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NORTH WESTERN
MELBOURNE

An Australian Government Initiative

North Western Melbourne
Primary Health Network

Health Needs Assessment

2022 to 2025

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Acknowledgements

North Western Melbourne Primary Health Network (NWMPHN) acknowledges the peoples of the Kulin nation as the Traditional Custodians of the land on which our work in the community takes place. We pay our respects to their Elders past and present.

We also recognise, respect and affirm the central role played in our work by people with lived experience, their families and/or carers.

NWMPHN gratefully acknowledges the contribution of the Community Council, Clinical Council, Expert Advisory Groups, community members and primary health care professionals, who participated in the numerous engagement sessions to inform the development of the Health Needs Assessment (HNA). Similarly, the contribution of the Melbourne Primary Care Network (MPCN) Board and staff is also acknowledged, for their respective contributions to this important work.

About this document

This document has been developed in line with Australian Department of Health guidelines using data sources obtained from Australian Bureau of Statistics (ABS), Australian Institute of Health and Welfare (AIHW), and the Australian Department of Health (DoH). In addition, data has been provided by the Victorian Department of Health and over 400 General Practices in our region.

CONTENTS

INDEX OF FIGURES AND TABLES

Abbreviations

ABS	Australian Bureau of Statistics	**HIV**	Human Immunodeficiency Virus
ACIC	Australian Criminal Intelligence Commission	**HNA**	Health Needs Assessment
AEDC	Australian Early Development Census	**HPV**	Human Papillomavirus
AIDS	Acquired Immuno-Deficiency Syndrome	**IRSD**	Index of Relative Social Disadvantage
AIHW	Australian Institute of Health and Welfare	**ITC**	Integrated Care Team
AOD	Alcohol and Other Drugs	**KLE**	Key Lines of Enquiry
ASR	Age Standardised Rate	**KM2**	Square Kilometres
BBV	Blood borne Viruses	**LGA**	Local Government Area
BMI	Body Mass Index	**LGBTIQ+**	Lesbian, gay, bisexual, transgender, gender diverse, intersex, queer, asexual and questioning
CALD	Culturally and Linguistically Diverse	**LOTE**	Language Other Than English
CBD	Central Business District	**MBS**	Medicare Benefits Schedule
CDM	Chronic Disease Management	**MHTP**	Mental Health Treatment Plan
CHD	Coronary Heart Disease	**MMM**	Modified Monash Model
COC	Cycle of Care	**MPCN**	Melbourne Primary Care Network
COPD	Chronic Obstructive Pulmonary Disease	**MPHN**	Murray Primary Health Network
CVD	Cardio Vascular Disease	**MPHS**	Multipurpose Household Survey
DH	Victorian Department of Health	**NATSIHS**	National Aboriginal and Torres Strait Islander Survey
DHHS	Department of Health and Human Services	**NDSHS**	National Drug Strategy Household Survey
DMMR	Domiciliary Medication Management Review	**NDSS**	National Diabetes Services Scheme
DoH	Australian Government Department of Health	**NES**	Non English Speaking
DOTE	Dropping Off The Edge	**NHMRC**	National Health and Medical Research Council
ED	Emergency Department	**NHS**	National Health Survey
EMPHN	Eastern Melbourne Primary Health Network	**NIP**	National Immunisation Program
ERP	Estimated Resident Population	**NWDMP**	National Wastewater Drug Monitoring Program
FTE	Full-Time Equivalent	**NWMPHN**	North Western Melbourne Primary Health Network
GP	General Practitioner/ General Practice	**PHA**	Public Health Area
GPMP	GP Management Plan	**PHIDU**	Public Health Information and Development Unit
HAH	High Alcohol Hours	**PHN**	Primary Health Network
HeaDS Upp	Health Demand and Supply Utilisation Patterns Planning Tool	**PIP**	Practice Incentives Program
PMHC-MDS	Primary Mental Health Care Minimum Data Set	**SNAMUTS**	Spatial Network Analysis for Multimodal Urban Transport Systems
PPH	Potentially Preventable Hospitalisations	**SNAP**	Smoking, Nutrition, Alcohol and Physical activity
QI	Quality Improvement	**STI**	Sexually Transmissible Infection
RACF	Residential Aged Care Facility	**TCA**	Team Care Arrangement
RACGP	The Royal Australian College of General Practitioners	**URP**	Usual Resident Population
RMMR	Residential Medication Management Review	**UTI**	Urinary Tract Infection
RSE	Relative Standard Error	**VAED**	Victorian Admitted Episodes Dataset
SA1 (2 or 3)	Statistical Area 1 (2 or 3)	**VAHI**	Victorian Agency for Health Information
SDoH	Social Determinants of Health	**VEMD**	Victorian Emergency Minimum Dataset
SEMPHN	South Eastern Melbourne Primary Health Network	**VPHS**	Victorian Population Health Survey
SIDS	Sudden Infant Death Syndrome	**WHO**	World Health Organization
SMEs	Small and Medium-sized Enterprises	**WVPHN**	Western Victoria Primary Health Network

SNAPSHOT OF THE NWMPHN REGION

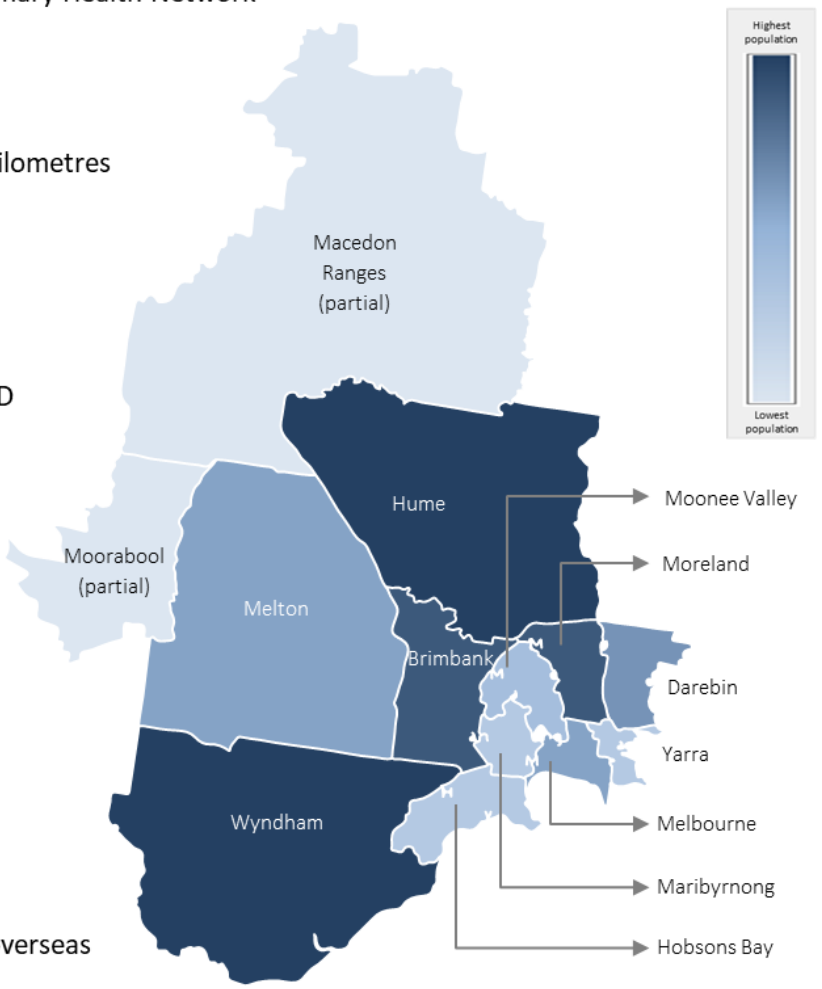
North Western Melbourne Primary Health Network comprises:

3,212 square kilometres

171 suburbs, including Melbourne's CBD

13 Local Government Areas

1.9+ million residents



- **632,000+** residents born overseas
- **200+** spoken languages
- **5** Indigenous nations
- **10,000+** Aboriginal and Torres Strait Islander residents
- **123,000+** of the population are LGBTIQ+
- **most** of Victoria's 5000+ bridging visa holders.
- **more humanitarian arrivals** than anywhere else in Victoria.

NWMPHN HEALTH SERVICES

561 General practice clinics

375 Pharmacies plus three Supercare Pharmacies

126 Residential Aged Care Facilities

12 Major hospitals

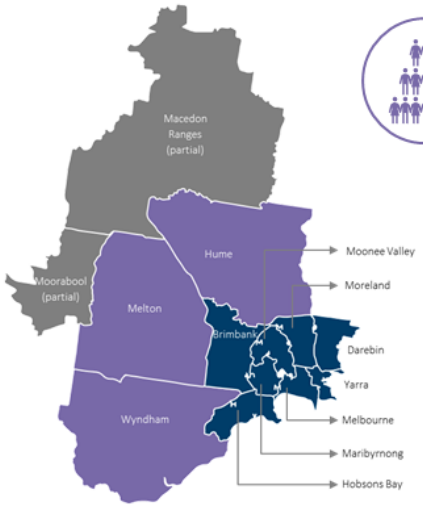
15 Private overnight hospitals

22 Mental health inpatient service providers

1327 Mental health outpatient and community service providers

PHIDU 2021a; VAHI, 2019.

SNAPSHOT OF NWMPHN POPULATION HEALTH STATISTICS



37% of the population reside in the growth areas of Wyndham, Hume and Melton.[1]

61% of the population is in Melbourne inner city and suburban areas. [1]

The NWMPHN population will grow by almost **28%** by 2030.[1]

In 2016 NWMPHN had overall higher levels of disadvantage than Victoria and there is socioeconomic inequity across and within LGAs.[1]

13% of adults in NWMPHN are daily smokers; more common among men (15%) compared to women (11%).[2]

5 of 13 LGAs had overall increased lifetime risk of alcohol-related harm greater than Vic average.[2]

20% of adults estimated to be obese (BMI >30), **30%** overweight (BMI 25-29).[2]

95.5% of 5-year-old children are fully vaccinated.[3]

58% of people reported living with at least one chronic disease.[2]

Around **28%** of adults have been diagnosed with anxiety or depression.[2]

2020-21 has seen a reduction in hospitalisations and ED presentations (influenced by lockdown period).[4]

The number of potentially preventable hospitalisations dropped by **18%** from 2019-20 to 2020-21.[1]

Health issues of most concern in our community are:

- Overall physical health
- Mental health
- Dental/oral health
- Chronic health conditions

Top barriers to accessing care when needed are:

- Cost
- Waiting time
- Didn't know where to go
- Can't get an appointment

[1]PHIDU, 2021a; [2]VAHI, 2021a; [3]DoH, 2021e; [4]VAHI, 2021b, 2021c.

SNAPSHOT OF NWMPHN PRIORITY AREAS

The needs identified through this Health Needs Assessment (HNA) have been summarised into four different groups: health conditions, population groups, geographical locations and health system and process.

Health conditions
Mental Health
Alcohol and other drug services
Immunisations
Smoking cessation
Comorbid conditions
Preventative health checks
COVID-19
Chronic conditions
Blood borne viruses and sexually transmitted diseases
Oral health
Healthy eating
Physical activity

Population groups
Aboriginal and Torres Strait Islanders
Culturally and linguistically Diverse (CALD)
LGBTIQ+
Children, Young People and Families
Older adults
People experiencing unstable housing/ homelessness
People who have been incarcerated
International students
People living with a disability

Geographical locations
Wyndham: Highest per capita need and high rates of PPH
Hume: High per capita need and high rates of chronic disease and acute service use
Brimbank: High per capita need and high rate of PPH
Melton: Highest rate of need across all social determinants and high acute service use.
Melbourne: High need for AOD, PPH, and mental health

Health system and process
Access barriers to mental health and AOD services
Culturally safe and appropriate care
Stigma
System navigation
Workforce shortages
Health literacy
Climate change
Cost of health care
Waiting times
Transportation

Each of these have then be prioritised using a systematic and pragmatic prioritisation process to filter the need issues as either high, moderate or low priority.

Priority outcome	**HIGH priority**	**MODERATE priority**	**LOW priority**
Description	The issue aligns with existing PHN priorities. There is funding or other resources available to support activities in this area and/or opportunity to tailor funding to further address this priority.	This issue is not currently aligned to existing PHN priorities however has been identified as having an impact on the population and/or specific cohorts within the catchment. It is likely that the issue will continue to impact on individuals and the community.	This issue is not currently aligned to existing PHN priorities however has been identified as having an impact on the population and/or specific cohorts. It is likely that the issue will continue to impact on individuals and the community. The issue is currently being addressed by other groups or agencies.
Potential action	Identify PHN activities and anticipated outcomes.	PHN advocate for unmet community health need.	PHN share data with other agencies, explore opportunities for supportive action/working together.

1

INTRODUCTION

1.1 Purpose

All Primary Health Networks (PHNs) are required to undertake regular evidence-based assessment of their region to identify gaps and opportunities in health needs and services.

Findings from the Health Needs Assessment (HNA) process inform the PHN's planning and prioritisation of future activities. This includes reframing of the North Western Melbourne Primary Health Network (NWMPHN) Strategic Framework (if necessary) and determining the allocation of resources and focus (which are described in the NWMPHN Activity Work Plans).

For NWMPHN, the HNA also presents an important conversation with our community including consumers, health care providers and other stakeholders in our region as to how we can work together to achieve our vision for a 'A healthy community, a healthy system'.

NWMPHN STRATEGIC FRAMEWORK

During 2020–21, NWMPHN revised our Strategic Framework which provides clear direction to our organisation across our four key strategic objectives over the next three years.

Figure 1. NWMPHN Strategic Objectives

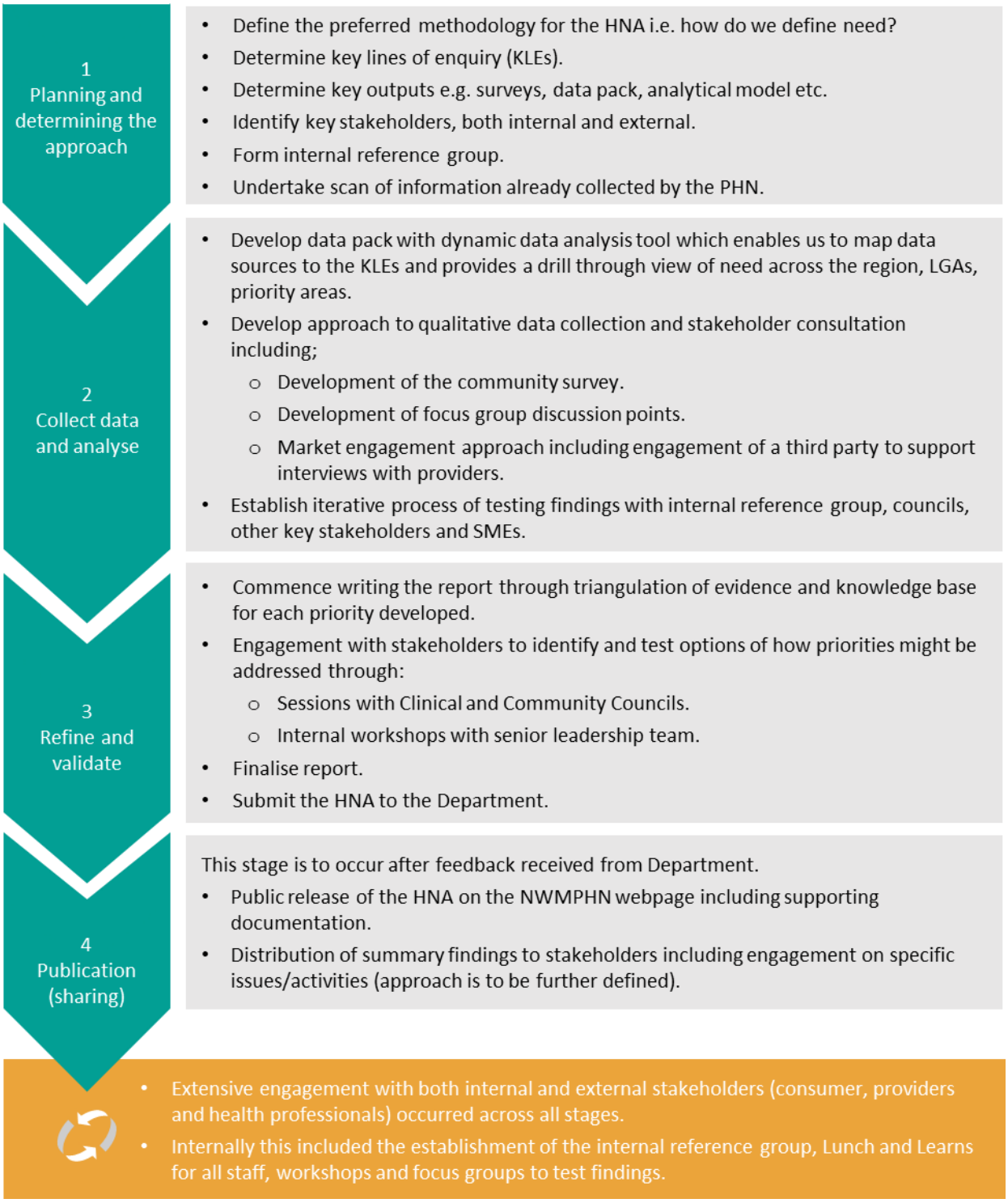
Through the HNA need identification and prioritisation process, NWMPHN has considered the strategic objectives and how the identification of any new priorities or focus areas may need to be drawn into our strategic plans and activities.

1.2 Approach

NWMPHN has taken a four-stage approach to developing the HNA, with an emphasis on using data and evidence and developing tools and processes which can be used for other activities informing commissioning in future months/years. We have also engaged in extensive consultation with both internal and external stakeholders within our region to inform the HNA development workplan and draw insights from the findings.

Figure 2 shows the NWMPHN Health Needs Assessment Development Roadmap. The outcomes of the activities undertaken during each stage are presented as the content of this report.

Figure 2. NWMPHN Health Needs Assessment Development Roadmap



EVALUATION OF THE APPROACH

This HNA provides us with a point in time snapshot of need across the NWMPHN region and so our 'Roadmap' includes the development of dynamic tools and resources on which we will build as more data and information becomes available.

An important part of our approach also involves asking reflective questions at each stage of the process to ensure that we are learning and looking for opportunities to improve. A high-level summary of our key reflections and potential actions we will take in the future are provided in Appendix A1.

In addition to this, we also plan to engage with our stakeholders who contributed to the development of the HNA (particularly our internal reference group and Clinical and Community Councils) to seek their feedback on what worked well and what could be improved. For councils this will be undertaken during our regular (yearly) evaluation process (February 2022).

1.3 Methodology

DEFINING NEED

A needs assessment implies there is a gap or discrepancy between the current conditions - 'what is' - and the ideal conditions - 'what should be'. This gap - the difference between the current condition and the ideal condition - is the 'need' (Smart, 2019).

Needs are relative and what is necessary depends on your point of view, so our evidence informed approach draws on one of the most enduring conceptualisations of need (Bradshaw, 1972) which considers four types of need:

- **Comparative need**: Identified measures to define need across a wider population or community. It highlights those with similar needs who are not yet receiving services.
- **Felt need**: Defined by what people living in and/or accessing services in the region want, but they are often unexpressed. They are defined by social circumstance and personal perception.
- **Expressed need**: When a group or individual asks for their 'felt need' to be met, it then becomes an 'expressed need'.
- **Normative need**: Defined by experts (health service providers and other subject matter experts) in the region. Often measured against standards.

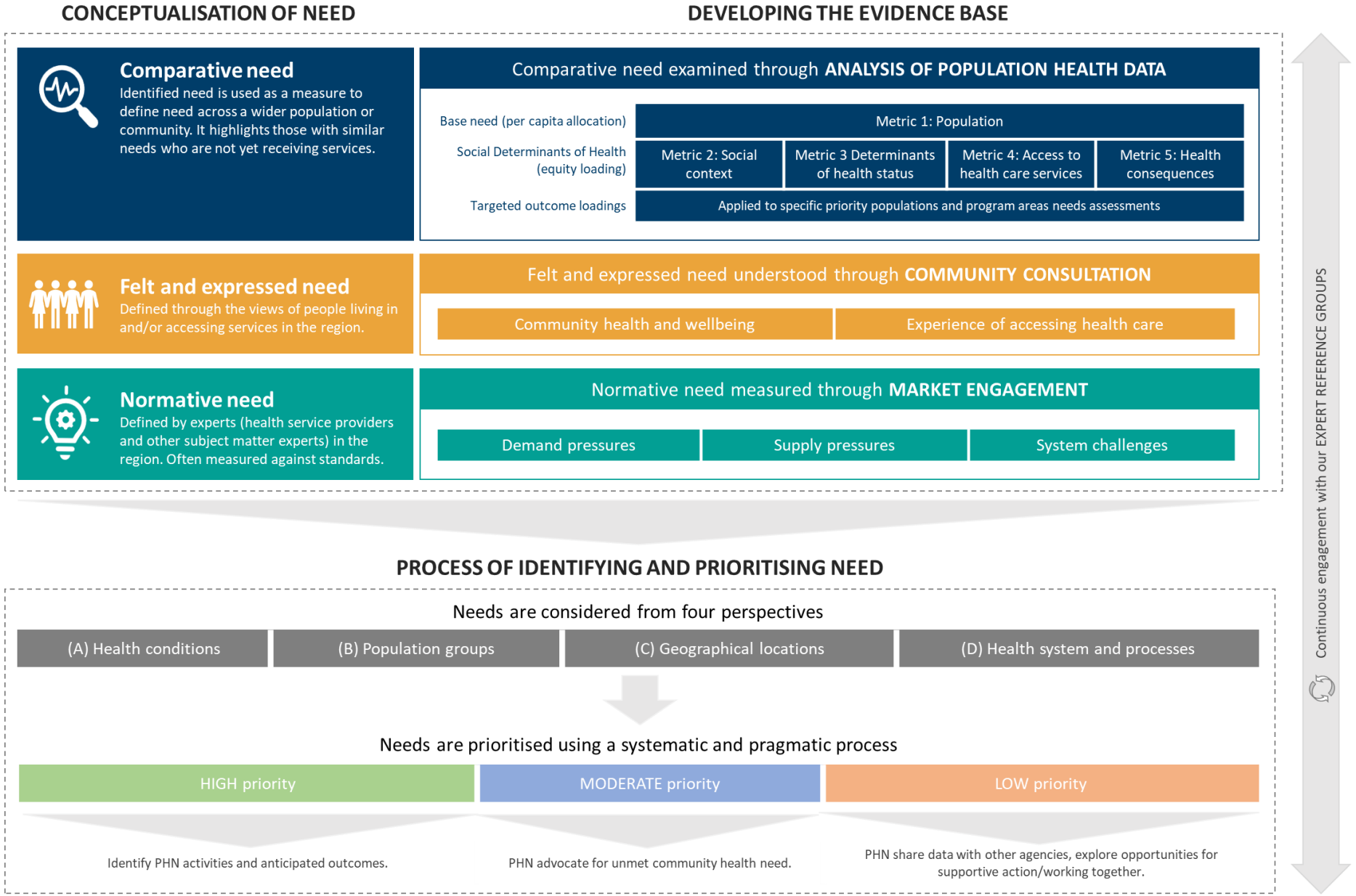
Three forms of evidence are drawn on throughout the HNA to understand each type of need across our region. Our evidence informed approach to defining need is down in Figure 3.

Figure 3. Evidence informed approach to defining need

To make what can be quite a complex conceptual approach, practical and actionable, the NWMPHN Health Needs Assessment Framework has been developed (see Figure 4).

The Framework includes our evidence informed approach to defining need and how we bring that to life through a systematic and pragmatic prioritisation process to identify and prioritise need in the most effective and equitable way possible.

Figure 4. NWMPHN Health Needs Assessment Framework

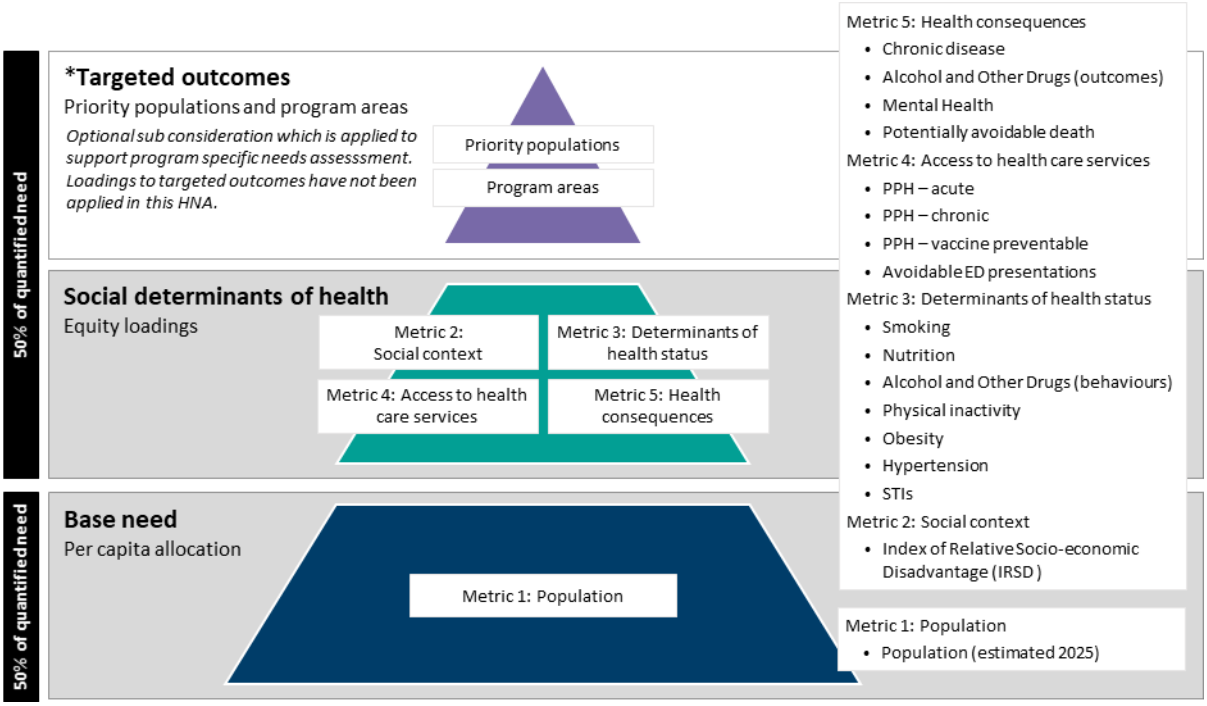


DEVELOPING THE EVIDENCE BASE

Analysis of population health data

The Social Determinants of Health (SDoH) provide a systematic way of analysing the differences in health status across the region to identify and quantify overall need (Solar and Irwin, 2010). We have grouped them into five metrics, each with distinct sub-categories and measures. These metrics are then used to quantify need with more being attributed to areas that are facing disadvantage based on SDoH. The method to quantify need based on the SDoH is outlined in Figure 5.

Figure 5. Method of quantifying need based on the Social Determinants of Health



Base need accounts for 50% of the overall need and is quantified using a per capita allocation as described in Metric 1: Population. This metric defines our community in terms of geographical area and identifies the absolute need based on where people are and projections of where they will be in the future.

Base need is then loaded for disparities in **social determinants of health**. These equity loadings assign the remain 50% of overall need according to the following metrics.

Metric 2: Social context applies a loading for socioeconomic disadvantage as it recognises that the social position that an individual has in society can shape differences in experiences and vulnerability to health-compromising conditions.

Metric 3: Determinants of health status recognises that these social positions in turn shape specific differences in experiences and vulnerability to health-compromising conditions and provides a loading for behavioural and biomedical health risks.

Metric 4: Access to health care services recognises that the health system itself is a social determinant and plays an important role in mediating the differential consequences of illness in people's lives. A loading is applied for Potentially Preventable Hospitalisations (PPHs) and avoidable Emergency Department presentations.

Metric 5: Health consequences recognises that social position is an important factor driving health consequences (or outcomes) across our region. So, a loading is applied for health conditions, disease and premature death.

The quantification and outcome of the population health data analysis is described in Section 7.

Targeted outcomes is an optional sub consideration of SDoH and support specific needs assessments. It helps when targeting services to reflect outcomes for:

a) Priority populations - for example, in planning a program to address Aboriginal and/or Torres Strait Islander health will include an Aboriginality loading to reflect differential health needs of Aboriginal and/or Torres Strait Islanders. In addition, the weighting of measures available by Indigenous Area may be adjusted in the equity loading calculations.

b) Program areas – for example, in planning a program to provide additional after-hours GP services, specific indicators for PPHs, or avoidable (ED) presentations within these hours may be included to reflect the need that the program is trying to address. In addition, the weighting of Metric 4: Access to Health Care Services overall may be adjusted in the equity loading calculation.

The targeted outcomes component of the approach is applied to support program specific needs assessments. It has not been included within the scope of this whole of region health needs assessment report.

Community consultation

Consultation with the community was aimed at understanding their perceived health and wellbeing, as well as their experience of accessing health care services. The specific activities undertaken included:

- Online community health needs survey disseminated via social media, community (NWMPHN People Bank) members and health service providers.
- Targeted focus group discussions with community groups where we had limited engagement through other activities and/or had low response rates in the survey. Providers and community support groups were engaged to help identify community members willing to participate.

Also, the NWMPHN People Bank provided valuable input into the development of the HNA. People Bank is a register of people in the NWMPHN community who would like to help us to improve the health of people in the region. Their assistance included reviewing and providing feedback on the survey questions and assisting with dissemination of the survey amongst their community contacts.

Market engagement

Our approach to engagement with the market in the region included the following:

1. Interviews with providers across general practice, commissioned service providers, peak bodies, community health, acute providers and local government.
2. Online survey, disseminated to all service providers operating in the region.
3. Three online workshops, conducted with general practice to explore key workforce issues and impact on patient care.

The purpose of the engagement was on:

- Exploring demand, supply and system pressures that are impacting on providers.
- Identifying barriers to access to healthcare and gaps in services.
- Considering opportunities for collaboration and integration across the sector.

Expert reference groups

Clinical and Community Councils

The NWMPHN Clinical and Community Councils play a critical role in helping to guide NWMPHNs work and ensure the efforts to strengthen primary health care and connect services across the health care system are successful. They have played a critical role in the development of the HNA and have been engaged on several occasions.

This has included:

- Testing and iterating key lines of enquiry.
- Reviewing and advising on the questions for the community and provider surveys.
- Testing of emerging needs areas, prioritisation and options to address.

NWMPHN internal subject matter experts

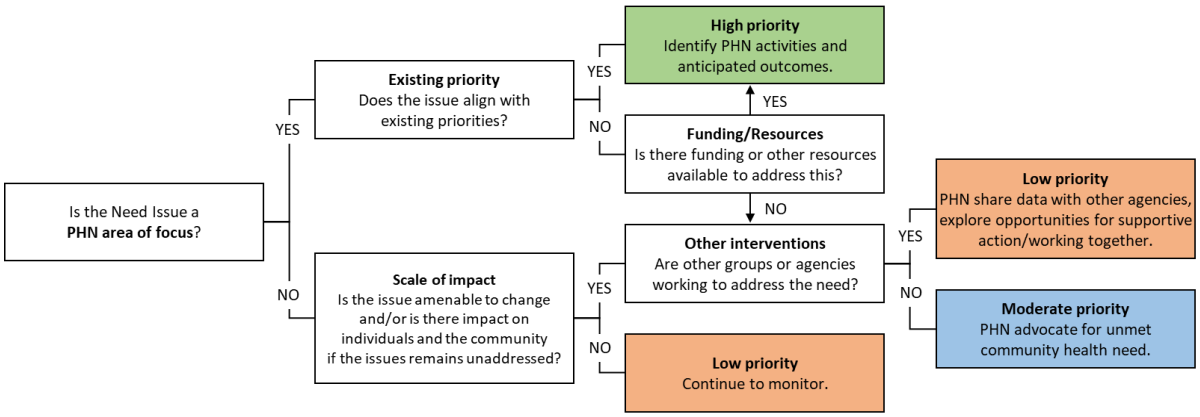
An internal HNA reference group consisting of NWMPHN staff from across the organisation was formed and met regularly throughout the development of the HNA. The primary purpose of the group was to provide advice and test emerging issues during each stage. A secondary purpose was to increase awareness of the HNA amongst staff.

PROCESS OF IDENTIFYING AND PRIORITISING NEED

The NWMPHN Health Needs Assessment Framework summarises the identified needs into four groups: (A) health conditions, (B) population groups, (C) geographical locations and (D) health system and process. The needs are then prioritised using a systematic and pragmatic process which helps to eliminate the often-unavoidable value-driven and subjective bias which occurs when making decisions about what action to take in response to the identified need.

Figure 6 shows the prioritisation process and the five criteria to filter the need issues as either high, moderate, or low priority.

Figure 6. Health Need Assessment need issue prioritisation process



The description of each priority level and proposed action are described below.

Priority outcome	HIGH priority	MODERATE priority	LOW priority
Description	The issue aligns with existing PHN priorities. There is funding or other resources available to support activities in this area and/or opportunity to tailor funding to further address this priority.	This issue is not currently aligned to existing PHN priorities however has been identified as having an impact on the population and/or specific cohorts within the catchment. It is likely that the issue will continue to impact on individuals and the community.	This issue is not currently aligned to existing PHN priorities however has been identified as having an impact on the population and/or specific cohorts. It is likely that the issue will continue to impact on individuals and the community. The issue is currently being addressed by other groups or agencies.
Potential action	Identify PHN activities and anticipated outcomes.	PHN advocate for unmet community health need.	PHN share data with other agencies, explore opportunities for supportive action/working together.

1.4 Limitations

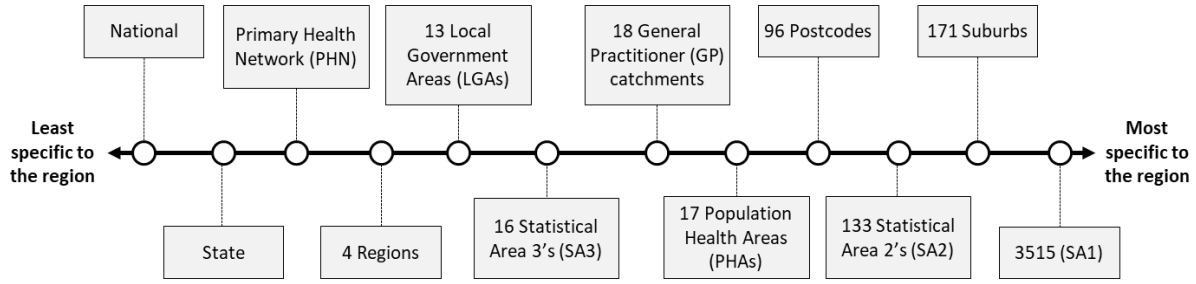
While best attempts have been made to include all information and data relevant to the health and wellbeing of the community in NWMPHN, it should be noted that this document may not include all available information, due to publication limits, issues with confidentiality or conflicting evidence from multiple sources. Some of the specific limitations important to consider whilst reading this document are as follows.

Geographic units used to analyse the population health data

Making area distinctions and using the most relevant geographic units to analyse the data is important when understanding population health because information is structured with a 'where' dimension (ABS, 2011).

There are several health guidelines and statistics used within this report that are generally made available at different levels of detail - national (for example, National Health and Medical Research Council, NHMRC), State or PHN (for example, Victorian Population Health Survey, VPHS) and Local Government Area (LGA) (for example, Public Health Information and Development Unit, PHIDU). The Australian Bureau of Statistics (ABS) disseminates geographically classified statistics available at statistical areas which loosely translate or at least can be understood by comparing them with our understanding of familiar sized geographic descriptions like LGA, postcode and suburb. Similarly, the Health Workforce Division at the Australian Government Department of Health (DoH) have custom designed geography known as General Practitioner (GP) Catchments in their Health Demand and Supply Utilisation Patterns Planning (HeaDS Upp) Tool (see Appendix A2).

Figure 7. Geographic units for population health data used in health needs assessment



There are challenges in aligning health information described in these different units for example even within one data source like PHIDU population estimates for the NWMPHN region can vary slightly across indicators. Nevertheless, insights can be drawn from comparing our region across similar groups. For example, we can compare trends across LGAs and GP catchments within our region, contrast our data with the other PHNs and use state and national averages as benchmarks.

Timeliness of data

Some datasets are relatively dated, and therefore may not reflect recent changes to health status, despite being the most up-to-date source available (for example, 2016 Census).

At the time of developing this document, the 2017 Victorian Population Health Survey was available relating to LGA specific data. This survey expands the sample size to collect and report data at the LGA level every three years (total target of 33,654 interviews: around 426 interviews in each of the 79 LGAs). While the 2017 survey had a good participant response rate (approximately 66%) and provides a range of self-reported data for the NWMPHN LGAs, release of the 2020 LGA-level data and estimates is imminent.

Data for specific population groups

Data for Mental Health, Aboriginal and Torres Strait Islander Health and Alcohol and Other Drugs (AOD) is problematic in the paucity of data that informs knowledge of health and services. Although it is improving.

The NWMPHN region has a number of correctional facilities, and includes three adult prisons, the Parkville Youth Justice Precinct, the Melbourne Assessment Prison and centres for prisoner remand and transition. Data about the proportion of residents who have been incarcerated or have had significant interactions with the justice system is limited. Ongoing discussions with Department of Justice and Community Safety continue, with a view to informing a future needs analysis of this cohort.

Limited data is available on people experiencing homelessness. There are also limitations in the data available on the LGBTIQ+ population, particularly at the PHN level.

Survey bias

Whilst there was a strong response to both the community and market surveys, they were offered on an opt-in basis meaning some degree of sampling bias is likely – for example, the market survey had a high proportion of participants from general practice, mental health and allied health.

As the community survey was only distributed online, it was difficult to reach certain members of the community who do not have easy access to the internet, such as people experiencing homelessness and older adults.

Also, due to time and resource limitations the community health needs survey was available only in English. This is likely to have reduced participation among people who have limited written English language proficiency and therefore will understate the experience of this population group, particularly in relation to the cultural appropriateness and safety of health services.

2

POPULATION

2.1 Key messages

Our HNA is about the needs or issues in our community. One part of defining community is geographically in terms of total population and population density.

KEY MESSAGES FROM THIS SECTION

- NWMPHN has the largest population of all the PHNs with an additional large commuter population.
- 61% of the population is in Melbourne's inner city and suburban areas but approximately half the geographic region is classified as rural or remote.
- Two LGAs are considered peri-urban (outside of the city; a mixture of town and countryside characteristics). This means that the people in our community experience differential geographic environments.
- 37% of our population reside in the growth areas of Wyndham, Hume and Melton.
- The NWMPHN population is expected to grow by almost 28% by 2030 and account for almost one third of Victoria's population by 2036.

The Wathaurung, Woi Wurrung (Wurundjeri), Taungurung, Dja Wurrung and Boonwurrung are the Traditional Owners of the various parts of the region and have a deep, continuous connection to the area.

2.2 Geography

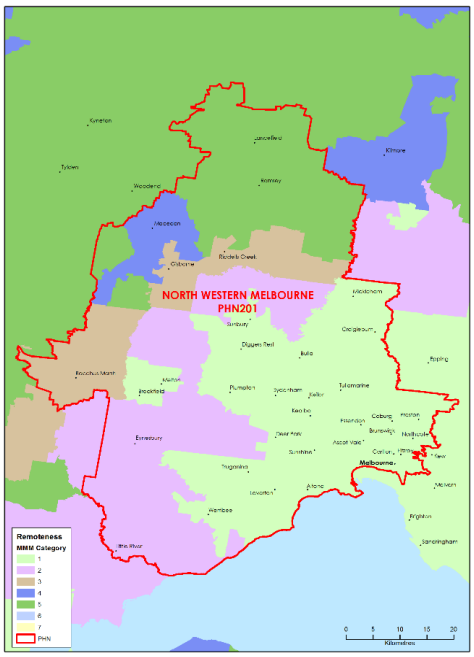
Our region is geographically diverse.

The whole NWMPHN region covers 3,212 km^2 and stretches from Richmond in the inner east suburbs past Bacchus Marsh in the west, from coastal Cocoroc in the south-west to Lancefield and beyond in the north (see Figure 8a).

The Modified Monash Model (MMM) illustrated for our region in Figure 8b. defines whether a location is a city, rural, remote or very remote by measuring remoteness and town size on a scale of MM1 (major city) to MM7 (very remote). NWMPHN has over half the region classified as MM2 to MM5 meaning rural or remote (DoH, 2021a).

Figure 8. Map(s) a). showing population density and b). remoteness

Source: DoH, 2018



Source: DoH, 2018*

*Bacchus Marsh has been reclassified as MM1
see: https://www.health.gov.au/resources/apps-and-tools/health-workforce-locator/health-workforce-locator

2.3 Population density

Our population is large.

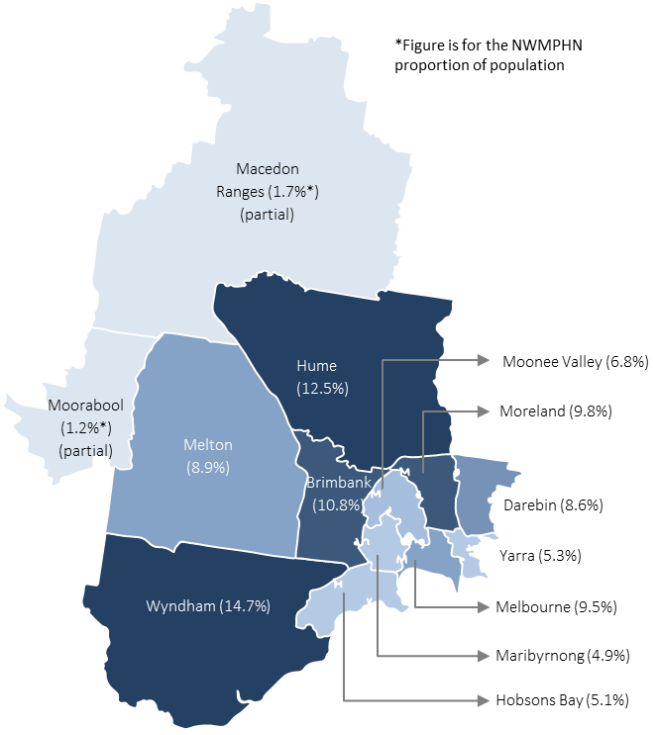
With 1,928,927 people, NWMPHN has the largest population of the 31 PHNs. NWMPHN encompasses 7.5% of the total population of Australia and 28.8% of the total Victorian population (PHIDU, 2021a). In addition, the region takes in the Central Business District (CBD) that caters to a commuter population of 900,000 (City of Melbourne, 2016).

Area distinctions are important because they help us begin to describe differences in health needs based on where the people who make up our community live.

NWMPHN is made up of 13 Local Government Areas (LGAs): Brimbank, Darebin, Hobsons Bay, Hume, Macedon Ranges, Maribyrnong, Melbourne, Melton, Moonee Valley, Moorabool, Moreland, Wyndham, and Yarra.

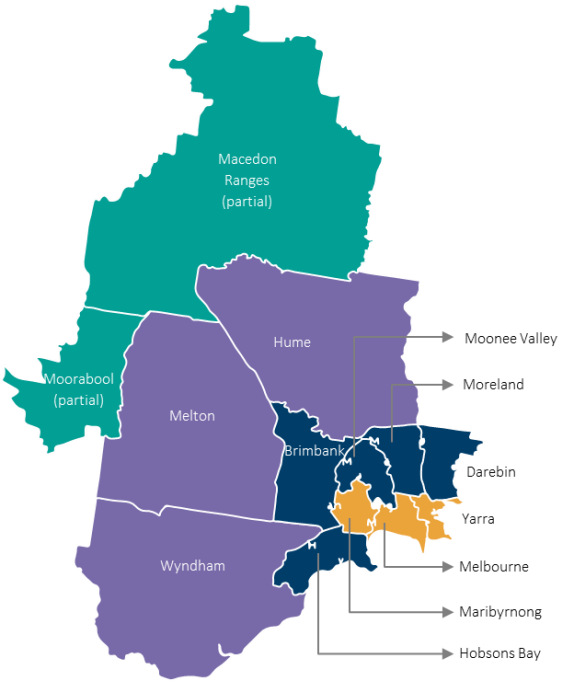
Currently the highest proportion of our population reside in Wyndham (14.7%), and Hume (12.5%), closely followed by Brimbank (10.8%). While the smallest number of residents are within Moorabool (1.2%) and Macedon Ranges (1.7%), these two LGAs are only partially (64%) included in the NWMPHN catchment (PHIDU, 2021b) (see Figure 9 and 10).

Figure 9. Map depicting the NWMPHN region using LGA definitions and population percentages



LGAs can also be grouped into four regions, that reflect the geographic diversity and distribution of the population:

Figure 10. Map depicting the four NWMPHN regions



3% of our population are in peri-urban areas (outside of the city; a mixture of town and countryside characteristics): Macedon Ranges and Moorabool.

36% of our population are in growth areas (on the edge of the town with established plans for future development): Hume, Melton, Wyndham.

41% of our population are in suburban areas (built up areas around the outside of cities): Brimbank, Darebin, Hobsons Bay, Moonee Valley and Moreland.

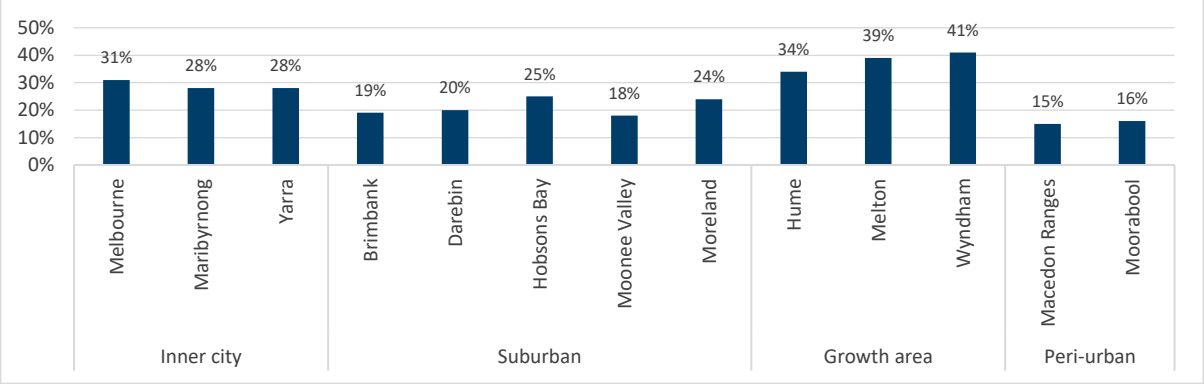
20% of our population are in the inner city (or main cities): Maribyrnong, Melbourne and Yarra.

2.4 Population growth

Our population is rapidly growing.

The population is projected to increase to approximately 2.4 million people by 2030, this is a 28% rate of growth (PHIDU, 2021a) (see Table 1). The areas of highest projected growth are the LGAs of Wyndham and Melton, which together are expected to account for more than one-third of Victoria's population growth by 2036 (Department of Environment, Land, Water and Planning, 2019).

Figure 11. Projected percentage (%) growth by LGA (2020-2030)



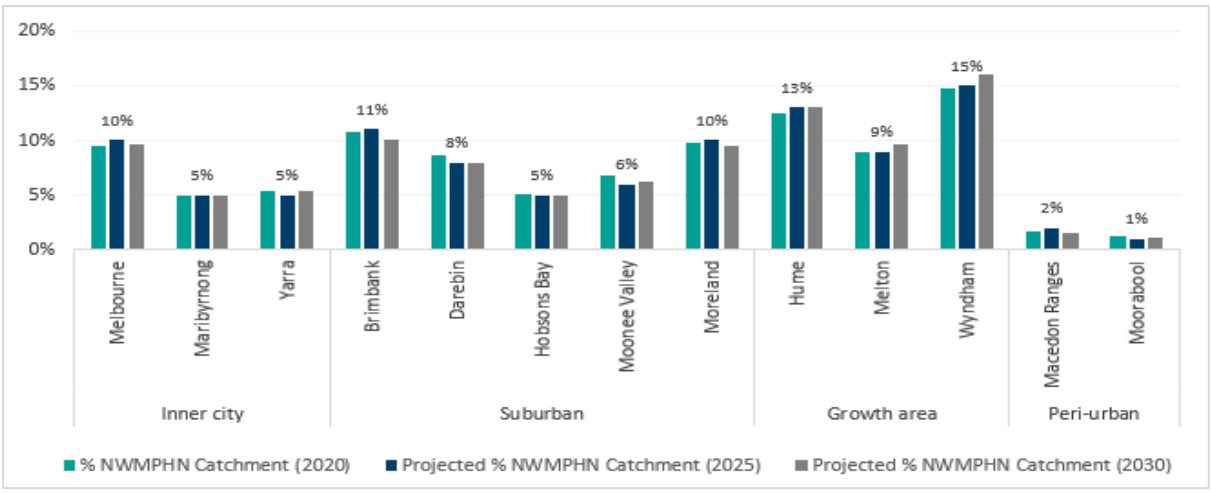
Source: PHIDU, 2021a

2.5 Metric 1: Population

To account for growth and to reflect forward planning in commissioning activity between now and the next formal HNA review, the 2025 population projection is used to quantify the base need within the region (see Figure 12).

Wyndham, Hume and Brimbank have the highest proportion of per capita need.

Figure 12. Percentage (%) of NWMPHN catchment (2020; 2025; 2030)



Source: PHIDU, 2021a

The population metric does not account for our significant mobile, non-residential, community who access our services (those travelling to the area for work, study or health care in our region). This is noteworthy because much of the information we use to quantify community need is defined by location of residence; meaning the needs of commuters are relatively unknown. The population metric does not account for remoteness. However, we acknowledge that people (including those living in rural areas) can find it harder to get medical help and accessing doctors can take longer and cost more (DoH, 2021a).

So, the ability to access resources is explored across a number of categories in Metric 2: Social context and who accesses health care services is specifically accounted for in Metric 4: Access to health care services.

Table 1. Quantifying per capita (base need) by geographic area

Region	LGA	KM[21]	Estimated Resident Population (2020)[2]	Population density (Number of people per km², 2020)[3]	% NWMPHN Catchment[4]	% Estimated Victorian Resident Population (2020)[5]	Projected Population (2025)[5]	Projected % NWMPHN Catchment (2025)[4,5] **BASE NEED**	Projected Population (2030)[5]	Projected % NWMPHN Catchment (2030)[4,5]	Projected population density (2030)[5]	Change 2020-2030[2,5]	Projected % Growth (2020-2030) [2,5]
Inner city	Melbourne	37	183,756	4920	9.5%	2.7%	219,220	**9.8%**	241,478	9.7%	6465	57,722	31%
	Maribyrnong	31	94,982	3042	4.9%	1.4%	109,775	**4.9%**	121,643	4.9%	3896	26,661	28%
	Yarra	20	103,125	5277	5.3%	1.5%	119,337	**5.4%**	132,445	5.3%	6777	29,320	28%
Suburban	Brimbank	123	208,247	1688	10.8%	3.1%	234,060	**10.5%**	248,533	10.0%	2014	40,286	19%
	Darebin	53	166,430	3113	8.6%	2.5%	184,959	**8.3%**	199,681	8.0%	3734	33,251	20%
	Hobsons Bay	64	98,189	1528	5.1%	1.5%	113,968	**5.1%**	122,953	4.9%	1914	24,764	25%
	Moonee Valley	43	131,753	3054	6.8%	2.0%	144,228	**6.5%**	155,028	6.2%	3594	23,275	18%
	Moreland	51	188,762	3705	9.8%	2.8%	213,680	**9.6%**	234,972	9.5%	4612	46,210	24%
Growth area	Hume	504	241,188	479	12.5%	3.6%	283,790	**12.7%**	323,540	13.0%	642	82,352	34%
	Melton	528	172,500	327	8.9%	2.6%	205,059	**9.2%**	239,147	9.6%	453	66,647	39%
	Wyndham	542	283,294	523	14.7%	4.2%	340,353	**15.3%**	400,706	16.1%	739	117,412	41%
Peri-urban	Macedon Ranges	1748	32,715	29	1.7%	0.5%	35,312	**1.6%**	37,607	1.5%	34	4,892	15%
	Moorabool	2111	23,060	17	1.2%	0.3%	24,824	**1.1%**	26,692	1.1%	20	3,632	16%
NWMPHN[6]			**1,928,927**				**2,230,640**		**2,487,674**				
Victoria			**6,696,670**				**7,447,358**		**8,054,587**				

Sources: PHIDU (2021a), ABS (2021a)

[1] Based on ABS (2021) Local Government Area Profiles. KM² are for the whole of Macedon and Moorabool LGA, not just the NWMPHN proportion.
[2] Based on PHIDU (2021a) Estimated Resident Population (ERP), 2020. date accessed 25 November 202. Macedon part a and Moorabool part a to reflect the NWMPHN proportion. ERP is based on usual residence regardless of nationality, citizenship or legal status. It includes residents who are overseas for less than 12 months and excludes overseas visitors who are in Australia for less than 12 months.
[3] Calculated based on total of Estimated Resident Population. 2020 for each LGA (i.e Macedon/Moorabool parts a and b) and KM².
[4] Calculated based on PHIDU (2021a), Estimated Resident Population, 2020 for Victoria
[5] Calculated from PHIDU (2021a) Population projections for each LGA, 2020, 2025 and 2030 (based on data and trends before the impact of COVID-19).
[6] As calculated by PHIDU (2021a), does not equate precisely to the total of LGAs presented in this table due to slight variance in geographical boundaries.

3

SOCIAL CONTEXT

3.1 Key messages

Social context generates or reinforces health inequities. It includes intertwined social characteristics chronic described at individual, household and neighbourhood levels that shape health opportunities. These social characteristics – some of which are chosen and some of which are not – shape how people experience everyday life (National Conference for Community and Justice, 2021). They can impact people (directly or indirectly) to varying degrees and at different life stages especially effect marginalised individuals or groups (AIHW, 2020a). Health status and outcomes among stigmatised groups are often significantly worse than more advantaged groups.

KEY MESSAGES FROM THIS SECTION

The population of NWMPHN is as socially and culturally diverse as it is geographically varied.

- Almost a third of residents were born in predominantly non-English speaking countries (compared to 22% state-wide) but this ranges widely, from as low as 5% in Macedon Ranges LGA up to almost half the population of Melbourne (49%) and Brimbank (44.7%).
- Demographics and other priority populations are also represented in some areas in higher proportions than the rest of NWMPHN and of Victoria overall, with significantly higher estimates of children aged under 14 years in NWMPHN growth area LGAs, of LGBTIQ+ people in Yarra, Moreland, Melbourne, and Darebin LGAs, and slightly higher proportion of Aboriginal people in Moorabool, Melton and Darebin.
- Based on factors including income, employment and education, in 2016, NWMPHN had overall more disadvantage (IRSD score of 994) compared with Victoria (score of 1010) and Australia (1000).
- Highest levels of disadvantage were in Brimbank (IRSD score of 921), Hume (947), Melton (994) and Maribyrnong (995), with some small pockets of extreme disadvantage (IRSD < 400) also identified within relatively more advantaged LGAs of Melbourne, Yarra and Moonee Valley.
- Higher levels of liveability are generally experienced by people in inner city areas. Six LGAs in NWMPHN, Brimbank and all LGAs in growth and peri-urban areas, each rated below average rating on the Liveability Index, which combines six domains of liveability found to be associated with health and wellbeing outcomes.

Capturing the diverse identities of our community in a reporting context is challenging and these descriptions are not intended to present people as homogenous groups. People have multiple identities and group memberships with which they identify and find meaning. We recognise diversity within and between groups as well as intersectionality; the complex ways in which different aspects of a person or group's identity can expose them to overlapping forms of discrimination, marginalisation and disadvantage (State Government of Victoria, 2021). Intersectionality is mainly referred to as being an issue in the minority community and while it manifests there, it is widespread and exists in all communities.

This section describes social context across 4 groups of social characteristics (Solar and Irwin, 2010):

- **Demographic factors** (for example, age and gender, Aboriginality and sexual orientation, etc) are social stratifiers linked to systematic forms of discrimination.
- **Socio-economic factors** (for example, level of education, job status and income level measures, etc) are characteristics most often used as the main broad indicators of current socioeconomic position.
- **Psychosocial factors** (for example, expenses and debt and food security etc) represent differential accumulation of stressful living circumstances.

- **Community and physical environment factors** (for example, liveability which includes public transport, social infrastructure and food environment etc) can provide resources for health and contain health risks and so the differences in exposure and vulnerability to health damaging or enhancing conditions in the physical environment.

Together these factors shape social hierarchies and create an overall socioeconomic position that is the root cause of inequities in health. At the end of this section, overall socioeconomic position is quantified for each LGA using a resource-based measure of material and social resources (ABS Index of Relative Social Disadvantage, IRSD), where the term disadvantage is used to describe inadequate access to resources.

It is important to note that the data available for this section relies heavily on the ABS 2016 Census and changes may have occurred since that time. These metrics will be updated when 2021 census data is made available.

