COUNTIES MANUKAU HEALTH

Alcohol-Related Harm Profile

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Counties Manukau Health

This report is available in pdf format on
www.countiesmanukau.health.nz

NOTE: Please read at least the Introduction section of this report before looking at the indicators. It is important to understand clearly what this report is about, and what it is not.

Acknowledgements

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Executive summary

Alcohol causes more harm than any other drug in society. Physical, psychosocial, and economic harms affect individuals, whaanau, and the wider community. Counties Manukau Health is committed to working together with people, whaanau, families, communities, health agencies and other partners to equitably reduce hazardous alcohol use and minimise alcohol-related harm in Counties Manukau. The development of key indicators is central to achieving this goal.

The following report explores the framing of alcohol-related harm from a Te Tiriti o Waitangi perspective. The determinants of alcohol-related harm, Maaori models of health, and domains of alcohol-related harm are explored and utilised to inform a conceptual model of the relationship between determinants of alcohol consumption and alcohol-related harm. Although simplistic, this framework provides a structure for indicator development that supports a broad definition of alcohol-related harm.

Selected indicators, primarily utilising health datasets, are developed to produce a population-level description of alcohol-related harm in Counties Manukau. Data quality and completeness issues limit the accuracy of some indicators, so individually they may not accurately reflect the true burden of alcohol-related harm on the Counties Manukau community. Yet together, the proposed indicators paint a picture of inequitable distribution of harms with Maaori, males, youth, and socio-economically deprived populations being disproportionately burdened.

Interpretation of the selected indicators within the local context supports understanding of the burden of alcohol-related harm. This report can be used to inform the development of innovations and healthy public policies that support equitable health outcomes for the Counties Manukau Health population.

Contents

List of abbreviations

AAF	Alcohol attributable fraction
AUDIT	Alcohol Use Disorders Identification Tool
AOD	Alcohol and Other Drug Team
CAU	Census area unit
CM	Counties Manukau
CSDH	Commission on Social Determinants of Health
DHB	District Health Board
ED	Emergency Department
FASD	Fetal Alcohol Spectrum Disorder
IACD	Inter-Agency Committee on Drugs
LBA	Local Board Area
MMH	Middlemore Hospital
MOH	Ministry of Health
MORT	Mortality Collection
NHI	National Health Index
NIA	National Intelligence Application
NMDS	National Minimum Dataset
NZHS	New Zealand Health Survey
NZLC	New Zealand Law Commission
NZP	New Zealand Police
OPA	Outpatients appointment
PRIMHD	Programme for the Integration of Mental Health Data
SIB	Social Investment Board
SNZ	Statistics New Zealand
WHO	World Health Organization

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1 Introduction

1.1 Alcohol-related harm

Alcohol causes more harm than any other drug in society (Nutt, King, & Phillips, 2010). Hazardous alcohol use contributes to large physical and mental ill-health, social, and economic burdens in New Zealand (MOH, 2016b) and globally (WHO, 2014). Harm from alcohol extends beyond the individual and can result in harm to children (including those exposed to alcohol during pregnancy), whaanau, friends, and the wider community (Connor & Casswell, 2012). Data describing these harms are limited and frequently absent.

The harmful health impacts of hazardous alcohol use in New Zealand are divided almost equally between injury and chronic disease outcomes (MOH, 2016b), burdening both inpatient and outpatient hospital services, and primary care services in the community. In New Zealand, inequitable outcomes are apparent with men, Maaori, young people, and those living in more socioeconomically deprived areas at higher risk of alcohol-related harm (Meiklejohn, Connor, & Kypri, 2012). Although many Pacific people do not drink alcohol at all, Pacific adults that do drink alcohol are more likely to have a hazardous drinking pattern than non-Pacific adults (MOH, 2016a).

1.2 Counties Manukau Health

Counties Manukau (CM) Health has an ethnically diverse population: 16 percent Maaori, 21 percent Pacific Peoples, 24 percent Asian, and 39 percent Other ethnic groups[1]. It is home to New Zealand's second largest Maaori population, the largest population of Pacific peoples, and the second largest Asian population. The CM population is relatively young with 23 percent of the population less than 15 years of age. The population aged 65 and over is increasing and projected to increase on average almost five percent each year from 2015/16 to 2025/26. At the time of the 2013 Census, 36 percent of the CM population lived in the most socio-economically deprived quintile in New Zealand. Within the CM district, Maaori (58%), Pacific Peoples (76%), and 0-14 year olds (45%) are disproportionately represented in this quintile.

District Health Board (DHB) service delivery is focused on four geographical localities within the Counties Manukau district – Eastern, Franklin, Manukau, and Mangere/Otara (Figure 1). Mangere/Otara and Manukau localities, the most densely populated localities (Table 1), are particularly youthful and the most socio-economically deprived areas in the CM district.

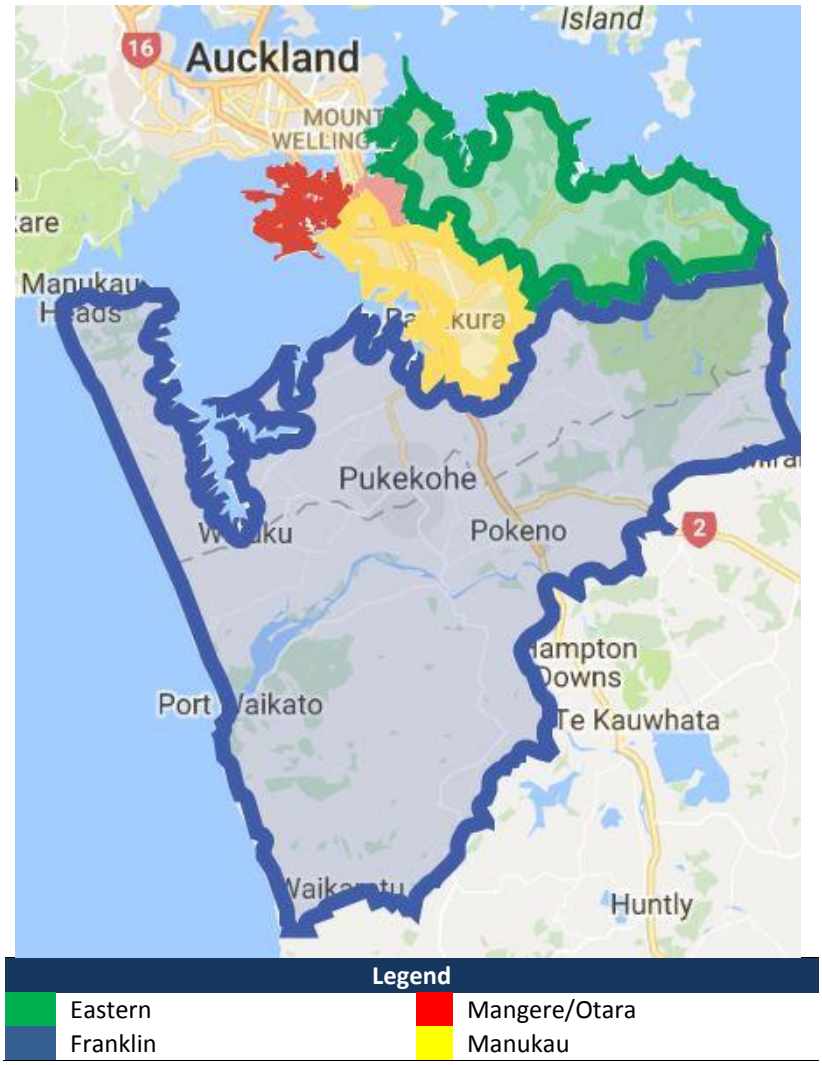
Table 1: Land area, population size, and population density for CM localities in 2016

CM locality	Population	Area (km2)	Population density (per km2)
Eastern	159,240	431	369
Franklin	72,630	2,168	34
Mangere/Otara	108,820	62	1,755
Manukau	193,580	177	1,094
Total CM Health	534,270	2,838	188

Source: 2016 population projections based on New Zealand Census 2013

[1] 2016 population projection based on New Zealand Census 2013

Figure 1: Geographical boundaries for CM Health localities



1.3 Purpose

The aim of this report is to present a data profile of alcohol-related harm for the Counties Manukau population. This work focuses predominantly on the exploration of health data sources.

Objectives of this work:

1. Develop an alcohol-related harm matrix that is relevant to the New Zealand context and provides a potential framework for considering the wide range of alcohol-related harms that could be described/measured as part of a profile of alcohol-related harm.
2. Explore health data sources to develop a data dictionary describing potential indicators of alcohol-related harm.
3. Explore selected datasets and identify and/or develop a set of indicators, including description of the following aspects:
    a. Descriptive epidemiology (by ethnicity, age, sex, socioeconomic deprivation, and residential locality when possible);
    b. Potential geographical level of analysis;
    c. Opportunities for future development.

1.4 Structure of the report

The introduction in section one has briefly outlined the context of alcohol-related harm in CM Health and the purpose and objectives of this report. Section two explores the framing of alcohol-related harm and outlines potential indicators using primarily health data sources. Selected indicators are described in detail in section 3. Insights from exploring the data and recommendations for future use are provided for each indicator. Section 4 summarises the report and provides commentary on strengths, limitations, and aspects that could be developed further in the future. Supplementary documents and tables are available in the appendices.

2 Alcohol-related harm indicators

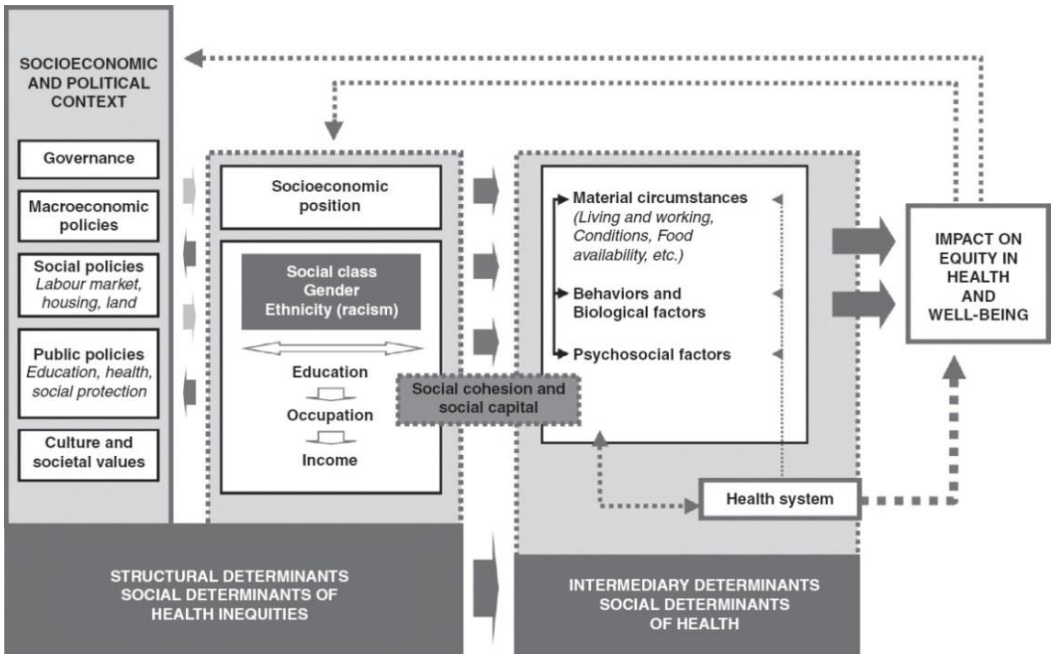
2.1 Framing alcohol-related harm

Causation of alcohol-related harm is complex and multifactorial. The Commission on Social Determinants of Health (CSDH) conceptual framework addresses the complexity of health and wellbeing outcomes, and recognises the broad structural and intermediary social determinants of health (Figure 2). The World Health Organization (WHO) draws on a social determinants approach and proposes the causal model of alcohol consumption and health outcomes illustrated in Figure 3. This model includes societal and individual vulnerability factors and identifies health, mortality, and socioeconomic harms to the individual in addition to harm to others. Excluded from this model are distal socioeconomic and political contexts as well as colonisation and racism – important influencers of health inequities in New Zealand.

In New Zealand Maaori continue to be disproportionately burdened by alcohol-related harm. Indigenous rights and Te Tiriti o Waitangi obligations necessitate a framework that recognises te ao Maaori (Maaori worldview) and Maaori perceptions of health. Several Maaori models of health have been developed, three of which are summarised in Table 2. Common to these models, is the holistic concept of health and wellbeing. Key domains include tinana (physical health), wairua (spiritual health), hinengaro (mental health), whaanau (family health), mauriora (cultural identity), te oranga (participation), and taiao (the physical environment).

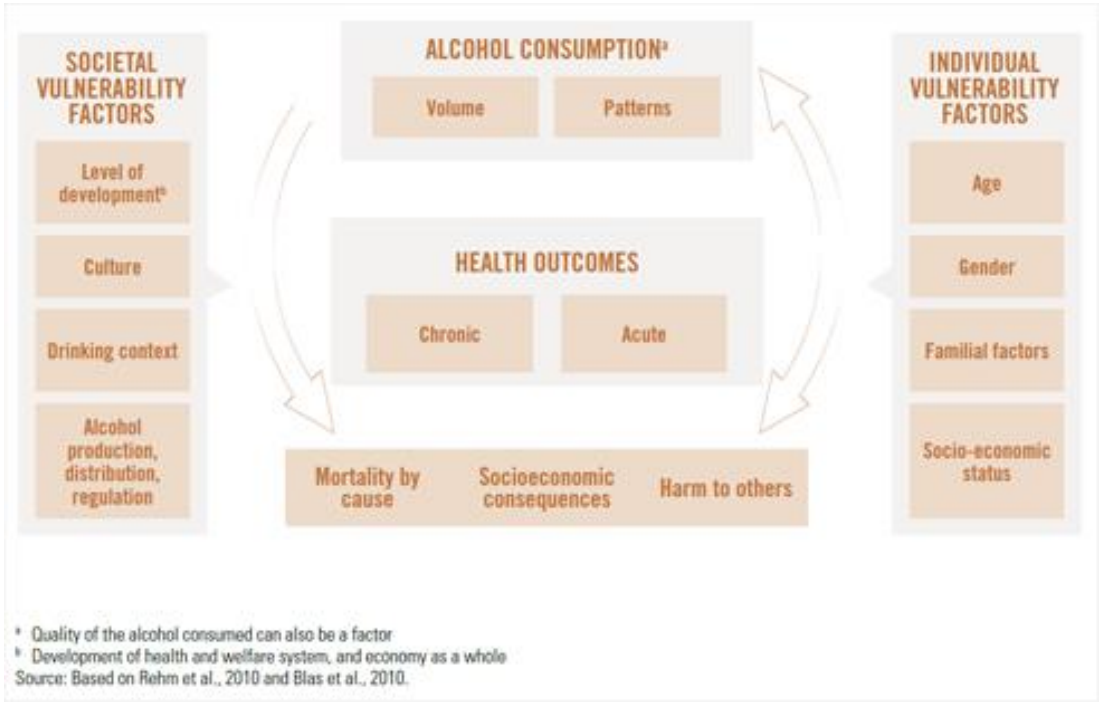
To the best of the author's knowledge, based on scans of the published and grey literature, no model exists which specifically details the broad range of alcohol-related harms and which could be used to 'frame' a comprehensive set of indicators describing various harms. The absence of an alcohol-related harm framework relevant to the New Zealand context has led to the development by the author of a novel conceptual model (Figure 4). This model incorporates te ao Maaori and Maaori models of health into a social determinants approach to alcohol-related harm. Harms result from the volume and pattern of alcohol consumption and are mediated by the health system. Social determinants shape both alcohol consumption and the structure of and access to health services. The four proposed domains of harm (Hauora – physical, spiritual, and psychological wellbeing, Te Oranga – participation in society, Mauriora – access to te ao Maaori and cultural identity, and Taiao – physical environment) are experienced at individual, whaanau (family and support networks), and community levels across a spectrum of severity. Examples of the categorisation of harms are included in Table 3. As this work is focused on health data sources, and therefore is limited in scope in terms of describing a complete range of alcohol-related harms, it is important to frame it as such and not to overlook the broader context.

Figure 2: Commission on Social Determinants of Health conceptual framework



Source: Closing the gap in a generation: health equity through action on thesocial determinants of health (CSDH, 2008)

Figure 3: Conceptual causal model of alcohol consumption and health outcomes

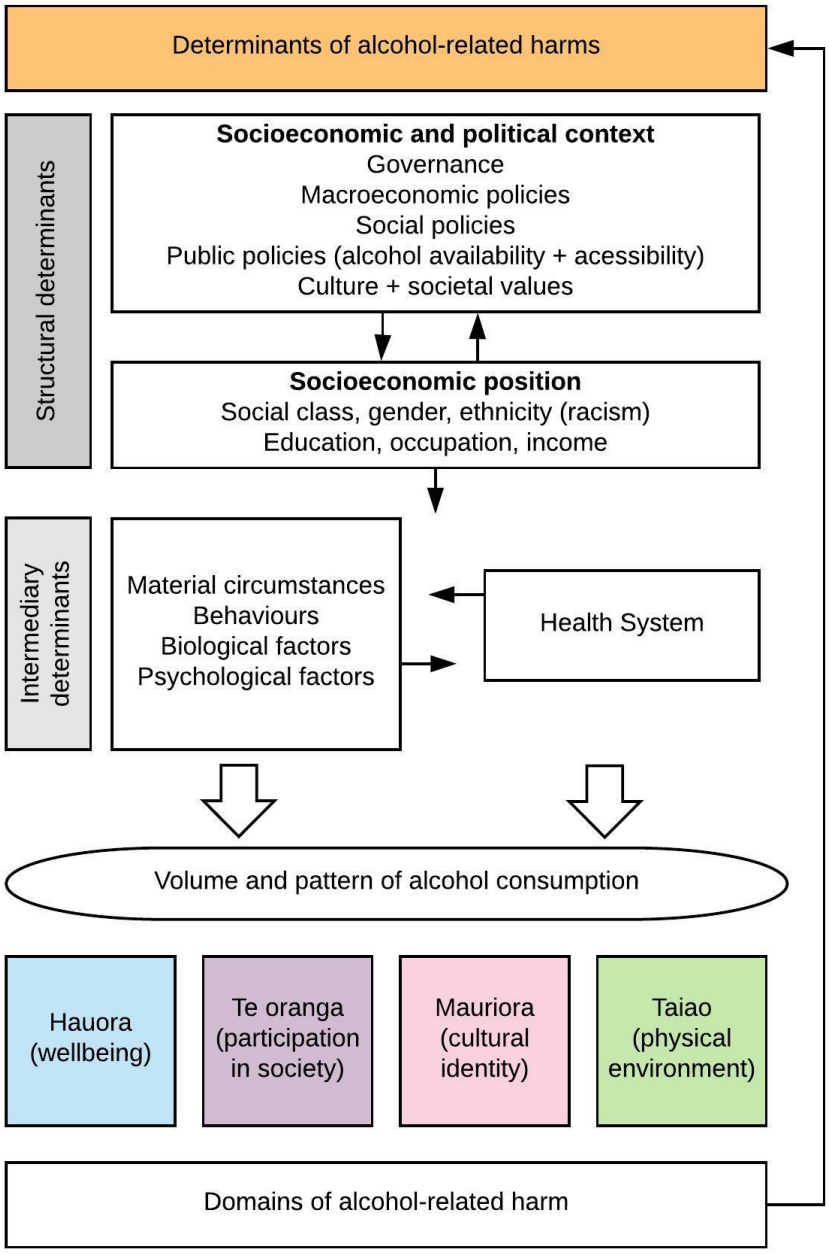


Source: Alcohol fact sheet (WHO, 2015)

Table 2: Overview of Maaori models of health

Model of health	Key components
Te Whare Tapa Whaa (Durie, 1998) • A unified theory of health	Four cornerstones of health • **Taha Tinana** – physical health • **Taha wairua** – spiritual health • **Taha whaanau** - family health and wider social systems • **Taha hinengaro** – mental health
Te Pae Maahutonga (Durie, 1999) • A model for conceptualising Maaori health promotion	Four key tasks of health promotion • **Mauriora** – access to te ao Maaori and cultural identity • **Waiora** – environmental protection • **Toiora** – healthy lifestyles including harm minimisation, targeted interventions, and risk management • **Te Oranga** – participation in society including the economy, education, employment, knowledge, and decision making Two prerequisites • **Ngaa manukura** – local leadership • **Te Mana whakahaere –** autonomy and self-determination
Meihana model (Pitama, 2014) • A guide to facilitate access to quality health services for Maaori	Seven components of Waka hourua (double-hulled waka) • **Patient** – identification of self-determined ethnic identity • **Whaanau** – support networks • **Tinana** – promoting physical wellbeing of individual and whaanau • **Hinengaro** – psychological and emotional wellbeing • **Wairua** – beliefs regarding connectedness and spirituality • **Taiao** – external physical environment including home, neighbourhood, workplace and health setting • **Iwi-Katoa** – services and systems that provide support for individual/whaanau within the health environment Nga Hau e Wha (the four winds) – impact on journey to wellbeing • **Colonisation, racism, migration, marginalisation** Nga Roma Moana (ocean currents) – aspects of te ao Maaori that may influence Maaori in clinical settings • **Ahua** – identification of personal indicators of te ao Maaori • **Tikanga** – Maaori cultural principles • **Whaanau** – relationships, roles and responsibilities of the patient within te ao Maaori • **Whenua** – specific genealogical or spiritual connection between patient/whaanau and land

Figure 4: Conceptual model of relationship between determinants of alcohol and alcohol-related harms



Source: Developed by author

Table 3: Categorisation of selected examples into proposed alcohol-related harm matrix

	Hauora – Tinana, hinengaro + wairua *Wellbeing – physical, mental + spiritual*	**Te Oranga** *Participation in society*	**Mauriora** *Access to te ao Maaori / cultural identity*	**Taiao** *Physical environment*
Individual	- Close relationships/support people - Alcohol-related conditions causing harm to physical, mental, and spiritual wellbeing - Mortality from alcohol-related conditions - Alcohol-related drownings	- Performance in education / work / parenting / relationships - Absenteeism from education/work - Employment / income - Criminal conviction / imprisonment - Marginalisation / stigmatisation – access and quality of healthcare and other services	- Reduced opportunity for access to cultural institutions, social resources, and language (secondary to marginalisation / stigmatisation related to hazardous alcohol use)	- Damage to personal property / possessions - Sub-optimal housing conditions
Whaanau	- Perinatal conditions: IUGR, FASD, preterm birth, miscarriage - Neglect of children – emotional + physical - Developmental / behavioural disorders related to abuse / neglect / FASD - Injury/trauma/violence to whaanau + friends - Whaanau quality of life	- Productivity (secondary to loss of sleep, noise disturbance, emotional distress) - Current and future income / resources for whaanau - Loss of family member support (directly from hazardous alcohol use or indirectly through incarceration)	- Reduced opportunity for whaanau to access cultural institutions, social resources, and language (secondary to marginalisation / stigmatisation related to hazardous alcohol use of whaanau member)	- Damage to whaanau property / possessions - Sub-optimal housing conditions
Community	- Injury/trauma to others - Healthcare opportunity costs of alcohol-related harms to health and wellbeing	- Loss of economic productivity as consequence of an individual's hazardous alcohol use, and impact on workmates, employers and businesses - Opportunity cost of law, justice, welfare, child protection and education costs generated from alcohol-related social harms	- Adverse effects at a collective level on religious and cultural practices	- Damage to public property / amenities - Increased alcohol-related offences - Perception of unsafe public environment

Source: Developed by author

2.2 Scope and selection of indicators

This report primarily explores health data sources. A data dictionary of potential indicators is included in Appendix 1. The data dictionary was compiled based on exploration of health datasets available in the DHB setting, scoping of a small number of non-health datasets, advice from DHB colleagues, and information from key informants. It includes numerator and denominator definitions, measures of frequency, geographical level of data, and brief comments. It was intended that the data dictionary be used to 'scope out' a broad range of possible indicators from which a small number would be selected for further exploration and detailed analysis.

Eight indicators were selected and are described in the next section. Six are from health data sources, while the remaining two, alcohol licence density and family harm, are from non-health data sources. Indicators were chosen based on the following criteria:

- Dataset readily available,
- Indicators utilise data from different parts of the health system (e.g. inpatient services, ED, Alcohol and Drug service),
- Indicators reflect a range of severity grades (e.g. alcohol-involved ED encounters, hospital admissions, deaths),
- Indicators contribute towards the development of a complete alcohol-related harm 'picture' based on a broad definition of harm.

3 Selected alcohol-related harm indicators

The indicators selected for exploration and detailed analysis are listed in Table 4 and are described in this section. Each indicator description includes a concise summary of the definition, rationale, method, and notes for interpretation. Complete and more detailed metadata for selected indicators is included in Appendix 2. Description of trends and a one year snapshot has been produced when possible and is followed by a summary of insights and recommendations.

Table 4: List of selected indicators

Determinants of alcohol-related harm
Hazardous alcohol use
Alcohol licence density
Hauora
Alcohol-specific mortality
Alcohol-specific hospital admissions
Alcohol-involved Emergency Department encounters
Paediatric outpatient appointments and Fetal Alcohol Spectrum Disorder
Alcohol and Drug Team contact
Family harm and alcohol

3.1 Determinants of alcohol-related harm

3.1.1 Hazardous alcohol use

Data sources and methodology
Definition: Prevalence of self-reported hazardous alcohol consumption, 15 years and over
Rationale: Alcohol-related harm is associated with volume and pattern of consumption. Monitoring of alcohol use is recommended by the WHO (WHO, 2010). The Ministry of Health (MOH) delivered New Zealand Health Survey (NZHS), a national population-based health survey with a response rate of around 80%, reports on the prevalence of hazardous alcohol use in New Zealand. Regional prevalence data is periodically published by the MOH. 2014-2017 regional results exclude hazardous alcohol use.
Numerator: NZHS: Number of NZHS respondents, aged 15 and over, with Alcohol Use Disorders Identification Tool (AUDIT) score of 8 or over
Denominator: NZHS: Number of NZHS respondents, aged 15 and over
Methodology: The NZHS includes the WHO developed AUDIT screening tool for adults aged 15 and over. A score of 8 points or more indicates hazardous drinking. District Health Board (DHB) level data has been released for 2006/07 and 2011-2014. 2011-2014 results are based on three years of data pooled (2011/12, 2012/13, 2013/14).Crude prevalence data were extracted from MOH data tables[2]. Ethnicity was determined using the total response method and is reported by the MOH as Maaori and non-Maaori at the DHB level.

[2] Data tables available from https://www.health.govt.nz/publication/regional-results-2011-2014-new-zealand-health-survey

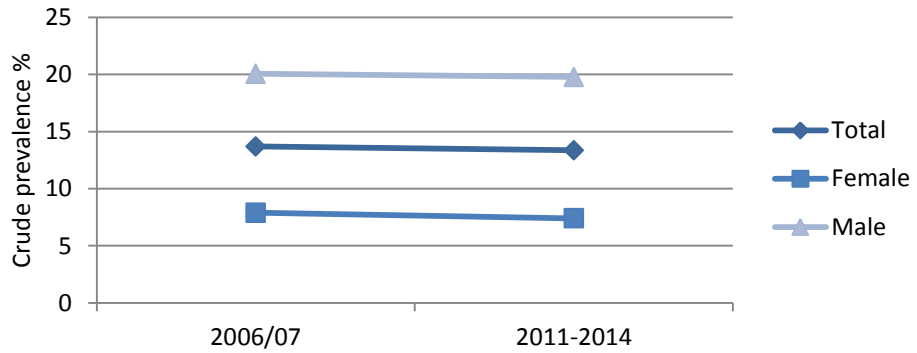
Notes on interpretation:

- AUDIT data is self-reported and is a potential source of bias. Self-reported alcohol consumption may differ from objectively measured data.
- Crude prevalence is provided by the MOH and is used for analysis. Adjusted rate ratios are provided by the MOH for 2011-2014 only.
- Survey prevalence provides an estimate of population prevalence and may differ if the NZHS sample is not representative of the population.

