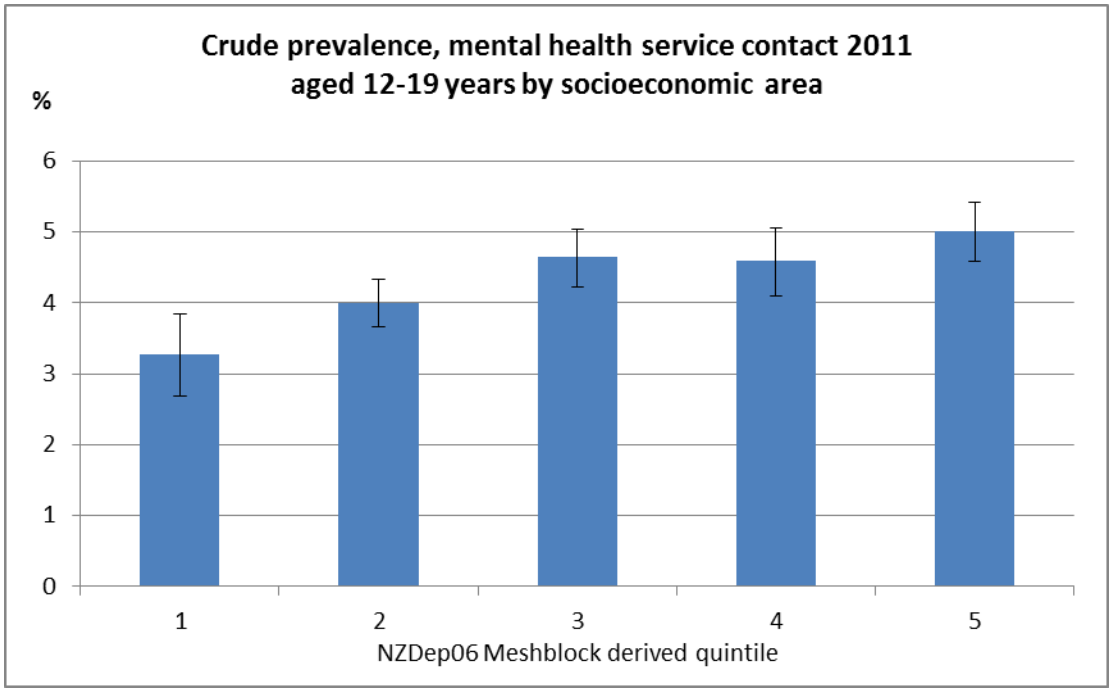


Figure 102 Crude prevalence of Mental Health Service contact in 2011 aged 12 to 19 years by socioeconomic area



Distribution across the CM Health district

Similar to the 2011 identified mental health population for this age group, those in contact with mental health services were more likely to live in Awhinatia as well as Manukau and less likely to be living in The Cottage (including Otahuhu), than the underlying constructed population (Table 74, Figure 103 and Figure 104).

Table 74 Mental health service contact population aged 12 to 19 years, 2011 snapshot by residential location according to CMHC boundaries and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact
Residential location	Female	Male	Total	% of CMDHB 2011 mental health service contact population	% of constructed population in this residential locality	Crude prevalence (95% CI)
Awhinatia	340	370	710	23.6%	20.2%	5.4% (5.0% - 5.8%)
Manukau	380	500	880	29.1%	25.6%	5.3% (4.9% - 5.6%)
Te Rawhiti	320	310	620	20.7%	24.4%	3.9% (3.6% - 4.2%)
The Cottage (Otahuhu)	350	450	800	26.6%	29.9%	4.1% (3.8% - 4.4%)
Total*	**1,390**	**1,620**	**3,020**	**100%**	**100%**	**4.6% (4.5% - 4.8%)**

**This total number does not include a small number of people who were unable to be mapped to a CAU.*

Figure 103 Mental health population aged 12 to 19 years, 2011 snapshot residential location according to CMHC boundaries compared with constructed population

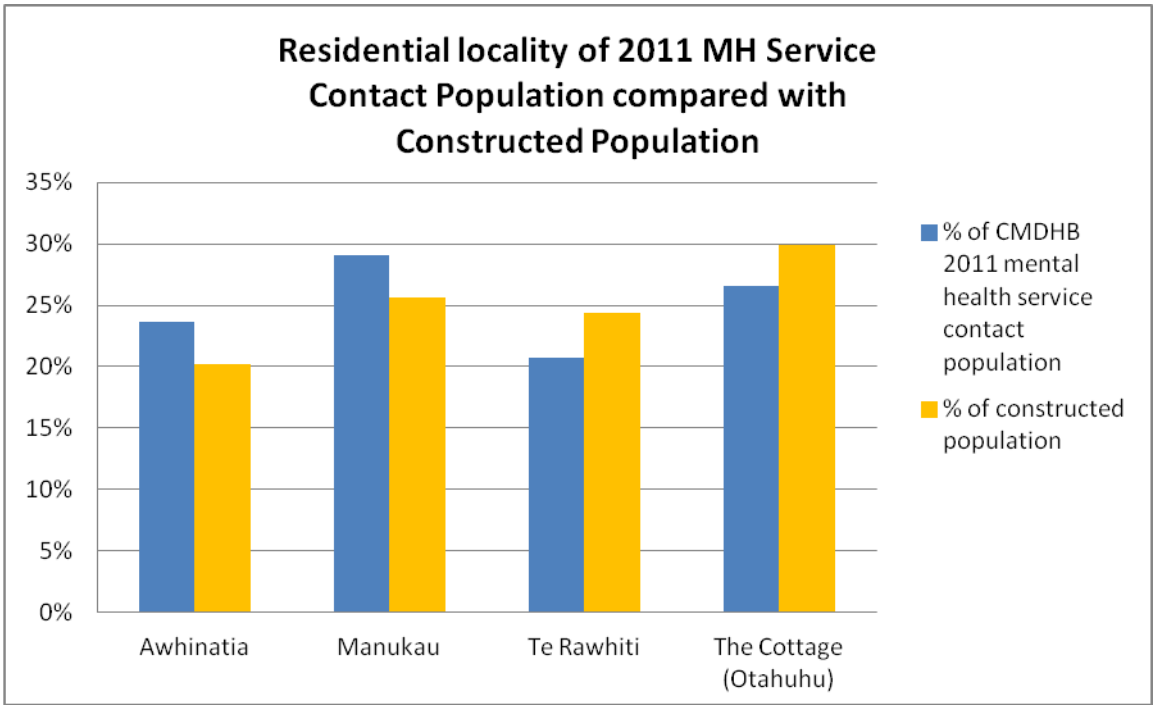
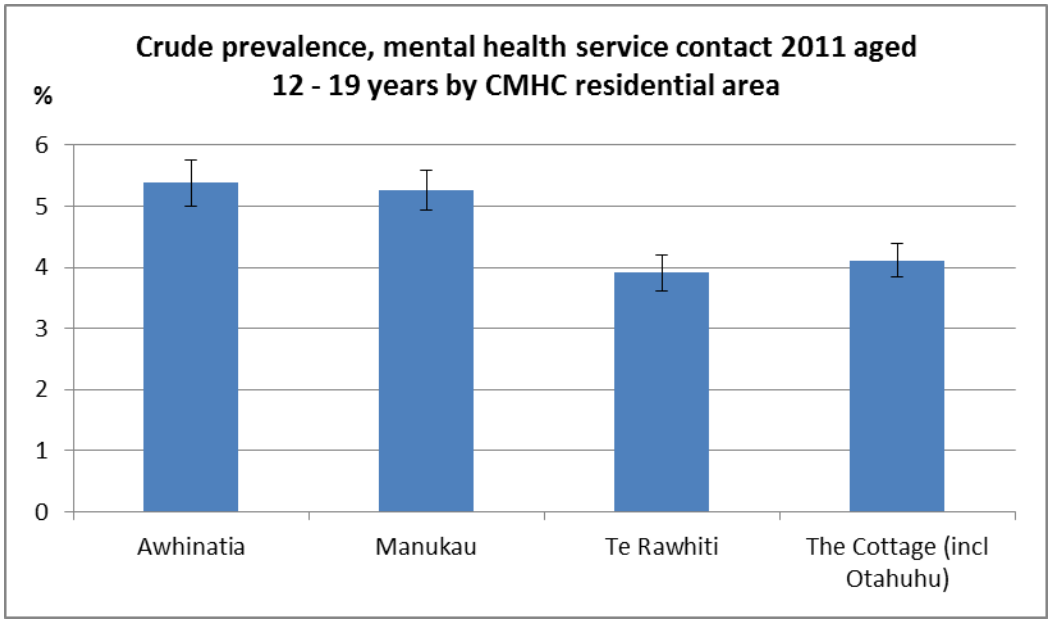


Figure 104 Crude prevalence of Mental Health Service contact in 2011 age 12 to 19 years by residential locality



Enrolled locality for primary care

There was a lower prevalence of mental health service contact in 2011 for young people in the Mangere/Otara and Otahuhu enrolled populations (Table 75, Figure 105 and Figure 106).

Young people who were not enrolled had a higher prevalence of mental health service contact than those who were enrolled (Table 76 and Figure 106). 6.3% of the 2011 mental health service contact population were identified as being not enrolled at the beginning of 2012. This represents nearly 200 young people aged 12 to 19 years who were not engaged with primary care but had mental health system contact that year regarding their mental health disorder. This is a quality improvement opportunity. In addition, 480 young people who had contact with mental health services in 2011 were enrolled with practices outside CMH. This means in total 22% of those aged 12 to 19 years in contact with mental health services in 2011 would be unlikely to have their care influenced through current localities approaches with CM Health practices, indicating that work with other DHBs and efforts to improve enrolment will be important to improve their care.

Table 75 Mental health service contact population aged 12 to 19 years, 2011 snapshot by enrolled locality for primary care and gender.

	Gender			Comparison with constructed population		Prevalence of mental health service contact
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude prevalence (95% CI)
Eastern	210	210	420	13.8%	15.7%	4.1% (3.7% - 4.4%)
Franklin	110	140	250	8.2%	8.3%	4.6% (4.0% - 5.1%)
Mangere/Otara	320	400	720	23.9%	29.5%	3.7% (3.5% - 4.0%)
Manukau	470	500	970	31.9%	27.5%	5.4% (5.0% - 5.7%)
Not enrolled	70	120	190	6.3%	3.8%	7.7% (6.7% - 8.7%)
Otahuhu (ADHB)	50	60	110	3.7%	6.1%	2.8% (2.3% - 3.3%)
Other*	170	200	370	12.1%	9.3%	6.0% (5.4% - 6.5%)
Total	**1,400**	**1,630**	**3,030**	**100%**	**100%**	**4.6% (4.4% - 4.8%)**

**beyond CMDHB and Otahuhu*

Figure 105 Enrolled locality for 2011 Mental Health Service Contact Population compared to Constructed Population aged 12 to 19 years

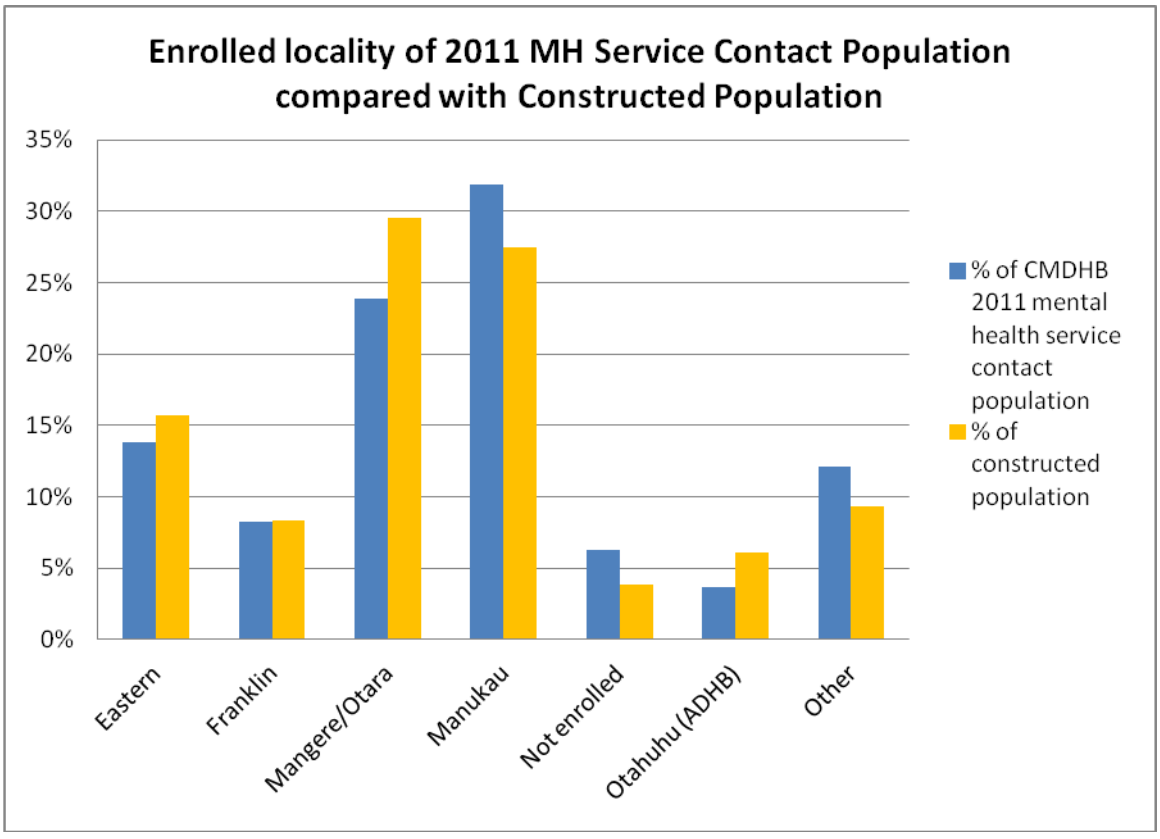
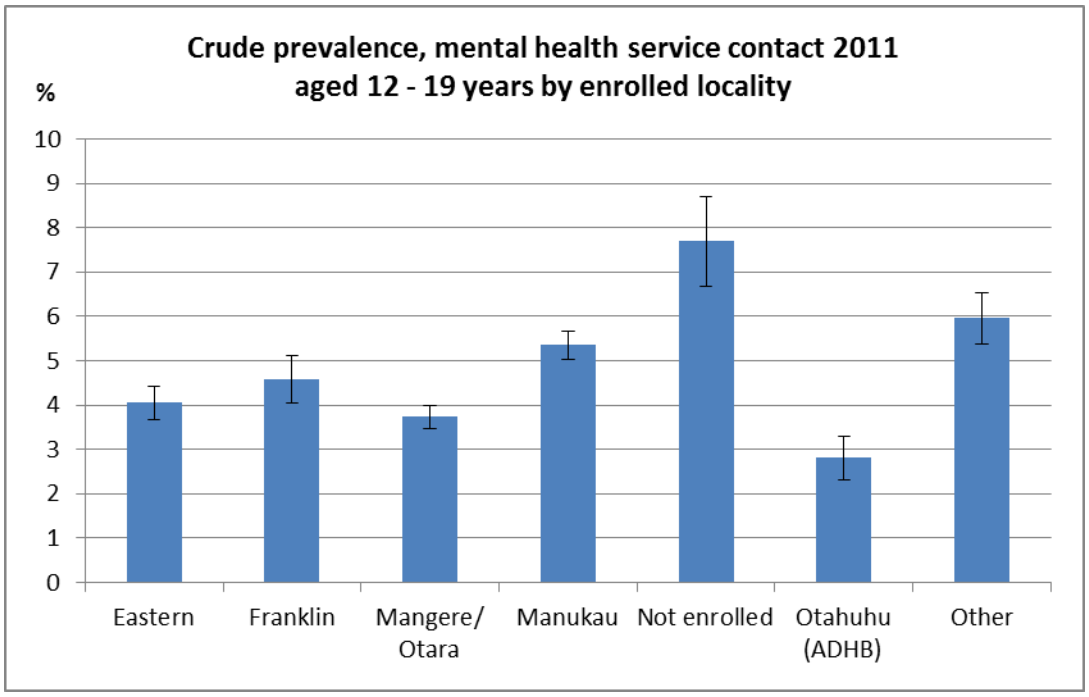


Figure 106 Crude prevalence of Mental Health Service contact in 2011 age 12 to 19 years by enrolled locality



Results

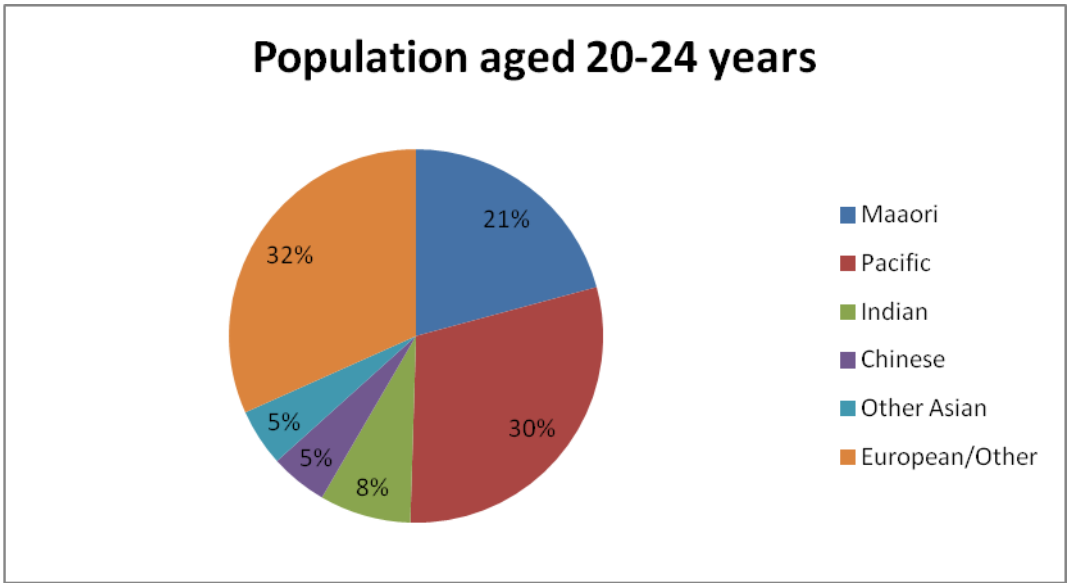
Section Three

Young Adults Aged 20 to 24 years

2011 Constructed population aged 20 to 24 years

The population of young adults 20 to 24 years living in the catchment area for CM Health mental health services (including Otahuhu) numbered just under 40,000 in 2011. Similar to the population aged 12 to 19 years this group has a multi-ethnic composition, as demonstrated below (Figure 107), with a third of the population identified as Pacific, a third identified as European/Other ethnicities, one fifth identified as Maaori, and smaller proportions identifying as Indian, Chinese and Other Asian groups.

Figure 107 Ethnicity of CM Health mental health services catchment population aged 20 to 24 years, constructed population 2011



This is important context for understanding the proportions of the mental health populations constituted by young adults of different ethnicities; that proportion is compared with the pattern of the underlying constructed population in the descriptions in this section.

As noted previously, this report focuses on the 2011 snapshot and mental health service contact populations for service planning and these populations for the 20 to 24 years age group are described below. The 'overall mental health population' drawing on further years of health service data is less applicable for younger people as they have not had time to 'accumulate' a history of health care for mental health disorders so this population is not described for the 20 to 24 age group.

2011 Snapshot Mental Health Population aged 20 to 24 years

In 2011 there were just over 2,850 young adults aged 20 to 24 years of age (7.2% of the population of this age) identified as receiving care for a mental health disorder as identified through medication, contact with mental health services or diagnosis when an inpatient (for any reason) in a public hospital during 2011.

Ethnicity

Young adults identified as Maaori and European/Other ethnicities had a higher prevalence of health care for mental health disorder in 2011 compared to those of Pacific and Asian ethnicities (Table 76 and Figure 108 and Figure 109).

10% of the Maaori and European/Other populations were identified as being part of this mental health population, whereas the figure for Asian and Pacific populations was only 3-5% (Crude prevalence, (Table 76 and Figure 109). Those of Maaori and European/Other ethnicities constituted 21% and 32% of the underlying constructed population respectively but 28.5% and 44% of those identified as receiving care for a mental health disorder.

Table 76 Mental health population aged 20 to 24 years, 2011 snapshot by ethnicity and gender

	Gender			**Comparison with constructed population**		**Prevalence of care for mental health conditions**
Ethnicity	Female	Male	Total	% of CMDHB 2011 mental health population	% of constructed population in this ethnic group	Crude prevalence (95% CI)
Maaori	390	420	810	28.5%	21.0%	9.8% (9.2% – 10.5%)
Pacific	190	350	550	19.2%	29.9%	4.6% (4.3% – 5.0%)
Indian	60	60	110	4.0%	7.7%	3.8% (3.1% – 4.4%)
Chinese	30	20	50	1.9%	4.6%	3.0% (2.2% – 3.6%)
Other Asian	30	40	70	2.5%	4.6%	3.9% (3.0% – 4.6%)
European/ Other	710	540	1,250	43.9%	32.1%	9.9% (9.4% – 10.4%)
Total	**1,420**	**1,430**	**2,850**	**100%**	**100%**	**7.2% (7.0% – 7.5%)**

Figure 108 Mental health population aged 20 to 24 years, 2011 snapshot compared with constructed population by ethnicity

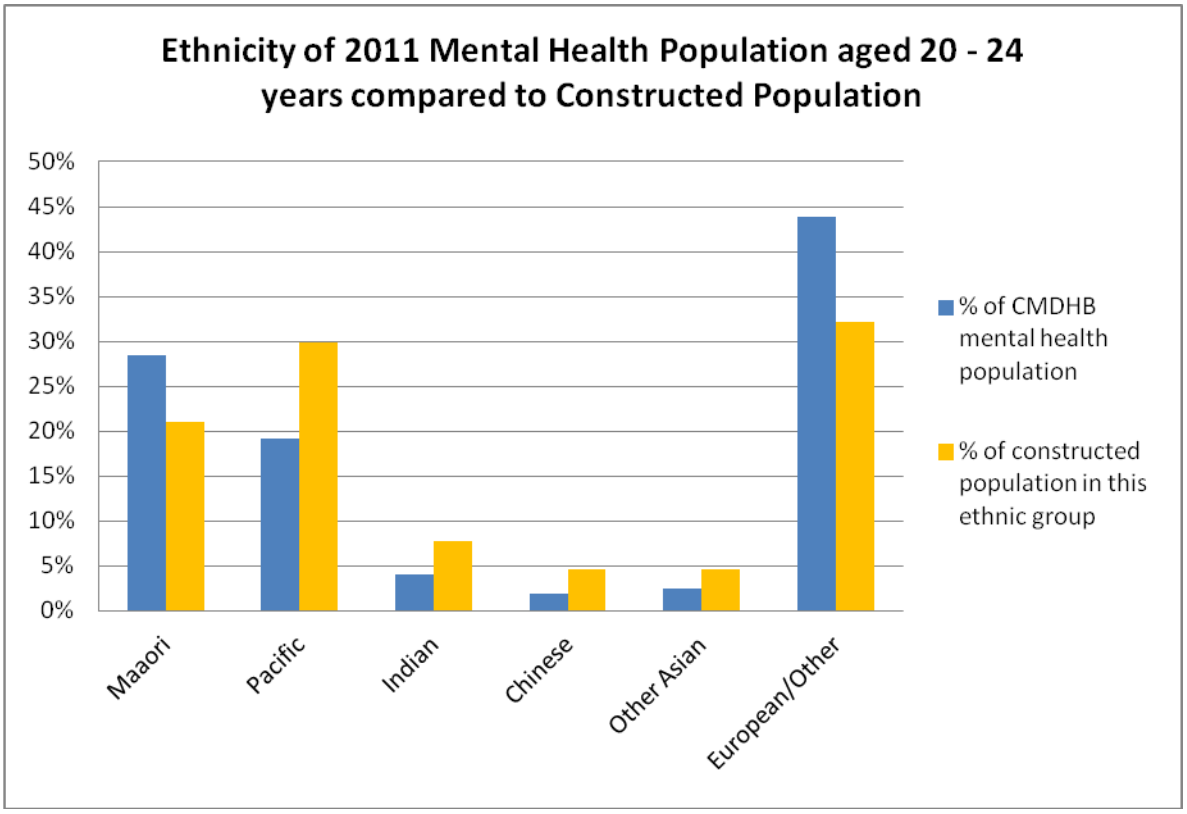
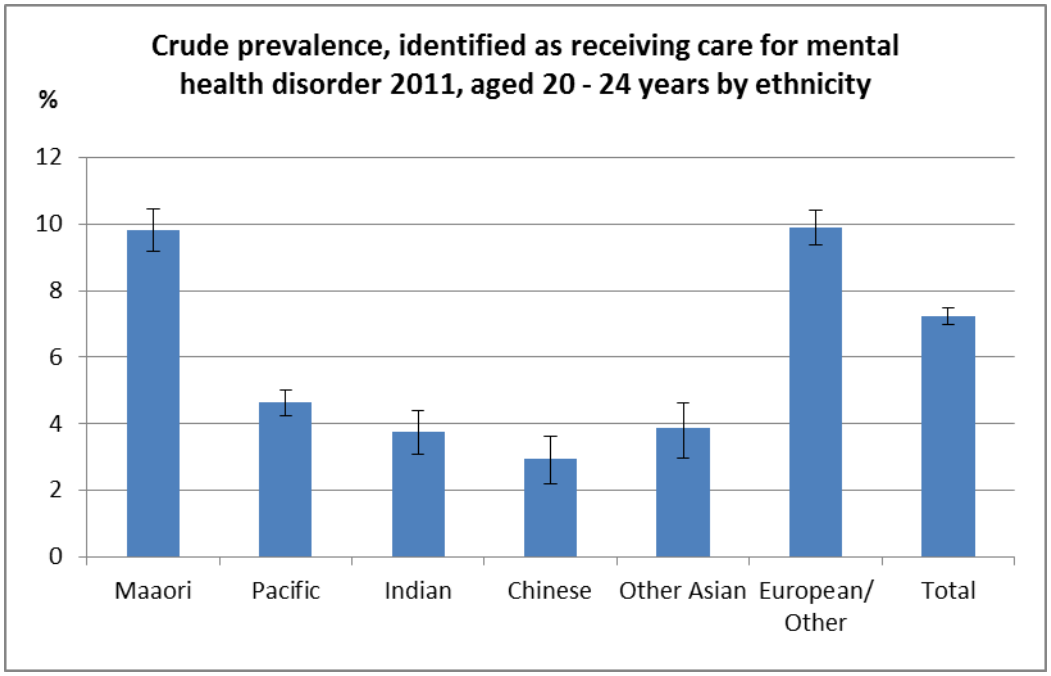


Figure 109 Crude prevalence aged 20 to 24 years, population identified as receiving care for mental health disorder 2011 by ethnicity



Socioeconomic distribution

Young adults aged 20-24 years identified as receiving care for a mental health disorder in 2011 were living in areas distributed across the NZDep06 spectrum in a similar pattern to the underlying population, with 34% living in Quintile 5, the most socioeconomically deprived areas (Table 77, Figure 110 and Figure 111). The prevalence in the more socioeconomically deprived areas was lower than the more affluent areas but not significantly so on the basis of confidence intervals for the data available.

Table 77 Mental health population aged 20 to 24 years, 2011 snapshot by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB 2011 mental health population	% of constructed population in this quintile	Crude prevalence (95% CI)
N/I*	140	200	340	12.0%	11.2%	7.7% (6.9% – 8.5%)
1	210	190	410	14.3%	13.8%	7.5% (6.8% – 8.2%)
2	210	150	360	12.5%	11.8%	7.7% (6.9% – 8.4%)
3	190	170	360	12.5%	10.8%	8.4% (7.5% – 9.2%)
4	220	200	430	14.9%	14.8%	7.3% (6.6% – 7.9%)
5	440	520	970	33.8%	37.5%	6.5% (6.1% – 6.9%)
Total	**1,420**	**1,430**	**2,850**	**100%**	**100%**	**7.2% (7.0% – 7.5%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 110 Mental health population aged 20 to 24 years, 2011 snapshot by socioeconomic area compared with the constructed population

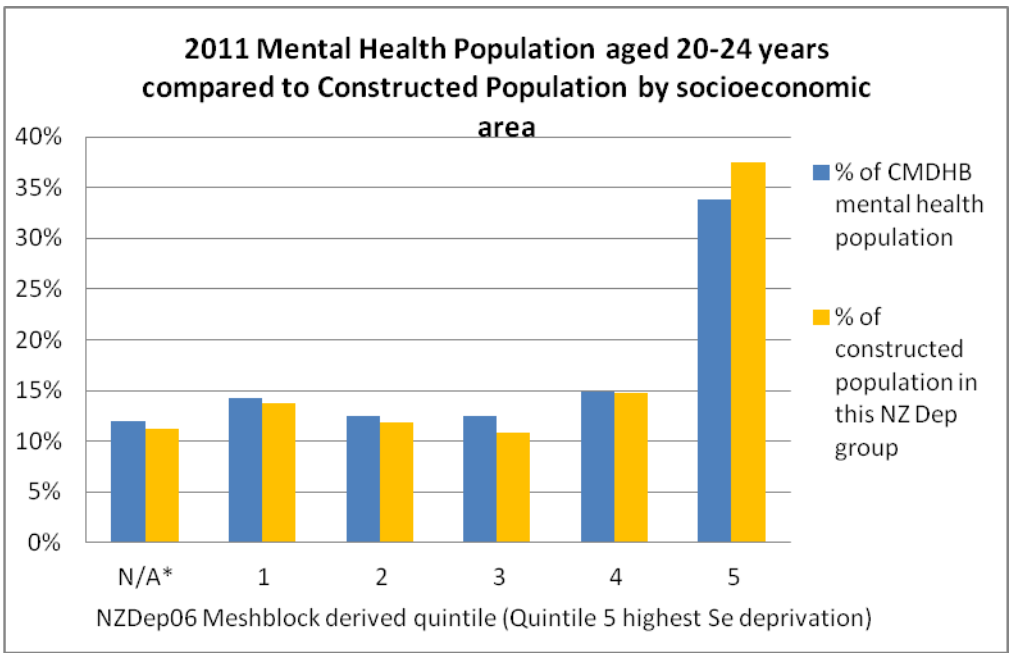
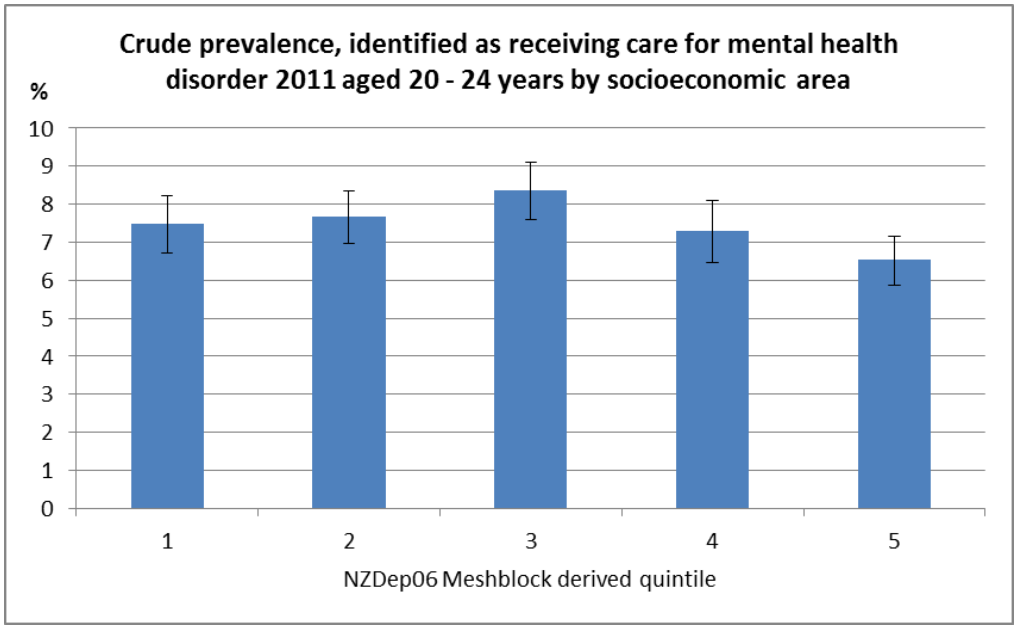


Figure 111 Crude prevalence aged 20 to 24 years, population identified as receiving care for mental health disorder 2011 by socioeconomic area



Distribution across the CM Health district

A higher proportion of young adults aged 20 to 24 years identified as receiving care for a mental health disorder in 2011 were living in Awhinatia and less in the Cottage (including Otahuhu) CMHC areas compared to the underlying constructed population, resulting in the prevalence for Awhinatia being 1.5 times that of the Cottage (Table 78, Figure 112 and Figure 113).

Table 78 Mental health population aged 20 to 24 years, 2011 snapshot residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Residential location	Female	Male	Total	% of CMDHB 2011mental health population	% of constructed population in this residential locality	Crude prevalence (95% CI)
Awhinatia	330	310	640	22.8%	18.6%	8.9% (8.2% – 9.5%)
Manukau	380	410	790	27.9%	27.5%	7.4% (6.9% – 7.8%)
Te Rawhiti	390	300	700	24.7%	24.1%	7.4% (6.9% – 8.0%)
The Cottage (Otahuhu)	310	390	690	24.6%	29.8%	6.0% (5.5% – 6.4%)
Total*	**1,410**	**1,410**	**2,820**	**100%**	**100%**	**7.2% (7.0% – 7.5%)**

**This total number does not include a small number (40) of people who were unable to be mapped to a CAU.*

Figure 112 Mental health population aged 20 to 24 years, 2011 snapshot residential location according to CMHC boundaries compared with constructed population

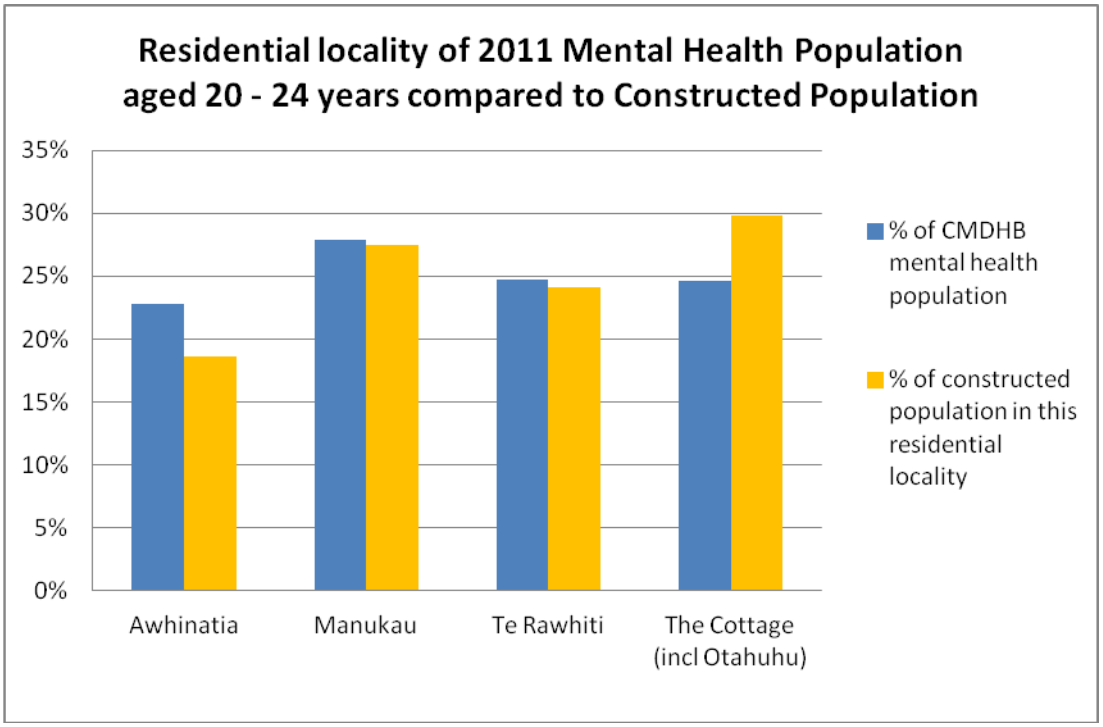
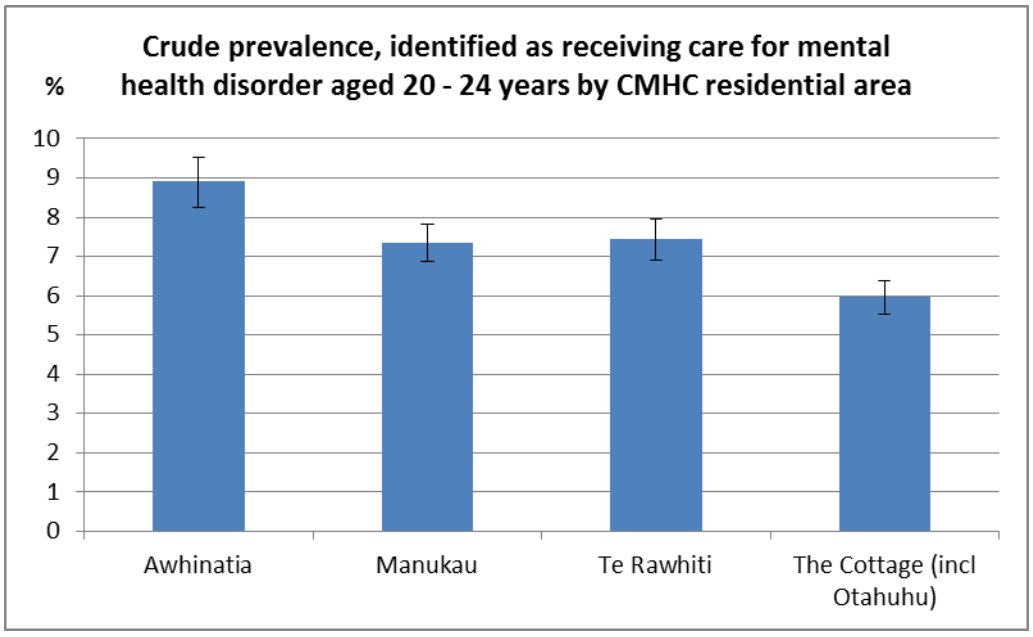


Figure 113 Crude prevalence of Mental Health Service contact in 2011, age 20 to 24 years, by residential locality



Enrolled locality for primary care

There was a lower prevalence of young adults identified as receiving care for a mental health disorder in the Mangere/Otara and Otahuhu enrolled populations (Table 79, Figure 114 and 115).

Of note there were 160 young adults aged 20-24 years (6%) identified as receiving care for a mental health disorder in 2011 who were not enrolled at the end of 2011, and 500 (17%) who were enrolled outside CM Health practices (Table 79). This means the care of almost one in four of the young adults identified would be unlikely to be influenced by work with and through CM Health practices, indicating that work with other DHBs will be important in implementing service improvement initiatives.