3.2 Demographic factors

Demographic factors define key characteristics of the population, many of which contribute significantly to the social context in which health, and health inequity occurs. Experiences of health and health needs are understood to frequently differ across the key demographics of age, gender and ethnicity. Consideration of demographic factors here also includes identification of some groups within our community who commonly experience specific health needs: Aboriginal and Torres Strait peoples, refugees and asylum seekers, people who are LGBTIQ+, people living with profound or severe disability, and people needing residential aged care.

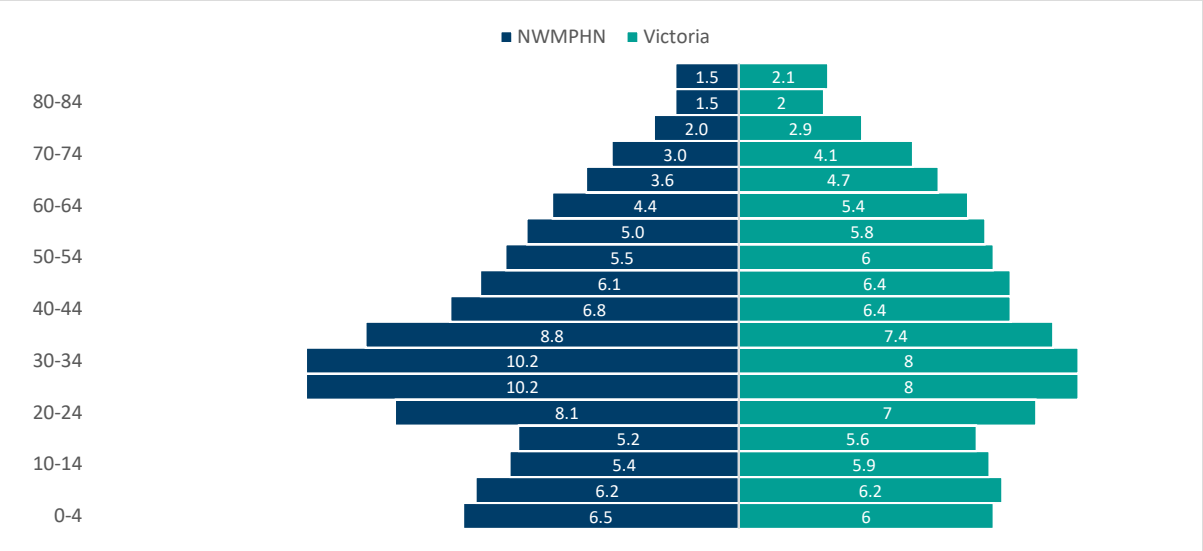
Importantly, a defining and influential demographic characteristic of NWMPHN overall is the level of multiculturalism, and this is detailed here as the final demographic factor.

AGE

In NWMPHN, the distribution of age is relatively comparable with Victoria more broadly, though with a slightly greater proportion of people in younger age groups.

The population across age groups is detailed further in Figure 13 which presents the estimated proportion (%) of population for each age group in NWMPHN and Victoria (PHIDU, 2021a).

Figure 13. Estimated proportion (%) of population in each age group in NWMPHN and Victoria, 2020



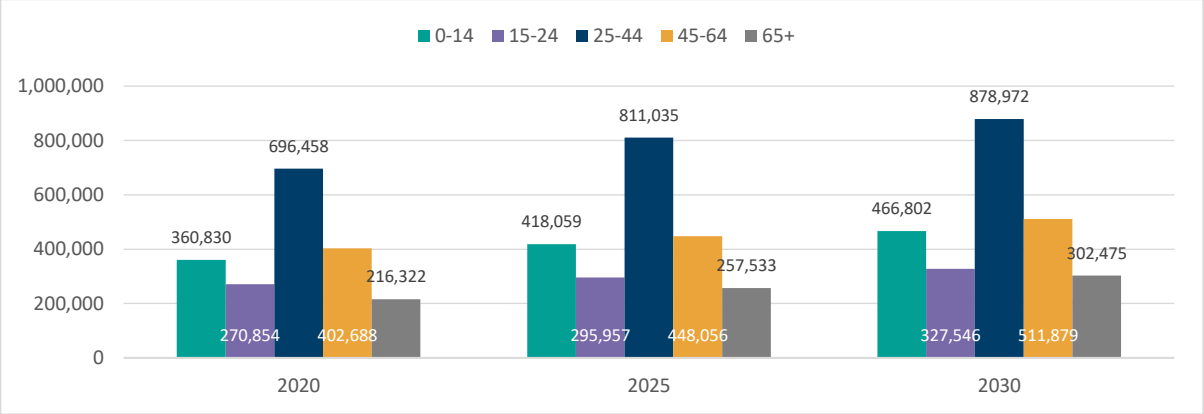
Source: PHIDU (2021a)

NWMPHN has the highest proportion of 0-24-year-olds (31.4%) across all Victorian PHNs, and this is also slightly higher than the overall Australian (31.1%) proportions.

Compared to the state overall, a smaller proportion of NWMPHN population is estimated to be in each of the age groups from 45 years and over.

Population estimates by age

Figure 14. Population estimates and projection in NWMPHN by age, 2020



Source: PHIDU (2021a)

The NWMPHN population aged 15 years and over is expected to increase to 1,812,581 in 2025 and 2,020,872 by 2030.

NMWPHN's child population (0-14 years) is expected to grow by more than 100,000 from 2020 to 2030. This is a slightly increased proportion rising from an estimated 18.5% of NWMPHN in 2020, to 18.7% in 2025 and 18.8% by 2030.

Unsurprisingly, the three-growth area LGAs currently have the greatest number of children (aged 0-14 years) and are estimated to have the greatest number in 2025 and 2030. The largest number and most significant growth in this age group is evident in Wyndham. In this one LGA alone it is estimated that approximately 19.8% of the children in the NWMPHN region were living in 2020 (71,242) and that by 2030 this will increase to 103,085 children, or 22.1% of this age group in NWMPHN overall.

Greater numbers of young people, including young adults (15–24 years) are currently living in Melbourne, reflecting the tendency to live in the city, and this trend is projected to be stable in 2025 and 2030. However, by 2030 it is estimated Wyndham and Hume are also likely to have a higher number of residents in this age group.

The 25 to 44-year-old age group will see the greatest increase from 2020 to 2025 from 696,458 to 811,035.

The number of older people in the catchment aged 65 years and over is expected to increase to over 300,000 people by the year 2030, growing from being 11.1% of the population in 2020, to 11.6% in 2025 up to 12.2% by 2030. Brimbank currently has the highest numbers of older adults, and this is expected to continue, though Hume and Wyndham are estimated to see the largest increases in the number of people aged 65 years and over by 2030.

GENDER

In Victoria, as in Australia more widely, there is very little difference in the proportion of each gender in the population. In 2020 females were estimated to make up 50.5% of the population and as women tend to live longer than men, this difference is generally slightly increased in older age groups. In NWMPHN LGAs similar demographics are reflected, with the greatest difference seen in the 65 plus age group in which 53.9% are females and 46.1% are male.

Similarly, some just subtle gender ratio differences are identified in some LGAs, with the largest differences noted in Darebin (51.2% female), Moonee Valley (51.3%) and Maribyrnong (49.2% females) (PHIDU, 2021a).

Table 2. Projected NWMPHN population estimates by LGA and age group

Region	LGA name	0 – 14 years			15 – 24 years			25 – 44 years			45 – 64 years			65+ years			Total		
		2020	2025	2030	2020	2025	2030	2020	2025	2030	2020	2025	2030	2020	2025	2030	2020	2025	2030
Inner city	Melbourne	12,468	15,606	17,940	51,547	50,857	51,652	88,047	108,838	117,924	23,383	27,955	33,739	12,227	15,963	20,222	187,672	219,219	241,477
	Maribyrnong	15,361	17,352	19,264	11,809	12,457	13,344	40,608	46,756	50,584	19,991	22,224	25,397	9,226	10,986	13,054	96,995	109,775	121,643
	Yarra	12,055	14,077	15,934	11,125	11,807	12,745	50,140	57,606	62,336	20,418	22,487	25,650	11,075	13,360	15,780	104,813	119,337	132,445
Suburban	Brimbank	40,438	43,888	46,553	29,230	29,669	31,049	66,662	73,058	75,794	50,028	51,243	54,401	30,961	36,203	40,737	217,319	234,061	248,534
	Darebin	26,774	29,256	31,507	21,196	22,708	24,219	61,533	69,368	73,522	36,949	39,549	43,657	22,240	24,078	26,776	168,692	184,959	199,681
	Hobsons Bay	20,168	22,107	23,727	11,244	12,365	13,605	32,269	35,596	37,352	25,701	26,949	28,973	14,787	16,951	19,296	104,169	113,968	122,953
	Moonee Valley	22,340	24,141	25,795	16,011	17,254	18,488	41,923	46,856	49,452	31,832	33,693	36,739	20,371	22,283	24,553	132,477	144,227	155,027
	Moreland	31,601	36,210	40,147	22,783	24,422	26,628	75,172	86,183	92,497	37,791	41,441	47,282	23,480	25,424	28,417	190,827	213,680	234,971
Growth area	Hume	54,545	64,838	73,721	33,583	37,855	43,459	75,181	90,256	100,423	52,769	58,994	67,226	25,399	31,846	38,710	241,477	283,789	323,539
	Melton	41,497	48,549	54,911	22,551	27,925	33,213	53,326	62,963	70,766	36,663	44,751	53,657	15,660	20,871	26,600	169,697	205,059	239,147
	Wyndham	71,242	88,675	103,085	32,998	41,109	50,706	98,142	118,652	132,578	52,116	62,894	78,089	22,032	29,023	36,248	276,530	340,353	400,706
Peri-urban	Macedon Ranges - part	6,998	7,473	7,813	3,677	3,994	4,430	7,107	7,656	7,886	9,198	9,555	10,004	5,749	6,634	7,474	32,729	35,312	37,607
	Moorabool - part	4,694	4,973	5,223	2,613	2,804	3,081	5,635	6,194	6,463	6,034	6,269	6,538	3,790	4,584	5,386	22,766	24,824	26,691
NWMPHN		**360,830**	**418,059**	**466,802**	**270,854**	**295,957**	**327,546**	**696,458**	**811,035**	**878,972**	**402,688**	**448,056**	**511,879**	**216,322**	**257,533**	**302,475**	**1,947,152**	**2,230,640**	**2,487,674**

Source: PHIDU (2021a) - Social Atlas of Australia (LGA) Population Projections

Note: NWMPHN total figures are presented as calculated and reported by PHIDU, and do not equate exactly to the sum of each LGA due to slight variance in geographical boundaries.

ABORIGINALITY

The Wathaurung, Woi wurrung (Wurundjeri), Taungurung, Dja Dja Wurrung and Boonwurrung are the Traditional Custodians of the lands and waterways in our catchment.

The Aboriginal and Torres Strait Islander population in NWMPHN is estimated to be 12,293 (0.7% of the NWMPHN population), which accounts for 21% of all Victorians who identify as Aboriginal and/or Torres Strait Islander (PHIDU, 2021a). This is the third highest proportion among the Victorian PHNs. The highest proportion are within Murray PHN (MPHN) (2.6%), followed by Western Victoria PHN (WVPHN) (1.4%). NWMPHN's population identifying as Aboriginal and/or Torres Strait Islander is slightly lower than Victoria (0.9%) and much lower than Australia overall (3.3%) (PHIDU, 2021a).

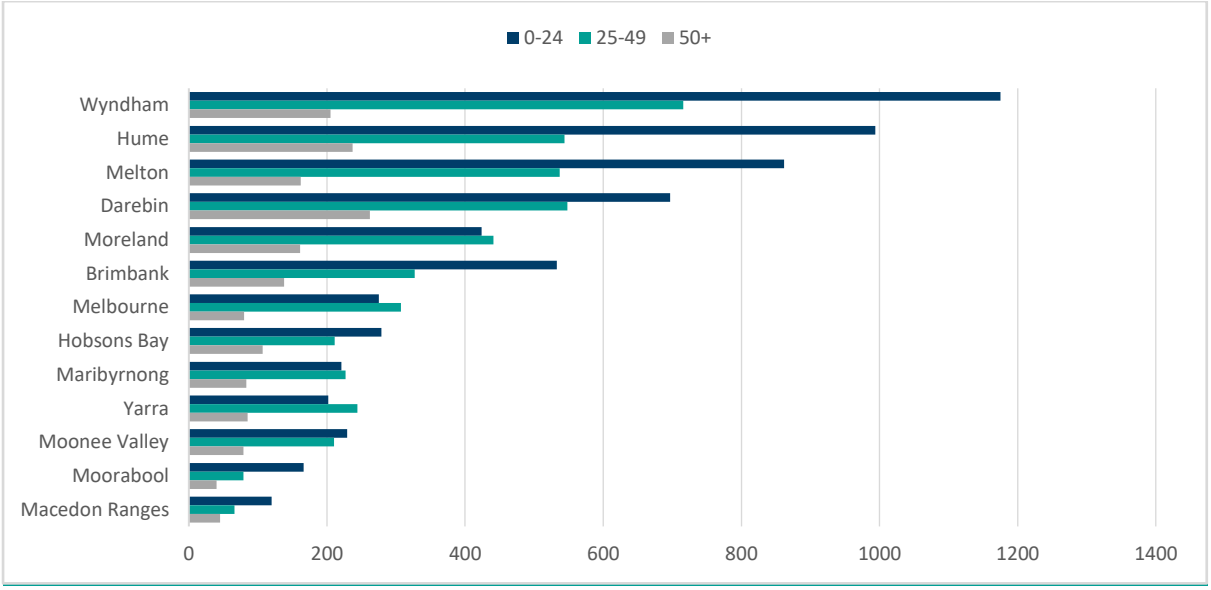
In NWMPHN, the largest number of Aboriginal and/or Torres Strait Islander people reside in Wyndham (17% of NWMPHN total), Hume (14%), Melton (13%) and Darebin (12%). Whereas Moorabool had the highest proportion of Aboriginal and/or Torres Strait Islander people relative to their population overall (1.4%), followed by Melton (1.1%) and Darebin (1%) (See Figure 15).

The age distribution of the Aboriginal and Torres Strait Islander populations is not the same as for the NWMPHN population as a whole. Around half of the people who identify as Aboriginal and/or Torres Strait Islander are under 25 years old (compared to 31% of our catchment population being in this age category). Older Aboriginal and Torres Strait Islander adults (50 years +) account for only 13% of those who identify despite adults over 50 years being 26% of our overall population.

Of note is that in 2016, Darebin had the largest number of older Aboriginal and Torres Strait Islander people (PHIDU, 2021a).

Population estimates are likely to be an under estimation (ABS, 2018a) and notwithstanding the lower life expectancy for Aboriginal and/or Torres Strait Islanders, this seems to be particularly pronounced in adults and especially older adults.

Figure 15. Number of Aboriginal and/or Torres Strait Islander people by age and LGA in NWMPHN, 2016



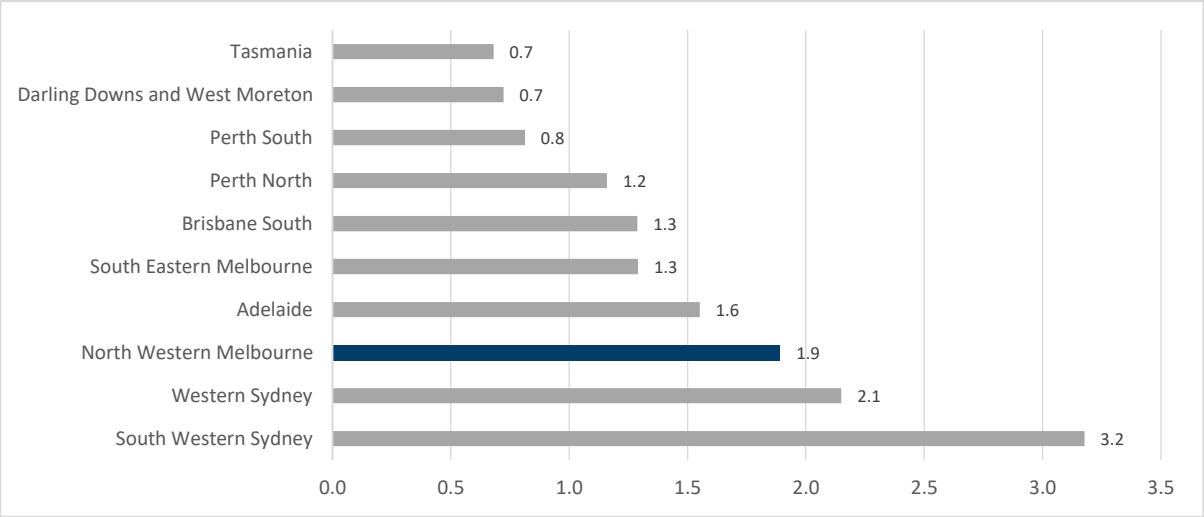
Source: PHIDU, 2021a

REFUGEE OR ASYLUM SEEKER BACKGROUNDS

While there is an observable decrease over time, NWMPHN has consistently had a higher population of individuals under offshore humanitarian programs arriving in Australia than the other Victorian PHNs. Between 2000 and 2016, NWMPHN had the highest proportion (1.9%) and number (30,537) of permanent migrants under the Humanitarian Program (PHIDU, 2021a) compared to South Eastern Melbourne PHN (SEMPHN) with 18,547 people (1.3%). NWMPHN had the third highest proportion

across all PHNs nationally. This proportion is almost a whole percentage higher than the Victorian proportion overall (1.1%) and much higher than the Australian proportion (0.9%) (PHIDU, 2021a).

Figure 16. Proportion of permanent migrants under the Humanitarian Program arriving between 2000-2016 (top 10 PHNs)



Source: PHIDU, 2021a

Hume has the highest proportion of its population (4.9%) being permanent migrants under the Humanitarian Program, followed by Brimbank (3.1 %), and Wyndham (2.8%) Only a small number settle in the Macedon Ranges and Moorabool (0%) (PHIDU, 2021a).

SEXUAL ORIENTATION

A report from the 2017 Victorian Population Health Survey (VPHS) estimated the proportion of adults with LGBTIQ+ status in each LGA (Victorian Agency for Health Information, VAHI, 2020). Approximately 7.2% of adults (18+) in NWMPHN catchment were estimated to be LGBTIQ+, compared with 5.7% in Victoria overall.

Eight of NWMPHN's 13 LGAs were reported to have an LGBTIQ+ population higher than the state-wide figure. The proportions of this community were significantly highest in Darebin (10.6%), Yarra (10%), Moreland (9.9%) and Melbourne (9.2%).

Peri-urban areas of the catchment had the lowest proportions of LGBTIQI+ adults, most notably in Macedon Ranges (1.6%), with a higher proportion in Moorabool (4%) (VAHI, 2020).

DISABILITY

It is estimated that in 2018, 17% of Victorian's lived with some form of disability (ABS, 2019a). While it is difficult to estimate the total number of people living with all forms and levels of disability within NWMPHN, there is available information about the prevalence of those experiencing 'profound' or 'severe' limitations. This relates to the need for help or supervision to perform the activities that most people undertake at least daily (for example, self-care, mobility and/or or communication) as the result of a disability, long-term health condition and/or older age. Where assistance with core activities is *always* needed, these limitations are considered profound, and where *sometimes* needed, it is considered a severe level of limitation (PHIDU, 2021b)

In 2016 it was estimated there were 81,025 (5.3%) individuals with a profound or severe disability across the NWMPHN catchment. The majority of this group are living in the community, a total of 72, 993 people (4.7%). This is a slightly higher proportion living in the community for Victoria overall (4.6%) and on par with national figures (4.7%).

This experience of disability is more common among older people. Overall, in NMWPHN, 2.7% of people living in the community aged less than 65 years were estimated to be experiencing profound or severe disability compared to 20.8% of those aged over 65. While this is to be expected, especially

as this indicator of disability includes limitations directly resulting from older age, NWMPHN figures appear substantially higher than for Victoria overall (14.9%).

Table 3. People with a profound or severe disability in NWMPHN in 2016, by LGA

Region	LGA	People with profound or severe disability - All*		People living in the community with profound or severe disability - All ages		People living in the community with profound or severe disability – Aged 0-64 years		People with profound or severe disability living in the community – Aged 65+	
		No.	%	No.	%	No.	%	No.	%
Inner city	Melbourne	2695	1.9	2,209	1.5	1,194	0.9	1,013	9.8
	Maribyrnong	3804	4.9	3,353	4.3	1,504	2.2	1,837	23.9
	Yarra	3116	3.9	2,782	3.5	1,175	1.7	1,613	18.3
Suburban	Brimbank	12411	6.7	11,410	6.2	5,400	3.4	6,021	24.2
	Darebin	8638	6.3	7,531	5.5	2,960	2.5	4,570	23.4
	Hobsons Bay	4915	5.9	4,288	5.1	1,879	2.6	2,406	19.5
	Moonee Valley	5988	5.5	5,184	4.7	1,907	2.1	3,281	18.8
	Moreland	9955	6.5	8,466	5.5	3,312	2.5	5,156	24.4
Growth area	Hume	12367	6.6	11,630	6.2	7,117	4.2	4,513	23.3
	Melton	6595	5.1	6,233	4.9	4,060	3.5	2,171	20.3
	Wyndham	8427	4.1	7,979	3.9	5,158	2.7	2,819	18.5
Peri-urban	Macedon Ranges	1180	4.3	1,015	3.7	567	2.5	446	9.9
	Moorabool	1029	5.4	953	5	575	3.6	384	13.3
NWMPHN		**81,025**	**5.3**	**72,993**	**4.7**	**36,789**	**2.7**	**36,207**	**20.8**
Victoria		301,480	5.4	258,976	4.6	132,360	2.8	126,610	14.9

Source: PHIDU 2021a

*All ages and inclusive of people living in long-term residential accommodation in nursing homes, accommodation for the retired or aged (not self-contained), hostels for the disabled and psychiatric hospitals

PEOPLE IN NEED OF AGED CARE SERVICES

Aged care is personal and/or nursing care that supports older people to stay as independent and healthy as they can. This care is usually delivered in residential facilities or through care visits to the home. Government-funded programs offer 3 types of mainstream aged care:

- Residential aged care, which offers long-term stays in an aged care facility on either a permanent or respite care basis. Care is delivered by not-for-profit, private and government providers.
- Home care (Home Care Packages Program), which provides different levels of aged care services for people in their own homes. It is considered to be community-based aged care.
- Home support (Commonwealth Home Support Program), which provides entry-level support at home. It is also considered to be community-based aged care.

The aged care system is complex and understanding how to access services to support ageing in place can be challenging, particularly for people from non-English speaking backgrounds and people who may not have a family member or friend to assist them. Older people may be unaware of the services and support they are eligible to access which has negative implications for their health, safety and wellbeing.

In addition to limited English language proficiency, older people from non-English speaking (NES) backgrounds frequently experience *language reversion*, whereby their capacity to communicate in English diminishes and they revert to communicating in their mother tongue.

In the NWMPHN catchment, 61.1% of people aged 65+ years were born outside of Australia (Victoria: 41.1%; Australia: 36.8%) and 47.2% have a preferred language other than English (Victoria: 24.1%; Australia: 17.6%). Therefore, significant need exists for culturally appropriate aged care– both residential or home-based services – to support greater access among older people from Culturally and Linguistically Diverse (CALD) backgrounds, and to enable in-language delivery of services. Furthermore, there are implications for the integration of culturally appropriate health care services into the aged care, particularly for residential aged care residents.

The rate of home support is higher in NWMPHN (343.5 per 1000 people aged 70+) compared to Victoria (318.5) and Australia (289.9). So too is the rate of home care (57.1 per 1000 people aged 70+) compared to Victoria (50.7) and Australia (48.2).

Possible reasons include:

1. The higher proportion of people aged 50+ years in NWMPHN who require assistance with daily activity (14.8%) compared to Victoria (12%) and Australia (11.7%).
2. A cultural preference for older people to remain within the family (i.e. multi-generational household) rather than moving into a residential aged care facility (RACF), and the limited availability of culturally-appropriate RACFs.

In 2019-20, 1.3% of home support recipients in NWMPHN were people of Aboriginal or Torres Strait Island origin (AIHW, 2021a).

In 2020, there were 150 residential aged care facilities in NWMPHN which provided 11,255 places. Of these, 50.8% were delivered by private providers, 45.6% by not-for-profit providers, and 3.6% by government providers.

As of 30 June 2020, 50.1% of people using permanent residential care in NWMPHN had a diagnosis of dementia. (AIHW, 2021a).

Table 4. Overview of demographic diversity and priority populations

Region	LGA name	Aboriginal and Torres Strait Islander peoples (2016)		LGBTIQ+ (18+) (2017)		People with a profound or severe disability (2016)		Children and young people (0-24) (2020 ERP)		Older adults (65+) (2020 ERP)		Born in predominantly non-English speaking countries (2016 URP)	
		No.	Proportion (%) of total population	No.[7]	Proportion (%) of total 18+	No.	Proportion (%) of total population	No.	Proportion (%) of total population	No.	Proportion (%) of total population	No.	Proportion (%) of total population
Inner city	Melbourne	657	0.4	12622	9.2	2695	1.9	58837	32	13300	7.2	66640	49
	Maribyrnong	533	0.6	4429	6.2	3804	4.9	25481	26.8	9674	10.2	28373	34.5
	Yarra	527	0.6	8238	10	3116	3.9	21584	20.9	11700	11.3	16371	18.9
Suburban	Brimbank	993	0.5	6553	4.2	12411	6.7	64884	31.2	31592	15.2	86824	44.7
	Darebin	1505	1	13380	10.6	8638	6.3	44715	26.9	23186	13.9	41540	28.3
	Hobsons Bay	590	0.6	5074	7	4915	5.9	28444	29	15454	15.7	20142	22.7
	Moonee Valley	519	0.4	7800	8	5988	5.5	36981	28.1	21295	16.2	26995	23.1
	Moreland	1023	0.6	13943	9.9	9955	6.5	51296	27.2	24348	12.9	46566	28.6
Growth area	Hume	1775	0.9	7777	5.1	12367	6.6	86355	35.8	26022	10.8	62408	31.6
	Melton	1559	1.1	6441	6.3	6595	5.1	63895	37	15579	9	33518	24.7
	Wyndham	2090	0.9	8836	5.3	8427	4.1	104956	37	22620	8	73761	34
Peri-urban	Macedon Ranges - part	232	0.8	359	1.6	1180	4.3	10733	32.8	5685	17.4	1474	5
	Moorabool - part	284	1.4	625	4	1029	5.4	7455	32.3	3757	16.3	1142	5.6
NWMPHN		**12293**	**0.7**	**96077**	**7.2**	**81025**	**5.3**	**606501**	**31.4**	**223661**	**11.6**	**505767**	**31.3**
Victoria		**57767**	**0.9**	**4782195**	**5.7**	**301480**	**5.4**	**2064604**	**30.8**	**1057498**	**15.8**	**1305767**	**22**

[7] Number of LGBTIQ+ persons are modelled estimates based on 2017 ERP aged 20 years and over and source data (VAHI 2020) estimates provided as percentage only, within 18 + years population.

MULTICULTURALITY

While we await updated data from the Census 2021, Usual Resident Population (URP) data from the 2016 Census shows that NWMPHN is one of the most culturally diverse PHNs in Australia.

Just under half of the NWMPHN population were born overseas (714, 853 people; 44.3%), and almost a third (31.3%) of the migrant population were born in predominantly non-English speaking countries (PHIDU, 2021a).

Of the Victorian PHNs, NWMPHN has the highest proportion of people born overseas, followed by South Eastern Melbourne PHN (SEMPHN) (39.0%) and Eastern Melbourne PHN (EMPHN) (36.7%).

In 2016, across the NWMPHN catchment, residents had come from over 50 different countries (Department of Premier and Cabinet, 2018), with 4.3% of people born in India, followed by Vietnam (2.9%) and China (2.8%). Of those born overseas, nearly one in four had arrived since the start of 2011 (PHIDU, 2021a).

Almost one third of the NWMPHN population were born in NES countries (31.3%). This is higher than Victorian (22.0%) and almost double that of the Australian (17.9%) proportions.

There were more than 220 separately identified languages spoken in NWMPHN homes. The most common language spoken after English was Vietnamese, followed by Mandarin, Italian, Arabic and Greek (ABS, 2021a).

From 2012 to 2016 the NWMPHN catchment had a slightly higher proportion of permanent migrants than Victoria, across the humanitarian program, family stream and skill stream visas (see Table 5).

Within NWMPHN, Melbourne and Brimbank are the most diverse LGAs. More than half of the population in Melbourne were born overseas, with 49% born in predominantly NES countries, and with the highest proportion of these residents arriving in the past five years (27.3%). In Brimbank, around 48% of the population were born overseas, with 44.7% born in predominantly non-English speaking countries. Of the whole catchment, Brimbank (58.4%) had the highest proportion that spoke a language other than English (LOTE) at home, followed by Melbourne (48.1%).

Permanent migrants entering Australia on a skill stream visa are proportionally higher in two areas: Wyndham (14.3%) and Melbourne (10.1%).

Table 5. Summary of Multiculturality indicators across NWMPHN

Region	LGA name	Born overseas in English speaking countries (2016 URP)		Born in predominantly non-English speaking (NES) countries		Born in NES country resident in Aus for less than 5 years (2016 URP)		Born overseas reporting poor proficiency in English (2016 URP)		Permanent migrants under Humanitarian program (2012-2016)		Permanent migrants under family stream visa (2012-2016)		Permanent migrants under skill stream visa (2012-2016)		Top 3 NES countries of birth
		Number	%	Number	%	Number	%	Number	% Among people aged 5+	Number	%	Number	%	Number	%	
Inner city	Melbourne	9,155	6.7	66,640	49.0	37,168	27.3	8,156	6.2	87	0.1	1,435	1.1	4,053	3.0	1. China 15.8% - 2. Malaysia 4.9% - 3.India 4.5%
	Maribyrnong	4,613	5.6	28,373	34.5	7,257	8.8	6,268	8.2	475	0.6	1,221	1.5	1,027	1.2	1. Vietnam 9.3% - 2. India 4.0% - 3. China 2.8%
	Yarra	8,765	10.1	16,371	18.9	3,466	4.0	3,753	4.5	114	0.1	796	0.9	688	0.8	1. Vietnam 3.0% - 2. China 1.8% - 3. Greece 1.3%
Suburban	Brimbank	6,176	3.2	86,824	44.7	14,391	7.4	21,379	11.8	1,779	0.9	3,261	1.7	1,886	1.0	1.Vietnam 11.2% - 2.India 4.8% - 3. Philippines 3%
	Darebin	7,305	5.0	41,540	28.3	9,820	6.7	8,777	6.4	139	0.1	1,455	1.0	1,591	1.1	1. Italy 4.2% - 2. China 3.3% - 3.India 3.1% 3. Greece 3.1%
	Hobsons Bay	6,952	7.8	20,142	22.7	3,448	3.9	3,363	4.1	272	0.3	772	0.9	1,052	1.2	1. India 2.9% - 2.Italy 1.7% - 3. Vietnam 1.6%
	Moonee Valley	5,279	4.5	26,995	23.1	4,663	4.0	4,433	4.0	179	0.2	936	0.8	1,132	1.0	1.Italy 4.1% - 2.India 2.4% - 3. Vietnam 2.0%
	Moreland	8,660	5.3	46,566	28.6	10,767	6.6	8,187	5.4	332	0.2	1,604	1.0	2,352	1.4	1.Italy 4.9% - 2.India 2.5% - 3.Greece 2.1%
Growth area	Hume	8,122	4.1	62,408	31.6	11,461	5.8	11,987	6.6	3,652	1.9	2,277	1.2	2,035	1.0	1. India 4.4% - 2. Sri Lanka 1.6% - 3. Philippines 1.3%
	Melton	7,098	5.2	33,518	24.7	4,075	3.0	3,631	2.9	376	0.3	1,196	0.9	1,215	0.9	1. India 3.8% - 2. Philippines 2.9% - 3. Vietnam 1.4%
	Wyndham	16,481	7.6	73,761	34.0	15,551	7.2	7,918	4.0	1,496	0.7	3,592	1.7	5,705	2.6	1. India 10.3% - 2. Philippines 2.6% - 3. China 2.5%
Peri-urban	Macedon Ranges - part	2,209	7.5	1,474	5.0	142	0.5	91	0.3	-	0.0	54	0.2	62	0.2	1. German 0.6% - 2. Italy 0.5% - 3. India 0.3%
	Moorabool - part	1,366	6.7	1,142	5.6	108	0.5	56	0.3	-	0.0	33	0.2	43	0.2	1.India 0.6% - 1.German 0.6% - 2. Italy 0.3% - 3. Philippines 0.2%
NWMPHN		**92,137**	**5.7**	**505,767**	**31.3**	**122,284**	**7.6**	**87,979**	**5.9**	**8,862**	**0.5**	**18,625**	**1.2**	**22,864**	**1.4**	**1. India 4.3% 2. Vietnam 2.9% China 2.8%**
Victoria		374,492	6.3	1,305,767	22.0	280,848	4.7	206,490	3.7	18,188	0.3	49,525	0.8	69,183	1.2	1. India 2.9% 2. China 2.7% 3. Vietnam1.4%

Source: PHIDU (2021a)

3.3 Socio-economic factors

Education, employment and income are important and inter-related society related economic factors that determine health. Level of education creates differences in access to information and the ability to benefit from new knowledge, including being receptive to health education messages and to communicate with and access appropriate health services. Educational qualifications help to dictate your area of employment and job opportunities which influences potential income. This creates differences in status, power and access to necessary material resources including those needed to maintain good health. Moreover, poor health lowers income and limits earning potential so health status itself can contribute to socioeconomic position (Solar and Irwin, 2010).

EDUCATION

Early childhood

Attendance at preschool is understood as an important way to promote children's learning and social-emotional development before children start school, and to be positively associated with some indicators of higher achievement during primary school.

Positively, overall in 2018, 86.3% of four-year-old children across NWMPHN were enrolled in preschool. This was higher than the rate of enrolment across Victoria overall (83.8%).

Disparity across the NWMPHN catchment was indicated in that enrolment was lowest in peri-urban areas, Macedon Ranges (75.8% of four-year-old children), Moorabool (80.4%) as well as in Melton (80.5%). Enrolment was very high in the inner-city LGAs of Maribyrnong (94.3%) and Melbourne (93.8%).

Children's stage of development as they enter their first year of full-time school, is measured every three years through the Australian Early Development Census (AEDC). The AEDC measures five areas of early childhood development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge.

The 2018 AEDC showed that 11.1% of children starting their first year in NWMPHN region had developmental vulnerability on two or more areas (PHIDU, 2021a). While this proportion was fairly comparable with state and national level, there was substantial disparity across the region. In Hume around 16% of children in their first year of school were assessed as developmentally vulnerable on two or more domains, followed by Brimbank (13.2%).

Education level

A person's literacy levels as well as their socio-economic position impacts on how well they can interact with the health system. Consumers are often asked to read information related to their health issue and to read and fill in forms. This is important because even the best practice in developing health information readability recommendations state a grade 8 reading level.

Yet in the NWMPHN catchment, in 2016, nine LGAs had over 5% of residents aged over 15 years who had not attained that level of education.

The LGA with the highest proportion of population that completed Year 8 or below was in Brimbank (9.7%), which also had the highest proportion of people that did not go to school (3.3%).

Melbourne had a substantially lower proportion of its population who had not reached this education level (1.3%), and accordingly, the highest proportion of people who had completed year 12 (77%). The LGA with the lowest proportion was the peri-urban areas of Moorabool (41.2%).

English proficiency

Of the Victorian PHNs, NWMPHN (5.9%) has the highest proportion of people born overseas reporting poor proficiency in English, followed by EMPHN (4.2%), and SEMPHN (3.8%). At the LGA level, Brimbank (11.8%) had the highest proportion, followed by Maribyrnong (8.2%) and Hume (6.4%) (PHIDU, 2021a).

JOB STATUS (WORKING AGE POPULATION AGED 15+)

Industry of employment

Different types of work can contribute significantly to health inequity in ways that are aside from the income it attracts. Workplaces and conditions can influence health and an individual's experience of potential harms and risk. This point was made especially clear during the COVID-19 pandemic, where spread of the virus was heightened in certain environments, including aged care homes, prisons and meat processing plants (Parliament of Victoria, Public Accounts and Estimates Committee, 2021), and where people in public facing roles were at potentially higher risk of exposure.

While limited, data available from 2016 shows the top three industries of employment across LGAs and does provide some insight into the areas of employment across the catchment (ABS, 2021a).

The 'Health Care and Social Assistance' industry was the number one response as the industry of employment across seven of the 13 LGAs. This included most of the suburban areas: Darebin (13.1%), Moonee Valley (11.3%), Moreland (11.8%) and Hobsons Bay (10%); the growth area of Wyndham (11%); and the inner -city area of Maribyrnong (10.7%). 'Education and Training' was often the second highest response; Darebin (10.9%), Moonee Valley (10.3%), Moreland (11.2%), and third highest for the peri-urban areas.

'Professional, Scientific and Technical Services' were common areas of employment in the inner city LGAs of Melbourne (17.8%) and Yarra (17.3%) and Maribyrnong (9.8%).

'Construction' was the top industry in both the peri-urban areas of Moorabool (12.2%) and Macedon Ranges (11.1%), followed by 'Health Care and Social Assistance' (Macedon Ranges 11% and Moorabool 10.6%). By contrast, in Brimbank, 10.8% of employed people were working in the 'Manufacturing' industry, followed by 'Retail Trade' (10.5%) and the 'Health Care and Social Assistance' industry. This was the only LGA in NWMPHN where 'Manufacturing' was identified as one of the top three areas of employment.

The 'Retail Trade' and the 'Transport, Postal and Warehousing' industry were both in the top three industries in Melton ('Retail' 10.9%, and 'Transport' 10.5%) Hume (10.6% and 10.5%) and in Wyndham (10.2% and 10.1% in Transport).

Unemployment

In March 2019, the unemployment rate in NWMPHN was 5.8%, which was above state (4.8%) and national (5.2%) proportions. Brimbank had the highest unemployment rate (8.6%) in the region, followed by Hume (7.8%) and Melton (6.7%). The lowest unemployment rates were in the Macedon Ranges (2%) and Melbourne (3.7%) (PHIDU, 2021a).

Not all people of working age are actively seeking work so another measure of level of employment is labour force participation. Labour force participation indicates the proportion of people (15 years and older) who are employed or unemployed, and hence also the proportion of people who are *not* actively seeking work, such as those who are carers, retired or permanently unable to work.

In 2019 the NWMPHN catchment (67.4%) had a higher labour force participation rate than both Victoria (66.2%) and Australia (65.8%). Maribyrnong (72.3%) and Yarra (78.6%) had the highest participation rates. While Hume (62.2%) and Brimbank (62.5%) had two of the lowest participation rates across the catchment, followed by Melbourne (63.8%).

While Melbourne had higher than overall rates of labour force non-participation (63.8% participation 36.2% non-participation) unemployment rates overall were relatively low. However, Brimbank and Hume have higher rates of labour force non-participation as well as high levels of unemployment appearing to reflect a greater level of disadvantage and/or disengagement.

Unpaid work

Volunteering

The LGA with the highest proportion of persons undertaking voluntary work for an organisation or group was Macedon Ranges (26%), Yarra (21.9%), and Moorabool (21.6%). The proportions were generally lower across the growth areas of Wyndham (13.9%), Melton (12.5%) and Hume (11.8%). However, the lowest was the suburban area of Brimbank (10.9%).

Carer responsibilities

In 2018, approximately 11% of Victorians were providers of unpaid care or assistance for people with disability or older people, with 3.5% of these acting as the primary carer (ABS, 2019a). In NWMPHN, while the highest proportion of persons who are carers are in Moorabool (14.6%), there is generally a mixture of this population across the Suburban and Growth areas (ABS, 2021a). With Brimbank (13%) having the highest proportion, followed by Hume (12.1%) and Darebin (12%). The Inner-City areas of the catchment had the lowest proportion of people who were carers with Melbourne (5.6%) being the lowest.

INCOME

The median income of each LGA in NWMPHN region also varied considerably. Yarra had the highest median income ($63,503) in 2018, which was more than 40% higher than the median income in Brimbank ($44,657). However, Yarra also had a quite high-income gap among residents, which indicates the disadvantaged pocket areas in the LGA. This is also the case for Moonee Valley.

The Gini index is a measure of inequality of a distribution. In Victoria, the income Gini index has been increasing from 0.476 in 2015 to 0.481 in 2018 (ABS, 2021a), indicating the widening income gap over the years. In NWMPHN region, the most severe income inequality was among residents living in Melbourne (Gini index = 0.564), followed by Yarra (0.438).

The 2016 Census identified the proportion of low-income households among all private dwellings in each area. The households in bottom 40% of income distribution are considered low-income households. Almost half of the dwellings in Brimbank and 45.3% in Hume are low-income, compared to the 23.7% in Yarra.

Family support

National survey data indicates that relative poverty rates vary substantially by family type. Compared to other family types (including older single people with no dependents), single parent families have the lowest average wealth levels and the highest rate of material deprivation. From 2016 to 2018 single parent families experienced the sharpest increase in poverty rates (15% to 25%) (Wilkins et al. 2020).

In 2016, 17.7% of families with children under 15 years were single parent families in NWMPHN region, compared to 18.3% in Victoria and 20.4% in Australia. Brimbank had the highest proportion (23%) of single parent families (PHDIU, 2021a).

Table 6. Summary of socioeconomic factors across LGAs

Region	LGA	Children developmentally vulnerable on two or more domains (AEDC 2018) - %	Highest year school completed - Year 8 or below - % of 15+ (ABS, 2016) - %	Highest year school completed - Year 12 % of 15+ (ABS, 2016)	Did not go to school - % of 15+ (ABS, 2016)	Carer Responsibilities (ABS, 2018)	Single parent families with children under 15 years (ABS, 2016)	Unemployment - % people in the labour force who are unemployed (PHIDU, 2019)	Median total income (excl. government pensions and allowances) (ABS, 2018)	Total income Gini index (excl. government pensions and allowances) (ABS, 2018)
Inner city	Melbourne	9.8	1.3	77	0.6	5.6	19.1	3.7	45,832	0.564
	Maribyrnong	6.8	5.5	66.1	2	8.4	17	5.2	52,337	0.438
	Yarra	11.1	3.2	73.6	1.2	8.5	20.2	5.3	63,503	0.483
Suburban	Brimbank	13.2	9.7	52.3	3.3	13	23	8.6	44,657	0.418
	Darebin	8.3	7.8	62.7	1.9	12	16.1	5.4	51,258	0.449
	Hobsons Bay	10.8	6.9	56.4	1.4	11	16.6	4.3	56 246	0.452
	Moonee Valley	7.0	6.5	61.1	1.4	11.6	15.0	4.5	56,666	0.476
	Moreland	10.6	7.7	63.6	1.9	11	14.6	5.4	51,883	0.436
Growth area	Hume	16.4	7.8	50	2.4	12.1	18.5	7.8	47,083	0.412
	Melton	10.1	5.2	50.9	1.1	11.3	19.2	6.7	51,292	0.396
	Wyndham	11.3	4.4	58.2	1.1	7.5	15.9	5.7	50,282	0.412
Peri-urban	Macedon Ranges	6.4	4.1	50	0.2	10.2	13.7	2	52,378	0.477
	Moorabool	5.3	5.3	41.2	0.3	14.6	20.1	4.9	51,953	0.436
NWMPHN		**11.1**	-	-	-	-	**17.7**	**5.8**	-	-
Victoria		10.1	5.6	54.4	1.1	11.0	18.3	4.8	49,266	0.481

Note: figures for NWMPHN are not presented where LGA level data was extracted from ABS regional summary reports in a format conducive to calculating an accurate measure for PHN overall (for example, % but no values reported).

3.4 Psychosocial factors

Different groups are exposed in different degrees to experiences and life situations that are perceived as threatening, frightening, and difficult for coping in every day (Solar and Irwin, 2010)

The 2019 Victorian Population Health Survey (VPHS) (VAHI, 2021a) identified some psychosocial factors:

- The proportion of adult (18+ years) population with high or very high levels of psychological distress was significantly higher among Aboriginal and/or Torres Strait Islander people (45.9%) than all other adults (17.8%).
- A significantly higher proportion of widowed, divorced or separated adults (34.4%) and never-married adults (26%) reported high or very high levels of psychological distress than adults with partners (14.9%).
- 26.1% of renters reported high or very high levels of psychological distress, compared with the proportion of adults who owned home with no mortgage (16.6%) and those with a mortgage (14.6%).
- The proportion of adults reporting high or very high levels of psychological distress was significantly higher in those who did not complete high school (29.9%) compared with those who completed high school (19%) and those who completed university (11.1%).
- A significantly higher proportion of unemployed adults (31.8%) reported high or very high levels of psychological distress than employed adults (13.1%). Similarly, a significantly higher proportion of low-income adults (34.2% among those with household income < $40,000) reported high or very high levels of psychological distress than high-income adults (9.4% among those with household income >= $100,000).

EXPENSES AND DEBT

Mortgage or rent stress

Among the low-income households in NWMPHN region, 33.6% reported to be under mortgage or rent stress, which was higher than state (27.8%) and national (28.4%) level. In the region, LGAs in inner city and growth area were under a higher financial stress than suburban or peri-urban areas, especially Melbourne (62.5%).

Gambling losses

Inequality is also evident in the impact of gambling across the region, as evidenced through losses from electronic gaming machines (pokies). This is an area of significant concern, with the most disadvantaged LGAs in the region having disproportionally high electronic gaming machine losses per adult (expenditure ($) per adult person) than the more affluent LGAs.

Across NWMPHN LGAs, the current total number of 7,568 electronic gaming machines and 127 venues (in August 2021) showed no significant change to that of pre-COVID in August 2019 (Victorian Commission for Gambling and Liquor Regulation, 2021).

In 2019-20 almost two billion dollars was lost by gaming patrons at venues in the eight and a half months venues were open (closed in March due to COVID-19). In this time:

- Over $650 million was spent on electronic gaming machines across LGAs in NWMPHN.
- The number of electronic gaming machines, venues and player loses were highest in Brimbank, Hume and Wyndham. Player losses/ expenditure in 2019-2020 across these three LGAs equated to 40% of player losses in the NWMPHN region overall (Brimbank $101, 974,223; Hume $85,935,114 and Wyndham $75,755,561).

Harm from gaming machines reflects a substantial problem of concern, but the extent of the impact of gambling is likely to be underestimated. The popularity of gambling online is growing and use has increased among Victorian gamblers in recent years (Rockloff et al. 2020) and online gambling losses are difficult to measure and quantify.

Table 7. Indicators of financial stressors

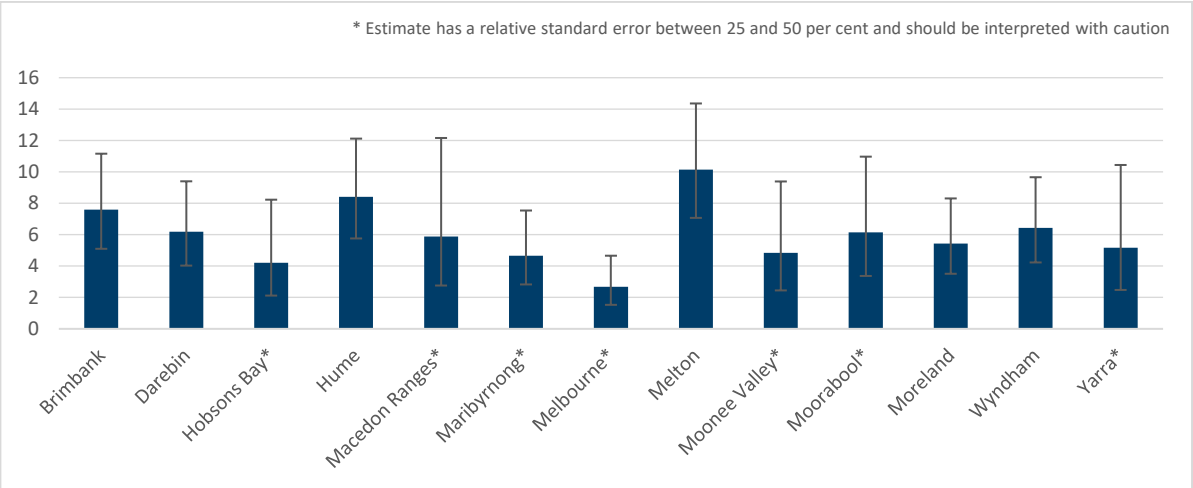
Region	LGA	Financial stress from mortgage or rent among low-income households %	Electronic gaming machines - Estimated Player Expenditure $ / Adult (20+ years) population - 2019 ERP*
Inner city	Melbourne	62.5	386.71
	Maribyrnong	36.1	561.33
	Yarra	37.6	260.05
Suburban	Brimbank	26.5	642.02
	Darebin	29.4	432.59
	Hobsons Bay	24.7	463.09
	Moonee Valley	25.4	564.82
	Moreland	28.4	304.27
Growth area	Hume	33.6	518.37
	Melton	31.6	452.62
	Wyndham	35.3	407.25
Peri-urban	Macedon Ranges	21.8	189.02
	Moorabool	21.8	250.26
NWMPHN		**33.6**	**453.4**
Victoria		27.8	396.73

Sources: Victorian Commission for Gambling and Liquor Regulation (VCGLR) (2021), PHIDU, 2020.
* Gaming and estimated resident population statistics for Macedon Ranges are for the whole LGA rather than for just NWMPHN areas; gaming statistics for Moorabool are for the whole LGA plus Shire of Hepburn data.

FOOD INSECURITY

Figure 18 below illustrates the percentage of the population who had run out of food in the previous 12 months and could not afford to buy more, according to the 2017 VPHS (VAHI, 2019).

Figure 17. Percentage (%) of population experiencing food insecurity by LGA, 2017



Source: VAHI, 2019

In Melton, 7.1-14.4% of the population was estimated have experienced food insecurity, whilst in Hume (5.8%-12.1%), Brimbank (5.1%-11.2%), Wyndham (4.2%-9.7%) and Darebin (4.0-9.4%) a similar proportion of the population were similarly affected.

The City of Melbourne monitors food security through its Social Indicators Survey (City of Melbourne, 2020) which shows the proportion of residents who reported experiencing food insecurity has increased from 25.8% in 2019 to 32.9% in 2020. From 2019 to 2020 the proportion of residents who:

- Are worried food would run out rose by 5.4% / increased from 20.4 to 25.8%.
- Skipped meals increased from 15.2% to 19.1%.
- Ran out of food increased from 13.8% to 17.5%.

The upward trend in food insecurity which occurred in 2020 is most likely to be associated with the COVID-19 pandemic. A similar trend is likely to have occurred across other municipalities. Also notable is the significant difference between the VPHS result for City of Melbourne in 2017, and the results from the City of Melbourne's Community Indicators Survey for 2018-2020. Whilst the surveys ask different questions, it does suggest that the issue of food insecurity may be more prevalent than previously thought, particularly in relation to the mental health impacts where people are frequently worried about food running out.

3.5 Community and physical environment factors

The physical environment is a key factor in the health decisions that groups or individuals make in relation to their lifestyle and behavioural habits and so health need cannot be considered outside of the social context where such choices take place.

LIVEABILITY

In 2021, RMIT's Centre for Urban Research published the Liveability Report for Melbourne, as part of its series of assessing the liveability of 21 of Australia's largest cities (Gunn et al. 2020). The report considers a range of liveability indicators that combine to an overall liveability index. Each of these indicators (listed in Table 8) is considered briefly in relation to the NWMPHN catchment.

Table 8. Indicators of Liveability

Indicator	Description
Liveability	Liveability Index
Walkability	Walkability Index
Social Infrastructure	Social Infrastructure Index
Public Transport	Percentage living within 400m of regular public transport
Food Environment	Average distance to closest supermarket
Alcohol Environment	Average distance to an off-licence alcohol outlet
Public Open Space	Percentage living within 400m of open space of 1.5 hectares
Local Employment	Percentage living with employment access at SA3 level
Housing Affordability	Percentage of households in the lowest 40% of household incomes spending more than 30% of income on housing

Liveability Index

The Liveability Index combines six domains of liveability found to be associated with health and wellbeing outcomes: walkability and access to social infrastructure, public transport, larger public open space, affordable housing and local employment.

Overall, those living closest to the CBD generally experience higher levels of liveability. However, higher levels of liveability extend much further out in the eastern and south eastern areas. People living in the west are much more likely to live in environments with lower levels of liveability which has significant implications for health and wellbeing.

Liveability – LGA Comparison

Table 9 summarises key liveability indicators for local government areas in the NWMPHN catchment.

Walkability - Walkable neighbourhoods discourage driving and increase walking, cycling and active transport use which improves levels of physical activity and reduces chronic disease outcomes.

The inner and bayside suburbs of Melbourne enjoy the highest level of walkability, whilst the eastern and southern eastern suburbs having higher levels of walkability compared to the western suburbs. In the west and north, there are some areas with higher levels of walkability however, overall, it is a less walkable environment compared to much of the east and south east.

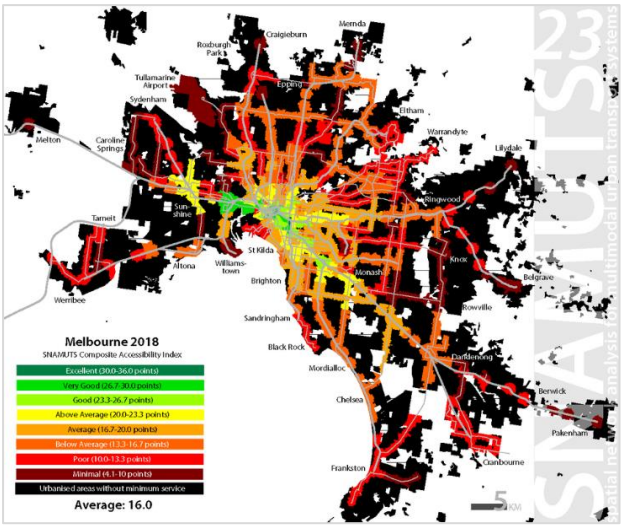
Social Infrastructure - Social infrastructure provides access to essential community services and resources which, in turn, support health and wellbeing. The Social Infrastructure Index measures the social infrastructure within recommended distances from the dwelling, including:

- child care facilities
- community centres
- aged care facilities
- libraries
- pharmacies
- family and community healthcare
- dentists and GPs
- sporting facilities
- swimming pools
- outside school hours childcare
- primary and secondary schools
- museums and galleries
- cinemas and theatres

The Social Infrastructure Index provides an indication of how accessible essential services and resources are, based upon geography. Inner suburbs, inner eastern and bayside suburbs have the greatest access to social infrastructure. The Peri-urban LGAs (Wyndham, Hume and Melton) score lower than those located in the east and southeast which are a similar distance from the CBD. Limited social infrastructure has important implications for advocating for increased funding for services, service location and service delivery models.

Public transportation - The Spatial Network Analysis for Multimodal Urban Transport Systems (SNAMUTS) has combined a range of public transport measures to provide an overall picture of public transport accessibility in Melbourne, as illustrated below in Figure 18.

Figure 18. Public Transport Composite Index - Melbourne 2018



Public transport access is generally better in the inner and eastern suburbs of Melbourne, as illustrated in green and yellow.

In the west, there are a small number of areas with very good and above average access (Footscray and Sunshine respectively). However, large areas of Wyndham, Brimbank, Hume and Melton have poor access (red) or no service whatsoever (black) and these areas have been identified as major growth corridors. In addition, peri-urban centres such as Melton, Sunbury and Craigieburn have minimal public transport services.

People living in areas which are poorly serviced by public transport are reliant on car transportation to access employment, health services, and to manage other aspects of daily life. It also increases the importance of ensuring services are situated in locations which are accessible by public transport, as well as in areas of significant population which are poorly serviced by public transport.

Food environment - Close proximity to a supermarket supports healthy eating and active living by providing easy access to fruit, vegetables and healthy food within a walkable distance. Increases in physical activity from walking and cycling, reduces chronic disease risk and congestion issues (Gunn et al. 2020).

Inner and bayside suburbs enjoy the closest access to supermarkets. Urban localities in the west and north are more likely to have to travel further to access a supermarket, and some locations and people living in the eastern and south eastern suburbs are more likely to be closer to a supermarket than those living in the west.

Alcohol environment - Access to alcohol has been linked to harmful alcohol consumption and alcohol-related violence. The greater distance to off-licence liquor outlets (bottle shops and supermarkets which sell alcohol) among peri-urban LGAs in the west may have a protective effect in reducing alcohol-related harm.

Public open space - Access to public open space enables physical activity and passive recreation which support physical and mental health. Public open space has been defined as spaces of at least 1.5 hectares in size, and the analysis found that 49% of Melbourne's population has such a space within 400m of their dwelling. Access to public open space in Melbourne's west and north is broadly comparable with access in the east and south east.

Local employment - Local employment increases the likelihood of active transport being used to get to and from work and reduces commute time thereby improving work-life balance. Local employment was defined as the percentage of people living in an SA1 approx. 400 people) who work in an SA3 area (30,000-130,000 people). Based upon this definition, 29% of Melburnians have access to local employment at SA3 level.

Most people living close to the city work outside of their local area. In the west, Hobsons Bay, Brimbank and Melton have a higher proportion of residents who need to travel outside of their local area for employment, whereas Hume and Wyndham have a greater proportion of people who are locally employed.