Distribution and trends

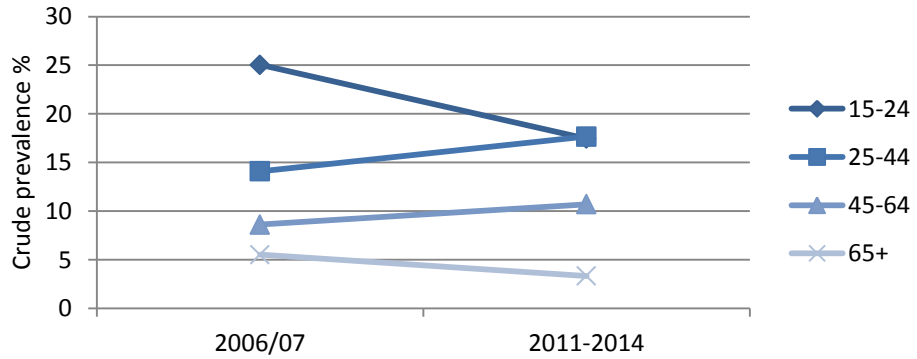
In CM Health between 2006/07 and 2011-2014, crude prevalence of hazardous alcohol use has not significantly changed for males, females, and the total population. Male prevalence remains more than twice the female prevalence (Figure 5). Hazardous alcohol use prevalence is greatest in 15-24 year olds, followed by 25-44 year olds (Figure 6). Although trends suggest a decline in prevalence for 15-24 and 65+ age groups and an increase in the 25-44 and 45-64 age groups, the difference is not statistically significant other than for females aged 15-24 and 45-65. Prevalence by ethnicity has shown little change with time (Figure 7)[3]. Percentage prevalence tables are included in Table 9 in Appendix 4.

Figure 5: Crude prevalence of hazardous alcohol use in CM Health, by sex, 2006/07 and 2011-2014



Source: Crude prevalence obtained from NZHS Regional Reports (2006/07 and 2011-14); analysed by CM Health

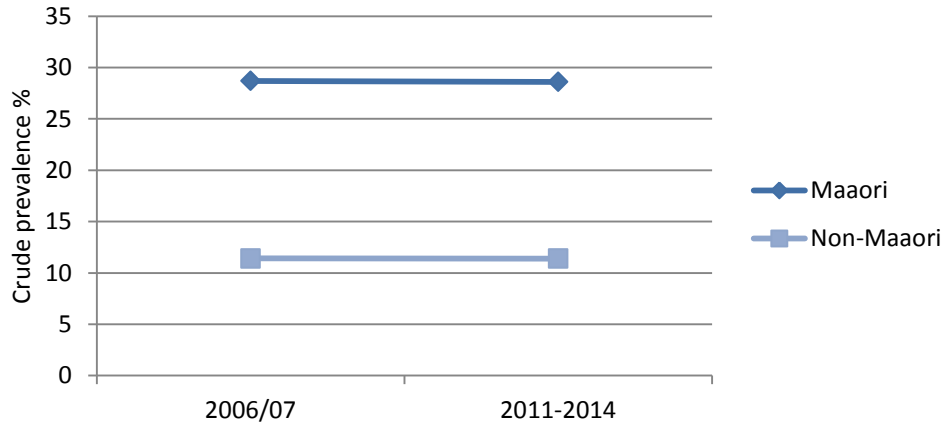
Figure 6: Crude prevalence of hazardous alcohol use in CM Health, by age group, 2006/07 and 2011-2014



Source: Crude prevalence obtained from NZHS Regional Reports (2006/07 and 2011-14); analysed by CM Health

[3] Differential age structures between Maaori and non-Maaori prevent direct comparison of crude prevalence by ethnic group

Figure 7: Crude prevalence of hazardous alcohol use in CM Health, by prioritised ethnicity, 2006/07 and 2011-2014

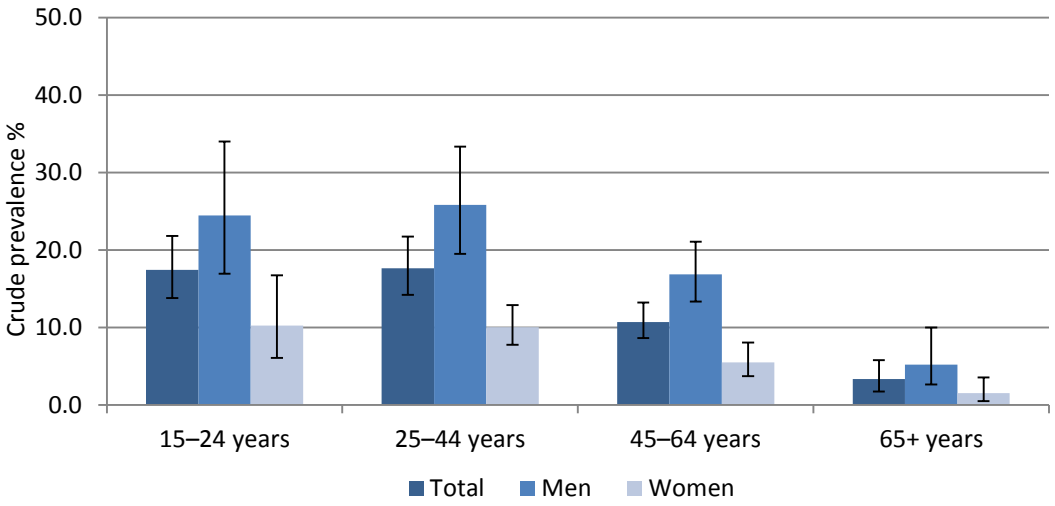


Source: Crude prevalence obtained from NZHS Regional Reports (2006/07 and 2011-14); analysed by CM Health

Hazardous alcohol use snapshot, 2011-2014

In 2011-2014, hazardous alcohol use crude prevalence is greatest in males aged 15-24 and 25-44 and females aged 15-24 (Figure 8). Prevalence is greater in males for both Maaori and non-Maaori (Figure 9). The age adjusted rate ratio for Maaori vs non-Maaori was 1.95 for men and 3.57 for women[4], thus Maaori men are nearly two times and Maaori women nearly four times more likely to have hazardous alcohol consumption than non-Maaori. Percentage prevalence for age group and ethnicity by sex are included in Table 10 in Appendix 4.

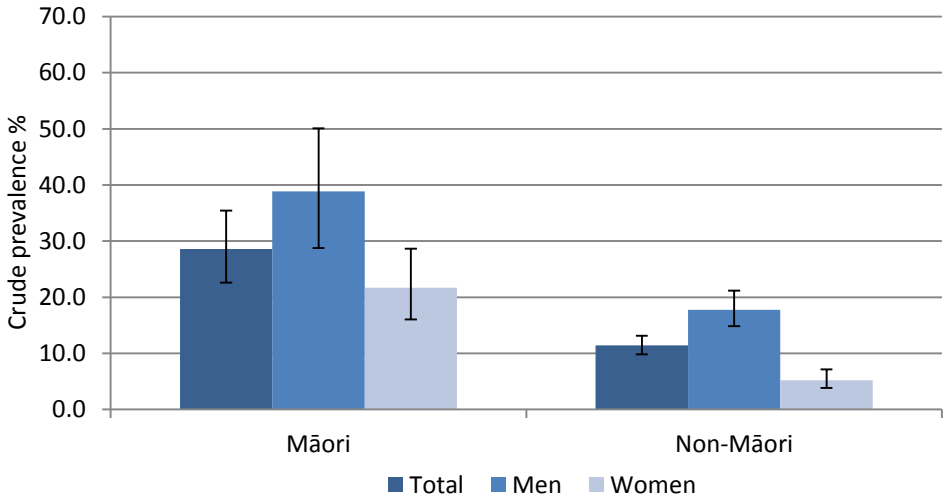
Figure 8: Crude prevalence of hazardous alcohol use in CM Health with 95% confidence intervals, by sex and age group, 2011-2014



Source: Figure obtained from NZHS Regional Reports (2011-14)

[4] Both rate ratios are statistically significant

Figure 9: Crude prevalence of hazardous alcohol use in CM Health with 95% confidence intervals, by sex and prioritised ethnicity, 2011-2014



Source: Figure obtained from NZHS Regional Reports (2011-14)

Insights and recommendations

- The NZHS provides robust cross-sectional data that can be utilised to estimate hazardous alcohol consumption.
- Unadjusted results estimate the proportion of the population affected. Age-standardised results are required to compare prevalences by ethnicity and sex over time, or between different regions.
- The release of data by Maaori, Pacific, Asian and Other ethnicity for larger DHBs, such as CM Health, would enable more meaningful analysis.
- Data availability prevents analysis at a more granular geographic level than DHB.

3.1.2 Alcohol licence density

Data sources and methodology

Definition:

Population density: Number of alcohol licences per 10,000 adults aged 15 years and over

Geographical density: Number of alcohol licences per 100km^2

Rationale: Increased alcohol outlet density is associated with increased alcohol-related harm (Connor, 2010). In Manukau City, higher density of alcohol outlets, particularly off-licence, has been associated with more police events and motor vehicle accidents (Cameron et al., 2012). The Alcohol Regulatory and Licensing Authority (ARLA) maintains alcohol licence data providing the opportunity to inform understanding of local alcohol licence density.

Numerator: ARLA: Number of alcohol licences including on-licences, off-licences, and club licences. Excludes special licences.

Denominator:

Statistics NZ (SNZ): Mid-year population estimates as at 30 June, aged 15 years and over

Land area in square kilometres, excluding area for water bodies

Methodology: Methodology is consistent with that used by *healthspace*, Massey University[5]. Licence data as at 7 June 2016 was cleaned and addresses geocoded by EHI with a 99% match rate. Crude density rates were calculated by CM Health for the number of total licences as well as by the main categories of licences – on-licence, off-licence and club licence. Results were suppressed for CAUs with populations of 30 or less.

[5] Indicators and data available at http://www.healthspace.ac.nz/maps/maps_Alcohol.html

Notes on interpretation:

- Estimating alcohol availability from this indicator is not recommended. Licence density reflects one aspect of alcohol availability and does not consider trading hours.
- Poor data quality limits indicator accuracy and infrequent updates limit the ability to examine density over time.

Alcohol licence density snapshot

In NZ, CM Health, and the CM Health locality areas, the greatest proportion of alcohol licences[6] are on-licences, followed by off-licences and club licences respectively[7]. The distribution of alcohol licence types in CM Health differs from NZ with proportionately more off-licences in the CM Health geographical area (30%) compared with NZ (24%) (Table 5). Alcohol licence density varies by licence type, CM locality, and density type (see Table 11 in Appendix 4). Approximately one third of the total CM licences are located in Eastern and Manukau localities respectively; however, nearly half (44%) of on-licences are located in Eastern, over one third (36%) of off-licences in Manukau, and over one third (36%) of club licences in Franklin.

Population densities by licence type, with the exception of on-licences, are greatest in Franklin (Figure 10) – a locality with a comparatively large geographical area and small population (see Table 1 for locality population and land area). Conversely, licence density per 100km^2 is greatest in localities with comparatively smaller geographical areas and larger populations – such as Mangere/Otara and Manukau (Figure 11).

Table 5: Number and percentage of licences in CM Health and NZ, by licence type, as at 7 June 2016

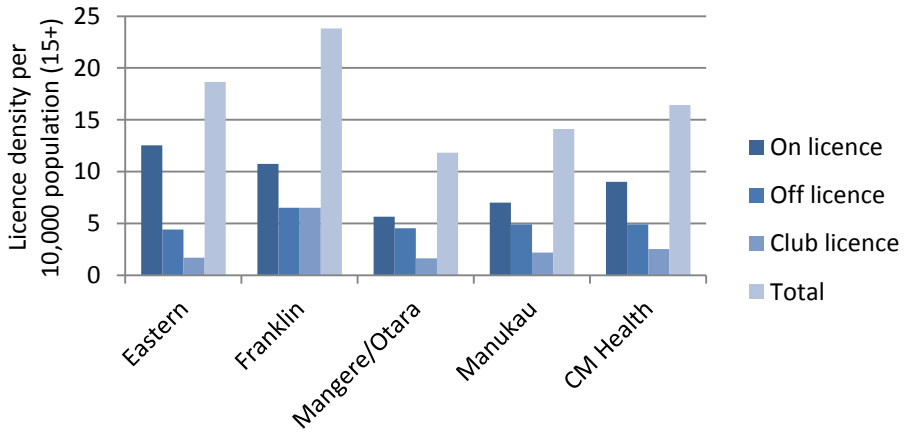
		On-licence	Off-licence	Club-licence	Total licence
CM Health	Number	371	202	104	677
	% of total	55%	30%	15%	100%
NZ	Number	6625	2727	1830	11182
	% of total	59%	24%	16%	100%

Source: ARLA alcohol licence data from EHI, Massey University; analysed by CM Health

[6] Excluding special licences – allows the sale or supply of alcohol to anyone attending an event

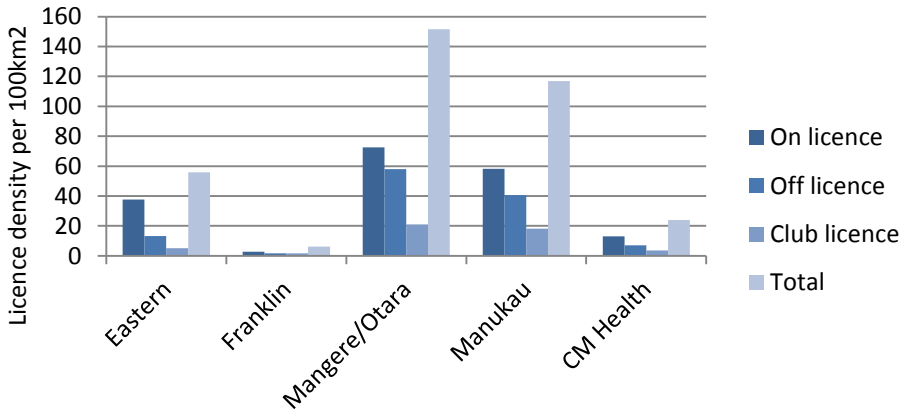
[7] On-licence – allows the sale or supply of alcohol for consumption on the premises; off-licence – allows sale or supply of alcohol for consumption off the premises; club-licence – allows the sale or supply of alcohol on club premises

Figure 10: CM Health alcohol licence density per 10,000 adults aged 15 years and over, by locality and licence type, as at 7 June 2016



Source: ARLA alcohol licence data from healthspace, Massey University; analysed by CM Health

Figure 11: CM Health alcohol licence density per 100km^2, by locality and licence type, at 7 June 2016



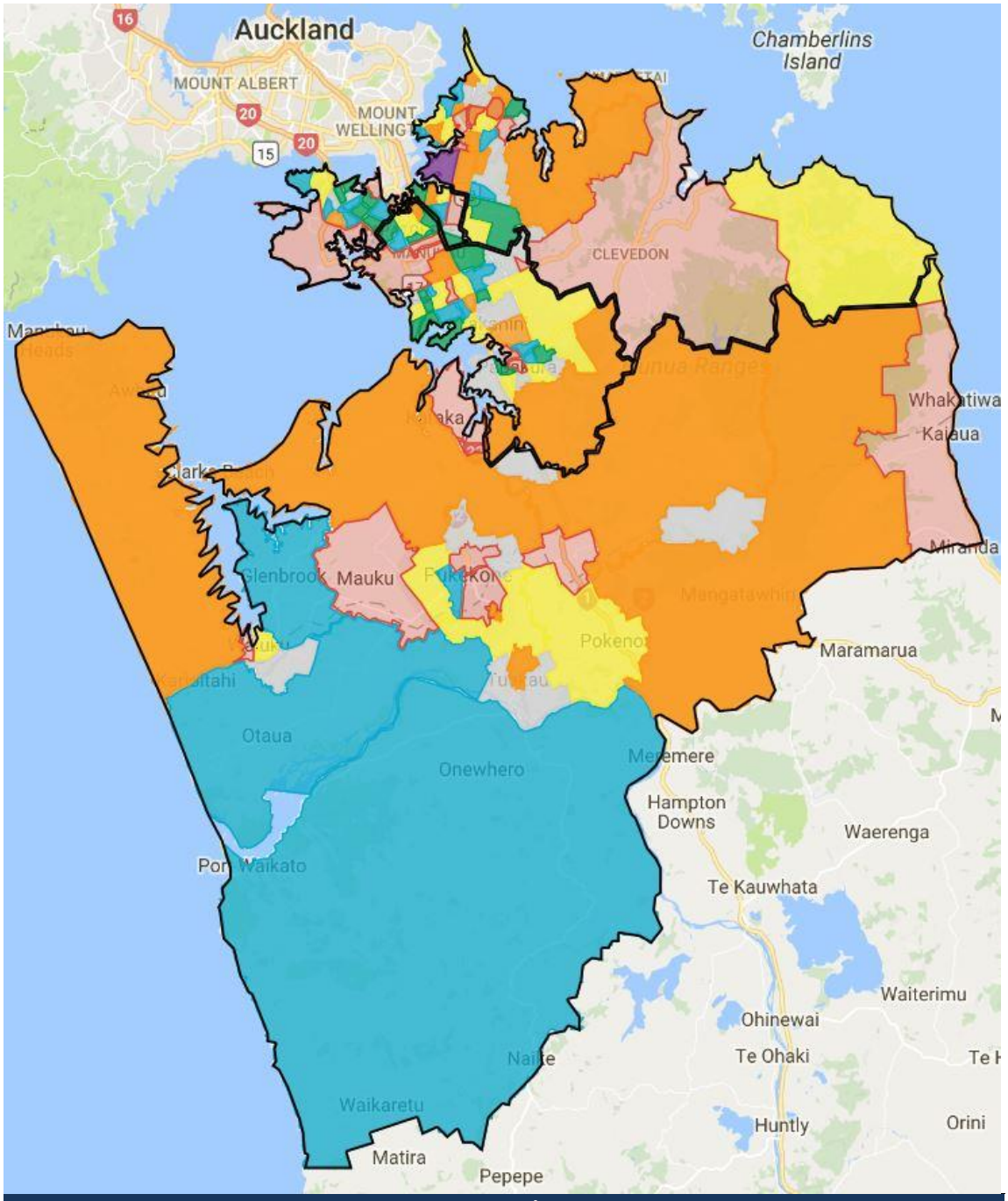
Source: ARLA alcohol licence data from healthspace, Massey University; analysed by CM Health

Licence density by census area unit (CAU) has been divided into five approximately equal groups (quintiles). Quintile 1 contains the lowest fifth of data (least dense), and quintile 5 the highest fifth (most dense). Figure 12 describes licence density by 10,000 population aged 15 and over. An inverse relationship exists between licence density by population and CAU population size. Average population[8] of CAUs in quintile 1 is 3,899 and 2,601 in quintile 5. Over half of CAUs in quintile 1 are located in Manukau. Nearly a third of CAUs in quintile 5 for licence density by population are located in Franklin (see Table 12 in Appendix 4).

Figure 13 describes CAU licence density by 100km^2 land area. An inverse relationship is apparent between licence density by land area and average CAU land area. Average land area for CAUs in quintile 1 (114.2km^2) is considerably larger than in quintile 5 (1.5km^2). Nearly two thirds of CAUs in quintile 1 are located in Franklin. Nearly half of CAUs in quintile 5 for area density are located in the Eastern locality (48%), particularly centred around East Tamaki and Botany Downs, and over one third in Manukau (35%) (see Table 13 in Appendix 4).

[8] Population aged 15 and over

Figure 12: Total alcohol licence density per 10,000 adults aged 15 years and over in CM Health, by CAU quintile



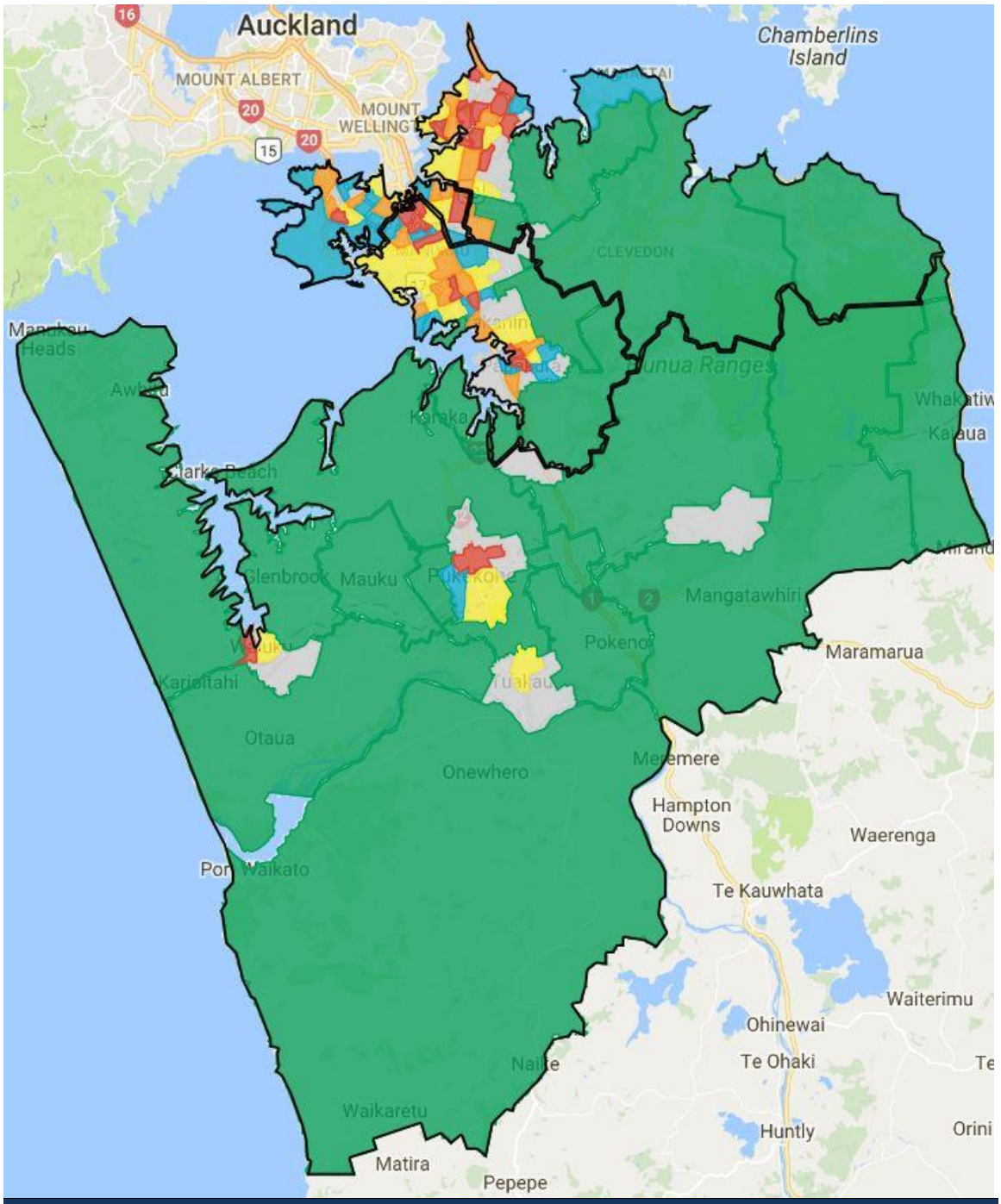
Legend

Density per 10,000			
Quintile 1	1.6-4.7	No licence	
Quintile 2	4.8-9.3	No data[9]	
Quintile 3	9.6-19.6		
Quintile 4	19.8-35		
Quintile 5	35.6-214.3		

Source: ARLA alcohol licence data from healthspace, Massey University; analysed by CM Health

[9] CAUs with populations less than 30 were excluded from population density calculations

Figure 13: Total alcohol licence density per 100km^2 in CM Health, by CAU quintile



Legend

Density per 100km2			
Quintile 1	0.4-31.8	No licence	
Quintile 2	51.1-116.4		
Quintile 3	124.7-202.7		
Quintile 4	206.7-378.5		
Quintile 5	419.0-1,772.5		

Source: ARLA alcohol licence data from healthspace, Massey University; analysed by CM Health

Insights and recommendations

- This indicator is derived from a national dataset and could be produced for DHBs throughout New Zealand.
- Alcohol licence density, as an indicator of alcohol availability, differs considerably depending on the denominator selection. Density per 100km^2 measures the temporal proximity of licenced premises and so considers geographical accessibility. Density per 10,000 population measures the number of licences available to a population and does not reflect geographical accessibility.
- It is critical to consider the local context when selecting the licence density denominator. For densely populated localities, such as Manukau, licence density per 100km^2 better describes the spatial abundance of licenced premises surrounding residents.
- This indicator is limited by data quality issues. More complete data, including address and more frequent updates, would improve indicator accuracy and enable longitudinal analysis of density over time.
- Data is available at CAU level and analysis possible by locality or Local Board Area (LBA).

3.2 Hauora

3.2.1 Alcohol-specific mortality

Data sources and methodology

Definition: Deaths where alcohol-specific conditions[10] are an underlying or contributory cause, all ages, age standardised rate per 100,000 population

Rationale: Alcohol use is the eighth leading risk factor overall, and leading risk factor in the 15-49 age group, for mortality in New Zealand (IHME, 2016). Alcohol-specific mortality rate is used internationally to report alcohol-related harm. Mortality data are routinely collected in New Zealand and include recording one, and only one, underlying cause of death and any contributory causes.

Numerator: Mortality Collection (MORT) Dataset: Number of deaths where alcohol-specific conditions are a cause of death (five years pooled) based on underlying and contributory cause of death registered in the calendar year, all ages

Denominator: SNZ: Mid-year population estimates as at 30 June, five years pooled, all ages

Methodology: Mortality rates have been derived from analysis of encrypted (anonymised) National Health Index (NHI) event data from MORT, 2005-2014. Deaths with alcohol-specific conditions coded as the underlying cause of death (diagnosis type D) or selected contributory cause B1 and B2 (diagnosis type F and G) were extracted and analysed. Small numbers required the pooling of five years data. Numbers have been suppressed and excluded when less than five. Ethnicity was determined from the prioritised method[11]. Direct age standardisation was based on the WHO World Standard Population. Small numbers prevented snapshot analysis.

Notes on interpretation:

- This indicator estimates the mortality rate from conditions wholly attributable to alcohol. It is not an estimate of broader alcohol-related mortality. Partially attributable conditions, such as cancer, are excluded.

[10] Alcohol-specific conditions are wholly attributable to alcohol and are defined in Appendix 3

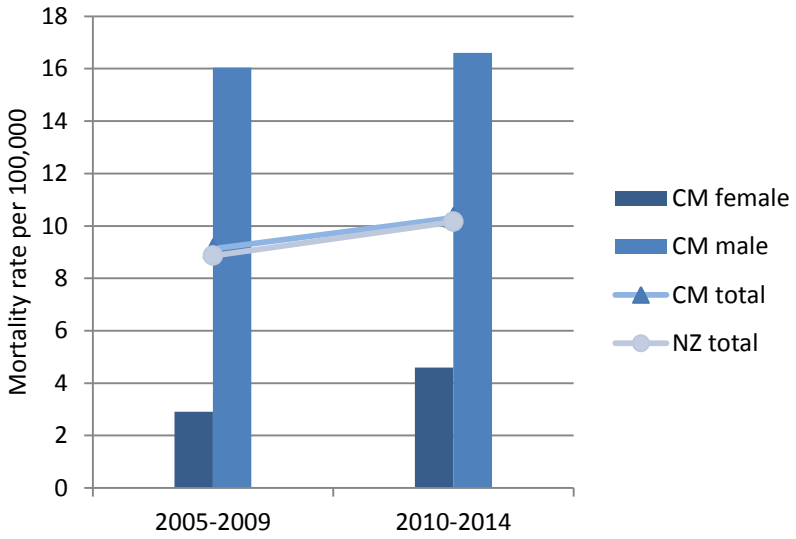
[11] A single ethnic group is allocated to each person using a priority system: Maaori, Pacific Peoples, Asian, Other groups except NZ European, and NZ European)

- The inclusion of contributory causes, in addition to underlying cause of death, creates a broad definition of deaths from alcohol-specific conditions.
- Analysis by NZDep quintile is presented for 2014. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. MORT data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in MORT. The CAU-based denominator and the domicile-based numerator match in 2014.
- Mis-classification of cause of death will limit data quality
- Small numbers preclude a one year snapshot analysis

Distribution and trends

The age-standardised mortality rate for alcohol-specific conditions in CM Health, similar to the NZ rate, suggests an upward trend (Figure 14). Rates are higher for males with the male mortality rate approximately four times the female rate in 2010-2014. Disparities in mortality rate from alcohol-specific conditions by prioritised ethnicity exist and remain relatively static from 2005-2009 to 2010-2014 (Figure 15). Maaori mortality rate is approximately 2.5 times the Other and Pacific rate and five times the Asian rate. Mortality rate from alcohol-specific conditions increases with increasing age. During 2005-2014 rates have increased in the 45-64 and 65+ age groups (Figure 16). The mortality rate for the 65+ age group is approximately 6 times that of the 15-24 age group. However, in 2010-2014, alcohol-specific conditions account for 10% of all deaths in people aged 15-24 years and 0.9% of all deaths in people aged 65+ (Table 16). During 2005-2014, age-standardised mortality rates for alcohol-specific conditions are greater for Mangere/Otara, Franklin, and Manukau than Eastern (Figure 17). Rates by locality, excluding Manukau, suggest an increasing trend over time. In 2014, alcohol-specific mortality volumes are highest in the most socio-economically deprived quintile (Figure 18)[12]. Number, percentage of deaths, and mortality rates for alcohol-specific condition by sex (Table 14), ethnicity (Table 15), age group (Table 16), and locality (Table 17) are located in Appendix 4.