Table 79 Mental health population 20 to 24 years, 2011 snapshot enrolled locality for primary care by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude prevalence (95% CI)
Eastern	280	210	490	17.2%	15.0%	8.3% (7.6% – 9.0%)
Franklin	130	100	230	8.1%	6.7%	8.8% (7.7 %– 9.8%)
Mangere/ Otara	260	340	600	21.1%	27.8%	5.5% (5.1% – 5.9%)
Manukau	460	420	870	30.5%	27.7%	8.0% (7.5% – 8.5%)
Not enrolled	40	120	160	5.7%	5.4%	7.7% (6.5% – 8.7%)
Otahuhu (ADHB)	40	70	120	4.1%	5.8%	5.1% (4.2% – 5.9%)
Other*	210	170	380	13.3%	11.7%	8.2% (7.4% – 9.0%)
Total	**1,420**	**1,430**	**2,850**	**100%**	**100%**	**7.2% (7.0% – 7.5%)**

**beyond CMDHB and Otahuhu*

Figure 114 Mental health population aged 20 to 24 years, 2011 snapshot enrolled locality for primary care compared with constructed population

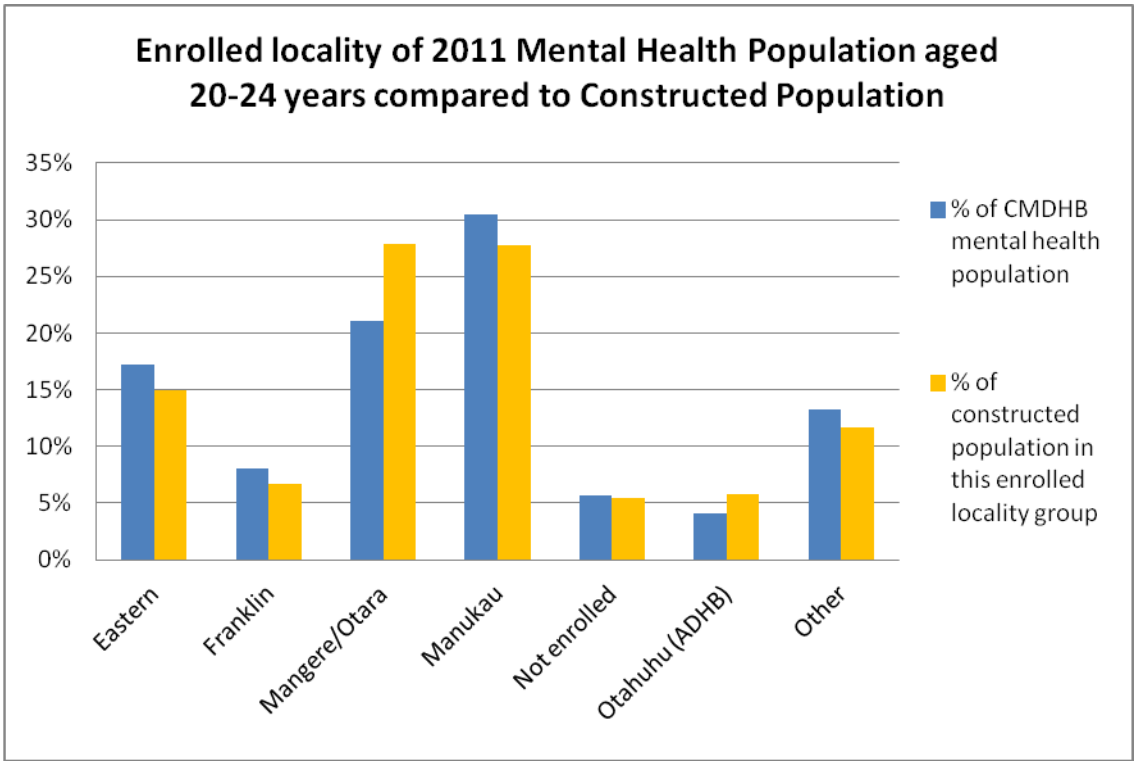
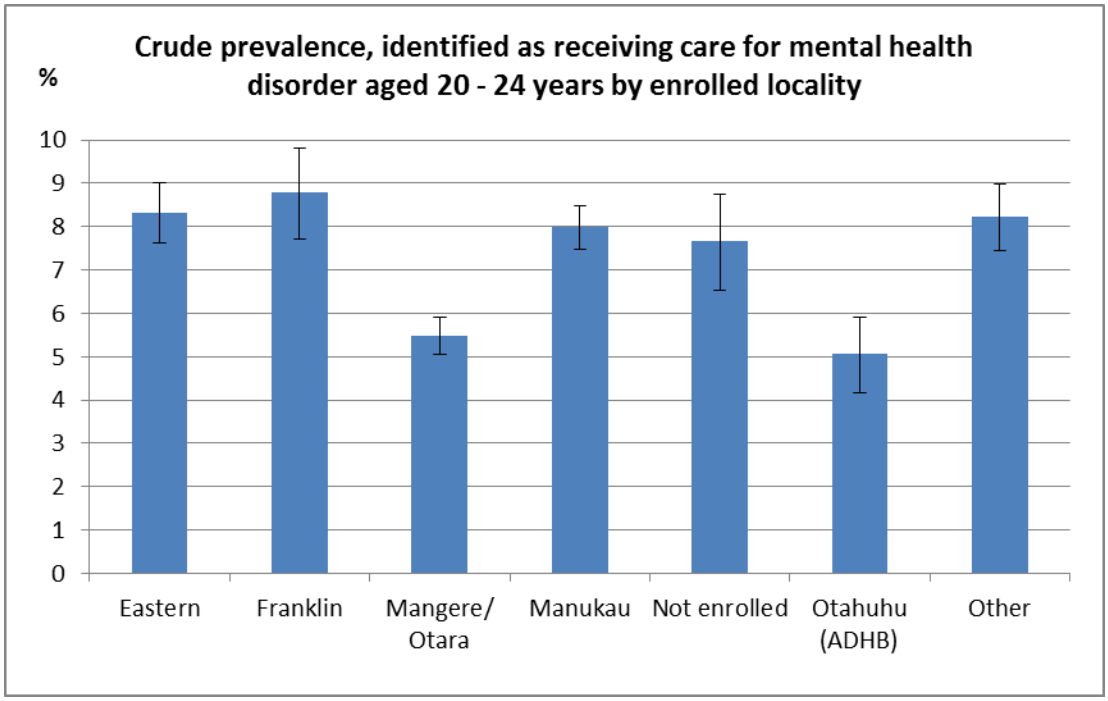


Figure 115 Crude prevalence of Mental Health Service contact in 2011, age 20 to 24 years by residential locality



Means of identification as part of the 2011 Mental Health population aged 20 to24 years

59% of the 2011 mental health population for young adults aged 20 to 24 years were receiving mental health medication of some sort (1,670 people), compared with 82% for the 2011 mental health population 18 years and older. Just over a third of these (21% of the total) also had contact with mental health services. For 37% of the total 2011 mental health population aged 20 to 24 years (1,060), a mental health medication was the only way they were identified as part of the mental health population (Table 80, Table 81 and Figure 116, Figure 117). This compares with 18% for those aged 12 to 19 years and 64% for the 18 years and older mental health population.

Overall 62% of the population identified as receiving care for a mental health disorder (1,770) had some contact with mental health services from in 2011. This is intermediate between 82% for those aged 12 to 19 years and 35% for the 2011 mental health population 18 years and over. Of these, two thirds (41% of the total) were not identified as receiving any mental health medication in 2011. This compares to 81% for those aged 12 to 19 years and 48% for those 18 years and over.

4% of young adults (120) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital.

Table 80 Means of identification as part of the population aged 20 to 24 years receiving care for mental health disorder 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	20	1,070	1,090
No NMDS MH diagnosis		1,060	1,060
NMDS MH diagnosis	20	10	20
PRIMHD contact	**1,160**	**610**	**1,770**
No NMDS MH diagnosis	1,100	480	1,580
NMDS MH diagnosis	70	120	190
Total	1180	1,670	2,850

Table 81 Means of identification as part of the population aged 20 to 24 years receiving care for mental health disorder 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	1%	38%	**38%**
No NMDS MH diagnosis		37%	37%
NMDS MH diagnosis	1%	0%	1%
PRIMHD contact	**41%**	**21%**	**62%**
No NMDS MH diagnosis	39%	17%	55%
NMDS MH diagnosis	2%	4%	7%
Total	**41%**	**59%**	**100%**

Figure 116 Means of identification as part of the population aged 20 to 24 years receiving care for mental health disorder 2011, number of people per category (circles not proportionate)

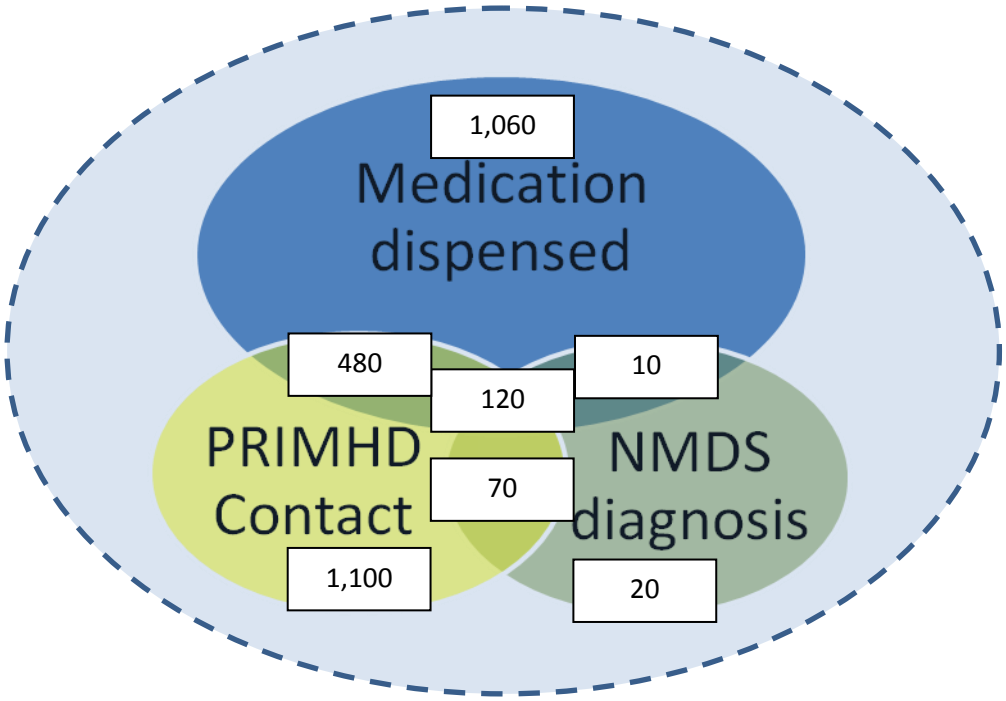
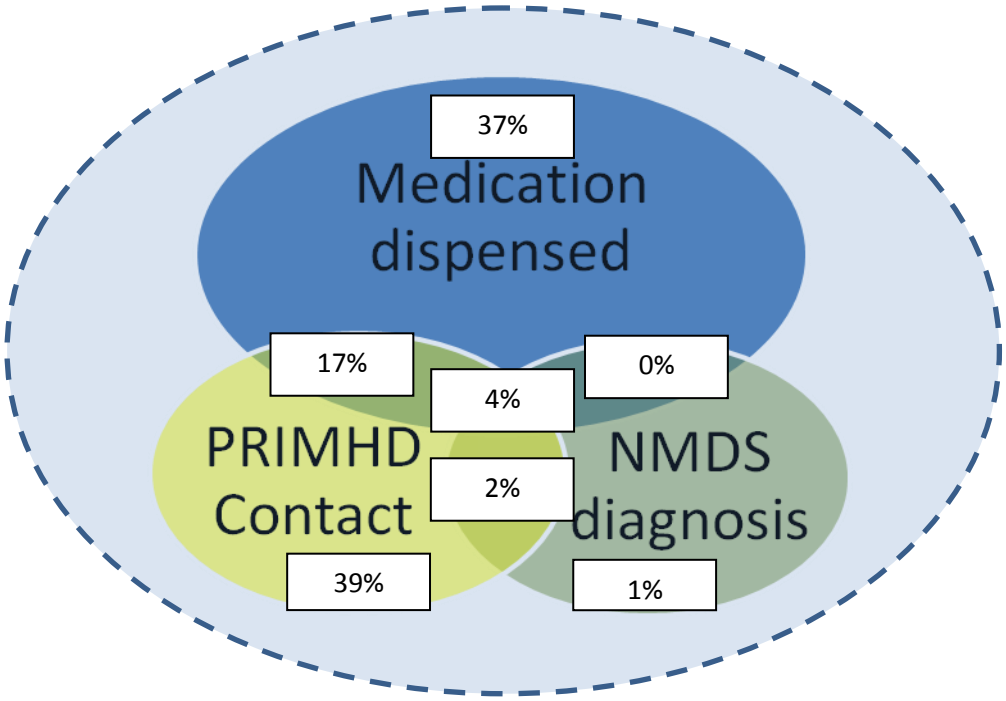


Figure 117 Means of identification as part of the population aged 20 to 24 years receiving care for mental health disorder 2011, number of people per category (circles not proportionate)



The dotted circle represents the 2011 mental health population aged 20 to 24 years who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies).

Diagnoses

Depression/anxiety was the most common diagnosis (as identified by use of relevant medication or actual diagnosis in PRIMHD or NMDS), being identified for 56.5% of the 2011 mental health population aged 20 to 24 years, followed by psychotic disorders at 17%, substance abuse at 12% and intentional self-harm at 9% (Table 82 and Figure 118).

Overall females constituted 50% of the population seen by mental health services in 2011 but 94% of those with eating disorders, and made up between 60 and 65% of those with depression/anxiety, bipolar disorder, personality disorder and intentional self-harm (Table 82). However 77% of those identified with disorders with onset in childhood and/or adolescence, and 72% of those with substance abuse and 57% of those with psychotic disorders were male.

920 of those aged 20 to 24 years identified as part of the 2011 mental health population (32%) did not have an identified diagnosis within the categories described; this is intermediate between the figure of 56% for those aged 12 to 19 years and 13.5% for the 18 years and over population. This leaves 1,930 young adults with identified diagnoses in the categories described. Given there were a total of 2,270 diagnoses identified, this indicates there were a proportion of young adults who had two or more diagnoses.

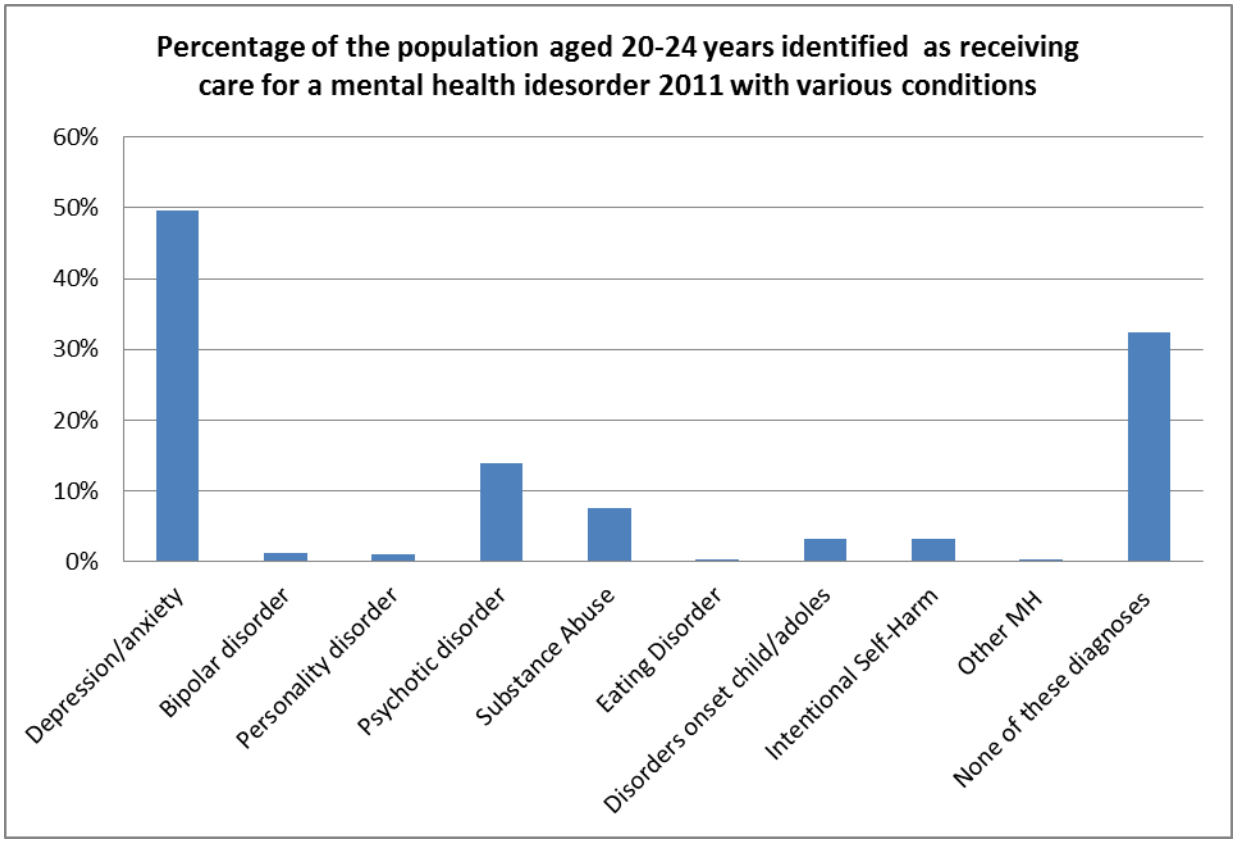
Table 82 Diagnostic categories for 2011 Mental Health Population, aged 20 to 24 years by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total	% of the MH population identified with this condition (not taking into account overlap)	% female
Depression/anxiety	940	470	1,420	49.6%	66.6%
Bipolar disorder	20	10	30	1.1%	71.9%
Personality disorders	20	10	30	1.0%	67.9%
Psychotic disorders	160	230	390	13.8%	40.9%
Substance abuse	60	160	220	7.6%	25.9%
Eating disorders	10	0	10	0.3%	87.5%
Disorders onset child/adolescent	20	70	90	3.2%	23.3%
Intentional self-harm	50	40	90	3.0%	57.5%
Other MH *	-	-	-	0.1%	75.0%
Total Diagnoses in these categories	1,280	990	2,270		
People with No Diagnosis in these categories	330	600	920	32.3%	35.2%

*numbers less than five suppressed

Figure 118 Percentage of the 2011 mental health population, aged 20 to 24 years identified with various mental health conditions



2011 Mental Health Service Contact Population aged 20 to 24 years

In 2011, of the 2,850 young adults aged 20 to 24 years of age who were identified as receiving care for a mental health disorder in 2011, 62% (1,770 young adults) were in contact with mental health services, as documented in the PRIMHD database (Table 83).

Ethnicity

Maaori young adults had a much higher prevalence of contact with mental health services in 2011 than young adults of other ethnicities. Overall the prevalence of mental health disorder requiring contact with mental health services was 4.5%, but was 7.8% for Maaori, 4.2% for European/Other groups, 3.8% for Pacific and 2% for those of Asian ethnicities (Table 83, Figure 119 and Figure 120).

Maaori young adults represented 37% of those in contact with mental health services compared with 21% of the underlying constructed population. Those of Asian ethnicities represented only 8% of the Mental Health Service Contact Population compared with 17% of the underlying constructed population, and young adults of Pacific ethnicities 25% of the population in contact with the mental health services compared to 30% of the underlying constructed population.

60% of those in contact with mental health services were male, compared with 50% of the overall 2011 mental health population of this age. This male predominance was particularly a feature for those of Pacific ethnicities (71% male), whereas for those identified as Chinese females predominated although numbers were small in this group.

Table 83 Mental health service contact population aged 20 to 24 years, 2011 snapshot by ethnicity and gender

	Gender			**Comparison with constructed population**		**Prevalence of mental health service contact**
Ethnicity	Female	Male	Total	% of CMDHB 2011 mental health service contact population	% of constructed population in this ethnic group	Crude prevalence (95% CI)
Maaori	280	370	650	36.8%	21.0%	7.8% (7.3% – 8.4%)
Pacific	130	320	450	25.4%	29.9%	3.8% (3.5% – 4.1%)
Indian	30	40	70	3.7%	7.7%	2.2% (2.2% – 1.7%)
Chinese	20	10	30	1.8%	4.6%	1.7% (1.1% – 2.2%)
Other Asian	20	20	40	2.4%	4.6%	2.4% (1.7% – 3.0%)
European/ Other	230	300	530	29.8%	32.1%	4.2% (3.8% – 4.5%)
Total	**710**	**1,060**	**1,770**	**100%**	**100%**	**4.5% (4.3% – 4.7%)**

Figure 119 Mental health service contact population aged 20 to 24 years, 2011 snapshot compared with constructed population by ethnicity

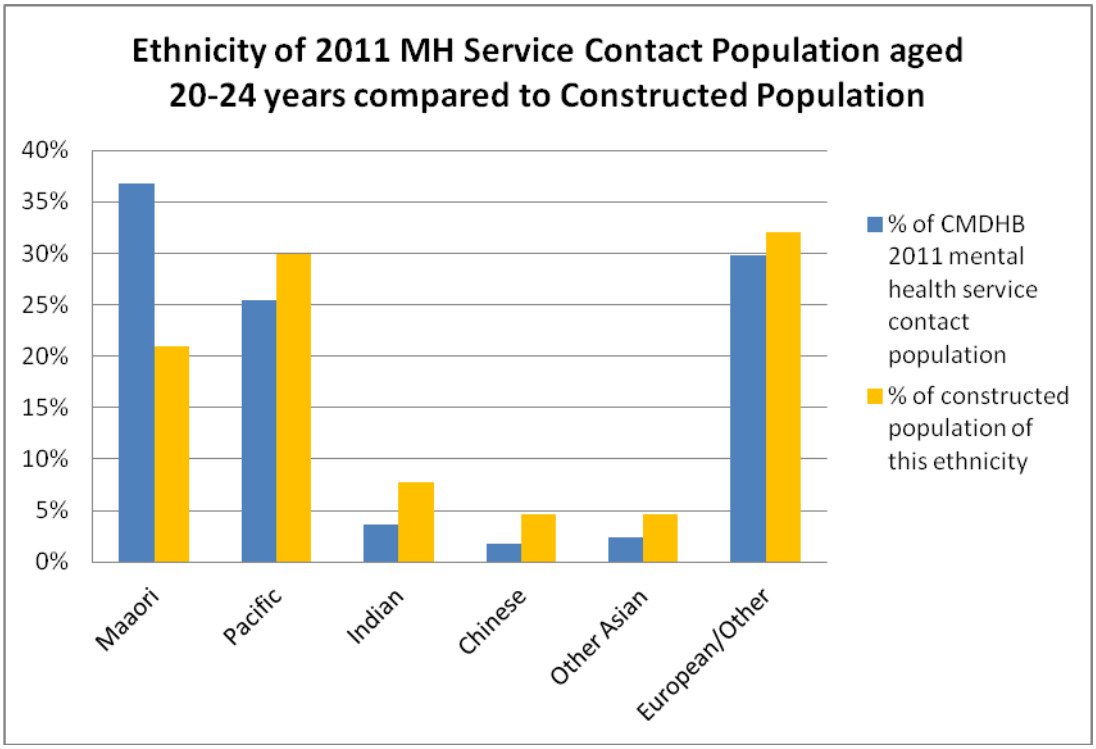
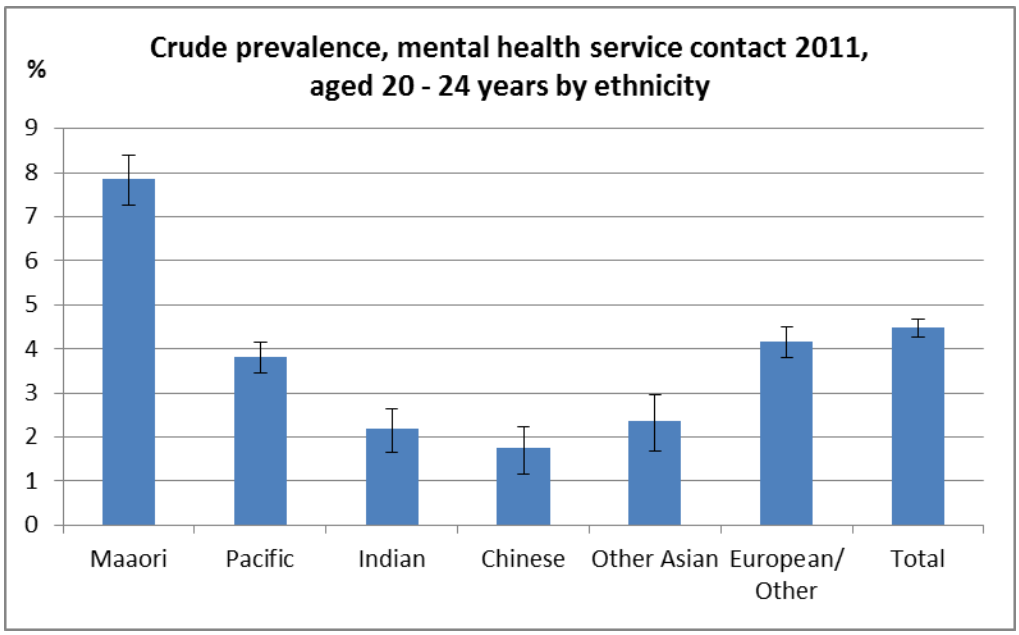


Figure 120 Crude prevalence of Mental Health Service contact in 2011 aged 20 to 24 years by ethnicity



Socioeconomic distribution

The prevalence of mental health service contact for those living in the most socioeconomically deprived areas (5%) was one and a half times that of those living in the most affluent areas (3.5%) (Table 84, Figure 121 and Figure 122).

Table 84 Mental health service contact population aged 20 to 24 years, 2011 snapshot by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB 2011 mental health service contact population	% of constructed population	Crude prevalence (95% CI)
N/I*	80	170	250	13.9%	11.2%	5.6% (4.9% – 6.2%)
1	90	100	190	10.9%	13.8%	3.5% (3.0% – 4.0%)
2	70	90	160	8.9%	11.8%	3.4% (2.9% – 3.9%)
3	80	110	190	10.6%	10.8%	4.4% (3.8% – 4.9%)
4	110	150	260	14.9%	14.8%	4.5% (4.0% – 5.0%)
5	270	450	720	40.8%	37.5%	4.9% (4.5% – 5.2%)
Total	**710**	**1,060**	**1,770**	**100%**	**100%**	**4.5% (4.3% – 4.%7)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 121 Mental health service contact population aged 20 to 24 years, 2011 snapshot by socioeconomic area compared with the constructed population

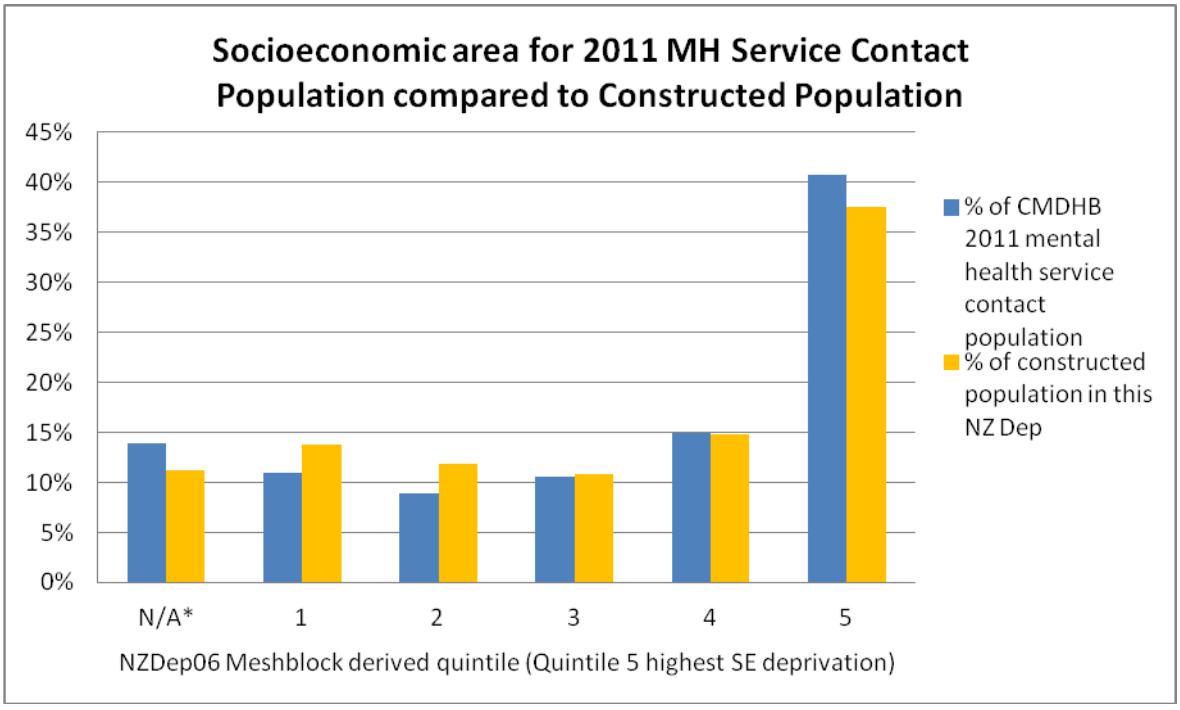
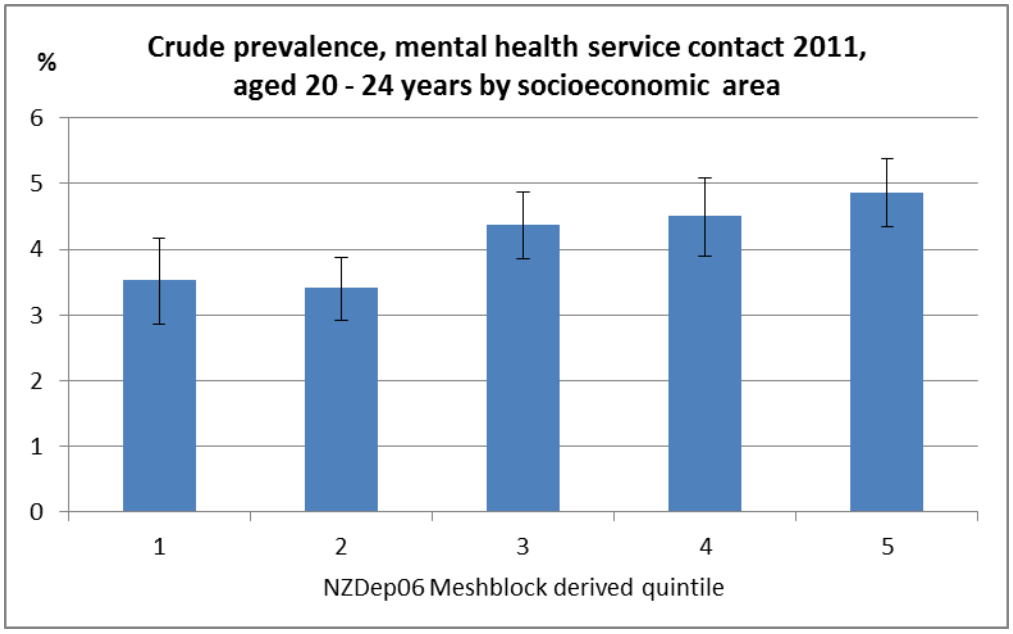


Figure 122 Crude prevalence of Mental Health Service contact in 2011 aged 20 to 24 years, by socioeconomic area



Distribution across the CM Health district

Young adults in contact with mental health services were less likely to be living in Te Rawhiti than other residential localities (Table 85, Figure123 and Figure 124).

Table 85 Mental health service contact population aged 20 to 24 years, 2011 snapshot by residential location according to CMHC boundaries and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact
Residential location	Female	Male	Total	% of CMH 2011 mental health service contact population	% of constructed population in this residential locality	Crude prevalence (95% CI)
Awhinatia	140	200	340	19.3%	18.6%	4.7% (4.2% – 5.1%)
Manukau	210	320	530	30.2%	27.5%	4.9% (4.5% – 5.3%)
Te Rawhiti	170	180	350	19.8%	24.1%	3.7% (3.3% – 4.1%)
The Cottage (incl Otahuhu)	200	340	540	30.7%	29.8%	4.6% (4.2% – 5.0%)
Total*	**700**	**1,040**	**1,750**	**100%**	**100%**	**4.5% (4.3% – 4.7%)**

**This total number does not include a small number of people who were unable to be mapped to a CAU*

Figure 123 Mental health service contact population aged 20 to 24 years, 2011 snapshot residential location according to CMHC boundaries compared with constructed population

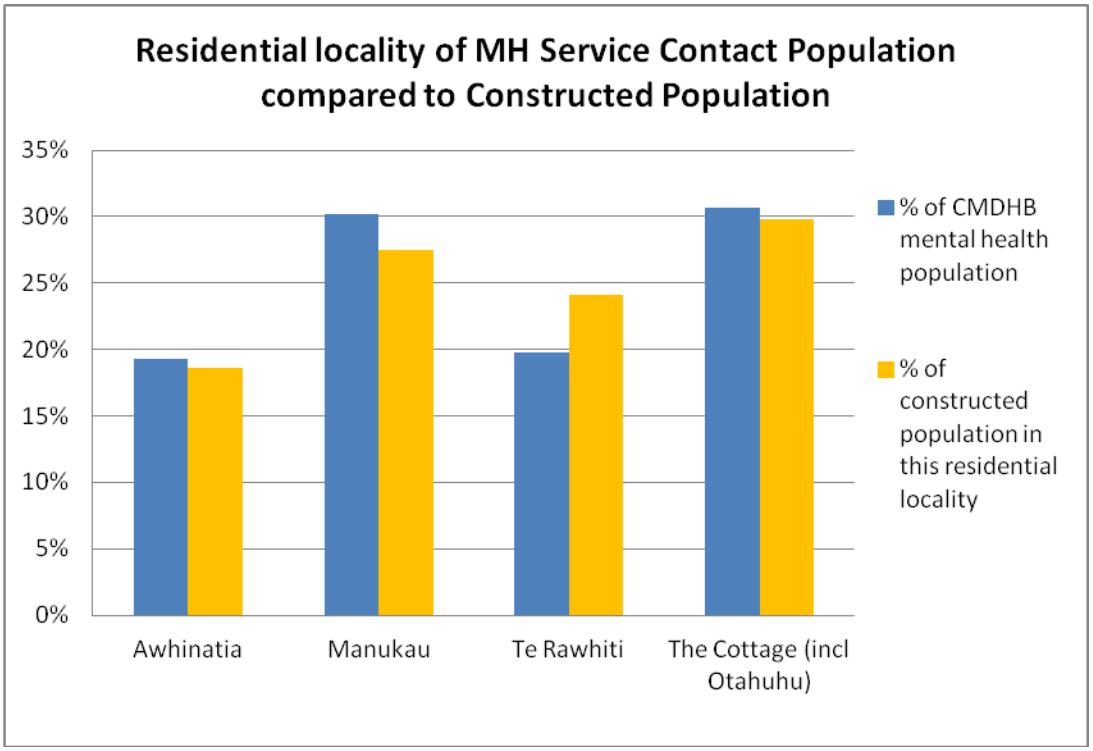
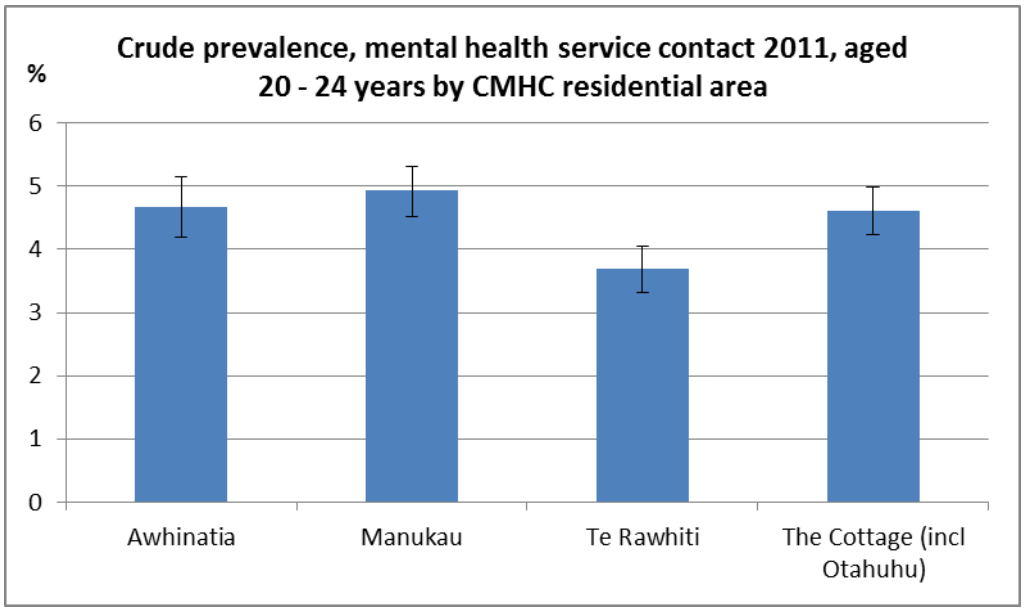


Figure 124 Crude prevalence of Mental Health Service contact in 2011, age 20 to24 years by residential locality



Enrolled locality for primary care

The prevalence of mental health service contact in 2011 for young adults aged 20 to 24 years did not vary significantly across the enrolled localities. However those who were not enrolled had a higher prevalence of mental health service contact than those who were enrolled (Table 86, Figure 125 and Figure 126).

7.8% of the 2011 mental health service contact population aged 20-24 years were identified as being not enrolled. This represents 140 young adults aged 20 to 24 years who were not engaged with primary care but had mental health system contact that year. This is a quality improvement opportunity. In addition, 310 young adults who had contact with mental health services in 2011 were enrolled with practices outside CMDHB (Table 87). This means in total 25% or one in four of those aged 20 to 24 years in contact with mental health services in 2011 would be unlikely to have their care influenced through current approaches with CM Health practices indicating that work with other DHBs and efforts to improve enrolment will be important to improve their care.