Housing Affordability - Decent and affordable housing supports families by providing safe, stable and healthy shelter. Affordable housing frees up financial resource for use on food, health care, and supports mental and physical health and wellbeing. Housing affordability was assessed based upon the proportion households considered low income that spend more than 30 percent of their household income on housing costs. This measure supports data already described in the socioeconomic section that identified Brmbank and Hume as having significantly low-income levels. As already described in the psychosocial factors section, residents of inner city and growth areas are under higher financial stress. Housing stress is affecting a significant proportion of households in Wyndham, Brimbank, Maribyrnong, Melbourne, Melton, Yarra and Hume, resulting in lesser resources being available for food and healthcare, and likely to be contributing to poorer mental health outcomes.

Crowded dwellings - Overcrowded households are often households with fewer economic resources and there may also be a direct effect on health through facilitation of the spread of diseases.

In NWMPHN in 2016, 10.4% of people living in private dwellings (i.e., excluding people in hospitals, gaols, nursing homes etc) were living in what is considered crowded dwellings. Further, a total of 4,143 people (0.28% of the population) were living in severely crowded dwellings. The proportion of persons living in severely crowded dwellings in NWMPHN is the highest compared to other Victorian PHNs (followed by SEMPHN at 0.21% of the population) and 8th highest among the 31 PHNs in Australia (PHIDU, 2021a). This was substantially more common in Brimbank, where 0.56% of people lived in severely crowded dwellings (1023 people), followed by Melbourne 0.44%.

Table 9. Summary of Liveability Indicators by LGA, 2021

Region	LGA	Liveability	Walkability	Social infrastructure	Public transport	Food environment	Alcohol environment	Public open space	Local employment	Housing affordability
Inner city	Melbourne	111.3	8.5	11.7	93.9	344.9	30	57.5	64	66.7
	Maribyrnong	103.7	2.2	9.4	76.3	703.7	3	43.8	20.4	44.5
	Yarra	110.7	6.2	12.3	85.1	506.8	15	48.4	26.2	44.3
Suburban	Brimbank	97.6	-0.3	5.5	39.3	1344.1	1	57.4	26.7	35.3
	Darebin	103.9	1.8	8.9	78.4	823.7	2	50.7	17.9	36.2
	Hobsons Bay	100.6	0.3	7.5	62.2	1022.7	2	58.8	25.5	31
	Moonee Valley	102.3	1.6	8.3	66.6	791.1	2	53.5	17.9	31.5
	Moreland	103.7	2.3	9.3	72.8	769.3	3	41.6	15.2	35.4
Growth area	Hume	97.1	-0.3	5.1	41.5	1373.5	0	67	37.9	44.2
	Melton	94.4	-0.4	4.1	18.3	1721	0	53.8	24.5	41.4
	Wyndham	96.6	0.1	5	25.6	1344	0	51.2	36.3	46.5
Peri-urban	Macedon ranges	91.3	-3.5	3.7	1	1771.7	1	22.5	31.7	26
	Moorabool	95.4	-2	4.7	7.2	1561.2	1	28.3	46.7	28.4

Liveability: *100 is average.* ***Walkability:*** *0 is average.* ***Social infrastructure:*** *score is out of 15.* ***Public transport:*** *regular public transport access (%).* ***Distance to supermarket:*** *measured in metres.* ***Alcohol environment:*** *alcohol off-license within 800m (count).* ***Public open space:*** *Large public open space within 400m (%).* ***Local employment:*** *measures in %.* ***Housing affordability:*** *housing affordability stress measured in (%).*

SAFETY

A feeling of safety is an important aspect of individual wellbeing. The experience of being a victim of a crime, or of witnessing a crime, can create a range of short and longer-term physical, psychological, financial and emotional suffering. Further, beyond these direct effects, having a fear of crime, and feeling need to protect oneself from physical danger and/or be vigilant in securing one's home and belongings, can also be detrimental to people's emotional and physical wellbeing.

The incidence of crime and prevalence of offenders in an area provides a broad indicator of safety. Victorian data provides information about incidents which have been linked to an alleged offender and of which the majority are property and deception type offences or 'crimes against the person' (for example, assault) (Crime Statistics Agency, 2021).

In Victoria in 2020-21 the rate of these 'alleged offender incidents' was 3,334.4 per 100,000 persons. This had increased by around 15% from the year before. This rise between 2020 and 2021 can be observed across the catchment.

The rates of alleged offender incidents were consistently the highest in the inner-city area of Melbourne, which at 8,362 per 1000,000 was more than double the rate of the overall state. The highest rate per 100,000 for Melbourne was in 2012 (11,187), falling to its lowest in 2020 (6,185) but rising significantly in 2021. Rate of incidents in Yarra, Brimbank and Hume were all slightly higher than Victorian rate overall. The lowest was in the peri-urban area of the Macedon Ranges from 2012 to 2021.

People experiencing domestic and family violence

Some groups within the community experience the effects of family violence substantially more than others.

In 2020-21 there were a total of 93,446 'family incidents' in Victoria, which are incidents which required attendance by Victorian Police (though may not be criminal events) and where police identified that there was a familiar relationship between the individuals involved (Crime Statistics Agency, 2021). Of these, the affected family members were reported to be female in around 75% of incidents.

Across the LGAs within the NWMPHN catchment during 2021-21 there were 24,631 'family incidents. During that year, two LGAs had a substantial higher rate of incidents than the state estimates. In Victoria, family incidents occurred at a rate of 1,399.1 compared to the rate of 1,717.3/100,000 in Melton and 1,704.2/100,000 in Hume.

Findings from the 2017 VPHS (2020), indicated that a significantly higher proportion of LGBTIQ+ people had experienced all listed types of abuse compared with the corresponding proportion in the non-LGBTIQ+ population. Emotional or psychological abuse was the most common form of family violence, with 12.7% of LGBTIQ+ people having experienced it in the past 2 years. Other types of family violence were physical abuse (6.3%), financial or economic abuse (5.4%), spiritual abuse (3.3%) and sexual abuse (2.8%).

People with experience of incarceration

While specific numbers are not available, it is known that many people with recent experience of incarceration are part of our community.

The Jesuit Social Services *Dropping off the Edge* (DOTE) report (Tanton et al. 2021) provides a clear indication of areas within the catchment from which a high number of people are admitted to prison and have experienced incarceration. The report assesses the level of disadvantage across Australia based on a range of indicators across the domains of, social distress, health, community safety, economic, education, environment and lifetime disadvantage. The specific indicators that

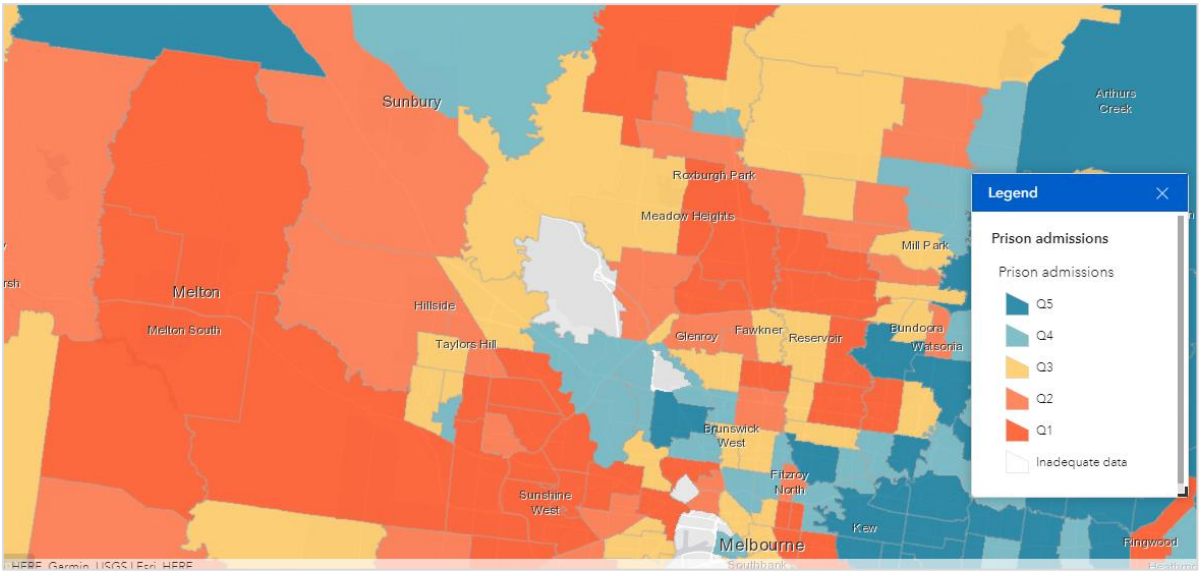
contributed most to the index of disadvantage in Victoria were low income; low levels of education; family violence and prison admissions.

In 2021 four of the postcodes assessed as the top ten most disadvantaged postcodes in Victoria were in NWMPHN. Three of these were in Hume LGA (Broadmeadows, Meadow Heights and Campbellfield -Coolaroo) and one postcode in Brimbank (Altona North).

The report also indicated that each of the SA2 areas of Melton, Melton South and Melton West had multiple indicators in the top 5% disadvantaged, with each reflection experience of incarceration and/or the criminal justice system.

- Melton is disadvantaged on the indicators of prison admissions per 1000 population and proportion of people under 24 not in education, employment or training.
- Melton South was disadvantaged on five indicators - proportion of people under 24 not in education, employment or training; proportion of reported child maltreatment; juvenile convictions per 1000 population; proportion of children whose school attendance rate is at least 90% and proportion of households receiving rent assistance.
- Melton West was identified as being disadvantaged on juvenile convictions per 1000 population as well as the proportion of children failing to attain minimum standards in the NAPLAN Year 3 numeracy test.

Figure 19. Mapped DOTE 2021 ranking of disadvantage based on prevalence of prison admissions in north and west Melbourne



Source: Tanton et al (2021) Interactive Infographic for Dropping Off the Edge 2021 Available: https://www.dote.org.au/victoria

Legend note: Q1= Most disadvantaged, - Q5= least disadvantage

People with experience of homelessness

Based on the 2016 Census, it was estimated that over 9000 people were experiencing homelessness across the LGAs in NWMPHN (ABS, 2018b). The ABS analysis and statistical definition of homelessness is based on a range of factors, but in brief, is based on being when a person does not have accommodation alternatives they are considered homeless if their current living arrangement: is in a dwelling that is inadequate; or has no tenure, or if their initial tenure is short and not extendable; or does not allow them to have control of, and access to space for social relations.

Based on either this, or more specific 'rough sleeping' type definitions, the proportion of people experiencing homelessness is highest in the inner areas of Melbourne, Yarra and Maribyrnong.

Table 10. Estimated number of people experiencing homelessness in 2016, NWMPHN by LGA

Region	LGA	Homeless persons No.	Estimate homeless persons per 1,000 population
Inner city	Melbourne	1725	11.8
	Maribyrnong	713	8.2
	Yarra	838	9.0
Suburban	Brimbank	1477	7.2
	Darebin	972	6.3
	Hobsons Bay	331	3.5
	Moonee Valley	403	3.3
	Moreland	771	4.5
Growth area	Hume	916	4.4
	Melton	333	2.4
	Wyndham	730	3.2
Peri-urban	Macedon Ranges	59	1.2
	Moorabool	69	2.1
NWMPHN[1]		**9337**	5.4
Victoria		24828	4.0

Source: ABS, 2018b;

[1] Moorabool and Macedon Ranges data relates to whole LGA; NWMPHN figures based on entirety of each LGA.

The 'StreetCount 2018' project conducted a count of people sleeping on the streets, in parks and other locations on one night in June across 176 areas in the Cities of Melbourne, Maribyrnong, Yarra, Stonnington and Port Phillip (City of Melbourne, 2021).

The project found that out of 392 people sleeping rough that night: 279 were in Melbourne, 29 in Yarra, and 16 were in Maribyrnong. From previous StreetCounts held only in City of Melbourne, the number of people sleeping rough has risen from 142 in 2014 to 279 in 2019 (Parliament of Victoria Legislative Council Legal and Social Issues Committee, 2021)

HEALTH LITERACY

Health literacy refers to a person's ability to gain access to, understand and use information in ways which promote and maintain good health. In 2018, the Australian Bureau of Statistics conducted the Health Literacy Survey to gain population level insights (ABS, 2019b).

The survey consisted of 44 questions across 9 domains:

1. Feeling understood and supported by healthcare providers
2. Having sufficient information to manage my health
3. Actively managing my health
4. Social support for health
5. Appraisal of health information
6. Ability to actively engage with healthcare providers
7. Navigating the healthcare system
8. Ability to find good health information
9. Understand health information well enough to know what to do

Key survey insights include the following:

- People who did not report a long-term health condition were more likely to strongly agree that they could actively manage their health (21%), compared with 12% of people who had three or more long-term health conditions.
- 21% of people who had never smoked strongly agreed that they could actively manage their health compared with 9% of those who smoked daily.
- In general, younger people were more likely to strongly agree that they had social support for health than older people. For example, 39% of 18–24-year-olds strongly agreed that they had social support for health, compared with 20% of those aged 65 years and over.
- People who lived alone were less likely (15%) than couple only households (26%) and couples with dependent children (27%) to strongly agree that they had social support for health.
- People who spoke English at home were more likely (26%) than those who spoke a LOTE at home (19%) to strongly agree that they had social support for health.
- People with a profound or severe core activity limitation (15%), and people with another disability (19%) were less likely to strongly agree that they had social support for health compared with people who did not have a disability (27%).
- People with a profound or severe core activity limitation were more than twice as likely to find it difficult to actively engage with healthcare providers (22%) compared to those without a disability or a restrictive long-term health condition (10%).
- Those without a long-term health condition were less likely to have difficulty in actively engaging with healthcare providers (10%), compared with those with 3 or more long-term health conditions (17%) (ABS, 2019b).

The findings indicate that factors such as age, household income, speaking a LOTE, having a long-term health condition, living with a disability and living alone correlate with different levels of health literacy across some of the domains. This has important implications for the design and targeting of initiatives to strengthen health literacy in order to improve health and wellbeing outcomes – particularly for CALD communities, people with chronic health conditions, and people with a disability.

SOCIAL CAPITAL

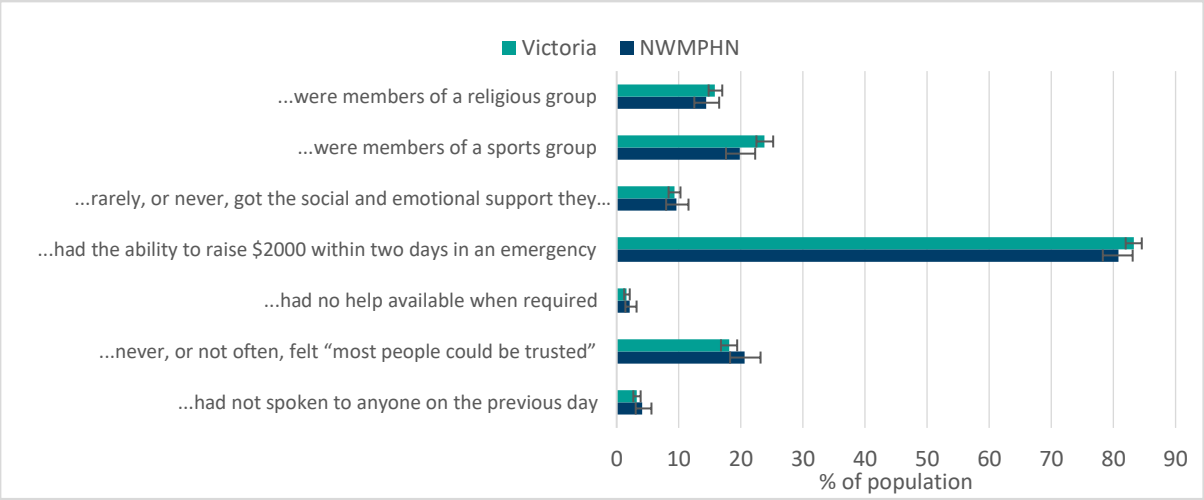
Social capital refers to the networks of relationships among people who live and work together. It is about *"social connections as well as the norms and shared understandings that influence people's action and interaction"* (Claridge, 2014). According to Putnam (2000), social capital consists of *bonding* capital and *bridging* capital. Bonding capital relates to the nature and strength of relationships between members of a group, whilst bridging capital relates to the relationships between groups. A higher level of social capital is associated with reduced social isolation and loneliness, and with the ability to access support and resources in times of need. Consequently, social capital makes an important contribution to physical and mental health (Ikeda and Kawachi, 2010).

A range of frameworks and indicators have been developed in relation to measuring social capital, and no universally agreed definition exists on its measurement. However, key elements include:

1. Engagement community life (for example, membership of local clubs, organisations)
2. Volunteerism
3. Social networks (for example, ability to access support)
4. Social trust (for example, sense of trust in others)

Figure 20 compares NWMPHN with Victoria responses for key indicators of social capital from the 2019 Victorian Population Health Survey (VAHI, 2021a). The difference between NWMPHN and Victoria for most indicators was not statistically significant, meaning that key indicators of social capital in the catchment are consistent with those across the state. However, a slightly lesser proportion of adults were members of sports groups in the catchment, compared to the Victoria (see Figure 20).

Figure 20. Key questions and responses on social capital, 2017



Source: VAHI, 2019

Subsequent survey analysis (VAHI, 2020) found that the proportion of adults who never or not often felt valued by society was significantly higher than among people who identified as LGBTIQ+ compared to others. Furthermore, the proportion of adults could get help from family and neighbours when required was significantly lower among people who identified as LGBTIQ+ compared to others. These statistics suggest a lower level of bridging capital exists between the LGBTIQ+ and wider community – most likely to attitudes among some people towards members of the LGBTIQ+ community.

It is currently unclear what impact COVID-19 has had on social capital. However, it is likely that social capital reserves will have been drawn upon heavily since March 2020, especially in the NWMPHN catchment which was particularly hard hit.

According to the ABS Census 2016, the proportion of people aged 15+ years who participated in voluntary work with an organisation in the previous 12 months was 19.2% in Victoria, and 15.5% in the NWMPHN catchment. However, many CALD communities have cultural norms regarding responsibilities to provide support to other members of the community when necessary. This may include the provision of food, material aid, financial or other assistance. However, the informal nature of the contribution to community wellbeing is often not viewed as 'volunteering' and therefore not reflected in the volunteering data captured under the Census. According to this broader definition, it is likely that the level of volunteering in the catchment may be higher than reflected in the ABS statistics. Such cultural norms are a manifestation of 'bonding' social capital.

Where limited 'bridging' social capital exists then a group will be less able to access knowledge, skills and resources outside of the group. This results in greater reliance on the limited internal resources of the group and may contribute to poorer health and wellbeing outcomes over time for the entire group. Limited 'bridging' social capital can be particularly challenging for emerging communities which are seeking to settle into a new home and to establish the foundation for a good life for themselves and their families.

LOCAL GOVERNMENT AREA COUNCILS - HEALTH AND WELLBEING PRIORITIES

City councils in the NWMPHN region have adopted a variety of frameworks in developing their health and wellbeing plan, including:

1. *Environments for Health* which recognises environments in which we live, work, play and socialise impact upon our health and wellbeing including the built, social, economic and natural environments.

2. *Social Determinants of Health* recognises the impact of non-medical factors on an individual and a community's health and wellbeing. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life including economic policies and systems, social norms, social policies and political systems.

3. *Social and Emotional Wellbeing Framework* identifies seven domains body, community, country, culture, family and kinship, mind and emotions, and spirituality. The framework is widely used in relation to health practice and policy making for people of Aboriginal and Torres Strait Islander origin.

4. *Health Inequity* refers to the different health outcomes experienced by communities or cohorts due to the social determinants of health.

These frameworks provide different ways of understanding health and wellbeing in the community and suggest different responses to addressing the identified challenges.

Key priorities

Most councils have undertaken extensive analysis and consultation in determining their health and wellbeing priorities.

Below and in Table 11 are brief summaries of the key priorities for each LGA noting that some councils have identified additional priorities relevant to their local context:

- Mental health has been identified a key priority for most councils, considering the mental health impacts of the COVID-19. Whilst not a traditional domain for council activity, more councils are actively exploring their role in ensuring residents can access the mental health services they need.
- Most LGAs have prioritised the modifiable health behaviours of healthy eating and physical activity as areas of focus. With healthy eating, some councils have also identified food systems and food security as areas of focus.
- Most councils have prioritised a focus on addressing harmful addictions, variously including alcohol, illicit drugs, gambling and tobacco.
- Connection and inclusion – specifically in relation to loneliness and social isolation have been identified as a priority by many Councils, with some also identify economic inclusion/employment as a priority too.
- Most councils have identified community safety, gender equity and family violence as areas of focus.
- Some councils have identified disadvantaged cohorts with whom they will work across a range of priorities, whereas others have identified specific priorities in relation to specific cohorts. For example, Hume City Council has identified *Children's Health and Wellbeing* as a specific priority due to downward trend in developmental indicators over the past decade.

Table 11. Summary of Health and Wellbeing Priorities by LGA, 2021-2025

Region	LGA	Healthy Eating	Mental Health	Being Active	Reducing Harmful Addictions	Keeping Ourselves Safe	Connection and Inclusion	Gender Equality & Family Violence	Tackling climate change	Affordable housing
Inner city	Melbourne	✓	✓	✓	✓	✓	✓		✓	✓
	Maribyrnong	✓		✓	✓			✓	✓	✓
	Yarra	✓	✓	✓	✓	✓	✓		✓	
Suburban	Brimbank	✓	✓	✓			✓	✓	✓	
	Darebin	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Hobsons Bay			✓		✓	✓	✓	✓	✓
	Moonee Valley	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Moreland	✓	✓	✓	✓	✓	✓	✓		
Growth area	Hume	✓	✓	✓	✓			✓	✓	✓
	Melton	✓	✓	✓	✓	✓	✓	✓		✓
	Wyndham	✓	✓	✓	✓	✓	✓	✓	✓	
Peri-urban	Macedon Ranges	✓	✓	✓	✓		✓	✓	✓	✓
	Moorabool	✓	✓	✓	✓	✓				
Total / 13		**12**	**11**	**13**	**11**	**9**	**10**	**10**	**10**	**8**

SOCIO-ECONOMIC DISADVANTAGE

People in the more disadvantaged LGAs have generally experienced far more insecurity, uncertainty and stressful events and this affects social inequalities in health. Together these factors shape social hierarchies and create a socioeconomic position that is the root cause of *inequities* in health.

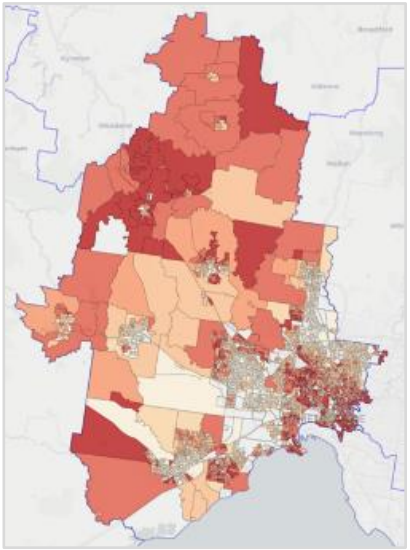
In 2016, the ABS Index of Relative Socio-economic Disadvantage (IRSD) was created based on Census data to reflect the economic and social conditions of people and households within an area. IRSD summarised variables including income, employment, education and English proficiency etc. A low IRSD score indicates relatively more disadvantage in general (ABS, 2016a).

NWMPHN had an IRSD score of 994 based on 2016 Census, which indicated more disadvantage compared with Victoria (1010) and Australia (1000). Among all the 31 PHNs in Australia, NWMPHN was ranked at 60th percentile which was just above average. With an IRSD score of 921, Brimbank was ranked as the most disadvantaged LGA in NWMPHN and the 4th most disadvantaged LGA in Victoria. Other disadvantaged LGAs were Hume (947), Melton (994) and Maribyrnong (995).

The IRSD scores for LGAs were calculated by taking population-weighted averages of the IRSD scores in SA1. Table 12 shows the minimum and maximum SA1 scores in each LGA. Despite the relatively good IRSD scores in Melbourne, Yarra and Moonee Valley overall, there were some pocket areas that were extremely disadvantaged (IRSD < 400) in these LGAs. Metric 2 quantifies disadvantage for each LGA based on the proportion of SA1s that are below the Australian average (IRSD<1000).

Figures 21 illustrates the inequalities in terms of disadvantage across the NWMPHN catchment. (Darker colour indicates more disadvantage).

Figure 21. Map showing IRSD scores for SA1s in NWMPHN region.



3.6 Metric 2: Social context

Metric 2: Social context provides a loading for socioeconomic disadvantage. The social context score shows Brimbank, Hume and Melton to be the areas of most disadvantage (shown in yellow). When per capita (base) need is adjusted for social context Brimbank, Hume and Wyndham are attributed the highest proportion of need (shown in red). Compared to a purely per capita need allocation, Maribyrnong, Hobson's Bay and Moorabool also have higher need allocation when adjusted for social context.

Table 12. Population need adjusted for Metric 2: Social context

Region	LGA	'Overall need' population distribution 2025	IRSD	Minimum score for SA1s in area	Maximum score for SA1s in area	Difference in min and max SA1 scores	Suburbs of most disadvantage	Overall Metric 2: Social context	Population need adjusted for social context
Inner city	Melbourne	9.8%	1010	389	1164	775	Carlton, 3053 (930; 10th).	**0.08**	**8.9%**
	Maribyrnong	4.9%	995	698	1116	418	Braybrook, 3019 (828; 2nd).	**0.08**	**6.4%**
	Yarra	5.4%	1036	341	1146	805	Collingwood, 3066 (936; 12th); Fitzroy, 3065 (957, 19th).	**0.03**	**4.3%**
Suburban	Brimbank	10.5%	921	694	1133	439	Albanvale, Kealba, Kings Park, St. Albans North, St. Albans South, 3021 (849; 2nd); Albion, Sunshine, Sunshine North, Sunshine West, 3020 (879; 3rd); Ardeer, 3022 (896; 4th).	**0.16**	**13.2%**
	Darebin	8.3%	1004	712	1150	438	Reservoir, 3073 (953; 18th).	**0.08**	**8.1%**
	Hobsons Bay	5.1%	1018	655	1150	495	Altona North, 3025 (944; 14th).	**0.08**	**6.5%**
	Moonee Valley	6.5%	1035	378	1139	761		**0.03**	**4.8%**
	Moreland	9.6%	1014	720	1123	403	Fawkner, 3060 (915, 7th).	**0.06**	**8.0%**
Growth area	Hume	12.7%	947	445	1121	676	Broadmeadows, Dallas, Jacana, 3047 (783: 1st); Coolaroo, Meadow Heights, 3048 (815; 1st); Campbellfield, 3061 (820: 1st); Craigieburn, Donnybrook, Kalkallo, Mickleham. Roxburgh Park, 3064 (957, 19th).	**0.13**	**12.7%**
	Melton	9.2%	994	795	1105	310	Kurunjang, Melton, Melton West, Toolern Vale, 3337 (946: 15th); Brookfield, Exford, Eynesbury, Melton South, 3338 (950; 17th).	**0.10**	**9.4%**
	Wyndham	15.3%	1008	610	1131	521	Laverton North, 3026 (610, 1st).	**0.08**	**11.6%**
Peri-urban	Macedon Ranges	1.6%	1060	835	1132	297		**0.03**	**2.4%**
	Moorabool	1.1%	1011	807	1114	307		**0.06**	**3.7%**

Source: ABS, 2016a

4

DETERMINANTS OF HEALTH STATUS

4.1 Key messages

The social position that an individual has in society can shape differences in experiences and vulnerability to health-compromising conditions. It can also shape behaviour. This means that people can experience differences in vulnerability to health conditions that result in the development of different diseases and/or health disorders (Solar and Irwin, 2010).

KEY MESSAGES FROM THIS SECTION

- The proportion of daily smokers was greater than the Victorian average in the Melton, Hume, Moorabool, Brimbank and Wyndham LGAs.
- Hume, Melton and Wyndham had a low proportion of adults of meeting fruit and vegetable consumption guidelines.
- 5 of the 13 LGAs had an increased lifetime risk of alcohol-related harm - greater than the Victorian average.
- Adjusted for determinants of health status, Melbourne, Melton and Moorabool have the highest score for health risks. When the per capita (base) need is adjusted for determinants of health status, Wyndham, Hume, Brimbank and Melbourne are attributed the highest proportion of need.
- The areas with the lowest proportion of need are Moorabool and Macedon Ranges.
- There are some LGAs which have outlying high risk. For example, AOD in Yarra, reflecting the complexities of social determinants in health behaviours.

This section describes the behavioural and biomedical risk factors that increase the likelihood of a person developing a disease or health disorder (AIHW, 2019a). It explores the inequalities in health status in the NWMPHN population and, building on Metric 2: Social Context, infers the impact of health inequities due to these contributing factors, to build the evidence base for population groups and geographical needs.

4.2 Behavioural risk factors

Behavioural risk factors are health status factors that individuals have the most ability to modify (AIHW, 2019a). Common behavioural or lifestyle risk factors are the SNAP risk factors; that is Smoking, poor Nutrition, risky Alcohol (and other drug) consumption and decreased Physical activity. These lifestyle risk factors can increase the likelihood of developing chronic diseases, impact on the management of existing conditions, and are interrelated throughout an individual's life (RACGP, 2015).

In a series of evidence reviews, The Victorian Health Promotion Agency (Vic Health) identified the social determinants of inequities in SNAP factors:

Smoking

The prevalence of smoking and associated disease is significantly higher among disadvantaged groups, including low socioeconomic groups, Aboriginal and/or Torres Strait Islanders, people with mental illness, people experiencing incarceration and people experiencing homelessness. Tobacco-related inequities are not just related to higher smoking prevalence – disparities exist in relation to higher foetal exposure to tobacco smoke during pregnancy, greater childhood exposure to second-hand smoke and early smoking uptake. There is a social gradient for tobacco use and related illness in Victoria where smoking rates are lower in the most advantaged. Smoking is also frequently viewed as a coping mechanism to help deal with life stressors such as financial pressures, boredom, living in unsafe environments and other stressful situations (Purcell, 2015).

Nutrition

Diet quality is influenced by a multitude of factors at the societal and individual level. Energy-dense foods and beverages high in fat, salt and/or sugar are readily available, easily accessible, and widely consumed in Australia. In addition, knowledge, attitudes and behaviours about food can be shaped by culture over generations. Diet quality and associated health outcomes also follow a social gradient in Australia, with those with higher levels of education, in the highest income groups, and people living in more advantaged areas more likely to eat a healthy and balanced diet, be a healthy weight, and have better health outcomes. Conversely, Aboriginal and/or Torres Strait Islanders, people from minority CALD groups, people living with disabilities, and people living in remote or socioeconomically disadvantaged areas are more likely to experience food insecurity, less likely to buy healthy food, less likely to eat a healthy diet, and more likely to have poor oral health (Friel, Hattersley and Ford, 2015).

Alcohol

Consumption of alcohol is highly prevalent in Australia, supported by cultural norms which condone and often encourage use. Age, gender, Aboriginality, experience of incarceration and living in a rural area all appear to be connected to levels of alcohol consumption and related harms. Older Australians tend to drink alcohol with the greatest frequency. Australians aged 18-29 years tend to drink the largest quantities of alcohol. There is greater alcohol consumption among men compared to women though the higher a woman's position in society, the smaller the difference in men and women's drinking rates. Alcohol use is less prevalent among CALD communities compared with the broader population. However, a more complex relationship is found with socioeconomic status; because most Australians can afford to buy alcohol, income may influence consumption levels less than do other factors. While higher socioeconomic position groups tend to drink more frequently, groups in a lower socioeconomic position drink larger quantities and are at greater risk of associated harms. Factors such as education levels, income and gender may influence the relationship between socioeconomic position and alcohol consumption (Roche et al. 2015).

Physical Activity

Physical activity, sedentary behaviours and associated health outcomes are also socially distributed. The likelihood of meeting physical activity recommendations has been shown to increase with education level and household income and decrease with remoteness and area-level socioeconomic disadvantage and individuals from cultural or ethnic minority groups. There are also inequities in physical activity participation according to other social stratifying characteristics such as gender (with women generally less active than men), disability, cultural diversity and Aboriginality (Ball et al. 2015).

SMOKING

Despite the successful public health strategies in Australia, morbidity and mortality attributable to smoking continues through people continuing to smoke, ex-smokers and non-smokers through passive exposure to second-hand smoke (AIHW, 2020b).

Defining smokers

The VPHS defines smokers as 'daily' or 'occasional', and the two combined as 'current smokers'. 'Ex-smokers' were those who have smoked at least 100 cigarettes or a similar amount of tobacco in the past, but have given up (VAHI, 2021a).

Smoking in NWMPHN

In 2019, the proportion of adults who were current smokers was 17.4% in NWMPHN region. Daily smokers (12.9%) are slightly above the state average (see Figure 22). 56% of adults in the NWMPHN catchment were non-smokers (VAHI, 2021a).

Figure 22. Proportion (%) of adults aged 18+ who were daily smokers, 2019

Source: VAHI, 2021a

Smoking: Social context factors

In 2019, men were more likely to be current and daily smokers than women. However, women in NWMPHN were more likely to be occasional smokers. This is higher than state averages and reflected in the lower proportion of women reporting being non-smokers compared to state averages. A higher proportion of men in NWMPHN were ex-smokers compared to Victoria (VAHI, 2021a).

Table 13. Smoking status by gender (2019)

Region	% Adults (18+) who were daily smokers		% Adults (18+) who were occasional smokers		% Adults (18+) who were ex-smokers		% Adults (18+) who were non-smokers	
	Men	Women	Men	Women	Men	Women	Men	Women
NWMPHN	14.7	10.9	3.6	5.5	30.3	21.1	50.5	60.9
Victoria	14.5	10.3	5.1	3.8	27.5	21.8	52.2	63

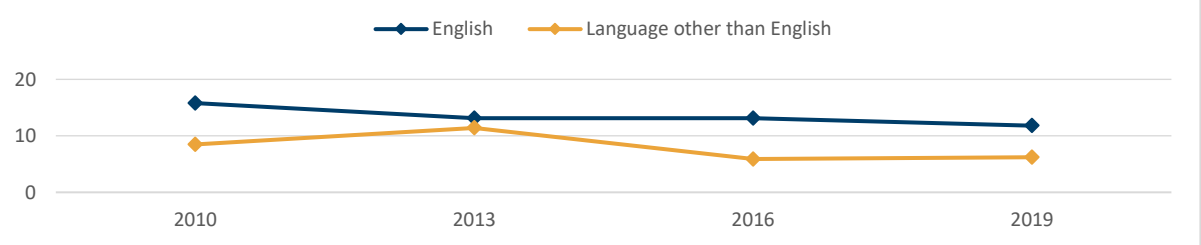
Source: VAHI, 2021a

Across Victoria, a higher proportion of young people aged 18-24 (19.7%) reported to be current smokers (daily or occasional smokers) than those aged above 35. People aged 25-34 years and 55-64 years were more likely to smoke every day. Older adults were less likely to smoke daily compared to other age groups. The 2019 VPHS estimated that 8.1% of Victorians aged 65-74 and 4.2% of those aged 75-84 years smoke every day, which was below the total population (12.3% for 18+) (VAHI, 2021a).

The proportion of adults in Victoria who were daily smokers was significantly higher in people who were Aboriginal or Torres Strait Islander origin; were widowed, divorced/separated or never married; did not complete high school; were unemployed; had a total annual household income of less than $40,000; or rented their home (VAHI, 2021a). A significantly higher proportion of LGBTIQ+ adults were current smokers (24.1%, daily and occasional) compared with non-LGBTIQ+ adults (16.6%) (VAHI, 2020).

The National Drug Strategy Household Survey (NDSHS) (AIHW, 2020b) disaggregates smoking status by main language spoken at home. Across Australia, the proportion of daily smokers is lower for people who speak a language other than English (LOTE) at home (6.2%) compared with people who mainly speak English at home (11.8%). This trend has been the case since 2010. However, the gap has narrowed slightly since 2016 with decreased daily smoking in English speaking Australians being mirrored by 0.3 percentage point increase in daily smoking for people from CALD backgrounds.

Figure 23. Proportion (%) of daily smokers in Australia by main language spoken at home among people ages 14+ (age standardised percent), 2019



Source: AIHW, 2020b

Smoking: geographic context factors

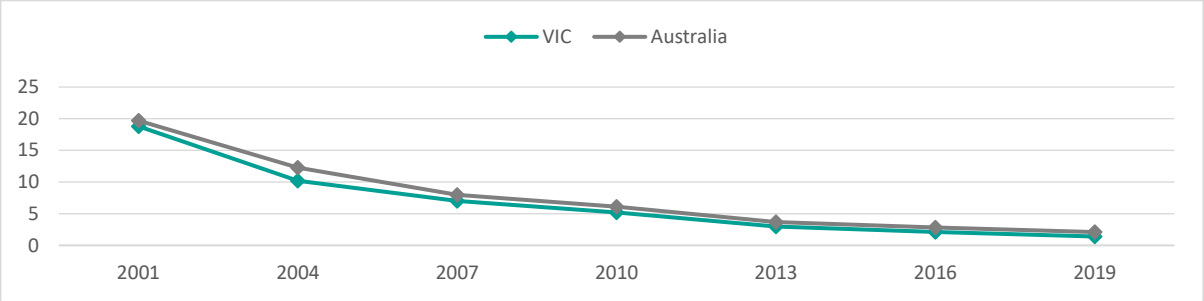
The proportion of adults (18+) who were daily smokers in the NWMPHN catchment was less than the overall Victorian average in eight of the thirteen LGAs. However, the proportion of daily smokers was greater than the Victorian average in the Melton, Hume, Moorabool, Brimbank and Wyndham. While NWMPHN overall had comparatively lower prevalence of smoking during pregnancy (6.8%), this figure was higher in Moorabool, Hume, Melton and Brimbank.

Passive smoking

Passive smoking is when people breathe in second-hand tobacco smoke. Exposure to second-hand smoke can cause or worsen a range of diseases including cancer, heart attacks, heart disease, respiratory infections, diabetes and so on. This is especially risky for unborn babies, children and people with respiratory problems. If children live with someone who regularly smokes inside their home, they are at greater risk of infection and illness. Furthermore, children of smoking parents are also more become smokers themselves in the future (DoH, 2019).

The 2019 NDSHS reported the proportion of households in Victoria with dependent children where someone smoked inside had fallen from 18.8% in 2001 to 1.4% in 2019 (see Figure 24) and around 23% of households had someone who only smokes outside. However nationally, 7.1% of the Aboriginal and/or Torres Strait Islander households had children exposed to tobacco smoke in the home compared to 1.9% for non-Aboriginal households (AIHW, 2020b).

Figure 24. Proportion (%) of households with dependent children where someone smoked inside the home, 2019



Source: AIHW, 2020b

Smoking during pregnancy

Smoking or breathing in second-hand smoke during pregnancy increases the risk of problems during the pregnancy including miscarriage and stillbirth and risks the baby being born too early or underweight with a higher risk of delayed development, disease and Sudden Infant Death Syndrome (SIDS).

During 2016 to 2018 across NWMPHN, approximately 6.8% women who gave birth reported smoking during their pregnancy (4,955 pregnant women). This was below the rates reported across Victoria (8.4%) and Australia (9.6%).

Social context factors associated with higher likelihood of a mother smoking during pregnancy (AIHW, 2020b) include:

- Teenage mothers were the most likely to smoke during the first 20 weeks (about 32%), and this rate generally decreased with increasing maternal age.
- Living in remote (18%) and very remote (34%) areas compared to living in Major cities (7.2%).
- Living in areas of greater socioeconomic disadvantage (18%) compared to those living in areas of least disadvantage (2.9%).
- Australian-born mothers (13%) compared to mothers born overseas (3.2%).

- Aboriginal and non-Aboriginal mothers varied (age-standardised rates of 43% and 11%, respectively). However, smoking rates during pregnancy showed a positive change between 2011 and 2016, decreasing by 4 percentage points. In the NWMPHN region in 2016-2018, 34.9% of Aboriginal women smoked during pregnancy compared to the proportion for all pregnancies in NWMPHN (6.8%) (PHIDU, 2021a).

NUTRITION

Diet is an important risk factor independent of weight. Healthy dietary patterns ensure enough essential nutrients for the healthy development of children, good health of adults and a strong immune system. A healthy diet reduces the risk of chronic health problems such as heart disease, type 2 diabetes, some cancers and obesity.

Nutrition guidelines

The Australian Dietary Guidelines from the National Health and Medical Research Council (NHMRC, 2013) provides up to date advice about the amount and kinds of foods to eat for health and wellbeing.

They make five key recommendations for healthy eating, including:

1. To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.
2. Enjoy a wide variety of nutritious foods
3. Limit intake of foods containing saturated fat, added salt, added sugars and alcohol
4. Encourage, support and promote breastfeeding
5. Care for your food; prepare and store it safely.

Daily intake of fruit and vegetables is considered an important population health indicator. Based on the guidelines from NHMRC (2013), the 2019 VPHS (VAHI, 2020) estimated that 3.6% of Victorian adults (18+), and 3% of the NWMPHN adult population, met both the fruit or vegetable consumption guidelines. A substantially greater proportion of adults met fruit consumption guidelines (40.6% in Victoria, and 38.3% in the NWMPHN region). Whereas very few adults met the vegetable guidelines state-wide (5.7%) or within the NWMPHN region (4.9%) (VAHI, 2021a).

The 2019 VPHS survey also explored indicators of unhealthy eating habits (VAHI, 2021a). Compared to Victoria, adults in NWMPHN have more meals or snacks from takeaway places (19.8% compared to 18.0%), average consumption of savoury or salty snacks three or more times a week (23.5% and 24% respectively) and more sweet snacks three or more times a week (44.2% compared to 43.8%) (VAHI, 2021a).

Nutrition: Social context factors

Gender differences in healthy eating were evident at state and NWMPHN levels, with females more likely than meet to meet fruit and vegetable dietary guidelines (VAHI, 2021a).

Table 14. Proportion (%) of adults (18+) population, by compliance with fruit and vegetable consumption guidelines, and by gender, 2019

Region	% Met vegetable consumption guidelines only		% Met fruit consumption guidelines only		% Met fruit and vegetable consumption guidelines	
	Men	Women	Men	Women	Men	Women
NWMPHN	1.4	8.1	34	42.3	0.9	4.9
Victoria	1.8	9.4	36.6	44.4	1	6.1

Source: VAHI, 2021a

Specifically, in the NWMPHN region, the proportion of adults who consumed take-away food more than once a week was significantly higher in men (26.5%) compared with women (13.3%). On the contrary, the proportion of adults who consumed savoury or salty snacks three or more times a week was higher in women (26%) compared with men (20.9%). Similarly, the proportion who consumed sweet snacks was higher in women (46.4%) compared with men (41.8%) (VAHI, 2021a).

Table 15. Proportion (%) of adults (18+) by diet habit and gender, 2019

Region	% Adults having meals or snacks from take-away places more than once a week		% Adults consuming savoury or salty snacks three or more times a week		% Adults consuming sweet snacks three or more times a week	
	Men	Women	Men	Women	Men	Women
NWMPHN	26.5	13.3	20.9	26	41.8	46.4
Victoria	24.3	13.1	23.1	24.7	42.2	45.4

Source: VAHI, 2021a

The 2019 VPHS (VAHI, 2021a) estimated that:

- 18–24-year-olds were significantly more likely to have meals or snacks from take-away places more than once a week (37% compared to 18.6% overall) and to consume savoury or salty snacks three or more times a week (37.5% compared to state average 23.7%).
- 53.5% of Victorian adults were estimated to not meet fruit and vegetable consumption guidelines, this decreased among older age groups: 46.3% among 65–74-year-olds, 42.3% among 75–84-year-old and 35.7% among those aged 85 and over.
- Only 5% of Victorians aged 65-74 and 6.1% of those aged 75-84 met the recommended fruit and vegetable consumption guidelines.

Nutrition: geographic context factors

Hume had significantly lower rates of both compliance with vegetable consumption guidelines than the state average (2.3%) and compliance with fruit intake guidelines (36%). Melton and Wyndham had a similar low proportion of adults of meeting fruit consumption guidelines. The estimated proportion of adults who drink sugar sweetened soft drinks daily was statistically significantly higher than the state average of 10.1% in four of NWMPHN's LGAS: Moorabool, Melton, Wyndham and Hume (VAHI, 2021a).

ALCOHOL

While the majority of Australians drink alcohol at low-risk levels, excessive consumption is associated with significant harms for both individuals and society. Alcohol consumption contributes to violence, crime, car crashes, suicide, mental health issues, child abuse and neglect, and domestic and family violence. At an individual level, alcohol use can lead to severe acute and chronic harms, including injuries, psychological distress, cancers, diabetes, and cardiovascular and liver disease (Roche et al. 2015).

Alcohol guidelines

The lifetime risk of harm from drinking alcohol increases with the amount consumed. Short-term risks stem from the risks of accidents and injuries occurring immediately after drinking. The risk of an alcohol-related problem increases dramatically with an increase in the number of drinks consumed. The National Health and Medical Research Council (NHMRC, 2020) have newly defined guidelines to reduce health risks from drinking alcohol.

The Alcohol guidelines include:

- **Guideline 1: Adults.** To reduce the risk of harm from alcohol-related disease or injury, healthy men and women should drink

no more than 10 standard drinks a week and no more than 4 standard drinks on any one day. The less you drink, the lower your risk of harm from alcohol.

- **Guideline 2: Children and people under 18 years of age**. To reduce the risk of injury and other harms to health, children and people under 18 years of age should not drink alcohol.
- **Guideline 3: Women who are pregnant or breastfeeding** A. To prevent harm from alcohol to their unborn child, women who are pregnant or planning a pregnancy should not drink alcohol. B. For women who are breastfeeding, not drinking alcohol is safest for their baby.

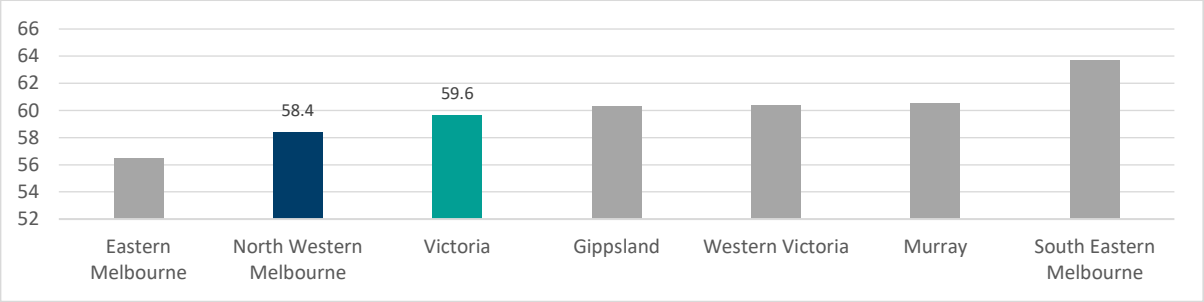
However, analysis of the most recently available 2019 VPHS (VAHI, 2021a) would have been based on risk as defined in the previous guidelines from NHMRC published in 2009:

- **Guideline 1 (lifetime risk):** For healthy men and women, drinking no more than two standard drinks on any day reduces your risk of harm from alcohol-related disease or injury over a lifetime.
- **Guideline 2 (single occasion risk):** For healthy men and women, drinking no more than four standard drinks on a single occasion reduces the risk of alcohol-related injury arising from that occasion.
- **Guideline 3 (children and young people):** For children and young people under 18 years of age, not drinking alcohol is the safest option.

The 2019 VPHS estimated the proportion of adults with different drinking patterns in Victoria. Based on the 2009 guideline 1, the 2019 VPHS (VAHI, 2021a) estimated that the proportion of adults who were at increased lifetime risk of alcohol-related harm (either weekly, monthly or yearly) was 58.4% in NWMPHN region.

Based on the guideline 2, the survey estimated that the proportion of adults who were at increased risk of alcohol-related injury from a single occasion of drinking (either weekly, monthly or yearly) was 41.5% in NWMPHN region.

Figure 25. Proportion (%) of adult aged 18+ who were at increased lifetime risk of alcohol-related harm, 2019



Source: VAHI, 2021a

Turning Point Alcohol and Drug Centre[8] provide data and analyses of alcohol-related societal harm in Victoria including assaults, road injuries and domestic and family violence related to alcohol use. The assault and serious road injuries datasets do not have a direct measure of alcohol involvement but are recorded according to their occurrence in specific 'high alcohol hours' (HAH). For example, it is estimated that alcohol is involved in 65% of assaults occurring in the 'high' alcohol hours which are Friday or Saturday from 8pm to 6am. The data shows that overall, the NWMPHN catchment has lower rates of alcohol-related societal harm than Victoria overall.

The data from Turning Point shows the association of alcohol use with risk behaviours and significant harm, with high rates of alcohol related ambulance attendance. Alcohol related Emergency Department presentations are detailed in Metric 4: Access to health services.

[8] Data directly supplied to NWMPHN in 2021.

Alcohol: Social context factors

In 2019, the estimated proportion of adults with risky drinking behaviour was significantly higher in men compared with women (see Table 16).

Table 16. Risk alcohol related harm or injury and gender, 2019

Region	% Adults (18+) who were at increased risk of alcohol-related harm		% Adults (18+) who were at increased risk of alcohol-related injury from a single occasion of drinking	
	Men	Women	Men	Women
NWMPHN	69.3	49.1	52.7	31.3
Victoria	68.9	51.4	53	33.2

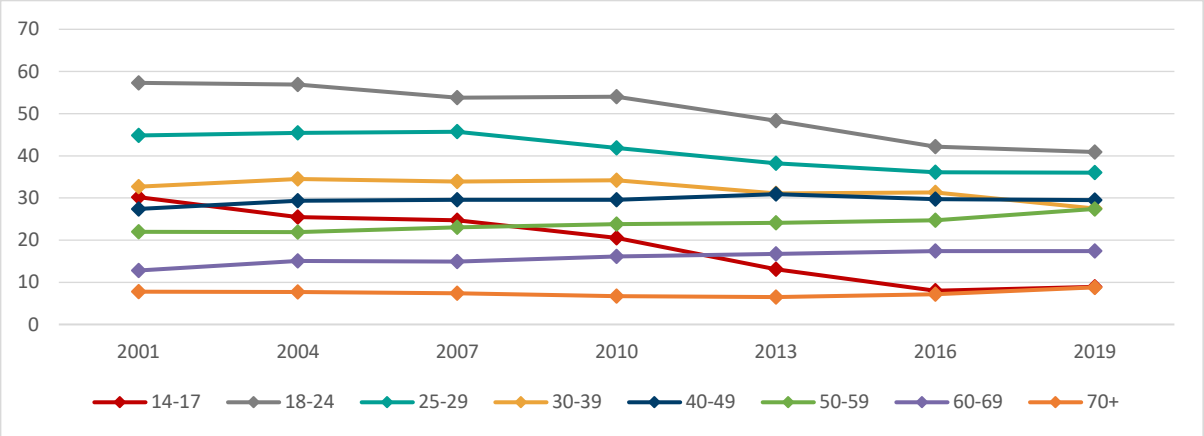
Source: VAHI, 2021a

Across Victoria, the proportion of Victorian adults drinking at increased lifetime risk (59.4%) was higher than the proportion at risky levels on a single occasion (42.2%) across all age groups. Young people aged 18-24 were more likely to be at increased lifetime risk of alcohol-related harm (72.8%). This is the only age group where females (73.5%) were more likely to be at risk than males (72.6%). After 24 years old, risky drinking among women was significantly lower than their counterparts. Older adults were less likely to be at increased lifetime risk of alcohol-related harm based. 48.9% of Victorians aged 65-74 years, 36.5% of those aged 75-84 years and 38.5% of those aged 85+ were at increased risk, which was below the total population (59.4% for 18+). Older people (85+) were more likely to drink on a regular basis than drinking more than 4 standard drinks from a single occasion (VAHI, 2021a).

The NDSHS in 2019 found that in Australia, 8.9% of 14-17-year-olds drink more than 4 standard drinks on one occasion at least once a month, while for the 18-24 age group the proportion was 40.9%. The years from 2001 to 2019 has seen a considerate reduction in the proportion of single-occasion risk among young people aged 14-39 years (AIHW, 2020b).

Compared with the proportion of Victorian adults, the proportion of those who drank alcohol at increased risk was significantly higher in people who were born in Australia; spoke English at home; did not complete high school; or had a total annual household income of $100,000 or more (VAHI, 2021a).

Figure 26. Proportion (%) of Australians who had more than 4 standard drinks on one occasion at least once a month by age, over time



Source: AIHW, 2020b

Data from the 2019 NDSHS (AIHW, 2020b) provide information about priority populations at a national level.

- **People from CALD backgrounds:** were much less likely to exceed lifetime risk guidelines for alcohol (3.8%), compared with people who mainly spoke English at home (18.8%). This has been the case since 2010. It is noted though that some people from CALD backgrounds are more vulnerable to alcohol and other drug use due to a history of torture, trauma, grief and

loss, and that this can also be exacerbated by unemployment, language barriers, and lack of awareness of available culturally appropriate services (AIHW, 2021b).

- **Aboriginal and Torres Strait Islander People**: continue to be slightly more likely to abstain from alcohol than non-Aboriginal Australians. Among those who drink, a higher proportion drink at risky levels but this has narrowed, from 1.5 times as high in 2010 to 1.2 times in 2019 (AIHW, 2020b).
- **LGBTQI+**: Findings for people who identified as gay, lesbian and bisexual suggested there were no statistically significant changes for in risky drinking from 2016 to 2019; this community were 1.5 times as likely to exceed the lifetime risk guideline to reduce the harm from drinking alcohol compared with heterosexual people (AIHW, 2020b). Though this is counter to a further report from the 2017 Victorian Population Health Survey which found no significant differences in consumption of alcohol between LGBTIQ+ and heterosexual (VAHI, 2020).

In 2018-19 Victoria overall had a slightly lower rate of both alcohol-related assaults and serious road injuries (during high alcohol hours) than the year before (Turning Point, 2021). NWMPHN had a lower rate of road accidents per 100,000 population than Victoria. Overall, the rate of alcohol-related family violence incidents in the NWMPHN catchment is less than the Victorian average.

Alcohol: geographic context factors

The proportion of adults (18+) at increased lifetime risk of alcohol-related harm was greater than the Victorian average in Macedon Ranges, Yarra, Darebin, Moorabool, Moonee Valley and Hobsons Bay.

In 2019-20, the rate of alcohol-related attendances in NWMPHN LGAs continued to be higher than state average rates in Melbourne and Yarra (likely influenced by large number of social and entertainment venues in these locations). Although Melbourne showed a decrease in the rate of alcohol-related attendances; the rate has reduced from 177 per 10,000 people in 2014-15, to 171.63 in 2018/19 down to 145.2/10,000 in 2019-20. Unlike previous years, Moonee Valley had increased to above the state average.

In 2018-19, only Moorabool had a road accident rate greater than the state overall rate. There was a comparatively very high level of alcohol-related assaults (during high alcohol hours) in Melbourne and Yarra (again most likely due to the high number of evening recreation and entertainment venues). The alcohol-related assaults rate was also higher than the Victorian average in Moorabool and the rate of alcohol-related family violence incidents greater than the Victorian average in Melbourne and Yarra.

Other drug use

Prevalence of illicit drugs, and illicitly used pharmaceuticals is significantly lower than tobacco and alcohol but still contributes to a substantial level of harms in the community and for some people, increases engagement in risky behaviours or criminal activity. Illicit drug use contributed to 2.7% of the total burden of disease in Australia in 2015 (AIHW, 2021b). Potential harms of use include drug induced deaths (primarily benzodiazepine and opioid related) and there is a strong association between illicit drug use and mental health issues and people who inject drugs are at a higher risk of health problems, including Human Immunodeficiency Virus (HIV) and hepatitis C (AIHW, 2021b).

The 2019 NDSHS (AIHW, 2020b) showed 17.1% of people in Victoria aged 14 had used an illicit drug or non-medical use of pharmaceutical drugs in the past 12 months (‘recent use’). This proportion of recent illicit use of drugs in Victoria was a statistically significant increase from 15% in 2016, and slightly higher than the national figure (16.4%). As in previous years, recent use of cannabis was most common (11.5%). Recent use was higher in Victoria than the national average for use of; ecstasy, cocaine, inhalants, ketamine and tranquillisers/sleeping pills used for non-medical purposes (AIHW, 2020b).

The Australian Criminal Intelligence Commission (ACIC) provide a report on measures of illicit drug use from the National Wastewater Drug Monitoring Program (NWDMP). The mid-2021 findings indicated that the average Australian capital city methylamphetamine consumption decreased from April to June 2021, however methylamphetamine consumption in Australia still ranked second of 24 compared countries. Historically very high levels of heroin use were recorded in Victoria and many parts of the country in August 2020. Heroin use has declined up to and including April 2021 but Victoria still had the highest estimated average capital city consumption (ACIC, 2021)

The harms and impact of illicit use of drugs is reflected in the substantial rates of ambulance and ED events related to drug use (described in Metric 4: Access to Health Care Services) and drug offences. Victorian data on ambulance attendances indicated in 2019-20, there were 16262 illicit drug related attendances (average rate of 24.65 per 100,000 people). This rate was a sizeable increase from the previous two years which had been fairly stable; 2017-2018 state average rate 20.19 and 2018-19 rate of 20.81/10,000, 2018-19) (Turning Point, 2021).