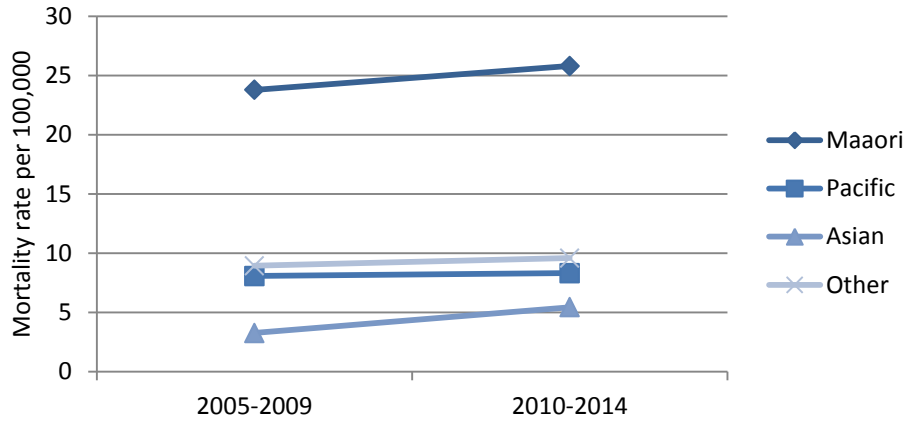
Figure 14: CM Health age-standardised mortality rate for alcohol-specific conditions in CM Health, by sex and year, with New Zealand age-standardised mortality rate, 2005-2014



Source: Mortality Collection 2005-2014, MOH; analysed by CM Health

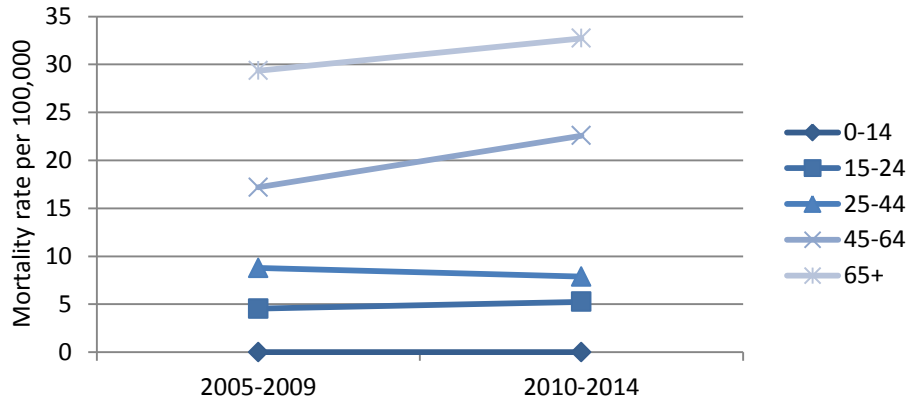
[12] Rates have not been included due to small volumes and increased variability

Figure 15: Age-standardised mortality rate from alcohol-specific conditions in CM Health, by ethnicity and year, 2005-2014



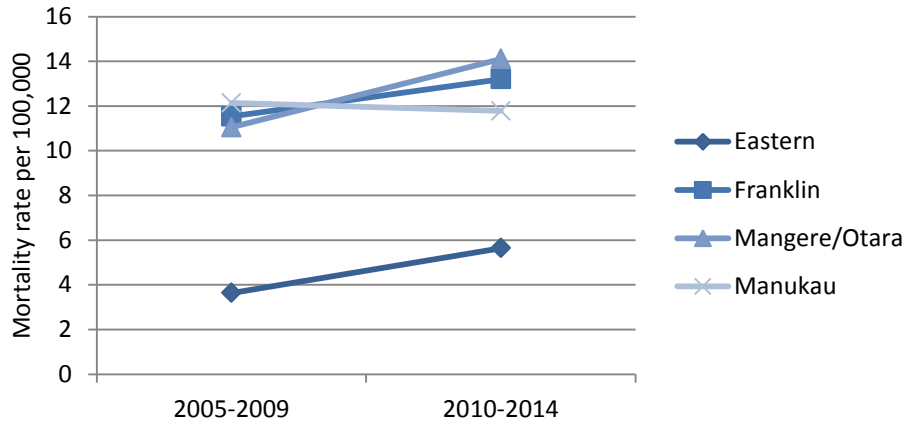
Source: Mortality Collection 2005-2014, MOH; analysed by CM Health

Figure 16: Age-standardised mortality rate from alcohol-specific conditions in CM Health, by age group and year, 2005-2014



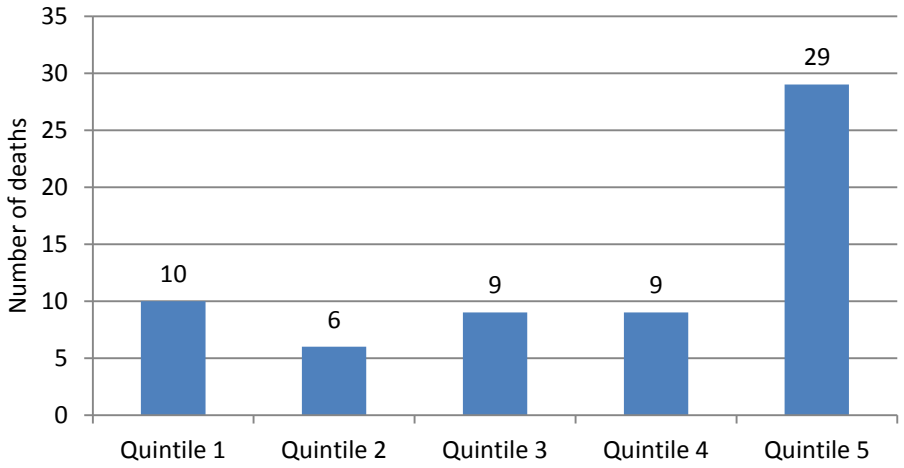
Source: Mortality Collection 2005-2014, MOH; analysed by CM Health

Figure 17: Age-standardised mortality rate for alcohol-specific conditions in CM Health, by locality and year, 2005-2014



Source: Mortality Collection 2005-2014, MOH; analysed by CM Health

Figure 18: Number of deaths from alcohol-specific conditions in CM Health, by NZDep2013 quintile, 2014



Source: Mortality Collection 2005-2014, MOH; analysed by CM Health

Insights and recommendations

- This indicator is derived from a robust national dataset and could be produced for DHBs throughout New Zealand.
- This indicator estimates the burden of alcohol-specific mortality, not alcohol-related mortality. New Zealand specific alcohol-attributable fractions (AAFs), necessary to include deaths partially attributable to alcohol, are not currently available. An alcohol-related mortality indicator would include deaths both wholly and partially attributable to alcohol and would capture a greater proportion of alcohol-related deaths.
- Data is available at CAU level and analysis of pooled data possible by locality. Analysis of pooled data may be possible by LBA, although sub group analysis may be limited by small numbers.

3.2.2 Alcohol-specific hospital admissions

Data sources and methodology

Definition: Hospital admissions where the principal or secondary diagnosis is an alcohol-specific condition[13], age standardised rate per 100,000 population, all ages

Rationale: Alcohol use is the fourth leading risk factor overall, and leading risk factor in the 15-49 year age group, for morbidity (Disability-Adjusted life Years) in New Zealand (IHME, 2016). The harmful impacts of hazardous alcohol use in New Zealand are divided almost equally between injury and chronic disease outcomes (MOH, 2016b) and contribute towards hospital admissions for a range of conditions. Alcohol-specific hospital admissions are utilised internationally as an indicator of alcohol-related harm.

Numerator: National Minimum Dataset (NMDS): Number of hospital admissions[14], per year, where an alcohol-specific condition is a principal[15] or secondary diagnosis[16]

[13] Alcohol-specific conditions are wholly attributable to alcohol and are defined in Appendix 3

[14] Hospital admission: Encounters lasting ≥3 hours duration

[15] Principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or attendance at the healthcare establishment, as represented by a code

[16] Secondary diagnosis: A condition or complaint either coexisting with the principal diagnosis or arising during the episode

Denominator: SNZ: Mid-year population estimates as at 30 June, all ages
Methodology: Hospital admission rates have been derived from analysis of encrypted (anonymised) NHI event data from NMDS, 2007-2016. Hospital admission events with alcohol-specific principal and/or secondary diagnosis codes were identified and each alcohol-specific code categorised into one of eight condition categories. Hospitalisation events can include more than one alcohol-specific diagnosis; therefore, an event may be coded into more than one condition category. Ethnicity was determined using the prioritised method.
Notes on interpretation:

- This indicator estimates hospital admission rates from conditions wholly attributable to alcohol. It is not an estimate of broader alcohol-related admissions. Partially attributable conditions, such as cancer, are excluded.
- The inclusion of secondary diagnoses, in addition to principal diagnosis, creates a broad definition of alcohol-specific hospital admissions.
- Data is event based and multiple events may be included for unique individuals.
- Analysis by NZDep quintile is presented for 2016. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. NMDS data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in NMDS. The CAU-based denominator and the domicile-based numerator match in 2016.
- Mis-classification and non-specific diagnosis codes limit data quality.

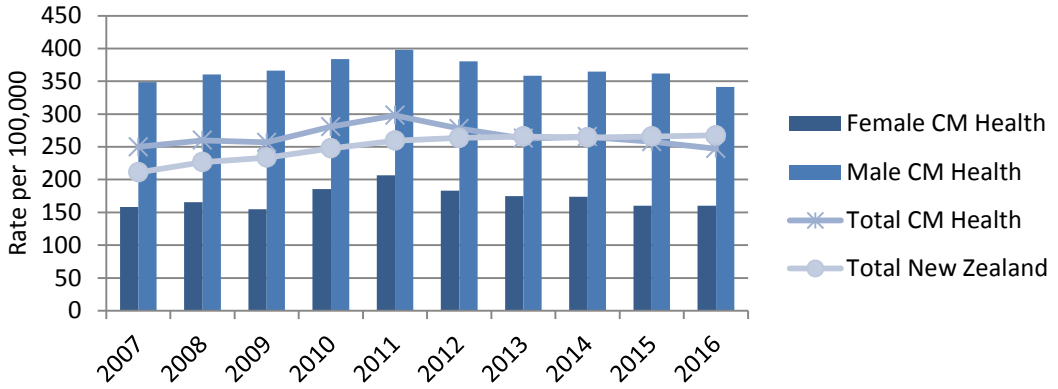
Distribution and trends

In CM Health during 2007-2016, age-standardised rates for alcohol-specific hospital admissions have been relatively stable, while the NZ rate suggests a gradual increase (Figure 19). CM Health age-standardised rates by sex are relatively stable, with rates for males being more than twice female rates. Age-standardised rates for alcohol-specific hospital admissions were generally highest in those aged 15-24 and 45-64 years (Figure 20). Rates for these age bands have gradually declined over the last six years while the 65+ group has gradually increased. Hospital admission rates for children 0-14 years are consistently lower than other age groups and relatively stable at 15–20 per 100,000. Differences in age-standardised rates are apparent by ethnicity with Maaori being approximately 1.5 times Pacific and Other rates, and approximately four times the Asian rate (Figure 21). Rates by ethnicity remain relatively stable during 2007-2016. In CM Health during 2007-2016, hospital admission rates were highest in the Manukau and Mangere/Otara localities (Figure 22). Age-standardised rates are relatively stable in Manukau, while a downward trend is apparent over the last four years in Mangere/Otara. Franklin rates have steadily increased over the last 10 years and are similar to Mangere/Otara in 2016. Age-standardised rates by age group and sex (Table 18), ethnicity and age group (Table 19), and ethnicity and sex (Table 20) in CM Health are located in Appendix 4. Number, percent and age standardised rate of alcohol-specific hospital admissions for CM localities (Table 21) are located in Appendix 4.

Hospitalisation events can be coded with more than one alcohol-specific ICD-10 code; consequently total percent per year by classification category is greater than 100%. Neuro-psychiatric condition was the most frequently coded condition category during 2007-2016 (Figure 23). The vast majority of codes in this category were coded as F10 (mental and behavioural disorders due to use of alcohol). 'Evidence of alcohol involvement' is increasingly being coded and included over one third of alcohol-specific admissions in 2016. Nearly all events in this category were coded with Y90 (evidence of alcohol involvement

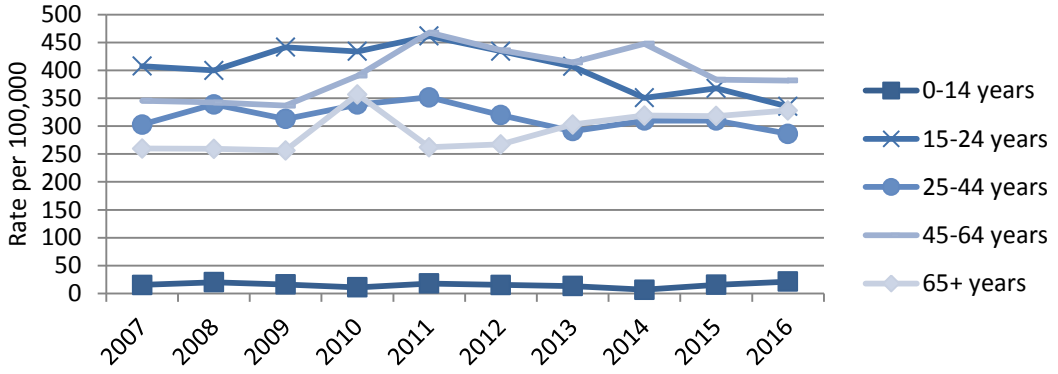
determined by blood alcohol level). See Table 22 in Appendix 4 for the number, percent and age-standardised rate of admissions in CM Health by category.

Figure 19: Age-standardised rate of alcohol-specific hospital admissions by sex and year, CM Health vs New Zealand, 2007-2016



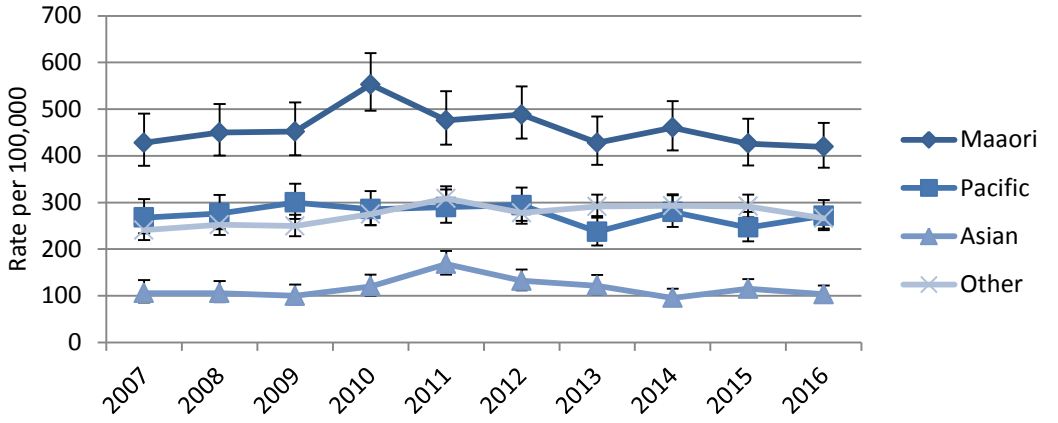
Source: NMDS 2007-2016, MOH; analysed by CM Health

Figure 20: Age-standardised rate of alcohol-specific hospital admissions in CM Health, by age group and year, 2007-2016



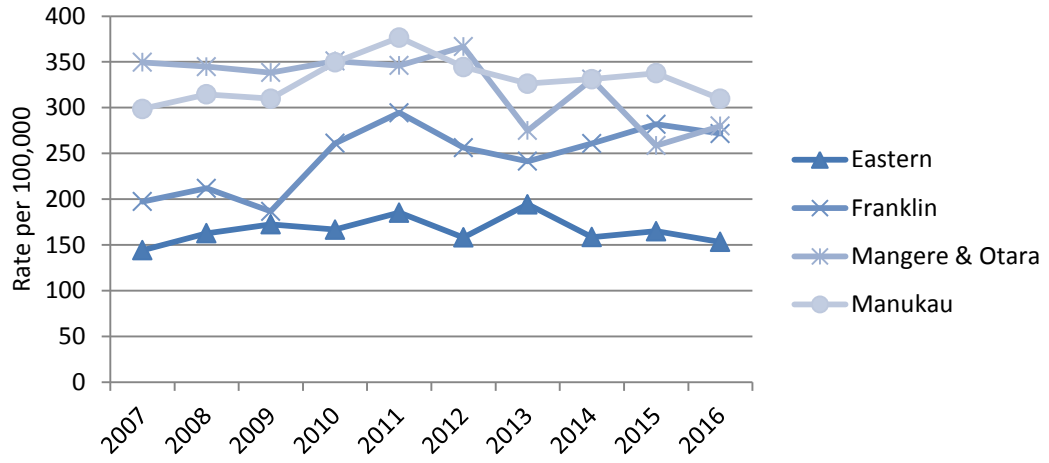
Source: NMDS 2007-2016, MOH; analysed by CM Health

Figure 21: Age-standardised rate of alcohol-specific hospital admissions in CM Health with 95% confidence intervals, by ethnicity and year, 2007-2016



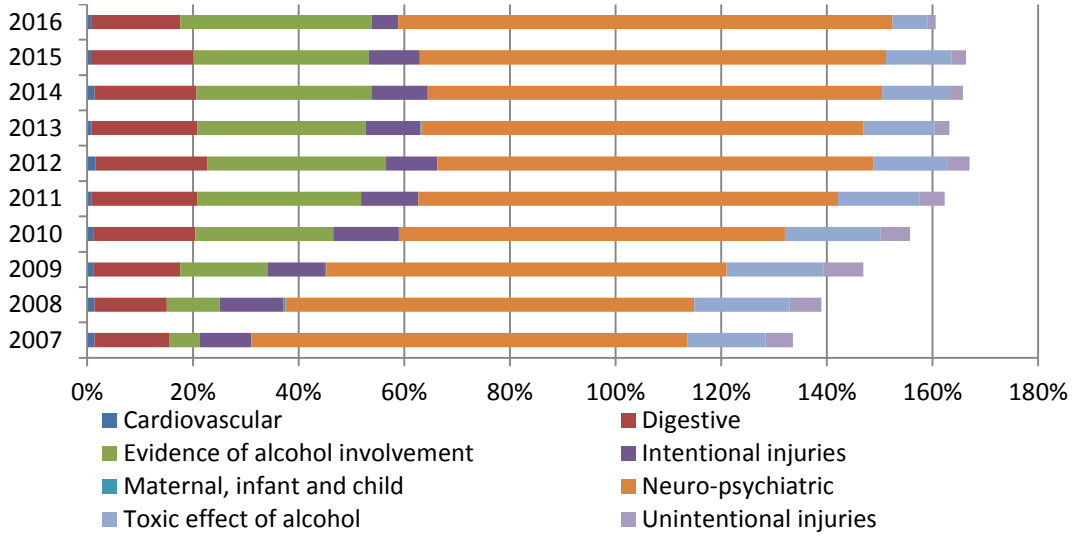
Source: NMDS 2007-2016, MOH; analysed by CM Health

Figure 22: Age-standardised rate of alcohol-specific hospital admissions in CM Health, by locality and year, 2007-2016



Source: NMDS 2007-2016, MOH; analysed by CM Health

Figure 23: Percentage of alcohol-specific hospital admissions in CM Health by category, 2007-2016



Source: NMDS 2007-2016, MOH; analysed by CM Health

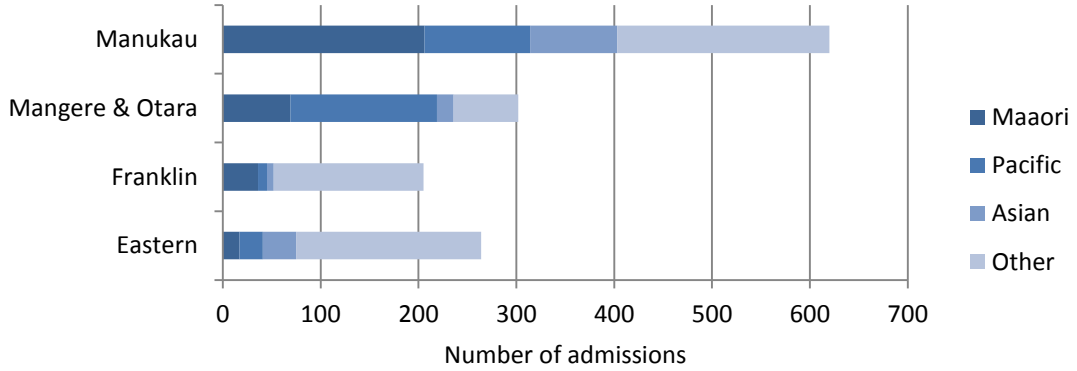
**Hospital admissions can be coded with more than one alcohol-specific ICD-10 code; consequently, total percent per year by classification category is greater than 100%*

Alcohol-specific hospital admission snapshot, 2016

Number of admissions is described by locality for the snapshot analysis. Rates have not been included due to small volumes and increased variability. Differences in ethnicity distributions are apparent for alcohol-specific hospital admissions by locality (Figure 24 below and Table 23 in Appendix 4). Manukau had the greatest proportion of Maaori and Asian, and Mangere/Otara the greatest proportion of Pacific Peoples. The distribution of age groups also differs by locality with proportionately more aged 65+ in Eastern and Franklin localities, and more 0-14 years in Manukau and Mangere/Otara (Figure 25 below and Table 24 in Appendix 4). The 25-44 and 45-64 year age groups are proportionately the largest age groups across all localities. Age-standardised hospital admission rates for alcohol-specific conditions demonstrate a social gradient and increase as socio-economic deprivation increases (Figure 26). This gradient is more apparent in males compared to females.

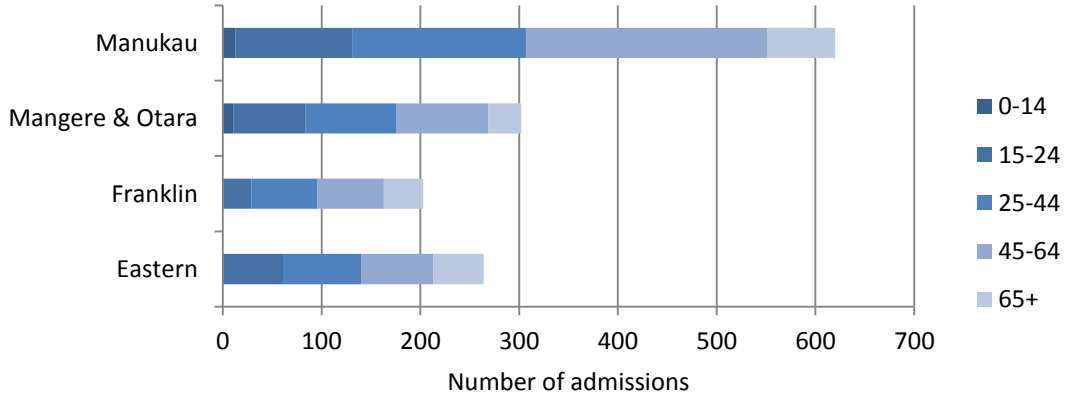
Number, percent and age standardised alcohol-specific hospital admission rates by NZDep2013 quintile and sex, are located in Appendix 4 (Table 25).

Figure 24: Alcohol-specific hospital admissions in CM Health, by ethnicity and locality, 2016



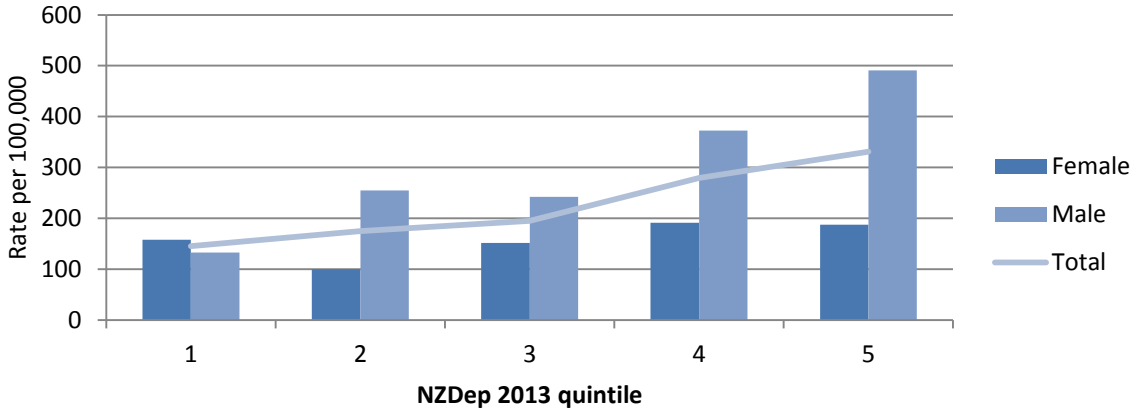
Source: NMDS 2016, MOH; analysed by CM Health

Figure 25: Alcohol-specific hospital admissions in CM Health, by locality and age group, 2016



Source: NMDS 2016, MOH; analysed by CM Health

Figure 26: Age-standardised rates for alcohol-specific hospital admissions in CM Health, by sex and NZDep2013 quintile, 2016



Source: NMDS 2016, MOH; analysed by CM Health

Insights and recommendations

- This indicator is derived from a robust national dataset and could be produced for DHBs throughout New Zealand.
- This indicator estimates the burden of alcohol-specific conditions on hospital admissions, not alcohol-related conditions. New Zealand specific AAFs, necessary to include hospital admissions partially attributable to alcohol, are not currently available. An alcohol-related hospital admission indicator would include conditions both wholly and partially attributable to alcohol and would capture a greater proportion of admissions related to alcohol.
- Data is available at CAU level and analysis is possible by residential locality. Analysis by LBA is likely, although small numbers may limit selected measures of frequency.

3.2.3 Alcohol-involved Emergency Department encounters

Data sources and methodology

Definition: Prevalence of Emergency Department (ED) encounters where primary or secondary alcohol use is involved in the presentation

Rationale: Measuring alcohol-involvement in ED presentations estimates the burden of alcohol-related presentations on ED services. The MOH requires DHBs to measure and report on alcohol-involvement in ED encounters.

Numerator: CM Health Data Warehouse: Number of Middlemore Hospital (MMH) ED encounters, per month, with alcohol-involved code yes (patient's use) or secondary (someone else's use), all ages

Denominator: CM Health Data Warehouse: Number of MMH ED encounters, per month, all ages

Methodology: Prevalence has been derived from analysis of data from the CM Health Data Warehouse, Oct 2017-Jan 2018. At MMH ED, most patients are screened at triage using the initial question "Is alcohol associated with this presentation?" The triage nurse may elect to use clinical information and judgement to determine the most appropriate response when indicated. Responses include whether the presentation involves alcohol consumption by the patient (yes), alcohol consumption by someone else (secondary), no alcohol involvement (no), or alcohol involvement is unknown or could not be determined (unknown). Coding process has been constrained by patient management information technology limitations. At present, alcohol status is not revised throughout the ED encounter or admission. Ethnicity was determined using the prioritised method.

Notes on interpretation:

- Estimating the population prevalence of alcohol-related conditions from this indicator is not recommended. Many individuals with alcohol-related conditions will not attend ED.
- This indicator predominantly identifies ED presentations that either involve recent alcohol consumption or are wholly attributable to alcohol consumption. Chronic conditions, such as alcohol-related liver disease or alcohol-related cancers, are unlikely to be identified.