Table 86 Mental health service contact population aged 20 to 24 years, 2011 snapshot by enrolled locality for primary care and gender

	Gender			**Comparison with constructed population**		**Prevalence of mental health service contact**
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude prevalence (95% CI)
Eastern	120	120	230	13.1%	15.0%	3.9% (3.4% – 4.4%)
Franklin	50	70	120	6.6%	6.7%	4.4% (3.6% – 5.1%)
Mangere/Otara	180	290	470	26.6%	27.8%	4.3% (3.9% – 4.6%)
Manukau	210	300	510	28.6%	27.7%	4.6% (4.2% – 5.0%)
Not enrolled	30	110	140	7.8%	5.4%	6.5% (5.4% – 7.5%)
Otahuhu (ADHB)	30	70	100	5.4%	5.8%	4.2% (3.3% - 4.9%)
Other*	100	120	210	12.1%	11.7%	4.6% (4.0% – 5.2%)
Total	**710**	**1,060**	**1,770**	**100%**	**100%**	**4.5% (4.3% – 4.7%)**

**beyond CMDHB and Otahuhu*

Figure 125 Mental health service contact population aged 20 to 24 years, 2011 snapshot enrolled locality compared with constructed population

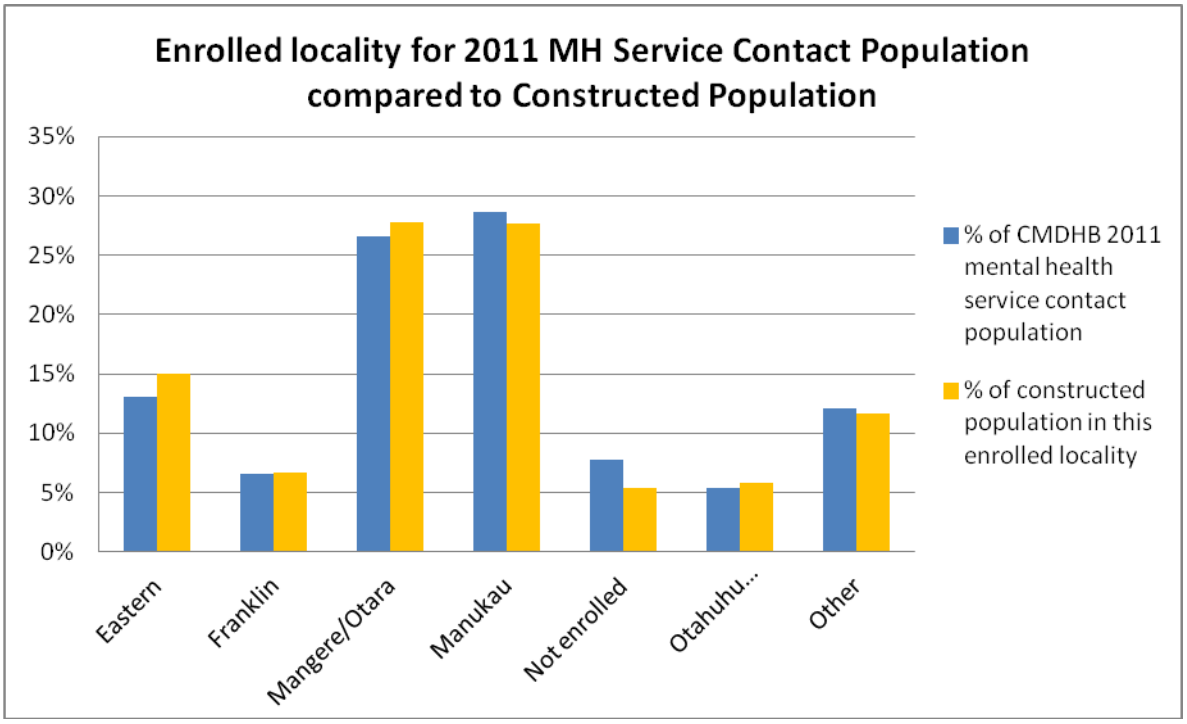
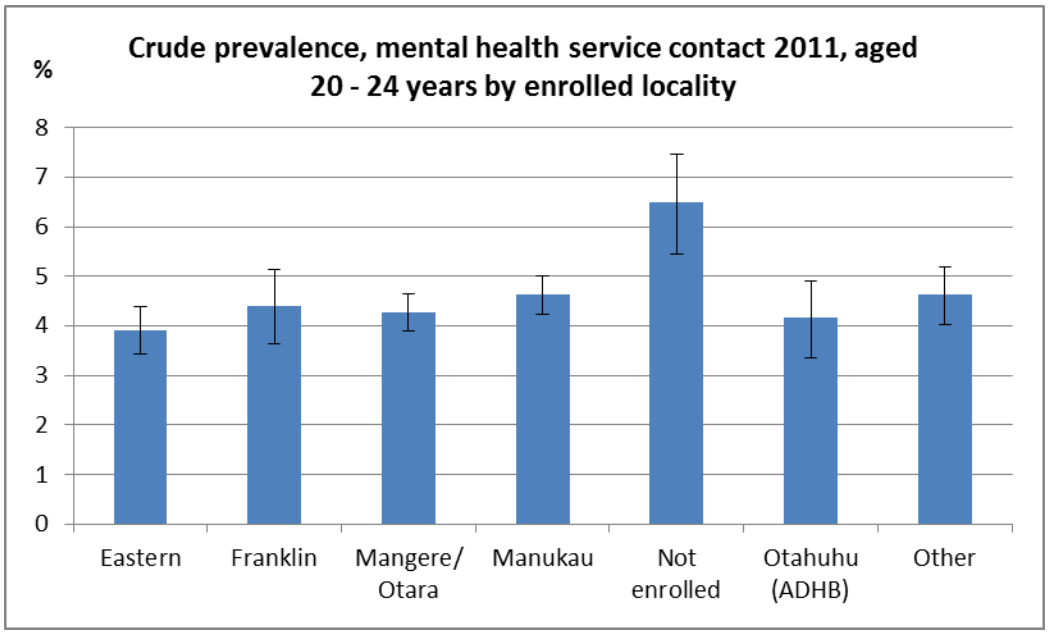


Figure 126 Crude prevalence of Mental Health Service contact by enrolled locality in 2011, aged 20 to 24 years



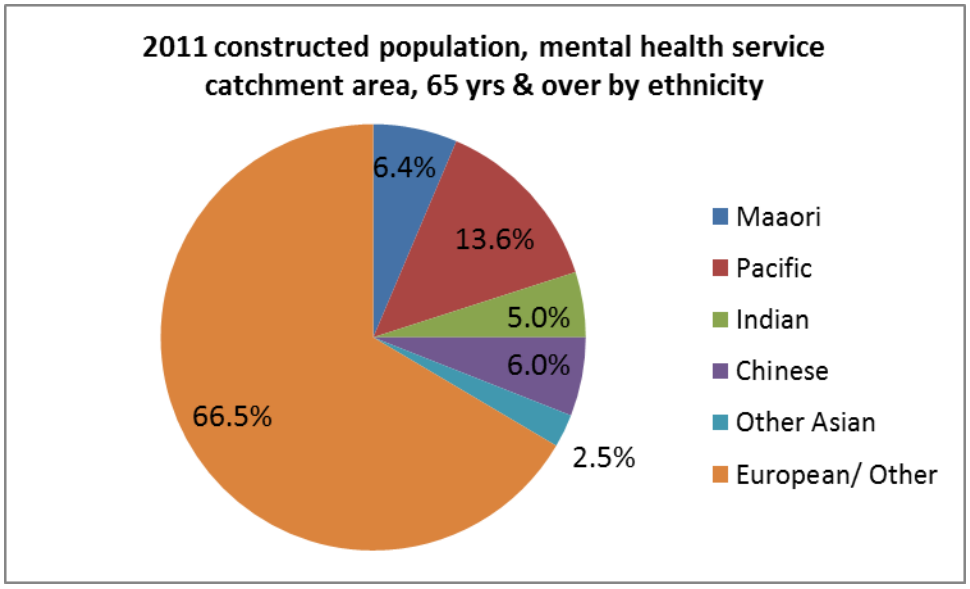
Results

Section Four

Older Adults Aged 65 years and over

The population of older adults aged 65 years and over living in the catchment area for CM Health mental health services (including Otahuhu) numbered just under 51,000 in 2011. The ethnic composition of this group is very different to the adolescents and young adults, as demonstrated below (Figure 127), with two-thirds of the population identified as European/Other, and much smaller percentages of Maaori and Pacific than in younger age groups.

Figure 127 Ethnicity of CM Health mental health services catchment population aged 65 years and over, constructed population 2011



As noted previously, this report focuses on the 2011 snapshot and mental health service contact populations for service planning, with the 'overall mental health population' being described to give this planning a broader context. For this reason the 2011 populations are described first in this section, followed by the overall mental health population.

2011 Snapshot Mental Health Population aged 65 years and over

12% of the population (just over 6,190 people) aged 65 years and over, alive at the end of 2011, were identified as having received care for a mental health disorder in 2011, through medication, contact with mental health services or diagnosis when an inpatient (for any reason) in a public hospital.

As noted in the total adult population (aged 18 years and over) section, the pattern of age specific prevalence of identification in the population receiving care for mental health disorders in 2011 in this study differs from the Te Rau Hinengaro findings of the prevalence of conditions. In this study the prevalence of receiving care for mental health disorders in 2011 is significantly lower in the younger age groups compared with those aged 35 and over, with a further increase in those 75 years and over, where in Te Rau Hinengaro the 12 month prevalence of any disorder declined across the age groups from 28.6% in the youngest age group (16-24 years) to 7.1% in those aged 65 years and over.

That pattern was evidence within most individual disorders assessed by Te Rau Hinengaro; the oldest age group always had the lowest prevalence. For major depressive disorder, the prevalence was five times higher in the youngest age group (16-24 years) compared to this oldest age group (65 years and over). Even compared to those aged 45-64 years, the prevalence of major depression in those aged 65 years and over was only a third of the prevalence of those 45-64 years.

There are a range of potential factors that could be responsible for this difference in findings, some of which warrant further exploration, as described in the Discussion section.

Ethnicity

People aged 65 years and over identified as European/Other ethnicities had a significantly higher age- standardised prevalence of health care for mental health disorder in 2011 than Maaori, and the Maaori prevalence was significantly higher than for those of Pacific and Asian ethnicities (Table 78 and Figure 128).

10.5% and 15% respectively of the Maaori and European/Other populations were identified as being part of the 2011 mental health population, whereas the figure for Asian and Pacific populations was only 5-8% (Crude prevalence, Table 88). 81% of the population aged 65 years and over identified as having received care for treatment for a mental health disorder in 2011 were identified as European/Other ethnic groups, although they only constituted 67% of the constructed population of this age group. Pacific peoples and those of Asian ethnicities represented 14% and 13.5% respectively of the constructed population but only 6% and 7.5% of the 2011 mental health population (Table 87 and Figure 129).

Table 87 Mental health population aged 65 years & over, 2011 snapshot by ethnicity and gender

	Gender			**Comparison with constructed population**		**Prevalence of care for mental health conditions**	
Ethnicity	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this ethnic group	Crude preva-lence	Age- standardised prevalence (95% CI)
Maaori	220	120	340	5.5%	6.4%	10.5%	10.8% (9.7% - 12.0%)
Pacific	220	140	360	5.8%	13.6%	5.1%	5.3% (4.7% - 5.8%)
Indian	130	70	200	3.2%	5.0%	7.9%	8.2% (7.1% - 9.4%)
Chinese	120	60	180	2.9%	6.0%	5.9%	6.1% (5.2% - 6.9%)
Other Asian	60	30	90	1.4%	2.5%	7.0%	7.0% (5.6% - 8.4%)
European/ Other	3,360	1,660	5,020	81.2%	66.5%	14.8%	14.3% (13.9% - 14.7%)
Total	**4,100**	**2,080**	**6,190**	**100%**	**100%**	**12.1%**	**11.9% (11.6% -12.2%)**

Figure 128 Mental health population aged 65 years & over, 2011 snapshot compared with constructed population by ethnicity

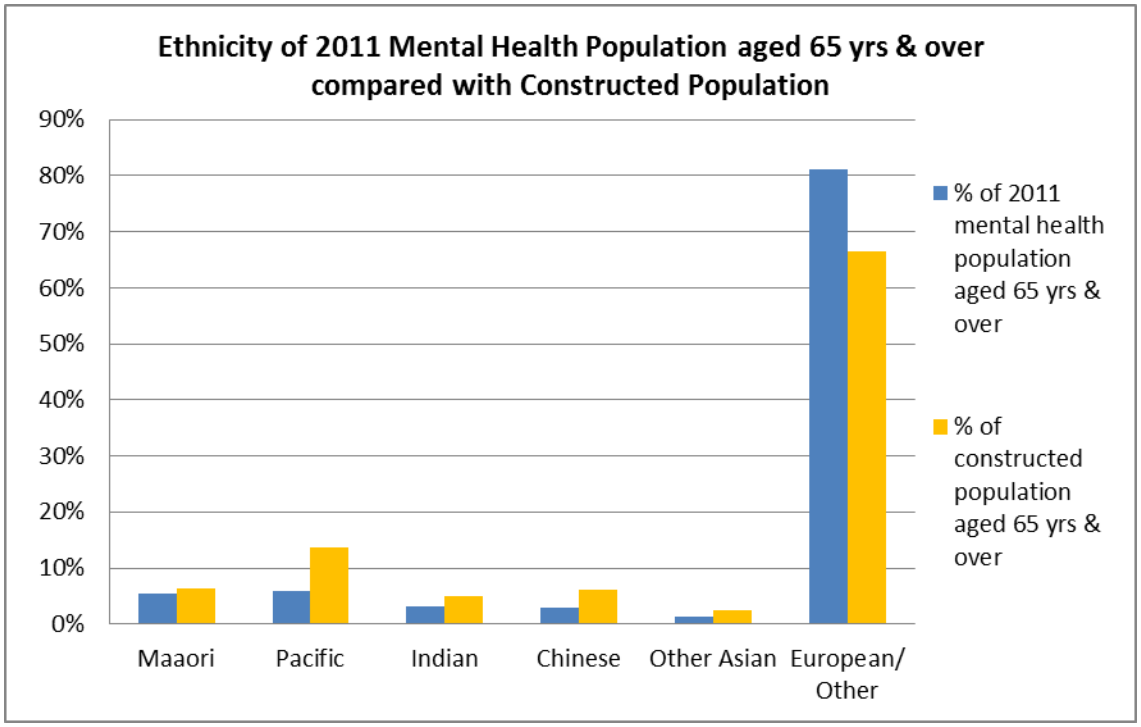
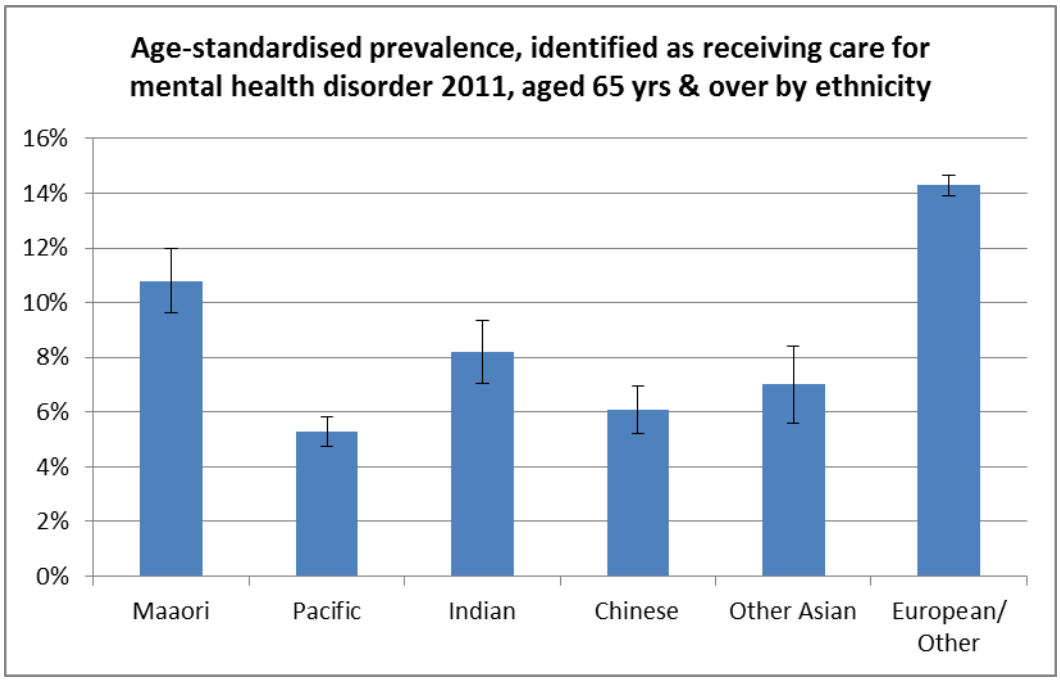


Figure 129 Age-standardised prevalence aged 65 years & over, identified as receiving care for mental health disorder 2011 by ethnicity



Age distribution

Within the population aged 65 years and over, the prevalence of identification in the population receiving mental health care in 2011 increased with age. The crude (age specific prevalence) was 10-11% for those aged 65-74 years increasing to 15-19% for those aged 80 years and over (Table 88, Figure 130 and Figure 131.

Table 88 Mental health population aged 65 years & over, 2011 snapshot by age group and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Age group (Yrs)	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this age group	Crude (age specific) prevalence
65-69	1,130	690	1,820	29.4%	34.8%	10.2% (9.8% – 10.2%)
70-74	930	490	1,420	22.9%	26.0%	10.7% (10.2% – 11.2%)
75-79	680	350	1,030	16.6%	17.1%	11.8% (11.1% – 12.4%)
80-84	670	310	980	15.8%	12.4%	15.5% (14.6% – 16.4%)
85 and over	700	250	950	15.3%	9.6%	19.3% (18.2% – 20.4%)
Total	**4,100**	**2,080**	**6,190**	**100%**	**100%**	**12.1% (11.9% – 12.4)%**

Figure 130 Mental health population aged 65 years & over, 2011 snapshot age group compared with constructed population

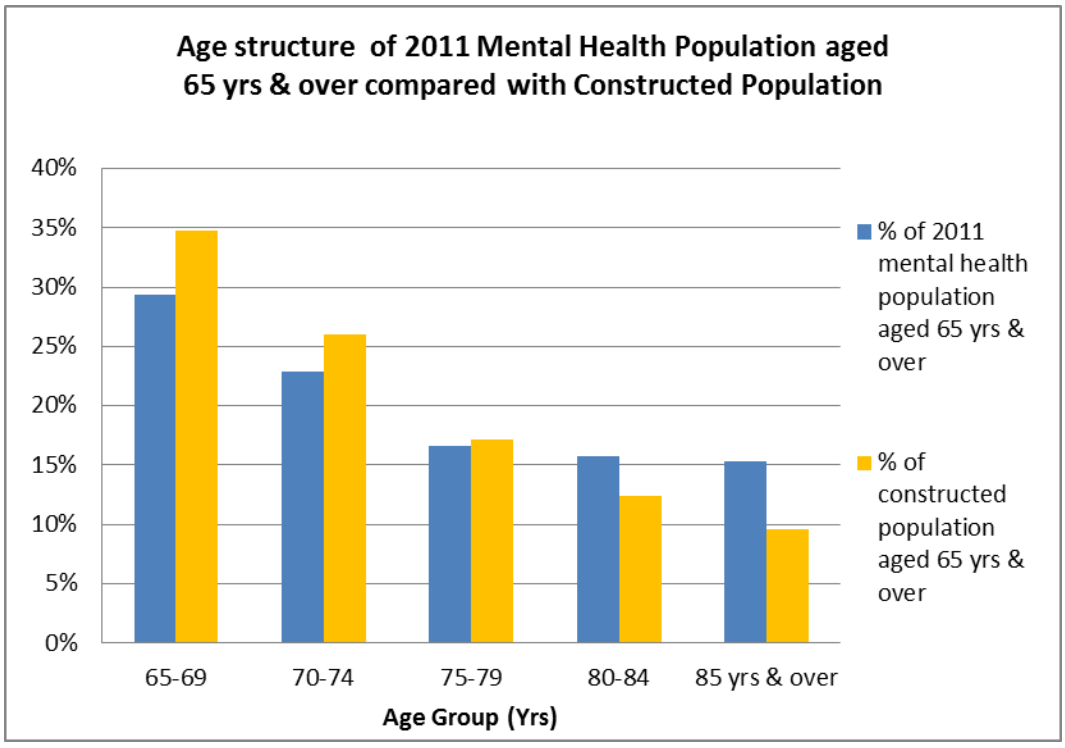
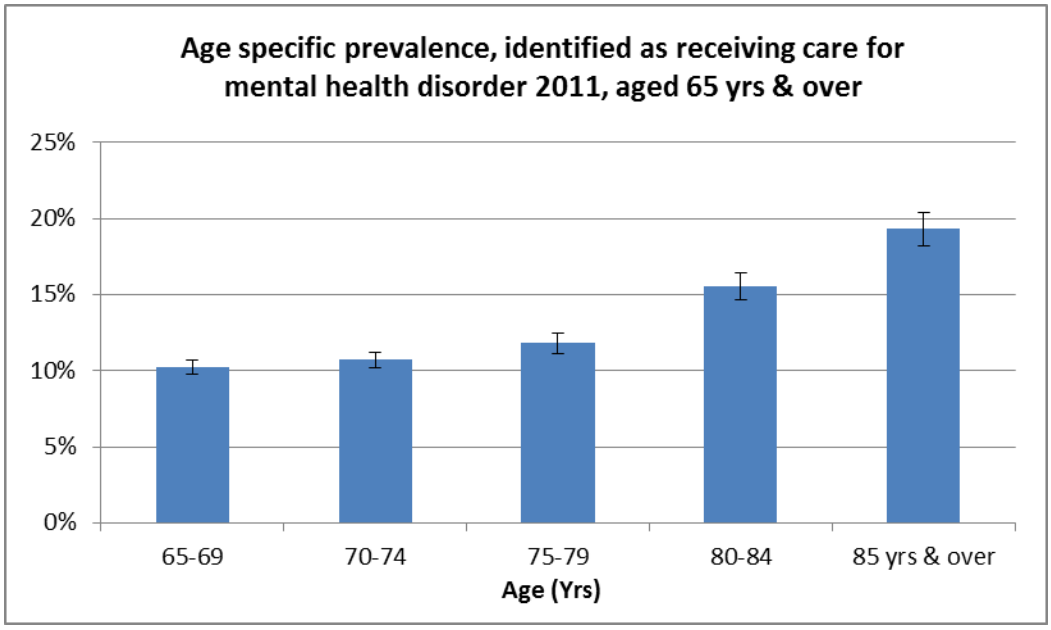


Figure 131 Age specific prevalence aged 65 years & over, identified as receiving care for mental health disorder 2011



Socioeconomic distribution

Those aged 65 years and over identified as receiving care for mental health disorder in 2011 were distributed across the NZDep06 quintiles in a similar U-shaped pattern to the underlying population of this age, with no real pattern in the crude or age-standardised prevalence (Table 89, Figure 132 and Figure 133). The distribution of the constructed population across quintiles for this age group differs from younger age groups in Counties Manukau, who are more concentrated in areas of high socioeconomic deprivation.

Table 89 Mental health population aged 65 years & over, 2011 snapshot by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this quintile	Crude preva-lence	Age-standardised prevalence (95% CI)
N/I*	540	260	800	12.9%	10.5%	14.9%	13.5% (12.6% - 14.4%)
1	740	390	1,130	18.3%	20.7%	10.8%	10.8% (10.2% - 11.4%)
2	700	380	1,080	17.4%	16.8%	12.5%	12.4% (11.7% - 13.1%)
3	570	290	860	13.9%	13.9%	12.1%	11.8% (11.1% - 12.6%)
4	770	350	1,120	18.1%	15.5%	14.2%	13.4% (12.7% - 14.2%)
5	780	420	1,200	19.4%	22.6%	10.5%	10.5% (9.9% - 11.1%)
Total	**4,100**	**2,080**	**6,190**	**100%**	**100%**	**12.1%**	**11.9% (11.6% - 12.2%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 132 Mental health population aged 65 years & over, 2011 snapshot by socioeconomic area compared with the constructed population

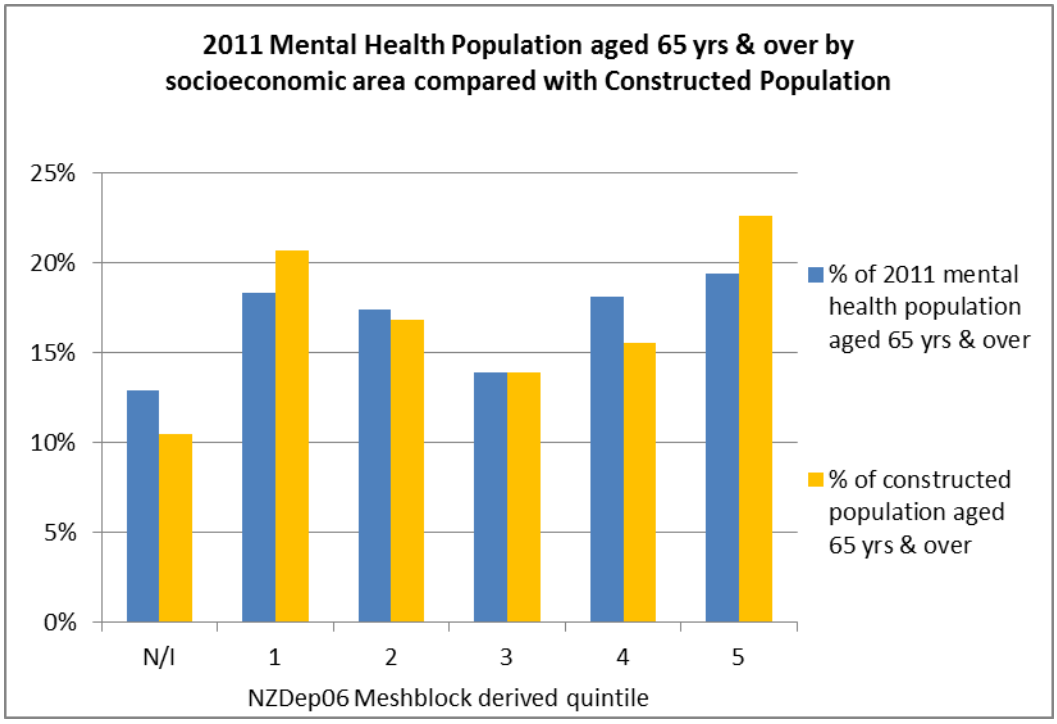
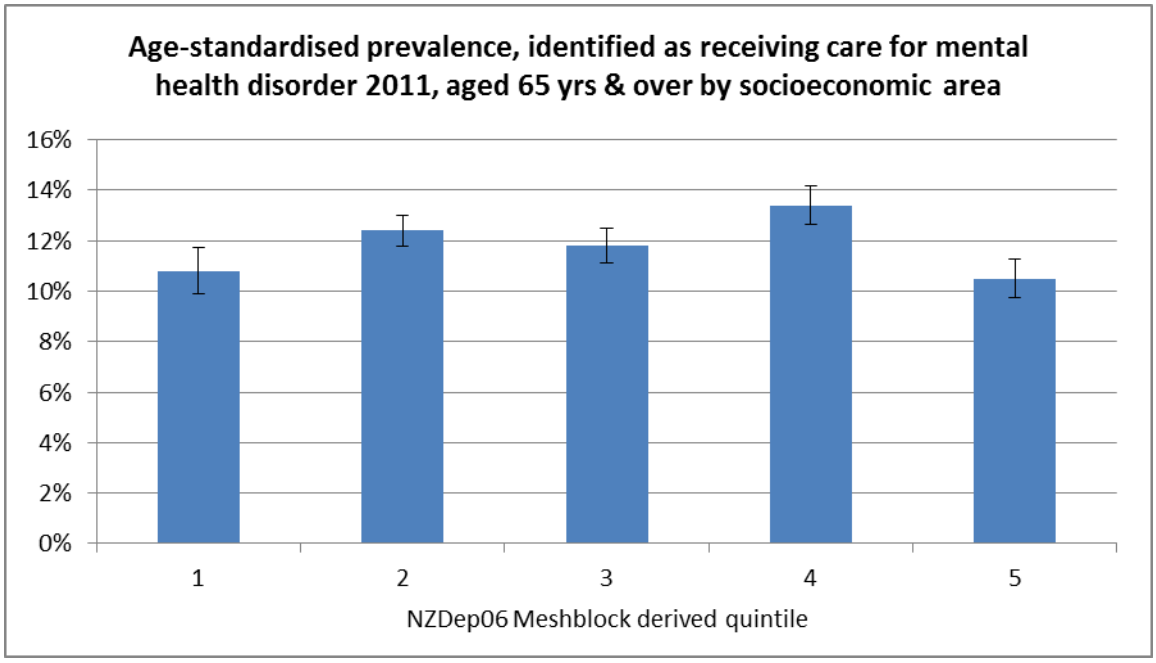


Figure 133 Age-standardised prevalence aged 65 years & over, identified as receiving care for mental health disorder 2011 by socioeconomic area



Distribution across the CM Health district

The distribution of the population identified as receiving care for mental health disorders in 2011 aged 65 years and over across the district appears to reflect the age and ethnicity of the population, with the largest volume being in the Te Rawhiti CMHC area. There was a lower crude and age-standardised prevalence in the Cottage (including Otahuhu) (Table 90 and Figure 134 and Figure 135).

Table 90 Mental health population aged 65 years & over 2011 snapshot, residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Residential location by CMHC	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this residential locality	Crude prevalence	Age-standardised prevalence (95% CI)
Awhinatia	1,130	560	1,690	27.3%	25.2%	13.2%	12.9% (12.3% - 13.5%)
Manukau	930	440	1,370	22.1%	21.2%	12.6%	12.4% (11.8% - 13.0%)
Te Rawhiti	1,440	700	2,140	34.7%	33.2%	12.7%	12.3% (11.8% - 12.8%)
The Cottage (including Otahuhu)	590	370	960	15.5%	19.7%	9.5%	9.6% (9.0% - 10.2%)
CMDHB NFD*	20	10	30	0.4%	0.7%	8.1%	7.9% (5.0% - 10.9%)
Total	**4,100**	**2,080**	**6,190**	**100%**	**100%**	**12.1%**	**11.9% (11.6% - 12.2%)**

**Not Further Defined – data absent or unable to be mapped to CAU*

Figure 134 Mental health population aged 65 years & over 2011 snapshot, residential location according to CMHC boundaries compared with constructed population

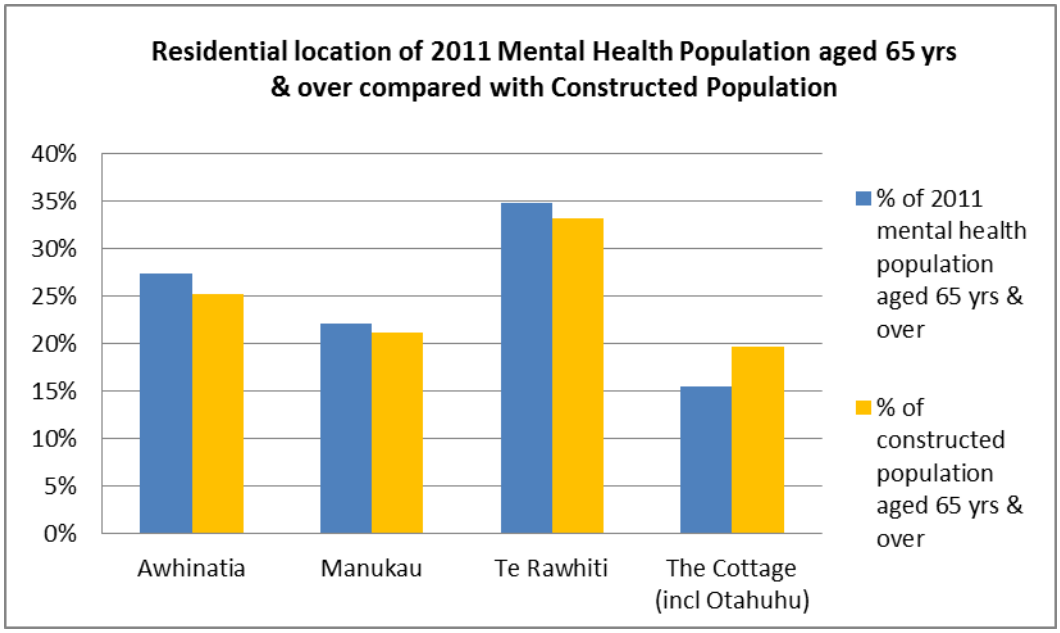
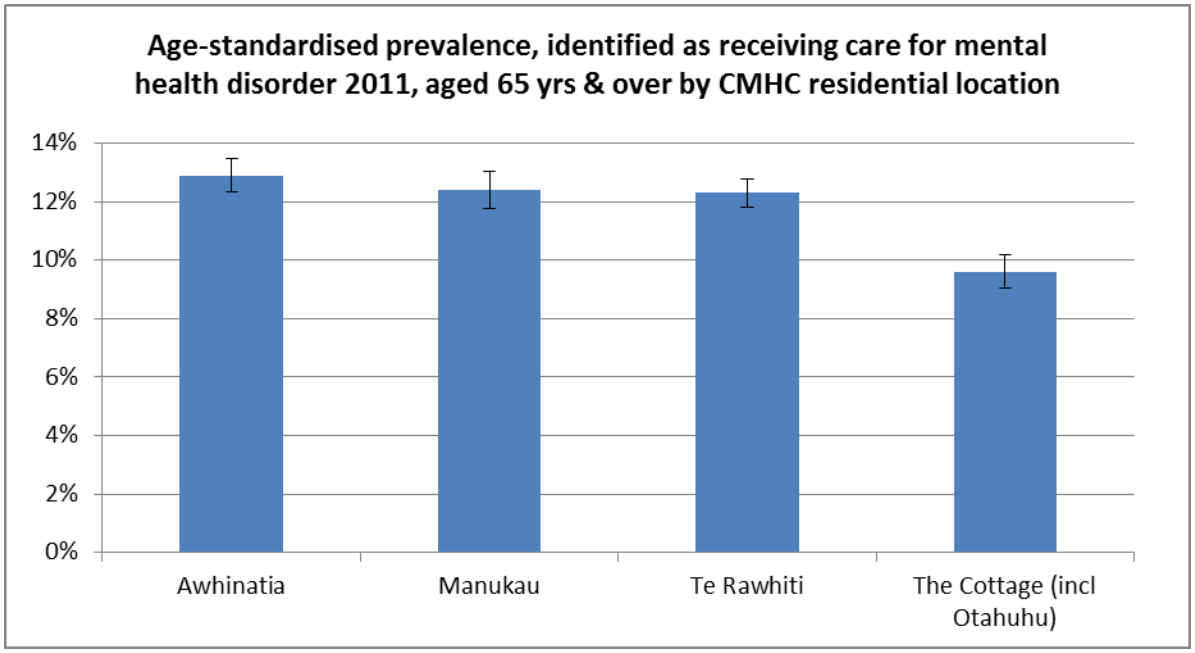


Figure 135 Age-standardised prevalence aged 65 years & over, identified as receiving care for mental health disorder 2011 by CMHC residential location



Enrolled locality for primary care

There was a significantly lower age-standardised prevalence of receiving care for mental health disorders aged 65 years and over in Mangere/Otara and Otahuhu (8-9% compared to 13% for the other CM Health localities) (Table 91, Figure 136 and Figure 137).

Only 70 people identified as receiving care for a mental health disorder in 2011 aged 65 years and over were not enrolled in a practice at the beginning of 2012 (Table 91).

Table 91 Mental health population aged 65 years & over 2011 snapshot, enrolled locality for primary care by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude preva-lence	Age-standardised prevalence (95% CI)
Eastern	1,220	550	1,770	28.6%	25.1%	13.8%	13.2% (12.6%- 13.8%)
Franklin	530	250	780	12.7%	11.7%	13.1%	12.6% (11.8% - 13.5%)
Mangere/ Otara	400	240	640	10.4%	15.0%	8.4%	8.6% (8.0% - 9.3%)
Manukau	1,420	680	2,100	33.9%	30.3%	13.6%	13.3% (12.8% - 13.9%)
Not enrolled	40	30	70	1.1%	2.0%	6.7%	6.4% (5.0% - 7.9%)
Otahuhu (ADHB)	110	70	180	3.0%	4.7%	7.6%	7.8% (6.7% - 8.9%)
Other*	390	260	640	10.4%	11.1%	11.4%	11.5% (10.6% - 12.3%)
Total	**4,100**	**2,080**	**6,190**	**100%**	**100%**	**12.1%**	**11.9% (11.6% - 12.2%)**

**beyond CMDHB and Otahuhu*

Figure 136 Mental health population aged 65 years & over 2011 snapshot, enrolled locality for primary care compared with constructed population

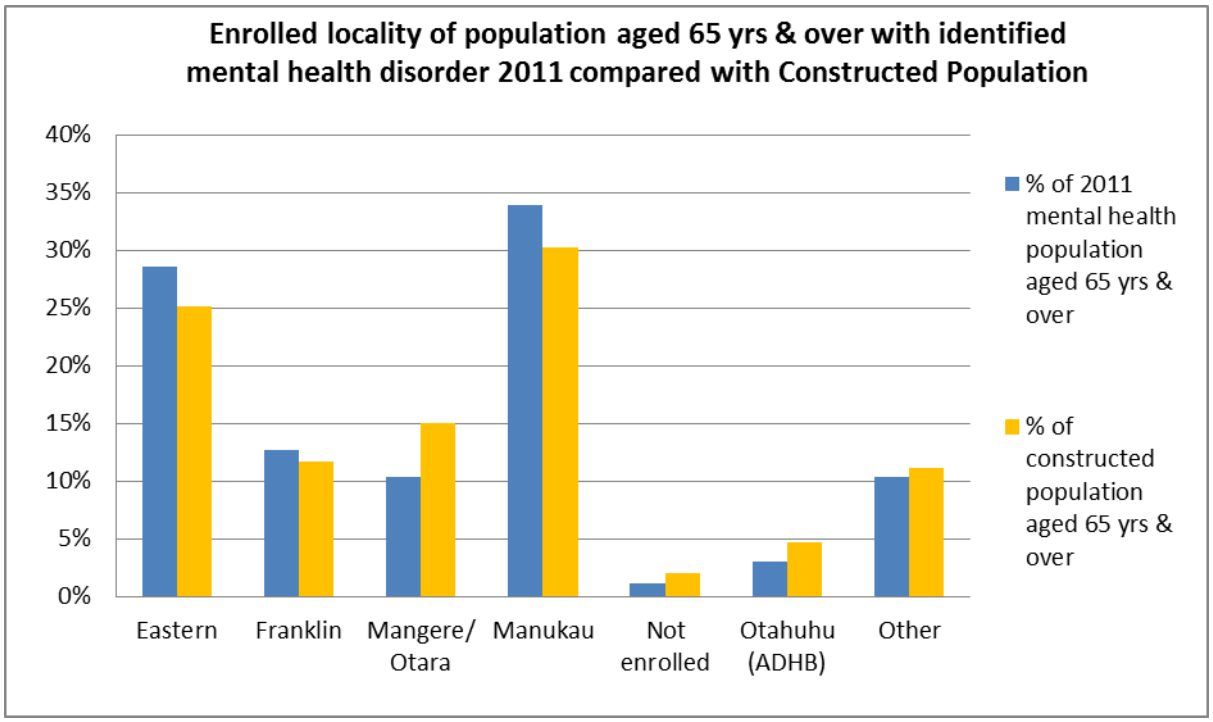
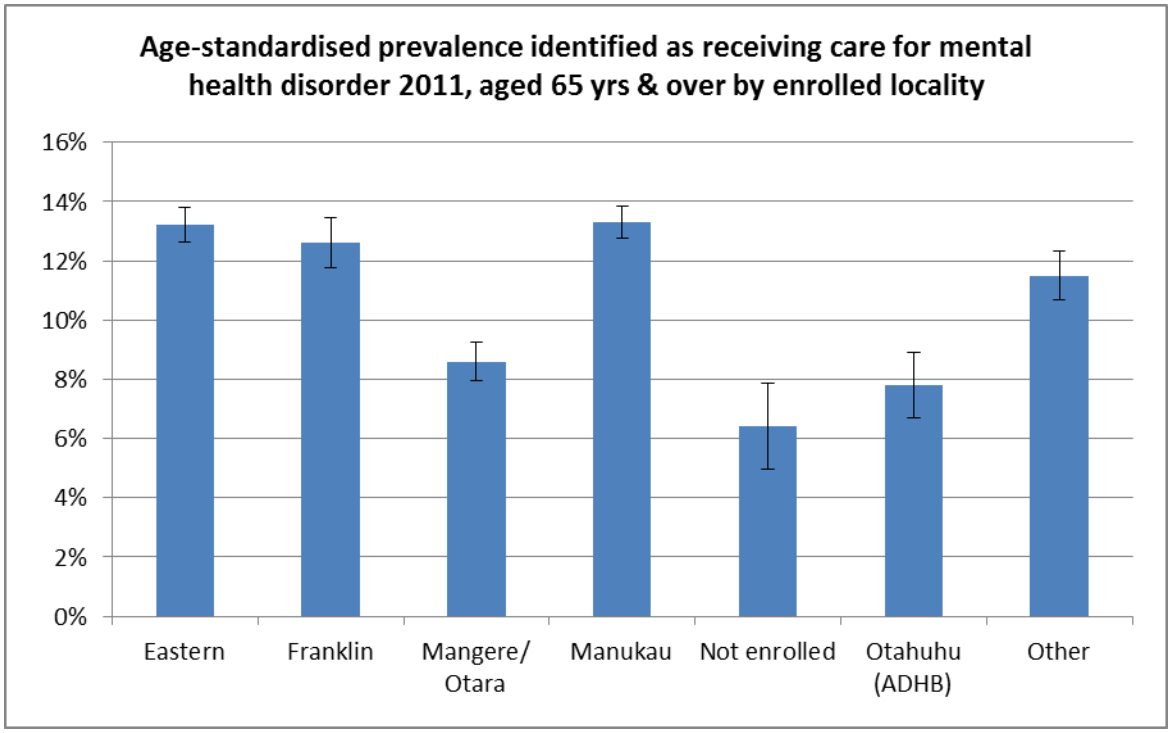


Figure 137 Age-standardised prevalence aged 65 years & over, identified as receiving care for mental health disorder 2011 by enrolled locality



Means of identification as part of the 2011 Mental Health population aged 65 years and over

93% of the 2011 mental health population aged 65 years and over (5,740 people), were receiving mental health medication of some sort; 14.6% (840) of these people (13.6% of the total) also had contact with mental health services. For 78% of the total 2011 mental health population (4,840), a mental health medication was the only way they were identified as part of the mental health population; this is considerably higher than for the 2011 mental health population aged 18 years and over (64%) (Table 92 and Table 93; Figure 138 and Figure 139).