In 2019-2021 NWMPHN LGAs accounted for 6,196 illicit drug related ambulance events and 3,480 attendances involving pharmaceutical drugs. An estimated 1,285 ambulance events occurred in NWMPHN region related to crystal methamphetamine use, accounting for 20% of illicit drug related attendances in the catchment. Around 35% of all Victorian ambulance attendances for crystal methamphetamine-related events occurred in NWMPHN LGAs. The rate of these attendances in Victoria overall in 2019-20 was 5.54 per 10,000 population. In addition, according to the Crime Statistics Agency Victoria (2021), a total of 13,658 drug offences (drug possession and use) were recorded in the NWMPHN catchment during 2020.

Other drug use: social context factors

National and state level findings of the NDSHS (AIHW, 2020b) consistently find that overall, recent illicit users of drugs are more common among males than females, and among younger adult age groups, decreasing with age. In Victoria in 2019, recent illicit use of any drug was estimated to occur among 12.9% of females in Victoria over 14 years compared to 21.4% of males, which was an increase from 17.9% of males in 2016. Across age groups, 33 % of people aged 20-29 years had recent illicit use of any drug, compared to 20.1% of 30-39 age group, and only 7% among those 60 years and over.

Other drug use: geographic context factors

Data for incidents of drug offences and drug-related ambulance attendances provide insight into localised patterns of risks, harm and use. The inner urban areas of Melbourne (19.1 per 10,000 population), Yarra (12.11 per 10,000 population) and Maribyrnong (7.7 per 10,000 population) continue to show indicators of comparatively very high rates of illicit substance use and harms.

PHYSICAL ACTIVITY

Physical activity is a key contributor to good physical and mental health. For adults, being active regularly can reduce the risk of, or help manage, type 2 diabetes and cardiovascular disease, maintain or improve blood pressure, cholesterol and blood sugar levels, reduce the risk of some cancers, prevent unhealthy weight gain, maintain strong muscles and bones and create opportunities for socialising and meeting new people. However, it is not uncommon for people to spend large amount of time being sedentary (sitting or lying down).

DoH (2021b) have physical activity and sedentary behaviour guidelines for each age group and for pregnancy. The guidelines indicate that adults (18-64 years) should do either of the following each week:

- 2.5 to 5 hours of moderate intensity physical activity.
- 1.25 to 2.5 hours of vigorous intensity physical activity.
- An equivalent combination of moderate and vigorous activities.

Muscle-strengthening activities (weightlifting, push-ups, squats etc) should be included as part of the physical activity on at least two days each week.

Long periods of sitting can offset the benefits of being physically active. The sedentary behaviour guidelines are to:

- Reduce the time spent sitting - for example, by organising walking meetings or using a standing desk.
- Break up long periods of sitting – for example, walking around when on the phone.

For people aged 65 years and over, DoH (2021b) recommend at least 30 minutes of moderate intensity physical activity on most, preferably all, days.

Based on these guidelines, the 2019 VPHS (VAHI, 2021a) estimated the proportion of adults (18+) who met physical activity guidelines was 50.3% in the NWMPHN region (45.3% were insufficiently active). The proportion of adults who were sedentary was 1.7% in NWMPHN.

In Victoria, there was a significant decline in the proportion of sedentary people during the period 2015–2019. The proportion of adults who sat for eight hours or more on a typical weekday was 25.5% in NWMPHN, with 12.6% of people sitting for eight hours or more on a typical weekend day.

Physical activity: Social context factors

The proportion of adults (18+) in NWMPHN who met physical activity guidelines was similar in men (53.0%) and women (49.5%), showing similar rates of being insufficiently active (men, 45.4%; women, 46%) and of being sedentary (men, 1.8%; women, 1.7%). The proportion of men who sat for eight hours or more on a typical weekday (29.2%) was significantly higher than for women (22%) in the region (see Table 17 and 18). Similarly, the proportion of adults who sat for eight hours or more on a typical weekend day was significantly higher in men (17.4%) compared with women (7.4%).

Table 17. Compliance with physical activity guidelines and gender, 2019

Region	% Sedentary		% Insufficient physical activity		% Met guidelines	
	Men	Women	Men	Women	Men	Women
NWMPHN	1.8	1.7	45.4	46	50.3	49.5
Victoria	1.8	1.8	43.1	46.3	53	48.7

Source: VAHI, 2021a

Table 18. Time spent sitting on an average weekday or weekend day, and gender, 2019

Region	% Spent 8 hours or more sitting on a typical week day		% Spent 8 hours or more sitting on a typical weekend day	
	Men	Women	Men	Women
NWMPHN	29.2	22	17.4	7.4
Victoria	27.4	21.4	16.3	9.4

Source: VAHI, 2021a

For people aged 65 years and over, DoH (2021) recommends at least 30 minutes of moderate intensity physical activity on most, preferably all, days. The 2019 VPHS estimated that more than 80% of 65–74-year-olds meet these guidelines however this decreases in older ages groups; 31.9% of Victorians aged 85+ had insufficient physical activities based on the guidelines.

The proportion of adults who met physical activity guidelines was significantly higher in people who had a university (or some other tertiary institute) degree or who had a total annual household income of $100,000 or more, compared with the proportion in all Victorian adults (VAHI, 2021a).

Physical activity: geographic context factors

The estimated proportion of people in Wyndham who were insufficiently active was 55.6%, which was significantly higher (statistically) than the rate for Victoria (44%). Next highest was Moreland (50.2%) and Brimbank (49.8%) and Darebin (48.5%).

Table 19. Prevalence of behavioural risk factor indicators in NWMPHN

Region	LGA	Smoking		Nutrition			Alcohol						Other drugs			Activity
		Daily smokers %[9]	Pregnancies during which women smoked %[10]	Not met fruit & veg. consumption guidelines %[9]	Take-away food consumed > 1 day/week %[9]	Daily consumer sugar sweetened soft drinks %[9]	Increased lifetime risk of alcohol-related harm %[9]	Increased risk of injury from a single occasion of drinking %[9]	2019/20 Alcohol-related Ambulance attendances[11]	2018/19 Alcohol-related assaults during high alcohol hours[12]	2018/19 Alcohol-related family violence incidents[12]	2018/19 Alcohol-related serious road injuries during high alcohol hours[12]	2019/20 Illicit drug (any)-related - Ambulance attendances[11]	2019/20 Pharmaceutical Drugs (any) – related Ambulance attendances[11]	2020 Drug possession and use offences[13]	Insufficiently physically active[9]
Inner city	Melbourne	4.3*	3.8	45.2	22.4	11.4*	54.8	41.1	145.1	37.4	20.2	2	95.3	27.6	179.3	46.9
	Maribyrnong	12.1	4.1	52.6	15.1	6.5*	52.4	41.1	53.2	7.2	14.3	1.3	36.5	17	59.2	44.2
	Yarra	10	3.9	47.2	16.3	4.6*	69.6	52.8	95.5	17.1	22.9	1.5	90	30.1	108.8	41.4
Suburban	Brimbank	16.4	7.9	48.6	18.8	10	40	26.5	34.9	9.1	12	1.3	26.2	16.4	71.9	49.8
	Darebin	13.4	4.1	52.9	11.5	6.3	62.5	47.1	34.9	5.8	16.4	1.4	19.4	14	41.6	48.5
	Hobsons Bay	9	5.1	52	14.5*	7.6	62	45.9	39.5	6.2	10.9	0.1	25	17.1	44	41.7
	Moonee Valley	9.3	4.8	49.5	23.7	6.4	64.2	46.6	42.8	5.3	13.4	1.1	29.2	19.2	85.1	36.7
	Moreland	12.5	5.8	50	16.8	9.6	58.3	44.2	52.6	5.5	11.3	0.1	21.8	13.5	44.3	50.2
Growth area	Hume	17.2	11.1	58	8.8*	14.4	50.7	33.1	37	7.1	13.5	1.3	21.6	19.2	70.7	46.3
	Melton	18.5	10	57.9	12.8	17.4	53.1	37.5	29.2	8	13.2	1	20.2	17.5	46.7	40.4
	Wyndham	15.4	6	57.4	14.3	15.8	49.2	33.3	29.8	5.7	10.1	0.1	12	13.4	35.1	55.6
Peri-urban	Macedon Ranges	10.5	6.8	46.8	11.4	7.5*	72.9	55.6	43.9	10	17.4	2.3	22.5	22.5	53.9	40
	Moorabool	17.2	12.3	55.5	15.2	17.7	67.2	51.3	27.5	4.6	14.7	1.5	5.6	11.2	47.5	45
NWMPHN		-	**6.8**							**10.1**	**13.8**	**1.2**				
Victoria		**14.7**	**8.4**	**51.7**	**15.3**	**10.1**	**59.5**	**43**	**46.3**	**8.9**	**18.3**	**2.2**	**24.7**	**18.6**		**44.1**

[9] VAHI (2019) 2017 Victorian Population Health Survey.
[10] PHIDU 2016-2018 data
[11] Ambulance attendances based on Turning Point analyses of VAED data (AODStats data, supplied directly)
[12] AODstats data/analyses (aodstats.org.au)
[13] Crime Statistics Agency Victoria (2021)
** Relative Standard Error (RSE) between 25 and 50 per cent; point estimate (%) should be interpreted with caution. Moorabool and Macedon- entire LGA included for the regions and for calculation of NWMPHN figures.

4.3 Biomedical risk factors

Biomedical risk factors are physical states that have an impact on a person's risk of disease and that are often influenced by behavioural risk factors. Abnormal levels of the three biomedical factors in particular—blood pressure, blood lipids and blood glucose—pose direct and specific risks to health. The effects of individual biomedical risk factors on a person's health can also be amplified when other behavioural or biomedical risk factors are present. The longer a person lives with one or more risk factors, the greater the risk to their overall health and wellbeing (AIHW, 2020c).

Unfortunately, there is limited data available to monitor trends in some biomedical risk factors in the NWMPHN population. For example, data on high blood cholesterol is not available at a local level and impaired glucose regulation was not available at a meaningful level to be included. However, these determinants of health status risk factors are common among patients attending general practice (RACGP, 2015) and so our general practice network is an increasingly valuable source of information about the health status of the NWMPHN population.

General Practice – Practice Incentives Program

The Practice Incentives Program (PIP) Quality Improvement (QI) Incentive is a payment to general practices for activities that support continuous data driven quality improvement in patient outcomes, to support the delivery of best practice care. General practices enrolled in the PIPQI commit to implementing continuous quality improvement activities that support them in their role of managing their patients' health. Participating general practices also commit to submitting nationally consistent, de-identified general practice data, against ten key improvement measures that support a regional and national understanding of chronic disease management in areas of high need (AIHW, 2021c). The measures are not designed to assess individual general practices or general practitioner performance. There are no set targets for the improvement measures.

Table 20 shows the summary of PIP QI measures and how NWMPHN compares to other Victorian PHNs (with green indicating better performance) (AIHW, 2021c). Though only a proportion of general practices in our catchment are registered for PIP QI (approximately 401 out of 561 general practices, 435 of which are eligible for PIP QI), the practices that are engaged are improving their data capture and so the availability of deidentified, NWMPHN population specific data will support a better understanding of biomedical risks in the future. In the meantime, this section will summarise biological risk factors with the population health data available at the time of writing this report.

Table 20. Table PIP QI measures, National and Victorian PHNs data

QIM	Description (short)	National	North Western Melbourne	Eastern Melbourne	South Eastern Melbourne	Gippsland	Murray	Western Victoria
1	HbA1C recorded - Type 1 diabetes	59.0	49	58.3	59.5	69.4	67.1	66.1
	HbA1C recorded - Type 2 diabetes	73.4	66.6	73.3	75.7	80.6	77.2	79.2
	HbA1C recorded - undefined diabetes	66.3	59.6	69	69.2	75.8	65.3	70.3
2	Smoking status recorded	66.1	63.9	68	67.1	73	69.8	66.5
	Current smoker	14.7	15.9	11.5	13.8	17	17.8	15.1
	Ex-smoker	22.4	17.6	19.2	22.1	31	26.9	26.3
	Never smoked	62.9	66.4	69.3	64.1	51.9	55.3	58.5
3	Height & weight recorded	23.6	18.8	17.2	17.8	21.7	22.7	18.1
	BMI underweight	2.0	1.9	2.4	2.1	1.5	1.7	1.8
	BMI healthy	25.8	26.9	30.7	27.7	20.2	20.3	20.4
	BMI overweight	32.5	32.7	32.8	33.3	30.5	31	31.4

QIM	Description (short)	National	North Western Melbourne	Eastern Melbourne	South Eastern Melbourne	Gippsland	Murray	Western Victoria
	BMI obese	39.8	38.5	34.1	36.9	47.8	47.1	46.4
4	Immunisation status recorded	64.2	59.4	70.2	70.9	71.7	67	67.9
5	Immunisation status recorded	58.2	52.3	63.6	63.6	68.5	62.2	63.2
6	Immunisation status recorded	66.8	63.7	74.3	73.1	75.5	68.3	70.1
7	Alcohol status recorded	56.2	56	44.3	48.1	51.9	50.2	50.3
8	CVD risk factors recorded	48.5	52.1	36	37.6	41.9	61.3	61.2
9	Screening test recorded	37.4	34.1	35.5	34	42.2	42.1	44.7
10	BP recorded	58.7	52.3	57.6	59.4	64.7	59.3	58.3

Source: AIHW, 2021c

***QIM 1**: Proportion of regular clients with diabetes with an HbA1c result recorded in their GP record within the previous 12 months, all ages. **QIM 2**: Proportion of regular clients with a smoking status record and result in their GP record, 15 years age and over. **QIM 3**: Proportion of regular clients with height and weight recorded in their GP record and a derived BMI result, 15 years age and over. **QIM 4**: Proportion of regular clients aged 65 years and over with an influenza immunisation status recorded in their GP record within the previous 15 months, 65 years age and over. **QIM 5**: Proportion of regular clients with diabetes with an influenza immunisation status recorded in their GP record within the previous 15 months, all ages. **QIM 6**: Proportion of regular clients with COPD with an influenza immunisation status recorded in their GP record within the previous 15 months, 15 years age and over. **QIM 7**: Proportion of regular clients with an alcohol consumption status recorded in their GP record, 15 years age and over. **QIM 8**: Proportion of regular clients with a record of the necessary risk factors in their GP record for CVD risk assessment, 45-74 years age. **QIM 9**: Proportion of regular female clients with an up-to-date cervical screening test record in their GP record within the previous 5 years, 25-74 years age. **QIM 10**: Proportion of regular clients with diabetes with blood pressure recorded in their GP record within the previous 6 months, all ages.*

HEALTHY WEIGHT

Being underweight, overweight or obese are risk factors for several diseases and chronic conditions. The simple explanation for unhealthy weight is an imbalance between energy intake (diet) and energy expenditure (physical activity). However, it is due to and array of complex factors including genetics, physical and mental health conditions, illness, and food availability (AIHW, 2020d).

The Body Mass Index (BMI) is an internationally recognised standard for classifying body weight status in adults. Below is the formula to compute BMI.

$$\text{BMI} = \text{Weight (kg)} / [\text{Height (m)}]^2$$

Though BMI can be a poor measure of body fat percentage or distribution in certain individuals (for example, a very muscular person with low body fat could have a high BMI and be classified as overweight or obese), BMI is a practical and useful measure for monitoring healthy/unhealthy weight at a population level. Figure 27 shows the World Health Organization (WHO) classification of adult body weight status based on BMI (WHO, 2021a).

Figure 27. Classification of body weight status based on body mass index

BMI (kg/m²)			OBESE		
Underweight	Normal weight	Pre-obese	Class I obese	Class I obese	Class II obese
< 18.50	**18.50 to 24.99**	**25.00 to 29.99**	**30.00 to 34.99**	**35.00 to 39.99**	**≥ 40.00**
		OVERWEIGHT			

Source: WHO, 2021a

Above a healthy weight

The 2019 VPHS (VAHI, 2021a) collected self-reported height and weight from respondents and calculated BMI. The proportion of the population in NWMPHN who were above a healthy weight was similar compared to the state overall (see table 21) and with the PIP QI QIM 3 (see Table 20).

Table 21. Proportion (%) of adult (18+ years) by BMI category, 2019

	Males		Females		All	
	NWMPHN	Victoria	NWMPHN	Victoria	NWMPHN	Victoria
Underweight (BMI < 18.5)		1.1	2.6	2.6	1.4	1.8
Normal range (18.5 ≥ BMI < 24.99)	35.5	34.0	41.4	39.4	38.4	36.8
Overweight, but not obese (25 ≥ BMI < 29.99)	35.9	37.9	24.3	25.1	30.0	31.3
Obese (BMI ≥ 30)	21.6	20.7	18.4	19.8	20.2	20.3

Source: VAHI, 2021a

Below a healthy weight

Being underweight is a much less common biomedical risk factor than obesity and being overweight but is associated with considerable health issues and may cause malnourishment and lead to compromised immune function, respiratory disease, digestive diseases, cancer, and osteoporosis.

In Victoria, an estimated 1.8% of adults (18+ years) were underweight (BMI < 18.5 kg), with a higher rate among women 2.5% compared with men 1.1%. The amount of people estimated to be underweight was substantially higher among 18–24-year-olds (6.3%) (VAHI, 2021a).

Further 2019 VPHS data shows that:

- Across Victoria, both females aged 18-24 years (7.6%) as well as males in this age bracket (5.2%) had comparatively much higher rates of being underweight.
- The age group with the next highest group being people aged 85 years and over (3%), which was 2 to 3 times the rate for other older adults; 1.1% of 65–74-year-old and 1.4% of 75–84-year-old.
- PHN-level data showed that NWMPHN had the lowest rates of underweight population, with an estimated 1.4% of adults (18+ years) estimated to be underweight, and again this was more common among women (2.6%) compared to men.

Healthy weight: social context factors

The National Health Survey (NHS) (ABS, 2018c) estimated the proportion of children aged 2-17 who were classified as overweight or obese in 2017-2018. The aged-standardised rate of children classified as overweight was 16.2 per 100 children (2-17 years) in NWMPHN, which was slightly below the state (16.4 per 100) and national (16.7 per 100) rate. The aged-standardised rate[14] of obesity was 7.9 per 100 children (2-17 years) in NWMPHN, which was also slightly below the state (8 per 100) and national (8.2 per 100) rate.

Table 22. Children above a healthy weight, 2017-2018

Region	ASR[15] per 100 for children aged 2-17 years who were overweight but not obese		ASR per 100 for children aged 2-17 years who were obese	
	Males	Females	Males	Females
NWMPHN	16.4	16	7.9	7.8
Victoria	16.7	16.1	8	7.9

Source: ABS, 2018c

In NWMPHN region, the proportion of adults who were classified as overweight, but not obese, was significantly higher in men (35.9%) compared with women (24.3%). Similarly, 21.6% of men were classified as obese compared with 18.4% of women.

[14] Age-standardised rate is to adjust the crude rate to eliminate the effect of differences in population age structure when comparing different geographic areas.
[15] Age-standardised rate (ASR) is to adjust the crude rate to eliminate the effect of differences in population age structure when comparing different geographic areas

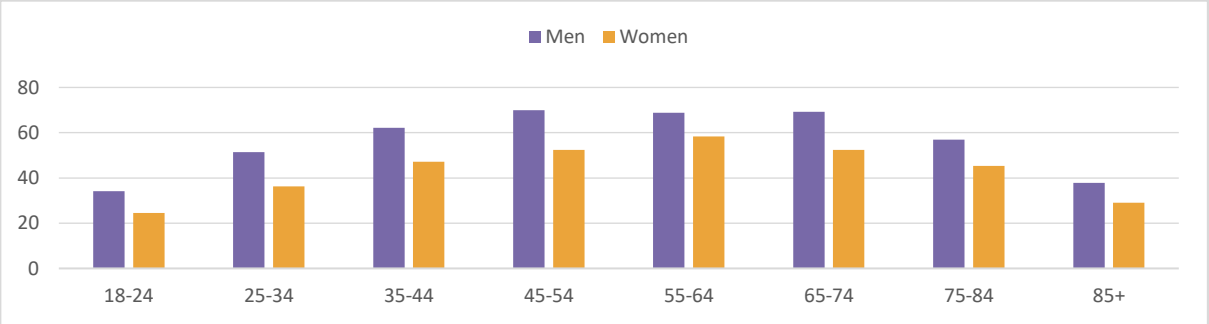
Table 23. Adults above a healthy weight, 2017-2018

Region	% Adults being overweight but not obese (25 <= BMI < 30)		% Adults being obese (BMI >= 30)	
	Men	Women	Men	Women
NWMPHN	35.9	24.3	21.6	18.4
Victoria	37.9	25.1	20.7	19.8

Source: ABS, 2018c

The 2019 VPHS state level data showed higher proportions of men were classified as overweight than women across all age categories (see Figure 28). The highest proportion of adults above a healthy weight occurred within age groups from 45 and 74 years old. An estimated 59.7% of people aged 65-74 years were above a healthy weight (BMI >=25), especially males in this age group (69.3%). Rates of being classified overweight were significantly lower than state average among the youngest adults (18-24 years, 30%) and oldest age group (85 years and over, 32.8%).

Figure 28. Proportion (%) of Victorians who reported to be overweight (BMI>=25) by age group and gender, 2019



Source: VAHI, 2021a

In Victoria, 83.2% of Aboriginal and Torres Strait Islander people aged 18 and over had a BMI in the overweight or obese range in 2018-2019. The overweight and obesity rate was higher than inner regional Victoria (77.4%) and outer regional Victoria (71.4%). Non-Aboriginal Victorians had a lower rate of overweight and obesity (67% - 73.8%) (ABS, 2019c).

The 2019 VPHS identified significant risk factors related to the body weight status. People who did not complete high school or who rented their home showed a significantly higher proportion of obesity, compared with the proportion in all Victorian adults (VAHI, 2021a).

Healthy weight: Geographic context factors

Rates of obesity and pre-obesity were highest in three LGAs, all in growth and peri-urban areas (see Table 25).

The proportion of adults who were overweight (BI >25) in Moorabool was 59.6%, followed by Hume 58.3%, and Wyndham 57.9%, and all were statistically greater than the overall Victorian prevalence, 50.8%. Prevalence of overweight adults was lowest and below state figures in inner City areas of Melbourne (30.8%) and Yarra (39.2%).

Geographic breakdown from the 2017-18 National Health Survey showed Wyndham had the greatest estimated number of children (2-17) who were overweight or obese, but Macedon Ranges had the highest proportion of overweight or obese children.

Table 24. Prevalence of biomedical risk factor indicators in NWMPHN, 2017

Region	LGA	Above a healthy weight (%)				Hypertension (%)
		Overweight Adults (25-29 BMI)	Obese Adults (≥30 BMI)	Overweight Children (2-17) ASR per 100	Obese Children (2-17) ASR per 100^	Ever diagnosed Hypertension
Inner city	Melbourne	22.2	8.6	15.4	8.1	27

Region	LGA	Above a healthy weight (%)				Hypertension (%)
		Overweight Adults (25-29 BMI)	Obese Adults (≥30 BMI)	Overweight Children (2-17) ASR per 100	Obese Children (2-17) ASR per 100^	Ever diagnosed Hypertension
	Maribyrnong	29.7	15.3	16.1	7.1	22.5
	Yarra	26	13.2	16.2	4.5	19.8
Suburban	Brimbank	26.7	20.7	16.1	8.6	28.9
	Darebin	30.9	16.7	15.8	7	26.3
	Hobsons Bay	36.8	16.9	16.9	6.6	22.2
	Moonee Valley	35.1	12.5	16.5	5.7	23.8
	Moreland	34.2	16	15.8	7.4	23.4
Growth area	Hume	35.5	22.9	16.2	8.6	33.6
	Melton	27.7	29.6	16.2	8.7	32.2
	Wyndham	32.8	25	16.3	8.5	28.1
Peri-urban	Macedon Ranges	40.3	15.3	16.3	10.8	22.8
	Moorabool	28.9	30.7	16.4	9.5	26.4
Victoria		**31.5**	**19.3**	**16.4**	**8**	**25.4**

Source: VAHI, 2019

HIGH BLOOD PRESSURE

High blood pressure, known as hypertension, when it is occurring over a long period of time, is a major risk factor for serious health problems and cardiovascular diseases (CVD) including heart attack, stroke, coronary heart disease, peripheral vascular disease and chronic kidney disease (AIHW, 2020c).

In Victoria overall, the 2017 VPHS indicated no change in the estimated proportion of adult population ever diagnosed with high blood pressure 2015 to 2017 (VAHI, 2019). Similarly, 2019 VPHS data also indicates little change, from 25% in 2017 to 26% in 2019 (VAHI, 2021a). In 2019 overall at PHN level, 24.3% of NWMPHN adult population was ever diagnosed with high blood pressure Though marginal differences, this figure was slightly below the Victorian rate of 26% and was the lowest of all Victorian PHNs (VAHI, 2021a).

Important to note is that this is a self-reported indicator of high blood pressure diagnosis. It is though likely to reflect a relatively high proportion of the population as around 80% of adults reported having had their blood pressure checked in in the previous 2 years (79.7% in NWMPHN and 80.1% Victoria overall).

High blood pressure: Social context factors

In 2019, high blood pressure was recorded in only a very slightly higher proportion of Victorian men (27.7%) than women (24.5%) (VAHI, 2021a). However greater difference across genders was shown within NWMPHN population, among which 28.5% of men compared to 20.9% of women had high blood pressure. Compared with other PHNs, men in NWMPHN had the second highest rate, and prevalence among women is the lowest.

The proportions of adults with high blood pressure increases with age. Across the state it is estimated that around one quarter of people aged 45-54 have hypertension, and this increases to 40.7% among 55–64-year-olds, 53.1% of people aged 65 to 74 and around 60% in people aged 75 and older.

The proportion of adults whose blood pressure has been recently checked also increases with age. Around 80% of adults overall reported having a recent blood pressure check (in past 2 years) compared to 95.2% in the 65–74-year age group.

High blood pressure: geographic context factors

In 2017 (VAHI, 2019) data at LGA level showed that within NWMPHN, the growth areas of Hume (33.6%) and Melton (32%) had the highest estimated prevalence rates in the region (see Table 24). These were statistically higher than the overall estimate for Victoria, with Hume being the LGA with third highest rate (equal with Ararat) in the state.

HIGH BLOOD CHOLESTEROL (ABNORMAL BLOOD LIPIDS -DYSLIPIDAEMIA)

Cholesterol is a type of blood lipid and is a fatty substance in the blood that is an essential part of cell walls and the production of hormones. Having too much cholesterol in the bloodstream (abnormal levels) is a risk factor for coronary heart disease (CHD) and for some types of stroke (AIHW, 2018a). 'First results' data from the 2017-18 National Health Survey estimated 6.1% of Australians had high cholesterol and 7.2% of Victorians (ABS, 2018c).

High blood cholesterol: Social context factors

Data from the 2017-18 NHS showed that across genders there is no difference in the proportion of males and females with high cholesterol. National data showed no difference (6.1%), and within the Victorian population 7.2% of males and 6.7% of females were estimated to have high cholesterol. The prevalence of high cholesterol increases significantly with age, in Victoria rates were only 1.1% among 25- to 44-year-olds, rising to 12.9% among 45-64 age group up to 24.1% among those aged 65 years and over. Nationally, adults aged 18 years and over who were obese were more than twice as likely as adults who were in the normal weight range to have high cholesterol (11.2% compared to 4.5%).

It is relevant to note that, as reflected by GP PIP QI data and by VPHS self-reported data, the prevalence of blood lipids checks among Victorian adults is substantially lower than for blood pressure. In 2019 59.5% of adults in NWMPHN reported having had a recent blood lipids check (in the last 2 years) compared to around 80% reporting recent blood pressure test (VAHI, 202a1).

BLOOD BORNE VIRUSES AND SEXUALLY TRANSMITTED INFECTIONS

Though not generally considered in population health summaries of biomedical risk, a range of blood borne viruses and sexually transmissible infections (STIs) are identified as here as relevant biomedical risk factors. This is due to being a discrete set of health issues and disease which can have serious health and social impacts, but which are preventable, treatable, and are highly influenced by individual behaviour.

HIV, hepatitis A and hepatitis B are blood borne viruses (BBV), meaning they are passed from person to person through blood-to-blood. Risk of exposure to these viruses is increased in high-risk activities such as sharing drug injecting equipment. HIV and hepatitis B can also be sexually transmitted. Other high risk STIs include gonorrhoea, chlamydia, and syphilis, which as with HIV and hepatitis B, can be transmitted through engagement in unprotected sexual activity.

Sexually transmitted infections, found in semen, blood and vaginal secretions, are passed on through unprotected vaginal, anal or oral sex and in some cases may also be spread through skin-to skin contact. Safer sex means: using a condom if having sexual intercourse or oral sex, covering up body parts or open wounds that could be infected with a condom or dam (a latex sheet used for mouth/vagina oral sex) and sexual contact that is ethical and is consented to, in that it only happens in a caring and respectful way and that no one feels forced into sexual contact (Sexual Health Australia, 2021)

Beyond experience of acute symptoms, if left untreated, these BBV and STI can create a range of significant harms and risk:

- HIV can cause Acquired Immuno-deficiency Syndrome (AIDS), which occurs when the body's immune system is damaged and cannot fight off infections and cancer.

- Hepatitis B and hepatitis C viruses can cause and progress to a chronic and long-lasting illness and can lead to serious complications such as liver failure, liver cancer and cirrhosis.
- Chlamydia can cause pelvic inflammatory disease in women, which can lead to chronic pain and infertility. In men, untreated chlamydia can cause pain and swelling in one or both testicles.
- Gonorrhoea can lead to pelvic inflammatory disease in females and infertility in males and females.
- Syphilis infection in longer term can cause damage to the nervous system, the brain and blood system.

Pregnant women with untreated chlamydia can result in passing bacteria during birth, which can cause pneumonia and eye infections for the baby. For pregnant women with infectious syphilis who are untreated or inadequately treated, this can result in congenital syphilis in the baby, which is associated with perinatal consequences such as premature birth, intrauterine growth restriction, miscarriage, stillbirth, and perinatal death. This is a serious public health problem which can be easily prevented and treated through appropriate antenatal screening and penicillin treatment for infected pregnant women (DH, 2021a). There have been 12 notifications of congenital syphilis across the state from 2017 to November 2021 including five within NWMPHN (DH, 2021b). Four of the five notified cases of congenital syphilis recorded in Victoria in 2019-2020 were in NWMPHN LGAs (Hume n=2, Melton n=1, Moreland n=1).

In 2017, the Victorian rate of HIV (4.8 per 100,000 population) was highest compared to other states and above the national rate (4.0 per 100,000 population). Victorian rates of hepatitis C and chlamydia were below national estimated rates. DH (2021b) reports on notifiable blood borne virus and sexually transmitted infections show:

- Generally high levels of STI notifications rates (chlamydia, gonorrhoea, syphilis) across the PHN, except for Moorabool.
- Rates of Hepatitis B and Hepatitis C in NWMPHN were similar to 2018 and had generally decreased from previous years.
- High levels of hepatitis B (unspecified) notifications in Melbourne and Brimbank, compared to state average and other LGAs in the NWMPHN region. Very high levels of hepatitis C notifications in Melton.
- Rate of new HIV diagnoses was proportionally higher across total NWMPHN LGAs (7.7 per 100,000 population) than for state level rate of 4.6 (new diagnoses includes newly acquired, ‘unspecified’ time and diagnosis in children less than 18 months), with highest rates in inner city areas.
- Prevalence of chlamydia was relatively stable compared to previous year within NWMPHN and within Victoria (Victorian 2019 rate of 428.3 per 100,000 population compared to 424 in 2018).
- Notifications of gonorrhoea continue to slightly increase across the state, in NWMPHN the number of events increased from 8131 in 2018 to 9329 in 2019.
- Generally higher prevalence of STI among younger adults, and to some extent among males compared to females.
- Gonorrhoea was most common among younger males with 40% of all notifications in region occurring among males aged 25 to 42 years old.
- Chlamydia was most common among young adults, particularly females aged 20 to 24 year (1524 events) and males aged 25 to 49 (1286 events).

During 2021, a syphilis outbreak was declared an epidemic in Victoria due to a 45% increase in notified cases of infectious syphilis from 2015 to 2018. It was observed that syphilis has been most common among homosexual men living in urban/inner areas but that some changes in demographics were occurring during the epidemic (Aung, et al. 2021). Analysis showed that there was a growing increase in cases among women (219% increase 2015-2018) and in cases occurring outside of inner Melbourne; Melton had the second largest number of syphilis cases among women (n=42). The largest numbers of syphilis cases among heterosexual men were in city of Melbourne (n=43) and in Brimbank (n=35). The harms of the small but increasing numbers of syphilis cases among women is reflected in the increased number of congenital syphilis cases (DH, 2021b).

Table 25. Rate of notifications in 2019 of Hepatitis B, hepatitis C, and STIs (chlamydia, gonorrhoea, syphilis) 2019 (rate per 100,000 population)

Region	LGA	Rate per 100,000 population					
		Hepatitis B (unspecified)	Hepatitis C (unspecified)	Chlamydia	Gonorrhoea	Syphillis	HIV (all new diagnoses)
Inner city	Melbourne	75	43.2	1155.1	570.1	120.9	23
	Maribyrnong	51.5	25.2	610.2	217.5	45.8	10.3
	Yarra	27.8	41.8	1099.8	629.7	129.6	10.7
Suburban	Brimbank	62.2	25.3	345.6	157.5	29.6	7.3
	Darebin	35.5	26.	449	167.7	24.5	7.1
	Hobsons Bay	24.6	25.7	334.1	110.3	38.5	3.2
	Moonee Valley	17.9	17.9	262.7	151.3	30.1	6.5
	Moreland	22.7	25.6	486.4	230.7	45.3	7
Growth area	Hume	25.5	24.1	317.6	104.4	26.5	4.3
	Melton	31	103	642	157.3	30.3	4.2
	Wyndham	52.2	22.4	404.7	126.3	22.4	3.9
Peri-urban	Macedon Ranges	0	10.5	364.1	81	8.4	6.3
	Moorabool	3.1	12.2	76.6	70.4	12.2	3.1
NWMPHN- 13 LGAs*[16] (No. Events)		**38.4 (666)**	**32.5 (564)**	**509.3 (8840)**	**212.1 (3682)**	**43.0 (747)**	**4.6 (80)**
VICTORIA (No. Events)		26.4 (1634)	26.6 (1646)	428.3 (26466)	151 (9329)	27.1 (1672)	2.9 (178)

Source: DH, 2021b[17]

4.4 Protective and early detection health actions

As well as health guidelines, a wide range of services are in place to help Australians stay healthy including the National Immunisation (NIP) Schedule (DoH, 2020a) and National Cancer Screening (DoH, 2020b; DoH, 2021b, 2021c and 2021d).

Immunisation

Immunisation is a simple and effective way of protecting people against contagious diseases. It helps protect individuals who get immunised as well as the whole community when enough people in the community get immunised. In Australia, the NIP Schedule (DoH, 2020a) provides a series of immunisations given throughout life, ranging from birth to adulthood. All vaccines listed are free. Eligibility for the vaccines under the NIP is linked to eligibility for Medicare benefits (DoH, 2020a). This section only covers the main vaccines in NIP Schedule:

[16] includes data form all of Moorobool and Macedon Ranges shires > only partly in PHN catchment.
[17] Additional note on this data - Department of Health data for 2019 is presented here as the 2020 figures showed a significant drop in notifications across all types of infection/condition, this may be suggestive of changes in screening/testing etc due to COVID related restrictions, rather than actual change in prevalence in the community.

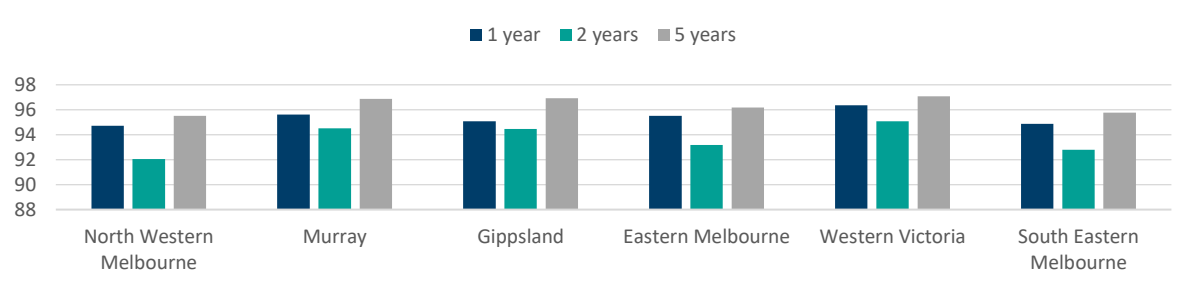
- For young children aged (1-5 years): DTP (diphtheria, tetanus, pertussis), polio, Hib (Haemophilus influenza type b bacteria) HEP (Hepatitis B) and MMR (measles, mumps and rubella), pneumonia, MenC (Meningitis C) and Varicella.
- For adolescents (aged 9-18 years): 9vHPV (9-valent Human papillomavirus, HPV).

Young Children

Children need vaccinations against many diseases. This protects them while their immune systems are still developing, and prevents them from getting serious diseases (DoH, 2021e).

Compared to other PHNs in Victoria, NWMPHN had a lower vaccination coverage among children aged 1, 2 and 5 years (see Figure 29)

Figure 29. Percentage (%) vaccination coverage by age and PHN 2020-2021



Source: DoH, 2021e

Table 26 shows the vaccination coverage in NWMPHN during July 2020 and June 2021. During this period, 2-year-old children had the lowest vaccination rate (92.1%), especially in DTP coverage.

Table 26. Vaccination coverage for the vaccines in National Schedule in NWMPHN, 2020-2021

Vaccine	1 year	2 years	5 years
% DTP	95.1	93.6	95.7
% Polio	95.1	97.0	95.7
% HIB	95.0	94.4	-
% HEP	95.1	97.0	-
% MMR	-	93.8	-
% Pneumonia	96.8	95.8	-
% MenC	-	95.8	-
% Varicella	-	94.0	-
% Fully vaccinated	**94.7**	**92.1**	**95.5**

Source: DoH, 2021e

In Financial Year (FY) 2020 – 2021, Aboriginal and Torres Strait Islander children aged 1 or 2 years in the NWMPHN catchment have lower vaccination coverage than the region total (see Table 27). However, the immunisation rate among 5-year-old children in this population is higher than for the region overall (DoH, 2021e).

Table 27. Immunisation coverage for children in 2020-2021 financial year

% Immunisation rates for vaccines in the national schedule	Aboriginal and Torres Strait Islander children (NWMPHN)	All children (NWMPHN)	Aboriginal and Torres Strait Islander children (VIC)
1 year	93.35	94.72	94.94
2 years	90.94	92.06	94.14
5 years	98.29	95.52	97.66

Geographically, Macedon Ranges, Tullamarine-Broadmeadows and Melbourne City showed lower immunisation rates than other SA3's for children (see Table 28).

Table 28. Geographic (SA3) immunisation coverage for children in FY 2020-21

SA3 name	1 year	2 years	5 years
Darebin - South	96.9	95.7	96.4
Sunbury	96.6	92.4	96.8
Brunswick - Coburg	96.1	92.8	92.4
Maribyrnong	95.7	93.5	94.8
Melton - Bacchus Marsh	95.6	92.8	97.1
Essendon	95.3	92.8	95.7
Hobsons Bay	95.1	93.9	95.3
Wyndham	94.9	91.2	95.8
Keilor	94.9	92.9	96.3
Darebin - North	94.8	92.8	96.4
Yarra	94.8	93.5	94.2
Brimbank	94.1	91.0	95.9
Tullamarine - Broadmeadows	93.7	90.6	95.2
Melbourne City	93.2	91.2	89.4
Moreland - North	93.0	92.4	96.4
Macedon Ranges	92.7	93.1	95.5
% Fully vaccinated	**94.7**	**92.1**	**95.5**

Source: DoH (2021f)

Adolescents

Human papillomavirus (HPV) is the most common sexually transmitted infection (STI). The human papillomavirus (HPV) vaccine helps prevent the types of HPV that cause most of the HPV-related cancers and disease in men and women. In Victoria, the HPV vaccine is free to all adolescents in year seven of secondary school (DH, 2020). In mid-2017, 80% of 15-year-old females in NWMPHN had received the dose 3 of HPV vaccine and 75.7% of 15-year-old males had received the vaccine (see Table 29). This was like the Victoria figure (80% for females and 76.5% for males) (PHIDU, 2021a).

Table 29. 15-year-olds who had received the HPV vaccine

Region	LGA	Females aged 15 who had HPV 3 dose in mid-2017		Males aged 15 who had HPV 3 dose in mid-2017	
		Number	%	Number	%
Inner city	Melbourne	141	56.4	137	63.8
	Maribyrnong	275	90.9	253	83.7
	Yarra	209	82.3	190	82.3
Suburban	Brimbank	991	80.2	899	73.8
	Darebin	556	92.9	564	86.2
	Hobsons Bay	421	91.5	396	87.1
	Moonee Valley	507	83.7	510	76.9
	Moreland	603	91.2	591	84.9
Growth area	Hume	1,033	78	1,048	70.9
	Melton	665	68.8	655	68.1
	Wyndham	982	74.2	1,041	73.5
Peri-urban	Macedon Ranges	145	74.2	163	75
	Moorabool	102	82	95	76.3
NWMPHN		**6,642**	**80**	**6,532**	**75.7**
VICTORIA		**-**	**80**	**-**	**76.5**

Source: PHIDU (2021a)

Cancer screening

Cancer screening programs can help detect cancer early and enable better outcomes and survival rate. Cancer screening is a population-based and systematic process of testing for pre-cancerous conditions without obvious symptoms. In Australia, there are national screening programs for breast, cervical and bowel cancers (DoH, 20121c; 2021d and 2021e)

- Established in 1991, BreastScreen Australia provides free 2-yearly screening mammograms to women aged 40 and over, and actively targets women aged 50-74.
- National Cervical Screening Program (NCSP) was renewed following the improvements in technology and understanding of HPV. From 2017, NCSP provides a Cervical Screening Test (CST) every 5 years for women aged 25-74. Before then, it targeted women aged 20-69 for a 2-yearly Papanicolaou (Pap) smear to detect precancerous abnormalities of the cervix.
- Since 2020, the National Bowel Cancer Screening Program (NBCSP) has invited people aged 50-74 to screen for bowel cancer using a free immunochemical faecal occult blood test (iFOBT).

In 2018-2019, the participation rate in above screening programs for people living in NWMPHN region were below the Victorian rate or national rate (AIHW,2021c) (see Table 30).

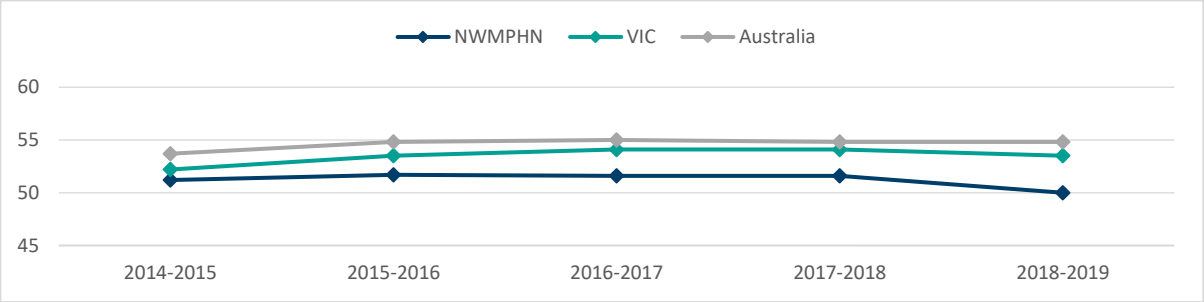
Table 30. Participation rates (%) in national cancer screening programs, 2018-2019

Region	Breast cancer	Cervical cancer	Bowel cancer
NWMPHN	50%	43.2%	42.8%
Victoria	53.5%	46.8%	46%
Australia	54.8%	46.5%	43.5%

Source: AIHW, 2021d

The BreastScreen participation rate among eligible people living in NWMPHN region (Figure 30) had been stable from 2014 to 2017 but dropped slightly in 2018. Similarly, the participation rate was below the state or national rate (AIHW, 2021d).

Figure 30. BreastScreen Australia participation (%) 2014-2019



Source: AIHW, 2021d

Victorian data from 2017 on self-reported rates of receiving a mammogram showed an overall higher rate of screening but reflected some geographic and demographic differences. Women aged 50-74 years in Moreland reported the lowest rates of rates of receiving a mammogram in the past two years (73.1%). Rates were also below the overall Victorian rate (79.2%) in Brimbank (74.4%), Macedon Ranges (77.1%) and Moorabool (77.9%) (VAHI, 2019).

Victoria-wide, the proportion of women aged 50–74 years who had never had a mammogram was significantly higher in the LGBTIQ+ group (22.6%) compared with the non-LGBTIQ+ group (10.4%) (VAHI, 2020). The years between 2014 to 2019 has seen an upward trend in the National Bowel Cancer Screening Program participation rate among eligible people living in NWMPHN region. However, it was still below the state or national rate (AIHW, 2021d).

4.5 Metric 3: Determinants of health status

Metric 3: Determinants of health status provides a loading for behavioural and biomedical health risks.

This score shows Melbourne, Melton and Moorabool have the highest health risks (shown in yellow). When the per capita (base) need is adjusted for determinants of health status, Wyndham, Hume, Brimbank and Melbourne are attributed the highest proportion of need (shown in red).

Specific determinants follow overall population demographic trends for example, higher rates of AOD related health risks in areas with a younger population. Compared to a per capita need, Maribyrnong, Yarra, Hobson's Bay, Macedon Ranges and Moorabool also have a higher need allocation when adjusted for determinants of health status.

Table 31. Population need adjusted for Metric 3: Determinants of health status

Region	LGA	'Overall need' population distribution 2025	Metric 3: Determinants of health status								Population need adjusted for determinants of health status
			Smoking	Nutrition	AOD	Physical inactivity	Obesity (adults)	Hypertension	STIs	Overall	
Inner city	Melbourne	9.8%	0.03	0.09	0.13	0.08	0.04	0.08	0.18	**0.09**	**9.4%**
	Maribyrnong	4.9%	0.07	0.07	0.07	0.08	0.06	0.07	0.08	**0.07**	**6.0%**
	Yarra	5.4%	0.06	0.06	0.12	0.07	0.05	0.06	0.15	**0.08**	**6.8%**
Suburban	Brimbank	10.5%	0.10	0.08	0.06	0.08	0.09	0.09	0.08	**0.08**	**9.4%**
	Darebin	8.3%	0.08	0.06	0.07	0.08	0.07	0.08	0.07	**0.07**	**7.8%**
	Hobsons Bay	5.1%	0.05	0.07	0.06	0.07	0.07	0.07	0.05	**0.06**	**5.7%**
	Moonee Valley	6.5%	0.06	0.08	0.08	0.06	0.05	0.07	0.05	**0.06**	**6.4%**
	Moreland	9.6%	0.08	0.08	0.06	0.09	0.07	0.07	0.07	**0.07**	**8.5%**
Growth area	Hume	12.7%	0.10	0.08	0.07	0.07	0.09	0.1	0.05	**0.08**	**10.4%**
	Melton	9.2%	0.11	0.09	0.06	0.07	0.12	0.1	0.09	**0.09**	**9.2%**
	Wyndham	15.3%	0.09	0.09	0.05	0.09	0.10	0.08	0.06	**0.08**	**11.5%**
Peri-urban	Macedon Ranges	1.5%	0.06	0.06	0.09	0.07	0.06	0.07	0.03	**0.06**	**3.9%**
	Moorabool	1.1%	0.10	0.09	0.07	0.08	0.13	0.08	0.05	**0.09**	**4.9%**

5

ACCESS TO HEALTH CARE SERVICES

5.1 Key messages

The health system plays an important role in mediating the differential consequences of illness in people's lives and becomes particularly relevant through the issue of access to health care service (Solar and Irwin, 2010). It is known that for many individuals, the health care services they access and the quality of care they receive is influenced as much by where they live, their cultural background, and social and economic circumstances, as their specific health needs (DoH, 2013)

KEY MESSAGES FROM THIS SECTION

- Though NWMPHN has the highest population and General Practitioner Full-Time Equivalent (GPFTE) has decreased, the general practice services per capita are in line with other PHNs in Victoria.
- Despite Melbourne City having the highest number of GPs (523) they had the lowest number of GPFTE per 1000 residents (0.8) which is 57.8% fewer GPFTEs than Wyndham.
- A higher number of GPs in the NWMPHN catchment are male while a significantly higher proportion of GPFTE is spent with female patients
- Unsurprisingly, COVID-19 has changed the way services were delivered in general practice. Overall, the number of services by GPs decreased but saw a big spike in telehealth and phone consultations. GP attendances in RACF in NWMPHN were higher than the national average and other PHNs in Victoria.
- The percentage of Medicare-subsidised services in NWMPHN was lower than the national average and subsidised services are not spread equally across the NWMPHN catchment. Less than 50% of services in Melbourne City are subsidised.
- According to the Patient Experience Survey (ABS, 2021) Most of the people in the region felt their GP often or always listened carefully (91.5%), showed respect for what they had to say (94.9%), and spent enough time (91.3%) in the preceding 12 months.
- FY 2020-21 has seen a reduced number in both hospitalisations and ED presentations. The lockdown period often saw a drop in use of these acute services.
- Certain conditions have increased dramatically in hospitalisations including haemorrhage in early pregnancy, viral pneumonia, chronic kidney disease, eating disorders, and suicidal ideation.
- The number of potentially preventable hospitalisations (PPH) dropped by 18% from FY 2019-20 to FY 2020-21. Chronic conditions accounted for more than half of the PPHs.
- Hume has the greatest number of hospitalisations and ED presentations. Accounting for population, Melton had the highest hospitalisation rate whereas Hobsons Bay had the highest ED presentation rate.
- People aged 70 years and over have the most hospital admissions and ED presentations, especially men aged 80+ years.

5.2 Primary care

This section will look at access to primary health care in the region as a determinant of health. Primary health care includes a broad range of activities and services, from prevention to treatment and management of acute and chronic conditions (AIHW, 2016). While needs for services will vary from person to person and are likely to change over time, every individual will need access to some form of primary health care services over the course of their lifetime. Most of the population will use primary health care services every year (DoH, 2013).

Primary health care services may be delivered in the home or in a community-based setting and can include screening activities and the diagnosis, treatment and management of health conditions. Primary health care professionals include General Practitioners (GPs), nurses, allied health professionals, pharmacists, dentists and Aboriginal and Torres Strait Islander health workers and practitioners (AIHW, 2016).

This section will explore trends in access to primary care services delivered in general practice, as well as the number accessing NWMPHN commissioned primary health and community care services for AOD and mental health. The implications of a lack of access to these services to manage chronic and complex conditions is then implied by how these conditions manifest in high use of acute care services delivered in hospitals. Specifically identifying Potentially Preventable Hospitalisations (PPH) as a proxy indicator of primary and community care effectiveness and Avoidable ED presentations as a demonstration of inefficient use of ED for low acuity care. The detail of specialist services located within hospitals is not included.

Health services data is available in varying geographic units (refer to Appendix A2 for comparisons). Unlike previous sections of the HNA which showed trends with columns white to red as an indicator of unmet need. In this section of data trends in tables are also shown across columns and rows from lowest (white) to highest (green) where a higher number is not necessarily an indicator of unmet need, but an outlier against comparators.

Our Access and Equity Framework (NWMPHN, 2021), underpinned by Tanahashi's (1978) equity framework (according to availability, accessibility, acceptability and effectiveness) aims to reduce barriers and facilitate access to health services. Our analysis of primary care is framed around these four dimensions.

AVAILABILITY

The Health Demand and Supply Utilisation Patterns Planning (HeaDS UPP) Tool (DoH, 2021f) is an integrated source of health workforce services data that informs workforce planning and analysis. With a specific focus on the GP workforce, it provides data at an SA3 level and also uses a custom designed geography (known as GP Catchments) constructed using Medicare Benefits Schedule (MBS) data and the Australian Statistical Geographical Standard to map where services are provided, and where patients access those services. The creation of each of the 829 (National) non-overlapping catchment boundaries also considered workforce, population demographics, rurality, and topography (DoH, 2021g). The NWMPHN region has 18 GP catchments: Wyndham, Brimbank, Tullamarine - Broadmeadows, Melbourne City, Darebin - North, Yarra, Brunswick - Coburg, Bacchus Marsh - Melton, Maribyrnong, Hobsons Bay, Burnside (Vic.), Moreland - North, Essendon, Keilor, Darebin - South, Sunbury, Gisborne and Romsey. Whenever we have data available by SA3, we prefer to use it in our analysis as all 16 SA3s are 100% included in NWMPHN catchment area.

HeaDS UPP TAILORED DATA METHODS (DoH, 2021g)

GP Headcount is a workforce specific method to calculate a GP headcount (Number of GPs) working in Australia. The method uses elements from the MBS data set to more accurately count when, where and by what type of practitioner GP services are being delivered.

GP Full Time Equivalent (GPFTE) is a new method to count the total effort spent by GPs. The method calculates a GP's workload based on MBS services claimed, with one GPFTE representing a 40 hour week over 46 weeks of the year. For each Medicare provider, the new measure attributes an estimate of the amount of time they have spent on their claims in relation to what would be worked by a fulltime GP, including billable time, non-billable time, and non-clinical time.

Both measures are different from the existing GP Headcount and Full-time Service Equivalent (FSE) measures published on the MBS Online website.

The GP Service per capita analysis uses the latest available calendar year (CY) 2020. In NWMPHN, the general practice services per capita was 6.7 (based on 12,628,889 MBS services which were provided

to 1,769,819 patients). This is in line with other Victorian PHNs (see Table 32). In CY 2020, GPFTE per 1,000 residents (ERP) was 1.1 in NWMPHN region which is comparable to the other Victorian PHNs.

Table 32. GP services per capita analysis: NWMPHN compared to other Victorian PHNs, CY 2020

Measure/Dimension	Eastern Melbourne	Gippsland	Murray	North Western Melbourne	Southern Eastern Melbourne	Western Victoria
Estimated Resident Population (ERP)	1,576,795	286,952	623,096	1,885,678	1,615,720	662,124
Indigenous ERP	8,197	5,054	15,920	12,331	8,984	9,005
GP Full-time Equivalent (GPFTE)	1752.6	310.9	693.6	2101.8	1829.2	717.1
Number of GPs	2,630	604	1,195	3,023	2,694	1,187
Number of GPs per 1,000 residents (ERP)	1.11	1.08	1.11	1.11	1.13	1.08
Number of services by GPs	10,455,152	1,894,091	4,111,713	12,628,889	11,010,847	4,317,407
GP services per capita	6.6	6.6	6.6	6.7	6.8	6.5
Number of patients serviced	1,500,766	261,652	594,048	1,769,819	1,522,439	606,291

Source: DoH, 2021f

Table 33 shows that at SA3 level, Melbourne City, Darebin – North, Hobsons Bay and Moreland – North have the lowers GP FTE per 1,000 residents. Melbourne City has 0.8 GPFTE per 1000 residents which is almost 50% less than Yarra which has 1.5 GPFTE per 1,000 residents.

Table 33. Statistical Area Level 3 (SA3) comparison in NWMPHN, CY 2020

Measure/Dimension		Number of GPs	GP Full-time Equivalent (GP FTE)	GP FTE per 1,000 residents	Number of GPs	Number of services by GPs
		CY 2020	CY 2020	CY 2020	CY 2020	CY 2020
SA3	Wyndham	434	338.1	1.2	434	2,091,083
	Brimbank	327	245.2	1.2	327	1,530,787
	Tullamarine - Broadmeadows	275	217.7	1.1	275	1,378,518
	Melton - Bacchus Marsh	264	181.7	1	264	1,129,287
	Melbourne City	523	142.4	0.8	523	757,060
	Darebin - North	166	91	0.9	166	541,788
	Yarra	473	148.4	1.5	473	761,677
	Brunswick - Coburg	243	123.6	1.2	243	743,598
	Maribyrnong	208	112.2	1.2	208	668,855
	Hobsons Bay	147	86.3	0.9	147	529,661
	Moreland - North	105	78.3	0.9	105	478,108
	Essendon	170	93.5	1.2	170	564,982
	Keilor	131	80.8	1.3	131	477,921
	Darebin - South	102	62.3	1.1	102	376,607
	Sunbury	101	59.2	1.3	101	363,514
	Macedon Ranges	89	41.2	1.3	89	235,443
PHN	North Western Melbourne	**3,023**	**2101.8**	**1.1**	**3,023**	**12,628,889**

Source: DoH, 2021f

Table 34 shows the breakdown of GP FTE by gender and age dimensions, which has been extracted from the Commonwealth Department of Health HeaDS UPP Tool (PHN Needs Assessment). The data shows that the number of GP FTEs decreased by 6.6% in 2020 as compared to 2019 which is an

illustration that the GP workforce is ageing, and not enough junior doctors are choosing a career in general practice (RACGP, 2021).