Distribution and trends

During October 2017 – January 2018, the proportion of MMH ED encounters with a definitive alcohol status coded[17] has increased to 94% (Table 6). The proportion of encounters coded as primarily or secondarily involving alcohol has been static at around 4% and 0.5% respectively. When individuals aged less than 18 are excluded, the alcohol-

[17] Definitive alcohol involved status when code = No, secondary or yes

involved proportion increases by just less than 1%, while there is little change in the secondary alcohol proportion (Table 7).

Of those coded with primary or secondary alcohol involvement, there were proportionately more males (Figure 27) and 25-44 year olds (Figure 28) with little change in distribution by sex and age group over time. By ethnicity, Maaori, Pacific, and Other ethnicities had proportionately more alcohol-involved encounters than Asian with a gradual increase apparent for Pacific (Figure 29). By socio-economic deprivation quintile, distribution has not changed significantly over time, with over 50% of alcohol-related encounters from individuals residing in quintile 5 (Figure 30). By locality, over a third of alcohol-related encounters were from Manukau residents, followed by Mangere/Otara, outside CM Health, Eastern, and Franklin (Figure 31). Number of encounters by sex, age group, ethnicity, NZDep quintile, and locality are included in Table 26 in Appendix 4.

Table 6: Number and percentage of MMH ED encounters by alcohol involvement status, all ages, October 2017 – January 2018

Alcohol involved status		**Oct-17**	**Nov-17**	**Dec-17**	**Jan-18**	**Total**
Unknown	Number	686	601	559	594	2440
	% of total	7.1%	6.3%	5.5%	5.9%	
No alcohol	Number	8658	8480	9002	9114	35254
	% of total	89.4%	89.1%	89.3%	89.9%	
Secondary alcohol	Number	29	42	57	44	172
	% of total	0.3%	0.4%	0.6%	0.4%	
Alcohol involved status	Number	309	390	468	382	1549
	% of total	3.2%	4.1%	4.6%	3.8%	
Total	Number	9682	9513	10086	10134	39415

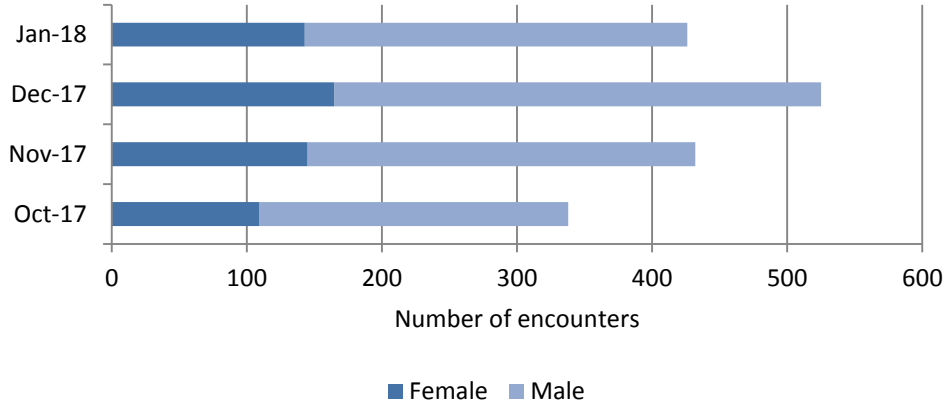
Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health

Table 7: Number and percentage of MMH ED encounters by alcohol involvement status, 18 years and over, October 2017 – January 2018

Alcohol involved status		Oct-17	Nov-17	Dec-17	Jan-18	Total
Unknown	Number	573	493	479	525	2070
	% of total	7.7%	6.8%	6.2%	6.5%	
No alcohol	Number	6555	6310	6767	7092	26724
	% of total	88.0%	87.4%	87.3%	88.4%	
Secondary alcohol	Number	26	38	53	30	147
	% of total	0.3%	0.5%	0.7%	0.4%	
Alcohol involved status	Number	299	379	450	372	1500
	% of total	4.0%	5.2%	5.8%	4.6%	
Total	Number	7453	7220	7749	8019	30441

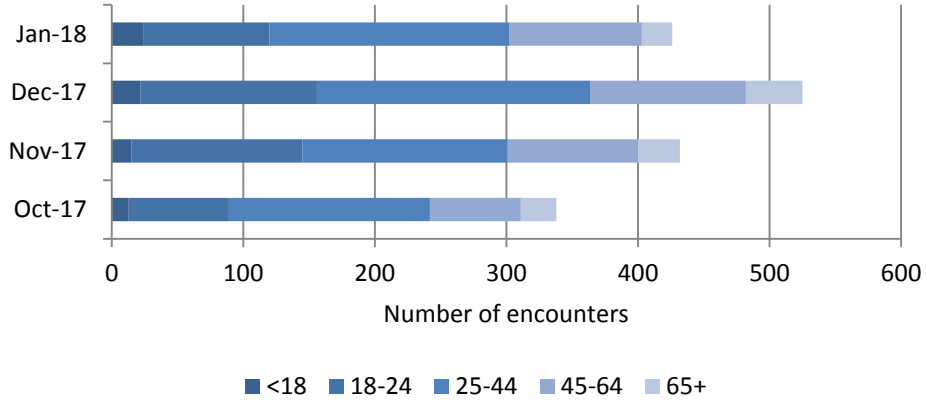
Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health

Figure 27: MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by sex, October 2017 – January 2018



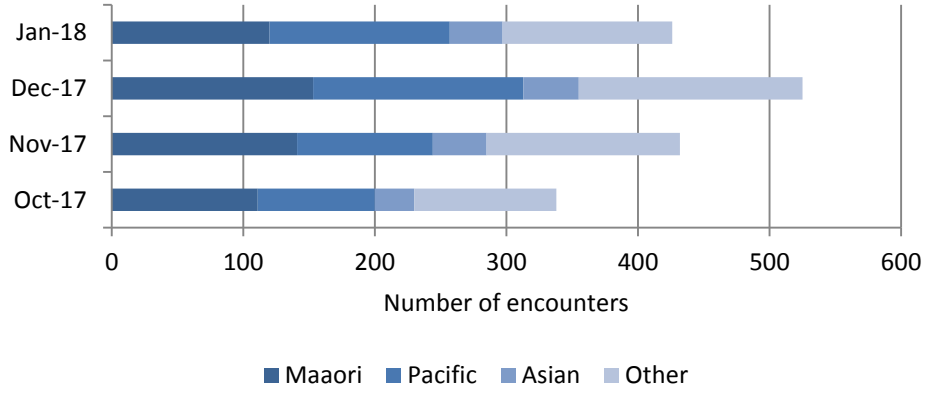
Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health

Figure 28: MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by age group, October 2017 – January 2018



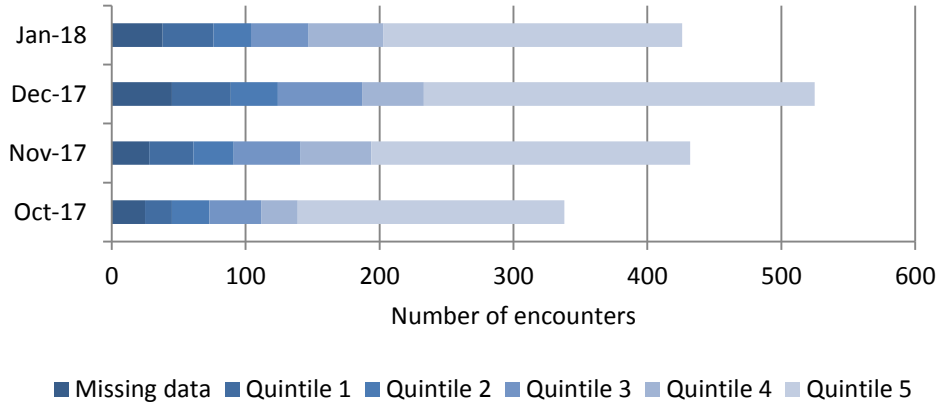
Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health

Figure 29: MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by prioritised ethnicity, October 2017 – January 2018



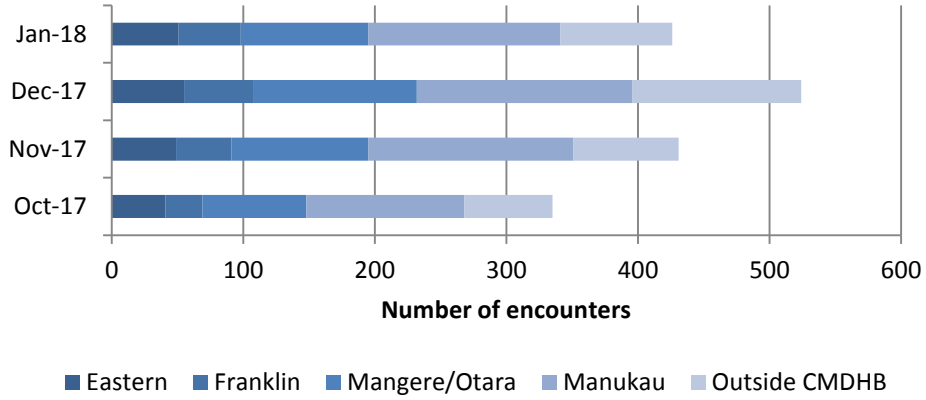
Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health

Figure 30: MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by NZDep quintile, October 2017 – January 2018



Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health

Figure 31: MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by locality, October 2017 – January 2018



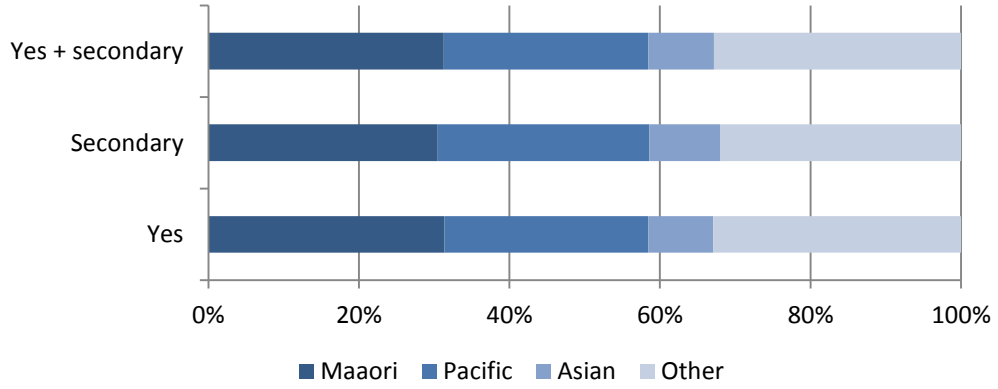
Source: CM Health Data Warehouse, October 2017-January 2018; analysed by CM Health
Encounters with unknown address have been excluded

Alcohol-involved ED snapshot (Quarter 2: October 2017 - December 2017)

Of the 29,281 ED encounters during October-December 2017, 1,167 (4%) involved alcohol and 128 (0.4%) involved alcohol use by another individual (Table 27 in Appendix 4). The crude percentage prevalence of encounters coded as primarily or secondarily involving alcohol was greater for males and Maaori. There is little difference in the distribution of prioritised ethnicity, outcome status, NZDep quintile, and locality by primary and secondary alcohol involvement. Maaori and Other make up a third each of both primary and secondary alcohol-related encounters, followed closely by Pacific (see Figure 32 below and Table 28 in Appendix 4). One in five primary and secondary alcohol involved encounters result in admission (see Figure 33 below and Table 29 in Appendix 4). The greatest proportions of alcohol-related encounters occur in the two most socio-economically deprived quintiles (see Figure 34 below and Table 30 in Appendix 4), and in Manukau and Mangere/Otara localities (see Figure 35 below and Table 31 in Appendix 4).

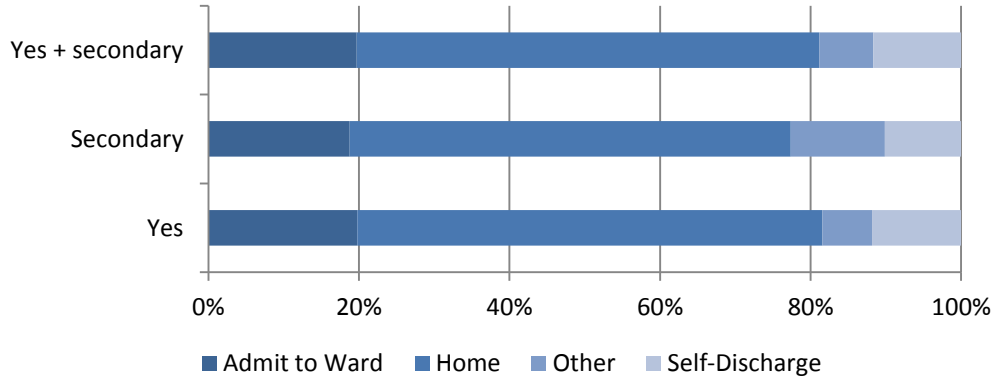
Differences in the distributions of sex, age, and day of the week are apparent between primary and secondary alcohol involvement. The proportions of females (see Figure 36 below and Table 32 in Appendix 4), <18 years, and 65+ years (see Figure 37 below and Table 32 in Appendix 4) are greater for secondary alcohol involvement compared to primary alcohol involvement. Forty-seven percent of alcohol involved ED encounters occur on Saturday and Sunday, while secondary alcohol encounters more often occur on Sunday and Monday (45%) (see Figure 38 below and Table 33 in Appendix 4).

Figure 32: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by prioritised ethnicity, October - December 2017



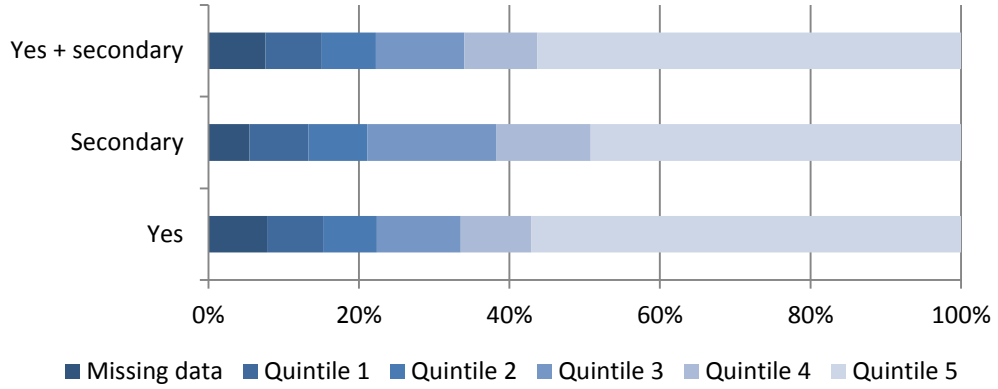
Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Figure 33: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by outcome status, October - December 2017



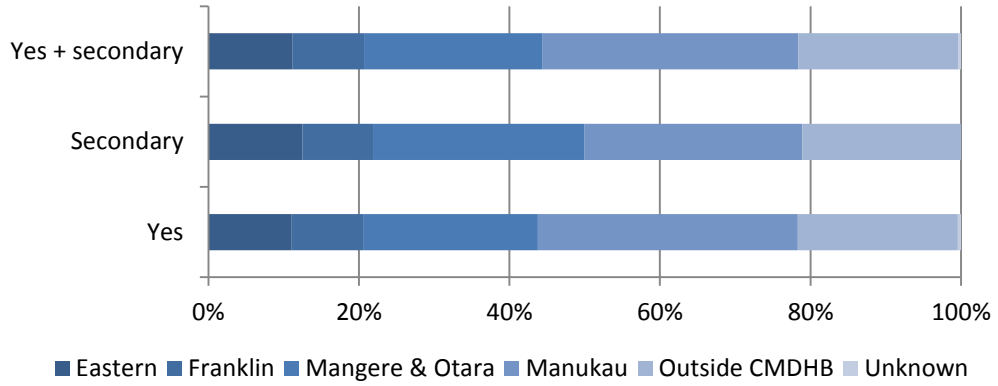
Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Figure 34: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by NZDep quintile, October - December 2017



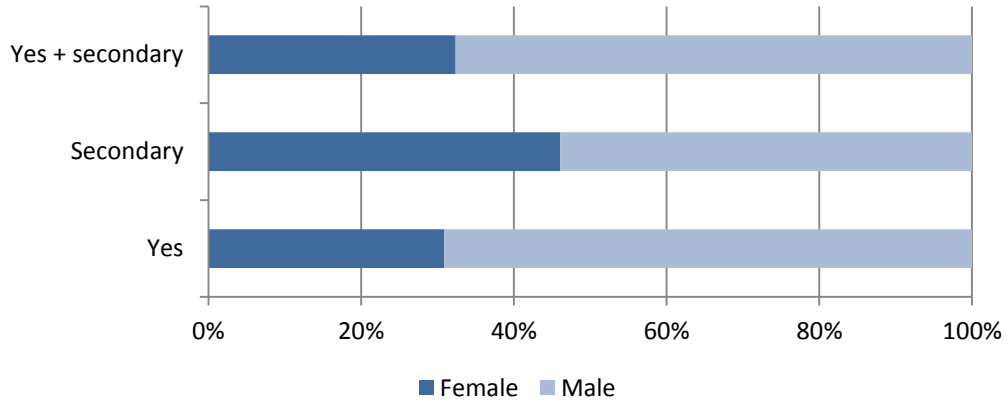
Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Figure 35: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by locality, October - December 2017



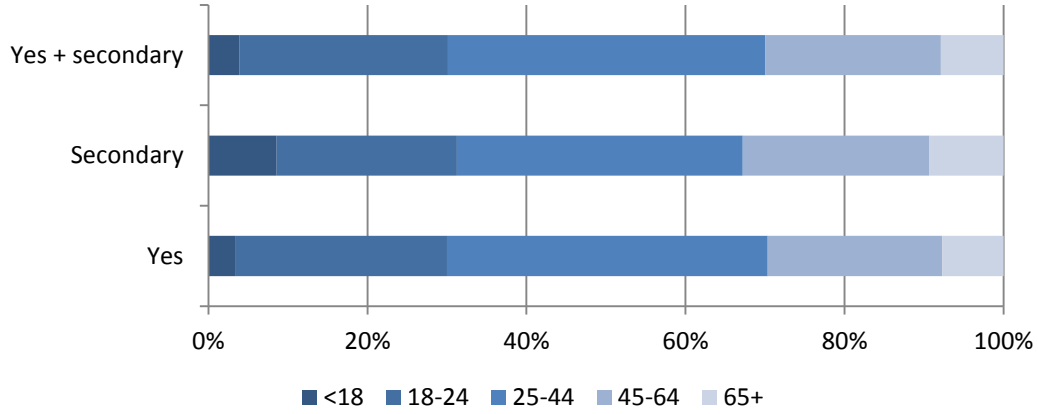
Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Figure 36: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by sex, October - December 2017



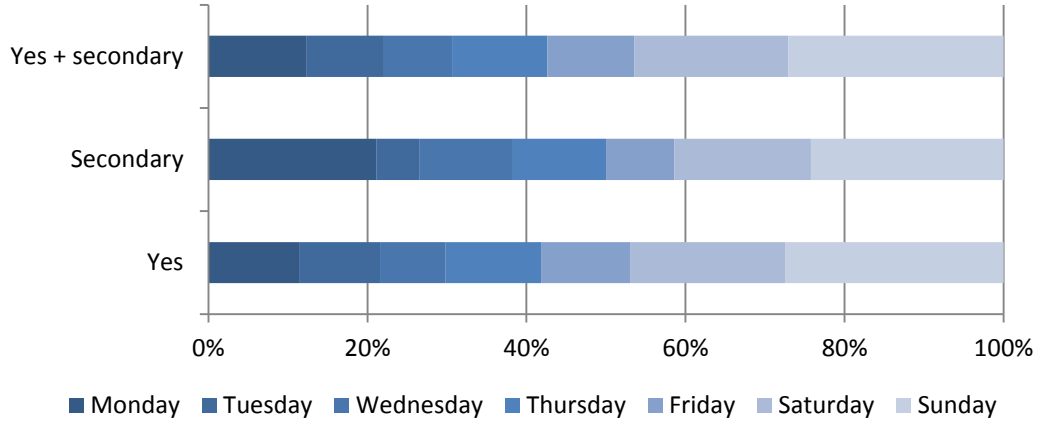
Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Figure 37: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by age group, October - December 2017



Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Figure 38: Proportion of MMH ED encounters where alcohol was primarily or secondarily involved, all ages, by day of week, October - December 2017



Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Insights and recommendations

- This indicator under-estimates the true burden of alcohol involvement in ED encounters. Chronic conditions and partially alcohol-attributable conditions are less likely to be included; however, this may improve with process and systems improvements, and staff training.
- Using a single coding point at triage, as is currently the case in MMH ED, is likely to contribute towards miscoding and non-specific coding. It will not always be possible or appropriate to determine alcohol-involvement at triage.
- While it is important that encounters have a definitive code, coding also needs to be accurate. Non-specific coding reduces data quality. Auditing is underway at CM Health to review data quality and coding accuracy.
- The absence of standardised implementation of the alcohol-involved ED flag across DHBs prevents regional and national comparison. Efforts to standardise data collection nationally would enable DHB and national comparison.
- Although there are data quality and completeness limitations, trend analysis provides valuable descriptive epidemiology and can be used to support the

development and improvement of assessment, brief intervention, and referral services, and of policies important for reducing alcohol-related harms which lie outside the ED (e.g. access and availability of alcohol in the community).

- Data is available at CAU level and analysis is possible by residential locality. Analysis by LBA is possible, although small numbers may limit subgroup analyses.

3.2.4 Paediatric outpatient appointments and Fetal Alcohol Spectrum Disorder (FASD)

Data sources and methodology

Definition: Prevalence of unique individuals attending paediatric outpatient appointments where FASD has been coded, ages 0-17

Rationale: FASD is a preventable condition that includes a range of physical and neurodevelopmental impairments in people exposed to alcohol during pregnancy. FASD is suspected to be New Zealand's leading preventable cause of non-genetic intellectual disability (FASD Working Group, 2016); however, it is significantly under-recognised and data collection is limited.

Numerator: CM Health paediatric outpatient dataset (Netezza): Number of unique individuals attending paediatric outpatient appointments (two years pooled), where FASD is coded, ages 0-17

Denominator: Netezza: Number of unique individuals attending paediatric outpatient appointments (two years pooled), that have been coded and entered into the CM Health paediatric outpatient dataset. Ages 0-17, no exclusions.

Methodology: Prevalence has been derived from analysis of the paediatric outpatient dataset, 2011-2016. Paediatric outpatient appointments at the Manukau Super Clinic are coded by clinicians based on the Sheffield system – a UK outpatient coding system. All diagnoses should be coded for each outpatient event. There is no differentiation between the principal diagnosis and contributory or co-existing diagnoses. Ethnicity and sex from the first encounter has been used to describe the unique individual when more than one outpatient appointment was attended. Age, and frequently address, change over a seven year period, subsequently these variables are described at the encounter level. Small numbers required the pooling of data into two year intervals and prevented single year snapshot analysis.

Notes on interpretation:

- Indicator prevalence cannot be used to estimate FASD prevalence in Counties Manukau. Many children with FASD will not have a diagnosis and of those that do, not all will attend outpatients. Adults with FASD are excluded from this indicator.
- Indicator accuracy is limited by dataset capacity and potentially by variation in clinician coding practices.
- It has been assumed that prioritised ethnicity and sex of outpatient attendees has not changed during 2011-2016.

Distribution and trends

During 2011-2016, there were 37,203 outpatient encounters involving 15,620 unique individuals. Of these, there were 118 encounters involving 69 individual children where the outpatient appointment was coded with FASD. Over half of those children were Maaori and nearly two thirds male (Table 8).

During 2011-2016, the number and percentage prevalence of encounters coded with FASD has declined. For each two-year period, the greatest prevalence of FASD coded encounters

were in the 5-9 age group and quintile 5 – the most socioeconomically deprived population (see Table 34 in Appendix 4). The majority of encounters coded with FASD are from individuals resident in the Manukau locality area (see Table 35 in Appendix 4). Small numbers make it difficult to provide meaningful commentary on time trends by age, NZDep quintile, and CM Health locality.

Table 8: Number and percentage prevalence of unique individuals where an outpatient appointment was coded with FASD by ethnicity and sex, 2011-2016

Ethnicity	Number	% of FASD	% of all OPAs	Sex	Number	% of FASD	% of all OPAs
Maaori	39	56.5%	0.3%	Female	24	34.8%	0.2%
Pacific	12	17.4%	0.1%	Male	45	65.2%	0.3%
Other	18	26.1%	0.1%	Total	69	100.0%	0.5%
Total	69	100.0%	0.5%				

Source: Netezza, CM Health Data Warehouse; analysed by CM Health
OPA = outpatient appointment

Insights and recommendations

- The absence of robust local and national prevalence data limits analysis of the burden of disease from FASD. Cross-sectional prevalence data collection over multiple time periods is necessary for trend analysis.
- The prevalence of FASD in outpatients is likely underestimated by this indicator. Single tier dataset structure supports variability in clinician coding practices. It is possible that FASD is less likely to be coded when unrelated to the primary focus of the outpatient appointment.
- Coding process and dataset structure limits the utility of paediatric outpatient data. Diagnosis stratification, such as principal, contributory or co-existing diagnoses, would enable more meaningful analysis. Further development of the CM dataset (Netezza) is pending confirmation of a national outpatient dataset.
- Data is available at CAU level, yet small numbers limits analysis by residential locality or LBA. Dataset restructuring and diagnosis stratification may contribute towards improved analysis of FASD coding in paediatric outpatients.

3.2.5 Alcohol and Drug Team contact and alcohol-specific conditions

3.2.5.1 Alcohol and Drug Team service contact

Data sources and methodology
Definition: Alcohol and Drug Team (AOD) service contact, age standardised rate per 100,000 population, all ages
Rationale: In New Zealand, mental and substance use disorders are the fourth leading cause of health loss for all ages, and leading cause of health loss in 15-49 year age group (IHME, 2016). Alcohol is an intoxicant, toxin, and addictive psychotropic drug that can result in dependence and contribute towards mental health disorders. Some individuals with hazardous alcohol consumption receive treatment from AOD specialist services.
Numerator: Project for the Integration of Mental Health Data (PRIMHD): Number of unique individuals, per year, with AOD service contact, all ages
Denominator: Statistics NZ: Mid-year population estimate as at 30 June, all ages
Methodology: Rates have been derived from analysis of the PRIMHD activity dataset, 2009-2016. The method to identify AOD services in PRIMHD is that used by MOH analytical

services. AOD service activities were defined as those coded with a Team Type of Alcohol and Drug Team (03) or Co-existing Problems Team (11) OR Activity Type of T16, T17, T18, Y19, T20, T48[18]. Activities include inpatient and outpatient visits and written correspondence, telephone calls, and SMS text messaging when considered to be of a significant nature. Activities were identified in every year that they span. Activities with a missing end date were identified in the year of the start date only. Unique individuals with one or more Alcohol and Drug Team service contacts were counted once per year. Demographic data from the first encounter was used for descriptive analysis. Ethnicity was determined using the prioritised method.

Notes on interpretation:

- Indicator rates cannot be used to estimate the rate of conditions requiring AOD services in Counties Manukau. Many individuals eligible for AOD services will not access them.
- Access to services is influenced by many determinants outside the scope of this analysis including the availability, acceptability and quality of services.
- Analysis by NZDep quintile is presented for 2016. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. PRIMHD data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in PRIMHD. The CAU-based denominator and the domicile-based numerator match in 2016.