Overall 19% of the identified 2011 mental health population aged 65 years and over (1,200 people) had some contact with mental health services in 2011. Of these 30% (360) were not identified as receiving any mental health medication in 2011. Again, these figures are lower than for the 18 years and over population, where 35% were seen by mental health services and 48% of those were not receiving any mental health medication. I.e. those identified in the mental health population in 2011 aged 65 years and over were more likely to be treated in primary care with medication and not seen by mental health services than younger age groups.

3% of those 65 years and over (210 people) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital.

Table 92 Means of identification as part of the population aged 65 years & over receiving care for mental health disorder 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**90**	**4,900**	**4,980**
No NMDS MH diagnosis		4,840	4,840
NMDS MH diagnosis	90	60	140
PRIMHD contact	**360**	**840**	**1,200**
No NMDS MH diagnosis	330	630	950
NMDS MH diagnosis	40	210	250
Total	**450**	**5,740**	**6,190**

Table 93 Means of identification as part of the population aged 65 years & over receiving care for mental health disorder 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**1.4%**	**79.1%**	**80.6%**
No NMDS MH diagnosis		78.2%	78.2%
NMDS MH diagnosis	1.4%	0.9%	2.3%
PRIMHD contact	**5.9%**	**13.6%**	**19.4%**
No NMDS MH diagnosis	5.3%	10.1%	15.4%
NMDS MH diagnosis	0.6%	3.4%	4.0%
Total	**7.3%**	**92.7%**	**100%**

Figure 138 Means of identification as part of the population aged 65 years and over receiving care for mental health disorder 2011, number of people per category (circles not proportionate)

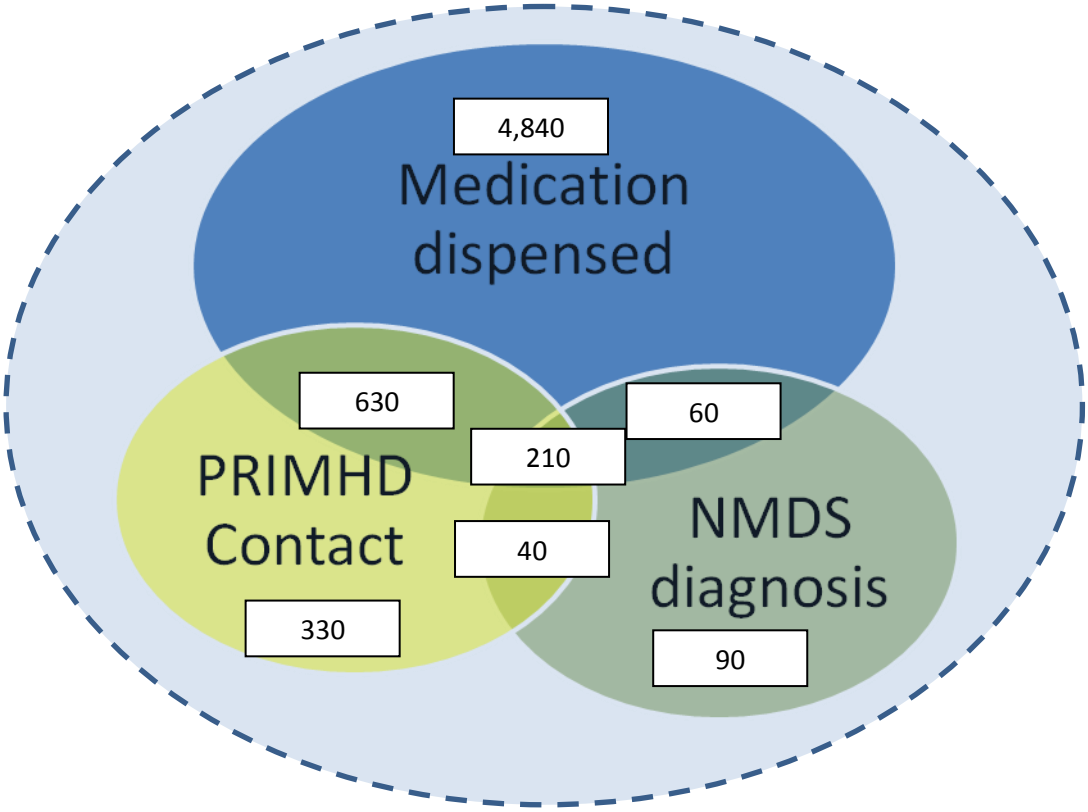
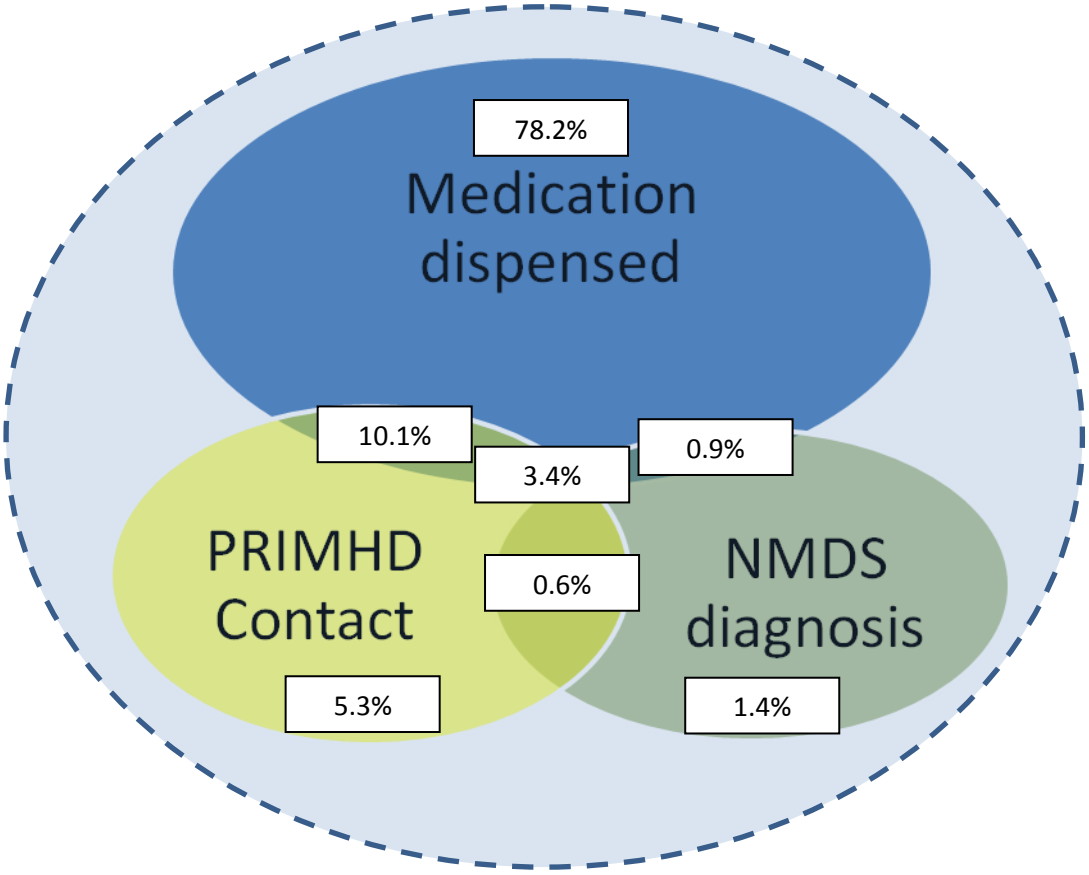


Figure 139 Means of identification as part of the population aged 65 years and over receiving care for mental health disorder 2011, category by percentage



As noted previously, the dotted circle is meant to represent the wider population who have mental health disorders who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies). However the Te Rau Hinengaro findings of prevalence of disorder in this age group suggest some people may be receiving treatment for disorders that would not meet the formal DSM criteria, so the dotted line as well as the study categories might also be taken to include those with subclinical mental health disorders.

Diagnoses

Depression/anxiety was by far the most common diagnosis (by use of relevant medication or actual diagnosis in PRIMHD or NMDS) for those aged 65 years and over identified as receiving care for a mental health disorder in 2011, being identified for 85% of the 2011 mental health population, with a crude prevalence of 10.4%(Table 94, Figure 140 and Figure 141). Depression and anxiety often occur together and treatment can be similar. There were just under 5,300 people aged 65 years and over identified with depression and/or anxiety in 2011; this group are described more fully on P 193. Those identified as receiving care for psychotic disorders are also described in more detail on P 202.

Overall there was a preponderance of females in the 2011 snapshot mental health population of those aged 65 years and over at 66% of those identified (compared with 54% females in the constructed population of this age). In particular in several conditions women represented 60% or more of those identified – 68% of those with depression/anxiety, 63% of those with complications of dementia, 67% of those with bipolar disorder, and 60% of those identified with substance abuse. The latter is quite different from other age groups but the numbers are small.

There were 190 people who did not have a diagnosis identified that was within the categories described. By definition these are people who were seen by mental health services in 2011 but were not given a diagnosis in these categories (people identified by PHARMS and/or NMDS diagnosis had to have medications or diagnoses within the categories described to be identified). This leaves 6,000 people with identified diagnoses in the categories described. Given there were a total of 7,670 diagnoses identified, this indicates there was a proportion of people who have two or more diagnoses.

Table 94 Diagnostic categories for 2011 Mental Health Population aged 65 years & over, by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total	% of the MH population identified with this condition (not taking into account overlap)	Crude prevalence of care for this condition	% female
Depression/anxiety	3,460	1,620	5,080	82.1%	10.0%	68.1%
Bipolar disorder	90	50	140	2.2%	0.3%	64.7%
Personality disorder	0	0	10	0.1%	0.0%	60.0%
Psychotic disorder	610	380	990	15.9%	1.9%	61.8%
Substance Abuse	30	20	60	0.9%	0.1%	56.4%
Complications of Dementia	160	90	250	4.0%	0.5%	63.3%
Disorders onset child/adolescent	10	10	20	0.2%	0.0%	33.3%
Intentional Self-Harm	10	10	20	0.3%	0.0%	55.6%
Other MH	0	10	10	0.2%	0.0%	36.4%
Total diagnoses in these categories	*4,370*	*2,190*	*6,550*			
People with No diagnosis in these categories	150	110	260	4.3%	0.5%	58.3%

Figure 140 Percentage of the 2011 mental health population, aged 65 years & over, identified as receiving care for various mental health conditions

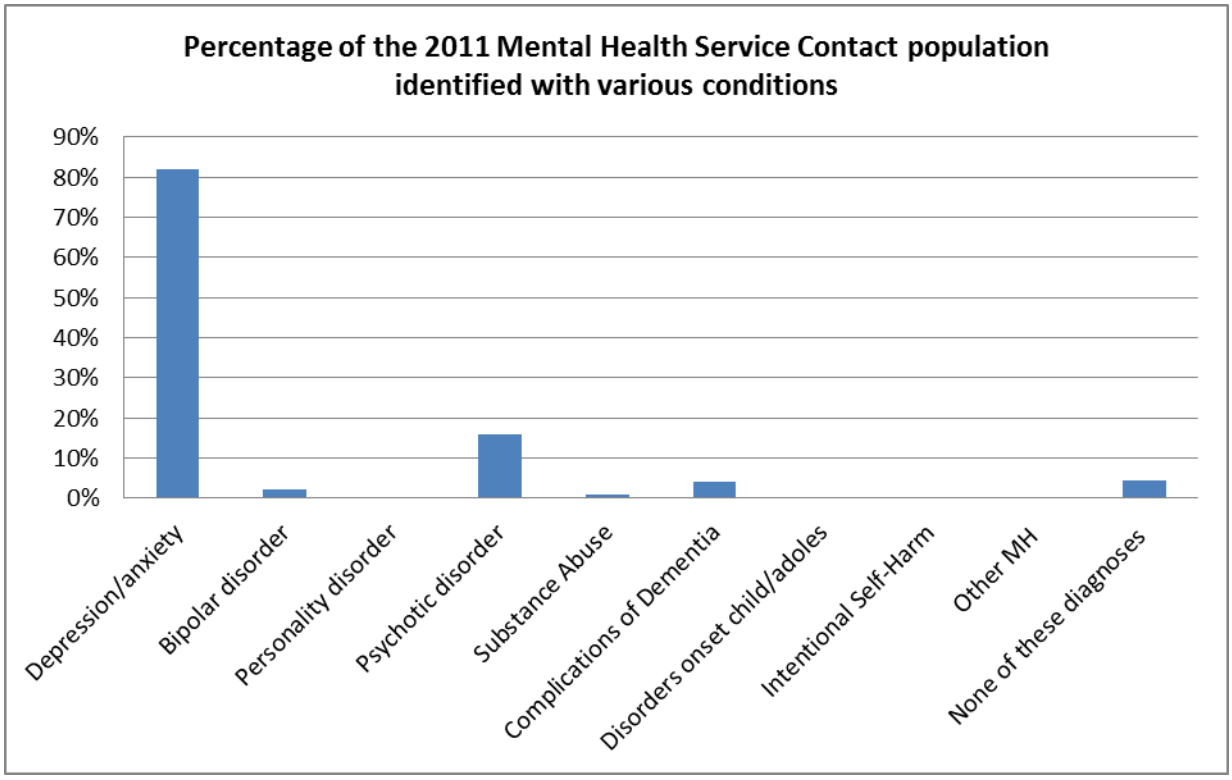
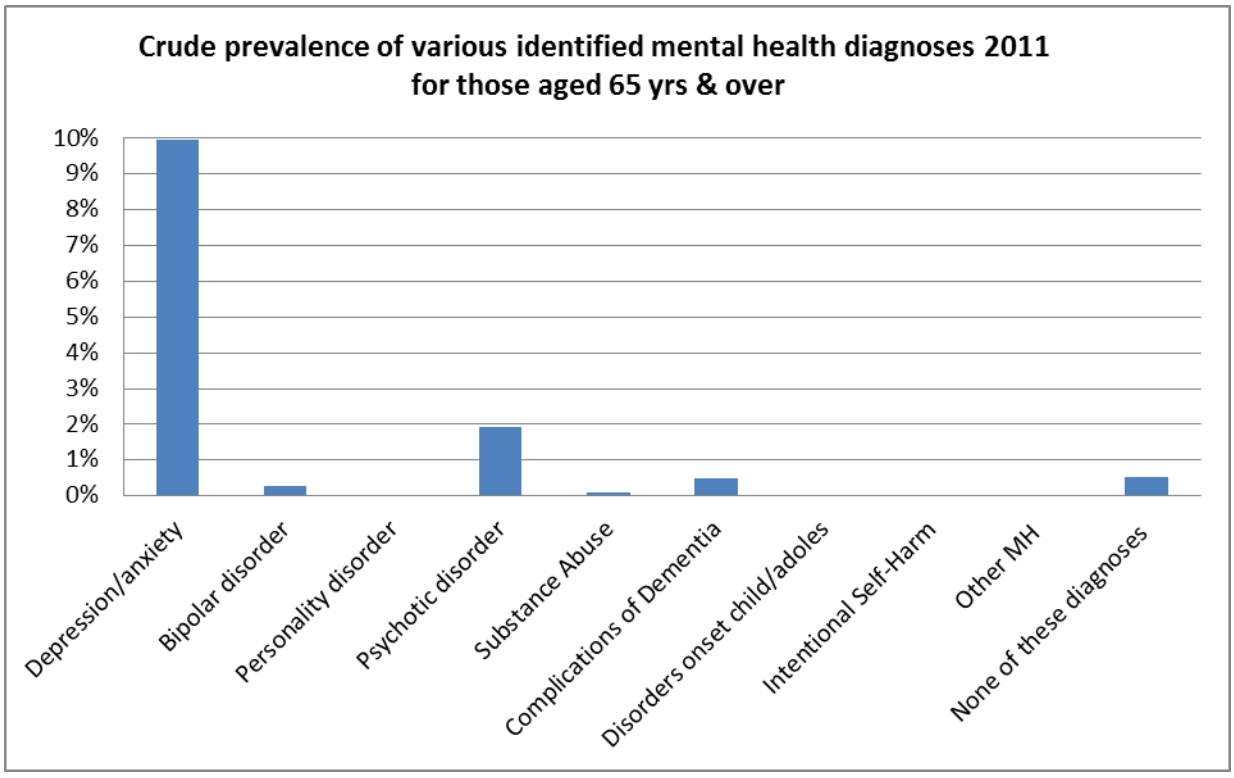


Figure 141 Crude prevalence of various mental health conditions 2011 in the population aged 65 years & over



People identified as receiving care for Depression and/or Anxiety in 2011 aged 65 years and over

There were just under 5,100 people aged 65 years and over identified as receiving care for depression/anxiety in 2011. This gives a crude prevalence of 10% of the population aged 65 years and over. This is higher than the Te Rau Hinengaro figures for this age, based on DSM-IV criteria[15] – 6% for any anxiety disorder and 2% for any mood disorder, 7.1% any disorder (indicating some degree of overlap of depressive and anxiety disorders). However Blueprint II states that depression affects 15-20% of older people increasing with age, to 40% in those over 80 year olds, citing a Waitemata DHB literature review (Tynan D. 2008. An Examination of the Evidence for Models of Service Delivery: Mental Health of the Older Adult (Including Dementia) and Addictions). Ministry of Health guidelines for District Health Boards for 'Mental Health and Addiction Services for Older People and Dementia Services' also cites a prevalence of 15-20% in older people with 3% suffering from severe depression (Ministry of Health, 2011); these figures also appear to be drawn from the 2008 Tynan paper. Tynan and a scoping study on depression in older age for the Australian national depression initiative both cite a 2006 review by Djernes which found prevalence of depression or clinically relevant depressive symptoms in those 65 and over ranging from 1-49%, depending on the setting and methodology (Djernes, 2006).

Ethnicity

The age-standardised prevalence of receiving care for depression/anxiety in 2011 was much higher in those of European/Other ethnicities (12.2%) compared with only 2.9% for those of Pacific ethnicities, 4.9 - 6.5% for Asian groups and 7.8% for Maaori (Table 95, Figure 142 and Figure 143).

Overall 11% of those identified as receiving care for depression/anxiety aged 65 and over (570 people) were seen by Mental Health Services, without significant differences by ethnicity (relatively large confidence intervals due to small numbers) (Table 95 and figure 143).

[15] with hierarchy which means for example people with mania are not included in major depressive disorder or dysthymia and generalised anxiety must not occur exclusively within a mood disorder.

Table 95 Population aged 65 years & over identified as receiving care for depression/anxiety 2011, by ethnicity and gender.

	Gender			Comparison with constructed population		Prevalence of care for depression/anxiety		
Ethnicity	Female	Male	Total	% of those receiving care for depression /anxiety	% of constructed population in this ethnic group	Crude preva-lence	Age-standardised prevalence (95% CI)	% seen by MH services
Maaori	170	80	250	5.0%	6.4%	7.7%	7.8% (6.8% - 8.8%)	13.1%
Pacific	140	60	200	4.0%	13.6%	2.9%	2.9% (2.5% - 3.3%)	13.9%
Indian	110	50	160	3.1%	5.0%	6.3%	6.5% (5.5% - 7.5%)	11.9%
Chinese	100	50	150	2.9%	6.0%	4.8%	4.9% (4.1% - 5.7%)	7.6%
Other Asian	50	30	70	1.5%	2.5%	5.8%	5.8% (4.5% - 7.1%)	14.9%
European /Other	2,890	1,350	4,250	83.6%	66.5%	12.5%	12.2% (11.9%- 12.6%)	11.0%
Total	**3,460**	**1,620**	**5,080**	**100%**	**100%**	**10.0%**	**9.8% (9.6% - 10.1%)**	**11.2%**

Figure 142 Population aged 65 years & over identified as receiving care for depression/anxiety 2011, compared with constructed population by ethnicity

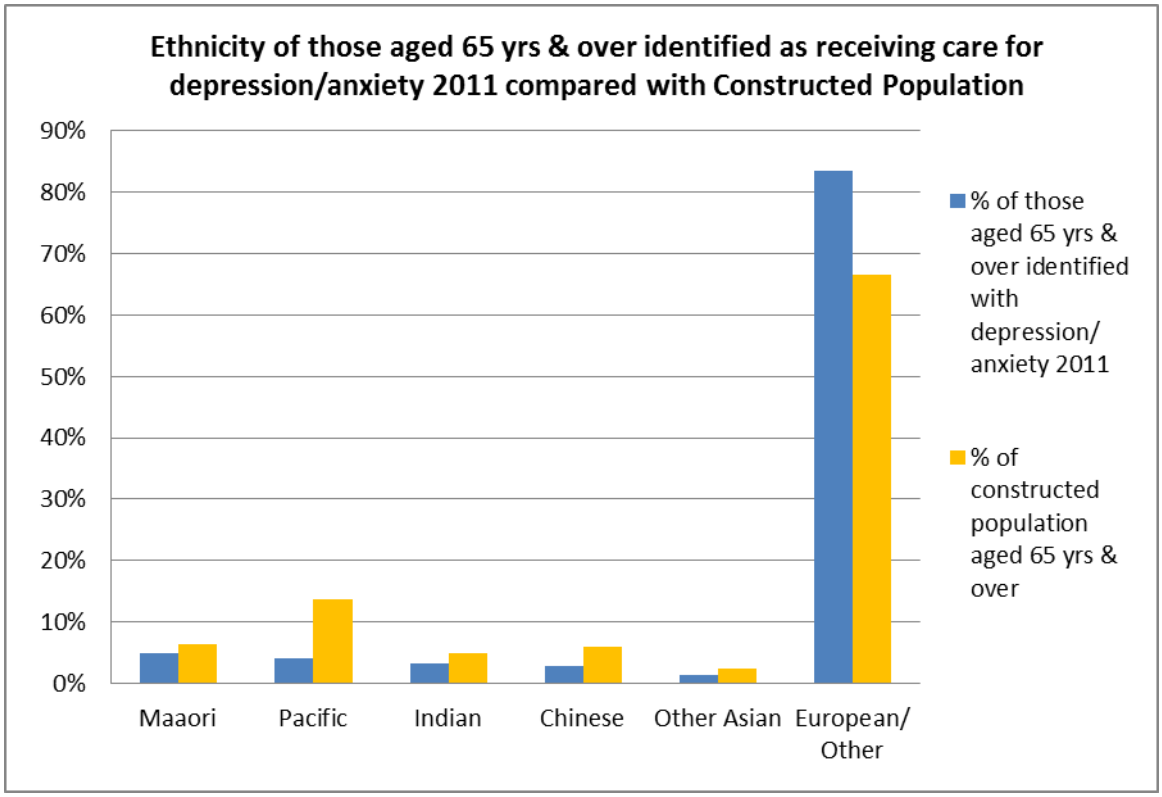


Figure 143 Age-standardised prevalence aged 65 years & over, identified as receiving care for depression/anxiety 2011 by ethnicity

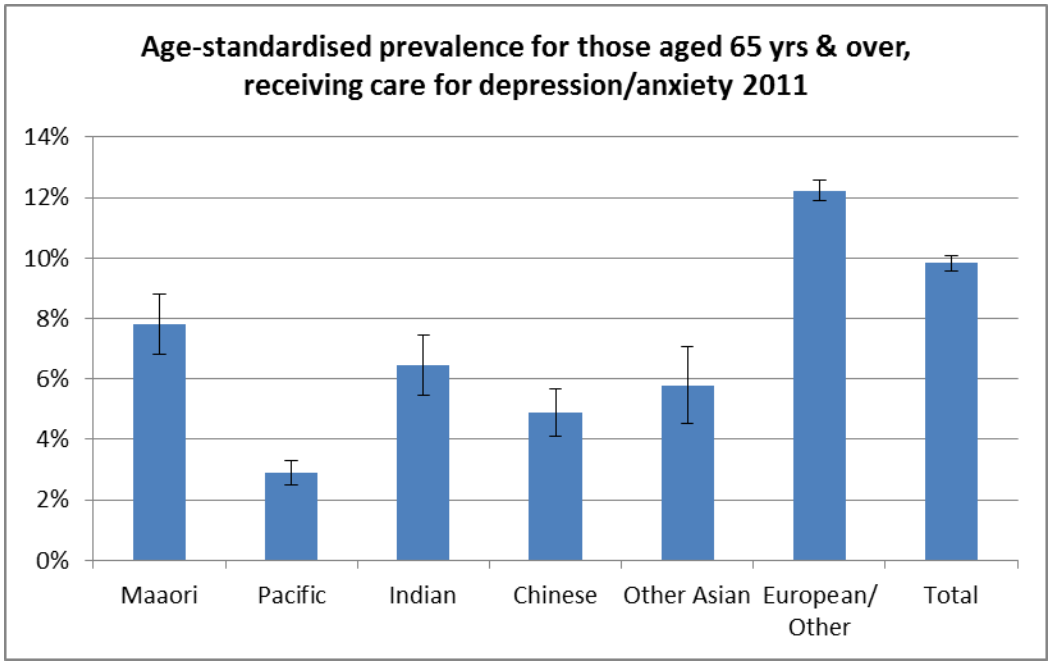
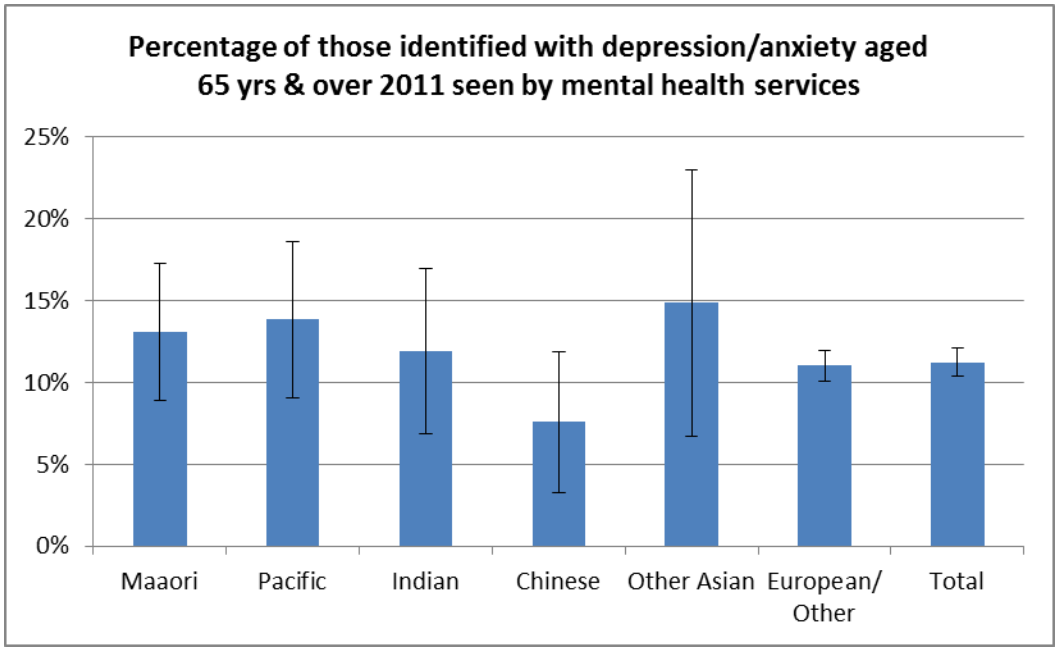


Figure 144 Percentage seen by Mental Health Services, aged 65 years and older, of those identified as receiving care for depression/anxiety 2011 by ethnicity



Age distribution

Within the age group 65 years and over, a higher percentage of people in the older age groups were identified as receiving care for depression/anxiety in 2011 - 12-14% in those ages 80 years and over, 9-10% in those under 80 years (Table 96, Figure 145 and Figure 146).

Table 96 Population aged 65 years & over identified as receiving care for depression/anxiety 2011, by age group and gender

	Gender			Comparison with constructed population		Prevalence of care for depression/anxiety
Age group (Yrs)	Female	Male	Total	% of those receiving care for depression /anxiety	% of constructed population in this age group	Crude (age specific) prevalence
65-69	1,010	550	1,560	30.7%	34.8%	8.8% (8.4% - 9.2%)
70-74	800	390	1,190	23.5%	26.0%	9.0% (8.5% - 9.5%)
75-79	570	270	840	16.6%	17.1%	9.6% (9.0% - 10.3%)
80-84	550	230	780	15.4%	12.4%	12.4% (11.6% - 13.2%)
85+	530	170	700	13.8%	9.6%	14.3% (13.3% - 15.3%)
Total	**3,460**	**1,620**	**5,080**	**100%**	**100%**	**10.0% (9.7% - 10.2%)**

Figure 145 Population aged 65 years & over identified as receiving care for depression/anxiety 2011 compared with constructed population by age group

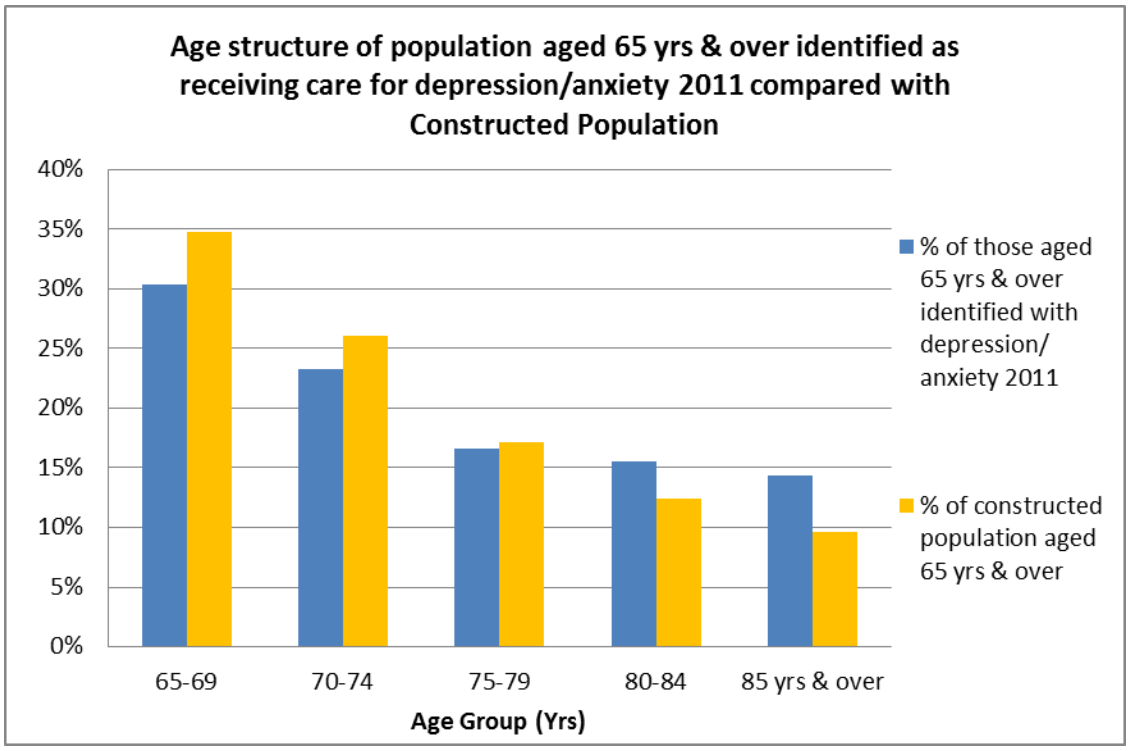
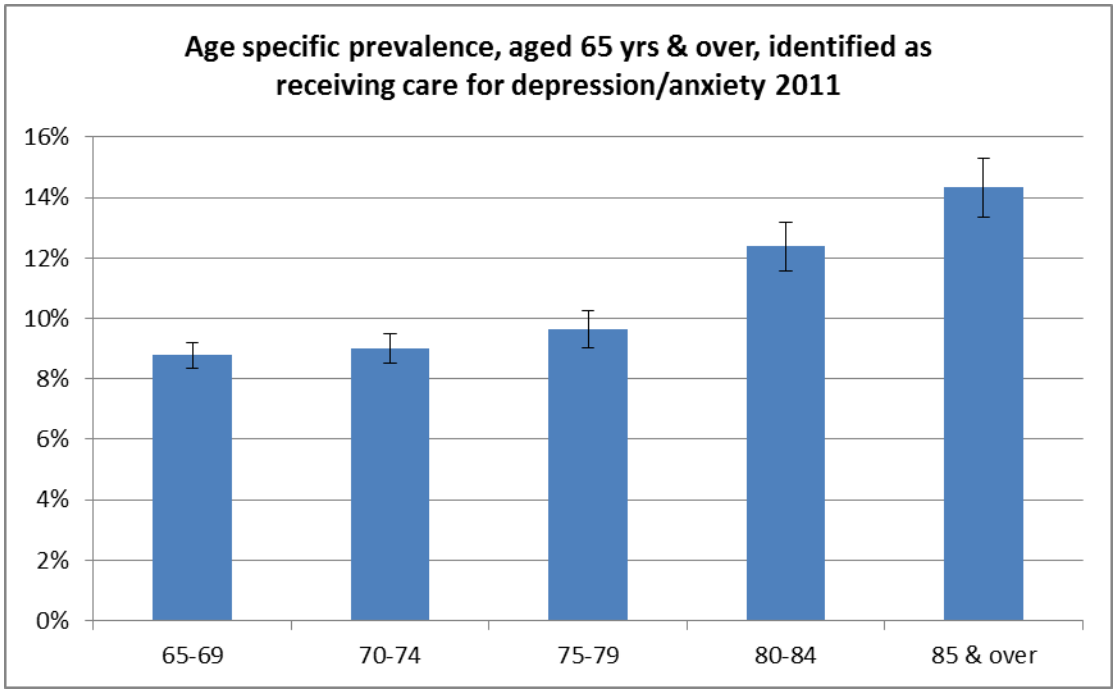


Figure 146 Age specific prevalence, aged 65 years & over, identified as receiving care for depression/anxiety 2011



Socioeconomic distribution

The age-standardised prevalence of those receiving care for depression/anxiety in those aged 65 years and over in 2011 was significantly lower in those living in areas of highest socioeconomic deprivation (Quintile 5), but those living in higher deprivation areas were more likely to have been seen by mental health services (Table 97, Figure 147 and Figure 148).

Table 97 Population identified as receiving care for depression/anxiety 2011 aged 65 years & over, by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence		% seen by MH services
NZDep06, Meshblock derived quintile	Female	Male	Total	% of those receiving care for depression /anxiety	% of constructed population in this quintile	Crude prevalence	Age-standardised prevalence (95% CI)	
N/I*	440	170	610	12.0%	10.5%	11.4%	10.4% (9.6% - 11.2%)	14.3%
1	670	350	1,020	20.0%	20.7%	9.7%	9.7% (9.1% - 10.2%)	7.4%
2	610	310	920	18.2%	16.8%	10.8%	10.7% (10.0% - 11.3%)	9.0%
3	510	240	750	14.7%	13.9%	10.5%	10.4% (9.6% - 11.1%)	10.6%
4	620	260	890	17.5%	15.5%	11.2%	10.7% (10.0% - 11.4%)	14.8%
5	610	290	900	17.6%	22.6%	7.8%	7.8% (7.3% - 8.3%)	12.9%
Total	**3,460**	**1,620**	**5,080**	**100%**	**100%**	**10.0%**	**9.8% (9.6% - 10.1%)**	**11.2%**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 147 Age-standardised prevalence aged 65 years & over, identified as receiving care for depression/anxiety 2011 by socioeconomic area

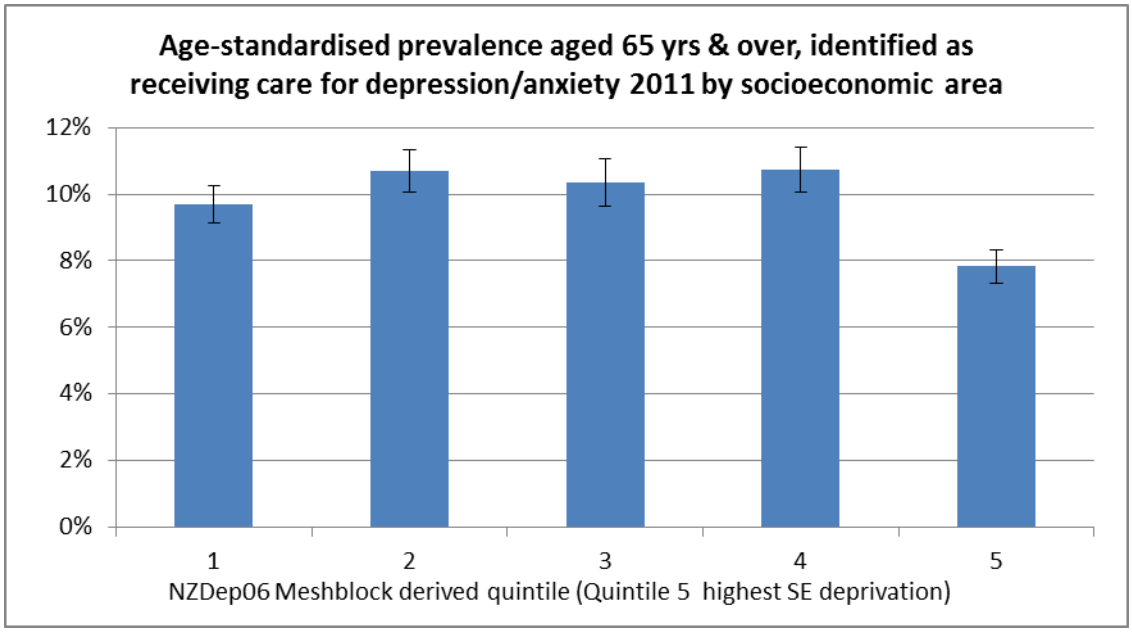
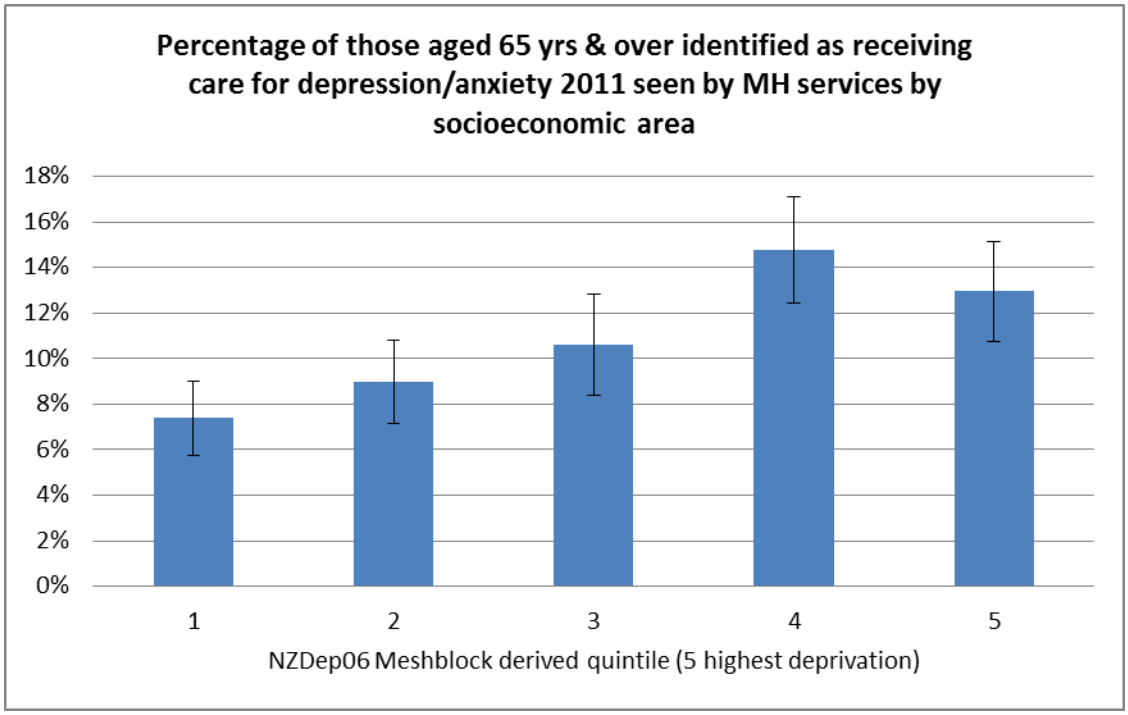


Figure 148 Percentage of those aged 65 years & over identified as receiving care for depression/anxiety seen by mental health services 2011 by socioeconomic area



Distribution across the CM Health district

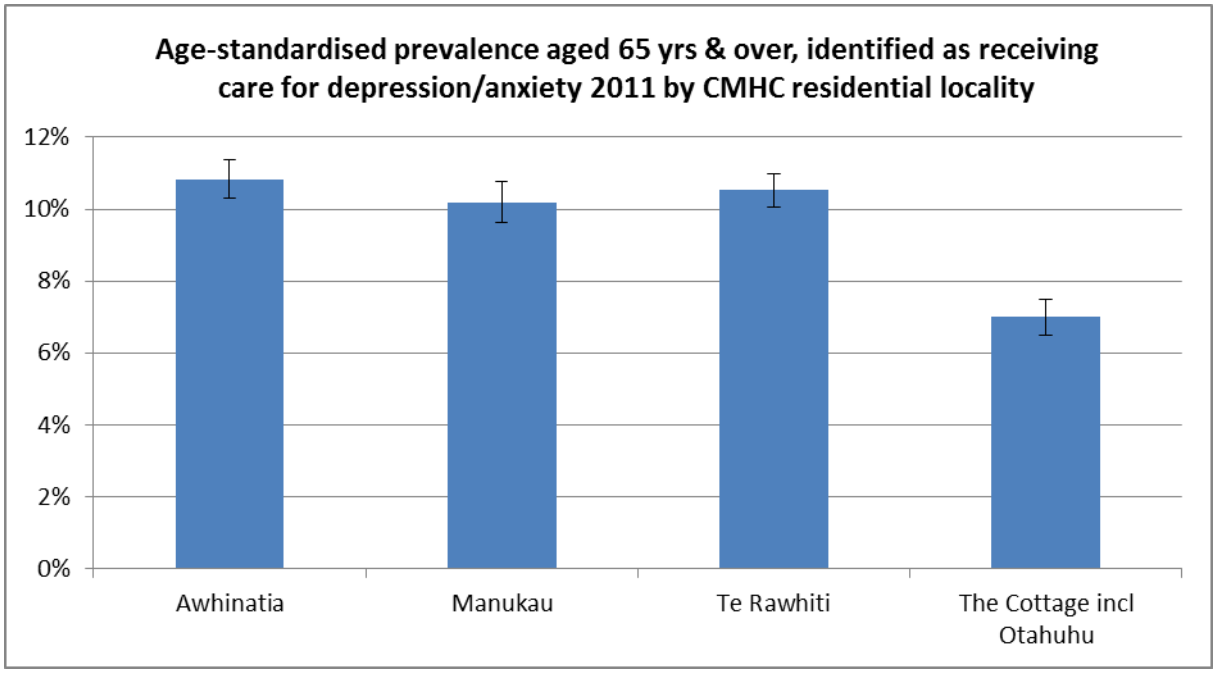
As for the total population aged 65 years and over identified as receiving care for a mental health disorder in 2011, the age-standardised prevalence of those identified as receiving care for depression/anxiety (Table 98) was lower in the Cottage (7%) than other CMHC areas (10-11%).