Table 34. Breakdown of GP FTE by dimensions and CY in NWMPHN region

Dimension	Calendar year			
	2017	2018	2019	2020
GP Full-time Equivalent (GP FTE)	2038.8	2093.6	2249.3	2101.8
Provider gender				
Female	35.0%	35.7%	36.5%	37.9%
Male	65.0%	64.3%	63.5%	62.1%
Provider age group				
0-39	21.2%	21.5%	22.1%	21.0%
40-54	41.3%	39.8%	40.2%	40.6%
55-64	25.3%	26.1%	24.9%	24.7%
65+	12.2%	12.6%	12.8%	13.7%
Unknown	0.0%	0.0%	0.0%	0.0%

Source: DoH, 2021f

Table 35 shows the breakdown of the number of services and service type provided in NWMPHN region 2017-2020 and includes GPFTE for CY 2020. Unsurprisingly, the overall number of services by GPs decreased in CY 2020. After the first cases of COVID-19 in Australia were recorded on 25 January 2020, the end of March saw restrictions put in place to limit the spread. Many health services were suspended or required to operate in different ways. While this may have limited some people's access to and use of these services, new or additional services were made available through changes to health service delivery models, policies and programs (AIHW, 2021e).

Of the broad types of services in CY 2020, there was an increase in non-referred attendances. There was a decrease in the number of services by GP for all groups except for 'Telehealth and phone consultations'. This decrease was the lowest for 'Services in Residential Aged Care Facilities', 'Brief consultation' and 'Surgical skin procedures' among all groups.

Table 35. Number of services by GPs – type of service and reporting groups

Measure/Dimension	North Western Melbourne PHN				GP FTE 2020
	CY 2017	CY 2018	CY 2019	CY 2020	
Number of services by GPs	11,697,532	12,031,878	12,672,344	12,628,889	2,101.80
Broad types of service (BTOS)					
Non-referred attendances GP/VR GP	9,706,530	9,908,174	10,530,638	10,588,465	1,661.20
Non-referred attendances - Enhanced Primary Care	931,537	1,007,267	1,059,558	1,140,816	5.5
Non-referred attendances – Other	781,754	829,321	793,310	652,450	284.5
Operations	95,089	99,043	98,637	90,101	5.7
Pathology Tests	47,271	47,020	42,231	27,988	9.9
Obstetrics	37,352	43,867	47,523	50,652	108.7
Anaesthetics	19,478	19,093	18,028	16,256	21.9
Other MBS Services	57,580	58,064	63,145	45,520	1.4
Reporting groups					
Brief consultation	126,102	145,686	163,752	151,471	45.5
Standard consultation	7,092,882	7,205,162	7,603,991	4,903,275	706.1
Long consultation	1,173,782	1,275,550	1,324,567	1,023,695	557.2
Prolonged consultation	108,495	115,112	115,131	92,578	10.9

Measure/Dimension	North Western Melbourne PHN				GP FTE 2020
	CY 2017	CY 2018	CY 2019	CY 2020	
After-hours care	1,655,819	1,658,733	1,732,032	1,057,923	203
Services in Residential Aged Care Facilities	202,365	216,534	267,850	226,716	142
Telehealth and phone consultation	48	61	192	4,058,295	0.2
Chronic Disease/Complex Care Management	621,549	674,444	704,445	531,960	264.5
Mental health-related care	294,212	315,476	327,871	224,280	47.9
Surgical skin procedures	50,093	54,577	55,931	51,628	59
Health Assessment	45,985	47,561	53,481	43,863	12.5
Emergency medicine	1,007	968	718	392	16.6
Other GP services n.e.c.	325,193	322,014	322,383	262,813	36.3
GP services per capita	6.6	6.6	6.7	6.7	-

Source: DoH, 2021f

***Non-referred attendances – Enhanced Primary Care**: Includes attendances to coordinate (or review) the development of team care arrangements for a patient, preparation of a GP management plan for a patient, or the preparation (or review) of a GP mental health treatment plan. **Operations:** Includes surgical procedures such as a skin biopsy, or vasectomy. **Long consultations:** Includes GP attendances on patients which can be typically characterised by taking a detailed patient history, clinical examination, and implementing a management plan. **Other GP services n.e.c:** Includes all other GP primary care services that have not been classified into any of the reporting groups listed in this table (not elsewhere classified, n.e.c.). **Telehealth and Phone consultation:** Includes a broad-scope of GP video conferencing enabled attendance MBS items (predominately MBS Group A35 - Telehealth Attendances) that provide clinical support in telehealth eligible areas, or institutions such as an Aboriginal Medical Service, an Aboriginal Community Controlled Health Service, or a residential aged care facility. **Emergency Medicine:** Includes prolonged GP attendances on patients in imminent danger of death.*

ACCESSIBILITY

The 18 GP catchments in NWMPHN can be divided into three groups based on the percentage of services provided to patients in their own catchment (DoH, 2021f)

Table 36. Percentage (%) of services provided to patients in their own catchment

Percentage (%) of services provided to patients in their own catchment	GP catchment
Greater than 70%	Bacchus Marsh - Melton, Wyndham, Tullamarine - Broadmeadows, Sunbury and Hobsons Bay.
Between 50% and 70%	Gisborne, Brimbank, Romsey, Moreland - North, Burnside (Vic.) and Darebin – North.
Less than 50%	Keilor, Maribyrnong, Brunswick - Coburg, Darebin - South, Essendon, Yarra and Melbourne City.

Source: Commonwealth Department of Health HeaDS UPP Tool, (PHN Need Assessment), extracted 23/09/2021

The percentage of GP catchment residents that used a service ranges from 8.2% to 4.7% (see Table 37).

Table 37. GP catchment residents (ERP) who used a service (%)

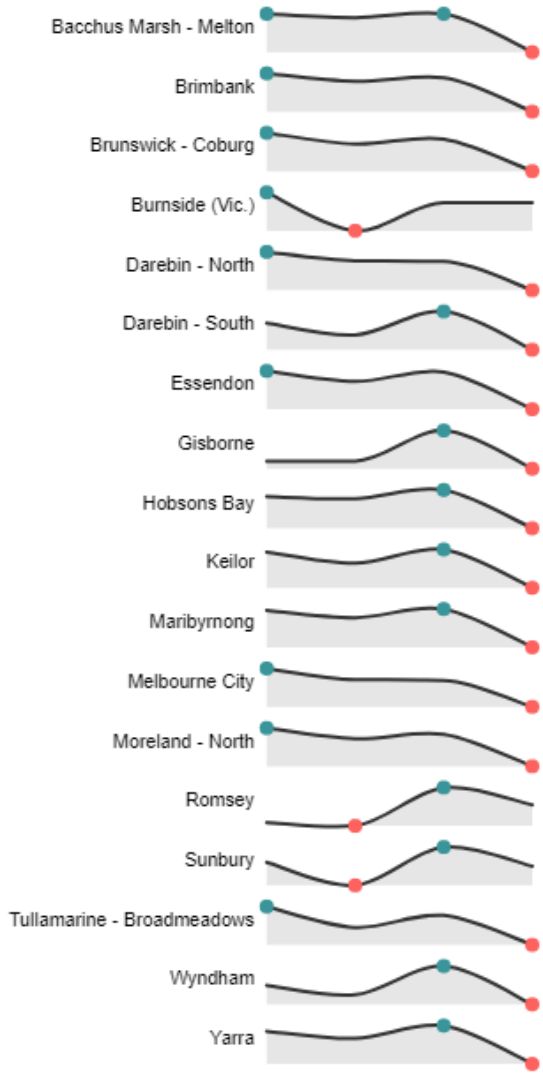
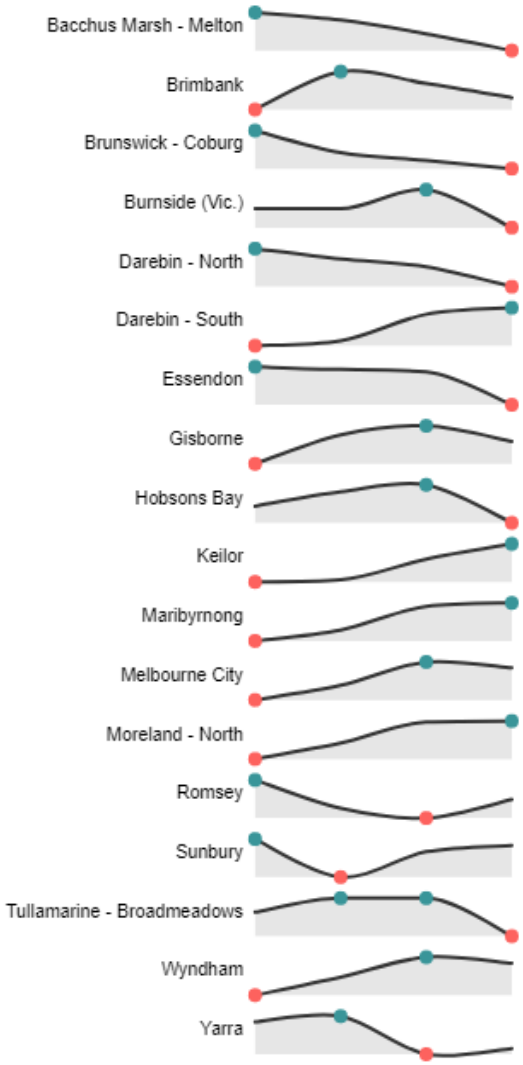
GP catchment residents (ERP) who used a service (%)	GP catchment
Between 7.1% and 8.2%	Sunbury, Wyndham, Tullamarine - Broadmeadows, Bacchus Marsh - Melton, Keilor, Moreland - North, Brimbank and Romsey.
Between 6% and 6.9%	Darebin - North, Hobsons Bay, Gisborne, Brunswick - Coburg, Maribyrnong and Burnside (Vic.).
Between 4.7% and 5.8%	Darebin - South, Essendon, Yarra and Melbourne City.

Source: DoH, 2021f

The trend of these services from 2017 to 2020 (Table 37) shows the percentage of GP catchment residents who had used a service decreased in all catchment areas except Burnside (Vic.). Services received by catchment patients in their own catchment (%) had increased for Darebin – South, Keilor, Maribyrnong, Moreland North, Romsey and Sunbury. The overall decreasing trend in the

usage of services was likely due to COVID-19. Similarly, the restricted movements may account for the increasing trend of patients using services in their own catchment (DoH, 2021f).

Table 38. Trend of GP services received by patients by GP catchment in NWMPHN

GP catchment residents (ERP) who used a service (%) (CY 2017 to CY 2020)	Services received by patients in own catchment (%) (CY 2017 to CY 2020)
	

Red Dot=Lowest value, **Green Dot**=Highest value.

Source: DoH, 2021f

NWMPHN General Practice Data

This next section provides a deeper dive into the services provided in the region based on general practices that submit deidentified data extracts to NWMPHN using the PEN CS tool. As of 27 September 2021, there were 561 active practices in NWMPHN region. 411 practices are using Pen CS licences for data submissions; of which 397 are submitting GP data extracts to NWMPHN using Pen CS tools and 14 are only submitting Practice Incentives Program (PIP) Quality Improvement (QI) aggregated data. The number of practices submitting data to NWMPHN has increased by 6.2% between FY 2017-18 (367) and FY 2020-21 (390) and so data available on the number of patients and the number of visits has increased significantly over this time (Table 38).

Table 39. Number of practices, patients and visits to general practices by financial year

Financial Year	No. of practices	Patients	Number of visits
2017-2018	367	751,198	1,925,211
2018-2019	386	1,609,802	11,992,457

Financial Year	No. of practices	Patients	Number of visits
2019-2020	387	1,710,298	13,410,137
2020-2021	390	1,641,530	14,419,125

Source: PAT CAT system in NWMPHN

Table 40 shows the number of patients by different MBS items relating to access to services. Between FY 2019-20 and FY 2020-21, there was an increase in services recorded as 'After hours urgent unsociable'. COVID-19 specific items relating to telehealth and telephone consultations increased from 1% of overall 'visits' in FY 2019-20 to 8% in FY 2020-21.

Table 40. Number of patients by MBS items relating to access to services in financial year

MBS Item (item number)	Patients				Increase/Decrease (Between 2019-20 and 2020-21)
	2017-2018	2018-2019	2019-2020	2020-2021	
After hours urgent unsociable	70	104	211	326	55%
After hours Nonurgent	15,750	19,697	26,000	18,071	-30%
Covid nurse telehealth			162	1,915	1082%
Covid GP telephone			123,496	1,012,587	720%
Covid provider telephone			15,901	89,167	461%
Covid GP telehealth			17,932	42,296	136%
Covid provider telehealth			2,513	2,938	17%

Source: PAT CAT system in NWMPHN

Patients: *Number of unique patients for whom specific MBS item was done.*

Between FY 2019-20 and FY2020-21 the data shows the following trends in services by SA3 locations:

- Allied health attendance increased in all SA3 locations except Essendon, Hobsons Bay, Keilor, Sunbury and Wyndham.
- Diagnostic imaging decreased in Keilor, Melton - Bacchus Marsh, Moreland - North, Sunbury, Tullamarine – Broadmeadows and Wyndham. However, Wyndham still had the lowest percentage (19%) among all SA3.
- Nursing and Aboriginal health workers increased in all SA3 locations except Macedon Ranges, Melton - Bacchus Marsh, Moreland - North, Sunbury, Tullamarine – Broadmeadows and Wyndham.
- Specialist attendances increased in all SA3 locations except Darebin - North, Essendon, Hobsons Bay, Keilor, Sunbury and Wyndham. Again, Wyndham still had the lowest percentage (24%) among all SA3.
- GP attendance decreased for all SA3 locations except Brunswick - Coburg, Darebin - North, Darebin - South, Maribyrnong and Melbourne City.

Medicare-subsidised services

Medicare is an Australian Government initiative which provides people with access to a range of free or lower cost health care services, and lower cost prescriptions. A bulk-billed account is where the health care provider accepts the Medicare benefit as full payment for the service provided that is, there are no out-of-pocket expense for the patient (Services Australia, 2021).

In FY 2020-21, the percentage of Medicare-subsidised services in NWMPHN was lower than the national average. The proportion of subsidised GP attendances, specialist attendances and diagnostic imaging decreased between FY 2017-18 and FY 2020-21 while the proportion of subsidised allied health attendances and nursing and Aboriginal health workers increased.

Nationally, all these proportions except GP attendances increased. Subsidised services are not spread equally across the NWMPHN catchment (see Table 42).

- The following SA3 locations have a higher percentage (above 80%) of subsidised GP attendances: Macedon Ranges, Sunbury, Tullamarine - Broadmeadows, Keilor, Melton - Bacchus Marsh, Brimbank, Wyndham and Hobsons Bay.
- The following SA3 locations have a lower percentage (above 70-80%) of subsidised GP attendances: Moreland - North, Essendon, Darebin - South, Darebin - North, Maribyrnong, Brunswick – Coburg and Yarra.

Table 41. Medicare-Subsidised services by type and year

	Medicare-subsidised service type	Percentage of people who had the service (%)			
		2017-18	2018-19	2019-20	2020-21
NWMPHN	GP attendances (total)	84.59%	83.95%	83.09%	78.56%
	Specialist attendances (total)	27.99%	27.94%	27.37%	27.29%
	Allied health attendances (total)	34.34%	34.66%	32.79%	33.46%
	Diagnostic imaging (total)	36.16%	35.99%	34.06%	33.97%
	Nursing and Aboriginal health workers (total)	4.71%	5.11%	5.53%	6.22%
NATIONAL	GP attendances (total)	87.81%	87.78%	87.44%	84.96%
	Specialist attendances (total)	31.02%	31.13%	30.72%	31.51%
	Allied health attendances (total)	36.64%	37.43%	35.71%	38.52%
	Diagnostic imaging (total)	38.24%	38.54%	37.18%	38.90%
	Nursing and Aboriginal health workers (total)	6.35 %	7.11%	7.81%	8.25%

Source: AIHW (2021f) and ABS (2021).

Medicare-subsidised service type: *Includes non-hospital Medicare-subsidised services only. Non-hospital Medicare-subsidised services refers to services provided in non-inpatient settings. This excludes services delivered to patients admitted to hospital at the time of receiving the service or where the care was provided as part of an episode of hospital-substitute treatment where the patient received a benefit from a private health insurer. Medicare benefits associated with bulk-billing incentives for non-hospital non-referred attendances are not included in the analysis. Therefore, the Medicare benefits paid, and the resulting provider fees are underestimated for GP and Practice Nurse/Aboriginal Health Worker services.*

Melbourne City was the only location with less than 50% subsidised GP attendances. It also had the lowest percentage for subsidised 'Allied health'' attendance (22%), the lowest subsidised 'Diagnostic imaging' (19.2%) and 'Specialist attendances' (17.6%) and the second lowest subsidised 'Nursing and Aboriginal health workers' (3.1%).

Table 42. FY 2020-21 Medicare-Subsidised services by type and SA3 (2020-21)

SA3 Name	GP attendances (total)	Percentage of people who had the service (%)		
		Allied health attendances (total)	Diagnostic imaging (total)	Nursing and Aboriginal health workers (total)
Brimbank	84.74%	35.67%	37.47%	7.03%
Brunswick - Coburg	73.09%	34.19%	30.72%	4.71%
Darebin - North	74.66%	33.64%	33.64%	5.10%
Darebin - South	76.77%	36.05%	32.96%	3.81%
Essendon	77.20%	35.76%	34.47%	4.31%
Hobsons Bay	83.00%	37.21%	36.79%	6.22%
Keilor	86.35%	42.50%	42.26%	6.36%
Macedon Ranges	89.70%	38.73%	39.61%	7.55%
Maribyrnong	73.18%	31.73%	30.24%	4.03%
Melbourne City	48.65%	21.97%	19.22%	3.08%
Melton - Bacchus Marsh	85.36%	34.63%	36.75%	8.58%
Moreland - North	79.40%	34.33%	35.58%	7.15%

SA3 Name	GP attendances (total)	Percentage of people who had the service (%)		
		Allied health attendances (total)	Diagnostic imaging (total)	Nursing and Aboriginal health workers (total)
Sunbury	88.52%	40.75%	42.39%	9.45%
Tullamarine - Broadmeadows	88.25%	35.12%	39.82%	9.20%
Wyndham	84.70%	32.17%	34.23%	6.95%
Yarra	70.30%	30.69%	28.86%	2.74%

Source: AIHW, 2021f.

Table 42 shows percentage of patients in FY 2016-17, with out-of-pocket costs for non-hospital medical expenses in ranked order by SA3. Darebin – South and Yarra had the highest proportion of patients with costs and the highest average out of pocket cost per patient. Conversely, Tullamarine-Broadmeadows, Wyndham and Brimbank had the lowest in terms of proportion of patients and average out of pocket costs.

NWMPHN (40.5%) has a lower proportion of patients with costs than the national average (49.8%) and the lowest among all Victorian PHNs (AIHW, 2018b).

Table 43. Patients with out-of-pocket cost by SA3 (FY 2016-17)

SA3 Name	Percent of patients with costs (%)	Average out-of-pocket cost per patient ($)
Darebin - South	65.3%	$224
Yarra	61.9%	$245
Macedon Ranges	59.0%	$157
Essendon	56.5%	$186
Keilor	55.7%	$166
Melbourne City	54.2%	$201
Brunswick - Coburg	52.1%	$176
Hobsons Bay	47.6%	$144
Sunbury	45.8%	$121
Maribyrnong	43.6%	$142
Moreland - North	40.4%	$117
Darebin - North	40.1%	$118
Melton - Bacchus Marsh	34.9%	$83
Brimbank	28.8%	$69
Wyndham	28.6%	$78
Tullamarine - Broadmeadows	23.9%	$62

Source: AIHW, 2018b

Management of chronic conditions/complex care

Without a comprehensive and ongoing approach those with complex chronic co-morbidities (for example, diabetes, chronic obstructive pulmonary disease and mental health needs) are at risk of becoming high users of the hospital system. A GP can utilise health assessment items in the Medicare Benefits Schedule (MBS) to undertake a more comprehensive assessment of a patient with complex needs. Health assessments also permit the needs of specific groups such as Aboriginal and/or Torres Strait Islander peoples and aged care residents.

Summary of key observations from the Commonwealth Department of Health HeaDS UPP Tool, CY 2020 data available for the PHN Need Assessment, 2021 (DoH, 2021f):

- 4.2% of all services by GPs were chronic disease related.
- 55% were for female patients.

- 55-64- and 65–74-year-olds were the groups with the highest number.
- 1.8% of all services by GPs were mental health related. Of which 62.3% were for female patients.
- 25-34 was the age group with the highest number of patients.

Table 44 shows the number of patients by different MBS health check items. An increasing trend can be seen for all items except Respiratory and Asthma Cycle of care (COC). We can see an increase of more than 50% (between FY 2019-20 and FY 2020-21) in CDM-Review of GPMP (732), RMMR (903), CDM-TCA (723), CDM- GPMP (721), GP MHTP-Review (2712), DMMR (900), Mental Health Care plan, and Aboriginal and Torres Strait Islander (715) health checks.

Table 44. Number of patients by MBS items in financial year

MBS Item (item number)	Patients				Increase/Decrease (Between 2019-20 and 2020-21)
	2017-2018	2018-2019	2019-2020	2020-2021	
Chronic disease:					
CDM-Review of GPMP (732)	22,212	31,846	48,070	103,938	116%
CDM-TCA (723)	45,420	65,315	104,756	184,310	76%
CDM- GPMP (721)	49,079	70,110	116,037	202,999	75%
Health Check	12,443	17,325	22,765	29,594	30%
Diabetes SIP (Service Incentive Payment)	4,558	8,574	5,252	6,175	18%
Heart Health		1,136	5,247	5,519	5%
Asthma COC (Cycle of Care)	1,800	2,541	1,437	639	-56%
Respiratory (11506)	3,640	4,379	4,579	1,412	-69%
Mental health:					
GP MHTP-Review (2712)	15,850	20,712	25,267	44,025	74%
Mental Health Care plan	59,381	80,688	100,481	161,743	61%
GP MHTP- Consult (2713)	32,886	43,100	50,744	71,093	40%
Medication management:					
RMMR (903)	408	705	1,315	2,534	93%
DMMR (900)	2,140	2,387	3,218	5,591	74%
Aboriginal and Torres Strait Islander GP health check (715)	233	318	534	823	54%

Source: PAT CAT system in NWMPHN

Patients: *Number of unique patients for whom specific MBS item was done.* ***MHTP****= Mental Health Treatment Plan,* ***CDM****=Chronic Disease Management,* ***GPMP****= GP Management Plan,* ***TCA****=Team Care Arrangements,* ***DMMR****=Domiciliary Medication Management Review,* ***RMMR****= Residential Medication Management Review.*

Chronic disease

During FY 2020-21, a total of 811,156 patients with at least one chronic condition made visits to GP practices in NWMPHN. Out of those patients, approximately 22.8% had their General Practice Management Plan prepared in this financial year, 20.7% had their Team Care coordinated, and 12% had either of it reviewed. Table 45 shows the trend of number of patients with a chronic disease management plan by SA3 location.

Melbourne City had the lowest proportions of chronic disease management plans. This is likely reflective of their proportionally younger population.

Table 45. Number of patients with Chronic Disease Management Plan (CDM-GPMP 721)

SA3	2017-2018	2018-2019	2019-2020	2020-2021	Increase (Between 2019-20 and 2020-21)
Brimbank	10,874	14,912	14,322	24,518	71%
Brunswick - Coburg	3,329	4,873	4,999	8,197	64%
Darebin - North	2,962	4,434	3,797	6,917	82%
Darebin - South	1,910	3,330	2,458	4,296	75%
Essendon	2,813	4,083	3,869	6,962	80%
Hobsons Bay	4,075	6,131	3,846	6,637	73%
Keilor	3,970	6,320	4,596	8,925	94%
Macedon Ranges	2,021	2,743	2,202	3,373	53%
Maribyrnong	3,318	5,240	4,170	6,992	68%
Melbourne City	2,058	3,938	3,936	6,382	62%
Melton - Bacchus Marsh	11,368	15,991	12,042	19,872	65%
Moreland - North	4,394	6,463	5,722	11,029	93%
Sunbury	3,311	4,209	3,926	6,891	76%
Tullamarine - Broadmeadows	11,338	15,758	11,930	23,249	95%
Wyndham	16,756	27,196	21,919	34,979	60%
Yarra	1,885	3,275	3,136	4,819	54%

Source: PAT BI at NWMPHN. This data is based on the patient's SA2 data available in the PAT BI system

Mental health

During FY 2020-21, a total of 274,002 patients with existing mental health conditions made visits to the GP clinics in NWMPHN. Out of those patients, approximately 55% had their mental health care plan prepared in this financial year, 14.7% had their GP mental health treatment plan reviewed, and 24.4% had GP mental health treatment consultation which is an extended consultation with a patient for a mental health disorder.

Table 45 shows Wyndham and Melton - Bacchus Marsh have the highest number of patients with MHTP whereas Hobsons Bay, Sunbury, Keilor and Macedon Ranges were at the bottom. However, all SA3s had seen more than 49% increase in the number of patients with MHTP (range of this increase from 7% to 85% if we compare FY 2020-21 with FY 2018-19).

Table 46. Number of patients with Mental Health Care Plan

SA3	2017-2018	2018-2019	2019-2020	2020-2021	Increase (Between 2019-20 and 2020-21)
Brimbank	7,370	9,177	8,198	12,176	49%
Brunswick - Coburg	5,229	6,674	6,122	12,320	101%
Darebin - North	2,866	4,025	3,726	6,912	86%
Darebin - South	2,889	4,319	3,370	7,221	114%
Essendon	3,250	4,454	3,993	7,325	83%
Hobsons Bay	4,030	5,209	3,624	5,582	54%
Keilor	2,811	3,740	3,147	5,227	66%
Macedon Ranges	1,908	2,145	1,672	2,872	72%
Maribyrnong	4,199	5,828	4,637	8,141	76%
Melbourne City	4,269	6,092	5,573	10,888	95%
Melton - Bacchus Marsh	7,993	10,387	8,225	13,974	70%
Moreland - North	3,444	4,801	4,227	7,167	70%

SA3	2017-2018	2018-2019	2019-2020	2020-2021	Increase (Between 2019-20 and 2020-21)
Sunbury	2,901	3,165	3,018	5,389	79%
Tullamarine - Broadmeadows	6,839	9,093	7,489	12,305	64%
Wyndham	12,245	16,257	14,111	21,304	51%
Yarra	4,627	6,537	5,151	10,085	96%

Source: PAT BI at NWMPHN. This data is based on the patient's SA2 data available in the PAT BI system

Aboriginal and Torres Strait Islander Health

In CY 2020, there were 92,878 visits made by 11,627 Aboriginal and/or Torres Strait Islander patients in the GP clinics in NWMPHN region. Out of all those patients, 76% were recorded to reside in the region. Out of all the patients from Aboriginal and/or Torres Strait Islander background who visited a GP in NWMPHN in 2020, 20% had mental health condition(s), 35% had chronic condition(s) and 1.3% had cancer(s). For non-Aboriginal patients who visited a GP during the same period, the GP encounters were 12% for mental health condition(s), 35% for chronic condition(s) and 1.7% for cancer(s).

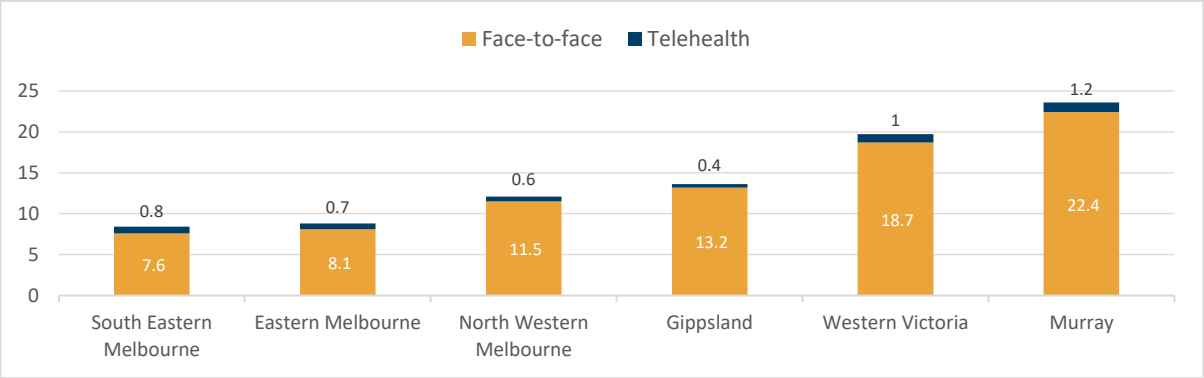
Aboriginal and Torres Strait Islanders can receive an annual health check which is designed specifically for Aboriginal and Torres Strait Islander people. This health check is funded through Medicare in recognition that Aboriginal Australians experience certain health risks (AIHW, 2021g). The health checks are provided under MBS items 715 and 228. In March 2020, temporary telehealth items were introduced to help reduce the risk of community transmission of COVID-19. The telehealth MBS items include 92004, 92016, 92011 and 92023.

The following chart presents information on the use of:

- MBS items 715, 92004 and 92016 - health checks provided by a general practitioner (GP)
- MBS items 228, 92011 and 92023 - health checks provided by other medical practitioners (excluding specialist or consultant physicians).

In FY 2019-2020, Victoria had the lowest rate of Aboriginal and Torres Strait Islander specific health checks (15%) across all states and territories in Australia. For the NWMPHN region, 12% of the Aboriginal and Torres Strait Islander population had an MBS health check, which was far below the national level (27.9%). 0.6% of the Aboriginal and Torres Strait Islander population had a health check via telehealth (AIHW, 2021g) (see Figure 31)

Figure 31. Proportion (%) of the Aboriginal and Torres Strait Islander population that had an indigenous-specific health checks by PHN in VIC, 2019-2020

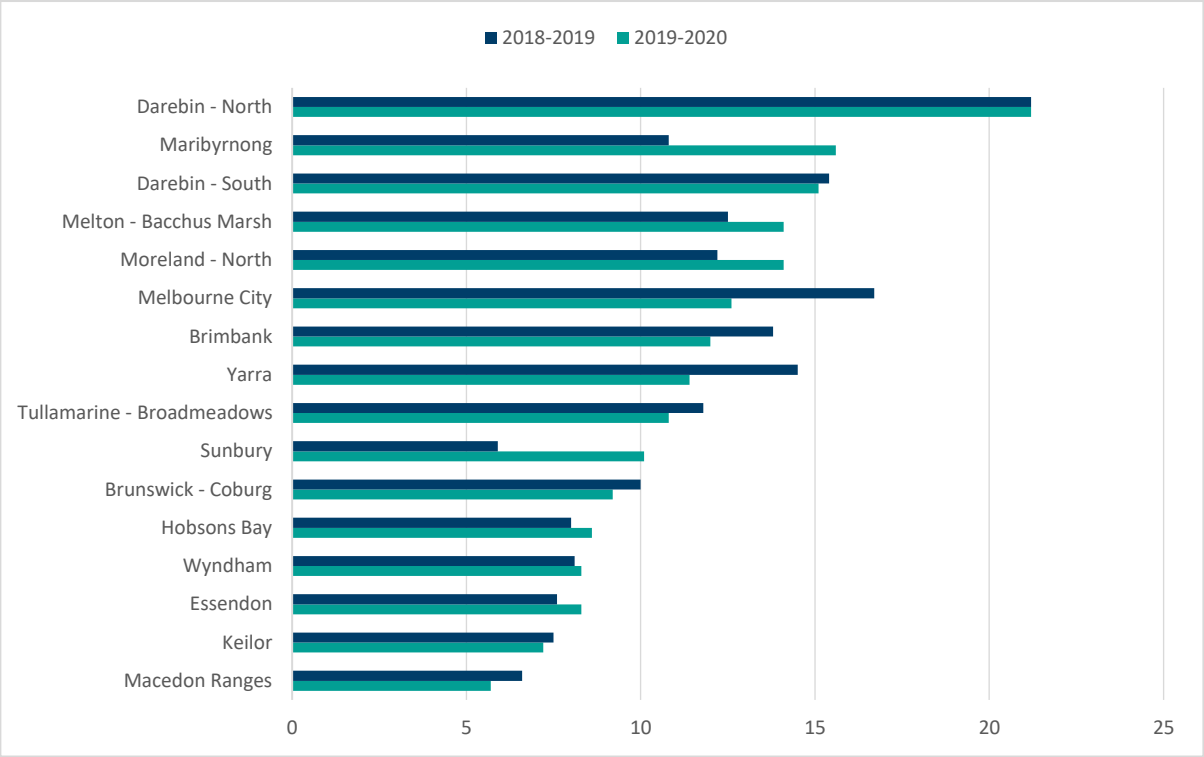


Source: AIHW, 2021g

In FY 2017-2018 across Australia, the rate of MBS claims by Aboriginal and/or Torres Strait Islander people (125 per 1000) for Team Care Arrangements (TCAs) was 1.5 times the rate for Non-Aboriginal people (85 per 1000). The rate of MBS claims for GPMPs (142 per 1000) was 1.4 times the rate of non-Aboriginal people (100 per 1000).

For FY 2019-2020 in NWMPHN region, the rate of the Aboriginal and Torres Strait Islander population who had a specific health check were the highest in Darebin – North (21.2%) and the lowest in Macedon Ranges (5.7%). From 2018-19 to 2019-20, the rate had increased the most in Sunbury, and dropped the most in Melbourne City (See Figure 32).

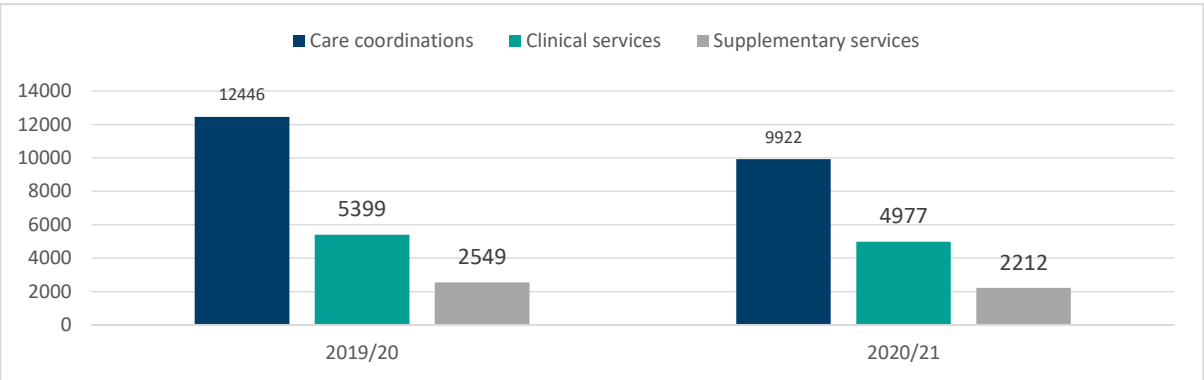
Figure 32. Proportion (%) of the Aboriginal and Torres Strait Islander population that had an Aboriginal and Torres Strait Islander -specific health check by SA3 in NWMPHN, 2018-19 and 2019-20



Source: AIHW, 2021g

In NWMPHN, the Integrated Team Care (ITC) is dedicated to help Aboriginal and/or Torres Strait Islander people with chronic conditions. In FY 2019-2021, 22,368 care coordination, 10,376 clinical services and 4,761 supplementary services have been recorded under ITC program (see Figure 33).

Figure 33. Activities under ITC program in NWMPHN 2019-2021



Source: NWMPHN, 2021

ACCEPTABILITY

The Patient Experience Survey is a topic on the Multipurpose Household Survey (MPHS) conducted every year throughout Australia (ABS, 2021b). The survey collected information from people about their experiences with selected aspects of the health system in the 12 months before their interview, including access and barriers to a range of health care services. Respondents were asked about their experiences with health professionals, the frequency of their visits, waiting times, and

barriers to accessing care, as well as their self-assessed health status, long-term health conditions and private health insurance. (ABS, 2021c).

GP visits and experience

Findings from July 2020 to June 2021 showed that nationally, GPs continued to be the most common health professionals seen (ABS, 2021b). Finding of the survey are summarised in Table 47. Colour coding from white (low) to green (high) is used to show increases and decreases.

Table 47. Patient experiences in NWMPHN

Measure		2015-16	2016-17	2017-18	2018-19	2019-20
Percentage of adults who saw a GP in the preceding 12 months	80	81.4	84.1	83.8		84.4
Percentage of adults who saw a GP 12 or more times in the preceding 12 months	10.6	11.1	11.6	10.8		9.5
Percentage of adults who felt their GP always or often listened carefully in the preceding 12 months	88.8	92.4	91.7	92		91.5
Percentage of adults who felt their GP always or often showed respect for what they had to say in the preceding 12 months	92	93.9	94.5	94.4		94.9
Percentage of adults who felt their GP always or often spent enough time in the preceding 12 months	86.1	89.9	89.9	88.2		91.3
Percentage of adults who saw a GP for urgent medical care in the preceding 12 months	11.1	11.5	10.9	9.4		10.9
Percentage of adults who saw a dentist, hygienist or dental specialist in the preceding 12 months	43.3	46.1	45.7	48.2		43.7
Percentage of adults who saw a medical specialist in the preceding 12 months	35.1	35.7	36.4	33.6		34.6
Percentage of adults who were admitted to any hospital in the preceding 12 months	11.6	11	11.2	11.8		9.5
Percentage of adults who went to any hospital emergency department for their own health in the preceding 12 months	11.4	11.1	11.6	11		9.9
Percentage of adults who had a preferred GP in the preceding 12 months				72.4		72.8
Percentage of adults who could not access their preferred GP in the preceding 12 months				26.5		27.9
Percentage of adults who felt they waited longer than acceptable to get an appointment with a GP				17		18.4
Percentage of adults who did not see or delayed seeing a GP due to cost in the preceding 12 months	4.3	3.8		3.7		3.3
Percentage of adults who delayed or avoided filling a prescription due to cost in the preceding 12 months	10.4	8.4	7.3	5.2		7.1
Percentage of adults who did not see or delayed seeing a dentist, hygienist or dental specialist due to cost in the preceding 12 months	24.5	21	21.5	16.9		21
Percentage of adults who saw three or more health professionals for the same condition in the preceding 12 months	17.2	16.8	16.6	14.1		17.1
Percentage of adults who needed to see a GP but did not in the preceding 12 months	17	13.8	15.4	12.1		12.2
Percentage of adults who saw a GP after hours in the preceding 12 months	13.2	12.8	11.6	9.9		9.5
Percentage of adults who reported they were covered by private health insurance in the preceding 12 months	50.4		47.5	50.8		48.5
Percentage of adults referred to a medical specialist who waited longer than they felt acceptable to get an appointment in the preceding 12 months			26.9	23.9		23.5

Source: ABS, 2021b

84% of the people surveyed in NWMPHN saw a GP in 2019-20. This percentage for NWMPHN had increased from 80% in 2015-16. Of those who saw a GP, 9.5% had seen a GP 12 or more times in the preceding 12 months. This percentage had decreased from 10.6% in 2015-16. This percentage was always less than national percentage between 2015-16 and 2019-20.

Most of the people in the region felt their GP often or always listened carefully (91.5%), showed respect for what they had to say (94.9%), and spent enough time (91.3%) in the preceding 12 months in 2019-20. These percentages of positive experience with GP had increased between 2015-16 and 2019-20 in NWMPHN. In 2019-20, 10.9% of people had seen GP for urgent medical care in NWMPHN (dropped from 11.1% in 2015-16). The proportion of people who saw GP after hours decreased from 13.2% (2015-16) to 9.5% (2019-20). 17.1% of people saw three or more health professionals for the same condition in NWMPHN area. This percentage did not change much as compared to NWMPHN percentage in 2015-16 (17.2%).

Access to a GP

Access to primary health care has improved over time. The proportion of people who 'needed to see the GP but didn't seek GP care' decreased from 17% to 12.2% between 2015-16 and 2019-20. The proportion of people who 'delayed or didn't see a GP due to cost' also decreased from 4.3% to 3.3% between 2015-16 and 2019-20. The proportion of people who 'delayed or avoid filling prescription due to cost' also decreased from 10.4% (2015-16) to 7.1% (2019-20).

Waiting times and cost

In 2019-20, 72.8% of people in NWMPHN reported to 'have a preferred GP'. Of those people, 27.9% of people reported that they 'couldn't access their preferred GP'. This percentage is similar to national percentage (28%). NWMPHN had the second lowest percentage among other PHNs of Victoria. In 2019-20, 18.4% of people felt that they 'waited longer than acceptable to get an appointment with GP' in NWMPHN.

Though mainly focused on patients experience of general practice, a couple of questions ask about access to specialists. 23.5% of people referred to a medical specialist, 'waited longer than they felt acceptable to get an appointment' in NWMPHN area in 2019-20. This percentage was 26.9% in NWMPHN in 2017-18.43.7% of people had seen and 21% delayed or didn't see a dentist, hygienist or dental specialist in the preceding 12 months due to cost in NWMPHN area in 2019-20. decreased from 24.5% to 21% in NWMPHN area between 2015-16 and 2019-20.

EFFECTIVENESS

The potentially preventable hospitalisation (PPH) is a good indicator of primary and community care effectiveness. A PPH is an admission to hospital for a condition where the hospitalisation could have potentially been prevented through the provision of appropriate preventative health interventions and management in primary care settings including by general practitioners, medical specialists, dentists, nurses, allied health professionals and other community services (Falster and Jorm, 2017) Similarly, potentially avoidable Emergency Department (ED) attendances are associated with primary care quality (Parkinson et al., 2021). These are described in the acute care section.

5.3 Primary health and community care

Primary health care services also target specific health conditions. This section is not intended to provide a detailed review of all primary health and community care services in the region. There is a specific emphasis on NWMPHN commissioned services in the priority areas of AOD and mental health. Even then, NWMPHN commissioned services account for a small proportion of these services in the catchment. There is a brief summary of the relative reach of these services described by LGA in the sections that follow.

ALCOHOL AND OTHER DRUGS (AOD) SERVICES

The Victorian Alcohol and Drug Collection (VADC) is the data collection specification for all Department of Health and Human Services (DHHS) Victorian funded Alcohol and other drug (AOD) treatment providers. In FY 2018-19 across NWMPHN, there were 14,055 alcohol-related episodes of care, 1510 pharmaceutical drugs-related episodes and 21,597 illicit drugs-related episodes recorded in (VADC). Maribyrnong had the highest episodes of care per 10,000 population across all the three types (Turning Point, 2021). Table 48 shows the rate of episodes of care by LGA.

Table 48. Episodes of care recorded in VADC by LGA and drug type FY 2018-19

Region	LGA name	Alcohol-related episodes of care		Pharmaceutical drugs-related episodes of care		Illicit drugs-related episodes of care	
		Number	Rate per 10,000 population	Number	Rate per 10,000 population	Number	Rate per 10,000 population
Inner city	Melbourne	348	20	36	2	511	30
	Maribyrnong	345	38	37	4	687	75
	Yarra	367	37	24	2	461	47
Suburban	Brimbank	463	22	80	4	1,104	53
	Hobsons Bay	306	32	17	2	474	49
	Moreland	629	35	53	3	933	51
	Darebin	549	34	39	2	955	59
	Moonee Valley	263	21	31	2	415	32
Growth area	Hume	373	17	68	3	1,022	46
	Melton	384	25	48	3	1,042	66
	Wyndham	691	27	67	3	1,175	46
Peri-urban	Moorabool	103	30	9	3	113	33
	Macedon Ranges	71	14	5	1	100	20
Metro Melbourne		**10,202**	**25**	**999**	**2**	**16,238**	**40**
Regional VIC		**6,106**	**25**	**722**	**3**	**8,136**	**33**
Victoria state		**16,340**	**25**	**1,740**	**3**	**24,435**	**38**

Source: Turning Point, 2021. Data for Peri-urban is for the whole of the LGAs

AOD related telephone counselling and referral services and online treatment sessions are also available in Victoria. In 2019 across NWMPHN, there were 2,997 AOD related telephone services delivered by DirectLine, and 840 online treatment sessions by Counselling Online. Melbourne and Macedon Ranges had the highest service rate per 10,000 population. (Turning Point, 2021). Table 49 shows the rate of these sessions by LGA.

Table 49. AOD services in telephone and online services in NWMPHN by LGA, 2019

Region	LGA name	DirectLine telephone services 2019		Counselling Online treatment sessions 2019	
		Number of DirectLine telephone services	Services per 10,000 population	Number of Counselling Online treatment sessions	Sessions per 10,000 population
Inner city	Melbourne	471	26	132	7
	Maribyrnong	176	19	19	2
	Yarra	191	19	73	7
Suburban	Brimbank	472	23	144	7
	Hobsons Bay	137	14	26	3
	Moreland	243	13	71	4
	Darebin	335	20	65	4
	Moonee Valley	157	12	61	5
Growth area	Hume	239	10	57	2
	Melton	215	13	61	4
	Wyndham	225	8	83	3

Region	LGA name	DirectLine telephone services 2019		Counselling Online treatment sessions 2019	
		Number of DirectLine telephone services	Services per 10,000 population	Number of Counselling Online treatment sessions	Sessions per 10,000 population
Peri-urban*	Moorabool	22	6	11	3
	Macedon Ranges	114	23	37	7

Source: Turning Point, 2021.

*Data for Peri-urban is for the whole of the LGAs

NWMPHN Commissioned AOD services

From July 2020 to June 2021, NWMPHN has recorded 2,713 episodes of care delivered under AOD programs. 34% of the episodes were for young people aged 16-25 years. There were slightly more episodes that serviced males (1,315) than females (1,260). Brimbank (12%) had the greatest number of episodes in this program, followed by Hume (10%) and Melton (10%). It is worth noting that 13.6% of the episodes were delivered to people who were not living in the NWMPHN catchment. The main drug of concern among the clients in this program, alcohol (37.4%), cannabis (18.5%) and methamphetamine (13.7%) were the main ones reported.

Table 50 shows that Yarra, Brimbank and Melton have a higher proportion of services relative to their population. This is a per capita comparison and not reflective of relative need for AOD services in this area. Hobsons Bay, Moonee Valley, Wyndham and Moorabool have a lower proportion of services relative to their population. Though, this does not necessarily reflect unmet need or the absence of other services in these areas.

Table 50. Access of NWMPHN funded AOD program FY 2020-21

Region	LGA name	% NWMPHN population	Episodes of care	Episodes per 10,000 population	% NWMPHN commissioned episodes of care delivered to MWMPHN residents
Inner city	Melbourne	9.5%	246	13	10%
	Maribyrnong	4.9%	104	11	4%
	Yarra	5.3%	204	20	8%
Suburban	Brimbank	10.8%	356	17	14%
	Hobsons Bay	8.6%	88	9	4%
	Moreland	5.1%	263	14	11%
	Darebin	6.8%	196	12	8%
	Moonee Valley	9.8%	96	7	4%
Growth area	Hume	12.5%	319	13	13%
	Melton	8.9%	334	19	13%
	Wyndham	14.7%	254	9	10%
Peri-urban	Moorabool - part	1.7%	4	2	0%
	Macedon Ranges -part	1.2%	33	10	1%

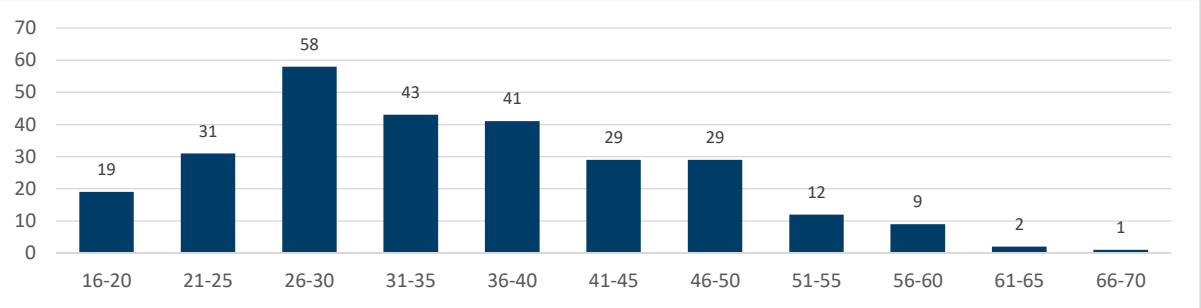
Source: Turning Point, 2021

Aboriginal and Torres Strait Islander AOD Service Utilisation

From July 2020 to June 2021, a total of 371 episodes of care were recorded for 262 Aboriginal and Torres Strait Islander people under the NWMPHN funded AOD program. 54% of care was for male clients and age group 26-30 had the most episodes (see figure 34). Table 55 shows that Darebin (21%) had the greatest number of episodes in this program, followed by Melbourne (17%) and Melton (12%). It is worth noting that 21% of the episodes were delivered to Aboriginal or Torres

Strait Islander people outside the NWMPHN catchment. The main drug of concern among the clients in this program were alcohol (30%), methamphetamine (25%) and cannabis (24%).

Figure 34. Number of Aboriginal and Torres Strait Islander clients serviced by NWMPHN-funded AOD program, 2020-2021



Source: Turning Point, 2021

Table 51. Aboriginal and Torres Strait Islander clients and services by NWMPHN-funded AOD program, 2020-2021

Region	LGA name	Number of Aboriginal and/or Torres Strait Islander clients	Episodes of care to Aboriginal and Torres Strait Islander clients
Inner city	Melbourne	42	61
	Maribyrnong	7	15
	Yarra	9	17
Suburban	Brimbank	9	11
	Hobsons Bay	6	6
	Moreland	10	15
	Darebin	54	74
	Moonee Valley	2	3
Growth area	Hume	13	21
	Melton	36	41
	Wyndham	6	7
Peri-urban	Moorabool - part	-	-
	Macedon Ranges -part	1	2
Total		**195**	**273**

Source: Turning Point, 2021

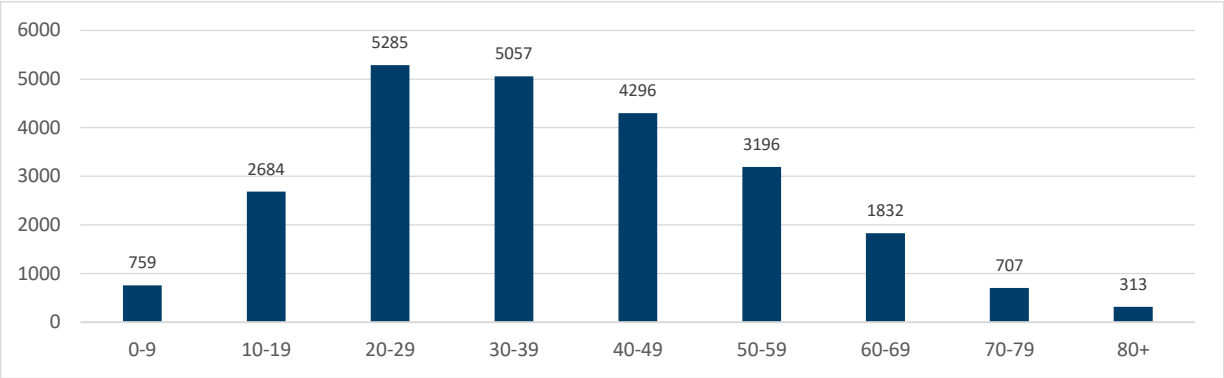
MENTAL HEALTH SERVICES

The Primary Mental Health Care Minimum Data Set (PMHC MDS) provides the basis for PHNs and the Department of Health to monitor and report on the quantity and quality of service delivery, and to inform future improvements in the planning and funding of primary mental health care services funded by the Australian Government (DoH, 2021h).

Unlike AOD services where data is available on non PHN services, for mental health, data is only available for the services commissioned by NWMPHN (including Headspace).

In FY 2019-20 across NWMPHN catchment, 15,511 mental health episodes were commissioned to service a total of 13,307 people. In FY 2020-21, 13,291 mental health episodes were commissioned to service a total of 12,541 people. Mixed anxiety and depressive symptoms were recorded to be the most common diagnosis among the clients. Young people (20-29 years) accounted for 18% of the clients receiving the mental health services (see Figure 35).

Figure 35. Mental Health episodes recorded in PMHC-MDS in NWMPHN 2019-2021



Source: NWMPHN PHMC-MDS, 2021

From July 2019 to June 2021 across NWMPHN catchment, 2,245 episodes of care were commissioned to service a total of 2,180 clients from CALD backgrounds under mental health program. CALD status refers to persons who were either born outside of Australia or spoke LOTE at home. This accounted for 16.9% of the total episodes funded by NWMPHN. Wyndham (17%) had the greatest number of episodes, followed by Melbourne (12%) and Hume (10%).

Table 51 shows that Maribyrnong, Moreland, Darebin Melton and Wydham all have a higher proportion of mental health services relative to their population. Again, this is a per capita comparison and not reflective of relative need for mental health services. Brimbank, Hobsons Bay, Moonee Valley have a lower proportion of services relative to their population. Again, this does not necessarily reflect unmet need or the availability of other mental health services.

Table 52. Access to NWMPHN funded Mental Health Services FY 2020-21

Region	LGA name	% NWMPHN population 2020	Episodes	Service contacts	Clients	2020 ERP adjusted	Episodes rate per 10,000 population	% NWMPHN commissioned episodes delivered to NWMPHN residents
Inner city	Melbourne	9.5%	1,225	6,304	1,185	183,756	67	10%
	Maribyrnong	4.9%	822	6,032	790	94,982	87	7%
	Yarra	5.3%	649	4,823	611	103,125	63	5%
Suburban	Brimbank	10.8%	831	5,992	808	208,247	40	7%
	Hobsons Bay	8.6%	615	5,234	596	98,189	63	5%
	Moreland	5.1%	1171	8,635	1,130	188,762	62	10%
	Darebin	6.8%	1217	10,574	1,114	166,430	73	10%
	Moonee Valley	9.8%	684	5,200	663	131,753	52	6%
Growth area	Hume	12.5%	1172	11,581	1,126	241,188	49	10%
	Melton	8.9%	1211	8,956	1,166	172,500	70	10%
	Wyndham	14.7%	1835	13,190	1,736	283,294	65	16%
Peri-urban	Moorabool – part	1.7%	209	1,408	198	23,048	91	2%
	Macedon Ranges - part	1.2%	170	1,228	157	32,621	52	1%

Source: NWMPHN PMHC-MDS, 2021

Aboriginal and Torres Strait Islander Mental Health Service Utilisation

In FY 2020-21 across NWMPHN catchment, 5,259 mental health sessions were commissioned to service a total of 757 Aboriginal and/or Torres Strait Islander people for mental health. Anxiety was recorded to be the most common diagnosis among the clients. Young Aboriginal or Torres Strait Islander people (21-35 years) accounted for 42% of the clients seeking mental health services. (PMHC-MDS). Table 21 shows mental health service use by LGA.

Table 53. Aboriginal and Torres Strait Islander People's Mental health service utilisation, by LGA, NWMPHN

Region	LGA name	Mental health services to Aboriginal and/or Torres Strait Islander clients commissioned by NWMPHN (PMHC-MDS 2020-2021)	
		Clients	Session
Inner city	Melbourne	105	632
	Maribyrnong	35	429
	Yarra	52	421
Suburban	Brimbank	26	215
	Hobsons Bay	12	185
	Moreland	58	456
	Darebin	272	1,455
	Moonee Valley	19	212
Growth area	Hume	72	550
	Melton	44	280
	Wyndham	48	327
Peri-urban	Moorabool - part	4	36
	Macedon Ranges -part	10	61
Total		**757**	**5,259**

Source: NWMPHN PMHC-MDS, 2021

5.4 Acute care services

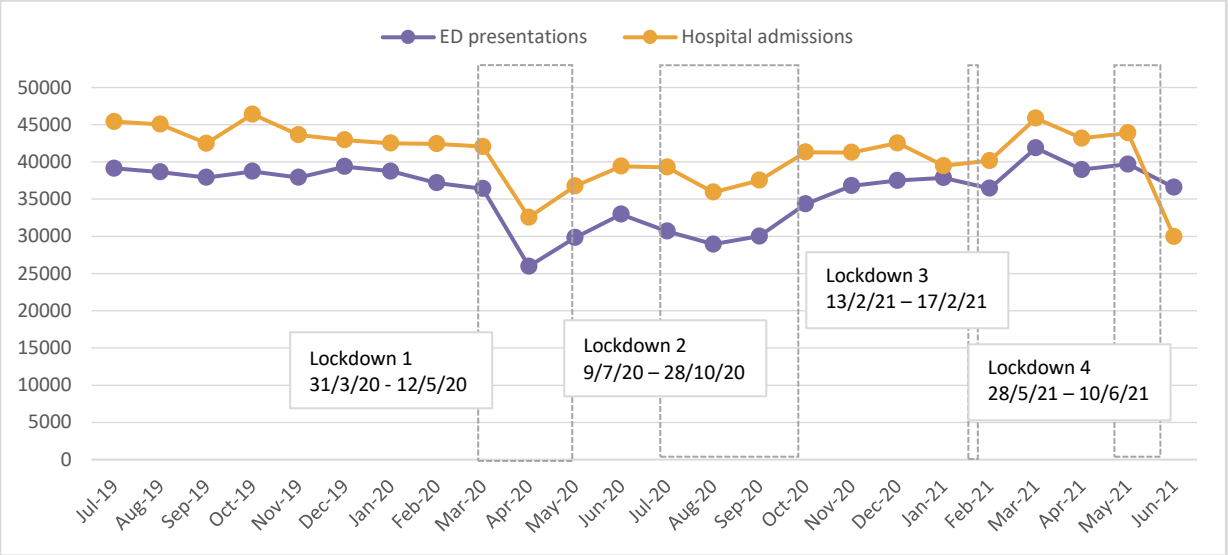
Acute care is where a patient receives active, short-term treatment for a condition at a hospital. This includes treatment for severe injury, a period of illness, an urgent medical condition, or to recover from surgery. The NWMPHN region has some of the largest hospital services in the state. In response to the needs of our growing population, the Victorian Government has committed to building acute hospitals in Melton and Footscray, and community hospitals at Craigieburn, Sunbury and Point Cook. (NWMPHN, 2020)

The Victorian Admitted Episodes Dataset (VAED) (VAHI, 2021b) and Victorian Emergency Minimum Dataset (VEMD) (VAHI, 2021c) were used to analyse the hospital data in NWMPHN region from July 2019 to June 2021. The VAED comprises de-identified demographic and clinical details for admitted episode of care occurring in Victorian hospitals, rehabilitation centres, extended care facilities and day procedure centres. The VEMD contains de-identified demographic and clinical data detailing Emergency Department (ED) presentations at Victorian public hospitals. In this section, CALD status refers to persons who preferred a language other than English.