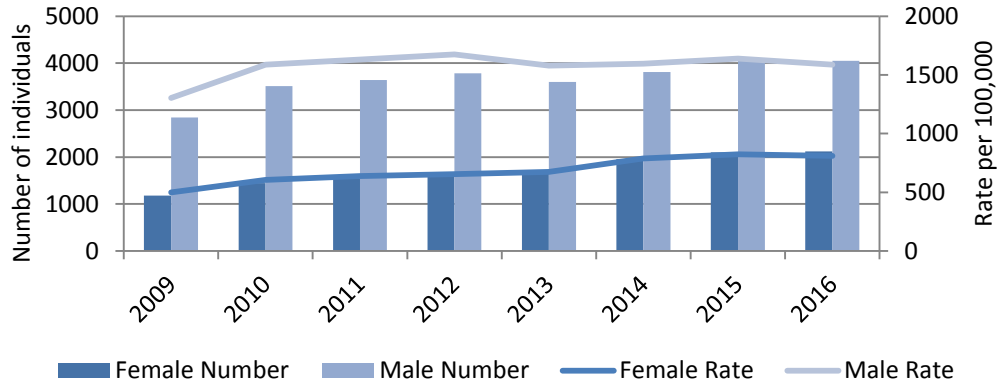
Distribution and trends

During 2009-2016, 27,146 unique CM Health residents had contact with Alcohol and Drug team services in New Zealand[19]. Age-standardised rates have been relatively stable during this time (Table 36 in Appendix 4). Volumes are higher for males and rates are approximately twice those of females, although female rates suggest an increasing trend (Figure 39). Rates for Maaori are more than 10 times those of Asian, and approximately twice the Pacific and Other rate (Figure 40). Age-standardised rates are highest in the 15-24 age group, followed by 25-44 years, and are more than twice the 45-65 age group and 14 times the 65+ age group (Figure 41). Little change in rate is apparent during 2009-2016 for all age groups with the exception of the 0-14 age band where a step is apparent between 2013 and 2014. Age-standardised rates in the Manukau and Mangere/Otara localities were at least three times that of the Eastern locality and are gradually increasing (Figure 42). Number and age-standardised rates by ethnicity (Table 37), age group (Table 38), and locality (Table 39) are included in Appendix 4.

[18] T16 = substance abuse, withdrawal management/detoxification on occupied bed nights, T17 = substance abuse detoxification attendances, T18 = methadone treatment specialist service attendances, T19 = methadone treatment specialist service attendances, T20 = substance abuse residential service occupied bed nights, T48 = co-existing disorders residential service occupied bed nights

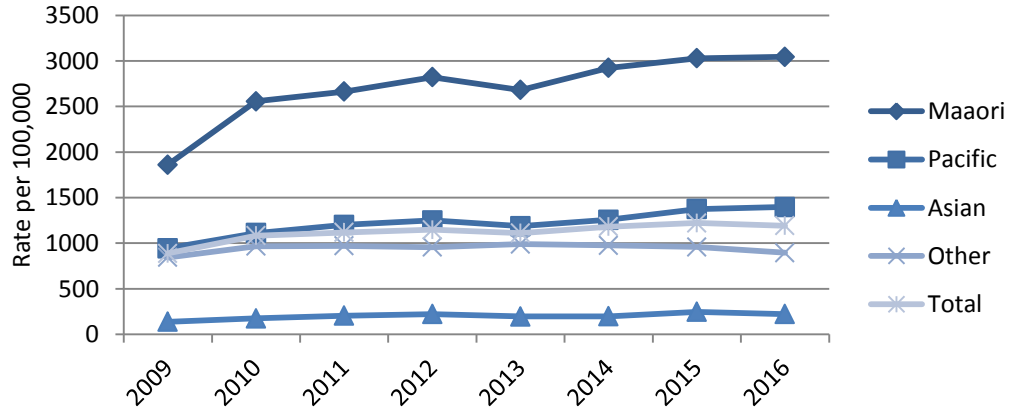
[19] Many unique individuals had contact with Alcohol and Drug Team services across multiple years. Individuals are counted once per year, subsequently the sum of individuals per year for 2009-2016 is considerably larger at 41,298 in the following analysis

Figure 39: Number and age-standardised rate of CM Health residents that have had contact with Alcohol and Drug Team services, by sex and year, 2009-2016



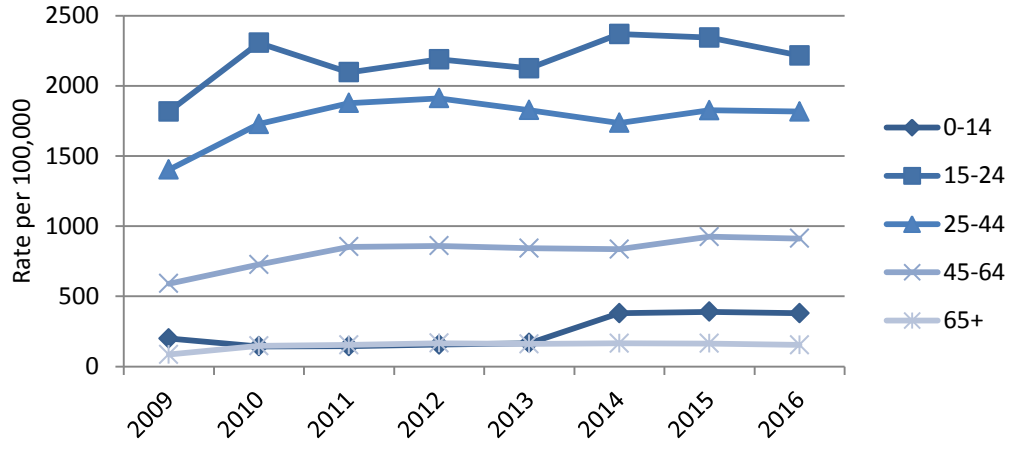
Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Figure 40: Age-standardised rate of CM Health residents that have had contact with Alcohol and Drug Team services, by ethnicity and year, 2009-2016



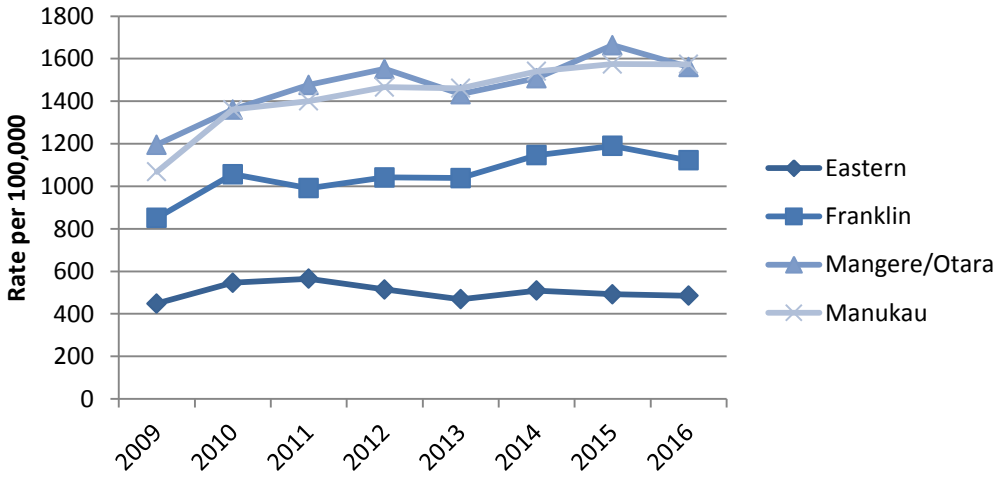
Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Figure 41: Age-standardised rate of CM Health residents that have had contact with Alcohol and Drug Team services, by age group and year, 2009-2016



Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Figure 42: Age-standardised rate of CM Health residents that have had contact with Alcohol and Drug Team services, by locality and year, 2009-2016

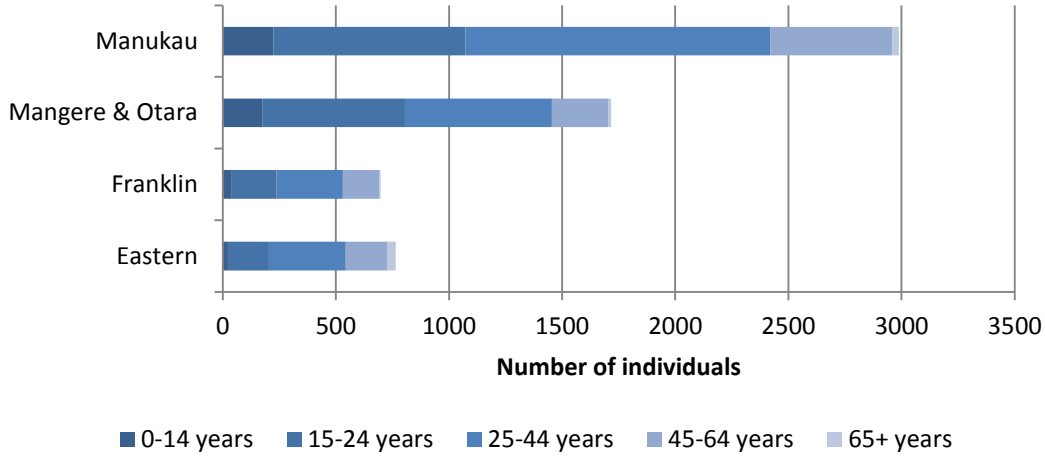


Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Alcohol and Drug Team snapshot, 2016

In 2016, age group distribution was similar across localities other than the proportion of 0-14 year olds being slightly greater in Manukau and Mangere/Otara and 65+ slightly higher in the Eastern locality (Figure 43). Both volume and age-standardised rate is greatest for Maaori in 2016 (Table 37 in Appendix 4)[20]. While volumes are similar for Pacific and Other, the age standardised rate for Pacific Peoples was higher than Other. A clear social gradient is apparent for both females and males with both volume and rate highest in the most socio-economically deprived quintile (Figure 44). Number of individuals by locality and age group (Table 40) and NZDep2013 quintile (Table 41) are located in Appendix 4.

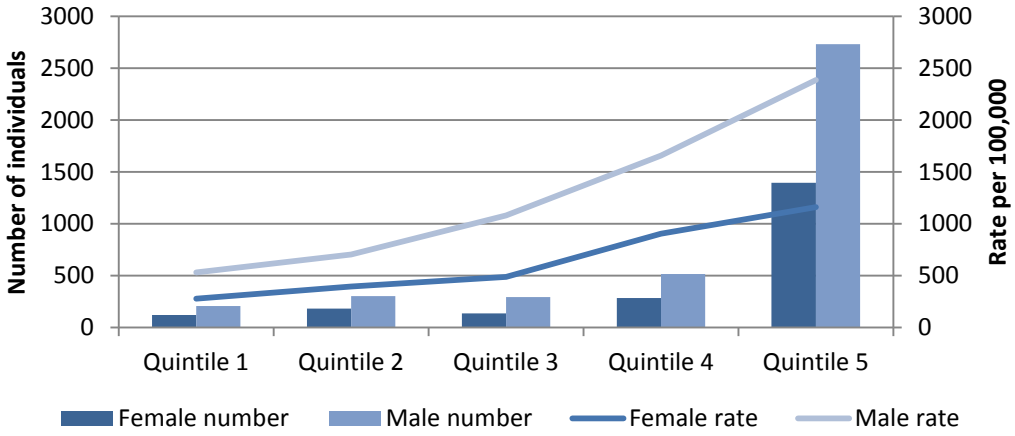
Figure 43: CM Health residents that have had contact with AOD services by age group and locality, 2016



Source: PRIMHD 2009-2016, MOH; analysed by CM Health

[20] Small numbers prevents locality analysis by ethnicity in CM Health

Figure 44: Number and age-standardised rate of CM Health residents that have had contact with AOD services by NZDep2013 quintile, 2016



Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Insights and recommendations

- This indicator is derived from a national dataset and could be produced for DHBs throughout New Zealand.
- This indicator measures both alcohol and drug related AOD contact. It was developed in response to classification data quality and completeness limitations. Many individuals have no diagnosis recorded in PRIMHD and when recorded can be of low specificity.
- The Team Type field in the PRIMHD activities data set is reliably completed and is anticipated to be of robust quality. Although the volumes and rates presented are not alcohol-specific, they are expected to be an accurate reflection of overall service use.
- This indicator focuses on the individual and measures the impact of AOD service use on our community. An activity-focused indicator could possibly be developed in the future and used to describe service utilisation.
- Data is available at CAU level and analysis is demonstrated by residential locality. It is anticipated that analysis by LBA is also possible.

3.2.5.2 Alcohol and Drug service contacts and alcohol-specific diagnoses

Data sources and methodology

Definition: Percentage prevalence of individuals that have had contact with AOD services and have an alcohol-specific principal or other relevant diagnosis, all ages

Rationale: In New Zealand, mental and substance use disorders are the fourth leading cause of health loss for all ages, and leading cause of health loss in the 15-49 year age group (IHME, 2016). Alcohol is an intoxicant, toxin, and addictive psychotropic drug that can lead to dependence and contribute towards mental health disorders. Some individuals with hazardous alcohol consumption receive treatment from Alcohol and Drug specialist services.

Numerator: PRIMHD: Number of individuals, per year, that have had contact with AOD Team services and have an alcohol-specific condition as principal or other relevant diagnosis, all ages

Denominator: PRIMHD: Number of unique individuals, per year, that have had contact with AOD services and have a primary or other relevant diagnosis coded

Methodology: Prevalence has been derived from the analysis of the PRIMHD activity and classification datasets, 2009-2016. Classifications, or diagnoses, are attached to referral

identification numbers and should relate to activities in the activity dataset. Individuals may have more than one principal or other relevant diagnosis at any time.

Using NHI, referral identification and organisation identification, principal (A) and other relevant diagnoses (B) were mapped from the PRIMHD classification dataset to the PRIMHD activity dataset. The method to identify AOD services in PRIMHD is that used by MOH analytical services as defined above in indicator 3.2.5.1. Activities were identified in every year that they span. Activities with a missing end date were identified in the year of the start date only. AOD service activities that occurred within the duration of a principal or other relevant diagnosis code were flagged as having a diagnosis code. Unique individuals were counted once per year and all diagnosis codes applied to an individual in that year identified. Individuals with alcohol-specific mental and behavioural diagnoses were then identified[21]. Demographic data from the first encounter was used for descriptive analysis. Ethnicity was determined using the prioritised method.

Notes on interpretation:

- Indicator prevalence cannot be used to estimate the prevalence of alcohol-specific conditions requiring AOD services in Counties Manukau. Many individuals eligible for AOD services will not access them.
- Access to services is influenced by many determinants outside the scope of this analysis including the availability, acceptability and quality of services.
- Indicator accuracy is limited by dataset capacity and the completeness and quality of diagnosis coding.
- Analysis by NZDep quintile is presented for 2016. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. PRIMHD data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in PRIMHD. The CAU-based denominator and the domicile-based numerator match in 2016.

Trends and distribution

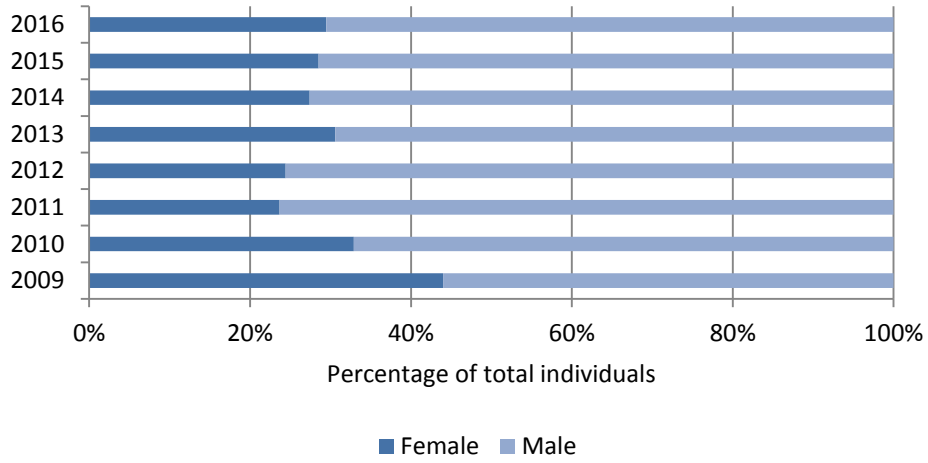
During 2009-2016, approximately three quarters of individuals identified as having contact with AOD services had a diagnosis code applied (Table 42 in Appendix 4). Of those individuals with diagnosis codes, on average nearly 11% had an alcohol-specific diagnosis. During 2009-2016 diagnosis code coverage has declined, while the proportion of alcohol-specific diagnoses has increased.

During 2009-2016, the proportion of CM Health residents with alcohol-specific codes was consistently higher for males (Figure 45). The pattern by age group has been relatively stable with the greatest proportion aged 25-44 (Figure 46). During 2009-2016 the proportion with Other prioritised ethnicity has decreased and Maaori increased so that proportions were similar in 2016 and comprise of approximately one third each (Figure 47). The Pacific proportion has been stable from 2010 to 2016 at around 25%. Asian comprises the smallest proportion and has remained between 4-8%. The distribution by locality has been relatively stable from 2010-2016 with the greatest proportions in Manukau, followed by Mangere/Otara, Eastern, and Franklin (Figure 48). Number tables by sex (Table 43), age group (Table 44), ethnicity (Table 45), and locality (Table 46) are available in Appendix 4.

[21] Principal or other relevant diagnosis code of mental and behavioural disorder due to use of alcohol (includes ICD-10 code F10 and DSM-IV equivalent codes)

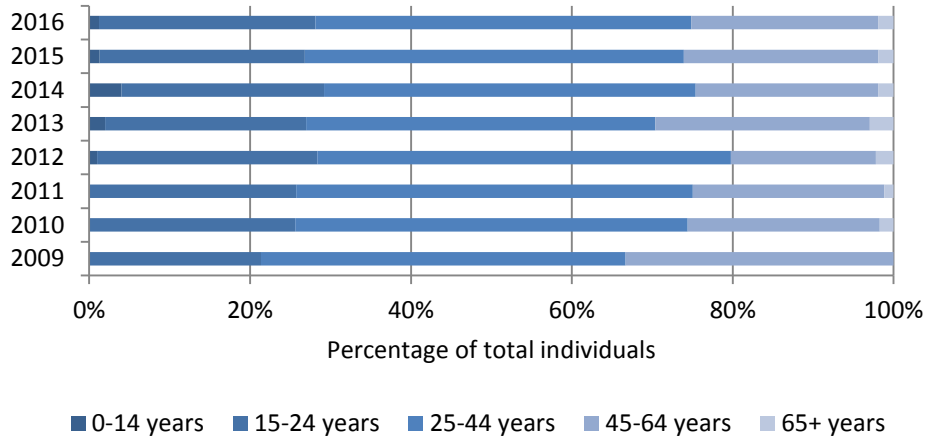
Age-standardised rate trends for CM Health residents that have had contact with AOD services and have alcohol-specific diagnoses are similar to the all AOD rate trends. Rates are highest in males, those aged 15-24 and 25-44, Maaori, and those residing in Manukau and Mangere/Otara[22].

Figure 45: CM Health residents that have had AOD service contact and have an alcohol-specific diagnosis, by sex and year, 2009-2016



Source: PRIMHD 2009-2016, MOH; analysed by CM Health

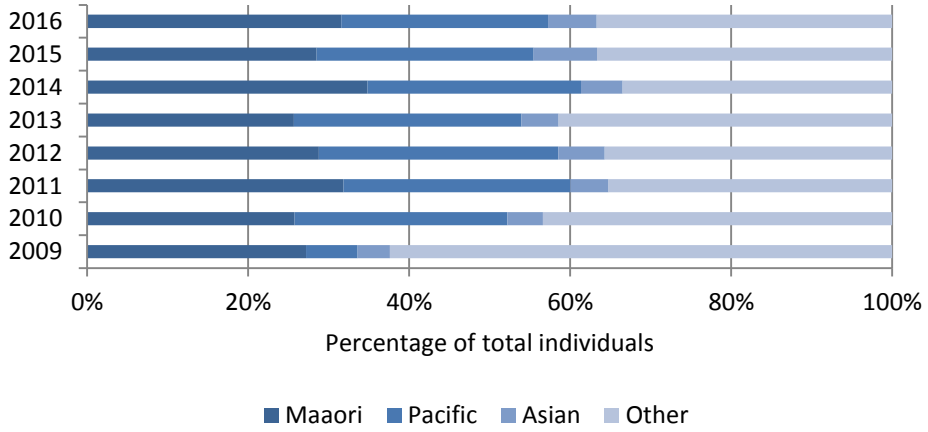
Figure 46: CM Health residents that have had AOD service contact and have an alcohol-specific diagnosis, by age group and year, 2009-2016



Source: PRIMHD 2009-2016, MOH; analysed by CM Health

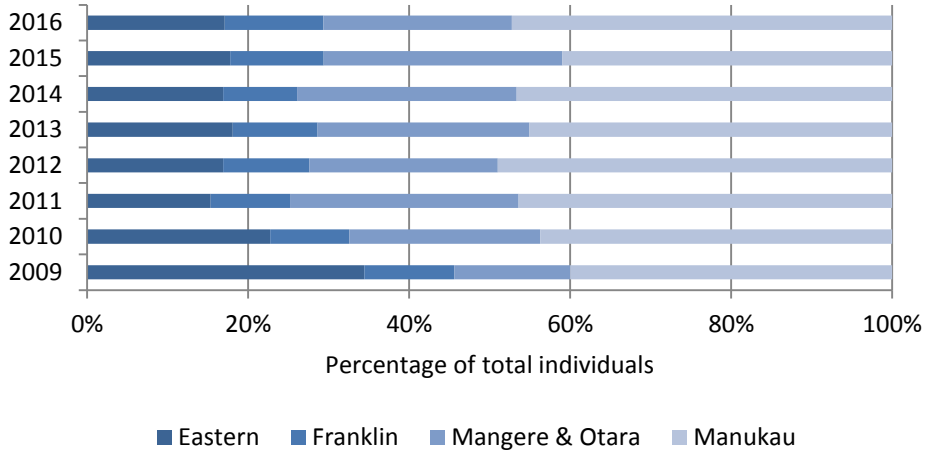
[22] Rates have not been included due to small volumes and increased variability

Figure 47: CM Health residents that have had AOD service contact and have an alcohol-specific diagnosis, by ethnicity and year, 2009-2016



Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Figure 48: CM Health residents that have had AOD service contact and have an alcohol-specific diagnosis, by locality and year, 2009-2016



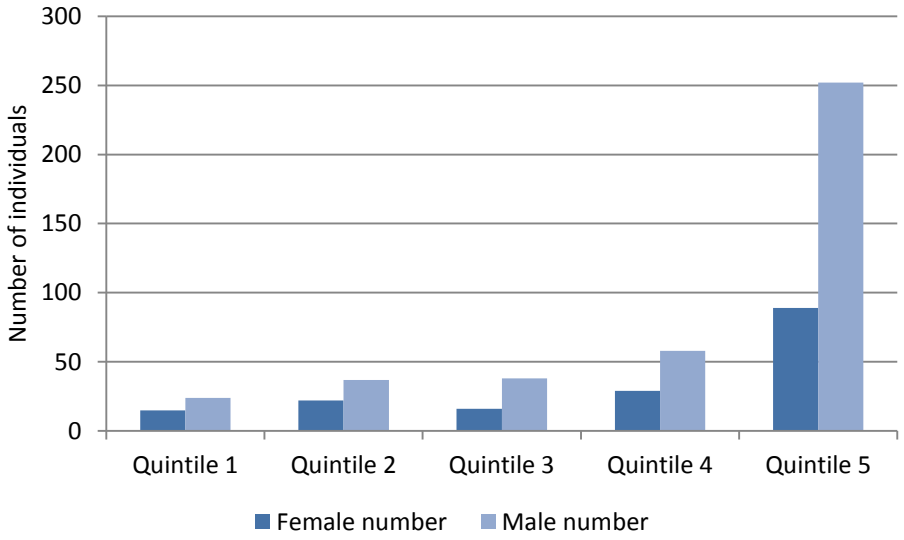
Source: PRIMHD 2009-2016, MOH; analysed by CM Health

AOD service contact and alcohol-specific diagnosis snapshot, 2016

Low numbers limit locality analysis by demographic variables. Distribution by ethnicity reflects the pattern seen in the AOD team indicator (3.2.5.1). Volumes are highest for Maaori and Other (see Table 45 in Appendix 4); however, age-standardised rates are highest for Maaori[23]. Consistent with the AOD team indicator findings, a social gradient is apparent for both females and males with both volume and rate being highest in the most socio-economically deprived quintile (Figure 49).

[23] Rates have not been included due to small volumes and increased variability

Figure 49: Number of CM Health residents that have had AOD contact and have alcohol-specific diagnoses, by sex and NZDep2013 quintile, 2016



Source: PRIMHD 2016, MOH; analysed by CM Health
Rates have not been included due to small volumes and increased variability

Insights and recommendations

- This indicator is derived from a national dataset and could be produced for DHBs throughout New Zealand.
- Indicator accuracy is limited by classification data quality and completeness. Many individuals have no diagnosis recorded in PRIMHD and when recorded can be of low specificity.
- A diagnosis is not required to be submitted within the first three months of treatment, therefore those who receive short term treatment are unlikely to have a diagnosis recorded. When short term treatment records are included, approximately one third have a non-specific code. When short term treatment records are excluded, this reduces to less than 7%[24].
- Improved diagnosis coding quality would enable more robust and meaningful analysis.
- Small numbers limits sub group analysis and the production of age-standardised rates.
- Data is available at CAU level and analysis is possible by residential locality. Small numbers are likely to limit analysis by LBA.

[24] Source: MOH PRIMHD classification – Summary and Metadata version 1.3 updated 13/03/2018.

3.2.6 Family harm and alcohol

Data sources and methodology

Definition: Prevalence of family harm call outs reported to have alcohol involved

Rationale: Harm from alcohol extends beyond the individual and can result in harm to children, whaanau, friends, and the wider community (Connor & Casswell, 2012). Research has estimated that one in five New Zealanders felt alcohol had a harmful effect on their home life (Habgood, 2001). In the US, alcohol was identified as a key factor in two-thirds of intimate partner violence events (Greenfield, 1998). Family violence has lifelong effects on brain development that negatively affect children's ability to learn, solve problems, and relate to others (NSCDC, 2010).

Numerator: Whaangaia Naa Paa Harakeke (WNPH) bespoke database: Number of family harm events reported to have alcohol involved

Denominator: Police National Intelligence Application (NIA): Number of reported family harm events

Methodology: Prevalence percentages have been derived from the analysis of the Whaangaia Naa Paa Harakeke bespoke database by the Evidence and Insights team for the Mangere Social Investment Board (SIB). In CM, family harm events are identified as 5F events and Police reporting includes the completion of a subjective alcohol involvement flag. Data from 5F events are entered into the bespoke database, as well as the Police NIA database.

Notes on interpretation:

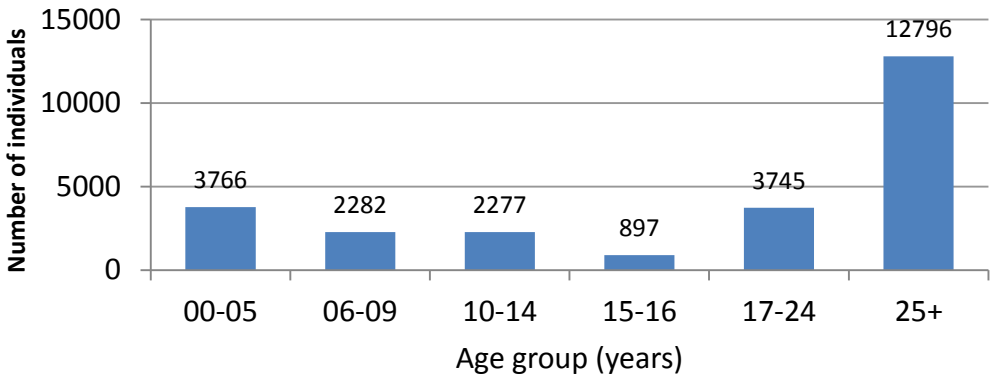
- Estimating the prevalence of alcohol-related family harm using Police report data is likely to be an under-estimation of true prevalence. Reported family harm represents only a proportion of whaanau experiencing harm.
- Reporting of alcohol involvement is subjectively determined and may not accurately reflect the true involvement of alcohol in reported family harm events.
- Reporting of family harm events is influenced by many determinants outside the scope of this analysis.

Family harm and alcohol snapshot

In the CM Police district during 3 July 2017 to 21 January 2018, 25,793 unique individuals have been involved in family violence of which 15% were children aged 5 and under (Figure 50). Maaori are disproportionately affected by family harm and comprise 38% of individuals involved in family harm (Figure 51). Approximately one in five family harm events were reported as having alcohol involved. Prevalence in the North district (24.5%) is slightly higher than in the South[25] (22.5%)(Figure 52).