Table 98 Population aged 65 years & over, identified as receiving care for depression/anxiety 2011, residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence	
Residential location	Female	Male	Total	% of those receiving care for depression /anxiety	% of constructed population in this residential locality	Crude preva-lence	Age-standardised prevalence (95% CI)
Awhinatia	960	450	1,410	27.8%	25.2%	11.0%	10.8% (10.3% - 11.4%)
Manukau	770	350	1,120	22.0%	21.2%	10.3%	10.2% (9.6% - 10.8%)
Te Rawhiti	1,250	570	1,830	36.0%	33.2%	10.8%	10.5% (10.1% - 11.0%)
The Cottage (incl Otahuhu)	460	250	700	13.8%	19.7%	7.0%	7.0% (6.5% - 7.5%)
CMDHB NFD*	20	10	20	0.4%	0.7%	6.3%	6.2% (3.6% - 8.8%)
Total	**3,460**	**1,620**	**5,080**	**100%**	**100%**	**10.0%**	**9.8% (9.6% - 10.1%)**

** Not Further Defined – data absent or unable to be mapped to CAU*

Figure 149 Age-standardised prevalence aged 65 years & over, identified as receiving care for depression/anxiety 2011 by CMHC residential location



Enrolled locality for primary care

Similar to the residential areas, the age-standardised prevalence of identification as receiving care for depression/anxiety in 2011 in those aged 65 years and over was significantly lower for those enrolled with primary care practices in the Mangere/Otara locality (6.3%) than other CM Health localities (10.7 - 11.3%) (Table 99 and Figure 150).

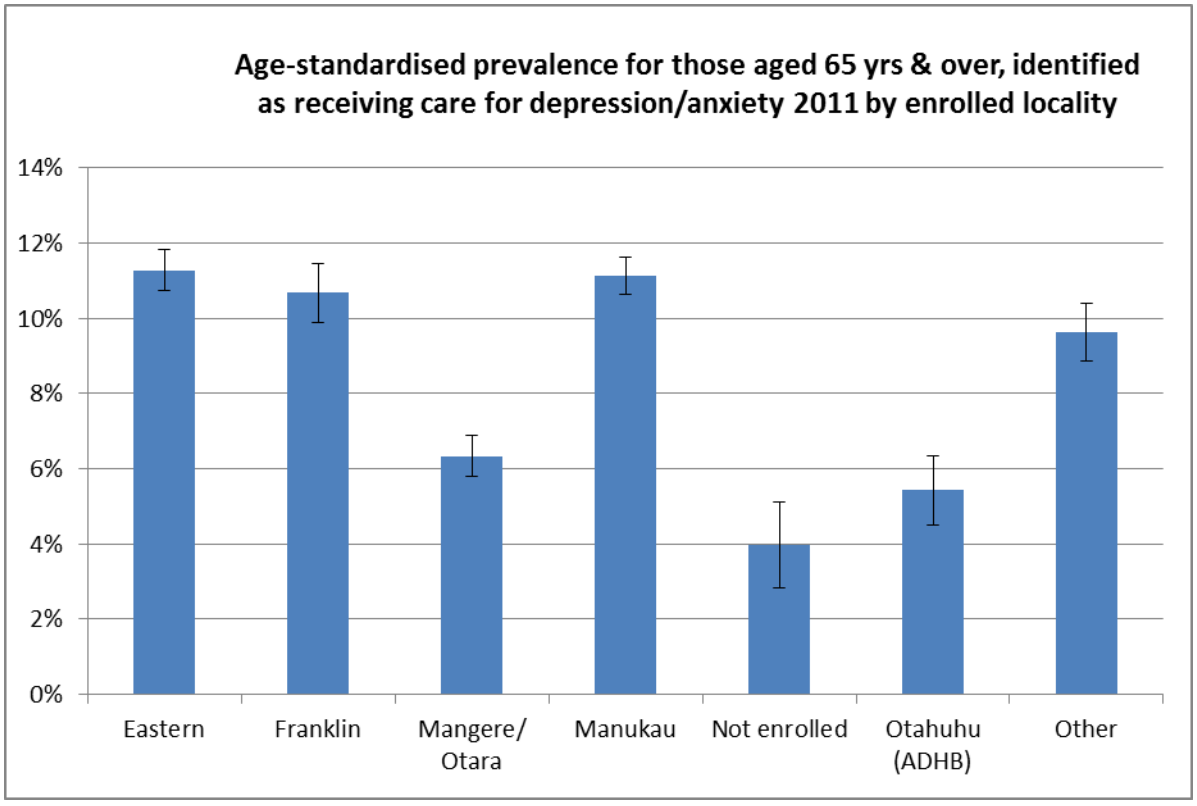
Less than 1% (40 people) of those identified as receiving care for depression/anxiety aged 65 and over in 2011 were not recorded as enrolled in a primary care practice at the beginning of 2012, although as noted previously, the way the diagnosis of depression/anxiety is defined in this study relies on health service contact and will miss those who have not health service contact at all. Note that 11% of those identified with depression/anxiety were enrolled outside CM Health practices, so work with other DHBs will be important to influence their care.

Table 99 Population aged 65 years & over, identified as receiving care for depression/anxiety 2011 by enrolled locality

	Gender			Comparison with constructed population		Prevalence	
Enrolled locality	Female	Male	Total	% of those receiving care for depression /anxiety	% of constructed population	Crude preva-lence	Age-standardised prevalence (95% CI)
Eastern	1,040	450	1,490	29.3%	25.1%	11.6%	11.3% (10.7% - 11.8%
Franklin	450	210	660	12.9%	11.7%	11.0%	10.7% (9.9% - 11.5%)
Mangere/ Otara	310	160	480	9.4%	15.0%	6.2%	6.3% (5.8% - 6.9%)
Manukau	1,200	540	1,740	34.3%	30.3%	11.3%	11.1 % (10.6% - 11.6%)
Not enrolled	30	10	40	0.8%	2.0%	4.2%	4.0% (2.8% - 5.1%)
Otahuhu (ADHB)	80	50	130	2.6%	4.7%	5.4%	5.4% (4.5% - 6.3%)
Other*	340	200	540	10.7%	11.1%	9.5%	9.6% (8.9% - 10.4%)
Total	**3,460**	**1,620**	**5,080**	**100%**	**100%**	**10.0%**	**9.8% (9.6% - 10.1%)**

**beyond CMDHB and Otahuhu*

Figure 150 Age-standardised prevalence aged 65 years and older, identified as receiving care for depression/anxiety 2011 by enrolled locality



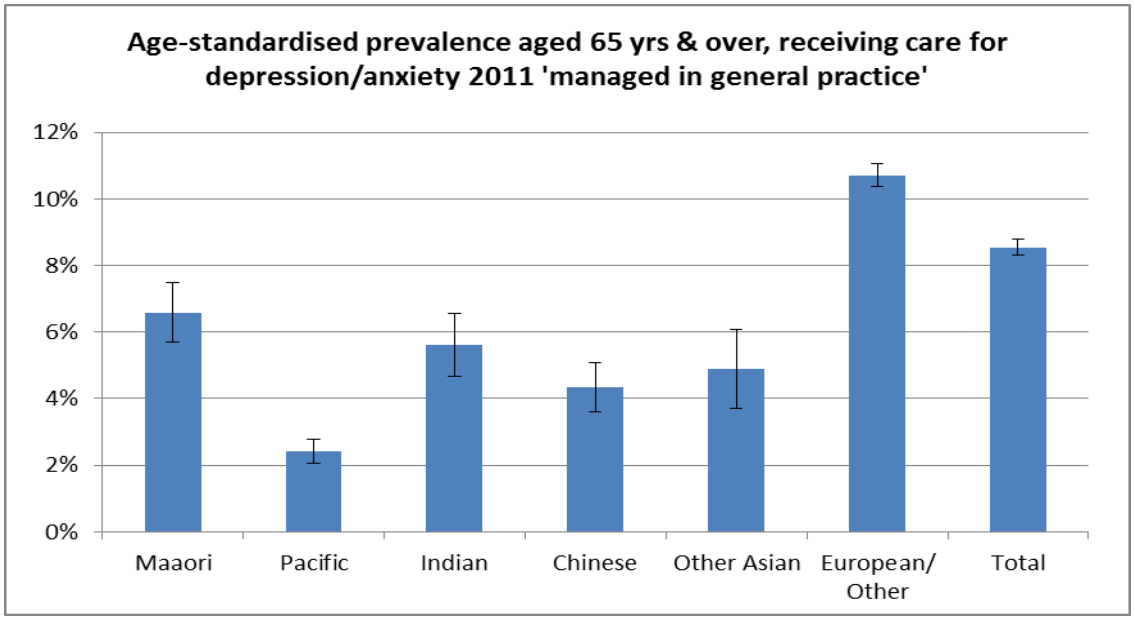
Those receiving care for depression and/or anxiety aged 65 years and over 'managed in general practice'

85% of those identified as receiving care for depression and/or anxiety aged 65 years and over were identified only by medications dispensed – i.e. not seen by Mental Health services, or receiving a diagnosis of depression and/or anxiety in any admission to a public hospital in New Zealand; it is assumed these people were 'managed in general practice'. 83.5% of this group were of European/Other ethnicities, with an age standardised prevalence of 10.9% compared to 2-7% for other ethnicities (Table 100, Figure 151).

Table 100 Population aged 65 years & over, identified as receiving care for depression/anxiety 2011, 'managed in general practice' by ethnicity

Ethnicity	Total	% of total identified as receiving care for depression/anxiety 'managed in General Practice'	Crude prevalence	Age-standardised prevalence (95% CI)
Maaori	220	4.9%	6.6%	6.6% (5.7% – 7.5%)
Pacific	170	3.9%	2.4%	2.4% (2.1% – 2.8%)
Indian	140	3.1%	5.5%	5.6% (4.7% – 6.6%)
Chinese	130	2.9%	4.2%	4.3% (3.6% – 5.1%)
Other Asian	60	1.4%	4.8%	4.9% (3.7% – 6.1%)
European/ Other	3,690	83.8%	10.9%	10.7% (10.4% – 11.0%)
Total	**4,400**	**100%**	**8.6%**	**8.5% (8.3% – 8.8%)**

Figure 151 Age-standardised prevalence aged 65 years & over, identified as receiving care for depression/anxiety 2011, 'managed in general practice' by ethnicity



People identified as receiving care for psychotic disorders in 2011 aged 65 and over

There were just under 1,000 people aged 65 years and over in 2011 identified as receiving care for psychotic disorders as defined by this study, by virtue of the medications they were dispensed or a diagnosis of psychotic disorder. This equated to 15.9% of the mental health 2011 snapshot population aged 65 years and over being identified as receiving care for a psychotic disorder, a population prevalence of 1.9%.

Essentially all (99%) of those identified as having a psychotic disorder in those aged 65 years and over in 2011 were dispensed medications used for psychotic disorders. However, of those aged 65 and over identified as receiving care for psychotic disorders in 2011, only 37% had contact with mental health services in 2011. Those aged 85 and over were less likely to have seen mental health services (23.9%) than those who were younger than 80 (42-44%) (Table 101).

This may reflect long term stable psychotic disorder which is manageable in primary care, or it may reflect use of medications identified as related to psychotic disorder for a variety of symptoms and conditions in older people which are not actually psychotic disorders.

Table 101 Percentage of those identified as receiving care for psychotic disorder in 2011

Age group (Yrs)	Total identified receiving care for psychotic disorders in 2011	Not seen by MH services in 2011	Seen by MH services in 2011	% seen by MH services
65-69	250	140	110	43.8% (37.6% – 49.9%)
70-74	210	120	90	42.4% (35.7% – 49.2%)
75-79	160	90	70	43.9% (36.2% – 51.7%)
80-84	160	110	50	30.6% (23.4% – 37.8%)
85+	220	170	50	23.9% (18.2% – 29.5%)
Total	990	620	370	**37.0% (34.0% – 40.0%)**

The main differences in medications dispensed for those aged 65 years and over identified as receiving care for psychotic disorder from the pattern for population aged 18 - 64 years were:

- Olanzapine and Clozapine were dispensed for a smaller percentage of those aged 65 years and over identified as receiving care for psychotic disorders than those aged 18-64 years, whereas haloperidol was dispensed more often in the older age group.
- In relation to antidepressants, nortryptiline was dispensed for a larger percentage of those 65 years and over than for those aged 18-64 years whereas fluoxetine was dispensed for a smaller percentage of the older age group.

Overall 43% of those identified as receiving care for a psychotic disorder aged 65 years and over (over the wider period of this study 2002 - 2011) were receiving medications classified as antidepressants, the same quantum as for those aged 18-64 years (42%).

2011 Mental Health Service Contact Population aged 65 years and over

Of the 6,190 adults aged 65 years and over who were identified as receiving care for a mental health disorder in 2011, 19% (1,200 people), were in in contact with mental health services as documented in the PRIMHD database. This represents 2.4% of the total population aged 65 years and over (Crude prevalence, Table 102).

Ethnicity

The majority (76%) of those in contact with mental health services aged 65 years and over in 2011 were of European/Other ethnic groups; this in part reflects the underlying population demography of those aged 65 years and over with 66.5% being of European/Other ethnicities. However the age-standardised prevalence of mental health service contact was also significantly higher for Maaori (3.2%) and European/Other groups (2.5%) than for Pacific and Asian groups (1-2%), although the numbers in the Asian groups were small (Table 102, Figure 152 and Figure 153).

Table 102 Mental health service contact population 2011 aged 65 years & over, by ethnicity and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
Ethnicity	Female	Male	Total	% of CMDHB mental health service contact population	% of constructed population in this ethnic group	Crude prevalence	Age-standardised prevalence (95% CI)
Maaori	60	40	100	8.1%	6.4%	3.0%	3.2% (2.5% – 3.9%)
Pacific	60	60	120	9.6%	13.6%	1.7%	1.7% (1.4% – 2.0%)
Indian	30	10	40	3.1%	5.0%	1.5%	1.5% (1.0% – 2.0%)
Chinese	20	10	30	2.2%	6.0%	0.9%	0.9% (0.5% – 1.2%)
Other Asian	10	10	20	1.4%	2.5%	1.3%	1.3% (0.7% – 2.0%)
European/ Other	570	340	910	75.6%	66.5%	2.7%	2.5% (2.3% – 2.7%)
Total	**740**	**460**	**1,200**	**100%**	**100%**	**2.4%**	**2.3% (2.2% – 2.4%)**

Figure 152 Mental health service contact population 2011 aged 65 years & over, by ethnicity compared with the constructed population

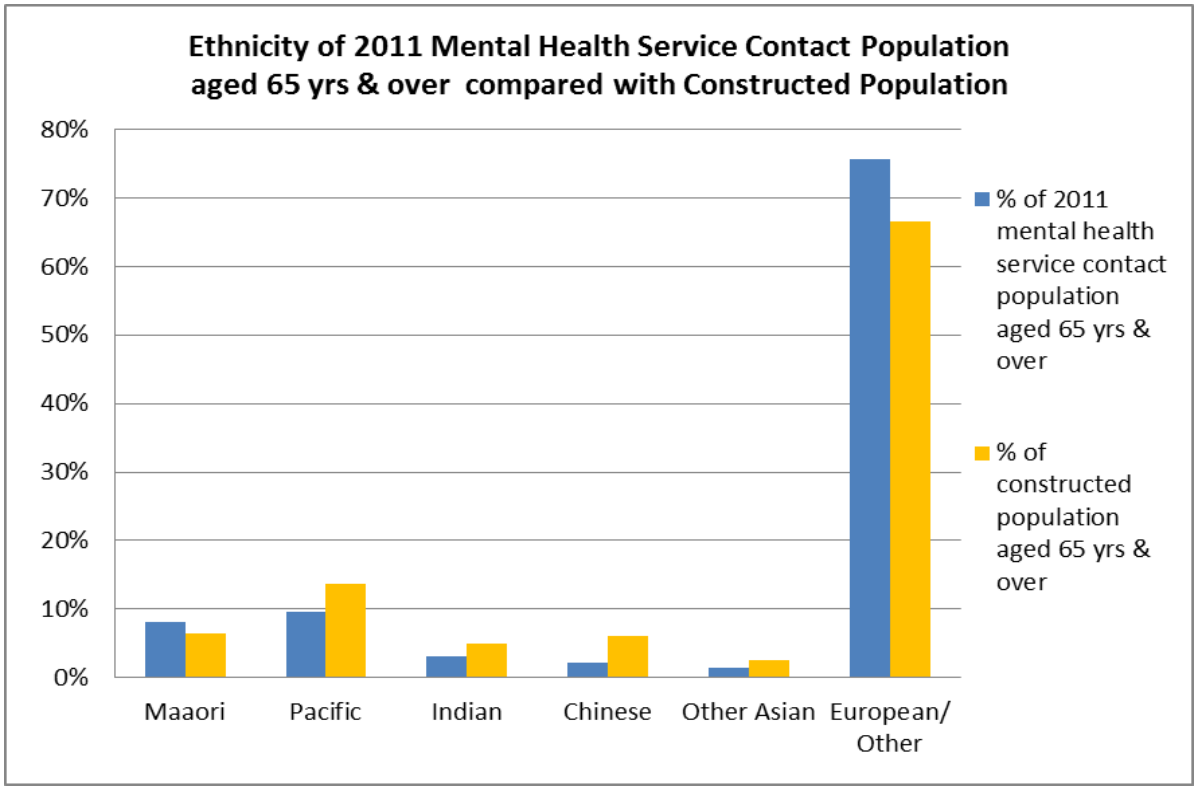
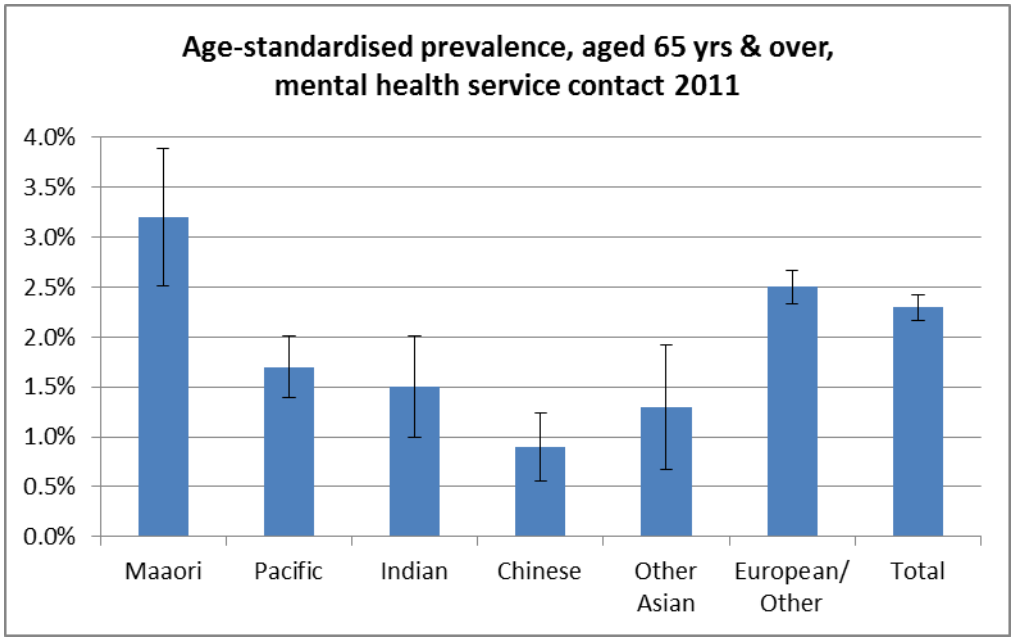


Figure 153 Age-standardised prevalence of mental health service contact 2011 aged 65 years & over by ethnicity



Age distribution

As for the broader mental health population of those aged 65 years and over, the age specific prevalence of having been seen by mental health services in 2011 was higher in those who were older (3-4% for those aged 80 years and over compared to less than 2% for those aged under 75 years) (Table 103, Figure 154 and Figure 155).

Table 103 Mental health service contact population 2011 aged 65 years & over by age group and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact
Age group (Yrs)	Female	Male	Total	% of CMDHB mental health service contact population	% of constructed population in this age group	Crude (age specific) prevalence
65-69	170	130	300	24.9%	34.8%	1.7%
70-74	140	90	230	19.5%	26.0%	1.8%
75-79	150	80	230	19.1%	17.1%	2.6%
80-84	130	90	220	18.0%	12.4%	3.4%
85+	160	70	220	18.5%	9.6%	4.5%
Total	**740**	**460**	**1,200**	**100%**	**100%**	**2.4%**

Figure 154 Mental health service contact population 2011 aged 65 years & over age group compared with constructed population

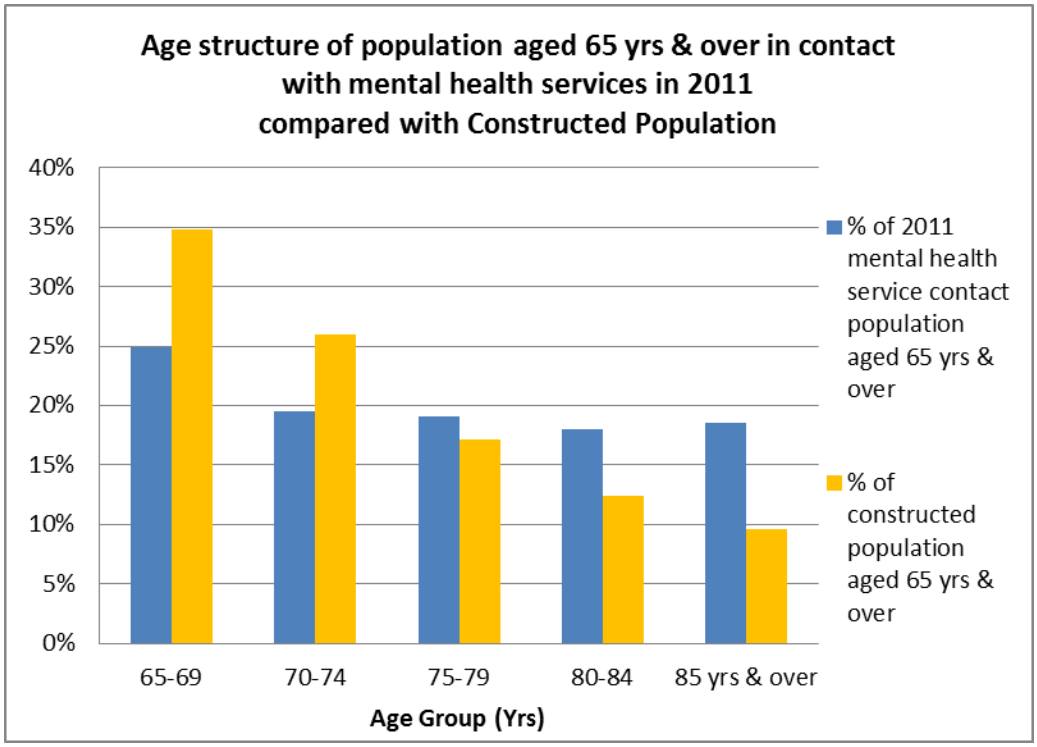
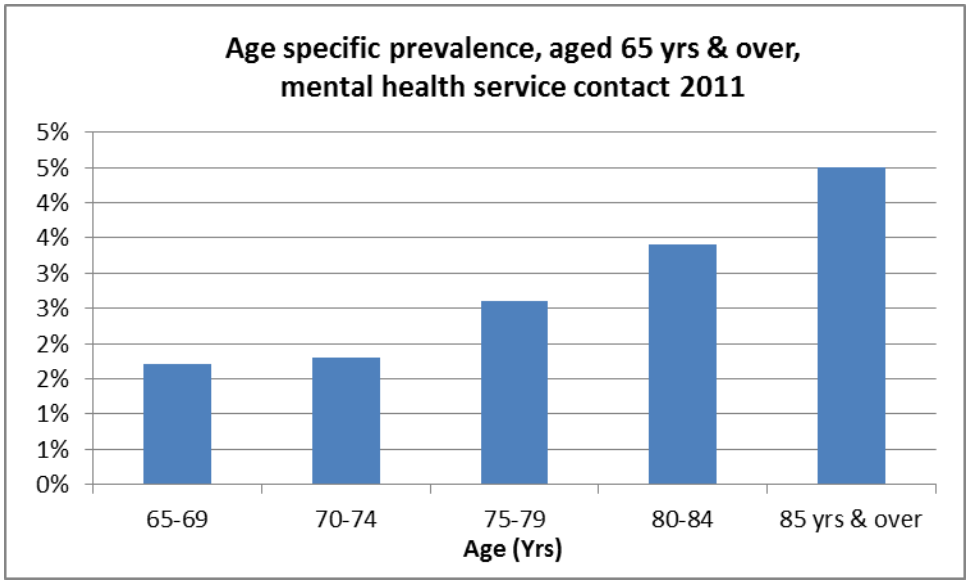


Figure 155 Age specific prevalence aged 65 years & over, mental health service contact 2011



Socioeconomic distribution

While the distribution of the population 65 years and over across the socioeconomic areas is somewhat U-shaped, the people seen by mental health services in 2011 were more likely to come from areas of higher deprivation with the age-standardised prevalence for those living in the more socioeconomically deprived areas being one and a half times that of the least deprived area (Table 104, Figure 156 and Figure 157).

Table 104 Mental health service contact population 2011 aged 65 years & over, by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB mental health service contact population	% of constructed population in this quintile	Crude prevalence	Age-standardised prevalence (95% CI)
N/I*	120	80	190	16.0%	10.5%	3.6%	3.2% (2.8% – 3.7%)
1	90	50	140	11.8%	20.7%	1.3%	1.4% (1.2% – 1.6%)
2	100	70	170	14.1%	16.8%	2.0%	1.9% (1.6% – 2.2%)
3	90	50	140	11.6%	13.9%	2.0%	1.9% (1.5% – 2.2%)
4	160	100	260	21.9%	15.5%	3.3%	3.2% (2.8% – 3.6%)
5	180	120	290	24.4%	22.6%	2.6%	2.6% (2.3% – 2.9%)
Total	**740**	**460**	**1,200**	**100%**	**100%**	**2.4%**	**2.3% (2.2% – 2.4%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 156 Mental health service contact population 2011 aged 65 years & over, by socioeconomic area compared with the constructed population

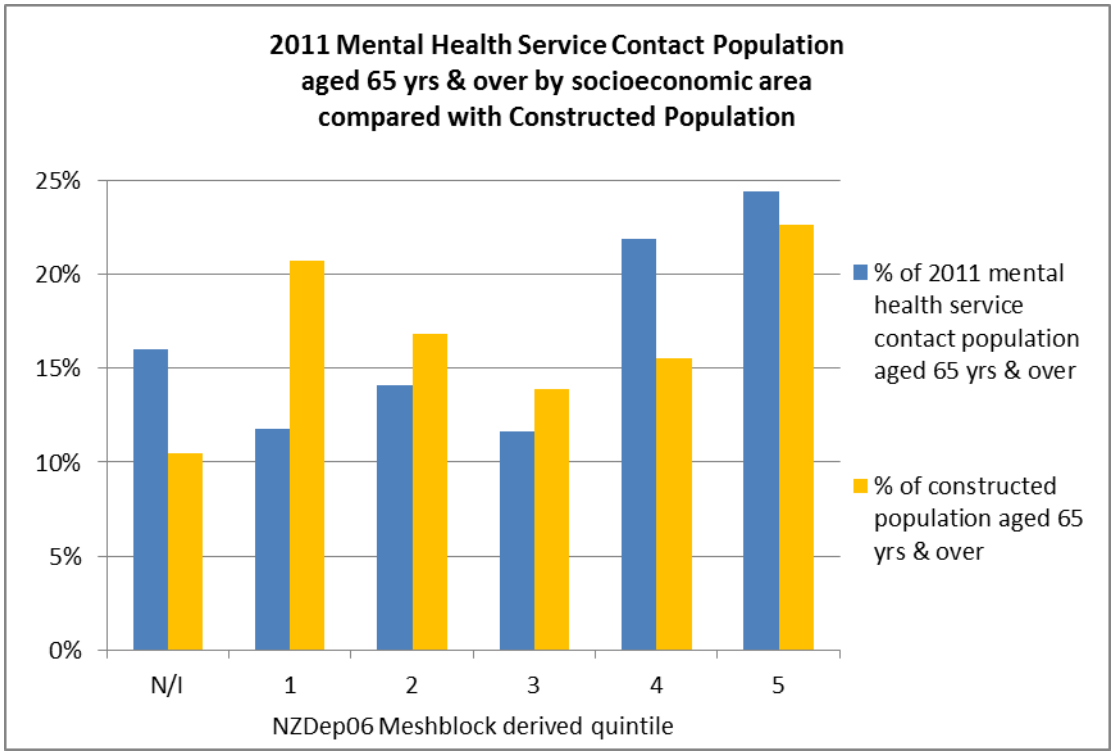
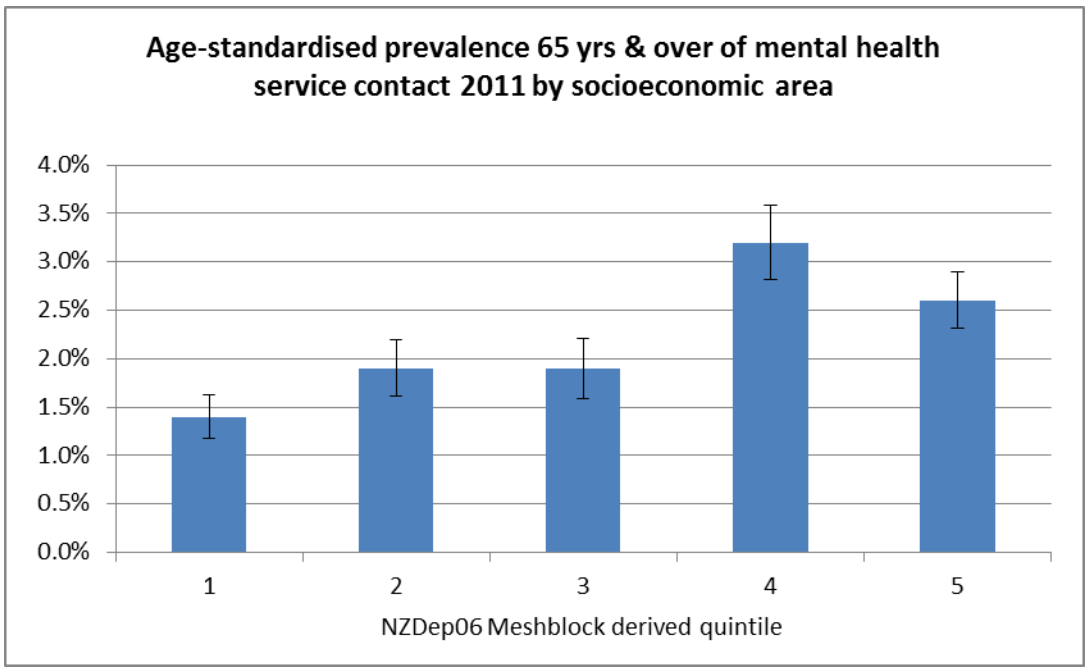


Figure 157 Age-standardised prevalence aged 65 years & over, mental health service contact 2011 by socioeconomic area



Distribution across the CM Health district

Across the CMHC residential localities, the largest proportion of those seen by mental health services in 2011 aged 65 years and over lived in Te Rawhiti, reflecting the underlying distribution of the population of this age. In contrast to the overall population identified as receiving care for a

mental health disorder in 2011, those in contact with mental health services were just as likely to live in The Cottage catchment areas as other areas (Table 105, Figure 158 and Figure 159).

Table 105 Mental health service contact population 2011 aged 65 years & over, by residential location according to CMHC boundaries and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
Residential location	Female	Male	Total	% of CMDHB mental health service contact population	% of constructed population in this residential locality	Crude preva-lence	Age-standardised prevalence (95% CI)
Awhinatia	190	110	300	24.7%	25.2%	2.3%	2.2% (2.0% – 2.5%)
Manukau	190	120	300	24.9%	21.2%	2.8%	2.7% (2.4% – 3.0%
Te Rawhiti	230	130	370	30.4%	33.2%	2.2%	2.0% (1.8% – 2.2%)
The Cottage (including Otahuhu)	130	110	240	19.6%	19.7%	2.3%	2.4% (2.1% – 2.7%)
CMDHB NFD*	<5	<5	<5	0.3%	0.7%	1.2%	1.1% (0.0% – 2.3%)
Total	**740**	**460**	**1,200**	**100%**	**100%**	**2.4%**	**2.3% (2.2% – 2.4%)**

**Not Further Defined – data absent or unable to be mapped to CAU*

Figure 158 Mental health service contact population 2011 aged 65 years & over, residential location according to CMHC boundaries compared with constructed population

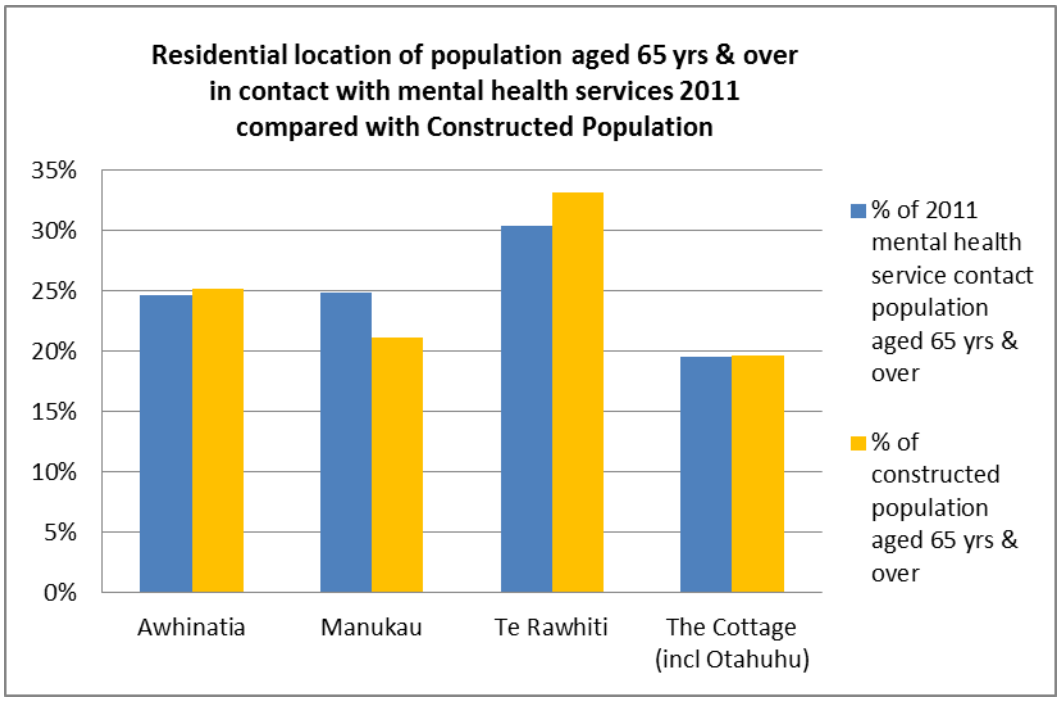
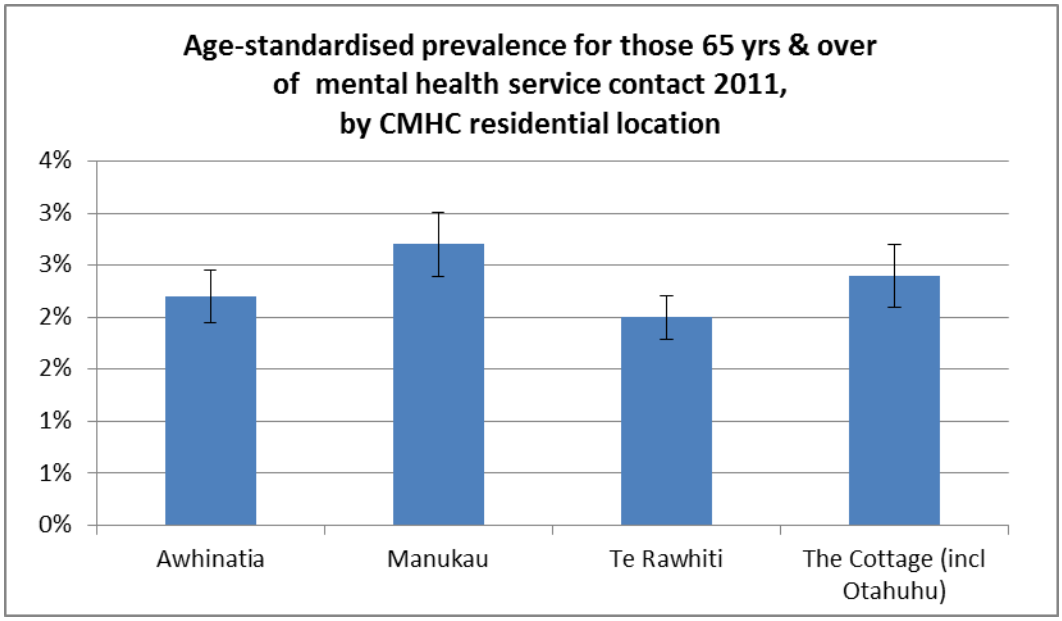


Figure 159 Age-standardised prevalence aged 65 years and older, mental health service contact 2011 by CMHC residential location



Enrolled locality for primary care

Across the enrolled localities, the largest proportion of those seen by mental health services in 2011 aged 65 years and over were enrolled in Manukau, reflecting the underlying enrolment distribution of the population of this age. The age-standardised prevalence of being seen by mental health services in 2011 aged 65 years and over was not significantly different across the enrolled localities (Table 106, Figure 160 and Figure 161).