In the NWMPHN region in FY 2020-21, there were a total of 480,439 hospitalisations and 429,758 ED presentations compared to a total of 501,702 in-patient hospitalisations and 432,862 ED presentations in the FY 2019 -20. Figure 36 shows the monthly ED presentations and hospitalisations in NWMPHN from July 2019 to June 2021. Both show similar monthly trend in this 24-month period. There was a sharp drop in both series in April 2020 when COVID-19 pandemic hit and Victoria entered its 1st lockdown, followed by a slow recovery in the following two months. Victoria then had the 2nd extended lockdown from July to October. During this period, both ED presentations and hospitalisations experienced a concave upward trend. The trend remained stable and below the pre-

COVID level from November to February until a five-day snap lockdown in February. After that, presentations returned to pre-COVID level until Victoria's 4th lockdown at end of May when similar drops were observed in both series especially in hospitalisations. At the time of writing Victoria has had 6 lockdowns since the start of the pandemic.

Figure 36. Total monthly ED presentations and hospitalisations in NWMPHN region FY 2019 20 – FY 2020-21

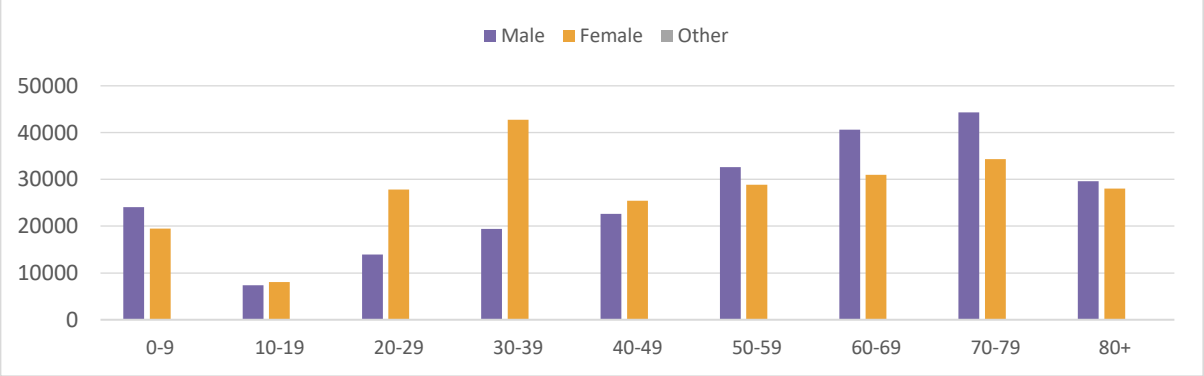


Source: VAHI, 2021b and 2021c

HOSPITALISATIONS

A total of 480,439 hospitalisations were recorded from patients in NWMPHN region during 2020/21 financial year, among which 37.1% were overnight or longer duration and 62.9% were intended to be discharged on the same day. In FY 2020-21, the age group 70-79 had the greatest number of in-patient hospitalisations (16.4%) in NWMPHN, followed by age group 60-69 (14.9%) (Figure 38). Compared to FY 2019-20, FY 2020-21 has seen a drop in the number of in-patient hospitalisations across all ages.

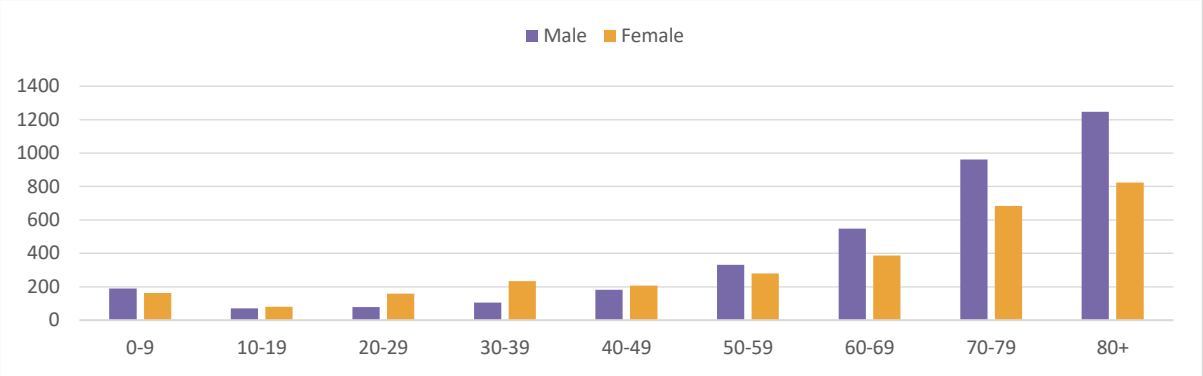
Figure 37. In-patient hospitalisations by age groups in NWMPHN in FY 2020-21



Source: VAHI, 2021b

Taking the population at each age group into consideration, older age implies a higher hospitalisation rate per 1000 population. In FY 2020-21, there were 207,898 hospitalisations among people aged 60 years and over, which accounted for 48% of the total hospitalisations in NWMPHN. Age group 70-79 years had the greatest number of hospitalisations (38%). There were 1,248 hospitalisations per 1000 men aged 80+ years in 2020/21 financial year which theoretically indicates that every man aged 80 years and over had been admitted to a hospital at least once in FY 2020-21 (Figure 39). Hume had the greatest number of hospitalisations among people aged 60-79 years while Moreland had the greatest number of hospitalisations among those aged 80+ years.

Figure 38. Number of hospitalisations per 1000 population in each age group by gender in NWMPHN FY 2020-21



Source: VAHI, 2021b

In FY 2020-21, the hospitalisations among children and young people in NWMPHN also dropped. Wyndham had the greatest number of hospitalisations among children and young people (0-24 years) (18%), followed by Hume (17%) and Melton (14%). Among young children under 10 years, Melbourne has the highest hospitalisation rate per 1000 population. Among young people aged 20-29 years, Melton had the highest (253 per 1000 population).

Table 54 shows that Hume had the greatest number of hospitalisations in both FY 2019-20 and FY 2020-21, representing 16% of the hospitalisations respectively in NWMPHN. Wyndham had the second greatest number of hospitalisations in the region, accounting for 14% and 15% of the total in each financial year. Keeping the population in each LGA in consideration though, Melton had the highest hospitalisation rate per 1000 population – 397 per thousand population in FY 2019-20 and 367 per thousand population in FY 2020-21. In terms of hospitalisation rate per thousand population, Moorabool (320 per 1000), Hume (311 per 1000), Moreland (263 per 1000) and Darebin (262 per 1000) were also higher than the region average in FY 2020-21.

Again, Hume accounted for 19% of the total hospitalisations among the CALD community. Brimbank, Wyndham and Melbourne saw an increase in the number of hospitalisations among CALD people from FY 2019 -20 to FY 2020-21

From FY 2019-20 to FY 2020-21, Melbourne was the only LGA with an increase in hospitalisations whereas all other LGAs had reduced number of hospitalisations. There were 2,644 more hospitalisations in FY 2020-21 than that in FY 2019-20.

Table 54. In-patient hospitalisations by LGA in NWMPHN, FY 2019-20 and FY 2020-21

LGA name	FY20			FY21			Difference from FY20 to FY21
	Number	%	Rate per 1000 population	Number	%	Rate per 1000 population	
Hume	79,241	16%	339	74,917	16%	311	-4,324
Wyndham	71,656	14%	265	69,976	15%	247	-1,680
Melton	65,407	13%	397	63,374	13%	367	-2,033
Moreland	52,048	10%	280	49,696	10%	263	-2,352
Brimbank	49,469	10%	236	48,275	10%	232	-1,194
Darebin	49,687	10%	303	43,680	9%	262	-6,007
Moonee Valley	31,168	6%	239	29,263	6%	222	-1,905
Melbourne	22,473	4%	126	25,117	5%	137	2,644
Hobsons Bay	25,211	5%	258	24,068	5%	245	-1,143
Maribyrnong	21,387	4%	229	19,113	4%	201	-2,274
Yarra	19,239	4%	190	18,606	4%	180	-633
Moorabool	7,546	2%	336	7,369	2%	320	-177

LGA name	FY20			FY21			Difference from FY20 to FY21
	Number	%	Rate per 1000 population	Number	%	Rate per 1000 population	
Macedon Ranges	7,170	1%	223	6,985	1%	214	-185
NWMPHN	**501,702**	**100%**	**266**	**480,439**	**100%**	**249**	**-21,263**
Victoria	**1,820,068**	**-**	**276**	**1,818,032**	**-**	**271**	**-2036**

Source: VAHI, 2021a

By principal diagnosis type, dialysis, cancer-related treatments, and childbirth are the most common reasons for hospitalisations in both FY20 and FY21 in NWMPHN region. Dialysis accounted for approximately 20% of the total hospitalisations each year. Other than that, throat or chest pain, abdominal or pelvic pain, iron deficiency anaemia, Crohn's disease, abnormalities of breathing, multiple sclerosis, back pain, heart failure, cholelithiasis and sleep disorders were also among the common causes for hospitalisations.

From FY 2019-20 to FY 2020-21, it is noted that hospitalisations due to:

- Sleep disorders dropped by 30%.
- Heart failure dropped by 17%.
- Multiple sclerosis increased by 14%.
- Crohn's disease increased by 8%.

There are some hospitalisation causes that were identified to have increased dramatically from FY 2019-20 to FY 2020-21 (see Table 55). In NWMPHN region, hospitalisations due to haemorrhage in early pregnancy had almost doubled from FY 2019-20 to FY2020-21. Hospitalisations due to chronic kidney disease and eating disorders had also increased by 54% each. It is worth noting that suicidal ideation related hospitalisations went up from 590 in FY 2019-20 to 833 in FY 2020-21.

Table 55. Hospitalisations that had increased more than 20% from FY 2019-20 to FY 2020-21 in NWMPHN

Principal reason for hospitalisation	FY20	FY21	Change in %
Haemorrhage in early pregnancy	261	512	96%
Viral pneumonia not elsewhere classified	455	882	94%
Chronic kidney disease	574	885	54%
Eating disorders	276	425	54%
Syndrome of infant of diabetic mother, or neonatal hypoglycaemia	415	609	47%
Cough	294	422	44%
Suicidal ideation	590	833	41%
Feeding problems of newborn	503	673	34%
Polyneuropathies	308	399	30%
Alcoholic liver disease	348	444	28%
Bacterial intestinal infection	303	384	27%
Ascites	590	745	26%
Rheumatoid arthritis	689	845	23%

Source: VAHI, 2021b

By principal diagnosis, the most common causes for those staying overnight or longer were childbirth (16.2%), heart failure (1.5%), abnormalities of breathing (1.4%), abdominal and pelvic pain (1.4%) and cholelithiasis (1.3%). The most common causes for those to be discharged the same day were dialysis (33.3%), medical care including pharmacotherapy or radiotherapy (10.1%), pain in throat and chest (3%), abdominal and pelvic pain (1.6%) and iron deficiency anaemia (1.4%). In fact, dialysis represents 21% of total hospital admissions in NWMPHN region in FY 2020-21 and is the

most common cause for hospitalisations among people aged 40+ years. For those aged 20-39 years, dialysis was the second most common cause for hospital admissions, behind childbirth. As it is a condition that requires multiple admissions on an ongoing basis, it has been excluded from further analysis of hospital data in Metric 5: Health Consequences.

POTENTIALLY PREVENTABLE HOSPITALISATIONS

PPHs are identified from diagnoses recorded in hospitalisation data. In Australia, PPH are summarised into three groups (Falster and Jorm, 2017).

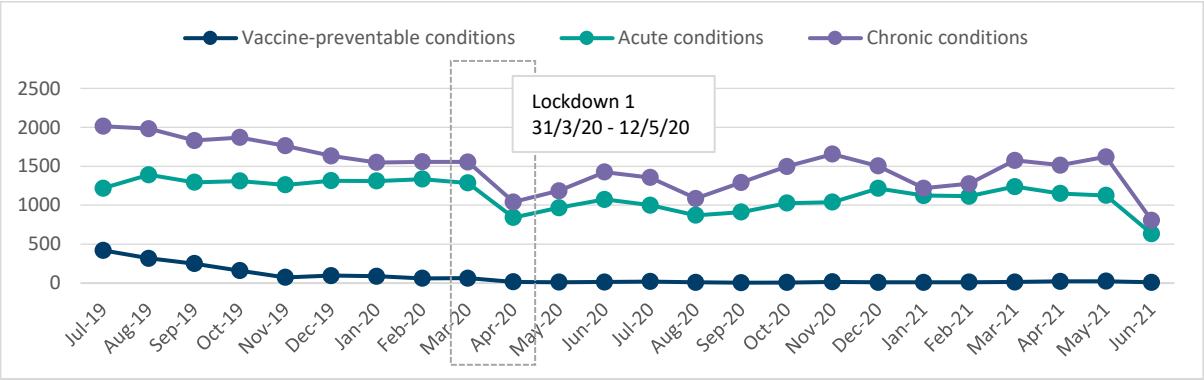
Vaccine-preventable conditions	These conditions may be preventable through vaccination. This category includes conditions such as influenza, measles, diphtheria and hepatitis B.
Acute conditions	These conditions may not be preventable, but theoretically would not result in hospitalisation if timely and adequate care (usually non-hospital) was received. This category includes conditions such as urinary tract infections (UTIs), cellulitis, dental conditions, ear, nose and throat infections.
Chronic conditions	These conditions may be preventable through lifestyle change, but can also be managed effectively through timely care (usually non-hospital) to prevent deterioration and hospitalisation. This category includes conditions such as congestive cardiac failure, diabetes complications, chronic obstructive pulmonary disease (COPD) and angina.

From July 2019 to June 2021 across NWMPHN region, a total of 65,585 PPHs were recorded which accounted for 6.7% of total hospitalisations in the region. More than half (55.4%) of the PPHs in NWMPHN region are due to chronic conditions. The number of PPHs in FY 2020-21 had dropped by 18% compared to that in FY 2019-2020. More specifically, in April 2020 when COVID-19 pandemic hit and Victoria's first lockdown started, PPHs due to:

- vaccine-preventable conditions dropped by 75% compared to March 20
- acute conditions dropped by 35% compared to March 20
- chronic conditions dropped by 33% compared to March 20

Since then, the monthly PPHs from acute and chronic conditions have been fluctuating at a slightly lower level compared to pre-COVID. The vaccine-preventable hospitalisations have been stable and lower than pre-COVID level (see Figure 39). It is likely that patients are delaying their hospital trip due to the lockdown and this needs to be considered in the analysis that follows.

Figure 39. PPHs by type in each month from Jul 19 to Jun 21



Source: VAHI, 2021b

In FY 2020-21, Age group 80+ years had the greatest number of PPHs (17.7%), followed by age group 70-79 (16.0%). Considering the population in each age group in NWMPHN, the PPHs rate increased

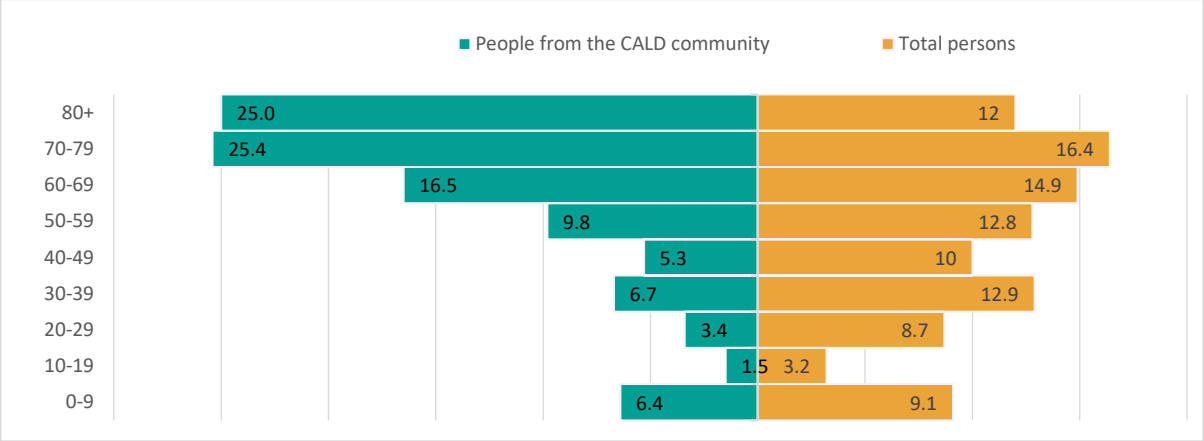
with age. Men aged 80+ years were the most likely group to experience PPHs (103 per 1000 population), compared to their counterparts (80 per 1000 population).

Hume had the greatest number of PPHs in both FY 2019-20 (16.9%) and FY 2020-21 (17%), followed by Wyndham (13.6%) and Melton (13.3%). Keeping the population in each LGA in consideration though, Melton had the highest PPHs rate in FY 2020-21 (22 per 1000 population), followed by Hume (21 per 1000) and Moorabool (20 per 1000).

Compared to total population in NWMPHN region, the CALD community had a higher proportion of hospitalisations in people aged 70 years and over (see Figure 40). 13% of the hospitalisations among CALD community were from people speaking Greek, followed by Arabic-speakers (13%), Vietnamese-speakers (12%) and Italian-speakers (11%).

Again, Hume accounted for 19% of the total hospitalisations among CALD community in NWMPHN. Brimbank, Wyndham and Melbourne saw an increase in the number of hospitalisations among CALD from FY20 to FY21.

Figure 40. Hospitalisation proportion (%) by age among total population and CALD community in NWMPHN in FY21



Source: VAHI, 2021b

The most common cause of PPHs in NWMPHN region in FY 2020-21 was iron deficiency anaemia (15.1%), followed by cellulitis (11.5%), CCF (10.6%), UTI (10.4%), diabetes complications (10.1%), convulsions and epilepsy (8%), COPD (7.5%) and asthma (6.6%). It is worth noting that there were only 93 hospitalisations due to vaccine-preventable influenza and pneumonia, compared to 1,466 in the previous financial year. This could be attributed to the longer period of lockdown in FY 2020-21 and prevention measure including mask-wearing in the general public (see Table 56). Of all the PPHs among CALD, chronic conditions are more prevalent than all population in the region. In FY 2020-21, 21% of PPHs among CALD were due to congestive cardiac failure compared to 11% among all population.

Table 56. PPHs by category and financial year in NWMPHN

PPH diagnosis category	FY20		FY21	
	Hospitalisations	%	Hospitalisations	%
Vaccine-preventable conditions	**1,568**	**4.4%**	**153**	**0.5%**
Influenza and pneumonia	1,466	4.1%	93	0.3%
Other vaccine-preventable conditions	102	0.3%	60	0.2%
Acute conditions	**14,606**	**41.1%**	**12,450**	**42.9%**
Cellulitis	3,891	10.9%	3,326	11.5%
Urinary tract infections, including Pyelonephritis	3,355	9.4%	3,019	10.4%
Convulsions and epilepsy	2,480	7.0%	2,325	8.0%
Ear, nose and throat infections	2,552	7.2%	1,545	5.3%
Dental conditions	1,689	4.8%	1,592	5.5%

PPH diagnosis category	FY20		FY21	
	Hospitalisations	%	Hospitalisations	%
Perforated/bleeding ulcer	282	0.8%	355	1.2%
Pelvic inflammatory disease	218	0.6%	218	0.8%
Gangrene	53	0.2%	44	0.2%
Pneumonia (not vaccine preventable)	75	0.2%	17	0.1%
Eclampsia	11	0.03%	9	0.03%
Chronic conditions	**19,408**	**54.5%**	**16,400**	**56.6%**
Iron deficiency anaemia	4,518	12.7%	4,365	15.1%
Congestive cardiac failure (CCF)	3,677	10.3%	3,080	10.6%
Diabetes complications	3,447	9.7%	2,919	10.1%
COPD	3,015	8.5%	2,170	7.5%
Asthma	2,679	7.5%	1,913	6.6%
Angina	979	2.8%	1,006	3.5%
Hypertension	626	1.8%	555	1.9%
Bronchiectasis	300	0.8%	240	0.8%
Rheumatic heart disease	129	0.4%	117	0.4%
Nutritional deficiencies	38	0.1%	35	0.1%

Source: VAHI, 2021b

The growth areas of Hume (17%), Wyndham (13.6%) and Melton (13.3%) accounted for the largest proportions of PPHs by LGA (see Table 57). Given their large populations they are also among the highest rates of representation. Though Moorabool had the highest rate for vaccine preventable conditions.

Table 57. Number of PPH by category and LGA in FY 2020-21

Region	LGA name	Acute		Chronic		Vaccine-preventable		Total	
		%	Rate per 10,000	%	Rate per 10,000	%	Rate per 10,000	%	Rate per 10,000
Inner city	Melbourne	6.50%	44.2	4.30%	38.2	3.90%	0.3	5.20%	82.7
	Maribyrnong	4.00%	52.5	3.80%	66.2	2.00%	0.3	3.90%	119
	Yarra	3.80%	45.8	3.60%	57.6	6.50%	1	3.70%	104.4
Suburban	Brimbank	8.20%	49	9.20%	72.7	7.20%	0.5	8.80%	122.2
	Darebin	8.70%	64.9	10.50%	103	7.20%	0.7	9.70%	168.6
	Hobsons Bay	5.30%	67.1	5.00%	83.4	6.50%	1	5.10%	151.5
	Moonee Valley	6.40%	60.9	6.50%	81.5	6.50%	0.8	6.50%	143.2
	Moreland	9.90%	65.5	10.50%	91.6	13.10%	1.1	10.30%	158.2
Growth area	Hume	16.40%	84.4	17.50%	119.3	14.40%	0.9	17.00%	204.6
	Melton	13.60%	98.2	13.00%	123.6	13.10%	1.2	13.30%	223
	Wyndham	14.30%	62.7	13.10%	75.6	15.70%	0.8	13.60%	139.1
Peri-urban	Macedon Ranges - part	1.40%	53.3	1.20%	61.6	2.00%	0.9	1.30%	115.8
	Moorabool - part	1.50%	81.1	1.70%	118	2.00%	1.3	1.60%	200.4
NWMPHN		**100.00%**	**64.6**	**100.00%**	**85.1**	**100.00%**	**0.8**	**100.00%**	**150.5**

Source: VAHI, 2021b

Hospitalisations for Aboriginal and Torres Strait islanders

Due to the relatively small number of Aboriginal and Torres Strait Islander people in Australia, VAHI do not provide hospital and ED data with a data flag for aboriginality. Instead, to facilitate analysis data by Indigenous Areas is used. Indigenous Areas are medium sized geographical units, aggregated from Statistical Areas Level 1 (SA1s). There are 9 Indigenous Areas in NWMPHN catchment (ABS, 2016b).

In 2018–19, Aboriginal and Torres Strait Islander people had higher hospitalisation rates than that for other Australians (PHIDU, 2021c). Excluding same-day admissions for renal dialysis, there was a total of 12,729 hospitalisations among Aboriginal and Torres Strait Islander people in NWMPHN region from 2016-2019. Of those, 58% were women. While Wyndham – Altona had the greatest number of hospitalisations among Aboriginal and Torres Strait Islander people, Moreland – Broadmeadows had the highest hospitalisation rate per 100,000 Aboriginal population (see Table 58).

Of the hospitalisations among Aboriginal and Torres Strait Islander people (excluding same-day admissions for renal dialysis) in NWMPHN from 2016 to 2019, 32.5% were among those aged 25-44 years. However, those aged 65+ had the highest hospitalisation rate per 100,000 population.

Table 58. Average annual age-standardised hospitalisation rate per 100,000 Aboriginal and/or Torres Strait Islander population (2016 – 2019) in each Indigenous Area in NWMPHN (excluding dialysis)

Indigenous Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Brimbank	20,813	3,826	2,663	2,501	2,378	1,782	1,432	1,432	1,097	986	1,046	494	1,026	384	349	..
Craigieburn-Sunbury	12,937	2,512	3,890	3,361	754	1,912	1,204	1,429	1,217	1,281	1,204	732	510	522	269	128
Macedon Ranges-Moorabool	13,694	2,488	2,326	1,114	1,429	1,140	631	1,141	1,122	1,069	853	560	720	517	365	..
Maribyrnong-Moonee Valley	7,721	4,228	2,619	2,341	1,833	1,549	1,982	976	1,548	1,934	1,091	421	719	735	231	264
Melbourne-Port Phillip	5,037	3,453	2,236	2,820	3,755	834	1,626	1,658	1,240	1,526	1,411	1,517	701	325	403	359
Melton	10,311	3,283	3,063	1,969	982	1,554	1,318	1,527	1,386	922	808	835	780	200	389	138
Moreland-Broadmeadows	13,320	3,990	3,991	3,432	3,407	2,162	1,563	1,508	1,718	1,223	1,169	1,177	955	574	459	137
Northcote-Preston-Whittlesea	12,565	3,691	3,148	2,795	3,388	2,019	1,895	1,351	1,381	1,442	913	1,240	880	638	419	184
Wyndham-Altona	11,838	2,849	3,653	2,406	1,302	1,659	1,283	1,150	1,130	1,192	716	1,002	923	469	206	283
NWMPHN	11,381	3,370	3,194	2,602	2,171	1,655	1,473	1,354	1,325	1,288	990	951	821	484	331	191
Victoria	12,963	3,520	3,477	2,683	2,462	1,637	1,568	1,325	1,484	1,345	876	1,025	801	485	355	205

Source: PHIDU, 2021c

Hospital admission cause based on primary diagnosis
***1**: Admissions for pregnancy, childbirth and the puerperium among Aboriginal women aged 15-44 years. **2**: Admissions for injury, poisoning and other external causes. **3**: Admissions for digestive system diseases. **4**: Admissions for respiratory system diseases. **5**: Admissions for mental health related conditions. **6**: Admissions for genitourinary system diseases. **7**: Admissions for circulatory system diseases. **8**: Admissions for nervous system diseases. **9**: Admissions for musculoskeletal system and connective tissue diseases. **10**: Admissions for all cancers. **11**: Admissions for infectious and parasitic diseases. **12**: Admissions for endocrine, nutritional and metabolic diseases. **13**: Admissions for skin and subcutaneous tissue diseases. **14**: Admissions for eye and adnexa diseases. **15**: Admissions for ear and mastoid process diseases. **16**: Admissions for congenital malformations, deformations and chromosomal abnormalities.*

From 2016 to 2019, there were 1,424 PPHs for Aboriginal and/or Torres Strait Islander people in NWMPHN. COPD, acute dental conditions and diabetes complications were the top 3 causes for potentially preventable hospitalisations among Aboriginal and Torres Strait Islander people in NWMPHN region (see Table 59).

Table 59. PPHs by causes among Aboriginal and Torres Strait Islander people in NWMPHN, 2016-2019

PPH category	PPH condition	Number of preventable admissions	%	Average annual ASR per 100,000
Vaccine-preventable conditions (151)	Pneumonia and influenza (vaccine-preventable)	70	5%	202
	Other vaccine-preventable conditions	81	6%	231
	Total	**151**	**11%**	**-**
Acute conditions (662)	Acute dental conditions	147	10%	392
	Acute ear, nose and throat infections	129	9%	365
	Acute convulsions and epilepsy	116	8%	315
	Acute cellulitis	107	8%	306
	Acute urinary tract infections	106	7%	279
	Other acute conditions	57	4%	163
	Total	**662**	**46%**	**-**
Chronic conditions (611)	COPD	167	12%	531
	Diabetes complications	158	11%	427
	Iron deficiency anaemia	108	8%	305
	Chronic asthma	77	5%	203
	Chronic congestive cardiac failure	47	3%	137
	Chronic angina	33	2%	96
	Other chronic conditions	21	1%	60
	Total	**590**	**41%**	**-**
Total PPH in NWMPHN		1,424	-	-

Source: PHIDU, 2021c

Table 60 shows that PPHs are spread across indigenous area though comparisons with LGA are difficult as the geography does not fully align. The rate of PPH in Moreland-Broadmeadows and Northcote - Preston – Whittlesea were the highest. Specifically, Moreland-Broadmeadows and Northcote - Preston – Whittlesea had high PPH rate due to acute or chronic conditions. Macedon Ranges – Moorabool and Brimbank had higher PPH rate due to vaccine – preventable conditions.

Compared to the total NWMPHN population, a higher proportion of PPH's by Aboriginal and/or Torres Strait Islander people were for vaccine preventable conditions (11% compared to 0.5%).

Table 60. PPHs by Indigenous Area in NWMPHN, 2016-2019

Indigenous Area	Number of PPH	% of total	Average annual ASR per 100,000
Moreland - Broadmeadows	260	18%	5,227
Northcote - Preston - Whittlesea (part)	212	15%	5,045
Melbourne - Port Phillip (part)	162	11%	4,060
Brimbank	116	8%	3,790
Maribyrnong - Moonee Valley	117	8%	3,535
Craigieburn - Sunbury	121	8%	3,422
Wyndham - Altona	262	18%	3,392
Melton	137	10%	3,131
Macedon Ranges - Moorabool (part a)	37	3%	1,969
North Western Melbourne	**1,424**	**100%**	**3,844**

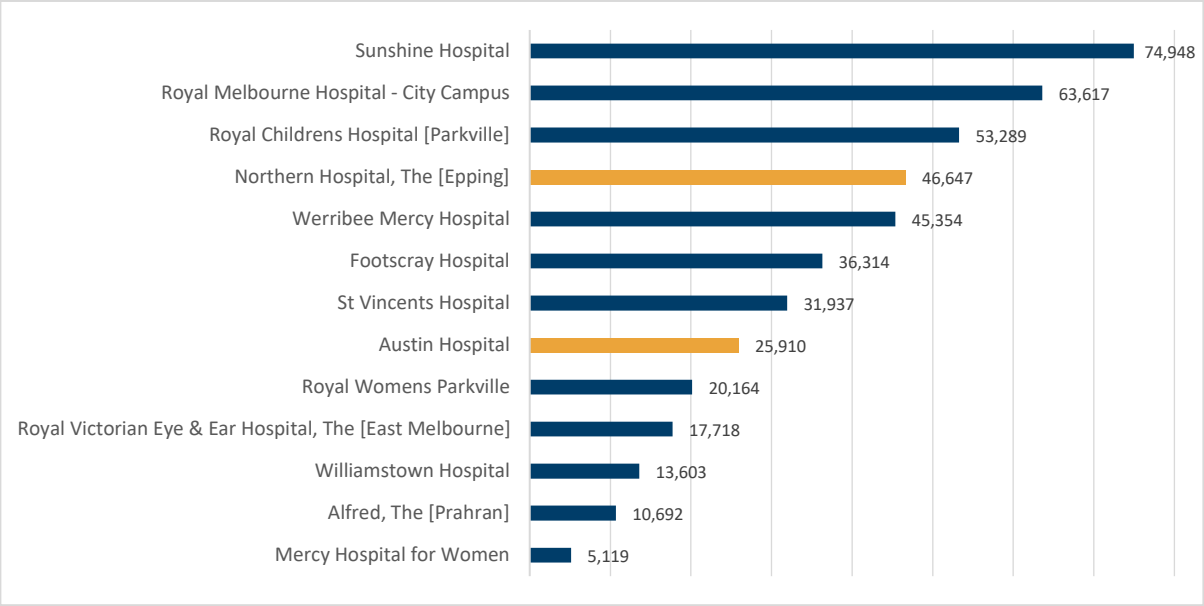
Source: PHIDU, 2021c

EMERGENCY DEPARTMENT (ED) PRESENTATIONS TO PUBLIC HOSPITALS

In FY 2010-21 there were a total of 457,384 ED presentations from people residing in NWMPHN region. 80% of those (367,636) happened in the 10 public hospitals within the NWMPHN catchment. These 10 hospitals received 29% (505,402) of the total ED presentations in Victoria (1,735,577); 27% of which were among people outside of the NWMPHN region.

Northern Hospital and Austin Hospital are not in the NWMPHN catchment, but they are very close to the border. Northern hospital received 10% of the ED presentations from residents from the NWMPHN region while Austin hospital received 6% (see Figure 41).

Figure 41. Top 13 hospitals with the most ED presentations from NWMPHN in FY21



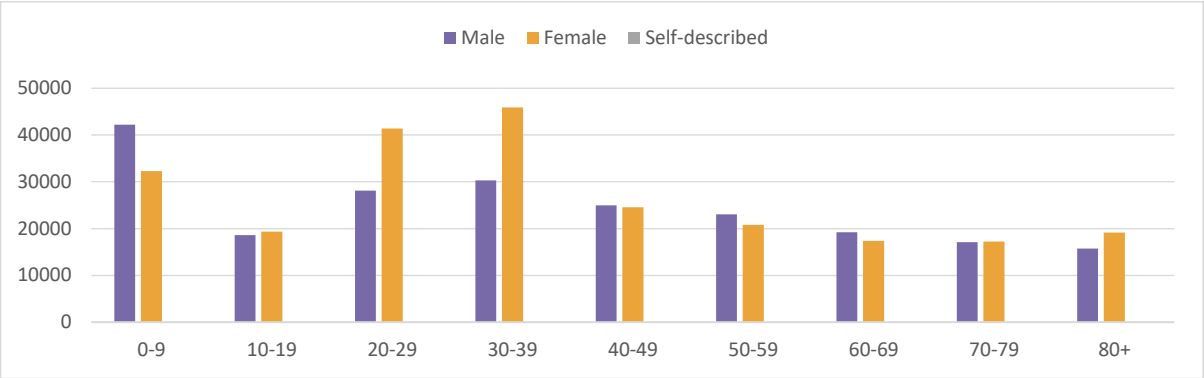
Source: VAHI, 2021b

Between FY 2019-20 and FY2020-21, the number of ED presentations are similar across most age groups except for those aged 80+ years that have reduced 7%. Aged 30-39 years had the greatest number of ED presentations (16.7%) in NWMPHN, followed by 0-9 years (16.3%) (see Figure 43). However, taking the population[18] at each age group into consideration (see Figure 42) 80+ age group is the most presented in ED (604 per 1000 population), followed by age group 70-79 years (356 per 1000 population) and aged group 0-9 years (303 per 1000 population).

There were 664 ED presentations per 1000 men aged 80+ and 563 ED presentations per 1000 women aged 80+ in FY 2020 – 21 (See Figure 43). Hume had the greatest number of ED presentations among older people aged 65-79 years whereas Moreland shared the most ED presentations among those aged 80+. People aged 85+ were the most vulnerable to Emergency visits, especially those in Melton. In FY 2020-21, Melton had 1,095 ED presentations per 1000 people aged 85+ years.

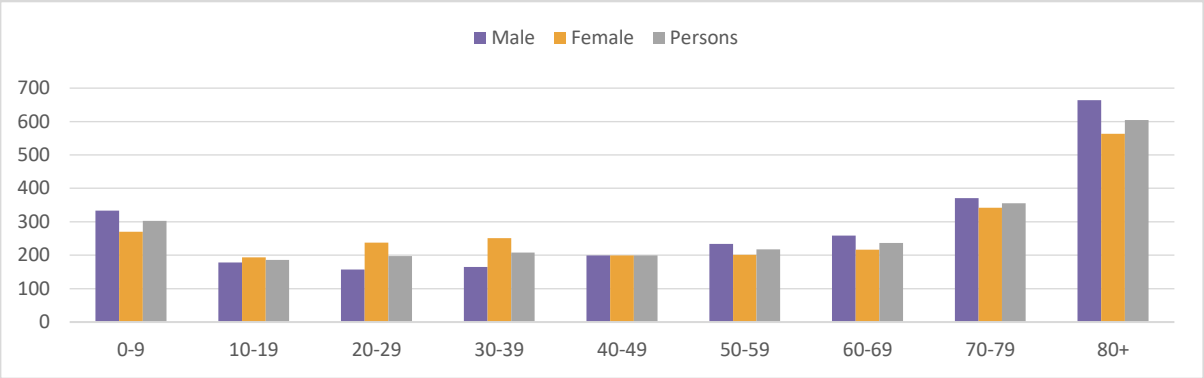
[18] Estimated as a person may attend the ED more than once.

Figure 42. Number of ED presentations by age group and gender in NWMPHN FY 2020-21



Source: VAHI, 2021c

Figure 43. Number of ED presentations per 1000 population in each age group by gender in NWMPHN FY 2020-21



Source: VAHI, 2021c

In FY 2020-21, there were 143,531 ED presentations among children and young people (0-24 years) in NWMPHN, which accounted for 31% of the total ED presentations in the region. 0–4-year-olds had the greatest number of ED presentations (38%). Hume had the greatest number of ED presentations among children and young people (17.7%), followed by Wyndham (16.4%) and Melton (12.2%). Melbourne had the highest ED presentation rate among young children (0-9 years), while Hobsons Bay had quite high ED presentation rate among young people (10-24 years).

Table 61 shows that Hume had the greatest number of ED presentations in both FY 2019-20 and FY 2020-21, representing 15% of the total ED presentations respectively in NWMPHN. Wyndham had the second greatest number of ED presentations in the region, accounting for 14% of the total in each financial year. Keeping the population in each LGA in consideration though, Hobsons Bay had the most ED presentations per 1000 population – 311 per thousand population in FY20 and 302 per thousand population in FY21. In terms of ED presentation rate per population, Hume (292 per 1000), Melton (286 per 1000), Moreland (256 per 1000) and Darebin (249 per 1000) were also higher than the region average in FY21. From FY20 to FY21, Melbourne saw the biggest increase in ED presentations whereas Melton saw the biggest drop. There were 3,333 more ED presentations in FY 2020-21 than that in FY 2019-20 in Melbourne. While Hume represented 15% of total ED presentations in NWMPHN region in FY 2020-21, it accounted for 23% of the total ED presentations among CALD community in ED. Hume, Wyndham and Moorabool were the only LGAs that had an increased number of ED presentations among CALD from FY 2019-20 to FY 2020-21.

Table 61. ED presentations by LGA FY2019- 20/FY 2020-21

LGA name	FY20		FY21		Difference from FY20 to FY21
	%	ED presentation per 1000 population	%	ED presentation per 1000 population	
Hume	15%	294	15%	292	1,686
Wyndham	14%	233	14%	224	523

LGA name	FY20		FY21		Difference from FY20 to FY21
	%	ED presentation per 1000 population	%	ED presentation per 1000 population	
Melton	11%	316	11%	286	-2,695
Moreland	11%	262	11%	256	-338
Darebin	10%	268	9%	249	-2,594
Brimbank	8%	180	8%	170	-2,458
Melbourne	7%	179	8%	193	3,333
Moonee Valley	7%	239	7%	234	-323
Hobsons Bay	7%	311	6%	302	-738
Yarra	5%	217	5%	212	-160
Maribyrnong	5%	235	5%	227	-439
Macedon Ranges	1%	163	1%	163	91
Moorabool	1%	179	1%	184	247
NWMPHN	**100%**	**245**	**100%**	**237**	**-3,865**
Victoria	**-**	**257**	**-**	**253**	**1,400**

Source: VAHI, 2021c

By principal diagnosis, the 5 most common diagnoses that were recorded for ED presentations were "Pain in throat and chest" (5.7%), "Abdominal and pelvic pain" (5.6%), "Viral infection of unspecified site" (2.1%), "Dorsalgia" (1.7%), and "Symptoms & signs involving emotional state" (1.5%) in NWMPHN 2020-2021 (Table 42). COVID-19 was the 5th most common cause for emergency visits among children below 10 years old in the NWMPHN region in FY 2020-21 (See Figure 62).

Table 62. ED presentations by principal diagnosis category, FY 2019-20/FY 2020-21

Category (by principal diagnosis)	FY20		FY21	
	%	ED presentation per 1000 population	%	ED presentation per 1000 population
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	23.30%	57	24.40%	58
Injury, poisoning and certain other consequences of external causes	20.30%	50	21.70%	51
No diagnosis	6.20%	14	6.00%	14
Diseases of the respiratory system	7.00%	17	5.20%	12
Diseases of the digestive system	4.90%	12	5.20%	12
Diseases of the genitourinary system	4.30%	11	4.30%	10
Pregnancy, childbirth and the puerperium	4.00%	10	4.10%	10
Diseases of the circulatory system	4.00%	10	4.00%	10
Certain infectious and parasitic diseases	5.40%	13	3.90%	9
Diseases of the musculoskeletal system and connective tissue	4.00%	9	3.80%	9
Mental and behavioural disorders	3.60%	9	3.70%	9
Diseases of the skin and subcutaneous tissue	2.90%	7	2.70%	6
Factors influencing health status and contact with health services	2.60%	6	2.50%	6
Diseases of the eye and adnexa	2.30%	6	2.10%	5

Category (by principal diagnosis)	FY20		FY21	
	%	ED presentation per 1000 population	%	ED presentation per 1000 population
Diseases of the nervous system	1.50%	4	1.60%	4
Diseases of the ear and mastoid process	1.50%	4	1.40%	3
Codes for special purposes including COVID-19	0.20%	0.5	1.30%	3
Endocrine, nutritional and metabolic diseases	0.80%	2	0.80%	2
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	0.60%	2	0.60%	1
Certain conditions originating in the perinatal period	0.40%	1	0.40%	1
Neoplasms	0.30%	1	0.30%	1
Congenital malformations, deformations and chromosomal abnormalities	0.02%	0	0.02%	0
Total	**100%**	**237**	**100%**	**237**

Source: VAHI, 2021c

Aboriginal and Torres Strait Islander Emergency department (ED) presentations

In 2018-2019, there were 5,934 ED presentations among Aboriginal and Torres Strait Islander people living in NWMPHN catchment (Table 43). Wyndham – Altona represented 19% of the total ED presentations, followed by Moreland – Broadmeadows (16%). Northcote - Preston – Whittlesea is only partially under NWMPHN catchment but had the most ED presentations per Aboriginal population (PHIDU, 2021a) (see Table 63).

Table 63. ED presentations among Aboriginal and Torres Strait Islander people in NWMPHN region, 2018-2019

Indigenous Area	ED presentation	Proportion in NWMPHN	Age-standardised rate per 100,000 population
Northcote - Preston - Whittlesea (partial)	807	13.60%	55,103.4
Moreland – Broadmeadows	934	15.70%	53,928.3
Brimbank	550	9.30%	51,951.6
Melbourne - Port Phillip (partial)	724	12.20%	50,785.3
Maribyrnong - Moonee Valley	569	9.60%	49,523.2
Craigieburn - Sunbury	515	8.70%	40,497.1
Wyndham - Altona	1,130	19.0%	40,178.8
Melton	567	9.60%	34,936.4
Macedon Ranges - Moorabool (partial)	138	2.30%	22,403.9
North Western Melbourne	**5,934**	**100%**	**45,113.4**

Source: PHIDU, 2021a

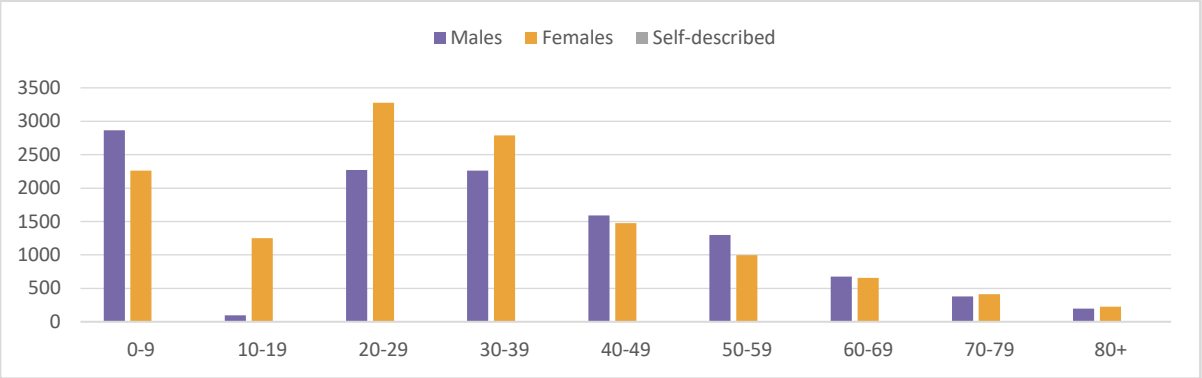
AVOIDABLE EMERGENCY DEPARTMENT PRESENTATIONS

Increases in the volume of ED attendances put pressure on health care services. Some attendances are avoidable in the sense that they could have been treated in a primary care setting (Parkinson, et al., 2021). Though no agreed, standard definition of 'avoidable ED admission' exists, they generally define care that could be delivered by a GP; though using data to define GP type presentations (for example by using triage category alone) is contentious. So, we have used the following conservative definition of an avoidable ED presentation:

"No treatment and discharged': patients who were 'self-referred; was an initial (rather than follow-up) attendance for this condition; received no investigation and either no treatment or 'guidance/advice only'; and were sent home with either no follow-up or follow-up with primary care"
(McHale et al. ,2013)

According to this definition, almost 6% of ED admissions in NWMPHN are avoidable (see Table 64). In FY 2020- 21, there were 25,830 avoidable ED admissions which is 5.70% of total ED presentations. Figure 45 shows distribution follows a similar pattern to ED presentations overall, although 20-29 years old's – particularly females - seem to be overrepresented (Figure 44).

Figure 44. Avoidable ED presentations in NWMPHN by age and gender in FY 2020-21



Source: VAHI, 2021b

Though likely under reported due to the conservative definition, Brimbank has the highest proportion of NWMPHN's avoidable ED admissions. In terms of population, Melton has the highest rate of presentation. Wyndham has the second highest rate of presentations and given its high population, also the second highest proportion of all avoidable ED presentations (see Table 64). Though Hume has a high volume of ED presentations overall (see Table 60) the LGA has a relatively lower rate of avoidable ED presentations (see Table 63).

Table 64. Avoidable emergency department presentations by LGA FY 2020-FY2021

Region	LGA name	FY20			FY21		
		Proportion (%) in NWMPHN	Proportion (%) in all ED presentations of each LGA	Rate per 10,000	Proportion (%) in NWMPHN	Proportion (%) in all ED presentations of each LGA	Rate per 10,000
Inner city	Melbourne	8.20%	6.90%	123	9.10%	6.60%	127
	Maribyrnong	5.60%	6.90%	162	5.30%	6.40%	145
	Yarra	4.50%	5.50%	119	4.50%	5.30%	112
Suburban	Brimbank	11.00%	7.80%	141	10.40%	7.60%	129
	Darebin	6.40%	3.90%	105	6.70%	4.20%	104
	Hobsons Bay	5.70%	5.00%	156	5.70%	5.00%	151
	Moonee Valley	6.40%	5.50%	131	6.20%	5.20%	122
	Moreland	8.00%	4.40%	116	7.90%	4.20%	108
Growth area	Hume	11.80%	4.60%	136	12.00%	4.40%	128
	Melton	13.60%	7.10%	223	12.70%	6.60%	190
	Wyndham	17.70%	7.50%	176	18.20%	7.40%	166
Peri-urban	Macedon Ranges - part	0.70%	3.60%	58	0.80%	3.70%	60
	Moorabool - part	0.50%	3.60%	65	0.50%	3.30%	60
NWMPHN			**5.80%**	**143**		**5.70%**	**134**

Source: VAHI, 2021b

5.5 Metric 4: Access to health care services

Metric 4: Access to Health Services provides a loading for a lack of access to services measured through Potentially Preventable Hospitalisations (PPH) and avoidable Emergency Department presentations.

Melton, Wyndham, Hume, and Hobsons Bay have the highest scores (shown in yellow).

When per capita need is adjusted for access to health services the three growth areas of Wyndham, Hume and Melton are attributed the highest proportion of need (shown in red) suggesting access to health service issues in NWMPHN's growth area. Compared to per capita need, Maribyrnong, Moonee Valley, Melton, Macedon Ranges and Moorabool also have a higher needs allocation when adjusted for Access to Health Services.

Table 65. Population need adjusted for Metric 4: Access to health care services

Region	LGA	'Overall need' population distribution 2025	Metric 4: Access to health care services					Population need adjusted for access to health care services
			PPH – Acute	PPH – Chronic	PPH – Vaccine preventable	Avoidable ED	Overall	
Inner city	Melbourne	9.8%	0.05	0.03	0.03	0.08	**0.06**	**8.0%**
	Maribyrnong	4.9%	0.06	0.06	0.03	0.09	**0.08**	**6.3%**
	Yarra	5.4%	0.06	0.05	0.09	0.07	**0.06**	**5.8%**
Suburban	Brimbank	10.5%	0.06	0.07	0.05	0.08	**0.07**	**8.8%**
	Darebin	8.3%	0.08	0.09	0.06	0.06	**0.08**	**8.0%**
	Hobsons Bay	5.1%	0.08	0.08	0.09	0.09	**0.09**	**6.9%**
	Moonee Valley	6.5%	0.07	0.07	0.07	0.08	**0.08**	**7.0%**
	Moreland	9.6%	0.08	0.08	0.10	0.07	**0.07**	**8.5%**
Growth area	Hume	12.7%	0.10	0.11	0.08	0.08	**0.09**	**11.0%**
	Melton	9.2%	0.12	0.11	0.11	0.12	**0.12**	**10.4%**
	Wyndham	15.3%	0.08	0.07	0.07	0.10	**0.09**	**12.0%**
Peri-urban	Macedon Ranges	1.5%	0.06	0.06	0.08	0.04	**0.05**	**3.2%**
	Moorabool	1.1%	0.10	0.11	0.12	0.04	**0.07**	**4.1%**

6 HEALTH CONSEQUENCES

6.1 Key messages

The association between social position and mortality is well established. At any given moment a person's risk to die is associated with factors related to low (or high) social position. Longer exposure to these factors will increase (or decrease) the risk of death. Accordingly, this kind of lifetime accumulation of social position may be an important factor behind mortality as well as the outcomes of health-compromising conditions and disease (morbidity) (Mackenbach and Maas, 1989).

This section builds on previous metrics to describe the health consequences (or outcomes) across our region, and in doing so, infers their cumulative effect on morbidity and mortality.

KEY MESSAGES FROM THIS SECTION

- 57.6% of people living in the NWMPHN region reported living with at least one chronic disease, 26% had two or more. This is slightly below the Victorian average (59.1%).
- Approximately 28% of adults (18+) in NWMPHN have been diagnosed with anxiety or depression (this is similar to Victoria average (30%)).
- Non-fatal suicidal behaviours (such as intentional self-harm) appeared to be more common in females, particularly those that are aged between 12-29 years. The rate of ED presentation and hospitalisation for females between 12 and 29 years was almost double males (2019-2021).
- Hospitalisations due to dental conditions accounted for 5% of all the PPHs in the region (2019-2021).
- The peri-urban LGAs, Hobson Bay and Melton had the highest number of deaths from suicide and self-inflicted injury (per 100,000) (2015-2019).
- In 2019, cancer, circulatory diseases and respiratory diseases was the leading cause of death. Specifically for Aboriginal and/or Torres Strait Islander people, circulatory diseases were the leading cause, followed by cancer.
- Maribyrnong, Brimbank and Melton are the top 3 LGAs with the highest premature mortality rate and avoidable mortality rate.
- The average annual avoidable mortality rate in the NWMPHN region, was significantly higher for males than females.

6.2 Health conditions and disease

Examining the burden of disease across our region provides an indication of the impacts that health inequities are having on the quality of people's lives.

In selecting the specific conditions to focus on in this section, consideration has been given to the extent to which:

- Behavioural change could reduce contributing health risk factors (see Metric 3: Determinants of health status)
- They could have been avoided and/or detected earlier (see Metric 4: Access to health care services)
- Their progression and/or severity could be impacted by better utilisation of primary health care within the North Western Melbourne PHN region.

The groups of health conditions explored in this section are chronic conditions which have shared risk factors (asthma, COPD, diabetes, cardiovascular disease, musculoskeletal conditions), cancer, mental health and suicide.

Figure 45. Summary of selected health conditions and issues

Chronic conditions	Cancers	Mental health and suicide
that contribute notably to the burden of disease; and share similar risk factors and management approaches in the primary care sector. This includes, respiratory conditions, cardiovascular conditions, diabetes, musculoskeletal conditions.	that have the potential to be identified early (through screening programs), and/or have high mortality.	That contribute notably to the burden of disease across most age groups. Can be managed in primary care with assistance of GP Mental Health Treatment Plans, support from allied health etc.

We have also included an analysis of other conditions which have been identified as potential needs areas throughout the HNA. This includes Alzheimer's Disease and other forms of dementia and oral health.

Note: The 2019 VPHS (which provides PHN level insights) and 2017 VPHS (which provides LGA level insights) has been used as the predominant data source within this section. A new release of the survey data is due at the end of 2021 and the findings will be incorporated in future reports.

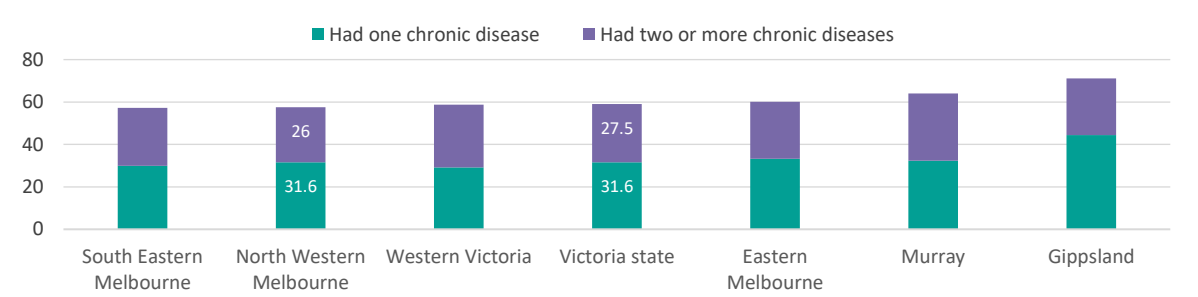
CHRONIC CONDITIONS

Chronic conditions are long-term health conditions that tend to worsen over time, cannot be passed from person to person, and often lead to a gradual deterioration in health, loss of independence and premature death (WHO, 2021b). They can have a profound impact on both a person's health and wellbeing and contribute to demand for services in the health care system.

Different factors can increase the risk of developing chronic conditions or interfere in their management. Although some risk factors are outside of a person's direct control, many are largely modifiable. It is estimated that approximately one third of the burden of disease in Australia is attributed to modifiable risk factors (AIHW, 2019a). The most common modifiable factors (such as poor nutrition and physical activity) are discussed in Metric 3: Determinants of health status.

The 2019 VPHS defines chronic disease based on eight common conditions: asthma, diabetes, heart disease, stroke, cancer, osteoporosis, arthritis and anxiety or depression. In 2019, 57.6% of people living in the NWMPHN region reported living with at least one chronic disease, 26% had two or more. This is slightly below the Victorian average (59.1%) (VAHI, 2021a) (See Figure 46).

Figure 46. Proportion (%) of chronic diseases, 2019



Source: VAHI, 2021a

Table 66 shows responses to the VPHS 2019 where respondents were also asked if they have ever been diagnosed with one of the following chronic diseases. NWMPHN is comparable to the Victorian average, however the rates for Asthma, Osteoporosis and Arthritis are higher in females, than males and for most diseases similar to the Victorian average.

Table 66. Proportion (%) of respondents who have ever been diagnosed with a chronic disease, 2019

Chronic conditions	Male (%)	Female (%)	NWMPHN (%)	Victoria (%)
Asthmas (ever diagnosed)	17.9	22.3	20.6	21.7
Asthma (last year)	8.1	16	12.3	12.8
Type 2 diabetes	7.1	5.4	6.1	5.7
Heart disease	8.1	6.4	7.2	7.1
Stroke	2.1	2.1	2.1	2.3

Chronic conditions	Male (%)	Female (%)	NWMPHN (%)	Victoria (%)
Cancer	6.7	8.1	7.5	7.6
Osteoporosis	2.4	10	6.7	6.4
Arthritis	16.7	22.5	19.1	20.3

Source: VAHI, 2021a

Victorian people aged 65 years and over were more impacted by chronic conditions than other age groups (NWMPHN specific not available) (see Table 67).