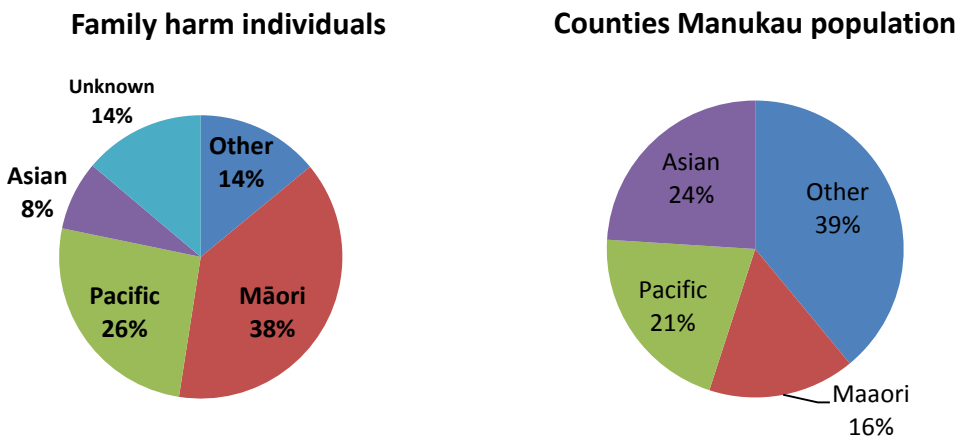
[25] The CM Police District is divided into four geographic areas – East, West, Central and South. For family harm, North and South geographic areas are used. North includes East and West. South includes Central and South. CM Police District geographic boundaries are available at http://www.police.govt.nz/about-us/structure/police-districts/counties-manukau

Figure 50: Number of unique individuals involved in a family harm event in CM District by age group, 3 July 2017 – 21 January 2018



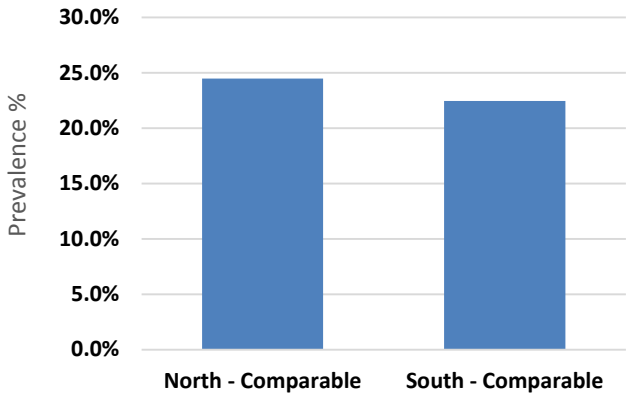
Source: Evidence and Insights Team, South Auckland SIB

Figure 51: Unique family harm individuals vs Counties Manukau population, by ethnicity, 3 July 2017 – 21 January 2018



Source: Family Harm from Evidence and Insights Team, Mangere SIB; CM population from 2016 estimated resident population projection based on NZ census 2013, analysed by CM Health

Figure 52: Prevalence of family harm events with alcohol involved, North and South district areas, 3 July 2017 – 31 January 2018



Source: Evidence and Insights Team, Mangere SIB

Insights and recommendations

- This indicator provides insight into alcohol-involvement in family harm, yet it is important to recognise data quality limitations. Subjective classification is likely to result in mis-classification of alcohol involvement.
- The ongoing collection of family harm data will produce valuable longitudinal data. National developments (e.g. introduction of a standardised 5F application tool for frontline recording of family harm incidents), will support data quality improvements and enable more robust national analysis and regional comparison.
- Police data is recorded at meshblock level and has been provided by Police District. It is anticipated that analysis would be possible by CM locality, NZDep quintile and potentially LBA if data were shared at this level.

4 Summary

This report demonstrates the ability to produce a range of alcohol-related harm indicators for CM Health within the context of a New Zealand specific alcohol-harm matrix. Process and findings are strengthened by being Maaori centred. The proposed matrix recognises and prioritises te ao Maaori and takes a holistic view of wellbeing. Indicators are described by ethnicity and describe the disproportionate burden of harm on Maaori. Limited resources prevented the inclusion of extensive consultative and collaborative processes with Mana Whenua and would further strengthen this work.

The selected indicators provide a population-level description of alcohol-related harm in Counties Manukau. Development of some indicators has been shaped by existing New Zealand health indicators such as those produced by *healthspace*, Massey University. Other indicators are produced at CM Health level for the first time and are the result of dataset exploration to make the best use of currently available alcohol-related harm data (e.g. paediatric outpatients, PRIMHD, and Police family harm) and the development of alternative indicator definitions (e.g. deaths and hospital admissions from alcohol-specific conditions). Analysis by locality and NZDep quintile enables geographic and socioeconomic trends to be explored. Variability in dataset quality has been identified and recognised as an important consideration when interpreting outputs. NMDS and Mortality are examples of robust datasets with high data quality and completeness. PRIMHD is an example of data with significant diagnosis code quality and specificity issues. Local bespoke datasets (Paediatric outpatients and Whaangaia Naa Paa Karakeke) demonstrate national opportunities for data collection.

The indicators developed provide data to describe the burden and distribution of determinants of alcohol-related harm and alcohol-related harms themselves. This information supports the development of effective and equitable alcohol-harm minimisation actions in CM Health and provides evidence for healthy public policy. The proposed alcohol-related harm matrix provides a framework, reflecting Maaori models of health, to guide the development of future indicators so as to capture the broad impact of alcohol-related harm.

The Counties Manukau alcohol harm profile presented here is not complete. The purpose of this report has been to primarily explore the potential of health datasets; consequently, indicators have not been produced in the Te Oranga, Mauriora, and Taiao domains of alcohol-related harm and this could be a focus of future development. The indicators selected and described in this report also require further development. New Zealand specific AAFs are required to expand mortality, hospital admission and alcohol-related mental health diagnoses to include conditions that are partially attributable to alcohol. Efforts to improve

data completeness and specificity in datasets with limited data quality are required to improve indicator accuracy. Consultation and co-design processes with Mana Whenua and the community is needed to further develop and validate the proposed alcohol harm matrix and indicators so that they reflect the perspectives and aspirations of the Maaori community in CM Health.

Single alcohol-related harm measures do not capture the full breadth of individual, whaanau, and community impacts. This report attempts to bring a range of indicators together to create a population level 'picture' of alcohol-related harm. By framing the selected indicators within the broad context of the 'alcohol harm matrix', it is acknowledged that the selection of indicators in this report is itself limited and only portrays part of the full 'picture'. There is opportunity in the future to expand the indicator set to cover a full range of alcohol-related harms as described in the matrix.

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Appendix 1: Alcohol-harm data dictionary of potential indicators using health data sources

Data source	Data set	Indicator name	Numerator definition (source)	Denominator definition (source)	Measures of frequency (variables)	Geographical level of data	Frequency (Period)	Brief notes
Determinant of alcohol-related harm								
Ministry of Health (MOH)	New Zealand Health Survey (NZHS)	Prevalence of self-reported hazardous alcohol consumption, 15 years and over	Number of NZHS respondents, aged 15 years and over, with AUDIT score ≥8 (NZHS)	Number of NZHS respondents, aged 15 and over (NZHS)	NZHS: Age, sex, ethnicity	NZHS: DHB	2006-07, 2011-14	Underestimates hazardous alcohol use. 2014-2017 data excluded hazardous alcohol use
Alcohol Regulatory and Licence Authority (ARLA)	Alcohol licence registry	Alcohol licence density	Number of liquor licences including on-licences, off-licences and club licences (ARLA)	Mid-year populations estimates, aged 15+ years, as at 30 June (SNZ) Land area (m^2)	**SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	healthspace[26]: Meshblock SNZ: CAU	2016	healthspace has indicator to territorial authority, local board area, and CAU level for 2016. Will continue to expand indicator retrospectively.
MOH	National Maternity Collection (MAT)	Prevalence of alcohol consumption in pregnancy	Number of pregnant women, per year, consuming alcohol at time of booking with lead maternity caregiver	Number of pregnant women, per year, booked with a lead maternity carer	MAT: Age, ethnicity	MAT: Domicile	2000 -	Although MAT contains an alcohol field, the field is infrequently completed limiting utility at this stage
CM Health	Maternity Clinical Information System (MCIS)	Alcohol consumption in pregnancy	Number of pregnant women domiciled in CM, per year, consuming alcohol prior to booking with community midwife	Number of pregnant women domiciled in CM, per year, booked with community midwife				Although MCIS contains an alcohol field, the field is infrequently completed limiting utility at this stage

[26] *Healthspace,* Massey University has produced alcohol-related harm indicators available at http://cphronline.massey.ac.nz/

Data source	Data set	Indicator name	Numerator definition (source)	Denominator definition (source)	Measures of frequency (variables)	Geographical level of data	Frequency (Period)	Brief notes
Primary Health Organisation (PHO)	PHO dataset	Hazardous alcohol use in PHO enrolled CM residents	Number of CM domiciled residents, aged 12+, enrolled in a PHO with AUDIT-C score ≥5 per year (PHO)	Number of residents, aged 12+, enrolled in CM PHOs (PHO)			2017 -	Data not yet routinely collected across PHOs and practices
Hauora – Tinana + hinengaro								
MOH	Mortality collection (MORT)	Deaths from alcohol-specific[27] conditions (AAF[28]=1)	Number of deaths where alcohol-specific conditions are a cause of death (five years pooled) based on underlying and contributory cause of death registered in the calendar year, all ages (MORT)	Mid-year population estimates as at 30 June, five years pooled , all ages (SNZ)	**MORT**: Age, sex, ethnicity, NZDep **SNZ** CAU[29]: Age, sex, DHB: Age, sex, ethnicity	MORT: Domicile code SNZ: CAU	Annual (1988 -)	Represents a very limited view of alcohol-related harm. Likely limited by coding error.
MOH	MORT	Deaths from alcohol-related[30] conditions (AAF<1)	Number of deaths where alcohol-related conditions are a cause of death (five years pooled) based on underlying and contributory cause of death registered in the calendar year, all ages (MORT)	Mid-year population estimates as at 30 June, five years pooled, all ages (SNZ)	**MORT**: Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	MORT: Domicile code SNZ: CAU	Annual (1988 -)	Identifies conditions where alcohol can be a contributing factor. Likely limited by coding error.
MOH	MORT	Deaths involving alcohol	Number of deaths (five years pooled), where "alcohol_involved" = Y (yes) (MORT)	Mid-year population estimates as at 30 June, five years pooled, all ages (SNZ)	**MORT**: Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	MORT: Domicile code SNZ: CAU	Annual (1988 -)	Identifies deaths where alcohol has been a contributing factor. Limited as field not routinely completed.

[27] Alcohol specific = wholly alcohol-attributable conditions

[28] AAF = Alcohol-attributable fraction

[29] CAU = Census area unit – an aggregation of meshblocks (equivalent to domicile)

[30] Partially alcohol-attributable conditions

Data source	Data set	Indicator name	Numerator definition (source)	Denominator definition (source)	Measures of frequency (variables)	Geographical level of data	Frequency (Period)	Brief notes
MOH	National Minimum Dataset (NMDS)	Hospital admissions for alcohol-specific conditions **Narrow definition**	Number of hospital admissions, per year, where the primary diagnosis or a secondary external cause code is an alcohol-specific condition (NMDS)	Mid-year population estimates as at 30 June,, all ages (SNZ)	**NMDS**: Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex DHB: Age, sex, ethnicity	NMDS: Domicile code SNZ: CAU	Monthly 13-month rolling download (1988 – date)	Only identifies admissions where alcohol is the cause of the principal diagnosis. Likely limited by coding error.
MOH	NMDS	Hospital admissions where alcohol-specific conditions **Broad definition**	Number of hospital admissions, per year, where an alcohol specific condition is a principal or secondary diagnosis (NMDS)	Mid-year population estimates as at 30 June,, all ages (SNZ)	**NMDS**: Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex DHB: Age, sex, ethnicity	NMDS: Domicile code SNZ: CAU	Monthly 13-month rolling download (1988 – date)	Includes admissions where alcohol is the cause of contributory or coexisting conditions in addition to the principal diagnosis. Likely limited by coding error.
MOH	NMDS	Hospital admissions for alcohol-related conditions **Narrow definition**	Number of hospital admissions, per year, where the principal diagnosis or a secondary external cause code is an alcohol-related condition (NMDS)	Mid-year population estimates as at 30 June,, all ages (SNZ)	**NMDS**: Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex DHB: Age, sex, ethnicity	NMDS: Domicile code SNZ: CAU	Monthly 13-month rolling download (1988 – date)	Requires AAFs. Includes conditions where alcohol is a contributing factor.
MOH	NMDS	Hospital admission for alcohol-related conditions **Broad definition**	Number of hospital admissions, per year, where an alcohol-related condition is a primary or secondary diagnosis (NMDS)	Mid-year population estimates as at 30 June,, all ages (SNZ)	**NMDS**: Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex DHB: Age, sex, ethnicity	NMDS: Domicile code SNZ: CAU	Monthly 13-month rolling download (1988 – date)	Includes admissions where alcohol-related conditions are contributory or co-existing conditions in addition to the principal diagnosis. Very broad. Requires AAFs.

Data source	Data set	Indicator name	Numerator definition (source)	Denominator definition (source)	Measures of frequency (variables)	Geographical level of data	Frequency (Period)	Brief notes
CM Health / MOH	CMH data warehouse / National Non-Admitted Patient Collection [NNPAC]	Alcohol-involved Emergency Department (ED) encounters	Number of ED events, per year, where alcohol involved flag[31] = Y or S (CMH/NNPAC)	Number of ED events, per year, where alcohol flag entered (CMH/NNPAC)	NNPAC: Age, sex, ethnicity, NZDep	CMH/NMDS: Domicile code	NNPAC Quarterly (2017 -)	Alcohol flag coverage likely to be incomplete. Coding inconsistencies and mis-coding likely
NZTA	Crash Analysis System (CAS)	Alcohol-related motor vehicle crashes	Number of alcohol-related motor vehicle crashes (CAS)	Mid-year population estimates as at 30 June,, all ages (SNZ)	CAS: NZDep	CAS: Incident location to CAU	Custom extract	Motor vehicle crashes are likely underreported and the coding of alcohol involvement inconsistent.
NZTA	CAS	Alcohol-related motor vehicle crashes resulting in injury	Number of alcohol-involved crashes, by three year interval, associated with an injury (CAS)	Number of alcohol related crashes, by three year interval (CAS)	Fatal vs non fatal	CAS: Incident location to CAU	Custom extract	Motor vehicle crashes are likely underreported, particularly non-fatal injuries, and the coding of alcohol involvement inconsistent.
MOH	NZ Cancer registry (NZCR)	Registered cancer diagnoses partially attributable to alcohol (NZCR)	Number of partially alcohol-attributable cancers diagnosed per year in CM residential domiciles	Mid-year population estimates as at 30 June, all ages (SNZ)	**NZCR**: Age, sex, ethnicity **SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	NZCR: Domicile SNZ: CAU	Annual (1994 -)	Requires AAF for meaningful analysis
CM Health	Paediatric outpatient dataset (Netezza)	Paediatric outpatient appointments and Foetal Alcohol Spectrum Disorder (Netezza)	Number of unique individuals attending paediatric outpatients, two years pooled, where FASD is coded (Netezza)	Number of unique individuals attending paediatric outpatients, two years pooled, that have been coded (Netezza)	**CMH:** Age, sex, ethnicity, NZDep **SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	CMH: Meshblock SNZ: CAU	Custom extract	Only gives indication of burden of FASD on outpatients. Likely limited by coding error.

[31] Y = yes; N = no; U = unknown; S = secondary (presentation is as a consequence of others' alcohol consumption)

Data source	Data set	Indicator name	Numerator definition (source)	Denominator definition (source)	Measures of frequency (variables)	Geographical level of data	Frequency (Period)	Brief notes
MOH	Project for the Integration of Mental Health Data (PRIMHD)	Alcohol and Drug Team contact and alcohol-specific conditions	Number of unique individuals, per year, with Alcohol and Drug Team service contact (PRIMHD)	Mid-year population estimates as at 30 June,, all ages (SNZ)	**PRIMHD**: DOB, sex, ethnicity **SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	PRIMHD: Domicile code SNZ: CAU	Annual (2008 -)	Dataset capacity limits ability to identify alcohol-related contacts
MOH	PRIMHD	Alcohol and Drug Team service contacts and alcohol-specific diagnoses	Number of unique individuals, per year, that have had contact with Alcohol and Drug Team service and have an alcohol-specific condition as principal or other relevant diagnosis	Number of unique individuals, per year, that have had contact with Alcohol and Drug Team service and have a principal or other relevant diagnosis coded (PRIMHD)	**PRIMHD**: DOB, sex, ethnicity **SNZ** CAU: Age, sex, DHB: Age, sex, ethnicity	PRIMHD: Domicile code SNZ: CAU	Annual (2008-)	Dataset capacity will limit accuracy
Homecare Medical	Alcohol drug helpline (ADH) data	Calls to alcohol drug helpline related to alcohol	Number of calls to ADH, per year, where alcohol was reported as the primary drug by service users (ADH)	Number of calls to ADH, per year (ADH)	ADH: Age, sex, ethnicity	ADH: DHB	Quarterly	Service user desire for anonymity means that geographical location data is very limited. About 50% provide location. Alcohol is the primary drug of user in 50% of calls
Auckland District Health Board (ADHB)	Trauma registry (TR)	Alcohol-related trauma	Number of trauma events, per year, with blood alcohol concentration (BAC) greater than legal driving limit (TR)	Number of registered trauma events per year in CM domiciles (TR)		Incident location	Not routinely extracted.	Limited to ADHB. Major trauma should have BAC measured
St John		Alcohol-related ambulance call outs	Number of alcohol-related call outs per year	Number of call outs per year				Indicator has not been explored
Watersafe		Alcohol-related drowning	Number of drownings, per year, where alcohol is involved	Number of drownings, per year				Indicator has not been explored
Police	Whaangaia Naa Paa Harakeke (WNPH)	Family harm and alcohol	Number of family harm events reported to have alcohol involved (WNPH)	Number of reported family harm events (National Intelligence application)	Age, ethnicity	CM Police Districts (North + South)	Bespoke database. Not routinely extracted	Data provided by evidence and Insights team for Mangere Social Investment Board.

Appendix 2: Metadata for indicators

Indicator number	2.1.1
Indicator name	**Hazardous alcohol use**
Indicator definition	Prevalence of self-reported hazardous alcohol consumption, 15 years and over
Rationale	Alcohol-related harm is associated with volume and pattern of consumption. Monitoring of alcohol use is recommended by the WHO (WHO, 2010). The Ministry of Health (MOH) delivered New Zealand Health Survey (NZHS), a national population-based health survey with a response rate of around 80%, reports on the prevalence of hazardous alcohol use in New Zealand. Regional prevalence data is periodically published by the MOH. 2014-2017 regional results exclude hazardous alcohol use.
Numerator definition	Number of NZHS respondents, aged 15 and over, with Alcohol Use Disorders Identification Tool (AUDIT) score of 8 or over *Data source: NZHS*
Denominator definition	Number of NZHS respondents, aged 15 and over *Data source: NZHS*
Methodology	The NZHS includes the WHO developed AUDIT screening tool for adults aged 15 and over. A score of 8 points or more indicates hazardous drinking. DHB level data has been released for 2006/07 and 2011-2014. 2011-2014 results are based on three years of data pooled (2011/12, 2012/13, 2013/14). Crude prevalence data were extracted from MOH data tables[32]. Ethnicity was determined using the total response method and is reported by the MOH as Maaori and non-Maaori at the DHB level.
Time period	2006/07, 2011-14
Population coverage	CM Health domiciled residents, aged 15 and over
Measures of frequency (variables)	Prevalence by sex, age, and total response ethnicity
Limitations / caveats	AUDIT data is self-reported and is a potential source of bias. Self-reported alcohol consumption may differ from objectively measured data. Crude prevalence is provided by the MOH and is used for analysis. Adjusted rate ratios are provided by the MOH for 2011-2014 only. Survey prevalence provides an estimate of population prevalence and may differ if the NZHS sample is not representative of the population.
References	MOH. (2016). *Health loss in New Zealand 1990 – 2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors study.* Wellington: Ministry of Health WHO. (2010). *World Health Organisation Global strategy to reduce harmful use of alcohol*. Geneva: WHO.

[32] Data tables available from https://www.health.govt.nz/publication/regional-results-2011-2014-new-zealand-health-survey

Indicator number	2.1.2
Indicator name	**Alcohol licence density**
Indicator definition	Population density: Number of alcohol licences per 10,000 adults aged 15 years and over Geographical density: Number of alcohol licences per 100km^2
Rationale	Increased alcohol outlet density is associated with increased alcohol-related harm (Connor, 2010). In Manukau City, higher density of alcohol outlets, particularly off-licence, has been associated with more police events and motor vehicle accidents (Cameron et al., 2012). The Alcohol Regulatory and Licensing Authority (ARLA) maintains alcohol licence data providing the opportunity to inform understanding of local alcohol licence density.
Numerator definition	Number of liquor licences including on-licences, off-licences, and club licences. Excludes special licences. Similar to Cameron et al (2013), the following licence subtypes were excluded: conveyances (e.g. boats, planes), mail order, hospitals, caterer endorsed, auctioneer endorsed, winemakers, complimentary, and complementary to type of goods sold. *Data source: Alcohol Regulatory and Licensing Authority, Ministry of Justice*[33]
Denominator definition	Mid-year population estimates as at 30 June (SNZ) Land area in square kilometres, excluding area for water bodies *Data source: Statistics New Zealand population estimates and land area*
Methodology	Methodology is that used by Environmental Health Indicators Programme (EHI), Massey University. Licence data was cleaned and addresses geocoded by EHI with a 99% match rate. Duplicates were identified and removed by examining the licence number, premise name, street address, licence type and sub-type, licence dates and licence application type. Repeats of licences where only the licence conditions or licensee details were amended were treated as duplicates. Crude density rates were calculated by CM Health for the number of total licences as well by the main categories of licences – on-licence, off-licence and club licence. Physical locations with premises supplying alcohol can hold more than one type of licence. Licences without address data have not been included in analysis. Results were suppressed for CAUs with populations of 30 or less. Density was not calculated for CAUs of inland water bodies, uninhabited or scenic reserve islands, or covering ocean areas e.g. marina CAUs.
Time period	Single time point. Licences as at 7 June 2016.
Population coverage	All CM Health domiciled residents

[33] Data downloaded from https://www.justice.govt.nz/tribunals/licences-certificates/arla/register-of-licences-and-certificates/ by Healthspace, Massey University

Measures of frequency (variables)	Rates calculated by total licence, on-licence, off-licence, and club licence.
Limitations / caveats	Estimating alcohol availability from this indicator is not recommended. Licence density reflects only one aspect of alcohol availability and does not consider trading hours. Infrequent dataset updates limit indicator accuracy and the ability to examine density over time. The central registrar, updated three monthly by ARLA, is not complete and does not reflect recent activity in alcohol outlet licensing.
References	Cameron, M. P., Cochrane, W., McNeill, K., Melbourne, P., Morrison, S. L., & Robertson, N. (2012). Alcohol outlet density is related to police events and motor vehicle accidents in Manukau City, New Zealand. *Australian and New Zealand journal of public health, 36*(6), 537-542. Cameron, M.P., Cochrane, W., Gordon, C., and Livingstone, M. (2013). *The locally-specific impacts of alcohol outlet density in the North Island of New Zealand, 2006-2011. Research report commissioned by the Health Promotion Agency*. Wellington: Health Promotion Agency. Gruenewald, P. J., Millar, A. B., & Treno, A. J. (1993). Alcohol availability and the ecology of drinking behavior. *Alcohol Research and Health, 17*(1), 39.

Indicator number	2.2.1
Indicator name	**Alcohol-specific mortality**
Indicator definition	Deaths where alcohol-specific conditions are an underlying or contributory cause of death, all ages, age standardised rate per 100,000 population. Alcohol-specific conditions are wholly attributable to alcohol and are defined in appendix 3.
Rationale	Alcohol use is the eighth leading risk factor overall, and leading risk factor in the 15-49 age group, for mortality in New Zealand (IHME, 2016). Alcohol-specific mortality rate is used internationally to report alcohol-related harm. Mortality data are routinely collected in New Zealand and include recording one, and only one, underlying cause of death and any contributory causes.
Numerator definition	Number of deaths where alcohol-specific conditions are a cause of death (five years pooled) based on underlying and contributory cause of death registered in the calendar year, all ages *Data source: Mortality Collection (MORT), Ministry of Health*
Denominator definition	Mid-year population estimates of CM residents as at 30 June (SNZ), five years pooled, all ages *Data source: Statistics New Zealand population estimates*
Methodology	Mortality rates have been derived from analysis of encrypted (anonymised) National Health index (NHI) event data from MORT, 2005-2014. Deaths with alcohol-specific conditions coded as the underlying cause of death (diagnosis type D) or selected

	contributory cause B1 and B2 (diagnosis type F and G) were extracted and analysed. Small numbers required the pooling of five years data. Numbers have been suppressed and excluded when less than five. Ethnicity was determined from the prioritised method[34]. The same demographic variables were used for both numerator and denominator figures to reduce numerator/denominator mismatch. Direct age standardisation was based on the WHO World Standard Population. The gamma method was used to calculate 95% confidence intervals for age standardised rates as recommended by the Washington State Department of Health (WSDH, 2012). Small numbers prevented snapshot analysis of a single year.
Time period	Calendar year based on the date of underlying cause of death registration, 2005-2014
Population coverage	All CM Health domiciled residents
Measures of frequency (variables)	Rates calculated by age group, sex, ethnicity, NZDep quintile (2014 only), and region (CM locality)
Limitations / caveats	This indicator estimates the mortality rate from conditions wholly attributable to alcohol. It is not an estimate of broader alcohol-related mortality. Partially attributable conditions, such as cancer, are excluded. The inclusion of contributory causes, in addition to underlying cause of death, creates an indicator that is more inclusive of deaths from alcohol-specific conditions. For example, a death may occur from a cerebrovascular thrombotic event (ischaemic stroke) in an individual with alcoholic cardiomyopathy. The underlying cause of death would be coded as a stroke, and alcoholic cardiomyopathy a contributory cause. Analysis by NZDep quintile is presented for 2014. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. MORT data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in MORT. The CAU-based denominator and the domicile-based numerator match in 2014. Mis-classification of cause of death will limit data quality. Small numbers preclude a one year snapshot analysis. An alcohol-involved flag is routinely reported for mortality events. The high proportion of 'unknown' responses limits utility of this field as an indicator of alcohol-related harm.
References	IHME. (2016). GBD Compare, from https://vizhub.healthdata.org/gbd-compare/ WSDH. (2012). Guidelines for using confidence intervals for public health assessment, from https://www.doh.wa.gov/Portals/1/Documents/1500/ConfIntGuide.pdf

[34] A single ethnic group is allocated to each person using a priority system: Maaori, Pacific Peoples, Asian, Other groups except NZ European)

Indicator number	2.2.2
Indicator name	**Alcohol-specific hospital admissions**
Indicator definition	Hospital admissions where the principal or secondary diagnosis is an alcohol-specific condition, age standardised rate per 100,000 population, all ages Alcohol-specific conditions are wholly attributable to alcohol and are defined in appendix 3.
Rationale	Alcohol use is the fourth leading risk factor overall, and leading risk factor in the 15-49 year age group, for morbidity (Disability-adjusted Life Years) in New Zealand (IHME, 2016). The harmful impacts of hazardous alcohol use in New Zealand are divided almost equally between injury and chronic disease outcomes (MOH, 2016) and contribute towards hospital admissions for a range of conditions. Alcohol-specific hospital admissions are utilised internationally as an indicator of alcohol-related harm.
Numerator definition	Number of hospital admissions[35], per year, where an alcohol specific condition is a principal or secondary diagnosis[36] *Data source: National Minimum Dataset (NMDS), Ministry of Health.*
Denominator definition	Mid-year population estimate as at 30 June, all ages *Data source: Statistics New Zealand population estimates*
Methodology	Hospital admission rates have been derived from analysis of encrypted (anonymised) NHI event data from NMDS, 2007-2016. Data were extracted from NMDS and restricted to casemix[37] only to enable comparison to national rates. There is significant variation in non-casemix events between District Health Boards (DHBs). Hospital admission events with alcohol-specific principal and/or secondary diagnosis codes were identified and each alcohol-specific code categorised into eight condition categories. Hospitalisation events can include more than one alcohol-specific diagnosis; therefore, an event may be coded into more than one condition category. The same demographic variables were used for both numerator and denominator figures to reduce numerator/denominator mismatch. Ethnicity was determined using the prioritised method. Direct age standardisation was based on the WHO World Standard Population. The gamma method was used to calculate 95% confidence intervals for age standardised rates as recommended by the Washington State Department of Health (WSDH, 2012)

[35] Hospital encounters of ≥3 hours duration

[36] Principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or attendance at the healthcare establishment, as represented by a code

Secondary diagnosis: A condition or complaint either coexisting with the principal diagnosis or arising during the episode

[37] Casemix concerns the mix of patients treated and casemix restriction excludes mental health events, disability, rehabilitation, health of older people services, and day stay procedures – treatments that are inconsistent across DHBs (ie- skin lesion removal, ophthalmology injections)

Time period	Calendar year based on the date of admission to hospital, 2007 to 2016
Population coverage	CM Health domiciled residents, all ages
Measures of frequency (variables)	Rates calculated by age group, sex, ethnicity, NZDep quintile (2016 only)[38], category of condition, and region (CM locality)
Limitations / caveats	This indicator estimates hospital admission rates from conditions wholly attributable to alcohol. It is not an estimate of broader alcohol-related admissions. Partially attributable conditions, such as cancer, are excluded. Data is event based and multiple events may be included for the unique individuals. Analysis by NZDep quintile is presented for 2016. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. NMDS data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in NMDS. The CAU-based denominator and the domicile-based numerator match in 2016. Mis-classification and non-specific diagnosis codes limit data quality.
References	IHME. (2016). GBD Compare, from https://vizhub.healthdata.org/gbd-compare/ MOH. (2016). *Health loss in New Zealand 1990 – 2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors study.* Wellington: Ministry of Health WSDH. (2012). Guidelines for using confidence intervals for public health assessment, from https://www.doh.wa.gov/Portals/1/Documents/1500/ConfIntGuide.pdf

Indicator number	2.2.3
Indicator name	**Alcohol-involved Emergency Department encounters**
Indicator definition	Prevalence of Emergency Department (ED) encounters where primary or secondary alcohol use is involved in the presentation
Rationale	Alcohol use is the fourth leading risk factor for morbidity and eighth leading risk factor for mortality, all ages, in New Zealand (IHME, 2016). The harmful impacts of hazardous alcohol use in New Zealand are divided almost equally between injury and chronic disease outcomes (MOH, 2016) and contribute towards ED presentations for a range of conditions. Measuring alcohol-involvement in ED presentations estimates the burden of alcohol-related presentations on ED services. The MOH requires DHBs to measure and report on alcohol-involvement in ED encounters.
Numerator definition	Number of MMH ED encounters, per month, with alcohol-involved code of yes (patient's use) or secondary (someone else's use), all ages *Data source: CM Health Data Warehouse*
Denominator definition	Number of MMH ED encounters, per month, all ages *Data source: CM Health Data Warehouse*
Methodology	Prevalence has been derived from analysis of data from the CM

[38] Census area units are redefined each census year and updating of NMDS is not complete until the following year. Analysis by NZDep quintile is limited to 2015-2016 to obtain consistent coding of census are units.