Only 20 people aged 65 years and over were identified who were seen by mental health services in 2011 and not enrolled in primary care at the beginning of 2012.

Table 106 Mental health service contact population 2011 aged 65 years & over, by enrolled locality for primary care and gender

	Gender			Comparison with constructed population		Prevalence of mental health service contact	
Enrolled locality	Female	Male	Total	% of CMDHB mental health service contact population	% of constructed population	Crude preva-lence	Age-standardised prevalence
Eastern	210	110	320	26.5%	25.1%	2.5%	2.3% (2.0% – 2.6%)
Franklin	80	30	120	9.8%	11.7%	2.0%	1.8% (1.5% – 2.2%)
Mangere/Otara	90	70	160	13.5%	15.0%	2.1%	2.2% (1.9% – 2.5%)
Manukau	270	180	440	36.7%	30.3%	2.9%	2.8% (2.5% – 3.0%)
Not enrolled	10	10	20	1.5%	2.0%	1.7%	1.7% (0.9% – 2.%5)
Otahuhu (ADHB)	20	20	50	3.9%	4.7%	2.0%	2.1% (1.5% – 2.7%)
Other*	50	40	100	8.1%	11.1%	1.7%	1.7% (1.4% – 2.1%)
Total	**740**	**460**	**1,200**	**100%**	**100%**	**2.4%**	**2.3% (2.2% – 2.4%)**

**beyond CMDHB and Otahuhu*

Figure 160 Mental health service contact population 2011 aged 65 years & over, enrolled locality for primary care compared with constructed population

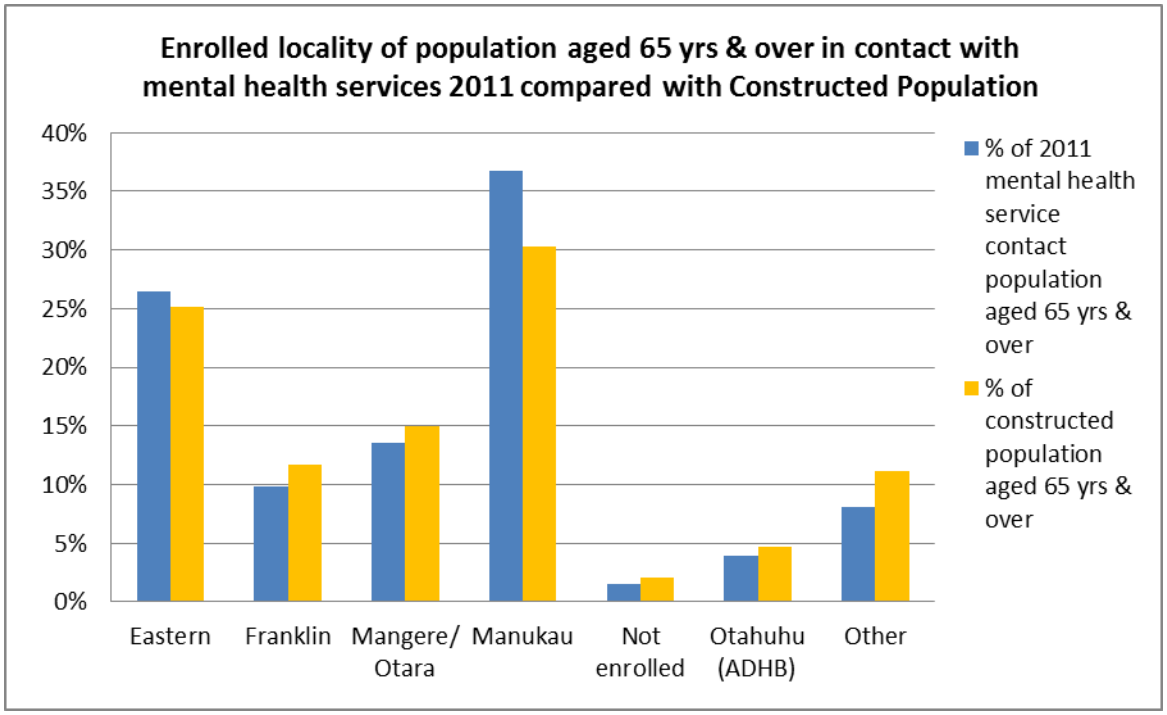
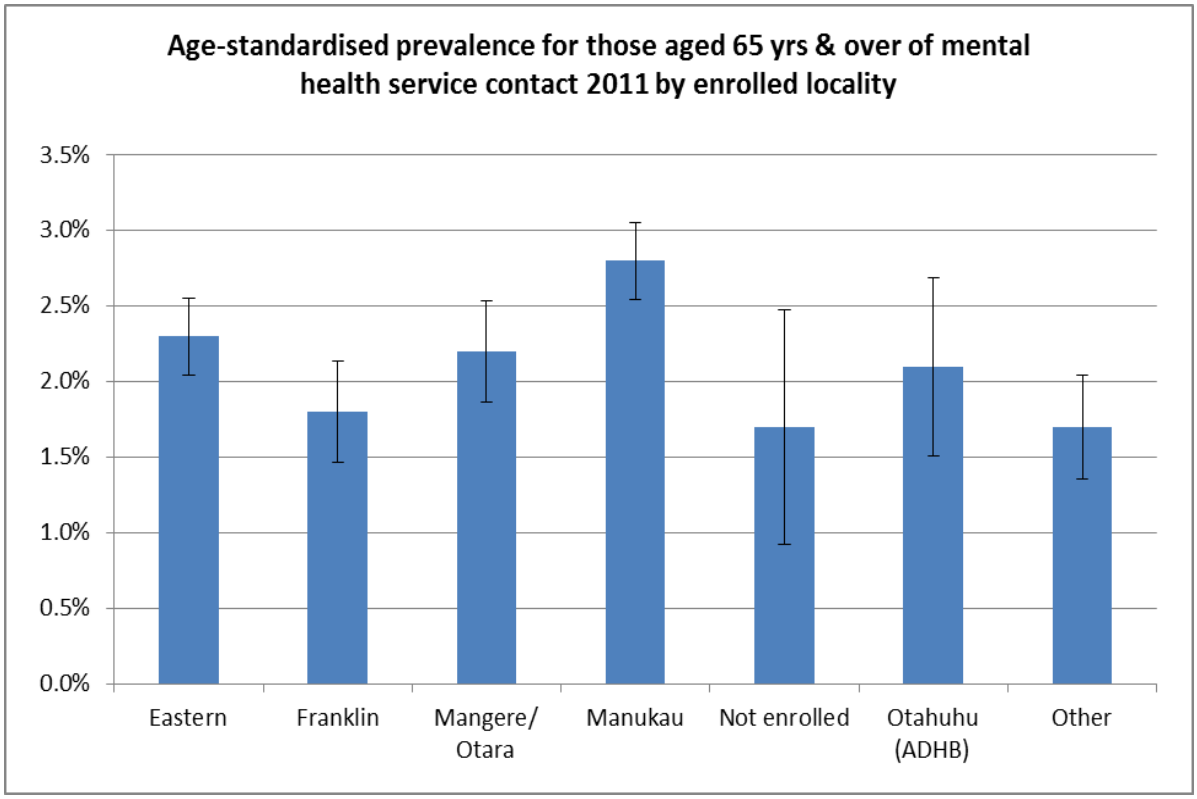


Figure 161 Age-standardised prevalence aged 65 years and older, mental health service contact 2011 by enrolled locality



Appearance in related data sets in 2011 – mental health medications and selected NMDS mental health diagnoses

30% of those aged 65 years and over seen by mental health services in 2011 were not receiving any mental health medications in the categories described; this is a considerably smaller proportion than for the total population 18 years and older seen by adult mental health services (48%). 21% (250 people) were discharged from a public hospital in 2011 and had a mental health diagnosis in the categories described coded for that hospitalisation (primary or secondary diagnosis) (Table 107, Table 108, Figure 162 and Figure 163).

Table 107 Appearance in related data sets in 2011, mental health service contact population aged 65 years & over 2011, number of people per category

	Not receiving meds	Receiving meds	Total
No NMDS MH diagnosis	330	630	950
NMDS MH diagnosis	40	210	250
Total	**360**	**840**	**1,200**

Table 108 Appearance in related data sets in 2011, mental health service contact population aged 65 years & over 2011, category by percentage

	Not receiving meds	Receiving meds	Total
No NMDS MH diagnosis	27.2%	52.1%	79.3%
NMDS MH diagnosis	3.1%	17.6%	20.7%
Total	**30.3%**	**69.7%**	**100%**

Figure 162 Appearance in related data sets in 2011, mental health service contact population aged 65 years & over 2011, number of people per category

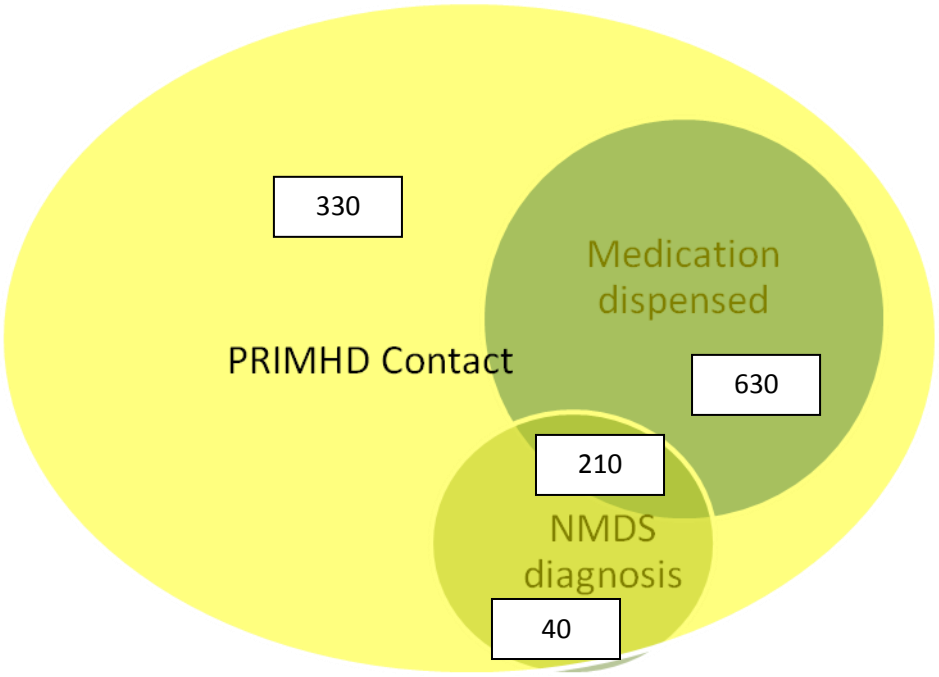
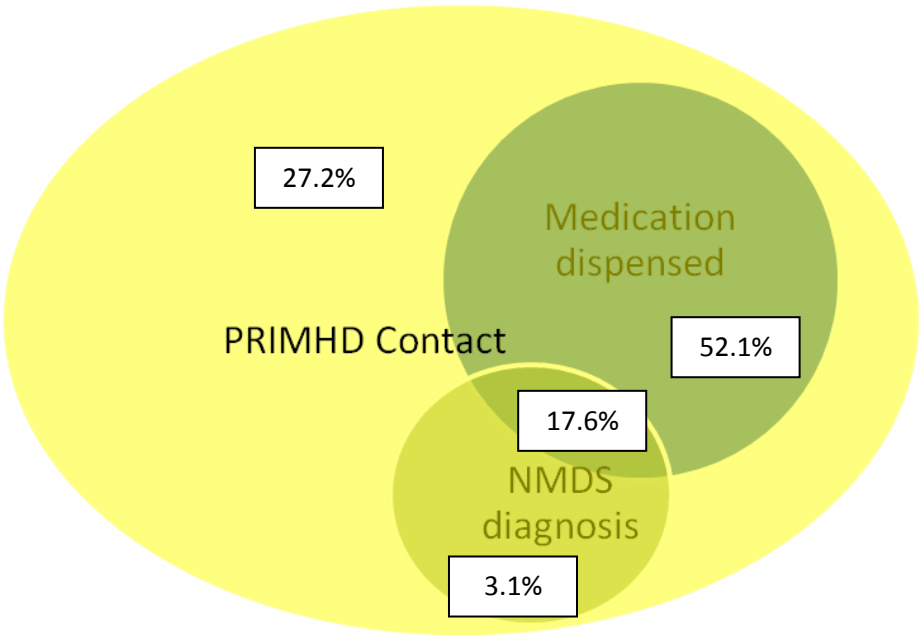


Figure 163 Appearance in related data sets in 2011, mental health service contact population aged 65 years &over 2011, category by percentage



Diagnoses

22% of people aged 65 years and over seen by mental health services in 2011 didn't have an identified diagnosis (by use of relevant medication or actual diagnosis in PRIMHD or NMDS) within the categories described; this is just over half the proportion (38%) with no diagnosis for the total population 18 years and over seen by adult mental health services in 2011. For those who did have an identified diagnosis, depression/anxiety and psychotic disorders were the most common diagnoses, being identified for 47% and 30% of the population respectively. Complications of dementia was also relatively common category at 18% (Table 109 and Figure 164).

Overall females constituted 62% of the population aged 65 years and over seen by mental health services in 2011 and represented 60% or more of most identified conditions. Contrary to the male predominance in substance use disorders in younger populations, women represented 62% of those identified with substance abuse, although numbers were relatively small.

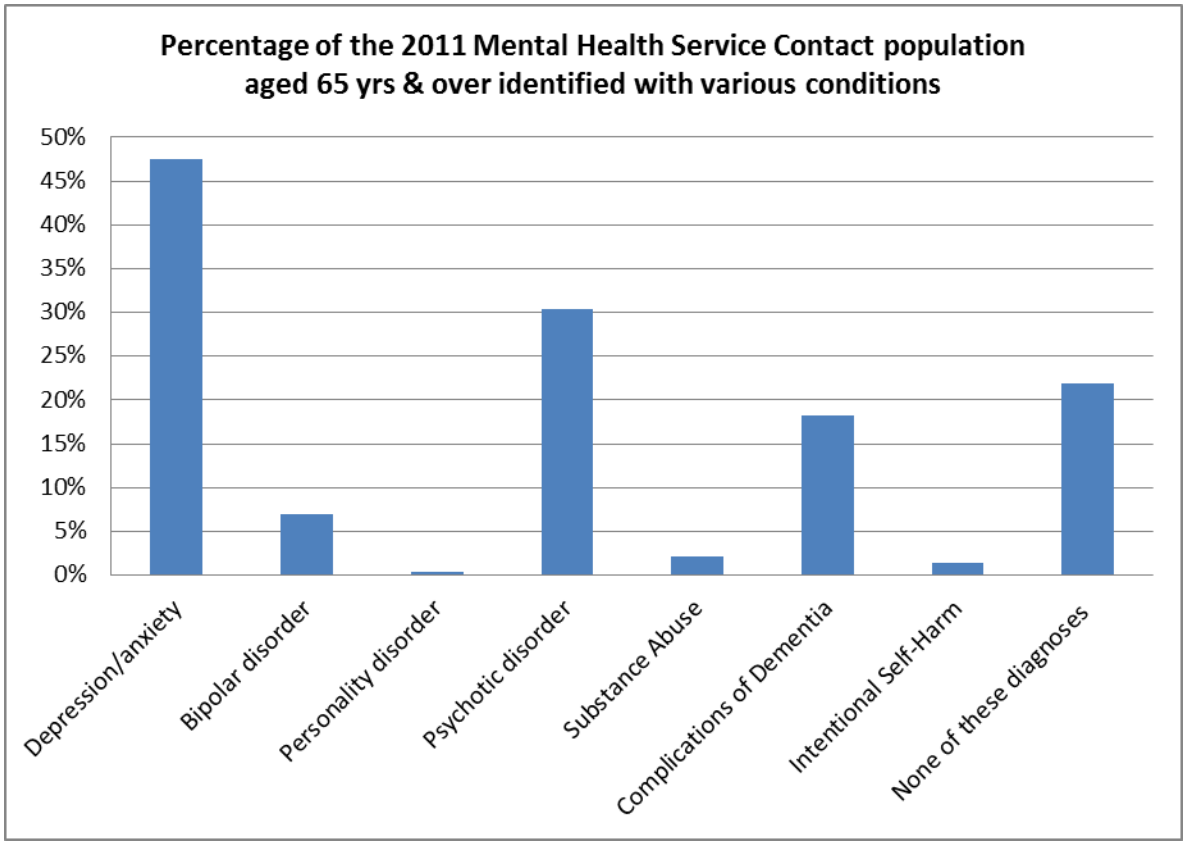
As noted, 260 people aged 65 years and over seen by mental health services in 2011 didn't have an identified diagnosis within the categories described. This leaves 940 people with identified diagnoses in the categories described. Given there was a total of 1,290 diagnoses identified, this indicates there was quite a proportion of people who had two or more diagnoses.

Table 109 Diagnostic categories for 2011 mental health service contact population aged 65 years and over, by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total	% of the MH population identified with this condition (not taking into account overlap)	% Female
Depression/anxiety	370	200	570	47.5%	65.0%
Bipolar disorder	50	30	80	7.0%	61.9%
Personality disorder	0	0	10	0.4%	60.0%
Psychotic disorder	230	130	370	30.3%	64.1%
Substance Abuse	20	10	30	2.2%	61.5%
Complications of Dementia	140	80	220	18.3%	63.6%
Intentional Self-Harm	10	10	20	1.4%	58.8%
Total diagnoses in these categories	830	460	1,290		
People with No diagnosis in these categories	150	110	260	21.9%	58.3%

Figure 164 Percentage of the 2011 mental health service contact population, aged 65 years and older, identified with various mental health conditions



Overall Mental Health Population aged 65 years and over

20% of the population (just over 10,000 people) aged 65 years and over, alive at the end of 2011, were identified in the 'overall' mental health population (Crude prevalence, Table 112), indicating either care for a mental health disorder in 2011 or in the past 3-10 years as identified through medication, contact with mental health services or diagnosis when an inpatient (for any reason) in a public hospital.

Ethnicity

People identified as European/Other ethnicities had the highest age-standardised prevalence of health care for mental health disorder in the period examined for this study (22.9%), followed by Maaori (20.3%), both having significantly higher prevalences than those of Pacific and Asian ethnicities (10-14%) (Table 110, Figure 165 and Figure 166).

79% of the population aged 65 years and over identified as having treatment for a mental health disorder were identified as European/Other ethnic groups, although they only constitute 67% of the constructed population of this age group. Although the age-standardised prevalence for Maaori was nearly as high as for European/Other populations, the lower life expectancy for Maaori means many fewer are still alive in the older age groups, resulting in them representing only 6% of the mental health population aged 65 years and over (Table 110 and Figure 165).

Table 110 Mental health population aged 65 years & over, total identified by ethnicity and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Ethnicity	Female	Male	Total	% of CMDHB mental health population 65 yrs & over	% of constructed population in this ethnic group	Crude preva-lence	Age-standardised prevalence (95% CI)
Maaori	410	230	640	6.3%	6.4%	19.5%	20.3% (18.8% – 21.8%)
Pacific	370	280	660	6.5%	13.6%	9.4%	9.6% (8.9% – 10.3%)
Indian	220	130	350	3.5%	5.0%	14.0%	14.1% (12.7% – 15.6%)
Chinese	200	110	310	3.0%	6.0%	10.1%	10.3% (9.2% – 11.4%)
Other Asian	100	70	170	1.7%	2.5%	13.0%	13.1% (11.2% – 14.9%)
European/ Other	5,160	2,790	7,960	79.0%	66.5%	23.5%	22.9% (22.4% – 23.3%)
Total	**6,460**	**3,610**	**10,080**	**100%**	**100%**	**19.8%**	**19.5% (19.1 – 19.8)**

Figure 165 Mental health population aged 65 years & over, total identified compared with constructed population by ethnicity

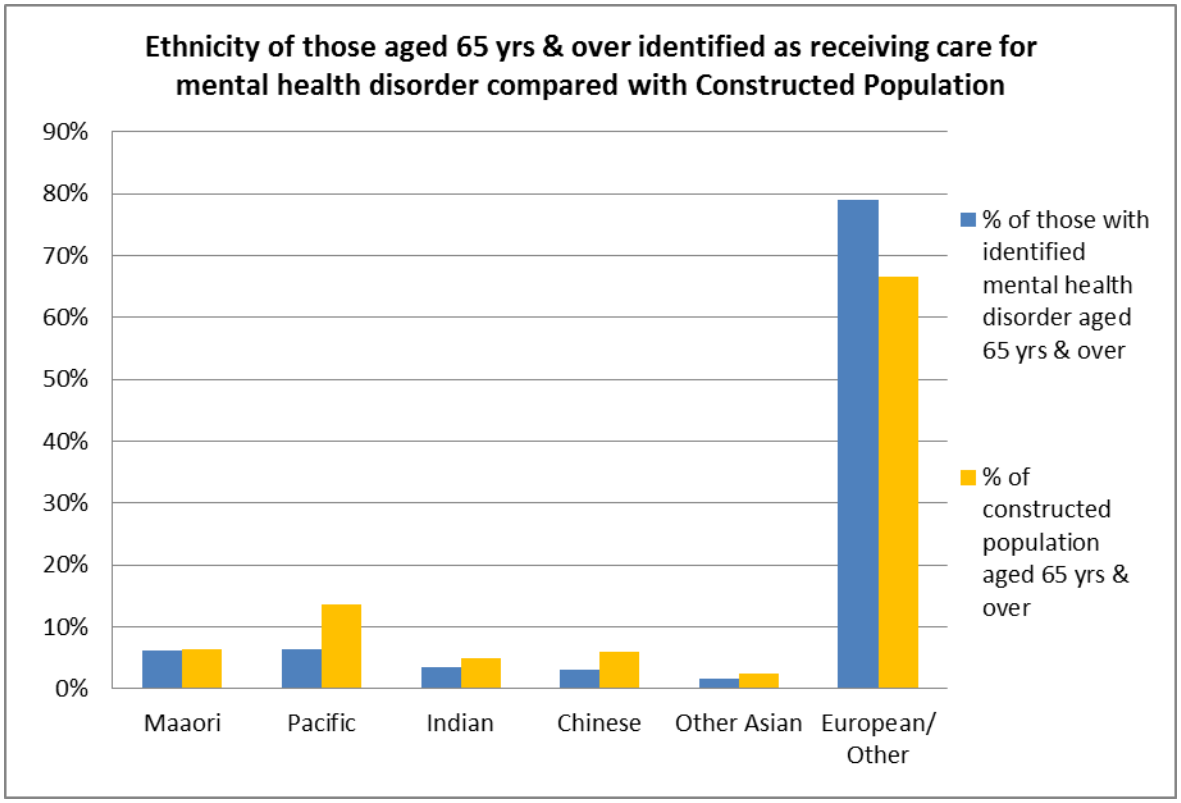
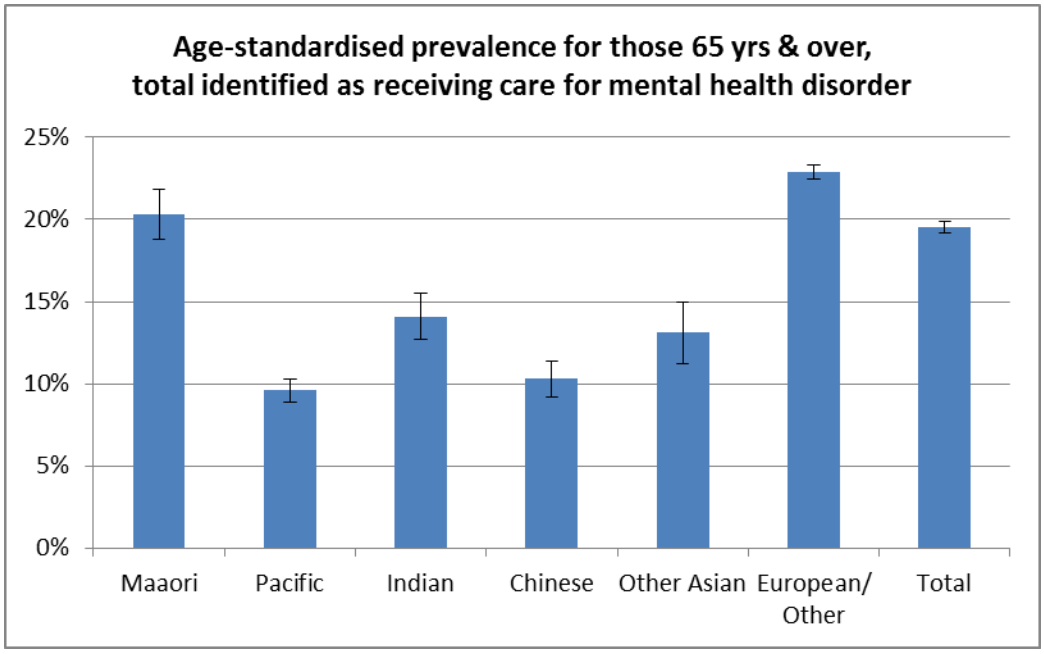


Figure 166 Age-standardised prevalence aged 65 years & over, total population identified as receiving care for mental health disorder by ethnicity



Age distribution

Within the population aged 65 years and over, the prevalence of mental health disorder as defined by this study increased with age. The crude (age specific prevalence) was 17-18% for those aged 65-74 years increasing to 24-29% for those aged 80 years and over (Table 111, Figure 167 and Figure 168).

Table 111 Mental health population aged 65 years & over, total identified by age group and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions
Age group (Yrs)	Female	Male	Total	% of CMDHB mental health population 65 yrs & over	% of constructed population in this age group	Crude (age specific) prevalence
65-69	1,880	1,220	3,100	30.7%	34.8%	17.5%
70-74	1,490	900	2,390	23.7%	26.0%	18.0%
75-79	1,050	610	1,660	16.5%	17.1%	19.1%
80-84	990	510	1,500	14.9%	12.4%	23.8%
85 and over	1,060	370	1,430	14.2%	9.6%	29.1%
Total	**6,460**	**3,610**	**10,080**	**100%**	**100%**	**19.8%**

Figure 167 Mental health population aged 65 years & over, total identified, age group compared with constructed population

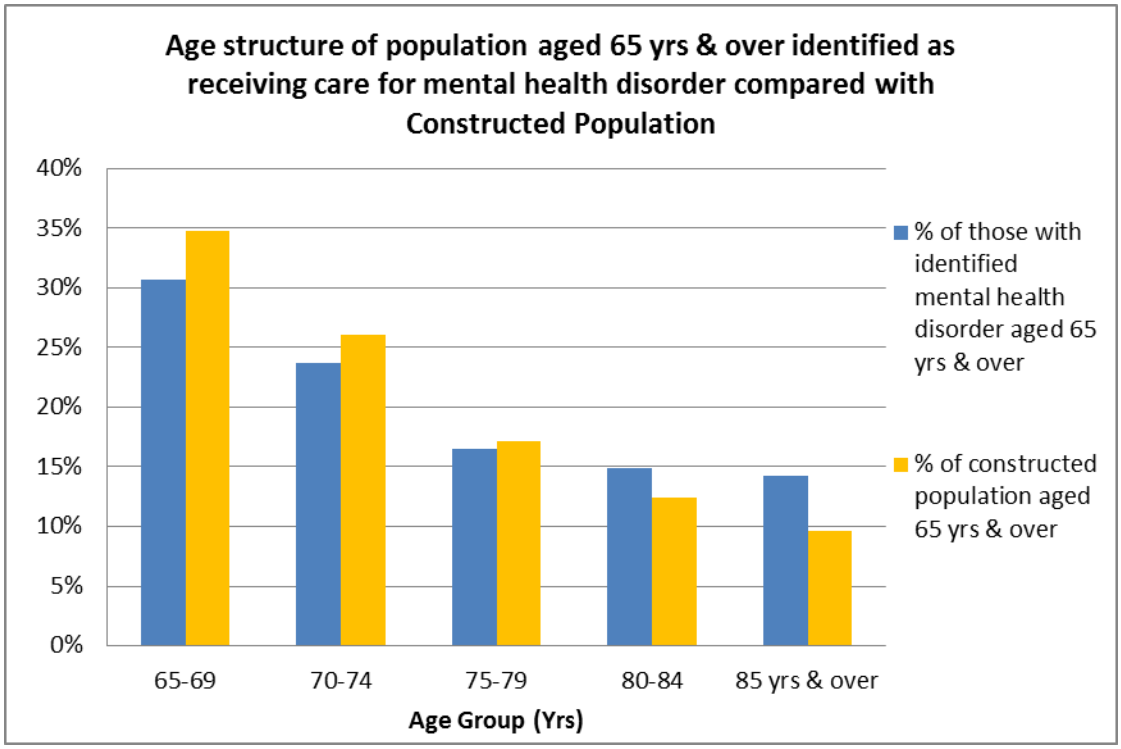
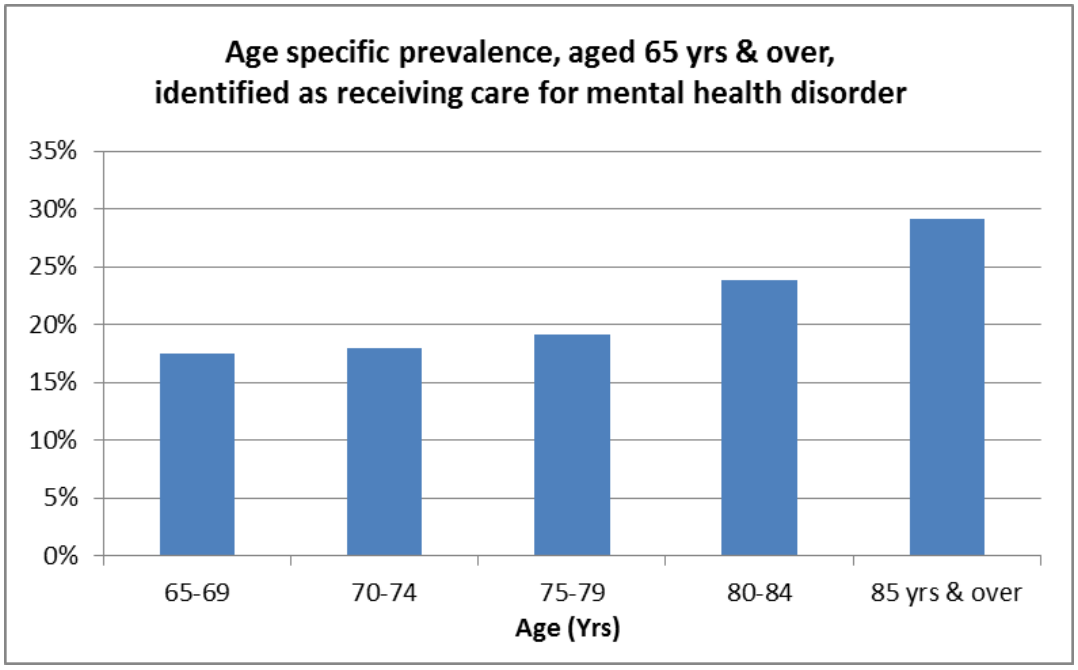


Figure 168 Age specific prevalence aged 65 years & over, total population identified as receiving care for mental health disorder



Socioeconomic distribution

Those identified with mental health disorder were distributed across the NZDep06 quintiles in a similar U-shaped pattern to the underlying population of this age, with no real pattern in the crude or age-standardised prevalence (Table 112, Figure 169 and Figure 170).

Note the distribution across quintiles of the constructed population for this age groups differs from younger age groups in Counties Manukau, who are more concentrated in areas of high socioeconomic deprivation; this is partly because of the shorter life expectancy of Maaori and Pacific peoples who are more likely to be living in areas of higher socioeconomic deprivation – fewer of them proportionately are alive in the 65 years and over age group, leaving a more well-off population in this age group.

Table 112 Mental health population aged 65 years & over, total identified by socioeconomic area and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
NZDep06, Meshblock derived quintile	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this quintile	Crude preva-lence	Age standardised-prevalence (95% CI)
N/I*	830	400	1,230	12.2%	10.5%	23.0%	21.2% (20.1% – 22.3%)
1	1,190	740	1,930	19.2%	20.7%	18.3%	18.4% (17.6% – 19.1%)
2	1,100	620	1,720	17.1%	16.8%	20.0%	19.9% (19.0% – 20.7%)
3	900	500	1,400	13.9%	13.9%	19.8%	19.4% (18.5% – 20.3%)
4	1,190	580	1,770	17.6%	15.5%	22.5%	21.5% (20.6% – 22.4%)
5	1,260	770	2,030	20.1%	22.6%	17.6%	17.6% (16.9% – 18.3%)
Total	**6,460**	**3,610**	**10,080**	**100%**	**100%**	**19.8%**	**19.5% (19.1% – 19.8%)**

**Not Identified – Meshblock data absent or unable to be mapped to NZDep06*

Figure 169 Mental health population aged 65 years & over, total identified by socioeconomic area compared with the constructed population

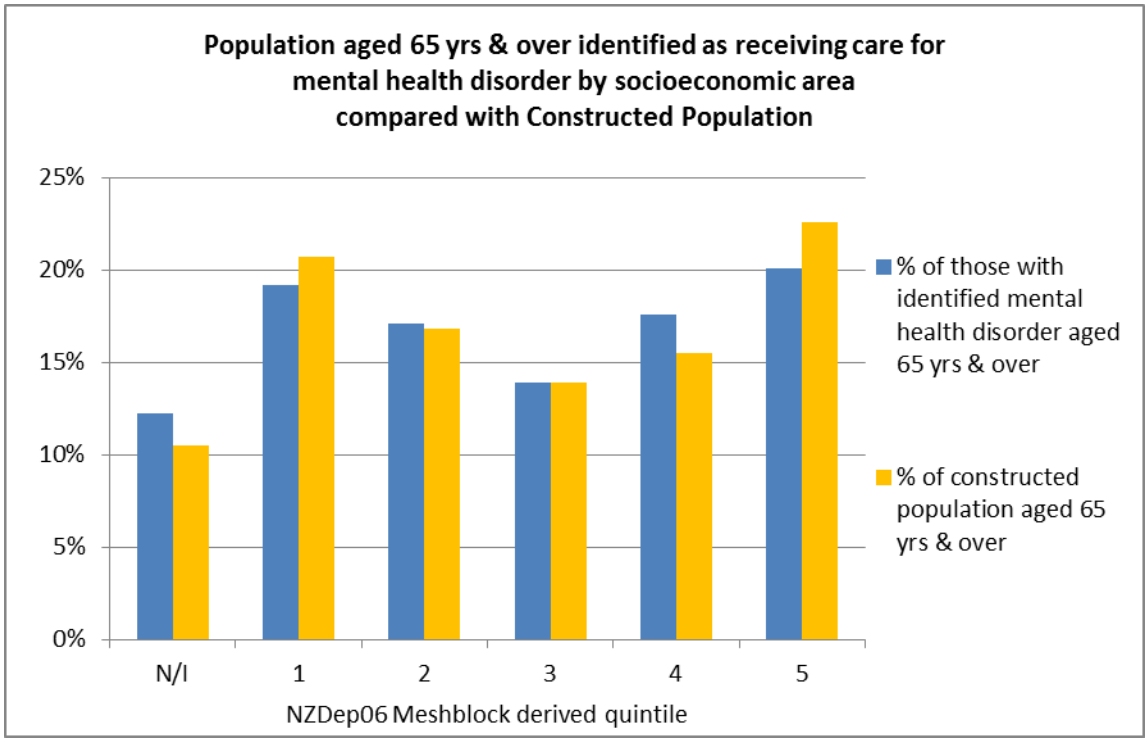
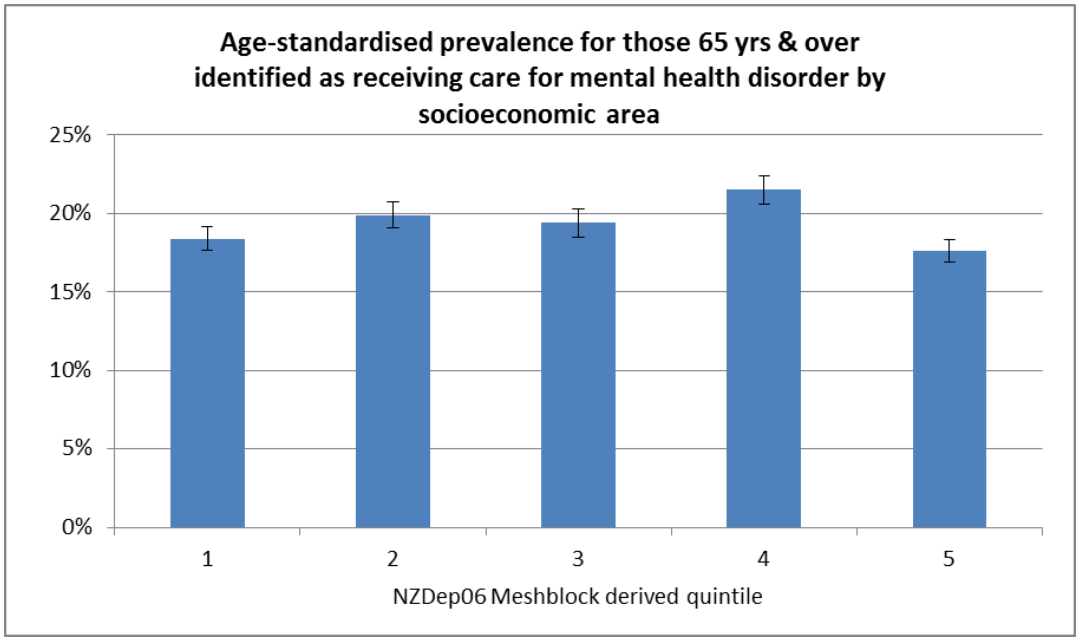


Figure 170 Age-standardised prevalence population aged 65 years & over identified as receiving care for mental health disorder by socioeconomic area



Distribution across the CM Health district

The largest volume of those identified as receiving care for mental health disorders aged 65 years and over was in the Te Rawhiti CMHC area. There was a lower aged-standardised prevalence in the Cottage (including Otahuhu) (16%) (Table 113, Figure 171 and Figure 172).