Table 67. Proportion (%) of chronic disease by age groups, 2017

Chronic conditions	Aged 18 and over (%)	Aged 65 -74 (%)	Aged 75 -84 (%)	Aged 85 and over (%)
Asthma (ever diagnosed)	21.6	17.1	18.1	18.7
Type 2 diabetes	5.8	14.1	13.8	12.2
Heart disease	7.4	18.3	31.1	38.1
Stroke	2.4	5.9	9.6	6.3
Cancer	7.9	20.7	24.9	26
Osteoporosis	6.7	18.7	29.4	30
Arthritis	21.4	51.4	59.1	61.4
Two or more chronic diseases	28	51.5	63.5	62.9

Source: VAHI, 2019

The prevalence of having ever been diagnosed with two or more chronic diseases was significantly higher in LGBTIQ+ adults (36.1%) compared with non-LGBTIQ+ adults (25.1%).

The 2017 VPHS describes the number of people (aged 18+) diagnosed with a chronic disease by LGA.

Table 68. Percentage (%) People aged 18+ diagnosed with chronic disease by LGA, 2017

Region	LGA	Asthma (ever diagnosed)	Type 2 diabetes	Heart disease	Stroke	Cancer (any)	Osteoporosis	Arthritis	Two, or more, chronic diseases
Inner city	Melbourne	15.2	2.5	5.1	NR	6.2	2.4	11.8	17.8
	Maribyrnong	21.7	8.3	7.8	1.4	9.7	6.1	21.6	27.6
	Yarra	21.8	4.4	3.2	1.1	8.4	5.8	16.7	21.9
Suburban	Brimbank	19.2	6.9	8.2	**5.2**	6.3	6.3	20.8	28.4
	Darebin	18.6	6.4	5.2	3.0	5.9	8.0	20.2	27.6
	Hobsons Bay	23.5	4.5	7.3	3.4	7.9	4.9	21.3	26.2
	Moonee Valley	21.5	3.3	6.6	2.1	8.0	4.8	15.2	23.0
	Moreland	14.6	5.6	8.0	3.1	5.1	8.3	22.2	25.3
Growth area	Hume	17.5	7.8	**9.9**	4.2	6.8	6.8	24.0	28.6
	Melton	17.6	7.1	6.1	3.7	8.6	4.1	21.1	26.4
	Wyndham	15.6	7.1	6.5	3.2	4.8	3.1	21.0	23.5
Peri-urban	Macedon Ranges – part	24.6	5.7	7.2	1.4	7.9	6.1	18.0	26.6
	Moorabool – part	22.5	8.7	6.4	2.1	11.3	6.0	21.0	30.9
VICTORIA		**20.0**	**5.5**	**6.7**	**2.4**	**8.1**	**5.7**	**20.5**	**25.5**

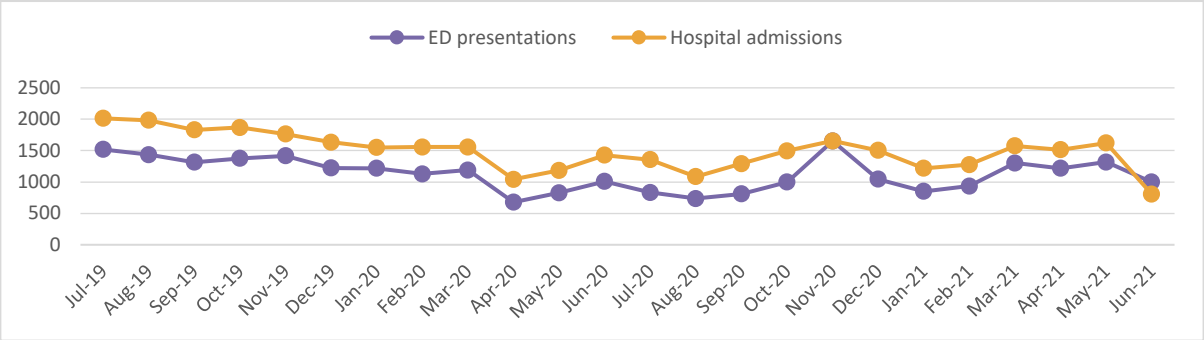
Source: VAHI, 2019a

Stroke: Estimated figures for all LGAs, with exception of Brimbank, should be interpreted with caution as RSE between 25 and 50 per cent.

Prevalence in Acute care

From July 2019 to June 2021, there were 35,808 hospitalisations due to chronic conditions in NWMPHN, which accounted for 3.6% of the total hospitalisations. There were also 27,034 ED presentations, which accounted for 3% of the total ED presentations in the region There was a drop in chronic conditions related ED presentations in April 2020 when COVID-19 hit. The figure then peaked in November 2020. After that, the number has been stable and similar to pre-COVID level. Similar trend was observed in chronic conditions related hospitalisations in April 2020 (VAHI 2021b and 2021c) (see Figure 47).

Figure 47. Chronic conditions related hospitalisations and ED presentations

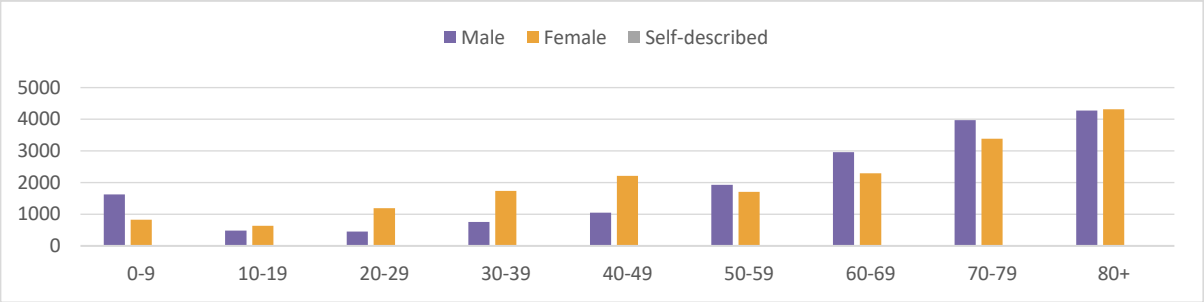


Source: VAHI, 2021b and 2021c

Hospitalisations

Chronic condition related hospitalisations in 2019-2021 happened more among older people in NWMPHN, especially those aged 80 years and over (24%). Overall, a slightly higher number of females than males were hospitalised due to chronic conditions (18,294 females; 17,509 males). Hospitalised females were more likely to be younger, with the exception of children aged under 10 (VAHI, 2021b) (see Figure 48).

Figure 48. Hospitalisations due to chronic conditions in NWMPHN 2019-2021



Source: VAHI, 2021b

In FY 2020-21, Hume had the greatest number of hospitalisations due to chronic conditions (18%), followed by Wyndham (13%) and Melton (13%). In terms of the hospitalisation rate, Melton, Hume and Moorabool were the top 3 LGAs with chronic conditions not being managed well in the community. Also, Moorabool had an increased number of chronic conditions related hospitalisations from FY2019-20 to FY 2020-21 (see Table 69).

Table 69. Hospitalisation due to chronic condition by LGA in FY 2019-20/FY 2020-21

LGA name	FY20			FY21		
	Number	%	Hospitalisations per 10,000 population	Number	%	Hospitalisations per 10,000 population
Hume	3,408	17.60%	146	2,877	17.50%	119
Wyndham	2,566	13.20%	95	2,142	13.10%	76
Melton	2,266	11.70%	137	2,132	13.00%	124
Moreland	2,220	11.40%	119	1,730	10.60%	92

LGA name	FY20			FY21		
	Number	%	Hospitalisations per 10,000 population	Number	%	Hospitalisations per 10,000 population
Darebin	2,158	11.10%	131	1,714	10.50%	103
Brimbank	1,866	9.60%	89	1,514	9.20%	73
Moonee Valley	1,282	6.60%	98	1,074	6.60%	82
Hobsons Bay	976	5.00%	100	819	5.00%	83
Maribyrnong	819	4.20%	88	629	3.80%	66
Melbourne	702	3.60%	39	702	4.30%	38
Yarra	695	3.60%	68	594	3.60%	58
Moorabool	244	1.30%	109	272	1.70%	118
Macedon Ranges	206	1.10%	64	201	1.20%	62
NWMPHN	**19,408**	**100%**	**103**	**16,400**	**100%**	**87**

Source: VAHI, 2021b

In FY 2020-21, more than a quarter of chronic condition caused hospitalisations in NWMPHN were due to iron deficiency anaemia, followed by congestive cardiac failure (19%) and diabetes (18%). Compared to FY 2019-20, FY 2020-21 saw a 15% drop in hospitalisations due to chronic conditions in NWMPHN region. However, the number of hospitalisations due to angina increased during this period (see Table 70).

Table 70. Hospitalisation due to chronic conditions in NWMPHN in FY20/FY21

Chronic conditions	FY20		FY21	
	Hospitalisation	%	Hospitalisation	%
Iron deficiency anaemia	4,518	23.3%	4,365	26.6%
Congestive cardiac failure (CCF)	3,677	19.0%	3,080	18.8%
Diabetes complications	3,447	17.8%	2,919	17.8%
COPD	3,015	15.5%	2,170	13.2%
Asthma	2,679	13.8%	1,913	11.7%
Angina	979	5.0%	1,006	6.1%
Hypertension	626	3.2%	555	3.4%
Bronchiectasis	300	1.6%	240	1.5%
Rheumatic heart disease	129	0.7%	117	0.7%
Nutritional deficiencies	38	0.2%	35	0.2%
Total	**19,408**	**100%**	**16,400**	**100%**

Source: VAHI, 2021b

While iron deficiency anaemia, heart failure and COPD were the most common causes for chronic condition related hospitalisations, the causes for different age groups vary.

- For people aged 0-39 years, the most common causes were asthma, iron deficiency anaemia and Type 1 diabetes.
- For those aged 40-49 years, Type 2 diabetes became more common than Type 1.
- For those aged 50-69 years, the most common causes were COPD, Type 2 diabetes and iron deficiency anaemia.
- For people aged 70 years and over, heart failure, COPD and iron deficiency anaemia were the common causes for hospitalisations.

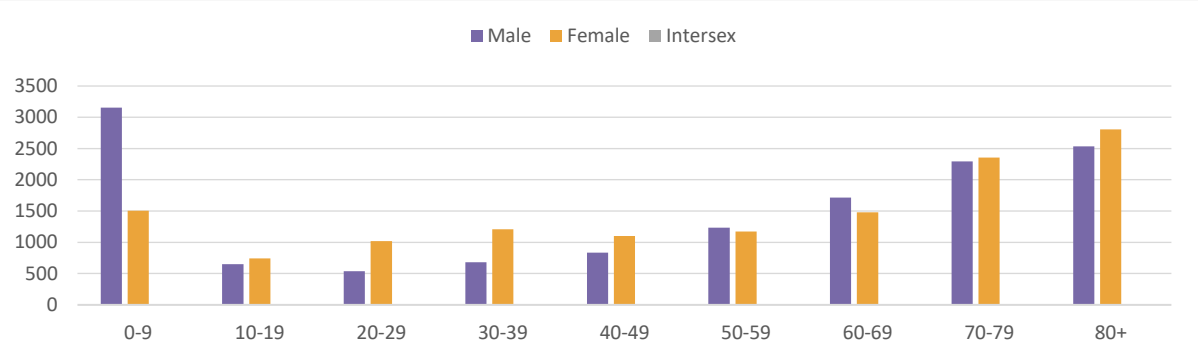
Emergency Department presentations

The 80+ age group had the greatest number of ED presentations (20%) due to chronic conditions, closely followed by people aged 0-9 years (17%) and 70-79 years (17%).

Unlike with hospitalisations, presentations to emergency department due to chronic conditions involved a slightly greater number of males (13,637), compared to females (13,395) and a more similar proportion of older age groups across gender; 49.6% of females presenting to ED were aged 60 years and over compared to 48% of males (See Figure 49).

Children (0-9 years) presenting to ED were more than twice as likely to be male than female (VAHI, 2021b).

Figure 49. ED presentations due to chronic conditions in NWMPHN 2019-2021



Source: VAHI, 2021b

From FY 2019-20 to FY 2020-21 all LGAs in NWMPHN showed a decreased rate of ED presentations per 10,000 people that were related to chronic conditions. In 20-2021 rates of ED presentations due to chronic conditions were highest in Melton (86/10,000) and Hume (85/10,000), though Melton had shown the most substantial decrease from the previous financial year (106/10,000) (see Table 71).

Table 71. ED presentations due to chronic conditions by LGA in FY20/FY21

LGA name	FY20			FY21		
	Number	%	ED presentations per 10,000 population	Number	%	ED presentations per 10,000 population
Hume	2,194	15.30%	94	2,041	16.10%	85
Wyndham	2,088	14.60%	77	1,975	15.60%	70
Melton	1,748	12.20%	106	1,490	11.70%	86
Moreland	1,519	10.60%	82	1,349	10.60%	71
Brimbank	1,439	10.00%	69	1,167	9.20%	56
Darebin	1,414	9.90%	86	1,250	9.80%	75
Moonee Valley	945	6.60%	73	782	6.20%	59
Hobsons Bay	902	6.30%	92	754	5.90%	77
Maribyrnong	630	4.40%	67	517	4.10%	54
Melbourne	600	4.20%	34	589	4.60%	32
Yarra	587	4.10%	58	533	4.20%	52
Macedon Ranges	152	1.10%	47	129	1.00%	40
Moorabool	119	0.80%	53	121	1.00%	52
NWMPHN	**14,337**	**100%**	**76**	**12,697**	**100%**	**66**

Source: VAHI, 2021b

In FY 2020-21 across NWMPHN region, 33% of chronic condition related ED presentations in NWMPHN were due to asthma, followed by congestive cardiac failure (21%) and chronic obstructive pulmonary disease (14%). From FY2019-20 to FY2020-21, chronic related ED presentations dropped by 11% in NWMPHN region. However, ED presentations due to hypertension, angina or iron deficiency anaemia increased during this period (see Table 72).

Table 72. Chronic condition related ED presentations in NWMPHN in FY20/FY21

Chronic condition type	FY20		FY21	
	ED presentations	%	ED presentations	%
Asthma	4,962	34.6%	4,215	33.2%
Congestive cardiac failure (CCF)	3,035	21.2%	2,664	21.0%
COPD	2,310	16.1%	1,818	14.3%
Hypertension	1,381	9.6%	1,419	11.2%
Diabetes complications	1,000	7.0%	995	7.8%
Angina	735	5.1%	744	5.9%
Iron deficiency anaemia	629	4.4%	636	5.0%
Bronchiectasis	285	2.0%	206	1.6%
Total	**14,337**	**100%**	**12,697**	**100%**

Source: VAHI, 2021c

While asthma, heart failure and COPD were the most common causes for chronic condition related ED presentations, the causes for different age groups vary. For children and young people aged 0-29 years, the most common causes were asthma, diabetes and anaemia.

For those aged 30-49 years, the most common causes became asthma, diabetes and hypertension. For those aged 50-59 years, the most common causes were asthma, COPD and hypertension. For people aged 60 and over, COPD, heart failure, hypertension and pulmonary oedema were the common causes.

In FY 2020-21 across NWMPHN, Hume had the greatest number of ED presentations due to chronic conditions (16%), followed by Wyndham (16%) and Melton (12%). The ED presentation rate had dropped from FY20 to FY21 across all LGAs in the region.

Asthma

Asthma is a chronic condition affecting children and adults due to the narrowing of air passages in the lungs, which causes cough, wheeze and shortness of breath (WHO, 2021c).

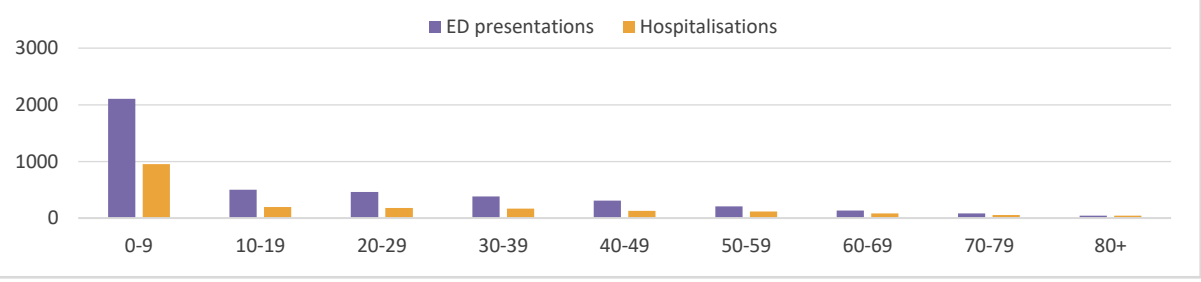
The 2019 VPHS estimated that 20.6% of residents in NWMPHN had asthma, and 12.3% had been diagnosed with asthma in the year preceding the survey. This is similar to the Victorian figures (21.7% and 12.8% respectively) (see Table 67). Macedon Ranges and Hobsons Bay had a higher proportion of residents with asthma than other LGAs according to the 2017 VPHS (VAHI, 2019).

Adults with asthma may be more likely to be experience psychological distress. The National Health Survey (ABS, 2018c) in 2017-2018 found that 24.7% of those with asthma reported high or very high level of distress compared to 12.1% of those without asthma.

Hospitalisations and Emergency Department presentations

From July 2020 to June 2021 across NWMPHN region, there were 4,215 ED presentations and 1,913 hospitalisations due to asthma. This was a decrease from FY2020 (4,692 ED presentations and 2,679 hospitalisations). Children (0-9 years) accounted for 50% of the asthma related ED presentations and 49% of asthma related hospitalisations (see Figure 50).

Figure 50. ED presentations and hospitalisations due to asthma by age in NWMPHN



Source: VAHI, 2021a and 2021b (ICD: J45, J46)

Diabetes

Diabetes is a chronic condition marked by high levels of glucose in the blood. It is caused either by the inability to produce insulin or by the body not being able to use insulin effectively, or both. Diabetes can cause a wide range of complications, and thus is often associated with other chronic conditions such as cardiovascular disease and chronic kidney disease (AIHW, 2019b).

There are 3 main types of diabetes:

- Type 1 diabetes is an autoimmune disease that usually has onset in childhood and adolescence. It could result from an interaction of genetic and environmental factors.
- Type 2 diabetes is the most common form of diabetes. It is largely preventable by maintaining a healthy lifestyle including healthy diet, sufficient physical activity, healthy weight, avoiding smoke etc.
- Gestational diabetes occurs generally in the second or third trimester when higher than normal blood glucose is diagnosed in pregnancy. It can result in complications for both mother and baby.

Based on self-report responses, the VPHS (VAHI, 2019) estimated that 6.1% of residents in NWMPHN had Type 2 diabetes, compared with the Victorian figure (5.7%) (see Table 66). Moorabool and Maribyrnong had a higher proportion of residents with Type 2 diabetes than other LGAs according to the 2017 VPHS (VAHI, 2019).

Hospitalisations and Emergency Department presentations

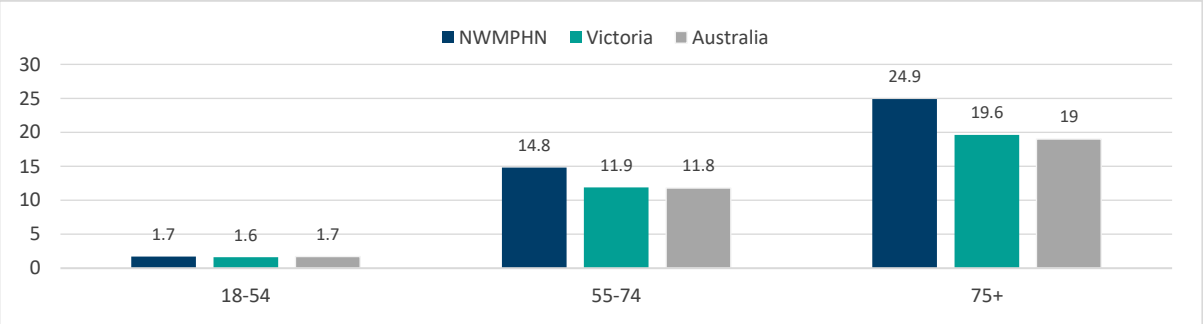
There were approximately 113,557 hospitalisations associated with diabetes from July 2019 to June 2021 in NWMPHN region, with 6% recorded as the principal diagnosis and 94% recorded as an additional diagnosis (Diabetes hospitalisations: VAHI - VAED, VEMD (ICD: E08, E09, E10, E11, O24, E13, E14). This represents 11.6% of all hospitalisations in NWMPHN region during this period.

In 2019-2021 across NWMPHN region, 6,674 hospitalisations had diabetes as the principal diagnosis. Of these hospitalisations, 64% were due to type 2 diabetes, 28% were due to type 1 diabetes, 5% were due to gestational diabetes and 3% were due to other type or unspecified diabetes. 110,651 hospitalisations had diabetes as an additional diagnosis. Of these hospitalisations, 85% were due to type 2 diabetes, 9% were due to gestational diabetes, 4% were due to type 1 diabetes and 2% were due to other type or unspecified diabetes (VAHI, 2021b and 2021c).

Self-management supports

The National Diabetes Services Scheme (NDSS) is an initiative of the Australian Government to help people with diabetes to self-manage their condition. The NDSS also provides subsidised diabetes-related products. In 2018, there were 79,084 adults (18+) registered in the NDSS with type 2 diabetes in NWMPHN, which accounted for 5.7% of the population in the region. A higher proportion of adults in NWMPHN region were registered in the NDSS with type 2 diabetes than the proportions in Victoria or Australia (AIHW, 2021h) (see Figure 51).

Figure 51. Proportion (%) of adults (18+) in 2018 registered in the NDSS with type 2 diabetes by age group and region



Source: AIHW, 2021h

Chronic Obstructive Pulmonary Disease

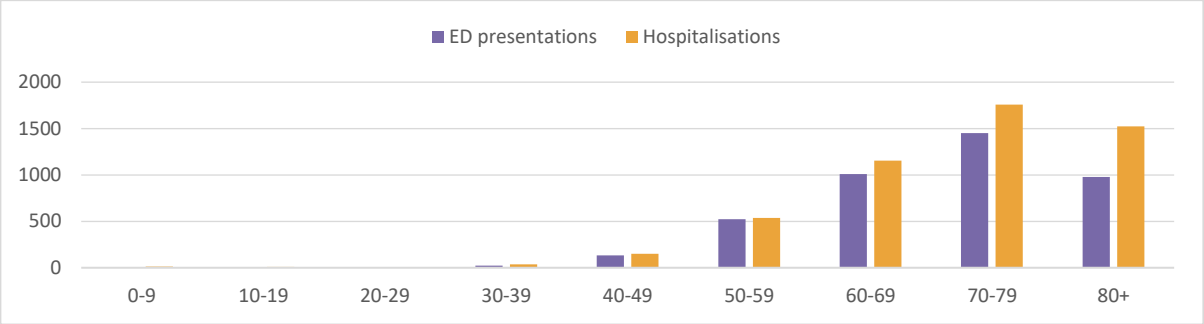
Chronic obstructive pulmonary disease (COPD) is a preventable and treatable chronic lung disease which results from long-term exposure to harmful gases and particles combined with individual factors (WHO, 2021d).

It was estimated that 33,202 residents in NWMPHN region had COPD in the 2017-2018 NHS, which was 2.2 per 100 population (age-standardised rate). This is between the state (2.1 per 100) and national (2.5 per 100) figure. The survey also found that a significantly higher proportion of people living with COPD experience high or very high psychological distress (35.9%) compared to those without COPD (12.3%) (ABS, 2018c).

Hospitalisations and Emergency Department presentations

From July 2020 to June 2021 across NWMPHN region, there were 1,818 ED presentations and 2,170 hospitalisations due to COPD. People aged 70+ accounted for 59.6% of all the COPD related ED presentations and 67% of COPD related hospitalisations (see Figure 52).

Figure 52. ED presentations and hospitalisations due to COPD by age in NWMPHN (2020-2021)



Source: VAHI, 2021b and 2021c (ICD: J40 – J44)

Cardiovascular disease

Cardiovascular disease (CVD) refers to all diseases and conditions involving the heart and blood vessels. The main types of CVD in Australia are coronary heart disease, stroke and heart failure (Heart Foundation, 2021). Nationally, CVD has a greater impact on males, the elderly, Aboriginal and Torres Strait Islander people and people living in remote and socio-economically disadvantaged areas.

The 2019 VPHS estimated that 7.2% of residents in NWMPHN had heart disease, compared with the Victorian figure (7.1%) (VAHI, 2021a). Hume and Brimbank had a higher proportion of residents with heart disease than other LGAs according to the 2017 VPHS (VAHI, 2019).

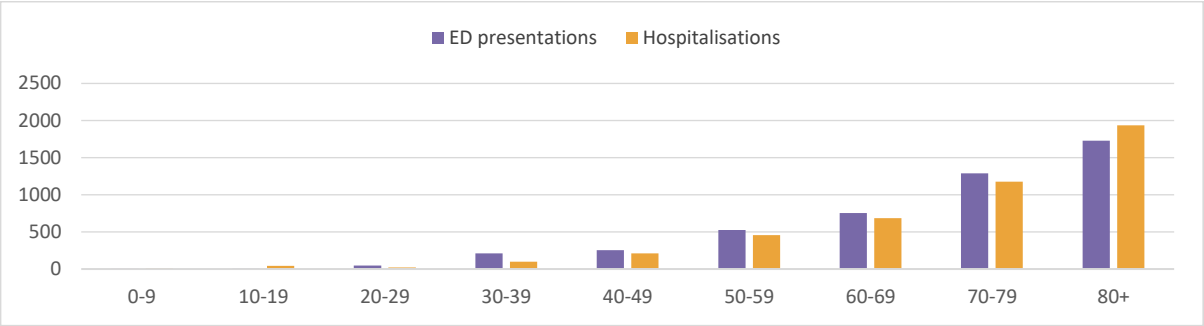
The 2019 VPHS estimated that 2.1% of residents in NWMPHN had ever had stroke, compared with the Victorian figure (2.3%). Brimbank and Hume had a higher proportion of residents with stroke than other LGAs according to the 2017 VPHS.

Hospitalisations and Emergency Department presentations

From July 2020 to June 2021 across NWMPHN region, there were 4,827 ED presentations and 4,641 hospitalisations due to conditions associated with cardiovascular disease (CVD), reported here as including congestive cardiac failure (CCF), angina and hypertension.

Older adults aged 70 years and over accounted for 63% of the CVD related ED presentations and 67% of CVD related related hospitalisations (see Figure 53).

Figure 53. ED presentations and hospitalisations due to CVD related conditions by age in NWMPHN



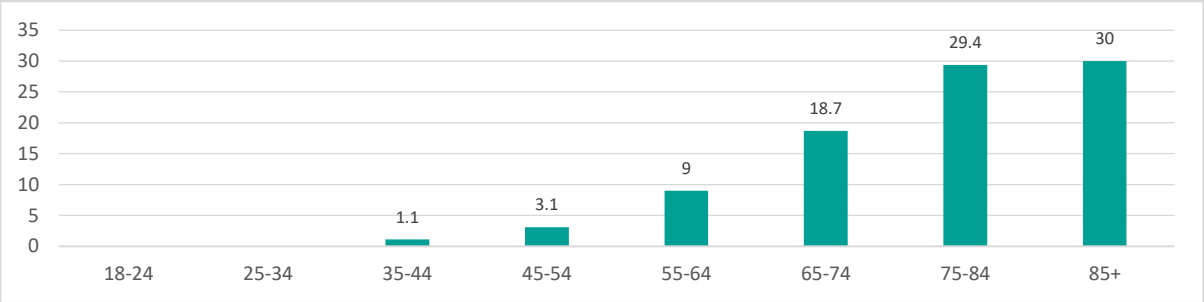
Source: VAHI, 2021b and 2021c

Musculoskeletal conditions

Osteoporosis

Osteoporosis is a condition where bones become thin, weak and fragile, such that even a minor bump or accident can cause a broken bone (AIHW, 2020). Based on the self-reported data from the 2019 VPHS (VAHI, 2021a), osteoporosis is more common in women than men; the proportion of adults with osteoporosis increases with age, with those aged 75+ being most impacted.

Figure 54. Proportion (%) of self-reported osteoporosis by age group in Victoria



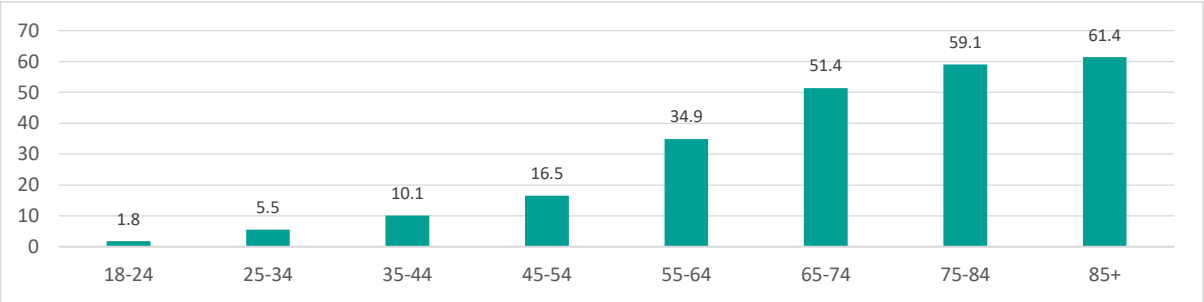
Source: VAHI, 2021a

It was also estimated that in 2019 6.7% of adults in NWMPHN had osteoporosis, compared with the Victorian figure (6.4%). Based on LGA level data from 2017 VPHS (VAHI, 2019), Moreland and Darebin had a higher proportion of residents with osteoporosis than other LGAs.

Arthritis

Arthritis is a wide range of inflammatory conditions affecting the bones, muscles and joints, causing pain, stiffness, swelling and redness in affected joints (AIHW, 2020). Based on the self-reported data from VPHS in 2019, the proportion of adults with arthritis increases with age, with those aged 75+ being most impacted (VAHI, 2021a) (see Figure 55).

Figure 55. Proportion (%) of self-reported arthritis by age group in Victoria, 2019



Source: VAHI, 2021a

The 2019 VPHS estimated that 19.7% of residents in NWMPHN had arthritis, compared with the Victorian figure (20.9%). Hume and Moreland had a higher proportion of residents with arthritis than other LGAs according to the 2017 VPHS.

CANCERS

Cancer occurs when some of the body's cells become abnormal and begin to multiply out of control. People diagnosed with cancer in Australia experience some of the highest cancer survival rates in the world. As treatment and survival rates improve, cancer is increasingly being viewed as a chronic condition that can be managed over the life course (AIHW, 2019c).

The burden of disease for cancer increases with age, across both males and females. One in two men and one in three women are likely to be diagnosed with cancer in their lifetime (AIHW, 2019c). Higher rates of cancer may, in part, be due to national screening programs that assist in the early identification and treatment of some cancers. A number of these programs were discussed earlier in this section under *Metric 3: Determinants of Health Status*.

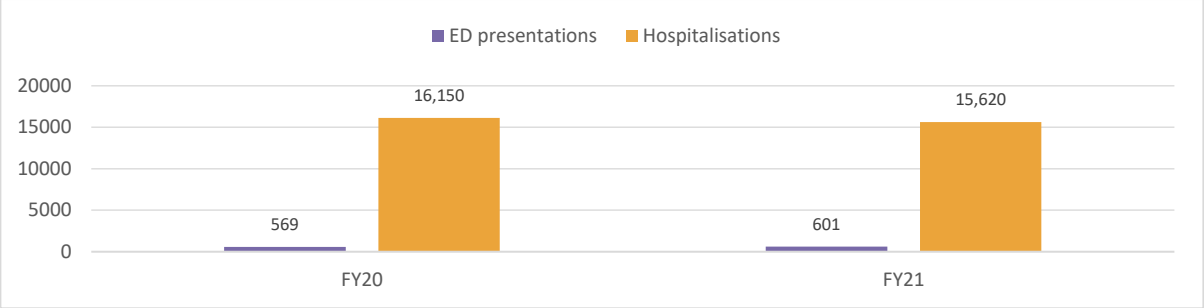
The 2019 VPHS estimated that 7.5% of residents in NWMPHN had cancer, compared with the Victorian figure (7.6%) (see Table 73). According to the 2017 VPHS, Moorabool and Maribyrnong had a higher proportion of residents with cancer than other LGAs (see Table 74).

Recent data indicating the prevalence of different types of cancers at PHN or area levels are not available. The most up to date sources were released by AIHW in 2019, providing cancer statistics analysis by PHN and by SA3 up to the year 2014. This older data has not been detailed here.

Hospitalisations and Emergency Department presentations

From FY 2019-20 to FY 2020-21 in NWMPHN region, ED presentations due to cancers had increased by 6% whereas hospitalisations due to cancers had reduced by 3% (see Figure 56).

Figure 56. Hospitalisations and ED presentations due to cancers in NWMPHN in FY 2019-20/FY 2020-21



Source: VAHI, 2021b and 2021c

Below is a breakdown of ED presentations and hospitalisations by age group in NWMPHN in FY21. People aged 80+ were most likely to have hospital visits because of cancers (see Table 73).

Table 73. ED presentations and hospitalisations due to cancers by age group in FY21

Age group	ED presentations			Hospitalisations		
	Number	%	Rate per 10,000 population	Number	%	Rate per 10,000 population
00-09	12	2.0%	0.5	374	2.4%	15.2
10-19	7	1.2%	0.3	179	1.2%	8.8
20-29	20	3.3%	0.6	357	2.3%	10.1
30-39	30	5.0%	0.8	783	5.0%	21.3
40-49	47	7.8%	1.9	1,172	7.5%	47.2
50-59	111	18.5%	5.5	2,449	15.7%	121.4
60-69	122	20.3%	7.9	3,733	23.9%	241.6
70-79	149	24.8%	15.5	3,922	25.1%	406.8
80+	103	17.1%	17.9	2,651	17.0%	459.4
Total	**601**	**100%**	**3.1**	**15,620**	**100%**	**80.98**

Source: VAHI, 2021b and 2021c

Below are the top five cancers identified in hospitalisations in NWMPHN in FY21. Colorectal cancer caused the greatest number of cancer related hospitalisations in FY21. Of all the LGAs, Hume had the highest number of hospitalisations due to cancer (Table 73), Melton had the highest rate of cancer per 10,000 population (Table 75).

All the five cancers had reduced number of hospitalisations in FY21, compared to FY20. This is most likely due to the lockdowns in Victoria rather than the reduced cancer incidence.

Table 74. Top 5 cancers identified in hospitalisations in NWMPHN in FY21

LGA name	Breast cancer	Colorectal cancer	Lung cancer	Melanoma of skin	Prostate cancer	**Total**
Brimbank	61	80	88	17	78	**324**
Darebin	76	315	72	27	66	**556**
Hobsons Bay	51	51	65	12	49	**228**
Hume	136	212	143	33	129	**653**
Macedon Ranges	15	11	8	10	15	**59**
Maribyrnong	27	40	48	5	23	**143**
Melbourne	31	37	37	13	26	**144**
Melton	99	107	105	22	106	**439**
Moonee Valley	50	72	69	22	53	**266**
Moorabool	11	15	22	8	17	**73**
Moreland	80	207	74	24	69	**454**
Wyndham	125	111	91	31	84	**442**
Yarra	18	34	38	11	24	**125**
Total	**780**	**1,292**	**860**	**235**	**739**	**3,906**

Source: VAHI, 2021b

For a detailed break-down of the rate of hospitalisations due to chronic conditions and cancer per 10,000 population by LGA (FY 2020-21) see Table 75 and Table 76.

Table 75. Rate of hospitalisations due to chronic conditions per 10,000 population by LGA - in 2020-2021 financial year

Region	LGA name	Asthma	Congestive cardiac failure (CCF)	COPD	Hypertension	Diabetes complications	Angina	Iron deficiency anaemia	Cancer	Bronchiectasis
Inner city	Melbourne	4.7	5.7	3.8	1.7	8.9	2.6	9.6	40.8	0.7
	Maribyrnong	10.1	13.1	10.9	3.2	11.2	3.5	13.2	59.2	0.8
	Yarra	8.1	10.9	6.1	1.9	11.4	3.1	14.5	62.1	0.4
Suburban	Brimbank	6.9	17.3	11.9	2.0	10.9	4.3	17.8	68.3	0.9
	Darebin	6.6	23.3	14.7	3.3	17.4	5.5	29.9	104.2	1.5
	Hobsons Bay	11.3	16.5	10.1	2.0	15.8	6.2	18.6	109.5	1.6
	Moonee Valley	9.4	19.9	12.1	2.9	13.1	6.4	16.0	86.8	1.2
	Moreland	11.4	24.6	9.8	3.4	15.1	4.8	20.8	83.9	0.8
Growth area	Hume	13.8	18.8	12.9	3.9	27.4	8.0	32.5	93.1	1.2
	Melton	17.0	19.0	18.6	3.0	19.4	7.8	35.2	106.6	2.9
	Wyndham	9.9	8.5	10.2	3.4	11.7	4.1	25.5	71.5	1.3
Peri-urban	Macedon Ranges - part	6.4	14.7	9.8	2.1	10.1	4.6	12.9	106.4	0.6
	Moorabool – part	6.1	14.8	18.7	3.0	20.0	7.8	45.1	111.1	2.6
NWMPHN		**9.9**	**16.0**	**11.3**	**2.9**	**15.1**	**5.2**	**22.6**	**81.0**	**1.2**

Source: VAHI, 2021b

Table 76. Rate of ED presentation due to chronic conditions per 10,000 population by LGA - in 2020-2021 financial year

Region	LGA name	Asthma	Congestive cardiac failure (CCF)	COPD	Hypertension	Diabetes complications	Angina	Iron deficiency anaemia	Cancer	Bronchiectasis
Inner city	Melbourne	10	4	4	4	4	3	2	2	1
	Maribyrnong	18	11	8	8	4	3	2	2	1
	Yarra	17	11	7	6	4	3	3	3	1
Suburban	Brimbank	15	13	10	7	4	3	3	4	1
	Darebin	17	21	11	8	6	5	5	2	2
	Hobsons Bay	27	15	10	10	6	5	3	4	2
	Moonee Valley	17	15	9	6	4	4	2	3	2
	Moreland	20	20	8	9	5	4	4	4	1
Growth area	Hume	30	17	11	10	6	5	5	3	1
	Melton	36	14	12	6	8	6	3	4	1
	Wyndham	28	11	11	8	5	2	4	3	1
Peri-urban	Macedon Ranges - part	12	7	7	5	3	3	0.3	5	0.9
	Moorabool - part	12	13	13	4	6	3	1	3	1
NWMPHN		**22**	**14**	**9**	**7**	**5**	**4**	**3**	**3**	**1**

Source: VAHI, 2021c

ALCOHOL AND OTHER DRUGS

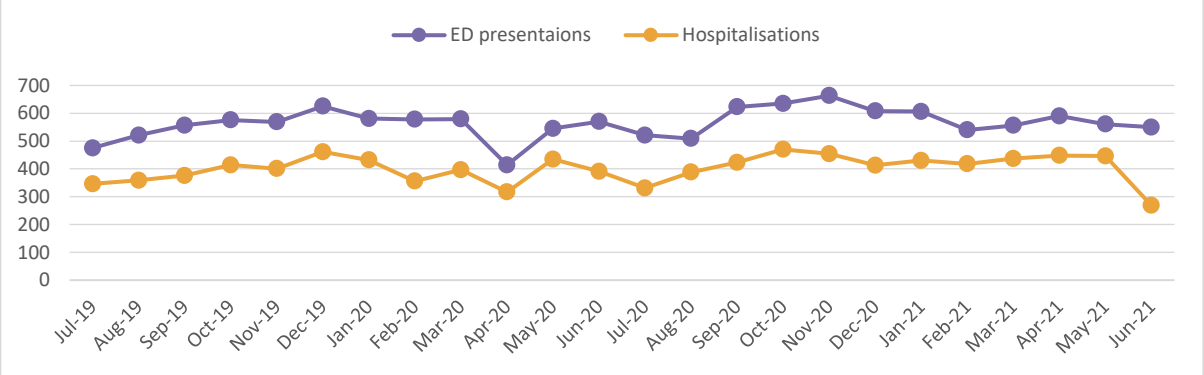
Hospitalisations

From July 2019 to June 2021 across the NWMPHN catchment, there were a total of 22,242 Hospitalisations that had a diagnosis related to alcohol or other drugs, of which 9,612 were primarily due to alcohol or other drugs.

From July 2019 to June 2021 across the NWMPHN catchment, there were a total of 14,274 ED presentations related to alcohol or other drugs (AOD), of which 13,552 were primarily due to alcohol and other drugs.

Figure 58 shows the monthly trend of AOD related ED presentations and hospitalisations by principal diagnosis from July 2019 to June 2021. AOD related ED presentations and hospital admissions dropped significantly in April 2020 when COVID 19 hit. After that, increases were observed during the "out of lockdown" months, whereas the other months are lower or similar to pre-COVID level.

Figure 57. AOD related ED presentations and hospitalisations (by principal diagnosis)



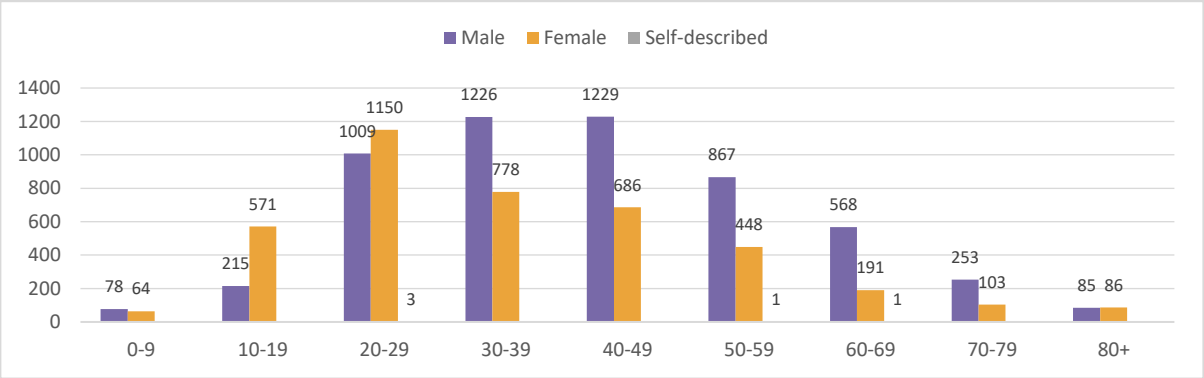
Source: VAHI, 2021b and 2021c

During FY 2019-20 and FY2020-21, across NWMPHN there were a total of 22,242 that had a diagnosis related to AOD. Of these, 53% were multi-day stays. AOD-related hospitalisations most

commonly involved people aged 30-49 years. More male patients presented in AOD-related hospitalisations than female patients in all age groups except for 10-19 years (see Figure 58).

During FY 2019-20 and FY 2020-21, a total of 9,612 hospitalisations were *primaril*y due to AOD (see Table 77). Of these 37% were multi-day hospital stays. Young people aged 20-29 accounted for 22% of the total hospitalisations which was higher than any other age group. As with AOD-related hospitalisation, a substantially greater proportion of males than females were hospitalised primarily due to AOD.

Figure 58. Hospitalisations with primarily due to AOD by age and gender in NWMPHN Jul 19 - Jun 21



Source: VAHI, 2021b

Below is a breakdown of hospitalisations due to AOD by local government area. Melbourne and Yarra had the highest hospitalisation rate in both financial years. Moonee Valley saw a significant increase in the hospitalisations caused by AOD from FY 2019-20 to FY 2020-21.

Table 77. Hospitalisations due to AOD by LGA in FY 2019-20/FY 2020-21

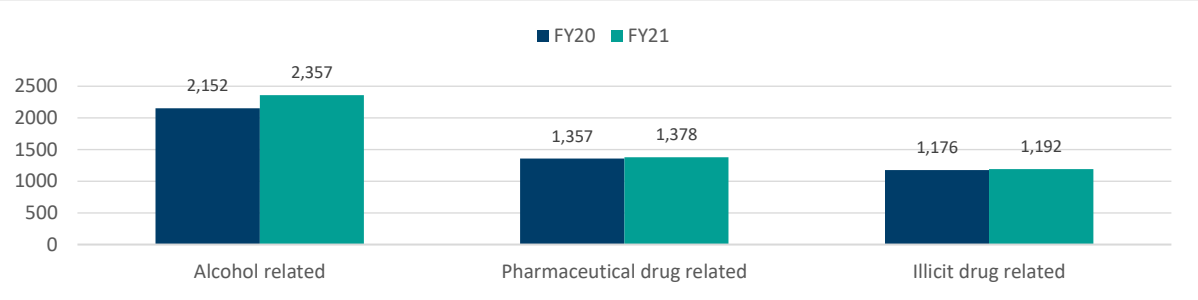
LGA name	FY20			FY21		
	Number	%	Rate per 10,000 population	Number	%	Rate per 10,000 population
Melbourne	606	12.9%	34	864	17.5%	47
Hume	533	11.4%	23	534	10.8%	22
Moreland	525	11.2%	28	588	11.9%	31
Darebin	470	10.0%	29	463	9.4%	28
Melton	456	9.7%	28	395	8.0%	23
Wyndham	436	9.3%	16	391	7.9%	14
Yarra	379	8.1%	37	401	8.1%	39
Moonee Valley	371	7.9%	28	473	9.6%	36
Brimbank	358	7.6%	17	313	6.4%	15
Maribyrnong	222	4.7%	24	221	4.5%	23
Hobsons Bay	193	4.1%	20	175	3.6%	18
Moorabool	81	1.7%	36	65	1.3%	28
Macedon Ranges	55	1.2%	17	44	0.9%	13
NWMPHN	**4,685**	**100%**	**25**	**4,927**	**100%**	**26**

Source: VAHI, 2021b

For hospitalisations primarily due to AOD in NWMPHN in FY 2020-21, alcohol was a major factor (24.5%), followed by stimulants (6.4%) and pharmaceutical analgesics (4.0%).

FY 2020-21 saw a slight increase from FY 2019-20 in hospitalisations in all three categories of alcohol and drug type, most notably alcohol (See Figure 59).

Figure 59. Hospitalisations due to AOD in NWMPHN in FY20/FY21



Source: VAHI, 2021a

In terms of the clinical diagnosis of all the hospitalisations with a diagnosis related to AOD, mental and behavioural disorders due to substance use (79%), external causes of morbidity and mortality (26%), injury or poisoning (18%) and disease of digestive system (15%) were the common principal or additional diagnosis. Noted that 11% of AOD related hospitalisations were "intentional self-harm" in NWMPHN during 2019-2021. (VAHI, 2021c) (see Table 78).

Table 78. Hospitalisations primarily due to AOD by clinical diagnosis category FY21

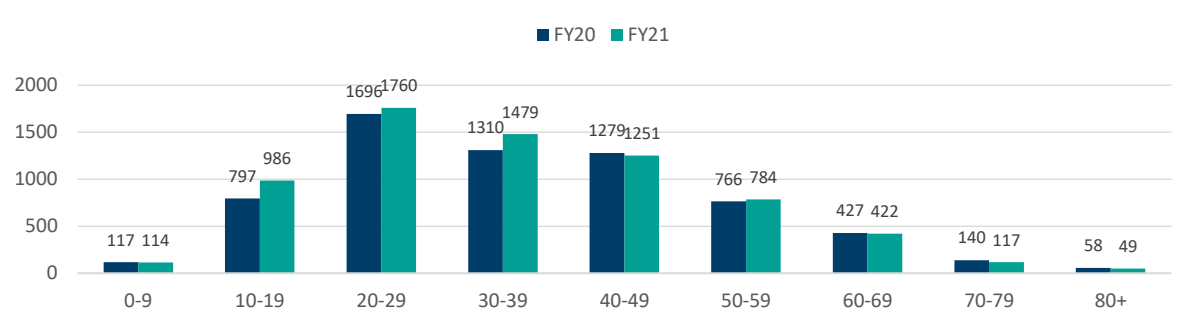
Primary diagnosis related to AOD	Hospitalisations	%
Mental and behavioural disorders due to psychoactive substance use	2,539	51.5%
Injury, poisoning and certain other consequences of external causes	1,583	32.1%
Diseases of the digestive system	791	16.1%
Diseases of the nervous system	11	0.2%
Diseases of the circulatory system	3	0.1%
Total	**4,927**	**100%**

Source: VAHI, 2021b

Emergency Department PRESENTATIONS

Out of the 14,274 ED presentations, 52% were categorised as "Urgent", 22% were "Emergency" and 6.5% were "Resuscitation". Figure 60 shows the ED presentations due to AOD distributed by age groups in each financial year. The number of ED presentations due to AOD had increased among young people (10-39 years) from FY 2019-20 to FY 2020-21.

Figure 60. ED presentations due to AOD by age in NWMPHN in FY20/FY21



Source: VAHI, 2021c

Similar to hospitalisations, the ED presentations caused by AOD were much higher in metro areas like Melbourne and Yarra. From FY 2019-20 to FY 2020-21, Melbourne saw a significant increase in ED presentations caused by AOD (see Table 79).

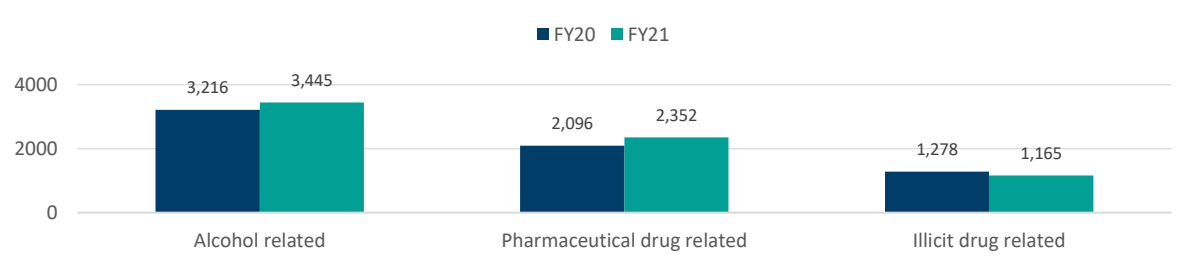
Table 79. ED presentations due to AOD by LGA in FY20/FY21

LGA name	FY20			FY21		
	Number	%	Rate per 10,000 population	Number	%	Rate per 10,000 population
Melbourne	808	12.3%	45	983	14.1%	53
Wyndham	833	12.6%	31	855	12.3%	30
Moreland	684	10.4%	37	798	11.5%	42
Hume	695	10.6%	30	786	11.3%	33
Darebin	672	10.2%	41	678	9.7%	41
Melton	562	8.5%	34	605	8.7%	35
Moonee Valley	521	7.9%	40	511	7.3%	39
Yarra	587	8.9%	58	497	7.1%	48
Brimbank	395	6.0%	19	452	6.5%	22
Maribyrnong	386	5.9%	41	372	5.3%	39
Hobsons Bay	314	4.8%	32	303	4.4%	31
Moorabool	76	1.2%	34	68	1.0%	30
Macedon Ranges	57	0.9%	18	54	0.8%	17
NWMPHN	**6,590**	**100%**	**35**	**6,962**	**100%**	**36**

Source: VAHI, 2021b

From FY 2019-20 to FY 2020-21, ED presentations due to AOD had increased overall, with the increase most notable for pharmaceutical drug related presentations (12%). Alcohol-related ED presentations also increased (7%) while the number of illicit drug related presentations slightly decreased (by 8.8%) (see Figure 61).

Figure 61. ED presentations due to AOD in NWMPHN in FY20/FY21



Source: VAHI, 2021b

Alcohol contributed to half of the AOD related ED presentations (49.5%) in FY 2020-21. Drug related presentations most commonly involved 'other pharmaceuticals' (19%), sedatives (8.5%), and opioids (6.8%), though opioid-related presentations showed the greatest decrease from FY 2019-20 (446 presentations down to 371 in FY 2020-21).

In terms of the clinical diagnosis in FY 2020-21, 55% of the AOD-related ED presentations presented as "mental and behavioural disorders" due to substance use, 42% presented as poisoning or toxic effects from substance. The rest (3%) presented as disease of digestive system (see Table 80).

Table 80. Principal diagnosis of ED presentations due to AOD in FY 2020-21

Category (primary diagnosis)	ED presentations due to AOD
Mental and behavioural disorders due to psychoactive substance use	3,839
Injury, poisoning and certain other consequences of external causes	2,894
Poisoning by drugs, medicaments and biological substances	2,519
Toxic effects of substances chiefly nonmedicinal as to source	375
Diseases of oesophagus, stomach and duodenum	229
Total	**6,962**

Source: VAHI, 2021b

In FY21, age group 20-29 represented 25% of all the ED presentations due to AOD. This age group also had its higher share of ED presentations due to pharmaceutical drug and illicit drug.

For a more detailed breakdown of the AOD related conditions and presentations, refer to Tables 80 and 81.

Table 81. Hospitalisation due to AOD (rate per 10,000 pop) by LGA and diagnosis in FY21

Region	LGA name	Hospital admission cause based on primary diagnosis (see list below) – rate per 10,000 population									
		1	2	3	4	5	6	7	8	9	10
Inner city	Melbourne	31.5	10.8	1.9	1.7	0.4	0.7	0	0.1	0	0
	Maribyrnong	11.9	6.6	2.5	1.2	0.6	0.1	0.2	0	0.1	0
	Yarra	24.6	10.2	1.5	1.2	0.7	0.7	0	0	0.1	0
Suburban	Brimbank	6.9	4.1	1.8	1.4	0.7	0.1	0	0	0	0
	Darebin	14.4	9.5	2.2	0.9	0.7	0.1	0	0	0.1	0
	Hobsons Bay	7.7	4.7	3.2	1.4	0.7	0.1	0	0	0	0
	Moonee Valley	18.9	9.9	4.9	1.3	0.5	0.2	0	0.1	0	0
	Moreland	15.2	10.8	3.2	1.1	0.4	0.5	0	0	0	0
Growth area	Hume	10	7.9	1.9	1.5	0.4	0.4	0.1	0	0	0
	Melton	9.7	8.9	2.6	1.2	0.2	0.2	0	0.1	0	0
	Wyndham	4.6	5.6	1.5	1.2	0.7	0.1	0	0	0	0
Peri-urban	Macedon Ranges - part	5.5	5.8	0.3	0.9	0.9	0	0	0	0	0
	Moorabool - part	17.4	6.9	2.2	0.9	0.4	0	0	0.4	0	0
NWMPHN		**13.2**	**13.2**	7.9	2.3	1.3	0.5	0.3	0	0	0

Source: VAHI, 2021b

Hospital admission cause based on primary diagnosis
***1**: Mental and behavioural disorders due to psychoactive substance use. **2**: Poisoning by drugs, medicaments and biological substances. **3**: Diseases of liver. **4**: Disorders of gallbladder, biliary tract and pancreas. **5**: Diseases of oesophagus, stomach and duodenum. **6**: Toxic effects of substances chiefly nonmedicinal as to source. **7**: Polyneuropathies and other disorders of the peripheral nervous system. **8**: Other degenerative diseases of the nervous system. **9**: Other forms of heart disease. **10**: Diseases of myoneural junction and muscle.*

Table 82. ED presentations due to AOD (rate per 10,000 population) by LGA and diagnosis in FY21

Region	LGA name	Mental and behavioural disorders due to psychoactive substance use	Poisoning by drugs, medicaments and biological substances	Toxic effects of substances chiefly nonmedicinal as to source	Diseases of oesophagus, stomach and duodenum
Inner city	Melbourne	33.1	17.9	1.9	0.7
	Maribyrnong	25.9	10.3	1.3	1.7
	Yarra	30.6	14.1	2.5	1
Suburban	Brimbank	13.5	5.8	1	1.3
	Darebin	23.2	13.9	2.1	1.6
	Hobsons Bay	16.4	10.9	1.9	1.6
	Moonee Valley	22.5	13.6	1.8	0.9
	Moreland	24.3	15.9	1.4	0.7
Growth area	Hume	16.3	13.8	1.3	1.1
	Melton	20.3	12.4	1.5	0.9
	Wyndham	10.3	14.2	4	1.7
Peri-urban	Macedon Ranges - part	6.7	7.1	1.2	1.5
	Moorabool - part	11.7	15.6	1.3	0.9
NWMPHN		19.9	13.1	1.9	1

Source: VAHI, 2021c

MENTAL HEALTH AND SUICIDE

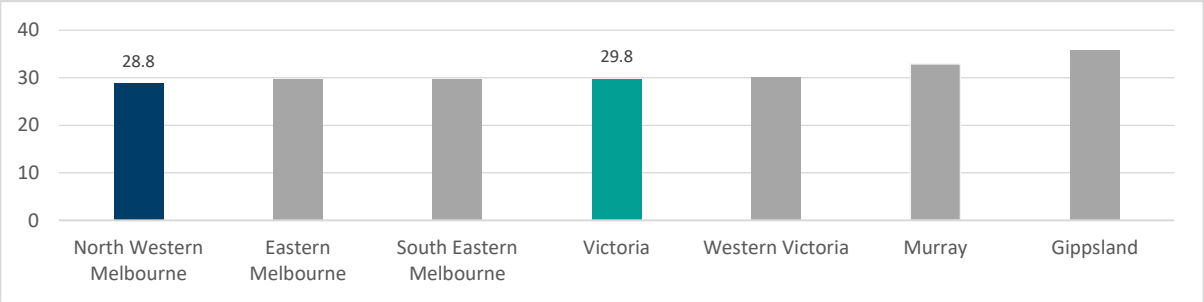
Mental health is *"a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community"*, according to the World Health Organization (2018). Mental health plays an essential role in one's overall health and wellbeing. A mental disorder or mental illness is a group of illnesses that are characterised by a combination of abnormal thoughts, perceptions, emotions, behaviour and relationships with others (WHO, 2018).