	Health Data Warehouse, Oct 2017-Jan 2018. At MMH ED, most patients are screened at triage using the initial question "Is alcohol associated with this presentation?" The triage nurse may elect to use clinical information and judgement to determine the most appropriate response when indicated. Responses include whether the presentation involves alcohol consumption by the patient (yes), alcohol consumption by someone else (secondary), no alcohol involvement (no), or alcohol involvement is unknown or could not be determined (unknown). Coding process has been constrained by patient management information technology limitations. At present, alcohol status is not revised throughout the ED encounter or admission. Ethnicity was determined using the prioritised method.
Time period	October 2017 – January 2018
Population coverage	MMH attendees, all ages
Measures of frequency (variables)	Sex, age group, prioritised ethnicity, NZDep quintile, locality, status outcome (admission, discharge etc)
Limitations / caveats	Estimating the prevalence of alcohol-related conditions from this indicator is not recommended. Many individuals with alcohol-related conditions will not attend ED. This indicator predominantly identifies ED presentations that either involve recent alcohol consumption or are wholly attributable to alcohol consumption. Chronic conditions, such as alcohol-related liver disease or alcohol-related cancer, are unlikely to be identified.
References	IHME. (2016). GBD Compare, from https://vizhub.healthdata.org/gbd-compare/ MOH. (2016). *Health loss in New Zealand 1990 – 2013: A report from the New Zealand Burden of Diseases, Injuries and Risk Factors study.* Wellington: Ministry of Health

Indicator number	2.2.4
Indicator name	**Paediatric outpatient attendees and fetal alcohol spectrum disorder (FASD)**
Indicator definition	Prevalence of unique individuals attending paediatric outpatient appointments where FASD has been coded, ages 0-17
Rationale	FASD is a preventable condition that includes a range of physical and neurodevelopmental impairments in people exposed to alcohol during pregnancy. FASD is suspected to be New Zealand's leading preventable cause of non-genetic intellectual disability (FASD Working Group, 2016); however, it is significantly under-recognised and data collection is limited.
Numerator definition	Number of unique individuals attending paediatric outpatient appointments (two years pooled), where FASD is coded, ages 0-17 *Data source: CM Health paediatric outpatient dataset (Netezza)*
Denominator definition	Number of unique individuals attending paediatric outpatient appointments (two years pooled), that have been coded and entered into the CM Health paediatric outpatient dataset. Ages 0-17, no exclusions. *Data source: Netezza*
Methodology	Prevalence has been derived from analysis of the paediatric

	outpatient dataset. Paediatric outpatient appointments at the Manukau Super Clinic are coded by clinicians based on the Sheffield system – a UK outpatient coding system. All diagnoses should be coded for each outpatient event. There is no differentiation between the principal diagnosis and contributory or co-existing diagnoses. Diagnostic codes are grouped under broad category headings – physical diagnosis, developmental diagnosis, behavioural diagnosis, neonatal diagnosis, generic, and child protection diagnosis. FASD is coded under Developmental diagnosis -> Miscellaneous -> FASD. Administrative support staff enter codes into the patient management system (iPM). Unique individuals were counted once during 2011-2016. Ethnicity and sex from the first encounter has been used to describe the unique individual when more than one outpatient appointment was attended. Age, and frequently address, change over a seven year period, subsequently these variables are described at the encounter level. Small numbers required the pooling of data into two year intervals and prevented single year snapshot analysis.
Time period	Calendar year based on the date of outpatient appointment, 2011-2016
Population coverage	All Manukau SuperClinic paediatric outpatient attendees
Measures of frequency (variables)	Proportions calculated by sex, ethnicity, age group, NZDep quintile and CM Health locality.
Limitations / caveats	Indicator prevalence cannot be used to estimate FASD prevalence in Counties Manukau. Many children with FASD will not have a diagnosis and of those that do, not all will attend outpatients. Adults with FASD are excluded from this indicator. Indicator accuracy is limited by dataset capacity and potentially by variation in clinician coding practices. It has been assumed that prioritised ethnicity and sex of outpatient attendees has not changed during 2011-2016.
References	FASD Working Group. (2016). *Taking Action on Fetal Alcohol Spectrum Disorder: 2016-2019: An action plan.* Wellington: Ministry of Health.

Indicator number	2.2.5.1
Indicator name	**Alcohol and Drug Team service contact**
Indicator definition	Alcohol and Drug team (AOD) service contacts, age standardised rate per 100,000 population, all ages
Rationale	In New Zealand, mental and substance use disorders are the fourth leading cause of health loss for all ages, and leading cause of health loss in 15-49 year age group (IHME, 2016). Alcohol is an intoxicant, toxin, and addictive psychotropic drug that can result in dependence and contribute towards mental health disorders. Some individuals with hazardous alcohol consumption receive treatment from AOD specialist services.
Numerator definition	Number of unique individuals, per year, with AOD service contact, all ages *Data source: Project for the Integration of Mental Health Data*

	(PRIMHD)
Denominator definition	Mid-year population estimate as at 30 June, all ages *Data source: Statistics New Zealand*
Methodology	Rates have been derived from analysis of the PRIMHD activity dataset, 2009-2016. The method to identify AOD services in PRIMHD is that used by MOH analytical services. AOD service activities were defined as those coded with a Team Type of Alcohol and Drug Team (03) or Co-existing Problems Team (11) OR Activity Type of T16, T17, T18, Y19, T20, T48[39]. Activities include inpatient and outpatient visits and written correspondence, telephone calls, and SMS text messaging when considered to be of a significant nature. Activities were identified in every year that they span. Activities with a missing end date were identified in the year of the start date only. Unique individuals with one or more AOD service contacts were counted once per year. Demographic data from the first encounter was used for descriptive analysis. Ethnicity was determined using the prioritised method.
Time period	Calendar year based on the date of activity, 2009-2016
Population coverage	All CM Health domiciled residents with mental health service contact
Measures of frequency (variables)	Rates calculated by age group, sex, ethnicity, NZDep quintile (2016 only), and residential locality
Limitations / caveats	Indicator rates cannot be used to estimate the rate of conditions requiring AOD services in Counties Manukau. Many individuals eligible for AOD services will not access them. Access to services is influenced by many determinants outside the scope of this analysis including the availability, acceptability and quality of services. Analysis by NZDep quintile is presented for 2016. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. PRIMHD data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in PRIMHD. The CAU-based denominator and the domicile-based numerator match in 2016.
References	IHME. (2016). GBD Compare, from https://vizhub.healthdata.org/gbd-compare/

Indicator number	2.2.5.2
Indicator name	**Alcohol and Drug Team service contacts and alcohol-specific diagnoses**
Indicator definition	Percentage prevalence of unique individuals that have had contact with AOD services and have an alcohol-specific principal or other relevant diagnosis, all ages
Rationale	In New Zealand, mental and substance use disorders are the

[39] T16 = substance abuse, withdrawal management/detoxification on occupied bed nights, T17 = substance abuse detoxification attendances, T18 = methadone treatment specialist service attendances, T19 = methadone treatment specialist service attendances, T20 = substance abuse residential service occupied bed nights, T48 = co-existing disorders residential service occupied bed nights

	fourth leading cause of health loss for all ages, and leading cause of health loss in the 15-49 year age group (IHME, 2016). Alcohol is an intoxicant, toxin, and addictive psychotropic drug that can lead to dependence and contribute towards mental health disorders. Some individuals with hazardous alcohol consumption receive treatment from AOD specialist services.
Numerator definition	Number of unique individuals, per year, that have had contact with Alcohol and Drug Team services and have an alcohol-specific condition as principal or other relevant diagnosis, all ages *Data source: Project for the Integration of Mental Health Data (PRIMHD)*
Denominator definition	Number of unique individuals, per year, that have had contact with Alcohol and Drug Team services and have a primary or other relevant diagnosis coded, all ages *Data source: PRIMHD*
Methodology	Prevalence has been derived from the analysis of the PRIMHD activity and classification datasets. Classifications, or diagnoses, are attached to referral identification numbers and should relate to activities in the activity dataset. Individuals may have more than one principal or other relevant diagnosis at any time. Using NHI, referral identification and organisation identification; principal (A) and other relevant diagnoses (B) were mapped from the PRIMHD classification dataset to the PRIMHD activity dataset. The method to identify AOD services in PRIMHD is that used by MOH analytical services as defined above in indicator 3.2.5.1. AOD service activities were defined as those coded with a Team Type of Alcohol and Drug Team (03) or Co-existing Problems Team (11) OR Activity Type of T16, T17, T18, Y19, T20, T48[40]. Activities were identified in every year that they span. Activities with a missing end date were identified in the year of the start date only. AOD service activities that occurred within the duration of a principal or other relevant diagnosis code were flagged as having a diagnosis code. Unique individuals were counted once per year and all diagnosis codes applied to an individual in that year identified. Individuals with alcohol-specific mental and behavioural diagnoses were then identified[41]. Demographic data from the first encounter was used for descriptive analysis. Ethnicity was determined using the prioritised method.
Time period	Calendar year based on the date of activity, 2009-2016
Population coverage	All CM Health domiciled residents with AOD service contact
Measures of frequency (variables)	Proportions calculated by year. Proportion comparison per year by sex, ethnicity, age group, NZDep quintile (2016 only), and CM locality

[40] T16 = substance abuse, withdrawal management/detoxification on occupied bed nights, T17 = substance abuse detoxification attendances, T18 = methadone treatment specialist service attendances, T19 = methadone treatment specialist service attendances, T20 = substance abuse residential service occupied bed nights, T48 = co-existing disorders residential service occupied bed nights

[41] Principal or other relevant diagnosis code of mental and behavioural disorder due to use of alcohol (includes ICD-10 code F10 and DSM-IV equivalent codes)

Limitations / caveats	Indicator prevalence cannot be used to estimate the prevalence of alcohol-specific conditions requiring AOD services in Counties Manukau. Many individuals eligible for AOD services will not access them. Access to services is influenced by many determinants outside the scope of this analysis including the availability, acceptability and quality of services. Indicator accuracy is limited by dataset capacity and the completeness and quality of diagnosis coding. Analysis by NZDep quintile is presented for 2016. NZDep, a CAU-based measure of deprivation, has been redefined in 2001, 2006, and 2013. PRIMHD data includes a health domicile code – a SNZ code representing a geographical area of residence equivalent to CAU. There is a lag between SNZ release of new CAUs and implementation as new domicile codes in PRIMHD. The CAU-based denominator and the domicile-based numerator match in 2016.
References	IHME. (2016). GBD Compare, from https://vizhub.healthdata.org/gbd-compare/

Indicator number	2.2.6
Indicator name	**Family harm and alcohol**
Indicator definition	Prevalence of family harm call outs reported to have alcohol involved
Rationale	Harm from alcohol extends beyond the individual and can result in harm to children, whaanau, friends, and the wider community (Connor & Casswell, 2012). Research has estimated that one in five New Zealanders felt alcohol had a harmful effect on their home life (Habgood, 2001). In the US, alcohol was identified as a key factor in two-thirds of intimate partner violence events (Greenfield, 1998). Family violence has lifelong effects on brain development that negatively affect children's ability to learn, solve problems, and relate to others (NSCDC, 2010).
Numerator definition	Number of family harm events reported to have alcohol involved *Data source: Whaangaia Naa Paa Harakeke bespoke database*
Denominator definition	Number of reported family harm events *Data source: National Intelligence Application (NIA)*
Methodology	Prevalence percentages have been derived from the analysis of the Whaangaia Naa Paa Harakeke bespoke database by the Evidence and Insights team for the Mangere Social Investment Board. In CM, family harm events are identified as 5F events and Police reporting includes the completion of a subjective alcohol involvement flag. Data from 5F events are entered into the bespoke database, as well as the Police NIA database.
Time period	3 July 2017 – 31 January 2018
Population coverage	CM Police district[42]
Measures of frequency (variables)	CM Police locality (North and South)
Limitations / caveats	Estimating the prevalence of alcohol-related family harm using Police report data is likely to be an under-estimation of true prevalence. Reported family harm represents only a proportion of

[42] CM Police district varies geographically from CM Health boundaries

	whaanau experiencing harm. Reporting of alcohol involvement is subjectively determined and may not accurately reflect the true involvement of alcohol in reported family harm events. Reporting of family harm events is influenced by many determinants outside the scope of this analysis.
References	Connor, J., Casswell, S. (2012). Alcohol-related harm to others in New Zealand: evidence of the burden and gaps in knowledge. *The New Zealand Medical Journal, 125*(1360), 11-27. Greenfield, L. (1998). Alcohol and Crime: An analysis of national data on the prevalence of alcohol involvement in crime: US department of Justice, Office of Justice Programs, Bureau of Justice Statistics. Report; NCJ-168632. Habgood, R. C., S; Pledger, M; Bhatta, K. (2001). *Drinking in New Zealand National Surveys comparison 1995 & 2000*. Alcohol and Public Health Research Unit: University of Auckland. NSCDC. (2010). Persistent Fear and Anxiety can affect young children's learning and development: Working paper No.9 Retrieved March 23, 2018, from www.developingchild.harvard.edu

Appendix 3: ICD code list for alcohol-specific condition categories

The following list includes all the alcohol-specific (wholly attributable) ICD-10 codes defined by Jones and Bellis (2013) with additional codes from Rehm et al (2010) (O35.4, P04.3, T51.8) and Van Dieman et al (2017) (E51.2).

ICD code descriptor	ICD-10 code	Condition category
Alcohol-induced pseudo-Cushing's syndrome	E24.4	Endocrine
Wernickes encephalopathy	E51.2	Neuro-psychiatric
Mental and behavioural disorders due to use of alcohol	F10	Neuro-psychiatric
Degeneration of nervous system due to alcohol	G31.2	Neuro-psychiatric
Alcoholic polyneuropathy	G62.1	Neuro-psychiatric
Alcoholic myopathy	G72.1	Neuro-psychiatric
Alcoholic cardiomyopathy	I42.6	Cardiovascular
Alcoholic gastritis	K29.2	Digestive
Alcoholic liver disease	K70	Digestive
Alcohol-induced acute pancreatitis	K85.2	Digestive
Alcohol-induced chronic pancreatitis	K86.0	Digestive
Foetal alcohol syndrome (dysmorphic)	Q86.0, O35.4, P04.3	Maternal, infant and child
Excess alcohol blood levels	R78.0	Evidence of alcohol involvement
Toxic effect of alcohol, Ethanol	T51.0	Toxic effect of alcohol
Toxic effect of alcohol, Methanol	T51.1	Toxic effect of alcohol
Toxic effect of alcohol, other alcohols	T51.8	Toxic effect of alcohol
Toxic effect of alcohol, unspecified	T51.9	Toxic effect of alcohol
Accidental poisoning by and exposure to alcohol	X45	Unintentional injuries
Intentional self-poisoning by and exposure to alcohol	X65	Intentional injuries
Poisoning by and exposure to alcohol undetermined intent	Y15	Unintentional injuries
Evidence of alcohol involvement determined by blood alcohol level	Y90	Evidence of alcohol involvement
Evidence of alcohol involvement determined by level of intoxication	Y91	Evidence of alcohol involvement

Appendix 4: Additional tables

Table 9: Crude prevalence and 95% confidence intervals of hazardous alcohol use, by sex, aged group, and ethnicity, 2006/07 and 2011-2014

	2006/07		2011-2014	
	Prevalence %	**95% confidence interval**	**Prevalence %**	**95% confidence interval**
Total	13.7	(11.7–15.9)	13.4	(11.7–15.2)
Female	7.9	(5.8–10.6)	7.4	(5.9–9.2)
Male	20.1	(16.5–24.2)	19.8	(16.6–23.3)
15-24	25.0	(18.4–33.0)	17.4	(13.8–21.8)
25-44	14.1	(10.6–18.5)	17.7	(14.2–21.7)
45-64	8.6	(5.8–12.7)	10.7	(8.6–13.2)
65+	5.5	(2.8–10.8)	3.3	(1.7–5.8)
Maaori	28.7	(22.3–36.1)	28.6	(22.6–35.5)
Non-Maaori	11.4	(9.3–13.9)	11.4	(9.8–13.2)

Source: Crude prevalence obtained from NZHS Regional Reports (2006/07 and 2011-14)

Table 10: Crude prevalence and 95% confidence intervals for hazardous alcohol use, age group and ethnicity by sex, 2011-2014

Population group	Total		Men		Women	
	%	95% CI	%	95% CI	%	95% CI
Total	13.36098	(11.7–15.2)	19.77511	(16.6–23.3)	7.395389	(5.9–9.2)
15–24 years	17.44665	(13.8–21.8)	24.48373	(16.9–34.0)	10.23098	(6.1–16.7)
25–44 years	17.65902	(14.2–21.7)	25.82652	(19.5–33.4)	10.04235	(7.8–12.9)
45–64 years	10.69727	(8.6–13.2)	16.85431	(13.3–21.1)	5.488323	(3.7–8.0)
65+ years	3.3329	(1.7–5.8)	5.19837	(2.6–10.0)	1.538455	(0.5–3.6)
Māori	28.6014	(22.6–35.5)	38.8847	(28.7–50.1)	21.68039	(16.0–28.7)
Non-Māori	11.3986	(9.8–13.2)	17.76376	(14.8–21.1)	5.230612	(3.8–7.1)

Source: Crude prevalence obtained from NZHS Regional Reports (2011-14)

Table 11: Alcohol licence population density (per 10,000 population aged 15 and over), area density (per 100km^2 land area), and proportion of licence type, by CM locality with NZ comparison, at 7 June 2016

		Eastern	Franklin	Mangere/ Otara	Manukau	CM Health	NZ
On-licence	Population density	12.5	10.8	5.7	7.0	9.0	17.6
	Area density	37.6	2.8	72.6	58.2	13.1	2.5
	Proportion of CM on-licences	44%	16%	12%	28%	100%	
Off-licence	Population density	4.41	6.52	4.53	4.91	4.90	7.2
	Area density	13.23	1.71	58.06	40.68	7.12	1.0
	Proportion of CM off-licences	28%	18%	18%	36%	100%	
Club-licence	Population density	1.7	6.5	1.6	2.2	2.5	4.9
	Area density	5.1	1.7	21.0	18.1	3.7	0.7
	Proportion of CM club licences	21%	36%	13%	31%	100%	
Total	Population density	18.7	23.8	11.8	14.1	16.4	29.7
	Area density	55.9	6.2	151.6	116.9	23.9	4.22
	Proportion of CM total licences	36%	20%	14%	31%	100%	

Source: ARLA alcohol licence data from EHI, Massy University; analysed by CM Health

Table 12: Number and proportion of CAUs per total licence density quintile (per 10,000 population aged 15 and over[43]) by locality, at 7 June 2016

NZDep quintile	Eastern		Franklin		Mangere/Otara		Manukau		Quintile total	
	Number	% of total	Number	% of total	Number	% of total	Number	% of total	Number	% of total
Quintile 1	2	9%	0	0%	8	36%	12	55%	22	100%
Quintile 2	5	23%	4	18%	6	27%	7	32%	22	100%
Quintile 3	6	27%	4	18%	3	14%	9	41%	22	100%
Quintile 4	9	39%	6	26%	2	9%	6	26%	23	100%
Quintile 5	6	26%	7	30%	5	22%	5	22%	23	100%
No licences	9		7		3		7		26	

Source: ARLA alcohol licence data from EHI, Massy University; analysed by CM Health

Table 13: Number and proportion of CAUs per total licence density quintile (per 100km^2) by locality, at 7 June 2016

NZDep quintile	Eastern		Franklin		Mangere/Otara		Manukau		Total by quintile	
	Number	% of total	Number	% of total	Number	% of total	Number	% of total	Number	% of total
Quintile 1	4	18%	14	64%	0	0%	4	18%	22	100%
Quintile 2	2	9%	1	5%	9	41%	10	45%	22	100%
Quintile 3	6	26%	4	17%	5	22%	8	35%	23	100%
Quintile 4	6	26%	0	0%	8	35%	9	39%	23	100%
Quintile 5	11	48%	2	9%	2	9%	8	35%	23	100%
No licences	9		7		3		7		26	

Source: ARLA alcohol licence data from EHI, Massy University; analysed by CM Health

[43] Population density results have been suppressed for CAUs with populations of 30 or less

Table 14: Number, percentage of deaths, and age-standardised mortality rate per 100,000 population for alcohol-specific conditions by sex and year for CM Health with mortality rate for total CM Health and New Zealand, 2005-2014

Sex		2005-2009	2010-2014
CM Female	Number	37	62
	% of female deaths	0.7%	1.0%
	Rate	2.91	4.59
CM Male	Number	184	222
	% of male deaths	3.0%	3.4%
	Rate	16.03	16.61
CM Total	Number	221	284
	% of CM total deaths	1.9%	2.2%
	Rate	9.12	10.32
NZ Total	Female rate	3.73	4.78
	Male rate	14.43	15.98
	NZ total rate	8.86	10.15

Source: Mortality collection 2005-2014, MOH; analysed by CM Health

Table 15: Number, percentage of deaths, and age-standardised mortality rate per 100,000 population for alcohol-specific conditions by ethnicity and year for CM Health, 2005-2014

Prioritised ethnicity		2005-2009	2010-2014
Maaori	Number	55	78
	% of Maaori deaths	3.2%	4.4%
	Rate	23.78	25.80
Pacific	Number	29	37
	% of Pacific deaths	1.4%	1.5%
	Rate	8.07	8.31
Asian	Number	14	31
	% of Asian deaths	2.0%	2.9%
	Rate	3.27	5.45
Other	Number	123	138
	% of Other deaths	1.7%	1.8%
	Rate	8.94	9.59

Source: Mortality collection 2005-2014, MOH; analysed by CM Health

Table 16: Number, percentage of deaths, and age-standardised mortality rate per 100,000 population for alcohol-specific conditions by age group and year for CM Health, 2005-2014

Age group		2005-2009	2010-2014
0-14	Number	0	0
15-24	Number	16	20
	% of deaths aged 15-24	7.4%	10.1%
	Rate	4.54	5.26
25-44	Number	57	53
	% of deaths aged 25-44	7.8%	8.5%
	Rate	8.77	7.87
45-64	Number	87	130
	% of deaths aged 45-64	3.8%	5.3%
	Rate	17.19	22.6
65+	Number	61	81
	% of deaths aged 65+	0.8%	0.9%
	Rate	29.36	32.72

Source: Mortality collection 2005-2014, MOH; analysed by CM Health

Table 17: Number, percentage of deaths, and age-standardised mortality rate per 100,000 population for alcohol-specific conditions by CM locality and year for CM Health, 2005-2014

CM locality		2005-2009	2010-2014
Eastern	Number	28	50
	% of deaths	1.0%	1.6%
	Rate	3.63	5.64
Franklin	Number	40	54
	% of deaths	2.4%	2.9%
	Rate	11.54	13.20
Mangere/Otara	Number	49	67
	% of deaths	1.9%	2.4%
	Rate	11.05	14.10
Manukau	Number	104	113
	% of deaths	2.2%	2.2%
	Rate	12.13	11.78

Source: Mortality collection 2005-2014, MOH; analysed by CM Health

Table 18: Age-standardised rate of alcohol-specific hospital admissions in CM Health, by age group, sex and year, 2007-2016

Age group	Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
0-14	Female	13.9	15.6	20.9	14.0	21.0	14.1	12.1	6.9	15.5	32.3
	Male	16.7	24.9	11.6	8.4	15.0	16.5	14.7	6.5	16.1	11.1
	Both	15.3	20.4	16.1	11.1	18.0	15.3	13.4	6.7	15.8	21.3
15-24	Female	289.2	270.1	283.6	338.4	358.2	335.8	297.1	284.1	282.9	257.7
	Male	525.1	528.7	598.2	528.7	563.1	530.4	513.7	414.4	447.3	407.0
	Both	407.4	399.8	441.2	433.9	461.4	434.1	406.9	350.7	367.6	335.1
25-44	Female	201.2	245.2	188.5	230.2	248.7	208.0	197.8	196.5	204.9	189.2
	Male	415.6	444.2	452.1	460.4	468.0	445.7	396.4	436.1	425.8	392.2
	Both	302.7	339.0	312.8	338.7	351.6	319.6	291.0	309.9	309.9	286.1
45-64	Female	198.2	186.2	207.0	236.8	286.3	258.1	274.6	293.2	199.9	210.0
	Male	499.1	505.8	472.2	551.6	658.2	624.4	563.0	613.1	579.7	566.0
	Both	345.5	342.3	336.5	390.2	467.4	435.8	414.1	447.7	383.0	381.6
65+	Female	103.8	98.1	73.6	137.4	146.8	142.8	121.8	115.4	118.6	145.2
	Male	449.8	441.5	464.5	609.6	406.6	418.9	510.1	552.6	540.1	540.3
	Both	259.7	259.2	256.4	356.7	262.0	267.3	302.7	318.9	318.0	328.2
Total	Female	158.3	165.6	154.7	185.4	206.5	183.1	175.1	173.9	160.3	160.1
	Male	348.9	360.6	365.8	383.9	397.8	380.6	358.3	364.6	362.0	341.4
	Total	249.9	259.9	256.5	280.6	298.1	277.7	263.2	265.3	257.7	247.3

Source: NMDS 2007-2016, MOH; analysed by CM Health

Table 19: Age-standardised rate of alcohol-specific hospital admissions in CM Health, by ethnicity, age group and year, 2007-2016