Table 113 Mental health population aged 65 years & over, total identified, residential location according to CMHC boundaries by gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Residential location	Female	Male	Total	% of CMDHB mental health population	% of constructed population in this residential locality	Crude preva-lence	Age-standardised prevalence (95% CI)
Awhinatia	1,820	950	2,770	27.5%	25.2%	21.6%	21.2% (20.5% – 21.9%)
Manukau	1,460	800	2,260	22.4%	21.2%	20.9%	20.6% (19.8% – 21.4%)
Te Rawhiti	2,220	1,200	3,420	34.0%	33.2%	20.2%	19.7% (19.1% – 20.3%)
The Cottage (including Otahuhu)	920	640	1,570	15.5%	19.7%	15.6%	15.7% (14.9% – 16.4%)
CMDHB NFD*	40	20	60	0.6%	0.7%	18.6%	18.0% (13.9% – 22.1%)
Total	**6,460**	**3,610**	**10,080**	**100%**	**100%**	**19.8%**	**19.5% (19.1% – 19.8%)**

**Not Further Defined – data absent or unable to be mapped to CAU*

Figure 171 Mental health population aged 65 years & over, total identified, residential location according to CMHC boundaries compared with constructed population

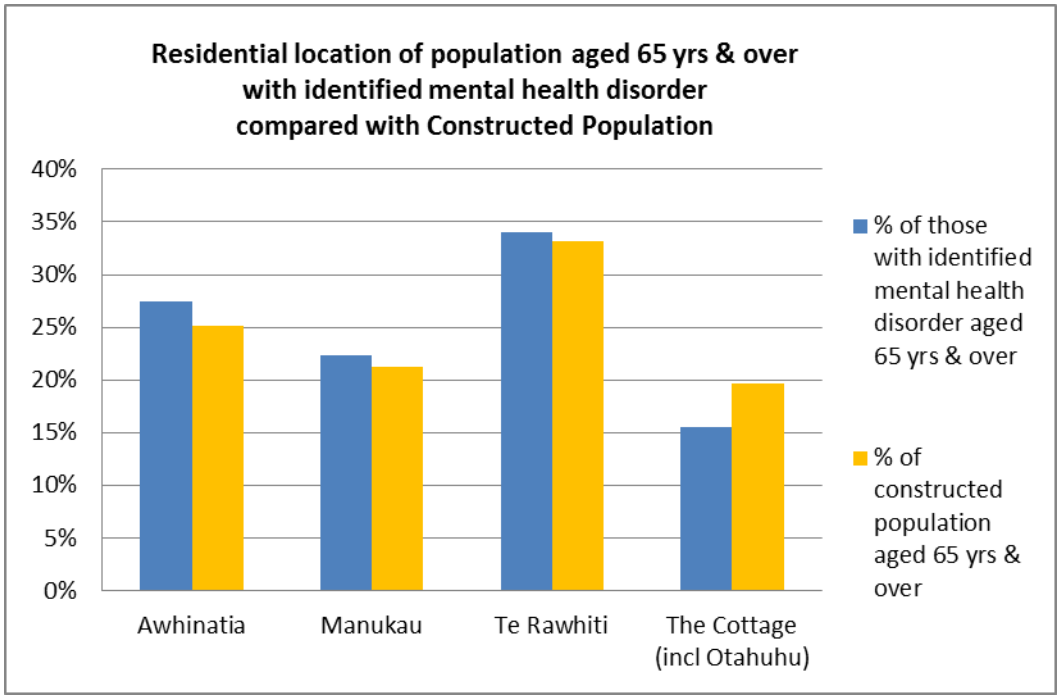
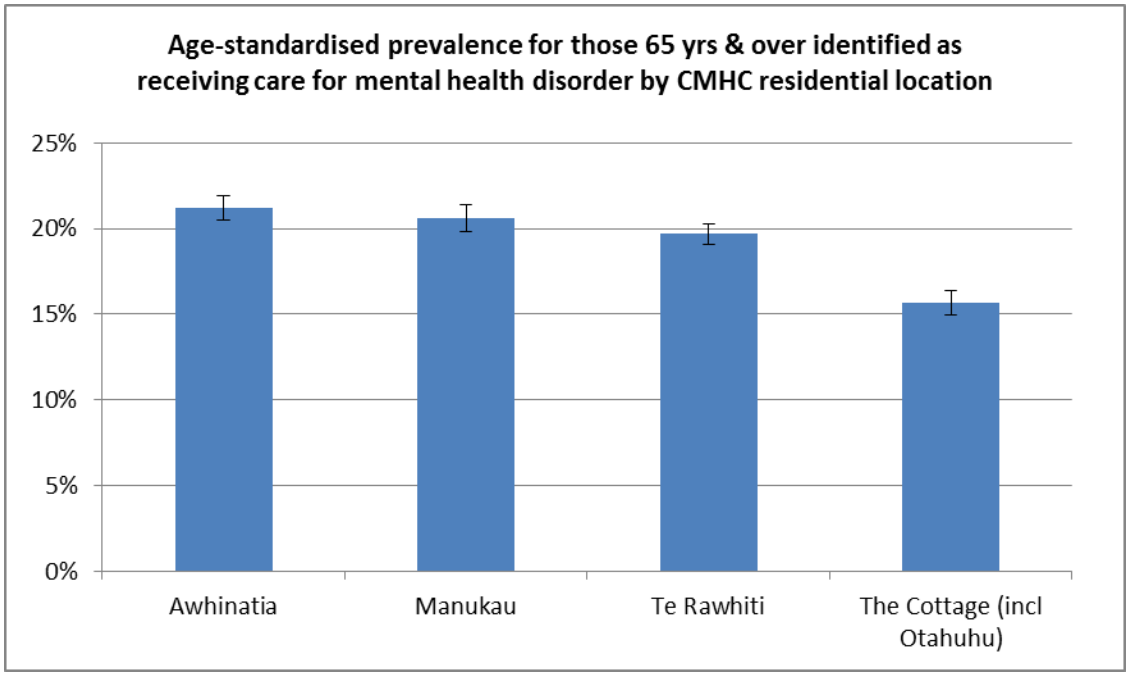


Figure 172 Age-standardised prevalence aged 65 years & over, identified as receiving care for mental health disorder by CMHC residential location



Enrolled locality for primary care

There was a lower prevalence of identification as receiving care for mental health disorder for those enrolled in Mangere/Otara and Otahuhu (Table 114, Figure 173 and Figure 174).

Non-enrolment in a PHO is very low in this age group in both the mental health and the underlying constructed population (1-2%).

Table 114 Mental health population aged 65 years & over, total identified, by enrolled locality for primary care and gender

	Gender			Comparison with constructed population		Prevalence of care for mental health conditions	
Enrolled locality	Female	Male	Total	% of CMDHB mental health population	% of constructed population	Crude preva-lence	Age-standardised prevalence (95% CI)
Eastern	1,850	930	2,780	27.5%	25.1%	21.7%	21.0% (20.3% – 21.7%)
Franklin	850	430	1,270	12.6%	11.7%	21.2%	20.7% (19.7% – 21.7%)
Mangere/Otara	670	460	1,120	11.1%	15.0%	14.7%	15.0% (14.2% – 15.8%)
Manukau	2,250	1,190	3,440	34.1%	30.3%	22.3%	21.9% (21.3% – 22.6%)
Not enrolled	70	40	110	1.1%	2.0%	10.8%	10.5% (8.7% – 12.3%)
Otahuhu (ADHB)	180	140	320	3.2%	4.7%	13.3%	13.5% (12.1% – 14.9%)
Other*	600	440	1,040	10.3%	11.1%	18.3%	18.5% (17.5% – 19.5%)
Total	**6,460**	**3,610**	**10,080**	**100%**	**100%**	**19.8%**	**19.5% (19.1% – 19.8%)**

**beyond CMDHB and Otahuhu*

Figure 173 Mental health population aged 65 years & over, total identified, enrolled locality for primary care compared with constructed population

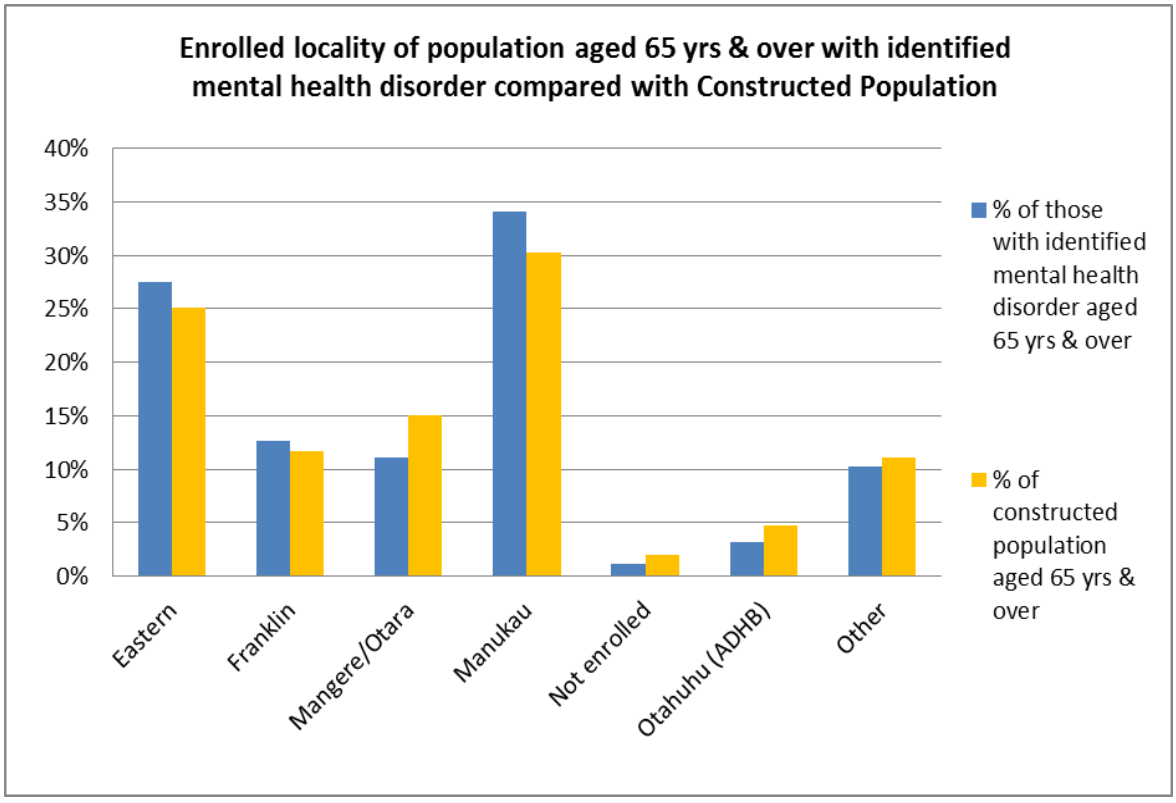
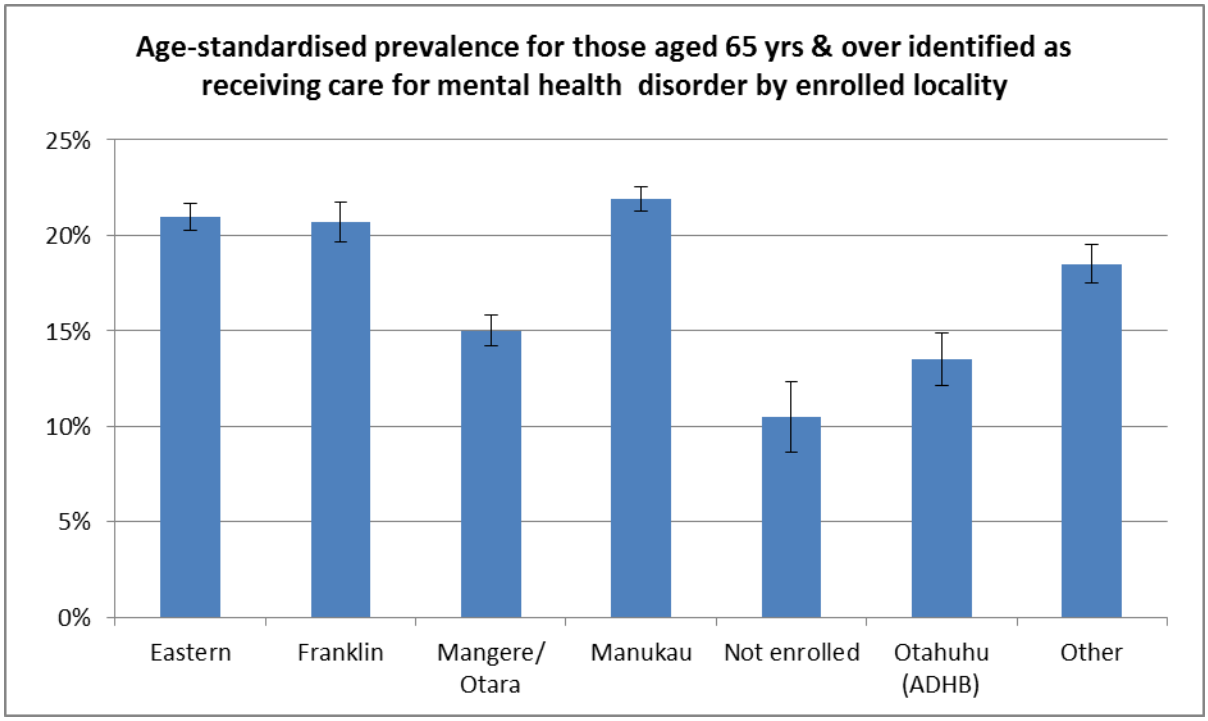


Figure 174 Age-standardised prevalence aged 65 years & over, identified as receiving care for mental health disorder, by enrolled locality



Means of identification as part of the Overall Mental Health population aged 65 years and over

88.5% of the mental health population aged 65 years and over (8,920 people), were receiving mental health medication of some sort. 15.6% (1,390) of these people (14% of the total) also had contact with mental health services at some point from 2008 - 2011. For 70% of the total mental health population (7,040) aged 65 years and over, a mental health medication was the only way they were identified as part of the mental health population (Table 115 and Table 116; Figure 175 and Figure 176; this is higher than for the population aged 18 years and over (56%).

Overall 21% of the identified mental health population aged 65 years and over (2,090 people) had some contact with mental health services from 2008-2011. Of these 33% (700) were not identified as receiving any mental health medication in the period 2006-2011. Again, these figures are differ from the 18 years and over population, where 36% were seen by mental health services and 49% were not receiving any mental health medication. I.e. those identified in the mental health population aged 65 years and over were more likely to be treated in primary care with medication and not seen by mental health services than younger age groups.

6% of people (600) were identified by all three means – mental health medication, contact with mental health services and a mental health diagnosis when an inpatient (for any reason) in a public health hospital.

Table 115 Means of identification as part of the population aged 65 years & over receiving care for mental health disorder, number of people per category

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**460**	**7,520**	**7,980**
No NMDS MH diagnosis		7,040	7,050
NMDS MH diagnosis	450	490	940
PRIMHD contact	**700**	**1,390**	**2,090**
No NMDS MH diagnosis	530	800	1,320
NMDS MH diagnosis	170	600	770
Total	**1,160**	**8,920**	**10,080**

Table 116 Means of identification as part of the population aged 65 years & over receiving care for mental health disorder, category by percentage

	Not receiving meds	Receiving meds	Total
No PRIMHD contact	**4.6%**	**74.7%**	**79.2%**
No NMDS MH diagnosis		69.8%	69.9%
NMDS MH diagnosis	4.4%	4.8%	9.3%
PRIMHD contact	**6.9%**	**13.8%**	**20.8%**
No NMDS MH diagnosis	5.2%	7.9%	13.1%
NMDS MH diagnosis	1.7%	5.9%	7.6%
Total	**11.5%**	**88.5%**	**100%**

Figure 175 Means of identification as part of the population aged 65 years & over receiving care for mental health disorder, number of people per category (circles not in proportion)

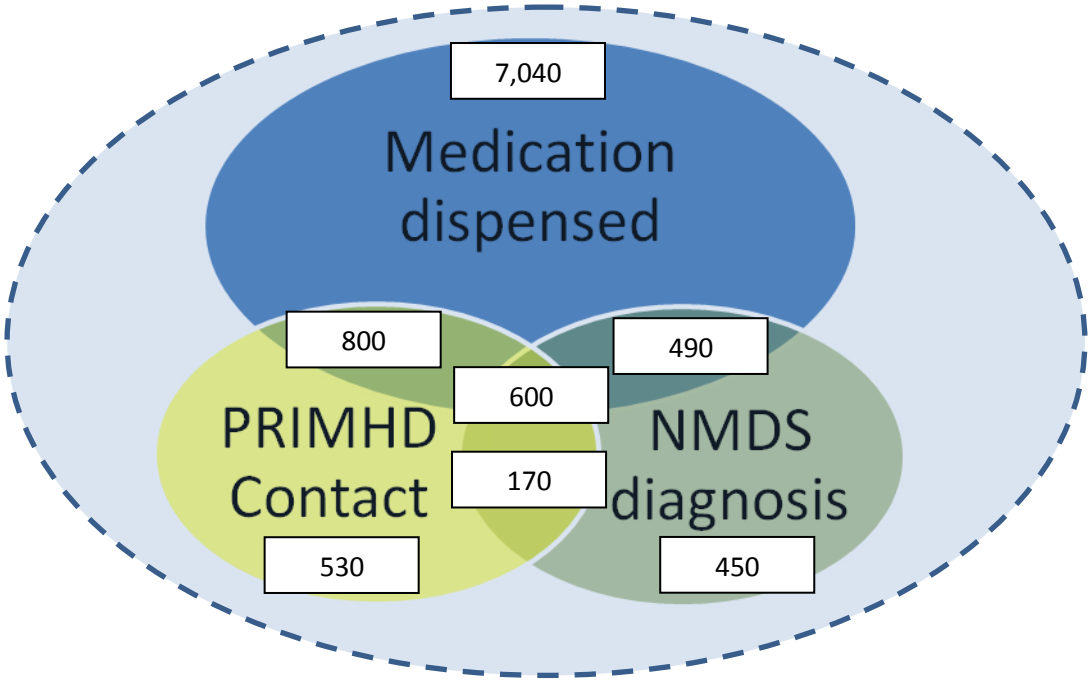
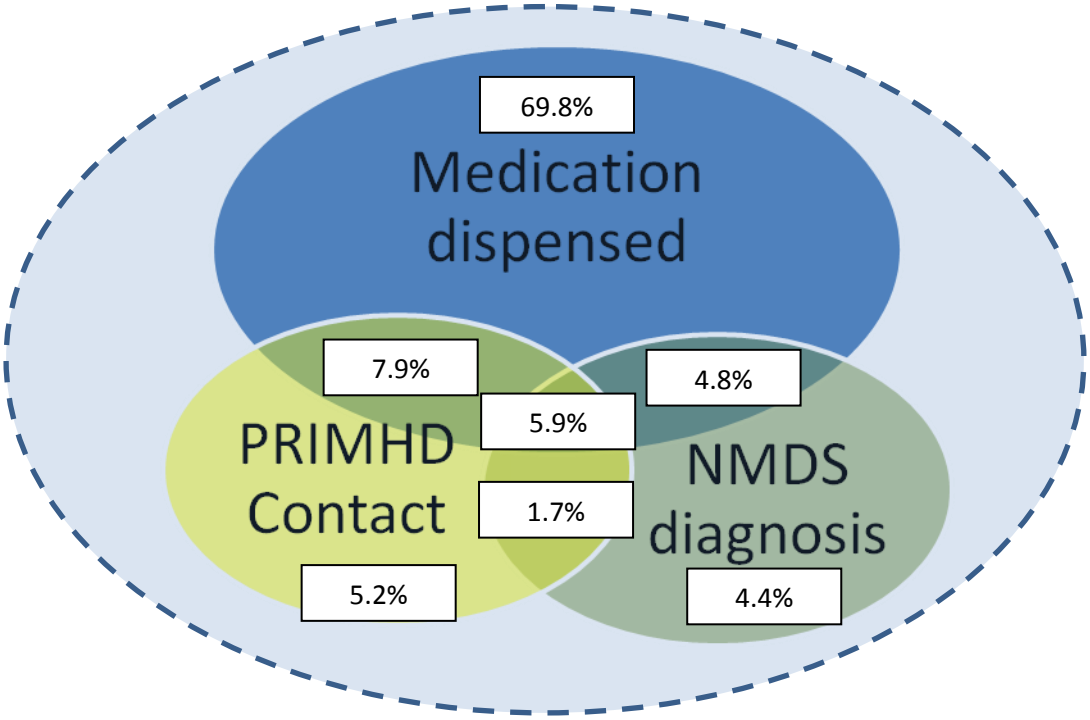


Figure 176 Means of identification as part of the population aged 65 years & over receiving care for mental health disorder, category by percentage (circles not in proportion)



As noted previously, the dotted circle represents the wider population who have mental health disorders who may not have presented for health service care, or not been diagnosed or been treated with modalities not picked up by the datasets examined for this study (e.g. cognitive therapies).

Diagnoses

Depression/anxiety was by far the most common diagnosis, being identified by use of relevant medication or actual diagnosis in PRIMHD or NMDS for 86% of the mental health population aged 65 years and over (8,310 people), with a crude prevalence of 17% for the population of this age (Table 117, Figure 177 and Figure 178).

Overall there was a preponderance of females in the mental health population aged 65 years and over at 64% of those identified (compared to 54% in the constructed population for this age group). In particular in several conditions women represented 60% or more of those identified – 65% of those with depression/anxiety, 66% of those with bipolar disorder, 63% of those with complications of dementia and 62% of those with psychotic disorder. While the prevalence of substance abuse was higher in males in younger age groups, in this age group females represented 56%, similar to their proportion in the underlying population.

There were 380 people (4% of the overall mental health population identified by this study) who did not have a diagnosis identified that was within the categories described. By definition these are people who were seen by mental health services in the period July 2008 – December 2011 but were not given a diagnosis in these categories (people identified by PHARMS and/or NMDS diagnosis had to have medications or diagnoses within the categories described to be identified). This is much lower percentage than for the overall population identified as receiving care for mental health disorders aged 18 years and over (14%). This leaves 9,690 people with identified diagnoses in the categories described. Given there was a total of 11,650 diagnoses identified, this indicates there was a proportion of people who had two or more diagnoses.

Table 117 Diagnostic categories for Mental Health Population aged 65 years & over, by gender

Note this is number of diagnoses not people, except the last line which is the number of people with no diagnosis

Diagnosis	Female	Male	Total	% of the MH population identified with this condition (not taking into account overlap)	Crude prevalence	% female
Depression/anxiety	5,670	3,000	8,670	86%	17.0%	65.4%
Bipolar disorder	160	80	240	2%	0.5%	66.4%
Personality disorder	30	20	50	0%	0.1%	59.2%
Psychotic disorder	750	460	1,210	12%	2.4%	61.9%
Substance Abuse	90	70	170	2%	0.3%	55.7%
Eating Disorder	0	0	0	0%	0.0%	25.0%
Complications of Dementia	330	190	520	5%	1.0%	63.1%
Disorders onset child/adolescent	10	20	30	0%	0.1%	35.7%
Intentional Self-Harm	70	50	130	1%	0.3%	57.8%
Other MH	20	30	50	1%	0.1%	34.6%
Total diagnoses in these categories	*7,530*	*4,120*	*11,650*			
People with No diagnosis in these categories	210	170	380	4%		55.4%

Figure 177 Percentage of the mental health population, aged 65 years and older, identified with various mental health conditions

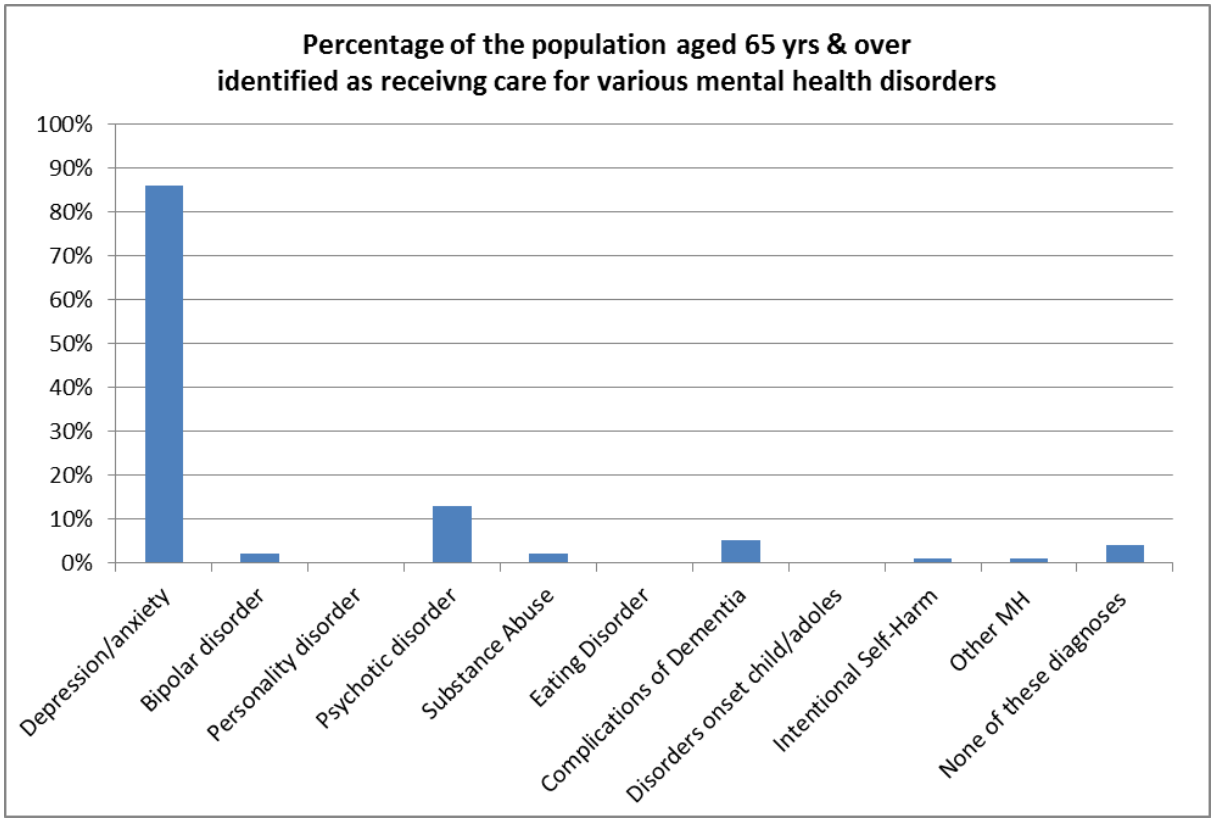
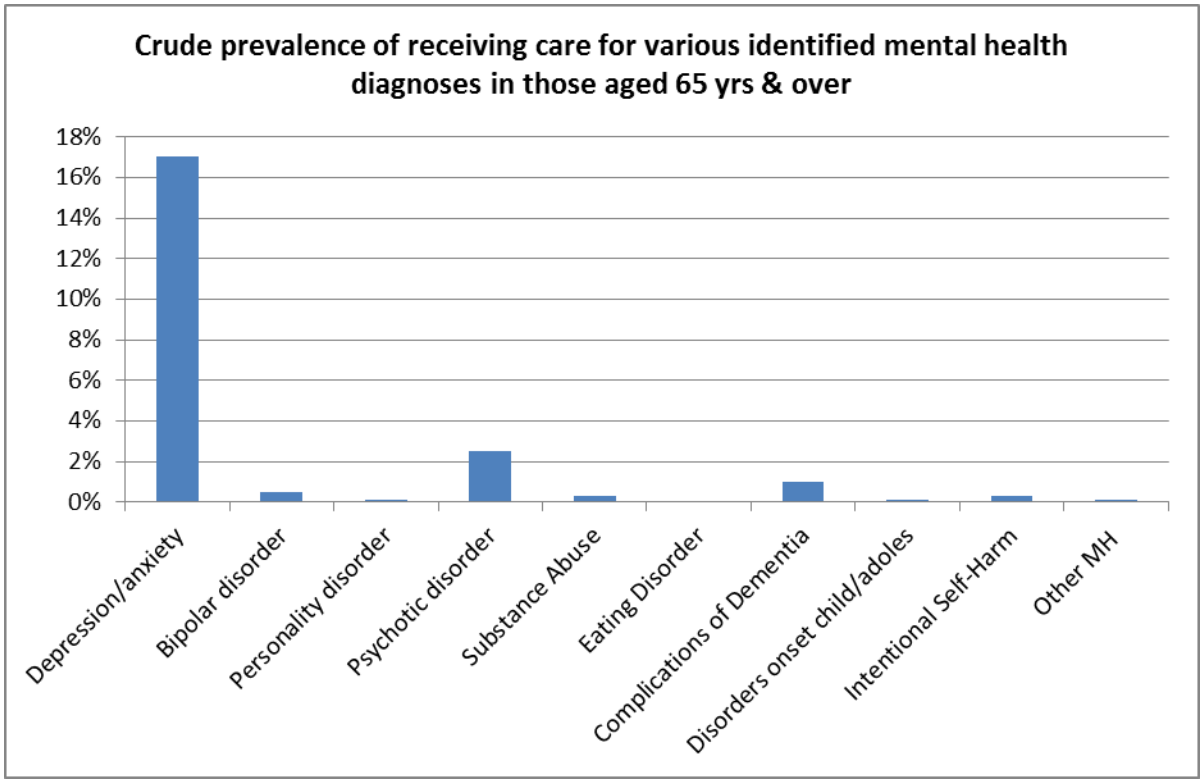


Figure 178 Crude prevalence of various mental health conditions in the population for CMDHB services aged 65 years and older



Discussion

Context

It is appropriate to review the findings of this study in light of the directions, principles for action and recommendations in 'Blueprint II, Improving mental health and wellbeing for all New Zealanders. How things need to be' and 'Rising to the Challenge 2012-2017, the mental health and addictions service development plan', both released in 2012.

The principles and directions of Blueprint II, the Mental Health Commission's advice to government drawing on sector-wide input, include

- A people-centred and people-directed approach
- A continued emphasis on recovery and additional focus on building resiliency to deal with future adversity
- Responding earlier and more effectively to mental health, addiction and behavioural issues taking a 'life course' approach and strengthening the focus on prevention and promotion
- The need to improve equity of outcomes for different populations
- To increase access, system performance and effective use of resources, and
- Improve partnerships across the whole of government.

Rising to the Challenge, the Ministry of Health-led plan primarily for the health sector, highlights

- the context of financial constraint
- the need to use current resource more effectively to enable more attention to be focused on early intervention
- significant strengthening of primary-specialist integration.

While primarily a health sector plan, it also emphasises the importance of a 'whole of government' response to address the many determinants of mental health and well-being.

Layout of this section

Key findings are summarised under the headings used in the main body of the report – the age groups described and the variables within those age groups (ethnicity, age group, socioeconomic area, residential area and primary care enrolled localities). Findings which are not explained by reference to population prevalence studies such as Te Rau Hinengaro, or raise significant questions or implications for service planning are highlighted in shaded text boxes

Discussion of Key Findings, population aged 18 years and over

Just under one in ten (9.6%) of the adult population aged 18 years and over (35,180 people) were identified as receiving care for a mental health disorder as defined by this study in 2011. 18% of the population (just over 65,000 people) aged 18 and over, alive at the end of 2011, were identified in the 'overall' mental health population, indicating either receiving care for a mental health disorder in 2011 or such care in the past 3-10 years as defined by this study. The age-standardised prevalence of receiving care for a mental health disorder for Maaori and European/Other groups was more than twice the prevalence for Pacific and Asian groups.

For 64% of the 2011 mental health population (22,460 people) and 56% of the 'overall' mental health population, a mental health medication was the only way they were identified as part of the mental health population. I.e. they were not seen by Mental Health services, and hadn't received a mental health diagnosis in any admission to a public hospital in New Zealand; it is assumed these people were 'managed in general practice'. For those identified as receiving care for depression/anxiety in 2011, this figure was 83%.

There is potential to construct a wider 'population receiving care for mental health disorder', to incorporate a group estimated to be receiving non-pharmacologic treatment in primary care based on extrapolations from the findings of this study about the proportion of people seen by mental health services who were not receiving pharmacologic treatment. Using the 2011 contact data, this wider population is estimated to be 57,600 or 15.7% of the population aged 18 years and over in 2011.

The distribution of the populations receiving care for mental health disorders across ethnicities, age group, socioeconomic area, residential area and primary care enrolled localities described in this report and highlighted below differ in some respects from those described in Te Rau Hinengaro and other prevalence studies.

This difference may be the result of a range of issues. It would require further analysis and other research in order to establish for example

- to what degree definitional issues for this study (e.g. related to medication use) contribute
- whether there are true differences in prevalence of the conditions
- whether there are different patterns of prescribing and/or referring for different populations.

Ethnicity

There is a high prevalence of care for mental health disorders for Maaori compared with people of other ethnicities, particularly in relation to mental health service contact. There is also a relatively high prevalence of care for those of European/Other ethnicities, particularly in the elderly (even when rates are age-standardised to take into account the differences in life expectancy between ethnicities). There is a much lower prevalence of care for mental health disorders for Pacific and Asian groups.

There is a mixed picture of results from other studies with which to compare these findings in respect to prevalence of care for a mental health disorder by ethnicity. The findings for Pacific and Asian groups are similar to the New Zealand Health Survey in which Pacific and Asian adults were much less likely to report having been diagnosed with depression, anxiety and/or bipolar disorder than those of other ethnicities. However the NZ Health Survey also found that Pacific adults had high levels of psychological distress consistent with a prevalence of depression or anxiety disorder of the same magnitude as Maaori.

Te Rau Hinengaro found Pacific levels of the mental health disorders intermediate in prevalence between Maaori and 'Others' (Asian ethnicities were not reported separately in Te Rau Hinengaro; they were included in the 'Other' group). However Te Rau Hinengaro also found that Pacific people who met the criteria for the DSM-IV disorders that it assessed were less likely that Maaori and Others to access treatment. 'Blueprint II: How things need to be', suggests that in addition to experiencing higher rates of mental disorder than the general population, Pacific peoples have a 'high frequency of admissions for psychotic disorders, a high rate of involuntary admissions, higher rates of substance-related disorders, rising suicide rates, and twice as many referrals to forensic services' (Mental Health Commission, 2012a).

Maaori had the highest prevalence of disorder in Te Rau Hinengaro but were less likely than those of 'Other' ethnicities to access care, and Maaori rates of reporting being diagnosed with depression, anxiety and/or bipolar disorder in the NZ Health Survey were not significantly different from European/Other groups.

These findings have multiple implications, including raising questions about

- whether those who identify as Maaori are missing out on early interventions that might prevent progression to more significant ill-health,
- how culturally responsive services are (including primary care),
- to what degree the work force matches client groups by ethnicity and whether practitioners (including those in primary care) feel confident about mental health management in cross cultural settings,
- what other barriers there might be to access for various cultural groups,
- whether the current geographical, age and ethnic based service delivery models best cater for those needing mental health care in Counties Manukau
- whether different understandings/stigma/beliefs about mental health symptoms and how to manage them might influence the level of presentation to health services.

In relation to opportunity for early intervention, it would be very helpful to explore through further study at what point mental health service contact was initiated and how this differs for people of different ethnicities;

- GP referral
- External agency referral (e.g. school)
- Family/Whaanau contacting crisis services
- Admission to hospital voluntarily
- Hospital admission via police or under the Mental Health Act;

the nature of the contact – first presentation, continuation of care, relapse while under community care; and the patters of use of crisis services by ethnicity.

Annual prevalence of care relates both to the volume of people coming into care and the volume of people remaining in care so rates of discharge and factors effecting discharge are also important. For example are Maaori remaining in mental health services and therefore having high levels of contact due to lower rates of discharge; and if so what are the factors that contribute to this?

The patterns by ethnicity also raise more fundamental issues about how we decide what is/are 'optimal levels' of care for mental health disorders. If people are coping with whatever symptoms they have in the community without intervention, is it necessarily better that they are in contact with health services and receive treatment (in particular are medicated)? Increasingly questions are being raised about whether our populations are now receiving 'too much medicine' (Moynihan et al., 2013) and ordinary life being excessively medicalised by psychiatric diagnosis (Frances, 2013).

These issues raise further questions about what markers we use to understand 'coping' and mental health resilience, and indeed 'flourishing', alongside markers of 'not coping' such as suicide and self-harm rates. Further work needs to be undertaken to understand these markers for the various ethnic populations of Counties Manukau as context for considering optimal levels of care for mental health disorders.

Gender

Overall there was a preponderance of females in those identified as receiving care for mental health disorder (for example 59% for 2011 compared to 52.5% in the constructed population). In particular in several conditions women represented 60% or more of those identified –eating disorders, depression/anxiety and those with bipolar disorder. However two thirds of those identified with substance abuse and disorders with onset in childhood and/or adolescence were male.

These gender results are largely consistent with the findings of Te Rau Hinengaro, except in that survey bipolar disorder occurred equally for females and males and the predominance of females in eating disorders was less marked than in this work.

Males predominated in those in contact with mental health services (54% in 2011); again this is consistent with Te Rau Hinengaro findings.

Age

The age specific prevalence of identification in the population receiving care for mental health disorders in this study was significantly lower in the younger age groups compared with those aged 35 and over, with a further increase in those 75 years and over. This is in contrast to Te Rau Hinengaro findings of the highest prevalence of disorder being in young populations. This also differs from the age specific prevalence of mental health service contact in 2011 in this study which (more in keeping with Te Rau Hinengaro) declined with age apart from a rise after 75 years. The pattern of increase in those aged 75 years and over is consistent with national data from PRIMHD for 2009/10 released by the Ministry of Health in 2013.

Blueprint II and Ministry of Health Guidelines for mental health and addiction services for older people both cite a prevalence of depression of 15–20% in older people, with the guidelines saying this increases with age, to 40% of those over 80 years old. One international review suggests the

prevalence of depression in the elderly ranges from 1-49% depending on the setting and study methodology

> The higher prevalence of care in older age groups in this study is at odds with Te Rau Hinengaro and the MaGPIe study but may substantiate other reports which cite higher prevalence in older age groups. Or it may reflect 'accumulation' of disorders over time. Although most people experience the onset of their mental health disorder early in their lives, if services are not recovery focused, stigma might prevent people from 'getting out' of mental health care. Again, further exploration of patterns of service initiation and discharge would be useful. There could also be some reflection of more recourse to medication in those who are older, given a high proportion of those identified in this study are identified through medication use.

Socioeconomic area

The population receiving care for mental health disorders is skewed towards the less socioeconomically deprived areas as defined by NZDep06 quintiles whereas those in contact with mental health services and those receiving care for psychotic disorders are skewed towards the more socioeconomically deprived areas. The latter is more consistent with Te Rau Hinengaro findings of higher prevalence of disorder in those living in higher socioeconomic deprivation, although there were only small differences in the percentage seeking help across various sociodemographic variables. The conclusion of Te Rau Hinengaro was that the findings indicated that, given a need for treatment, no marked inequality of access to healthcare treatment in relation to sociodemographic correlates was apparent.

> The findings of this study raise questions about differential access to care, whether people might not pick up their medication because of cost or other barriers, but also about whether the level of medication use in both less and more socioeconomically deprived populations is proportionate to 'need'.
>
> This highlights how helpful it would be to include meaningful information from primary care about use by diagnosis for a study like this.