Ethnicity	Age group	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Maaori	0-14	40.3	38.4	27.7	26.2	36.6	25.3	23.8	*	35.0	62.1
	15-24	653.4	655.9	708.3	743.8	647.6	702.2	639.3	571.8	575.7	488.8
	25-44	564.0	661.9	612.3	791.4	619.7	597.0	605.0	656.2	581.0	476.3
	45-64	546.0	611.2	566.1	708.1	649.5	730.2	575.8	661.7	523.9	743.5
	65+	436.4	200.4	435.4	616.8	597.8	559.6	297.1	474.6	578.1	433.1
Pacific	0-14	*	14.9	*	*	*	20.7	17.5	*	14.6	14.5
	15-24	524.8	488.2	518.1	398.5	544.9	449.3	417.7	347.5	438.0	378.5
	25-44	275.8	297.4	329.1	272.9	335.1	399.4	222.5	317.7	224.7	325.4
	45-64	380.0	402.0	452.0	443.7	474.5	424.3	437.7	511.2	371.9	409.8
	65+	278.7	305.4	332.2	599.6	*	161.4	140.5	321.8	370.1	345.5
Asian	0-14	0.0	*	0.0	0.0	0.0	*	0.0	*	0.0	0.0
	15-24	86.7	57.9	93.0	102.6	180.7	130.2	144.4	81.5	100.6	98.1
	25-44	147.2	186.7	159.7	157.4	174.3	111.1	139.9	97.5	129.5	118.4
	45-64	224.7	196.7	176.6	241.6	423.8	351.3	223.6	234.6	273.1	211.9
	65+	*	0.0	*	112.7	*	89.0	149.7	72.3	80.5	126.5
Other	0-14	12.8	15.6	26.6	*	19.3	*	*	*	*	*
	15-24	375.4	402.9	457.9	504.0	481.4	480.6	452.0	415.3	375.0	377.0
	25-44	291.4	318.5	280.0	308.6	377.4	307.9	323.1	341.6	404.6	336.1
	45-64	340.0	322.1	316.7	365.3	444.4	414.9	454.2	474.6	407.0	367.3
	65+	269.7	296.9	265.0	322.2	307.1	283.7	358.5	355.4	334.6	362.9

Source: NMDS 2007-2016, MOH; analysed by CM Health

**Cells with values less than 5 have been supressed and rates excluded*

Table 20: Age-standardised rate of alcohol-specific hospital admissions in CM Health, by ethnicity, sex and year, 2007-2016

Ethnicity	Sex	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Maaori	Female	332.7	331.0	302.6	429.3	398.5	433.4	395.4	373.9	327.3	302.8
	Male	537.9	590.9	632.1	704.5	572.1	554.4	463.2	566.1	549.1	568.7
	Both	428.0	449.9	451.8	552.7	476.0	488.2	427.7	460.4	425.9	419.1
Pacific	Female	98.0	99.7	93.1	90.0	114.2	122.8	83.9	96.3	72.3	96.7
	Male	451.9	469.7	525.4	500.1	481.0	484.2	405.9	484.1	437.4	465.5
	Both	267.6	276.6	299.8	285.3	289.8	294.0	237.1	279.5	246.3	271.3
Asian	Female	27.3	30.4	23.9	30.0	38.8	27.0	27.3	31.5	26.6	38.4
	Male	191.9	190.2	184.2	218.5	309.5	247.4	223.7	167.5	213.3	176.8
	Both	105.8	105.8	99.8	120.0	168.2	132.0	121.4	95.4	115.0	103.1
Other	Female	179.0	185.8	189.4	218.8	266.9	198.3	216.4	224.3	221.8	215.2
	Male	305.1	320.2	311.9	334.3	354.1	360.8	368.9	364.2	362.9	318.4
	Both	240.3	252.3	249.4	275.0	308.6	277.5	291.2	292.6	291.6	266.0
All ethnicities	Female	158.3	165.6	154.7	185.4	206.5	183.1	174.7	173.9	160.3	160.1
	Male	348.9	360.6	366.3	383.9	397.8	380.6	358.3	364.6	362.0	341.4
	Both	249.9	259.9	256.7	280.6	298.1	277.7	263.0	265.3	257.7	247.3

Source: NMDS 2007-2016, MOH; analysed by CM Health

Table 21: Number, percent and age standardised rate of alcohol-specific hospital admissions for CM localities, per year, 2007-2016

CM Locality		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Franklin	Number	126	131	119	177	186	171	165	180	198	205
	Percent	10.8%	10.7%	9.7%	13.0%	12.6%	12.2%	12.2%	12.7%	14.1%	14.7%
	Rate	197.3	212.0	186.7	261.0	294.5	256.4	241.5	260.9	281.9	271.8
Eastern	Number	204	232	251	246	284	252	311	268	273	264
	Percent	17.6%	19.0%	20.5%	18.0%	19.2%	18.0%	23.0%	19.0%	19.5%	19.0%
	Rate	144.3	162.7	172.5	166.8	185.4	158.2	194.5	158.5	165.1	153.4
Mangere & Otara	Number	331	325	320	331	332	348	268	337	274	302
	Percent	28.5%	26.6%	26.2%	24.2%	22.4%	24.8%	19.9%	23.8%	19.6%	21.7%
	Rate	349.6	344.9	338.4	351.0	346.0	366.6	275.1	330.9	258.7	279.9
Manukau	Number	501	536	532	612	679	631	606	628	656	620
	Percent	43.1%	43.8%	43.5%	44.8%	45.8%	45.0%	44.9%	44.4%	46.8%	44.6%
	Rate	298.6	314.5	309.8	349.6	376.6	344.5	326.2	331.2	337.7	309.7
CM Total	Number	1162	1224	1222	1366	1481	1402	1350	1413	1401	1391
	Rate	250.2	260.3	256.9	280.8	298.5	278.2	263.2	266.3	258.7	248.6

Source: NMDS 2007-2016, MOH; analysed by CM Health

Table 22: Number, percent and age-standardised rate (per 100,000 population) of alcohol-specific hospital admissions by condition category and year, 2007-2016[44]

Category		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cardiovascular	Number	16	17	14	17	11	22	11	19	10	12
	Percent	1.4%	1.4%	1.1%	1.2%	0.7%	1.6%	0.8%	1.3%	0.7%	0.9%
	Rate	3.2	3.4	2.6	3.1	1.9	4.0	1.9	3.1	1.7	1.9
Digestive	Number	165	167	201	263	297	296	270	274	272	233
	Percent	14.2%	13.6%	16.4%	19.2%	20.1%	21.1%	20.0%	19.4%	19.4%	16.8%
	Rate	33.5	33.5	39.9	51.3	55.1	54.3	48.4	48.6	45.9	38.9
Evidence of alcohol involvement	Number	66	123	203	357	460	475	431	469	466	504
	Percent	5.7%	10.0%	16.6%	26.1%	31.1%	33.9%	31.9%	33.2%	33.2%	36.2%
	Rate	15.0	27.2	44.6	74.5	94.9	97.1	87.3	90.5	89.0	92.3
Intentional injuries	Number	113	147	132	169	160	136	140	149	133	70
	Percent	9.7%	12.0%	10.8%	12.4%	10.8%	9.7%	10.4%	10.5%	9.5%	5.0%
	Rate	24.1	31.2	28.1	35.8	33.1	28.0	28.3	29.1	25.7	13.1
Neuro-psychiatric	Number	959	948	927	996	1177	1156	1131	1216	1238	1301
	Percent	82.5%	77.5%	75.8%	72.9%	79.5%	82.5%	83.7%	86.0%	88.2%	93.5%
	Rate	206.4	202.0	195.3	204.3	237.8	228.5	219.4	227.4	226.0	230.4
Toxic effect of alcohol	Number	172	220	224	247	229	196	181	182	173	92
	Percent	14.8%	18.0%	18.3%	18.1%	15.5%	14.0%	13.4%	12.9%	12.3%	6.6%
	Rate	37.1	47.1	48.0	52.3	47.7	40.1	36.9	35.5	33.4	17.4

[44] *The maternal, infant and child category has been supressed and excluded as values were less than 5.The percentage denominator is total number of hospital admissions with an alcohol-specific diagnosis. Admissions may have diagnoses in more than one category so the total percentage is greater than 100%.*

Table 22 continued: Number, percent and age-standardised rate (per 100,000 population) of alcohol-specific hospital admissions by condition category and year, 2007-2016

Unintentional injuries	Number	60	74	93	77	70	60	38	34	39	22
	Percent	5.2%	6.0%	7.6%	5.6%	4.7%	4.3%	2.8%	2.4%	2.8%	1.6%
	Rate	13.2	16.1	20.1	16.2	14.8	12.2	7.9	6.6	7.5	4.3
Total	Number	1162	1224	1223	1367	1481	1402	1351	1414	1403	1391
	Rate	249.9	259.9	256.7	280.6	298.1	277.7	263.0	265.3	257.7	247.3

Source: NMDS 2007-2016, MOH; analysed by CM Health

Table 23: Number of alcohol-specific hospital admissions by ethnicity, by residential locality, 2016

Locality	Maaori	Pacific	Asian	Other	All ethnicities
Eastern	17	24	34	189	264
Franklin	36	9	7	153	205
Mangere & Otara	69	150	17	66	302
Manukau	206	108	89	217	620
Total	328	291	147	625	1391

Source: NMDS 2016, MOH; analysed by CM Health

Table 24: Number of alcohol-specific hospital admissions by age group, by residential locality, 2016

Locality	0-14	15-24	25-44	45-64	65+
Eastern		61	79	73	51
Franklin	*	29	67	67	40
Mangere & Otara	11	73	92	93	33
Manukau	13	118	176	244	69
Total	24	281	414	477	193

Source: NMDS 2016, MOH; analysed by CM Health
**Cells less than 5 suppressed and excluded*

Table 25: Number, percent and age standardised alcohol-specific hospital admission rate by NZDep2013 quintile and sex, CM Health and NZ comparison, 2016

	Sex	Number	Percent	Rate
Quintile 1	Female	59	4.2%	158.1
	Male	64	4.6%	132.9
	Both	123	8.8%	145.2
Quintile 2	Female	50	3.6%	100.1
	Male	126	9.1%	254.9
	Both	176	12.7%	175.1
Quintile 3	Female	46	3.3%	151.7
	Male	78	5.6%	242.2
	Both	124	8.9%	194.9
Quintile 4	Female	65	4.7%	191.0
	Male	129	9.3%	372.2
	Both	194	13.9%	279.6
Quintile 5	Female	225	16.2%	187.4
	Male	549	39.5%	490.5
	Both	774	55.6%	331.0
Total population	Female	445	32.0%	160.7
	Male	946	68.0%	343.5
	Both	1391	100.0%	248.6

Source: NMDS 2016, MOH; analysed by CM Health

Table 26: Number of MMH ED encounters where alcohol was involved by sex, age group, ethnicity, NZDep quintile, and locality, October – December 2017

	Oct-17	Nov-17	Dec-17	Jan-18
Sex				
Female	109	145	165	143
Male	229	287	360	283
Age group				
<18	13	15	22	24
18-24	76	130	134	96
25-44	153	156	208	182
45-64	69	99	118	101
65+	27	32	43	23
Prioritised ethnicity				
Maaori	111	141	153	120
Pacific	89	103	160	137
Asian	30	41	42	40
Other	108	147	170	129
NZDep quintile				
Quintile 1	20	33	44	38
Quintile 2	28	30	35	28
Quintile 3	39	50	63	43
Quintile 4	27	53	46	56
Quintile 5	199	238	292	223
Quintile not available	25	28	45	38
Residential locality				
Eastern	41	49	55	51
Franklin	28	42	53	47
Mangere/Otara	79	104	124	97
Manukau	120	156	164	146
Outside CMDHB	67	80	128	85
Unknown	2	1		
Total	338	432	525	426

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 27: Number and percentage of MMH ED encounters by alcohol involvement status, October 2017 – December 2017 (quarter 2)

Alcohol involved status		Female	Male	Maaori	Pacific	Asian	Other	<18	18-24	25-44	45-64	65+	Total
Unknown	Number	858	988	384	507	258	697	301	168	459	449	469	1846
	% of total	5.8%	6.9%	6.7%	5.2%	5.7%	7.5%	4.4%	5.5%	6.3%	7.3%	7.9%	6.3%
No alcohol	Number	13630	12509	4939	8873	4120	8208	6508	2556	6282	5409	5385	26140
	% of total	91.4%	87.0%	86.2%	91.2%	91.7%	88.0%	94.9%	83.4%	86.6%	88.0%	90.4%	89.3%
Secondary alcohol	Number	59	69	39	36	12	41	11	29	46	30	12	128
	% of total	0.4%	0.5%	0.7%	0.4%	0.3%	0.4%	0.2%	0.9%	0.6%	0.5%	0.2%	0.4%
Yes alcohol involved	Number	360	807	366	316	101	384	39	311	471	256	90	1167
	% of total	2.4%	5.6%	6.4%	3.2%	2.2%	4.1%	0.6%	10.2%	6.5%	4.2%	1.5%	4.0%
Total	Number	14907	14373	5728	9732	4491	9330	6859	3064	7258	6144	5956	29281
	% of total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 28: Number and percentage of MMH ED encounters coded as alcohol involved or secondary involvement, by ethnicity, October – December 2017

Prioritised ethnicity		Yes	Secondary	Yes + secondary
Maaori	Number	366	39	405
	% of total	31.4%	30.5%	31.3%
Pacific	Number	316	36	352
	% of total	27.1%	28.1%	27.2%
Asian	Number	101	12	113
	% of total	8.7%	9.4%	8.7%
Other	Number	384	41	425
	% of total	32.9%	32.0%	32.8%
Total	Number	1167	128	1295

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 29: Number and percentage of MMH ED encounters coded as alcohol involved or secondary involvement, by encounter outcome, October – December 2017

Encounter outcome		Yes	Secondary	Yes + secondary
Admit to Ward	Number	231	24	255
	% of total	19.8%	18.8%	19.7%
Home	Number	721	75	796
	% of total	61.8%	58.6%	61.5%
Other	Number	77	16	93
	% of total	6.6%	12.5%	7.2%
Self-Discharge	Number	138	13	151
	% of total	11.8%	10.2%	11.7%
Grand Total	Number	1167	128	1295

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 30: Number and percentage of MMH ED encounters coded as alcohol involved or secondary involvement, by NZDep quintile, October – December 2017

NZDep quintile		Yes	Secondary	Yes + secondary
Missing data	Number	91	7	98
	% of total	7.8%	5.5%	7.6%
Quintile 1	Number	87	10	97
	% of total	7.5%	7.8%	7.5%
Quintile 2	Number	83	10	93
	% of total	7.1%	7.8%	7.2%
Quintile 3	Number	130	22	152
	% of total	11.1%	17.2%	11.7%
Quintile 4	Number	110	16	126
	% of total	9.4%	12.5%	9.7%
Quintile 5	Number	666	63	729
	% of total	57.1%	49.2%	56.3%
Total	Number	1167	128	1295

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 31: Number and percentage of MMH ED encounters coded as alcohol involved or secondary involvement, by residential locality, October – December 2017

Locality		Yes	Secondary	Yes + secondary
Eastern	Number	129	16	145
	% of total	11.1%	12.5%	11.2%
Franklin	Number	111	12	123
	% of total	9.5%	9.4%	9.5%
Mangere & Otara	Number	271	36	307
	% of total	23.2%	28.1%	23.7%
Manukau	Number	403	37	440
	% of total	34.5%	28.9%	34.0%
Outside CMDHB	Number	248	27	275
	% of total	21.3%	21.1%	21.2%
Unknown	Number	5	0	5
	% of total	0.4%	0.0%	0.4%
Grand Total	Number	1167	128	1295

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 32: Number and percentage of MMH ED encounters coded as alcohol involved or secondary involvement, by sex and age group, October – December 2017

		Yes	Secondary	Yes + secondary
Sex				
Female	Number	360	59	419
	% of total	30.8%	46.1%	32.4%
Male	Number	807	69	876
	% of total	69.2%	53.9%	67.6%
Age group				
<18	Number	39	11	50
	% of total	3.3%	8.6%	3.9%
18-24	Number	311	29	340
	% of total	26.6%	22.7%	26.3%
25-44	Number	471	46	517
	% of total	40.4%	35.9%	39.9%
45-64	Number	256	30	286
	% of total	21.9%	23.4%	22.1%
65+	Number	90	12	102
	% of total	7.7%	9.4%	7.9%
Total	Number	1167	128	1295

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 33: Number and percentage of MMH ED encounters coded as alcohol involved or secondary involvement, by day of the week, October – December 2017

Day of week		Yes	Secondary	Yes + secondary
Monday	Number	133	27	160
	% of total	11.4%	21.1%	12.4%
Tuesday	Number	119	7	126
	% of total	10.2%	5.5%	9.7%
Wednesday	Number	96	15	111
	% of total	8.2%	11.7%	8.6%
Thursday	Number	140	15	155
	% of total	12.0%	11.7%	12.0%
Friday	Number	131	11	142
	% of total	11.2%	8.6%	11.0%
Saturday	Number	228	22	250
	% of total	19.5%	17.2%	19.3%
Sunday	Number	320	31	351
	% of total	27.4%	24.2%	27.1%
Grand Total	Number	1167	128	1295

Source: CM Health Data Warehouse, October – December 2017; analysed by CM Health

Table 34: Number and percentage of FASD coded encounters by age group and NZDep quintile, 2011-2016

	2011-12			2013-14			2015-16		
	Number	**% of FASD OPA[$]**	**% of all OPA[#]**	**Number**	**% of FASD**	**% of all OPA**	**Number**	**% of FASD**	**% of all OPA**
Age group									
0-4	12	22.6%	0.1%	12	30.8%	0.1%	*	*	*
5-9	21	39.6%	0.2%	22	56.4%	0.2%	15	65.2%	0.1%
10+	20	37.7%	0.2%	5	12.8%	0.0%	8	34.8%	0.1%
Total	53	100.0%	0.5%	39	100.0%	0.3%	23	100.0%	0.2%
NZDep quintile									
Quintile 1	7	17.1%	0.1%	6	18.2%	0.0%	5	22.7%	0.0%
Quintile 5	34	82.9%	0.3%	27	81.8%	0.2%	17	77.3%	0.1%
Total	41	100.0%	0.4%	33	100.0%	0.3%	22	100.0%	0.2%

Source: Netezza, CM Data Warehouse; analysed by CM Health

Of the 118 encounters coded with FASD, 3 resided outside of the CM Health area and 4 did not have a domicile code recorded.

[$] Denominator: Number of outpatient encounters coded with FASD during defined time period

[#] Denominator: Number of outpatient encounters during defined time period

*Cell value <5 supressed and excluded. Quintiles 2, 3 and 4 have been excluded as all cell numbers were <5.

Table 35: Number and percentage of FASD coded encounters by CM Health locality, 2011-2016

	2011-12			2013-14			2015-16		
Locality	**Number**	**% of FASD**	**% of all OPA**	**Number**	**% of FASD**	**% of all OPA**	**Number**	**% of FASD**	**% of all OPA**
Eastern	7	15.2%	0.1%	6	15.4%	0.0%	5	27.8%	0.0%
Franklin	7	15.2%	0.1%	11	28.2%	0.1%	*	*	*
Mangere/Otara	13	28.3%	0.1%	7	17.9%	0.1%	*	*	*
Manukau	19	41.3%	0.2%	15	38.5%	0.1%	13	72.2%	0.1%
Total	46	100.0%	0.4%	39	100.0%	0.3%	18	100.0%	0.1%

Source: Netezza, CM Data Warehouse; analysed by CM Health
Of the 118 encounters coded with FASD, 3 resided outside of the CM Health area and 4 did not have a domicile code recorded.
**Cell values <5 supressed and excluded*

Table 36: Number and age standardised rate of CM Health residents that have had contact with Alcohol and Drug Services per year, by sex, 2009-2016

Sex		**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Female	Number	1177	1445	1543	1597	1645	1954	2099	2120
	Rate	498.2	606.3	636.4	652.9	673.6	788.8	823.3	810.2
Male	Number	2844	3508	3640	3782	3602	3807	4059	4048
	Rate	1302.8	1588.1	1629.3	1674.6	1577.9	1594.8	1640.0	1587.3
Total	Number	4021	4953	5183	5379	5247	5761	6158	6168
	Rate	888.7	1082.5	1117.1	1148.0	1111.4	1180.5	1222.1	1192.0

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 37: Number and age standardised rate of CM Health residents that have had contact with Alcohol and Drug Services per year, by ethnicity, 2009-2016

Ethnicity		2009	2010	2011	2012	2013	2014	2015	2016
Maaori	Number	1382	1896	1959	2086	1988	2308	2442	2502
	Rate	1860.7	2555.7	2662.8	2821.8	2680.9	2922.5	3029.3	3043.7
Pacific	Number	947	1103	1201	1280	1247	1386	1544	1602
	Rate	943.9	1111.3	1199.6	1250.5	1186.2	1256.4	1373.9	1397.2
Asian	Number	138	184	229	261	240	245	325	308
	Rate	138.7	174.4	205.4	222.1	195.5	197.7	246.9	221.8
Other	Number	1554	1770	1794	1752	1772	1822	1847	1756
	Rate	844.0	966.3	969.8	955.9	990.4	975.3	957.2	895.4

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 38: Number and age standardised rate of CM Health residents that have had contact with Alcohol and Drug Services per year, by age group, 2009-2016

Age group		2009	2010	2011	2012	2013	2014	2015	2016
0-14	Number	233	166	168	183	196	454	468	461
	Rate	199.2	142.9	144.3	156.4	166.4	379.7	389.7	379.3
15-24	Number	1309	1695	1567	1658	1624	1891	1932	1858
	Rate	1816.3	2305.5	2095.5	2187.6	2124.5	2368.2	2343.8	2215.9
25-44	Number	1806	2225	2414	2469	2361	2333	2547	2630
	Rate	1402.2	1727.2	1876.9	1911.4	1826.4	1735.1	1825.2	1816.1
45-64	Number	637	802	963	988	984	995	1120	1130
	Rate	590.5	726.6	852.8	859.2	842.3	835.9	924.4	912.3
65+	Number	36	65	71	81	82	88	91	89
	Rate	85.2	147.3	153.9	165.9	160.7	165.2	163.5	153.8

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 39: Number and age standardised rate of unique CM Health residents that have had contact with Alcohol and Drug Services per year, by locality, 2009-2016

Ethnicity		2009	2010	2011	2012	2013	2014	2015	2016
Eastern	Number	605	753	794	740	680	750	743	764
	Rate	448.9	546.1	564.8	514.5	469.1	509.7	492.4	485.4
Franklin	Number	469	587	560	594	592	673	721	698
	Rate	851.3	1056.7	991.1	1041.6	1038.8	1146.4	1190.0	1122.1
Mangere/Otara	Number	1155	1304	1408	1483	1386	1571	1787	1717
	Rate	1195.1	1361.2	1476.8	1551.9	1433.0	1508.6	1663.3	1561.3
Manukau	Number	1792	2309	2421	2562	2589	2767	2907	2989
	Rate	1068.3	1360.6	1400.9	1466.0	1461.3	1540.6	1574.4	1573.6

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 40: Number of unique CM Health residents that have had contact with Alcohol and Drug Services by locality and age group, 2016

Locality	00-14	15-24	25-44	45-64	65+	Total
Eastern	23	180	340	183	38	764
Franklin	40	198	293	159	8	698
Mangere & Otara	174	631	650	250	12	1717
Manukau	224	849	1347	538	31	2989
Total	461	1858	2630	1130	89	6168

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 41: Number and age-standardised rate of unique CM Health residents that have had contact with Alcohol and Drug Services by NZDep2013 quintile, 2016

	Female		Male		Total	
NZDep quintile	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
Quintile 1	120	276.7	207	532.1	327	402.8
Quintile 2	183	394.4	304	704.3	487	546.0
Quintile 3	137	486.9	293	1080.4	430	782.2
Quintile 4	284	905.4	514	1657.7	799	1289.3
Quintile 5	1396	1159.9	2730	2385.1	4126	1751.3
Total	2120	812.9	4048	1601.0	6168	1199.5

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 42: Number of CM Health residents per year that have had contact with Alcohol and Drug Team services and diagnosis code coverage, 2009 – 2016

		2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**Total**
Diagnosis coded	Number	3687	4264	4072	4021	4091	4009	4250	4120	32514
	% of total	91.7%	86.1%	78.6%	74.8%	78.0%	69.6%	69.0%	66.8%	75.8%
Alcohol-specific diagnosis	Number	125	295	528	504	304	675	698	580	3709
	% of coded	3.4%	6.9%	13.0%	12.5%	7.4%	16.8%	16.4%	14.1%	11.4%
Total	Number	4021	4953	5183	5379	5247	5761	6158	6168	42870

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 43: Number of CM Health residents that have had Alcohol and Drug Team contact and have an alcohol-specific diagnosis, by sex, 2009-2016

Sex		2009	2010	2011	2012	2013	2014	2015	2016
Female	Number	55	97	125	123	93	185	199	171
	% of total	44.0%	32.9%	23.7%	24.4%	30.6%	27.4%	28.5%	29.5%
Male	Number	70	198	403	381	211	490	499	409
	% of total	56.0%	67.1%	76.3%	75.6%	69.4%	72.6%	71.5%	70.5%
Total	Number	125	295	528	504	304	675	698	580

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 44: Number of CM Health residents that have had Alcohol and Drug Team contact and an alcohol-specific diagnosis, by age group, 2009-2016

Age group		2009	2010	2011	2012	2013	2014	2015	2016
0-14	Number	*	*	*	5	6	27	9	7
	% of total	0.0%	0.0%	0.0%	1.0%	2.0%	4.0%	1.3%	1.2%
15-24	Number	25	75	135	138	76	170	178	156
	% of total	21.4%	25.6%	25.7%	27.4%	25.0%	25.2%	25.5%	26.9%
25-44	Number	53	143	259	259	132	312	329	271
	% of total	45.3%	48.8%	49.3%	51.4%	43.4%	46.2%	47.1%	46.7%
45-64	Number	39	70	125	91	81	153	169	135
	% of total	33.3%	23.9%	23.8%	18.1%	26.6%	22.7%	24.2%	23.3%
65+	Number	*	5	6	11	9	13	13	11
	% of total	0.0%	1.7%	1.1%	2.2%	3.0%	1.9%	1.9%	1.9%
Total	Number	117	293	525	504	304	675	698	580

Source: PRIMHD 2009-2016, MOH; analysed by CM Health
**values <5 have been suppressed and excluded*

Table 45: Number of CM Health residents that have had Alcohol and Drug Team contact and an alcohol-specific diagnosis, by ethnicity, 2009-2016

Ethnicity		2009	2010	2011	2012	2013	2014	2015	2016
Maaori	Number	34	76	168	145	78	235	199	183
	% of total	27.2%	25.8%	31.8%	28.8%	25.7%	34.8%	28.5%	31.6%
Pacific	Number	8	78	149	150	86	179	188	149
	% of total	6.4%	26.4%	28.2%	29.8%	28.3%	26.5%	26.9%	25.7%
Asian	Number	5	13	25	29	14	35	55	35
	% of total	4.0%	4.4%	4.7%	5.8%	4.6%	5.2%	7.9%	6.0%
Other	Number	78	128	186	180	126	226	256	213
	% of total	62.4%	43.4%	35.2%	35.7%	41.4%	33.5%	36.7%	36.7%
Total	Number	125	295	528	504	304	675	698	580

Source: PRIMHD 2009-2016, MOH; analysed by CM Health

Table 46: Number of CM Health residents that have had Alcohol and Drug Team contact and an alcohol-specific diagnosis, by locality, 2009-2016

Ethnicity		2009	2010	2011	2012	2013	2014	2015	2016
Eastern	Number	43	67	81	85	55	114	124	99
	% of total	34.4%	22.7%	15.3%	16.9%	18.1%	16.9%	17.8%	17.1%
Franklin	Number	14	29	52	54	32	62	81	71
	% of total	11.2%	9.8%	9.8%	10.7%	10.5%	9.2%	11.6%	12.2%
Mangere/Otara	Number	18	70	150	118	80	184	207	136
	% of total	14.4%	23.7%	28.4%	23.4%	26.3%	27.3%	29.7%	23.4%
Manukau	Number	50	129	245	247	137	315	286	274
	% of total	40.0%	43.7%	46.4%	49.0%	45.1%	46.7%	41.0%	47.2%
Total	Number	125	295	528	504	304	675	698	580

Source: PRIMHD 2009-2016, MOH; analysed by CM Health