Distribution across residential areas and localities for enrolment in primary care

A higher proportion of the population identified as receiving care for a mental health disorder in 2011 were living in Awhinatia and less in the Cottage (including Otahuhu) CMHC areas compared to the underlying constructed population, resulting in the age standardised prevalence for Awhinatia being 1.6 times that of the Cottage. In relation to locality of enrolment for primary care services, the age-standardised prevalence of care for a mental health disorder was significantly lower in the Mangere/Otara and Otahuhu enrolled populations.

This distribution of populations receiving care for mental health disorders across residential areas and enrolled localities may reflect a range of factors, including where services have historically been developed as well as the ethnicity and age of the populations living in these localities. For example, a

high proportion of the population living in Awhinatia identified as Maaori and European/Other ethnicities whereas those in the Cottage are more likely to be of Pacific and Indian ethnicities; similarly a high proportion of the Mangere/Otara enrolled locality are Pacific and in Otahuhu, Pacific and Indian. These ethnic patterns appear to be reflected in the prevalence of care for mental health disorders across the localities but again, further exploration would be required to tease out the contribution of this and other factors to current patterns.

Over 1,100 people aged 18 years and over were identified as receiving care for a mental health disorder in 2011 but not enrolled with a primary care provider at the end of 2011 (3.2%); 800 of these people were seen by mental health services. This is a quality improvement opportunity to improve their access to primary care services. A further 16% of those receiving care for mental health disorder in 2011 (5,520 people) were enrolled in practices beyond CM Health at the end of 2011; work with other DHBs will be important to influence their care.

Diagnostic categories and overlap

People may be receiving a variety of medications that span a number of the diagnostic groups where this is clinically indicated. In addition the diagnostic groups are derived in good part from information about medication dispensing and this may overstate diagnoses where the use of medication is outside of current best practice and/or there are emerging legitimate used that have not been factored into the categories used for this analysis.

This may overstate the numbers in various groups, particularly the depressive disorders group as anecdotally antidepressant medication may be used for symptom control in a variety of situations which could be termed 'sub-clinical' depressive disorder (not formally diagnosable). However including all of these people was considered preferable to excluding people from one or other group. Notwithstanding this caveat, depression/anxiety was by far the most common diagnostic group for those identified as receiving care for a mental health disorder in all populations examined.

Analysis by diagnostic category indicates there is a quite a proportion of people who have two or more diagnoses. This is consistent with Te Rau Hinengaro which found that while most people only experience one disorder, comorbid disorders were common and that much of the burden of mental health disorder is carried by a small proportion of the population.

Depression/anxiety

In 2011, just under 25,300 people aged 18 years and over were identified as receiving care for depression and/or anxiety (72% of the 2011 mental health population), with a crude population prevalence of 6.9%. Some of these will be people receiving antidepressants who are also classified in other diagnostic groups.

The age-standardised prevalence of receiving care for depression and/or anxiety in 2011 was much higher in those of European/Other ethnicities (10.3%) and also significantly higher in Maaori (6.2%) than those of Pacific and Asian ethnicities (2-4%). 83% of those identified as receiving care for depression and/or anxiety were identified only by medications dispensed – i.e. not seen by Mental Health services, or receiving a diagnosis of depression and/or anxiety in any admission to a public hospital in New Zealand; it is assumed these people were 'managed in general practice'. Nearly

three quarters of this group were of European/Other ethnicities, with an age-standardised prevalence of 9% compared to 2-4% for other ethnicities.

> There was a significantly lower age-standardised prevalence of identification as receiving care for depression and/or anxiety for those living in the most deprived areas (Quintiles 4 & 5). Te Rau Hiningaro did not report socioeconomic variables for individual conditions, but as noted previously the overall 12 month prevalence of any mental health disorder found the opposite pattern – prevalence was higher in those living in more socioeconomically deprived areas in the Te Rau Hinengaro results. Again, this raises questions about differential access to care, barriers such as cost for medication, but also about whether the level of medication use in both less and more socioeconomically deprived populations is proportionate to 'need'. Given the ethnic diversity of populations living in areas of higher socioeconomic deprivation in Counties Manukau, the interaction with cultural factors also needs to be considered.

Psychotic disorders

There were approximately 5,450 people aged 18 years and over identified as receiving care for psychotic disorders as defined by this study in 2011, giving a crude prevalence of 1.5%. The age-standardised prevalence of identification as receiving care for psychotic disorders was significantly higher for Maaori (2.6%), than those identified as European/Other ethnicities (1.6%) and those of Pacific and Asian ethnicities (0.7-1.1%).

Overall 65% of those identified as receiving care for psychotic disorders in 2011 (3,530 people) were seen by Mental Health Services in 2011 but this figure was significantly higher at 76-80% for Maaori and Pacific peoples and only 53-62% for those of other ethnicities. The proportion identified only by medications dispensed, assumed 'managed in general practice', was considerably lower for those who were Maaori or Pacific (20% and 23% respectively) than those of other ethnicities (38-46%).

The prevalence of being identified as receiving care for psychotic disorder was significantly higher for those in the most socioeconomically deprived areas (Quintiles 4 and 5).

98% of the population identified as receiving care for a psychotic disorder in 2011 were receiving mental health medication of some sort in 2011, the majority antipsychotics but also antidepressants, methylphenidate and drugs for treatment of substance abuse. Of the total group identified as receiving care for psychotic disorders (those receiving that care in 2011 and those receiving care in previous years as identified by this study), 57.7% received medications classed as antidepressants at some point.

> There is a dearth of information about the population with psychotic disorders in New Zealand with which to compare these findings; this raises the question of the potential need for a national population survey to establish population prevalence and understand more about those identified as receiving care for psychotic disorders.

Mental health service contact (as reflected by entry in the PRIMHD dataset)

The majority of people identified as receiving care for mental health disorder by virtue of being dispensed mental health medications are not seen by secondary mental health services and it is assumed they are care for in primary care. This proportion is higher for those in European/Other ethnic groups and older adults, especially those receiving treatment for depression/anxiety.

Those who are Maaori, younger and living in more socioeconomically deprived areas are more likely to be seen by mental health services. In 2011, 3.4% of the Counties Manukau/Otahuhu population aged 18 years and over were documented in PRIMHD to have contact with mental health services. This is consistent with mental health access target results for Counties Manukau Health mental health services.

The age standardised prevalence of mental health service contact for Maaori in 2011 (6.9%) was twice or more than that of other ethnic groups; this could reflect a range of issues including higher prevalence of mental health conditions (as per Te Rau Hinengaro), lack of early intervention or that our Maori-specific services are providing a service which facilitates access.

For those living in the most socioeconomically deprived area (Quintile 5) the prevalence of mental health service contact was essentially twice that of those living in the most affluent area (Quintile 1).

> The distribution of prevalence of mental health service contact across socioeconomic areas contrasts with the population who were identified as receiving care for mental health disorder in 2011 by medications only, where the prevalence in Quintile 1 was twice the prevalence in Quintile 5. Further study would be necessary to understand how much this reflects severity (with mental health service contact as proxy for severity), or different thresholds for prescribing for different populations.

The age-standardised prevalence of mental health service contact was significantly higher for those not enrolled in primary care than those enrolled in various localities. This could relate to higher numbers of ex-institutional clients and others with complex mental health disorders not being connected back to primary care (rather than people without primary care having more mental health disorders). There were just over 800 people identified in contact with mental health services in 2011 who were not enrolled in a PHO as at the end of that year. Remedying this is an important opportunity to improve their access to primary care services.

In the 2011 mental health population in this study, overall 16% of those identified as receiving care for depression /anxiety (4,110 people) were seen by Mental Health Services but this figure was 28% for Maaori, 22% for Pacific, and only 14-15% for those of other ethnicities.

48% of those aged 18 years and over seen by mental health services in 2011 were not receiving any mental health medications in the categories described in 2011. This is higher than for the other Northern Region DHBs[16], which ranged from 41.4% to 43.5%. This could relate to a range of factors,

[16] People living in Otahuhu are included in Auckland DHB rather than the catchment for CM Health for these figures.

including the availability of talking therapies and different cultural models of care delivery and barriers to dispensing of medications such as cost.

Across the age distribution of the population, there is a pattern whereby with increasing age, identification as part of the population receiving care for mental health disorders is increasingly relating to medication use (with a corresponding decrease in the proportion identified as having contact with mental health services (Table 118).

Table 118 Percentages of the various age group mental health populations receiving medication

For the 2011 'snapshot' population	12-19 years	20-24 years	18 years and over	65 years and over
Percentage receiving mental health medication of some kind	34%	59%	82%	93%
Percentage identified only through receiving medication	18%	37%	64%	78%
Percentage identified as having contact with mental health services	81%	62%	35%	19%
Percentage having contact with mental health services and not identified as receiving mental health medications	81%	41%	48%	30%

The increasing exposure to mental health medications with age raises a number of questions about treatment patterns, including

- is there more uptake of talking therapies and self-management for younger people and families and therefore less reliance on medication?
- is there lower use of primary care by young people than other age groups?
- is there a greater degree of acceptance of a medical model and medication in the older age groups?
- are there differences in prescribing patterns with greater reliance on medication for older people?
- are symptoms worsening in later years hence the increase in percentage receiving medication?
- would wider access to mental health services in older age groups reduce medication use?
- what is the uptake of the online initiative 'Beat the Blues' and does this differ across population age and ethnic groups?
- does access to programmes such as the WRAP personal wellness programme, Mental Health First Aid, programmes that support a resilience plan, differ by age?

Comorbidity, non-mental health service health care utilisation and integration of mental health services with other health care services

The interaction between long term conditions such as diabetes and mental health is complex and has been attracting increasing attention. Consistent with international studies, people who receive care for mental health disorders in Counties Manukau have a higher crude and age-standardised prevalence of long term conditions such as diabetes, cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), and congestive heart failure (CHF) than those who aren't identified as receiving care for mental health disorders. Similarly those people identified as having long term condition have a higher prevalence of receiving care for a mental health disorder.

The age standardised prevalence of PHO non-enrolment for the 2011 mental health services contact population (6.2%) was significantly higher than the prevalence for the wider population who were identified as receiving care for a mental health disorder in 2011 (3.7%) and the population without identified care for mental health disorder (3.7%) at a population level.

Ambulatory Sensitive Hospitalisations (ASH) are thought to reflect hospitalisations for conditions which are considered sensitive to preventive or treatment interventions in primary care. The age-standardised prevalence of having had an ASH admission(s) for those identified as receiving care for a mental health disorder in 2011 (5.7%) was twice the prevalence for those in the constructed population who were not identified as receiving care for a mental health disorder (2.8%). For those seen by mental health services the ASH rate (8.3%) was three times that for those not identified as receiving care for a mental health disorder. A similar pattern was found for another subgroup of "potentially avoidable" hospitalisations, those considered potentially avoidable due to housing-related factors.

Likewise age-standardised prevalence of having had one or more DNAs for non-mental health outpatient appointments had a similar pattern of being significantly higher in those identified as receiving care for a mental health disorder and higher again for those seen by mental health services.

These findings raise questions about

- how we are integrating non-mental health services for mental health patients and vice versa,
- the role of mental health services in facilitating enrolment (and engagement) with primary care and coordinating appointments for non-mental health issues as part of routine mental health service practice,
- planned and opportunistic preventive care in mental health services and for those with mental health disorders when seen in primary care (e.g. supporting smokefree lives and environments)
- clinical guidance for prescribing of medications that are known to have potential adverse impacts on physical heath and weight.

Key Findings, populations aged 12-19 and 20-24 years

If the Youth '07 and Youth '12 results for depressive symptoms are applied to the population aged 12 to 19 years old for the catchment population for CM Health mental health services this would equate to approximately 7-8,000 young people in the CMH mental health catchment area (including Otahuhu) potentially having significant depressive symptoms in 2011.

In 2011 there were just over 3,700 young people aged 12 to 19 years of age identified as receiving care for a mental health disorder during 2011, 5.7% of the population of this age. These figures were just over 2,850 for young adults aged 20 to 24 years of age (7.2% of the population of this age). As for the total population aged 18 years and over, young people and young adults identified as Maaori and European/Other ethnicities (7.1%, 9.9%) had a significantly higher prevalence of care for mental health disorder in 2011 (9.3%, 9.8% respectively for Maaori young people and young adults, and 7.1% and 9.9% for European/Others) compared to those of Pacific and Asian ethnicities (1.8-3.6% for young people 12-19 years and 3-4.6% for those 20-24 years).

Young people and young adults identified as receiving care for a mental health disorder in 2011 were living in areas distributed across the NZDep06 spectrum in a similar pattern to the underlying population, with 30-40% living in Quintile 5, the most socioeconomically deprived areas resulting in no significant differences between the prevalences across the NZDep06 categories. This is different from the pattern for those 18 years and over (where there was a significantly lower age-standardised prevalence in quintile 5 than in other areas for those receiving care for mental health disorder in 2011 while the age-standardised prevalence of mental health service contact for those living in the most socioeconomically deprived area (Quintile 5) was essentially twice that of those living in the most affluent area (Quintile 1).

A much smaller proportion of young people aged 12-19 years identified as receiving care for a mental health disorder in 2011 (34%) were receiving mental health medications than the population 18 years and over (81%), the figure being intermediate for those aged 20-24 years (59%). A much higher proportion aged 12-19 years had some contact with mental health services (81% compared with 35% for those aged 18 years and older), again with an intermediate results for those aged 20-24 years (62%). Questions related to this have been highlighted previously in this discussion.

Maaori young people and young adults had a much higher prevalence of contact with mental health services in 2011 (8.4% and 7.8% respectively) than young people and young adults of other ethnicities (2-4.7% and 2-4.2%). The prevalence for those living in the most socioeconomically deprived areas (5%) was one and a half times that of those living in the most affluent areas (3%-3.5%).

Higher rates of mental health service contact for Maaori young people is consistent with comparative rates by ethnicity of suicide planning and attempts as described in Youth '07. Given Pacific young people also had higher rates of suicide planning and attempts in Youth '07, the lower prevalence of mental health service contact is a cause for concern. In Youth '07 neither Maaori or Pacific students were more likely to report significant depressive symptoms than NZ European (9.3%) students, and in fact Asian students had a higher prevalence of depressive symptoms (13.5%). The low prevalence of mental health care for Asian young people is therefore also a cause for concern.

These findings challenge us to improve access to services for Pacific and Asian young people across the spectrum of school based health and counselling services, primary care and specialist mental health services.

The Youth '07 results need consideration in relation to youth access rates for mental health services and models of care (e.g. would more culturally responsive services provide improved access to early intervention services if young people are not recognising/reporting depressive symptoms prior to suicidality? How well do current models prevent relapse, and hence reduce annual prevalence, and provide support systems that will meet their needs in the future?)

As for the 18 years and over population, it would be helpful to understand in more detail access and discharge patterns for those aged 12-19 and 20-24 years.

Young people and young adults who were not enrolled with primary care had a higher prevalence of mental health service contact than those who were enrolled. Nearly 200 young people aged 12 to 19 years and 140 young adults aged 20-24 years were not engaged with primary care at the end of 2011 but had mental health system contact that year regarding their mental health disorder, an opportunity to improve their access to primary care.

Key Findings, population aged 65 years and over

12% of the population (just over 6,190 people) aged 65 years and over, alive at the end of 2011, were identified as having received care for a mental health disorder in 2011. This is a higher prevalence than young age groups and as noted, this differs from Te Rau Hinengaro where the 12-month prevalence of any disorder declined across the age groups from 28.6% in the youngest age group (16-24 years) to 7.1% in those aged 65 years and over. Even within the 65 and over age group, prevalence increased with age in this study, from 10.2% for those 65-69 years to 19.3% for those aged 85 years and over. As noted earlier, this may in part reflect high rates of depression in the elderly; however it could reflect a range of other issues including methodology of this and other studies, based on prescribing practice and service contact rather than population studies.

People aged 65 years and over identified as European/Other ethnicities had a significantly higher age-standardised prevalence of health care for mental health disorder in 2011 (14.3%) than Maaori (10.8%), and the Maaori prevalence was significantly higher than for those of Pacific and Asian ethnicities (5.3-8.2%).

Those aged 65 years and over identified as receiving care for mental health disorder in 2011 were distributed across the NZDep06 quintiles in a similar U-shaped pattern to the underlying population of this age; the underlying population of this age differs from younger age groups who are concentrated in areas of high socioeconomic deprivation.

For 78% of the 2011 mental health population aged 65 years and over (4,840 people), a mental health medication was the only way they were identified as part of the mental health population, and only 19% had contact with mental health services; this is quite a different picture from the wider population aged 18 and over where a higher proportion were seen by mental health services and less were receiving medication only.

The pattern of high prevalence, predominated by European/Other women, and driven by medication use is particularly apparent in those identified as receiving care for depression/anxiety in those aged 65 years and over. The crude prevalence was 10.4% (4,480 people), 83.5% of the group were European/Other (compared with 66.5% of the constructed population of this age) and 68% were women (compared with 54% females in the constructed population of this age). The age-standardised prevalence of those receiving care for depression/anxiety in those aged 65 years and over in 2011 was significantly lower in those living in areas of highest socioeconomic deprivation (Quintile 5), but those living in higher deprivation areas were more likely to have been seen by mental health services. 85% were identified only by medications dispensed.

Of those aged 65 and over identified as receiving care for psychotic disorders in 2011, only 37% had contact with mental health services in 2011. This may reflect long term stable psychotic disorder which is manageable in primary care, or it may reflect use of medications identified as related to psychotic disorder for a variety of symptoms and conditions in older people which are not actually psychotic disorders.

> The pattern of lower contact with mental health services for those dispensed antipsychotic medication in those aged 65 years and over raises questions about the use of antipsychotic medications for dementia-related difficulties and whether medications are being used as the first choice of treatment for behavioural and psychological symptoms rather than other modalities. This warrants further investigation in relation to the dementia programme being implemented in Counties Manukau.

Although the age-standardised prevalence of mental health service contact was significantly higher for Maaori, the majority (76%) of those in contact with mental health services aged 65 years and over in 2011 were of European/Other ethnic groups; this in part reflects the underlying population demography of those aged 65 years and that their prevalence of contact was also higher than that of Pacific and Asian groups. The age-standardised prevalence for those living in the more socioeconomically deprived areas was one and a half times that of the least deprived area.

As noted earlier, the higher prevalence of care in older age groups in this study warrants further exploration of a range of issues. As for other age groups, annual prevalence can be influenced by entry and exit from care so questions related to early intervention and recovery models of care are as relevant as for younger age groups.

Recommendations for action (including future studies)

The findings of this study reinforce many of the directions, principles for action and recommendations in 'Blueprint II, Improving mental health and wellbeing for all New Zealanders. How things need to be' and 'Rising to the Challenge 2012-2017, the mental health and addictions service development plan', including

- The need to support primary and other general health care services to provide interventions to enable people to recover rapidly and to provide care working from a **recovery and resiliency** paradigm, incorporating prevention and health promotion alongside treatment.
- The need to strive to achieve **equity of outcomes** for different populations. This will require cultural capability to effectively serve the Counties Manukau population, in particular the needs of Maaori and Pacific peoples, and also those of various Asian ethnicities for whom there is currently limited comparative information to understand service trends.
- The importance of responding appropriately to need across the life-course, in **age appropriate ways** that also recognise the wider family and social contexts of life course stages.
- The need for integration across the system, both vertically so that primary and community services are better connected with secondary services and NGOs, and horizontally so that mental and physical care are better integrated. Comorbidity of mental health disorders and long term conditions requires greater attention.
- The importance of **early intervention** (both early in the life course and early in disease course) and the roles of primary and other general health care services in supporting resilience, and recognising emerging problems early.

Improving capability and capacity to enable enhanced delivery on these directions has the potential to contribute significantly to better and more equitable health and social outcomes for all groups living in Counties Manukau.

Other expectations of 'Rising to the Challenge' also highlighted by this study include,

- the need for better information about use of primary care services
- the importance of improving physical health and wellbeing for people with low prevalence conditions
- reviewing differences in prescribing patterns for psychiatric medications
- implementing dementia guidelines for primary care and improving access to specialist dementia services
- working to improve access for Pacific peoples and Asian populations.

Future studies

The reliance on national administrative datasets is both a strength and a weakness of this study. Blueprint II highlighted the need to understand better what 'organised mental health and addiction responses' mean across diverse settings and to design ways to measure activity to close the current gaps in service provision and equitable outcomes.

Possible sources of data about mental health resilience and broader care for mental health disorders which could be explored to support mental health planning in CM Health include[17]

- markers of well-being from the national social survey
- district level data by ethnicity from the NZ Health Survey (should be available every 3-5 years once there is a sufficient local sample size) – well-being, psychological distress and diagnosis of mental health disorder
- service use data from the national depression initiative on-line programme (featuring John Kirwan)
- data about primary care psychological services accessed through Procare and Total Healthcare
- data from the Chronic Care Management Depression module
- information about screening in primary care for mental health disorders (Felicity Goodyear-Smith, University of Auckland) and alcohol and drug disorders (John McMenamin, Whanganui).

There are also a range of potential further studies using linked data which could contribute to planning for mental health services; some have been alluded to in this discussion (e.g. examining referral sources for community team care to explore entry points for care). Separating low dose from higher (therapeutic) dose antidepressant and antipsychotic prescribing could help to better identify the prevalence of depression and psychotic disorders based on medication dispensing. Examining variation in medication patterns in local practice could also contribute useful information regarding prescribing variations and the reasons behind these. Comparison nationally would align with the national quality agenda of the Health Quality and Safety Commission.

[17] Thanks to Dr Lynne Lane, Mental Health Commissioner for a number of these suggestions

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Appendices

Appendix One: Definitions of diagnostic categories as used in this report.

Depression

DSM-IV code	ICD-10 code	Pharmaceuticals	Exclusions
Major depressive disorder 296.2x [single]; 296.3x[recurrent]	F32 Depressive episode	Amitryptiline	Amitryptiline, daily dose dispensed 25 mg or less
Dysthymia (300.4)	F33 Recurrent Depressive episode	Clomipramine	Any appearance in bipolar disorders, removed from depression category
Depressive disorder Not Otherwise Specified (311)	F34 Persistent Mood disorders	Dothiepin	
	F38 Other mood disorders	Doxepin	
	F 39 Unspecified mood disorders	Imipramine	
		Maprotiline	
		Mianserin	
		Trimipramine	
		Nortriptyline	
		Phenelzine	
		Tranylcypromine	
		Moclobemide	
		Citalopram	
		Fluoxetine	
		Paroxetine	
		Venlafaxine	
		Sertraline	
		Mirtazaprine	
		Escitalopram	

Bipolar Disorders

DSM-IV code	ICD-10 code	Pharmaceuticals
Bipolar disorder (296.0x; 296.40; 296.4x; 296.6; 296.5; 296.7; 301.13; 296.80; 296.89)	F30 Manic episode	Lithium carbonate
	F31 Bipolar affective disorder	

Anxiety Disorders

DSM-IV code	ICD-10 code	Pharmaceuticals
Panic disorder (300.01; 300.21)	F40 Phobic anxiety disorder including agoraphobia, social phobia, specific phobias	
Agoraphobia without panic (300.22),	F41 Other anxiety disorders	
Specific phobia (300.29),	F42 Obsessive compulsive disorders	
Social phobia (300.23),	F43 Reaction to severe stress, and adjustment disorders [including PTSD]	
Generalised Anxiety Disorder (300.02),	F44 Conversion disorders	
Post Traumatic Stress Disorder (309.81)	F45 Somatoform disorders	
Obsessive–compulsive disorder (300.3)	F 48 Other nonpsychotic mental disorders	
Somatoform disorders (300.81; 300.81; 300.11; 307.89; 307.80; 300.7; 300.7; 300.81)		
Factitious disorder (300.19; 300.16)		
Dissociative disorders (300.6; 300.12-300.15)		

Personality disorders

DSM-IV code	ICD-10 code	Pharmaceuticals
All (301.0; 301.20; 301.22; 301.7; 301.50; 301.81; 301.82; 301.6; 301.4; 301.9; 301.83)	F60 Specific personality disorders	

Psychotic Disorders

DSM-IV code	ICD-10 code	Pharmaceuticals (oral and depot forms)	Exclusions
Schizophrenia (paranoid, residual, disorganised, catatonic, undifferentiated) (295.30; 295.10; 295.20; 295.90; 295.60)	F20 Schizophrenia – all types	Amisulpride	Excluding anyone in Dementia group
Schizophreniform disorder (295.40)	F21 Schizotypal disorder	Aripiproazole	Haloperidol if concomitantly prescribed any narcotic except methadone
Schizoaffective (295.70)	F22 Persistent delusional disorder	Chlorpromazine	
Delusional (297.1)	F23 Acute and transient psychotic disorders	Clozapine	
Brief psychotic (298.8)	F24 Induced delusional disorder	Flupenthixol	
Shared psychotic (297.3)	F25 Schizoaffective disorder	Fluphenazine	
Psychotic disorder Not Otherwise Specified (298.9)	F26 /28 Other non organic psychotic disorders	Haloperidol	
	F29 Other non specified nonorganic psychosis	Levomepromazin	
		Methotrimeprazine	
		Olanzapine	
		Pericyazine	
		Pimozide	
		Pipothiazine	
		Quetiapine	
		Risperidone	
		Thioridazine	
		Trifluoperazine	
		Ziprasidone	
		Zuclopenthixol	

Eating Disorders

DSM-IV code	ICD-10 code	Pharmaceuticals
Bulimia	F50 Eating disorders (anorexia and bulimia)	
Anorexia		

Substance Abuse Disorders

DSM-IV code	ICD-10 code	Pharmaceuticals	Exclusions
Abuse or dependence of the following substances:	Abuse or dependence of the following substances:	Methadone	Abuse or dependence of tobacco
Alcohol (305.00, 303.90)	F11 Opioids	Naltrexone	
Amphetamine (305.70, 304.40)	F12 Marijuana	Disulfiram	
Cocaine (305.60; 304.20)	F13 Hypnotics		
Hallucinogen (304.50; 305.30)	F14 Cocaine		
Inhalant (304.60, 305.90)	F15 Other stimulants (e.g. caffeine)		
Opiate (304.00; 305.50)	F16 Hallucinogens		
Phencyclidine (304.60; 305.90)	F18 Solvents		
Hypnotics (304.10; 305.40)	F19 Multiple drug use		
Polysubstance (304.80)			
Marijuana (304.30; 304.20)			
Other Alcohol related disorders (291.0; 291.1; 291.2; 291.3; 291.5; 291.8; 291.0)			
Others (304.90; 305.90; 292.89; 292.81; 292.0; 292.11; 292.12; 292.84; 292.85; 292.89; 292.9; 292.82; 292.83)			

Complications of Dementia

DSM-IV code	ICD-10 code	Pharmaceuticals
Dementia 290	F01-F03 Dementia, G30-32 Alzheimers, but only if primary diagnosis	

Disorders with onset usually in childhood/adolescence

DSM-IV code	ICD-10 code	Pharmaceuticals	Exclusions
Pervasive Developmental Disorders: Asperger's Disorder, Autistic Disorder, Childhood Disintegrative Disorder, Rett's Disorder, Pervasive Developmental Disorder (Including Atypical Autism) NOS (299.80)	F90-97 Child and adolescent behavioural and emotional disorders	Methylphenidate (Ritalin, Concerta, Rubifen)	ICD codes: F98 Other behavioural and emotional disorders with onset usually occurring in childhood and adolescence
Attention-Deficit and Disruptive Behavior Disorders: Attention-Deficit/Hyperactivity Disorder, Conduct Disorder, Oppositional Defiant Disorder, Disruptive Behavior Disorder Not Otherwise Specified (312.9)	F84 Pervasive development disorders	Dexamphetamine sulphate (Dexamphetamine)	DSM-IV codes: Mental retardation, Learning disorders, Motor skill disorders, Communication Disorders, Elimination disorders, Feeding and eating disorders of infancy or early childhood
Tic Disorders: Chronic Motor or Vocal Tic Disorder, Tourette's Disorder, Tic Disorder NOS (307.20)		Atomoxetine Hydrochloride (Strattera)	
Other Disorders of Infancy, Childhood, or Adolescence: Selective Mutism, Separation Anxiety Disorder, Reactive Attachment Disorder of Infancy or Early Childhood, Stereotypic Movement Disorder, Disorder of Infancy, Childhood, or Adolescence Not Otherwise Specified (313.9)		Pemoline (Cylert)	

Intentional Self-Harm

DSM-IV code	ICD-10 code	Pharmaceuticals
(not coded in PRIMHD)	X60-X84, Y87.0	

Other mental health disorders

DSM-IV code	ICD-10 code	Pharmaceuticals
Sexual and gender identity disorders	F07 Personality and behavioural disorders due to know physiological condition	
Sleep disorders	F51 Nonorganic sleep disorders	
Impulse control disorders not otherwise specified	F52 Sexual dysfunction	
Adjustment disorders	F 53 Mental and behavioural disorders associated with the puerperium, not elsewhere classified	
Malingering	F54 Psychological and behavioural factors associated with disorders or diseases classified elsewhere	
	F55 Harmful use of non-dependence producing substances	
	F63 Habit and impulse disorders	
	F64 Gender identity disorders	
	F65 Sexual preference disorders	
	F66 Psychological and behavioural disorders associated with sexual development and orientation	
	F68/69 Other/unspecified disorders of adult personality and behaviour.	

Appendix Two: Definitions of avoidable hospitalisations

Ambulatory sensitive hospitalisations (ASH) and Housing-Related Potentially Avoidable Hospitalisations (HRPAH) are both categories of Potentially Avoidable Hospitalisations.

Ambulatory sensitive hospitalisations reflect hospitalisations for conditions which are considered sensitive to preventive or treatment interventions in primary care; some conditions are weighted at 50% of the actual volumes of admissions to reflect the proportion which are thought to be ambulatory sensitive. Acute and acute arranged admissions only are included, except for dental conditions where electives are also included.

ASH Condition	Principle diagnosis ICD code	Age group*	ASH weight
Angina and chest pain	I20, R072-R074	A	0.5
Asthma	J45-J46	B	1
Bronchiectasis	J47	C	1
Cellulitis	H000, H010, J340, L01-L04, L08, L980	B	1
Cervical cancer	C53	A	1
Congestive heart failure	I50, J81	A	1
Constipation	K590	B	1
Dental conditions	K02, K04, K05	B	1
Dermatitis & eczema	L20-L30	B	1
Diabetes	E10-E14, E162	A	1
Epilepsy	G40-G41, O15, R560, R568	A	1
Gastroenteritis/dehydration	A02-A09, R11	B	1
GORD (Gastro-oesophageal reflux disease)	K21	B	1
Hypertensive disease	I10-I15, I674	A	1
Kidney/urinary infection	N10, N12, N136, N309, N390	F	1
Myocardial infarction	I21-I23;I241	A	0.5
Nutrition Deficiency and Anaemia	D50-D53, E40-E46, E50-E64, M833*	B	1
Other ischaemic heart disease	I240, I248,I249, I25	A	0.5
Peptic ulcer	K25-K28	A	1
Respiratory infections - Pneumonia	J13-J16, J18	B	1
Rheumatic fever/heart disease	I00-I02,I05-I09	B	1
Sexually transmitted Infections	A50-A59,A60, A63, A64, I980, M023, M031, M730, M731, N290, N341	A	1
Stroke	I61, I63-I66	A	0.5
Upper respiratory tract and ENT infections	J00-J04, J06, H65-H67	B	1
Vaccine-preventable disease - Meningitis, Whooping Cough, Hep B, Pneumococcal disease, Other	A33-A37, A403, A80, B16, B18	D	1
Vaccine-preventable disease - MMR	B05, B06,B26, M014, P350**	E	1

* Age Group: A >= 15 yrs; B all ages; C < 15 yrs; 6mth <= D < 15 yr; 15mth <= E < 15 yr; F >= 5 yrs

Housing related potentially avoidable hospitalisations are those hospitalisations (principal diagnosis only) for respiratory or infectious diseases where a strong causal link between the housing intervention and the illness could be postulated through reducing overcrowding or improving ambient temperature in the house. This group was defined by CMDHB in undertaking the evaluation of the Healthy Housing Initiative[18].

HRPAH Condition	**International Classification of Diseases (ICD) 10-AM codes**
Tuberculosis	A150-A199, B900-B909, M011, P370
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
Cellulitis and skin infections	H000, H010, H050, J340, K122, L01-L04, L08, L980
Rheumatic fever/heart disease	I00-I09
Respiratory infections - upper respiratory tract, influenza, bacterial pneumonia, acute bronchitis, bronchiolitis	J00, J06, J10-J11, J13-J16, J18, J20, J21
COPD	J40-J44, J47
Asthma	J45-J46

[18] Jackson G, Thornley S, Woolston J, Papa D, Bernacchi A, Moore T (2011) Reduced acute hospitalisation with the healthy housing programme. Journal of Epidemiology and Community Health: doi:10.1136/jech.2009.107441

Appendix Three: Outpatient services included in non-mental health DNA rates

NNPAC, the national dataset of information about secondary care outpatient services, has developed over the past five years. Efforts to improve data capture mean that comparisons over time need to be undertaken with care as what is captured for a given category is likely to be more complete for later years.

The analysis of non-attendance in this report included information on the following main categories of services, as captured in the NNPAC extract for 2011 services made in January 2013. Detailed codes are available on request.

General medicine and medicine related specialities	**General surgery and surgery related specialities**	**Allied health**	**Others**
General medicine	General surgery	Dietetics	Community radiology
Cardiology incl cardiac education & management	Ear, nose & throat	Occupational therapy	Outpatient dental
Dermatology	Gynaecology	Orthoptist	Community nursing services
Endocrinology	Ophthalmology	Physiotherapy	Child Development
Diabetes, incl diabetes education and retinal screening	Orthopaedics	Podiatry	ATR clinics and home assessments
Gastroenterology	Paediatric surgery	Social work	
Haematology	Plastics	Speech therapy	
Infectious diseases	Urology	Health psychology	
Neurology	Sexual health		
Paediatric medicine			
Renal			
Respiratory incl education and management, and sleep apnea			
Rheumatology			
Pain clinic			
Follow up clinics for specialities where first appointment may be at another DHB e.g. Oncology, Paediatric cardiology or neurology	Follow up clinics for specialities where first appointment may be at another DHB e.g. Cardiothoracic surgery		

Appendix Four: Long term condition algorithms

People were identified as having diabetes, CVD, COPD and/or CHF based on, where appropriate,

- discharge diagnoses (primary or secondary) for public hospital admissions within the previous ten years,
- related procedures codes for public hospital procedures within the previous ten years,
- attendance at hospital outpatients in the two years prior to December 2011 identified by purchase units within the National Non-admitted Patient Collection (NNPAC),
- dispensing of medication deemed relatively specific for the disease group in question (as described below), from a community pharmacy,
- request of laboratory tests deemed relatively specific for the disease group in question, during the two year period prior to December 2011.

Condition	Hospital diagnosis codes	Hospital procedure codes	Hospital Outpatients	Medication dispensed	Laboratory request
Diabetes	ICD codes for diabetes including pre-existing diabetes in pregnancy but excluding diabetes arising from pregnancy, within the previous ten years: ICD 10: E10-E14 (diabetes codes); O24.0 to O24.3 (referring to pre-existing diabetes in pregnancy); ICD 9: 250 (diabetes codes); but not ICD 10:O24.4 (diabetes arising from pregnancy)	N/A	A clinic visit for diabetes education and management; and/or retinal screening in the last 2 years	Two or more scripts for all subsidised forms of insulin, oral hypoglycaemics and glucagon. Glucose test strips and insulin needles were not included. Metformin to women of 12 to 45 years of age was not included. Dispensed at least twice in the last four years	Four or more requests for HbA1c in the last two years from a community laboratory
CVD	ICD codes for coronary heart disease, ischaemic stroke, atherosclerotic cerebrovascular disease, and peripheral vascular disease within the previous ten years: ICD-10: 120x to 125x; ICD-9: 410x to 414x (Coronary artery disease) ICD-10: E1053, E1153, E1453 (Diabetic	ICD procedures codes for coronary artery bypass graft, coronary angioplasty or stenting, and peripheral vascular procedures: ICD-10: 3850500 (Coronary endarterectomy) ICD-10: 3530400-3530501, 3531000-3531005; ICD-9: 360x (Coronary angioplasty or stent, Percutaneous coronary intervention)	N/A	N/A	N/A

	iscahemic cardiomyopathy) ICD-10: I63x, I64x, I66x, I678, I693, I694, I698; ICD-9: 434x, 436x, 4371, 438x (Ischaemic stroke) ICD-10: G45x (except G453), G46x; ICD-9:435x (Transient Ischaemic Attack) ICD-10: I670, I671; ICD-9: 4373 (Atherosclerotic cerebrovascular disease: Dissection cerebral arteries, non-ruptured cerebral aneurysm) Atherosclerotic peripheral vascular disease: ICD-10: 165x; ICD-9: 433x (Occlusion and stenosis of precerebral arteries) ICD-10:171x; ICD-9: 441x, 443.2 (Aortic aneurysm and dissection, other arterial dissection) ICD-10:172x; ICD-9:442x (other aneurysm) ICD-10:174x; ICD-9: 444x (Arterial embolism and thrombosis) ICD-10: I739, I7021, E1051, E1052, E1151, E1152, E1451, E1452 (2nd and 3rd edition); ICD-9: 4439, 44021, 44022, 44023, 44024, 25072, 25073 (Intermittent claudication, gangrene, or diabetic peripheral angiopathy with or without gangrene) ICD-10: E1050, E1059, E1150, E1159, E1450, E1459; ICD-9: 25070, 25071 (Diabetic circulatory complication); wtihin the previous ten years.	ICD-10: 3849700-3850304, 9020100-9020103; ICD-9: 361x (Coronary Artery Bypass Graft) ICD-10: 3863700, 3845619, 3865308 (Re-operation &other procedures on coronary arteries) ICD-9: 362x (Heart revascularisation by arterial implant) ICD-10: 3857200, [684][685] 3855000-3857101, [693] 3870600, 3870601, 3871200 (Operative management of acute rupture or dissection of thoracic aorta 3857200 but other codes (repair of ascending [684][685] and descending[686], or replacement of aneurysm with graft [715] will be coded first) other aortic repair procedures [693]) ICD-10: 3270000-3276318 (Arterial bypass graft [711][712][713]) ICD-10: 330x-331x (Repair aneurysm [714][715]) ICD-10: 3270000-3354200, 3335400, 9021100-9021210, 9022900 ICD-9: 3922 (Peripheral arterial shunts/bypasses: Peripheral arterial bypass, endarterectomy, repair aneurysm, peripheral arterial bypass graft, aorto-subclavian-carotid bypass) ICD-9: 3924 (Aorto-renal bypass, angioplasty/stent peripheral) ICD-10: 3530000-3530305, 3530600-3530905 ICD-9: 3925 (Aorto-iliac femoral bypass) ICD-9: 3926 (Other intra-abdominal vascular shunt or bypass) ICD-9: 3928 (Other (peripheral) vascular shunt or bypass) ICD-10: 3531200-3531501 (Arterial			

		arthrectomy) ICD-10: 3380000-3380612, 9023000 ICD-9: 380x (Embolectomy/thrombectomy – incision of vessel) ICD-10: [700][701][707] 3350000-3355400, 9022900 ICD-9: 381x (Endarterectomy and patch graft artery)			
COPD	J40 Bronchitis (aged 55 yrs & over only); J41 Simple and Mucoproculent Chronic Bronchitis; J42 Unspecified Chronic Bronchitis; J43 Emphysema; J44 Chronic Obstructive Pulmonary Disease; within the previous ten years	N/A	N/A	2 or more scripts in the last 2 years, ages 55 years and over only: TG2 Inhaled Anticholinergic agents (ipatropium, tiatropium)	N/A
CHF	I50x; I11.0; I13.0; I13.2; within the previous ten years	N/A	N/A	N/A	N/A

ICD9-CM used up to 2000 in New Zealand, ICD10-AM thereafter. ICD10-AM procedure codes given by [block] or individual code.