Common mental health illnesses				
Anxiety disorders	Behavioural and emotional disorders in children	Bipolar affective disorder	Depression	Dissociation and dissociative disorders
Eating disorders	Obsessive compulsive disorder	Post-traumatic stress disorder	Schizophrenia and other psychoses	Dementia

However, a person does not need to have a diagnosis of mental health disorders to be negatively affected by their mental health. Mental health problem is "diminished cognitive, emotional or social abilities but not to the extent that the diagnostic criteria for a mental illness are met" (COAG Health Council, 2017). Mental disorders and mental health problems are very common in our society and have a substantial social and economic impact.

The 2019 Victorian Population Health Survey (VAHI 2021a) estimated that 28.8% of adult (18+) population in NWMPHN had ever been diagnosed with anxiety or depression, compared with 29.8% in Victoria (Figure 82).

Figure 62. Proportion (%) of adults ever diagnosed with anxiety or depression



Source: VAHI, 2021a

The survey also estimated that in 2019 among the NWMPHN adult population:

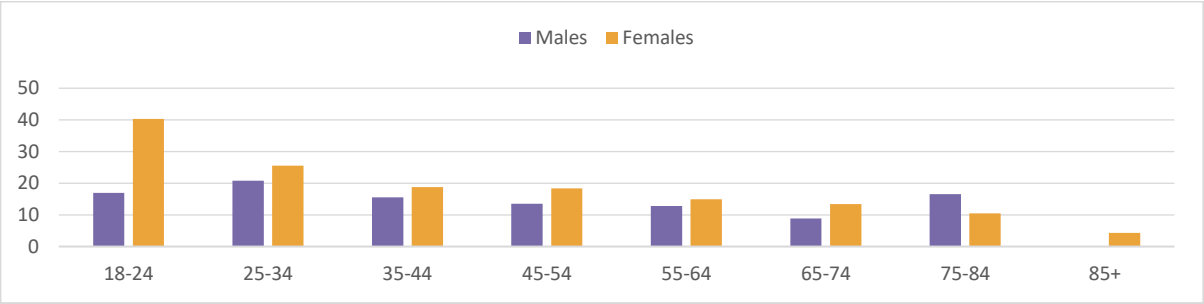
- 18.4% reported high or very high levels of psychological distress, compared with 18.1% in Victoria.
- 18.7% sought professional help for a mental health problem in the year preceding the survey, which was the same as the Victorian level.
- 23.9% reported low or medium life-satisfaction (23.4% of Victorians).
- 21.1% reported low or medium level of life being worthwhile, compared with 19.5% in Victoria.

Age and gender

The 2019 VPHS reflected differences in the experience of mental wellbeing across age groups and gender. In Victoria 26.9% of young people aged 18-24 years reported having high or very high level of psychological distress (26.9%), which is higher than any other age groups (VAHI, 2021a). 40.3% of young females aged 18-24 years reported high or very high levels of psychological distress, which was significantly higher than other groups.

Similarly, a higher proportion of young people (18-24 years) selected low or medium when asked about their feeling of life being worthwhile (24.4%). The figure was 26.4% among young females. (VAHI, 2021a) (see Figure 63).

Figure 63. Proportion (%) of Victorian adults reporting high/very high level of psychological distress



Source: VAHI, 2021a

People aged 65 and over reported lower level of psychological distress compared to other age groups, despite a greater proportion of them reporting poorer health status than other age groups. (VAHI, 2021a).

Aboriginal and Torres Strait Islander people

In the ABS (2019c) National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) conducted in 2018-2019, 71.4% of Aboriginal and/or Torres Strait Islander Victorians reported "excellent/very good or good" health status compared to 86.2% non-Aboriginal Victorians.

The NATSIHS also found that across Australia, 22.9% of Aboriginal males and 25.4% of Aboriginal females reported having at least one mental or behavioural condition. The 25 – 54 age group reported a higher proportion of mental or behavioural condition (above 30%). Anxiety is the most reported one by Aboriginal Australians (16.5%).

Table 83. Self-reported mental health or behavioural condition among Aboriginal and Torres Strait Islander Australians by age (2018-2019)

% Aboriginal Australians	0-14	15-24	25-34	35-44	45-54	55 +	Total
Depression	2.5	15	15.8	20.3	22.7	20	13.3
Anxiety	6.9	17.9	24.6	23.7	21	18.3	16.5
Alcohol and drug problems	0	0.7	2	2.6	2.1	3.2	1.4
Behavioural or emotional problems	11.3	9.5	8.3	8.6	7.2	7.1	9.3
Other mental health condition	3.5	3.9	2.9	5.1	3.7	2.9	3.6
Total	**14.8**	**24.4**	**30.4**	**31.8**	**31.3**	**27.0**	**24.2**

Source: ABS, 2019c

LGBTIQ+ adults

The 2017 VPHS captured responses from LGBTIQ+ adults in Victoria (VAHI, 2020), the data showed the following:

- 27.1% of LGBTIQ+ adults rated their life satisfaction as low or medium, compared with the proportion in non-LGBTIQ+ adults (20.1%).
- 22.1% of LGBTIQ+ adults reported a low or medium feeling of life being worthwhile, compared with the proportion in non-LGBTIQ+ adults (16.5%).
- 44.8% of LGBTIQ+ adults reported having ever been diagnosed with anxiety or depression, compared with 26.7% of non-LGBTIQ+ adults.

Geographic factors

The ABS National Health Survey in 2017-2018 provided more details at LGA level. Hume (19.2%), Brimbank (16.2%) and Melton (15.1%) were the top 3 LGAs with the most proportion of adults reporting high or very high levels of psychological distress (ABS, 2018c) (see Table 84).

Table 84. People aged 18+ with high or very high psychological distress based on K10 by LGA (2017-2018)

Region	LGA	People aged 18+ with high or very high psychological distress based on K10	
		Number (#)	Percentage (%) ASR per 100
Inner city	Melbourne	14999	10.34
	Maribyrnong	10078	13.71
	Yarra	8845	10.61
Suburban	Brimbank	26457	16.23
	Darebin	17145	13.51
	Hobsons Bay	9765	13.19
	Moonee Valley	10402	10.47
	Moreland	18671	13.07
Growth area	Hume	31021	19.20
	Melton	16109	15.07
	Wyndham	24326	14.01
Peri-urban	Macedon Ranges – part	4424	12.25
	Moorabool – part	3514	13.82

Source: ABS, 2018c

Hospitalisations

From July 2019 to June 2021, there were 30,317 hospitalisations due to "Mental and behavioural disorders" in NWMPHN, which accounted for 3% of the total hospitalisations in the region.

In FY 2020-21 across NWMPHN region, 27% of Mental Health related hospitalisations in NWMPHN was due to "Schizophrenia, schizotypal and delusional disorders", followed by "Mood disorders" (20%) and psychoactive substance use (18%). Although there was a drop in the mental health related hospitalisations from FY 2019-20 to FY 2020-21, those due to psychoactive substance use increased during this period.

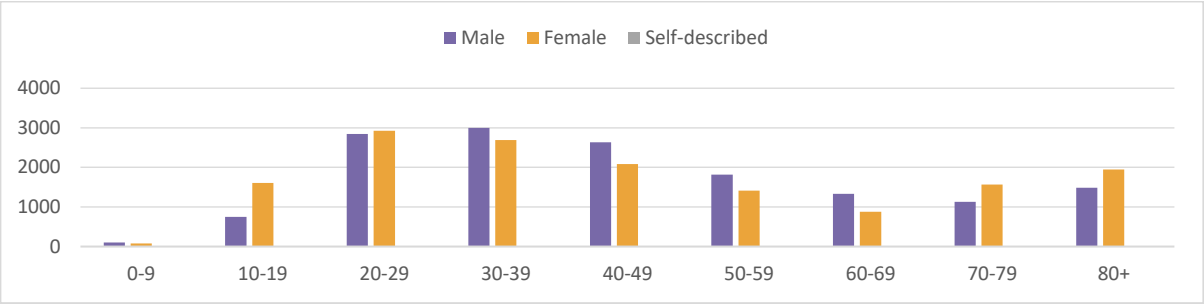
Table 85. Hospitalisations by mental health category in NWMPHN in FY20/FY21

Primary diagnosis type	FY20		FY21	
	Number	%	Number	%
Schizophrenia, schizotypal and delusional disorders	4,189	27.1%	3,998	27.0%
Mood [affective] disorders	3,510	22.7%	2,951	19.9%
Mental and behavioural disorders due to psychoactive substance use	2,520	16.3%	2,705	18.2%
Organic, including symptomatic, mental disorders	2,307	14.9%	2,070	14.0%
Neurotic, stress-related and somatoform disorders	1,686	10.9%	1,643	11.1%
Disorders of adult personality and behaviour	646	4.2%	677	4.6%
Behavioural syndromes associated with physiological disturbances and physical factors	333	2.2%	477	3.2%
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	146	0.9%	175	1.2%
Disorders of psychological development	98	0.6%	89	0.6%
Unspecified mental disorder	27	0.2%	28	0.2%
Mental retardation	21	0.1%	21	0.1%
Total	**15,483**	**100.0%**	**14,834**	**100.0%**

Source: VAHI, 2021a

Age group 20-29 years had the greatest number of hospitalisations (19.1%) due to "Mental and behavioural disorders" in NWMPHN, which was slightly more than age group 30-39 years (18.8%) (see Figure 64).

Figure 64. Hospitalisations due to mental and behavioural disorders in NWMPHN 2019-2021



Source: VAHI, 2021b

In FY 2020-21, Moreland had the greatest number of hospitalisations due to Mental Health issues (12%), whereas Darebin had the highest hospitalisation rate (Table 84).

Table 86. Hospitalisations due to mental and behavioural disorders by LGA in FY20/FY21

LGA name	FY20			FY21		
	Number	%	Rate per 10,000 population	Number	%	Rate per 10,000 population
Hume	1,949	12.6%	83	1,701	11.5%	71
Moreland	1,802	11.6%	97	1,755	11.8%	93
Melton	1,750	11.3%	106	1,367	9.2%	79
Darebin	1,716	11.1%	104	1,656	11.2%	100
Wyndham	1,471	9.5%	54	1,333	9.0%	47
Brimbank	1,432	9.3%	68	1,507	10.2%	72
Melbourne	1,391	9.0%	78	1,665	11.2%	91
Maribyrnong	1,018	6.6%	109	848	5.7%	89
Moonee Valley	1,015	6.6%	78	1,185	8.0%	90
Yarra	829	5.4%	82	804	5.4%	78
Hobsons Bay	790	5.1%	81	660	4.5%	67
Moorabool	162	1.1%	72	183	1.2%	79
Macedon Ranges	158	1.0%	49	170	1.2%	52
NWMPHN	**15,483**	**100.0%**	**82**	**14,834**	**100%**	**77**

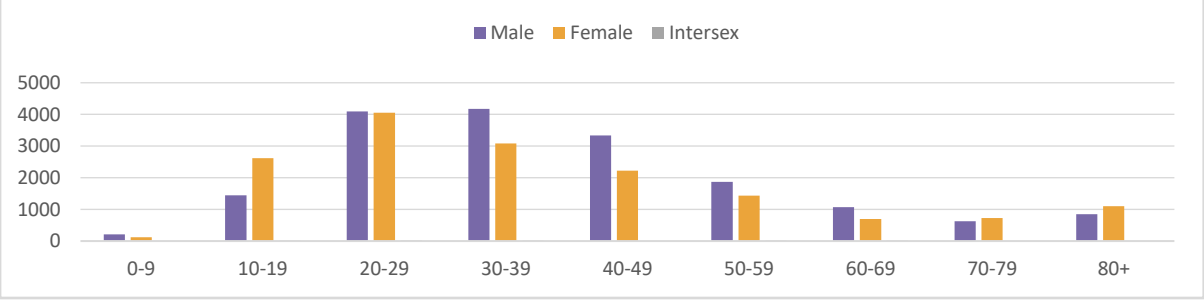
Source: VAHI, 2021b

By principal diagnosis, the 3 most common diagnoses that were recorded for Mental Health related hospitalisations were “Schizophrenia” (14%), “Depressive episode” (11%) and “Mental & behavioural disorders due to alcohol” (10%) in NWMPHN 2019-2021 (VAHI, 2021b)

Emergency Department presentations

From July 2019 to June 2021, there were 33,779 ED presentations due to “Mental and behavioural disorders” in NWMPHN, which accounted for 4% of the total ED presentations (see Figure 65).

Figure 65. ED presentations due to mental and behavioural disorders in NWMPHN 2019-2021



Source: VAHI, 2021c

ED presentations due to "mental and behavioural disorders" had increased by 2% from FY20 to FY21. In FY21, Melbourne had the greatest number of ED presentations due to Mental Health issues (13%) and also the highest ED presentations rate per 10,000 population.

Table 87. ED presentations due to mental and behavioural disorders by LGA in FY 2019-20/FY 2020-21

LGA name	FY20			FY21		
	Number	%	Rate per 10,000 population	Number	%	Rate per 10,000 population
Hume	2,074	12.4%	89	2,066	12.1%	86
Melbourne	2,039	12.2%	114	2,344	13.7%	128
Moreland	1,967	11.8%	106	1,974	11.6%	105
Darebin	1,799	10.8%	110	1,702	10.0%	102
Wyndham	1,595	9.5%	59	1,684	9.9%	59
Melton	1,566	9.4%	95	1,619	9.5%	94
Brimbank	1,291	7.7%	62	1,274	7.5%	61
Yarra	1,241	7.4%	122	1,136	6.7%	110
Moonee Valley	1,194	7.1%	92	1,340	7.9%	102
Maribyrnong	856	5.1%	92	821	4.8%	86
Hobsons Bay	786	4.7%	80	796	4.7%	81
Moorabool	169	1.0%	75	145	0.9%	63
Macedon Ranges	147	0.9%	46	154	0.9%	47
NWMPHN	**16,724**	**100%**	**89**	**17,055**	**100%**	**88**

Source: VAHI, 2021c

There was a reduction in MH related ED presentations in April 2020 when COVID-19 hit, followed by an increase in Oct/Nov/Dec 2020. After that, the number has been stable and similar to pre-COVID level. A similar reduction can be seen in Mental Health related hospital admissions in April 2020. Other than that, the number is quite consistent with pre-COVID level.

In FY 2020-21, 30% of Mental Health related ED presentations in NWMPHN was due to psychoactive substance use, followed by "Neurotic, stress-related and somatoform disorders" (21%), "Schizophrenia, schizotypal and delusional disorders" (18%) and "Mood disorder" (11%).

Table 88. ED presentations due to mental and behavioural disorders by type of diagnosis in NWMPHN in FY20/FY21

Primary diagnosis type	FY20		FY21	
	Number	%	Number	%
Mental and behavioural disorders due to psychoactive substance use	4,806	28.7%	5,164	30.3%
Neurotic, stress-related and somatoform disorders	3,387	20.3%	3,530	20.7%
Schizophrenia, schizotypal and delusional disorders	3,147	18.8%	3,043	17.8%
Mood [affective] disorders	2,141	12.8%	1,882	11.0%
Organic, including symptomatic, mental disorders	1,284	7.7%	1,410	8.3%
Unspecified mental disorder	880	5.3%	971	5.7%
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	550	3.3%	381	2.2%
Disorders of adult personality and behaviour	370	2.2%	379	2.2%
Behavioural syndromes associated with physiological disturbances and physical factors	154	0.9%	287	1.7%
Total	**16,719**	**100%**	**17,047**	**100%**

Source: VAHI, 2021c

By principal diagnosis, the 3 most common diagnoses that were recorded for Mental Health related ED presentations were "Mental & behavioural disorders due to alcohol" (16%), "Other anxiety disorders" (16%) and "Acute and transient psychotic disorders" (11%) in NWMPHN 2019-2021.

Age group 20-29 years had the greatest number of ED presentations (24.2%) due to "Mental and behavioural disorders" (VAHI, 2021c). For a more detailed breakdown of the mental health related conditions and presentations, refer to Tables 88 and 89.

Table 89. Hospitalisation due to "Mental or behavioural disorders" (rate per 10,000 pop) by LGA and diagnosis in FY2020-21

Region	LGA name	Hospital admission cause based on primary diagnosis (see list below) – rate per 10,000 population								
		1	2	3	4	5	6	7	8	9
Inner city	Melbourne	34.1	8.1	23	12.8	4.3	0.3	1.6	4.3	1.6
	Maribyrnong	12.7	6.8	27.1	23.1	11.5	0	1.5	3.9	2.2
	Yarra	26.8	7.3	19.1	9.8	5.6	0.4	1.8	4.8	2.2
Suburban	Brimbank	7.4	5.2	26.7	18	11.5	0	0.4	1.6	0.9
	Darebin	15.1	8.9	34.7	17.7	11.8	0.2	0.7	5.3	4.5
	Hobsons Bay	8.5	7.9	12.1	15.9	14.4	0.2	0.7	4.1	3
	Moonee Valley	19.7	9.9	21.3	11.8	19.3	0.2	1	2.3	4.1
	Moreland	16.1	11.1	22.9	17.2	16.6	0.3	0.7	4.3	3.3
Growth area	Hume	10.4	10.2	18.1	13.5	10.8	0.2	1	3.3	2.4
	Melton	10.4	8.6	20.6	18.7	11.8	0	0.5	4.5	3.1
	Wyndham	4.9	8.3	10.7	13.3	4.8	0	0.8	2.6	1.2
Peri-urban	Macedon Ranges - part	5.8	8.6	5.8	14.7	12.3	0	0	1.5	2.5
	Moorabool – part	17.8	9.5	19.5	7.4	17.8	0.4	0.4	0.9	5.2
NWMPHN		**14.0**	**8.5**	**20.7**	**15.3**	**10.7**	**0.1**	**0.9**	**3.5**	**2.5**

Source: VAHI, 2021c

Table 90. ED presentations due to "Mental or behavioural disorders" (rate per 10,000 population) by LGA and diagnosis in FY 2020-21

Region	LGA name	ED presentation based on primary diagnosis (see list below) – rate per 10,000 population								
		1	2	3	4	5	6	7	8	9
Inner city	Melbourne	45.5	25.8	25.5	11.9	2.9	8.7	0.9	5.2	1.1
	Maribyrnong	33.4	12.1	16.3	9.5	8.1	3.5	1.6	0.9	1.1
	Yarra	41.2	21.4	20.3	10.8	4.2	5.1	1.3	3.5	2.4
Suburban	Brimbank	18.3	9.8	14.8	6.1	7.2	2.5	1.1	0.9	0.5
	Darebin	29.5	17.9	19.8	12.6	10	4.7	2.1	2.2	3.5
	Hobsons Bay	22.8	18.6	10.3	8.5	10.8	5	2	1	2
	Moonee Valley	29.9	18.9	16.7	10.7	11.8	7.9	1.9	1.5	2.4
	Moreland	30.4	22.8	18	10.5	9.1	6.4	3.1	2.2	1.9
Growth area	Hume	23.2	22	14	9.2	7.4	5.5	2.1	1.3	1
	Melton	27.8	17.7	17.2	11.2	7.5	6.1	3.1	2	1.4
	Wyndham	14.6	16.1	8.4	8.5	5.2	2.3	2.2	1.6	0.5
Peri-urban	Macedon Ranges - part	10.1	12.3	4.6	6.1	5.5	4.3	1.2	0.6	2.5
	Moorabool – part	15.2	9.5	12.1	12.1	6.9	2.6	1.3	0.9	2.2
NWMPHN		**26.8**	**18.3**	**15.8**	**9.8**	**7.3**	**5**	**2**	**2**	**1.5**

Source: VAHI, 2021c

Hospital admission or ED presentation cause based on primary diagnosis

***1**: Mental and behavioural disorders due to psychoactive substance use. **2**: Neurotic, stress-related and somatoform disorders. **3**: Schizophrenia, schizotypal and delusional disorders. **4**: Mood [affective] disorders. **5**: Organic, including symptomatic, mental disorders. **6**: Unspecified mental disorder. **7**: Behavioural and emotional disorders with onset usually occurring in childhood and adolescence. **8**: Disorders of adult personality and behaviour. **9**: Behavioural syndromes associated with physiological disturbances and physical factors.*

Suicide

Suicide is a tragedy that affects families and the wider community and has long-lasting effects on the people left behind. People living with a mental health and/or alcohol and other drug concerns are more likely to suicide, however, these conditions are not always precursors of suicide.

During 2015-2019, there were 765 premature deaths (mortality among people aged 0-74) from suicide or self-inflicted injuries in NWMPHN, which means the average annual ASR per 100,000 was 8.9. This is lower compared to Victorian rate (10.7 per 100,000). Within NWMPHN region, the peri-urban areas (Macedon Ranges and Moorabool) had the highest suicide rate (see Table 91).

Table 91. Deaths from suicide and self-inflicted injury (age 0 – 74) by LGA (2015-2019)

Region	LGA	Deaths from suicide and self-inflicted injuries, 0-74	Average annual ASR per 100,000
Inner city	Melbourne	72	8.7
	Maribyrnong	38	8.5
	Yarra	45	8.9
Suburban	Brimbank	80	8.2
	Darebin	70	9.1
	Hobsons Bay	50	11.1
	Moonee Valley	44	7.4
	Moreland	72	8.4
Growth area	Hume	86	8.5
	Melton	74	10.5
	Wyndham	103	9.1
Peri-urban	Macedon Ranges – part	17	11.6
	Moorabool – part	14	14.1
NWMPHN		**765**	**8.9**

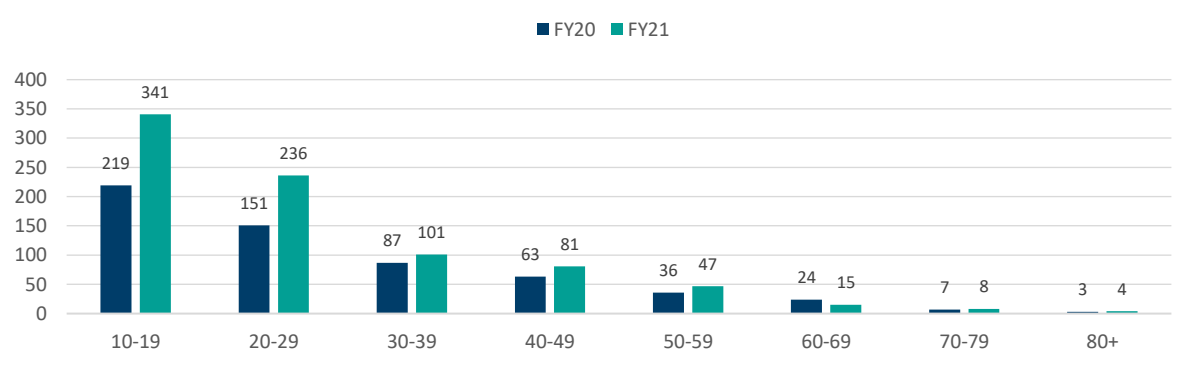
Source: AIHW, 2021i

Hospitalisations

From July 2019 to June 2021 across NWMPHN region, there were 10,248 ED presentations and 1,423 hospitalisations due to suicide ideation. This is based on primary diagnosis only and as such may be an underestimate.

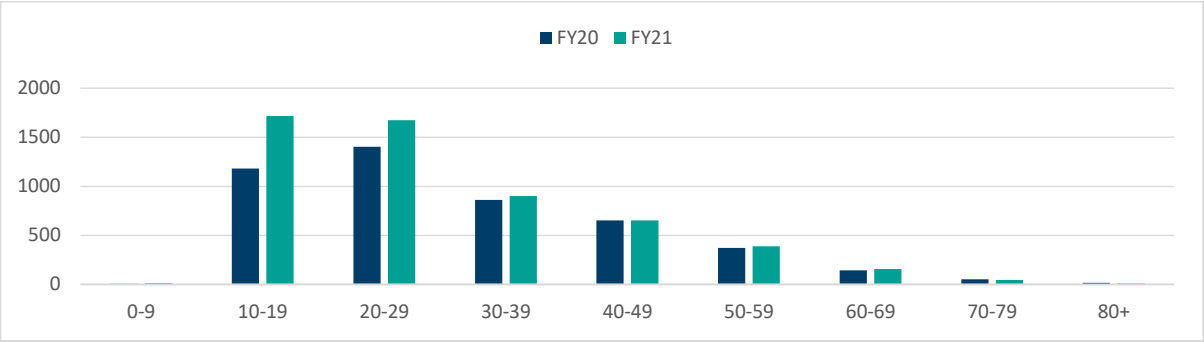
From FY 2019-20 to FY 2020-21, both ED presentations and hospitalisations due to suicidal ideation had increased significantly. The highest incidence and sharpest increase was seen among younger people aged 10 to 30 years (see Figures 66-69).

Figure 66. Hospitalisations due to suicidal ideation as primary diagnosis by age in FY 2019-20/FY 2020-21



Source: VAHI, 2021c

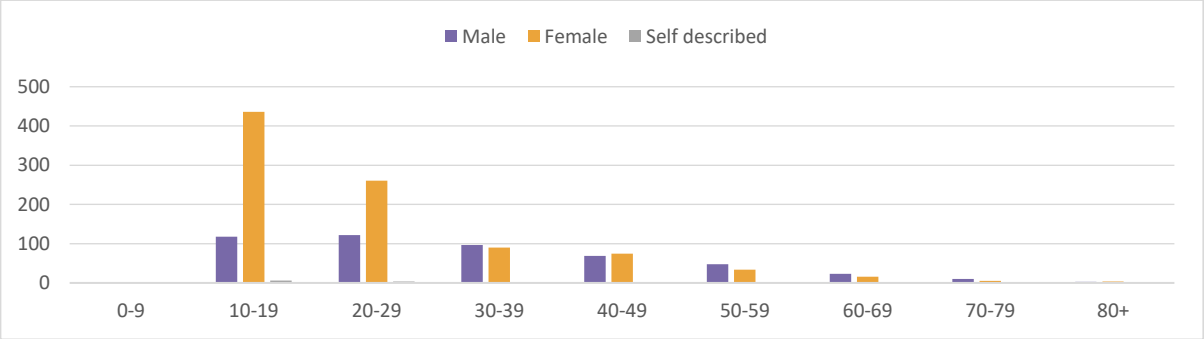
Figure 67. ED presentations due to suicidal ideation as primary diagnosis by age in FY 2019-20/FY 2020-21



Source: VAHI, 2021c

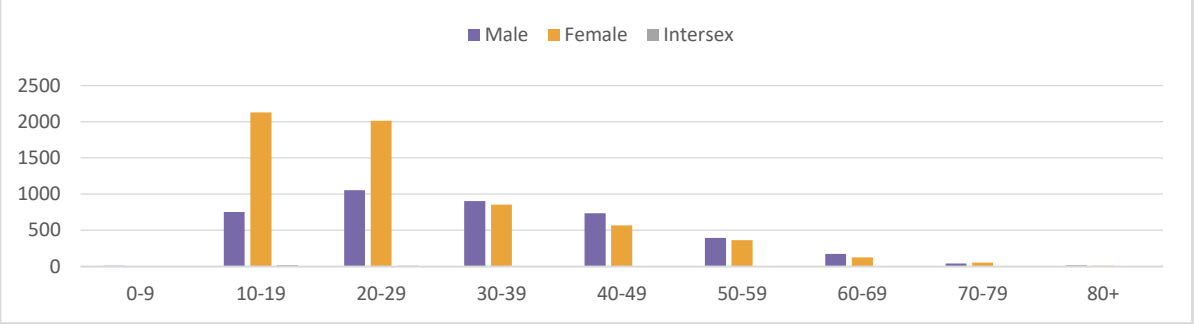
Non-fatal suicidal behaviours (such as intentional self-harm) appeared to be more common in females, particularly those that are aged between 12-29 years.

Figure 68. Hospitalisations due to suicide ideation by age and gender in NWMPHN



Source: VAHI, 2021b (ICD: R45.81)

Figure 69. ED presentations due to suicide ideation by age and gender in NWMPHN



Source: VAHI, 2021c (ICD: R45.81)

Of all the LGAs in NWMPHN, Melton had the highest ED presentation rate related to suicide or self-harm in both FY 2019-20 and FY 2020-21 (Table 92).

Table 92. ED presentations due to suicide or self-harm by LGA in FY20/FY21

LGA name	FY20		FY21	
	Number	Rate per 10,000 population	Number	Rate per 10,000 population
Hume	736	32	845	35
Melton	683	41	742	43
Wyndham	494	18	693	24
Darebin	469	29	542	33
Moreland	443	24	517	27
Brimbank	412	20	419	20
Melbourne	375	21	546	30
Hobsons Bay	277	28	258	26

LGA name	FY20		FY21	
	Number	Rate per 10,000 population	Number	Rate per 10,000 population
Maribyrnong	247	26	325	34
Yarra	238	23	219	21
Moonee Valley	224	17	370	28
Moorabool	47	21	34	15
Macedon Ranges	44	14	49	15
NWMPHN	**4689**	**25**	**5559**	**29**

Source: VAHI, 2021c

OTHER CONDITIONS OF CONCERN ACROSS THE NWMPHN REGION

Alzheimer's disease and other forms of dementia

Dementia is a term used to describe a group of conditions characterised by the progressive decline and impairment of brain function. It is a broad term used to describe a loss of memory, intellect, rationality, social skills and physical functioning. Dementia is more common among people aged 65 and over and with advancing age and is a major cause of disability and dependency among older people (AIHW, 2020e).

Alzheimer's is the most common form of dementia and affects up to 70% of all people with dementia. It is a degenerative brain disease caused by nerve cell death resulting in shrinkage of the brain (Dementia Australia, 2018).

An individual with Alzheimer's disease or another dorm of dementia experiences growing dependence on care providers for daily living, impacting themselves, families and carers. It is estimated that in 2021 almost 1.6 million people in Australia are involved in the care of someone living with dementia (Dementia Australia, 2021).

Social context factors

As a progressive disease, Alzheimer's and other forms of dementia are most common in older age groups. It is estimated that nationally in 2021 there are over 27, 000 people with dementia who are aged less than 65 years and over 200,000 people in the 65 to 84 age group (AIHW, 2020). An increase in the number of people in Australia with dementia over time is expected, with a growing ageing population.

Geographic factors

Dementia Australia (2018) provide research they have commissioned, which estimates the prevalence of dementia across LGAs. As expected, the estimated number of people currently with dementia is proportionally highest within LGAs with more older people including, Macedon Ranges, Moonee Valley, and Hobsons Bay, with considerably lower prevalence within the Melbourne and Wyndham areas.

By 2058 the number of people in Victoria with dementia is estimated to increase by around 2.5 times, and 3.5 times within NWMPHN. This rate of estimated increased prevalence is greatest among 'growth areas'. Wyndham and Melton are expected to have more than 5.5 times the number of people with dementia in the next few decades, followed by Melbourne and Hume (see Table 93).

Table 93. Estimated prevalence of dementia in NWMPHN by LGA in 2020-21 and 2058

Region	LGA	2021 estimated number of persons	2058 estimated number of persons	Estimated % of population 2020-21
Inner city	Melbourne	1243	5472	0.68
	Maribyrnong	1132	3713	1.19
	Yarra	1234	4379	1.20
Suburban	Brimbank	3432	8715	1.65
	Darebin	2863	6960	1.72

Region	LGA	2021 estimated number of persons	2058 estimated number of persons	Estimated % of population 2020-21
	Hobsons Bay	1754	4585	1.79
	Moonee Valley	2495	6197	1.89
	Moreland	3108	7061	1.65
Growth area	Hume	2798	11967	1.16
	Melton	1586	8936	0.92
	Wyndham	2326	13447	0.82
Peri-urban	Macedon Ranges – part	974	2234	1.91
	Moorabool – part	614	1655	1.70
NWMPHN		24325	85321	1.24
Victoria		120900	301000	1.80

Source: Dementia Australia (2018)

Modelled based on PHIDU (2021a) ERP for 2020; estimates included all of Moorabool and Macedon Ranges LGAs, not just NWPHN parts.

Oral health

Oral health refers to the health of a person's teeth and gums, as well as the health of the muscles and bones in their mouth. Oral health ensures the absence of disease in the oral cavity, the healthy oral functioning and thus enables an individual to eat, speak and socialise in everyday activities (COAG, 2015). It is essential to one's overall health, wellbeing and quality of life (WHO, 2020).

Poor oral health is associated with a number of chronic diseases including stroke, cardiovascular disease, diabetes, etc. It can cause a series of negative impacts (WHO, 2020); tooth decay or periodontal disease, chewing or swallowing difficulties, poor nutrition, speech difficulty, low self-esteem.

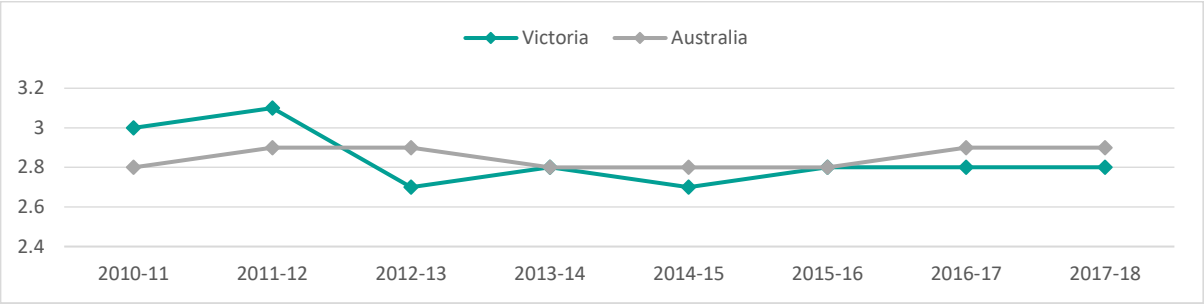
The Australia's National Oral Health Plan (COAG, 2015) identified four priority populations that experience poor oral health at higher rates than other sectors of the population:

People who are socially disadvantaged or on low incomes	• Children from low socio-economic areas are more likely to have poor oral health than children in higher socio-economic areas. • Adults who are socially disadvantaged or on low incomes have more than double the rate of poor oral health than those on higher incomes.
Aboriginal and Torres Strait Islander people	• Experience poor oral health earlier in their lifespan and in greater severity than the rest of the population. • Less likely to receive treatment to prevent or address poor oral health, resulting in oral health care which often takes place in the form of emergency treatment.
People living in regional and remote areas	• Even after adjusting for socio-economic factors, children living in regional and remote areas have more tooth decay than children in metropolitan areas. • Adults living in regional or remote areas have higher levels of tooth loss and more untreated tooth decay.
People with additional or specialised health care needs	• People living with severe mental illness are more than three times more likely to have lost all their teeth. • The incidence of gum disease for frail older people is two to three times higher than the general population.

<u>Hospitalisations</u>

Hospitalisations due to dental conditions are considered potentially preventable hospitalisations (PPH). In 2017-2018, there were 17,399 PPHs due to dental conditions in Victoria, which was 2.8 per 1000 population. This rate had decreased from 3.1 per 1000 in 2011-2012 and remained stable at 2.8 from 2015 to 2018 (AIHW, 2021j).

Figure 70. Potentially preventable hospitalisations due to dental conditions (ASR per 1000 population) (2010-2018)

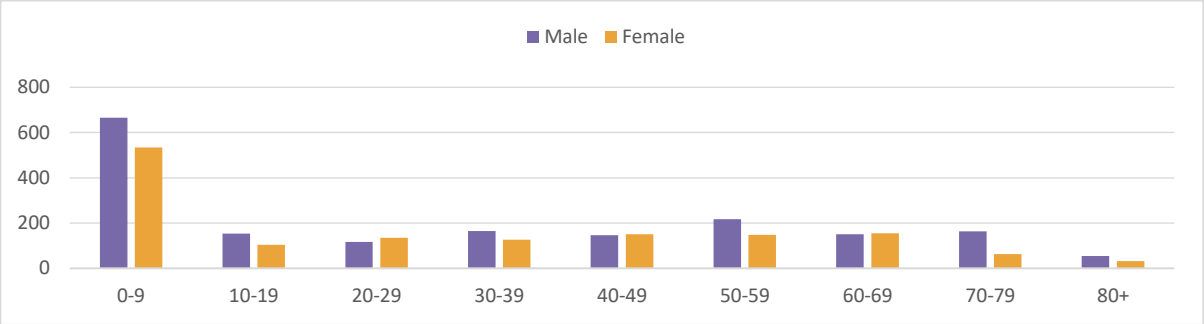


Source: AIHW, 2021j

In NWMPHN, there were 3,281 potentially preventable hospitalisations due to dental conditions from July 2019 to June 2021, which accounted for 5% of all the PPHs in the region (see Figure 71)

- 37% were among children under 10 years old.
- The most common cause was dental caries (45.5%), followed by diseases of pulp and periapical tissues (18.8%) and stomatitis and related lesions (9.5%).

Figure 71. Potentially preventable hospitalisations due to dental conditions by age and gender in NWMPHN

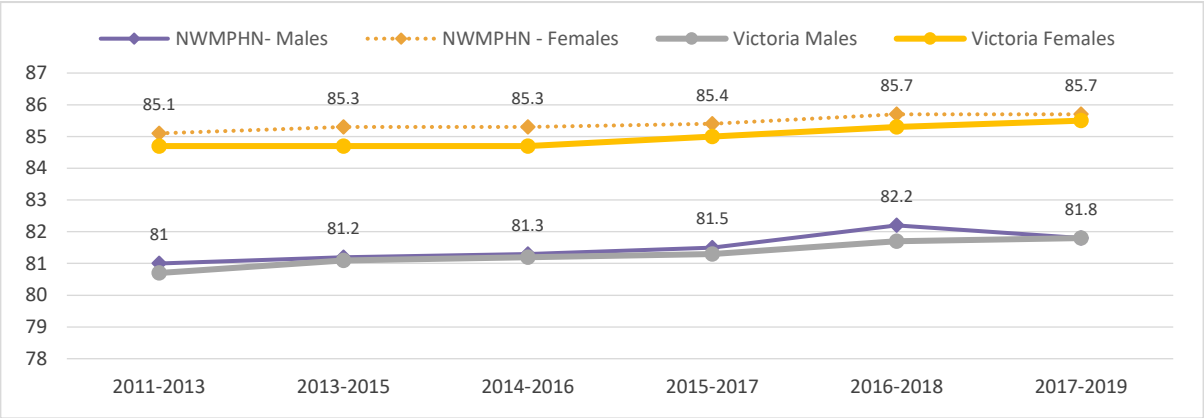


Source: VAHI, 2021a

6.3 Life expectancy and mortality

During 2017-2019, life expectancy was 81.8 years for males and 85.7 years for females in NWMPHN region, compared with males (81.8) and females (85.5) in Victoria (PHIDU, 2021a). The life expectancy has been increasing for both males and females in NWMPHN (Figure 72).

Figure 72. Life expectancy at birth in NWMPHN region



Source: PHIDU, 2021 (data 2011-2019)

Aboriginal and Torres Strait Islander peoples

Across Australia, the gap in life expectancy between Aboriginal and Torres Strait Islander peoples and non-Aboriginal people is significant. Data from 2015 to 2017 shows the life expectancy was 75.6 years for Aboriginal and Torres Strait Islander females and 71.6 years for Aboriginal and Torres Strait Islander males. This is approximately 9 years less than non-Aboriginal females (83.4 years) and non-

Aboriginal males (80.2 years) (AIHW, 2021i). Other factors like socio-economic status (SEIFA) or remoteness also impacted the life expectancy. The life expectancy for Aboriginal and Torres Strait Islander females living in remote or very remote was 69.6 years and those in the most disadvantaged area was 72.8 years during 2015-2017 (AIHW, 2021i).

Median age of death

Overall, within NWMPHN in 2016-2018, the median age of death was 81 years old. A review at LGA and at population health area (PHA) level shows the median age range spanned from a minimum of 59 years to 87 years (Table 94).

As may be expected, the median age of death is generally higher in those LGAs and PHAs where there are a greater number of older people, and these areas contribute a higher proportion of the overall deaths occurring in the PHN. As an example, 14% of the population in Darebin are aged 65 years and over (compared to 12% across the PHN). Darebin LGA contributes to 8.63% of the PHN's overall population but accounted for 12.56% of deaths, and median age at death ranged 81 to 87 years across PHAs.

Similarly, areas with a greater number of younger people have a lower median age at death and contribute a small proportion of deaths. By comparison in Wyndham, only 8.1% of the population are aged 65 or over, and although this LGA contributes to over 14% of the PHN population, deaths in this LGA contribute to only 9% of deaths in the PHN.

The wide median range generally appears to reflect the variance in demographics across the smaller population health areas (PHAs). In the Wyndham PHA of Hoppers Crossing - South/ Werribee - South, where 15.2% of people are estimated to be aged 65 and older, the median age at death is 80. By contrast, in the Hoppers Crossing - North/Truganina PHA, only 7% are aged 65 and older and the median age at death is 68 years. Note, this lower median age may also indicate greater experience of inequity in the Hoppers Crossing North PHA, as the median age at death is lower than Tarneit in the same LGA, who has an even smaller proportion of older people (5% aged 65+, median age at death= 70 years).

Melbourne PHA has the highest proportion of people aged under 50 years (91%) and the lowest median age at death, 59 years. However potential inequity is also indicated for this area compared to region with similar demographic. In Carlton, where a similar proportion of people are aged under 50 years (89%) the median age of death is 83 compared to median age of death of 59 years in Melbourne PHA.

Potential indicator of inequity is that among the 45 PHAs where the 65+ age group accounts for more than 10% of the population, four PHAs have a median age at death of less than 75 years of age: Deer Park-Derrimut in Brimbank, Seabrook in Hobsons Bay, Meadow Heights in Hume and Romsey in Macedon Ranges LGA.

Table 94. Estimated median age at death by LGA

Region	LGA	% Persons aged 65+	% Persons Age<50	Number of deaths	Deaths Contribution to PHN %	Min median age at death	Max median age at death	Difference between Max and Min median age at death
Inner city	Melbourne	7.5	82.7	1735	4.1	59	87	28
	Maribyrnong	10.2	75.2	2400	5.7	77	84	7
	Yarra	11.4	74.2	1943	4.6	75	82	7
Suburban	Brimbank	15.5	67.1	5120	12.2	72	81	7
	Darebin	13.9	70.4	5280	12.6	81	87	6
	Hobsons Bay	14.9	67.3	3093	7.4	74	85	11
	Moonee Valley	16.2	66.3	3792	9	78	86	8
	Moreland	12.0	74.8	6180	14.7	82	86	4

Region	LGA	% Persons aged 65+	% Persons Age<50	Number of deaths	Deaths Contribution to PHN %	Min median age at death	Max median age at death	Difference between Max and Min median age at death
Growth area	Hume	10.8	73.3	4344	10.3	70	79	9
	Melton	9.1	76.5	3032	7.2	69	85	16
	Wyndham	8.1	78.9	3781	9	68	80	12
Peri-urban	Macedon Ranges – part	16.3	63.2	729	1.7	73	79	6
	Moorabool – part	15.2	67.5	602	1.4	78	78	0

Source: PHIDU, 2021 (data 2015-2019)

CAUSES OF DEATH

In 2019, cancer was the leading cause of death in NWMPHN region (142.7 deaths per 100,000 population), followed by circulatory diseases (117.5 deaths per 100,000) and respiratory diseases (43.9 deaths per 100,000) (see Table 95).

Table 95. Major causes of deaths in the NWMPHN region

Major causes of deaths in NWMPHN region	2017 ASR per 100,000 population		2018 ASR per 100,000 population		2019 ASR per 100,000 population	
	Males	Females	Males	Females	Males	Females
Neoplasms (cancer) (C00–D48)	192.4	125.4	173.6	113.9	178.3	114.2
Circulatory diseases (I00–I99)	167.7	114	156.6	103.3	141.8	96.2
Respiratory diseases (J00–J99)	63	43.5	47.6	31.2	50.4	39.2
External causes of morbidity and mortality (V01–Y98)	49.2	25.5	48.8	25.4	47.8	23.2
Nervous system diseases (G00–G99)	31.8	30.8	30.7	26	31.2	26.7
Mental and behavioural disorders (F00–F99)	26.7	29.5	24.5	24.2	31.2	26.9
Endocrine, nutritional and metabolic diseases (E00–E90)	28	20	25.5	17.9	27.3	18.5
Digestive diseases (K00–K93)	21.9	15.2	21.8	13.7	21.3	15.2
Diseases of the genitourinary system (N00–N99)	11.5	14.2	12.9	9.9	16.2	12.3
Certain infectious and parasitic diseases (A00–B99)	11.9	12.7	12.6	10.4	9.0	10
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)	5.5	4	5.1	3.3	7.7	6.2
Diseases of the musculoskeletal system and connective tissue (M00–M99)	3.4	5.5	3	4.2	3.5	3.8
Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)	1.6	2.4	4	1.6	2.9	2.8
Certain conditions originating in the perinatal period (P00–P96)	3.8	2.9	2.2	2.2	2.8	2
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89)	1.2	2	1.3	1.5	1.8	1.2
Diseases of the skin and subcutaneous tissue (L00–L99)	1.4	2	2.5	1.9	1.7	1.3
Diseases of the ear and mastoid process (H60–H95)	0.2	0.1	0	0.1	0.1	0
Diseases of the eye and adnexa (H00–H59)	0	0	0	0	0.0	0.2
Pregnancy, childbirth and the puerperium (O00–O99)	0	0.1	0	0.3	0.0	0
All causes	**600**	**441.5**	**555.4**	**383.3**	**611.3**	**415.3**

Source: PHIDU, 2021 (data 2017; 2018; 2019)

For 2019 across Australia, circulatory diseases were the leading cause of deaths for Aboriginal and/or Torres Strait Islander people (242 deaths per 100,000 population), followed closely by cancer-caused death (232 per 100,000 population).

The death rate due to circulatory diseases for Aboriginal and Torres Strait Islander peoples was 1.8 times the rate for non-Aboriginal people (137 per 100,000). Ischaemic heart disease was the leading cause of death from circulatory diseases for Aboriginal and Torres Strait Islander people in 2014-2018. The death rate due to cancer for Aboriginal and Torres Strait Islander people was 1.5 times the rate for non-Aboriginal people (160 per 100,000). Cancers of the digestive organs (29%) and respiratory organs (26%) were the most common cause of death due to cancer for Aboriginal and Torres Strait Islander people in 2014-2018 (AIHW, 2021i).

Leading cause of death for older Australians (65+)

The leading cause of death for older Australians (65+) was coronary heart disease (12%), followed by dementia and Alzheimer's disease (10%), and cerebrovascular disease (7%) (AIHW, 2021i).

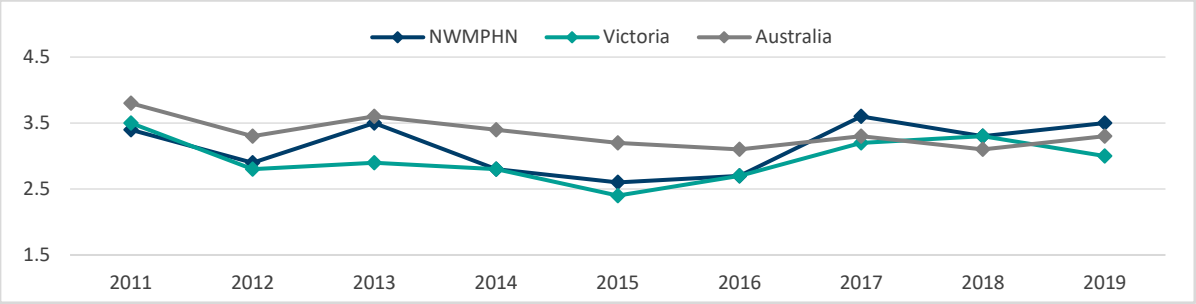
The leading cause of death for men aged 65 and over was coronary heart disease, accounting for 25,875 deaths (13% of deaths). Dementia and Alzheimer's disease was the leading cause of death for women aged 65 and over, accounting for 27,277 deaths (13.5% of deaths).

Leading cause of death for infants (less than 1 year of age)

Infant mortality is measured as the number of deaths of infants less than 1 year of age in a given year, expressed per 1000 live births in the same year. It provides insights into the socio-demographic and lifestyle factors and the effectiveness of maternal and perinatal health system (AIHW, 2021i).

From 2011 to 2019, the infant mortality rate in NWMPHN region had been fluctuating around 3 per 1000 live births. It is worth noting that the infant mortality rate in NWMPHN region had been above the Victoria rate since 2012. In 2019, the infant mortality rate in NWMPHN was 3.5 per 1000 live births, above Victorian (3 per 1000) and national rate (3.3 per 1000) (see Figure 73).

Figure 73. Infant mortality rate per 1000 live births



Source: PHIDU, 2021 (data 2011-2019)

Based on data from 2017-2019, the top three leading causes of death for children under 1 were "Perinatal and congenital conditions" (263.9 per 100,000 population), "Other ill-defined causes" (22.8 per 100,000) and "sudden infant death syndrome" (9.5 per 100,000). This is consistent across both males and females.

The leading causes of death for children aged 1-14 years were "Land transport accidents" (1.2 per 100,000 population), "Perinatal and congenital conditions" (1 per 100,000) and "Brain cancer" (0.8 per 100,000).

The leading causes of death for young people aged 15-24 years were "Suicide" (13.7 per 100,000 population), "Land transport accidents" (7.4 per 100,000) and "Accidental poisoning" (2.2 per 100,000).

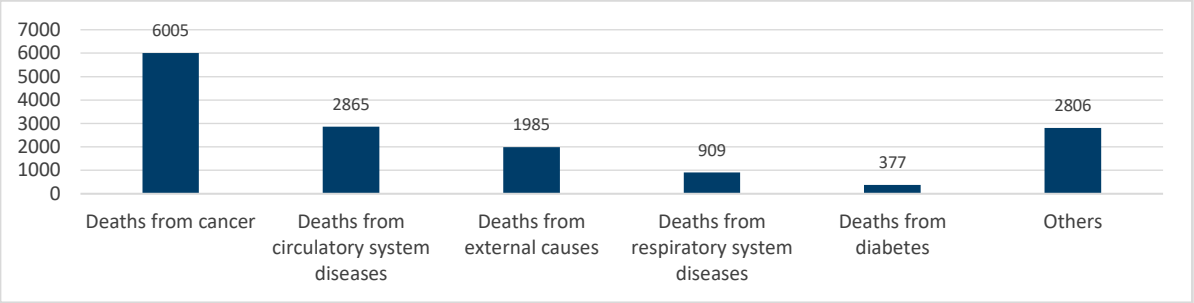
PREMATURE MORTALITY

Premature mortality refers to deaths that occur among people under 75 years of age (AIHW, 2015; PHIDU, 2021b).

From 2015 to 2019, there were 14,947 premature deaths in the NWMPHN region. The average annual premature mortality rate was significantly higher in males (273.1 per 100,000) than females (167.5 per 100,000) in NWMPHN region.

Among all the premature deaths in NWMPHN region, 40% were due to cancer and lung cancer was the most common cause (8% of premature mortalities). Following cancer, circulatory system diseases were responsible for 20% of the premature mortalities, among which ischaemic heart disease was the most common form (9.7% of premature deaths) (see Figure 74).

Figure 74. Causes of premature mortality in NWMPHN



Source: PHIDU, 2021 (data 2015-2019)

Maribyrnong, Brimbank and Melton are the top 3 LGAs with the highest premature mortality rate (Table 96).

Table 96. Premature mortality rate by LGA, 2015-2019

Region	LGA	Premature deaths of males, 0-74 years, 2015-2019		Premature deaths of females, 0-74 years, 2015-2019		Total premature deaths, 0-74 years, 2015-2019	
		Number	Average annual ASR per 100,000	Number	Average annual ASR per 100,000	Number	Average annual ASR per 100,000
Inner city	Melbourne	549	243.2	299	146	848	195.4
	Maribyrnong	544	339.2	284	185.1	828	263.3
	Yarra	475	264.2	279	156.8	754	210
Suburban	Brimbank	1,405	303.2	758	167	2,163	235.8
	Darebin	850	282.2	570	182	1,420	230.7
	Hobsons Bay	599	285.2	357	167.4	956	225.8
	Moonee Valley	623	231.5	392	139	1,015	184
	Moreland	882	277.5	511	156	1,393	215.4
Growth area	Hume	1,187	278.5	760	180.5	1,947	229.6
	Melton	752	269.6	527	192.9	1,279	231.3
	Wyndham	1,104	263.7	693	171.1	1,797	217.8
Peri-urban	Macedon Ranges – part	203	242.3	135	164.5	338	204
	Moorabool – part	142	255.9	104	193.6	246	225.3
NWMPHN		**9,291**	**273.1**	**5,656**	**167.5**	**14,947**	**220.1**

Source: PHIDU, 2021a

AVOIDABLE MORTALITY

Potentially avoidable deaths are deaths among people under 75 years and are from conditions that are potentially preventable through individualised care and/or treatable through existing primary or hospital care. Specifically, potentially avoidable deaths are classified using the International Classification of Diseases codes in the context of the present health system (AIHW, 2021i).

- From 2015 to 2019, there were 7,566 avoidable deaths in NWMPHN region.
- The average annual avoidable mortality rate was significantly higher in males (137.5 per 100,000) than females (78.5 per 100,000) in NWMPHN region.
- Maribyrnong, Melton and Brimbank are the LGAs with the highest avoidable mortality rate.

Table 97. Premature mortality rate by LGA, 2015-2019

Region	LGA	Avoidable deaths of males, 0-74 years, 2015-2019		Avoidable deaths of females, 0-74 years, 2015-2019		Avoidable deaths total, 0-74 years, 2015-2019	
		Number	Average annual ASR per 100,000	Number	Average annual ASR per 100,000	Number	Average annual ASR per 100,000
Inner city	Melbourne	313	125.4	153	70.1	466	98.1
	Maribyrnong	290	170.7	134	84.1	424	128.2
	Yarra	249	131.5	132	72	381	101.5
Suburban	Brimbank	724	154.8	353	77.5	1,077	116.6
	Darebin	431	138.2	279	87.2	710	112
	Hobsons Bay	312	147.1	153	71.2	465	108.9
	Moonee Valley	303	111.3	168	59.3	471	84.6
	Moreland	473	141.9	244	72.5	717	106.6
Growth area	Hume	617	141.1	381	88.7	998	114.9
	Melton	405	139.9	269	95.3	674	117.6
	Wyndham	587	132.7	343	81.2	930	107.2
Peri-urban	Macedon Ranges – part	101	123.2	53	65.6	155	94.8
	Moorabool – part	63	115	54	101.5	117	108.4
NWMPHN		**4,852**	**137.5**	**2,710**	**78.5**	**7,566**	**107.9**

Source: PHIDU, 2021a

6.4 Metric 5: Health consequences

Metric 5: Health consequences provides a loading for disease, illness and premature death. Morbidity is measured through hospitalisations and ED presentations (grouped and independently weighted by condition to account for overall rates of presentation), and mortality measured as avoidable death meaning that which could have been prevented through provision of individualised care and/or treatment through existing primary or hospital care (Falster and Jorm, 2017).

The health consequences scores show Darebin, Moreland and Melton are attributed with the highest proportion of need (see in yellow), although there is very little difference between the scores for all LGAs. Specific measures show higher rates, for example Melbourne has higher rates of AOD and mental related health consequences. Hume and Melton have higher rates of chronic disease.

When per capita need is adjusted for health consequences, Wyndham, Hume, Melbourne and Moreland are attributed the highest proportion of need (shown in red in Table 98).

Table 98. Population need adjusted for Metric 5: Health consequences

Region	LGA	'Overall need' population distribution 2025 (%)	Metric 5: Health consequences					Population need adjusted for health consequences
			Chronic disease	AOD	Mental health	Avoidable death (mortality)	Overall	
Inner city	Melbourne	9.8%	0.04	0.13	0.10	0.07	**0.08**	**9.1%**
	Maribyrnong	4.9%	0.06	0.08	0.08	0.09	**0.08**	**6.4%**
	Yarra	5.4%	0.06	0.11	0.09	0.07	**0.08**	**6.8%**
Suburban	Brimbank	10.5%	0.07	0.05	0.06	0.08	**0.07**	**8.5%**
	Darebin	8.3%	0.09	0.09	0.09	0.08	**0.09**	**8.6%**
	Hobsons Bay	5.1%	0.09	0.06	0.07	0.08	**0.07**	**6.2%**
	Moonee Valley	6.5%	0.07	0.10	0.09	0.06	**0.08**	**7.2%**
	Moreland	9.6%	0.09	0.09	0.09	0.08	**0.09**	**9.1%**
Growth area	Hume	12.7%	0.11	0.07	0.07	0.08	**0.08**	**10.5%**
	Melton	9.2%	0.11	0.07	0.08	0.08	**0.09**	**8.9%**
	Wyndham	15.3%	0.08	0.05	0.05	0.08	**0.06**	**10.9%**
Peri-urban	Macedon Ranges	1.5%	0.05	0.04	0.05	0.07	**0.05**	**3.4%**
	Moorabool	1.1%	0.09	0.07	0.07	0.08	**0.08**	**4.4%**

7

QUANTIFIED NEED

QUANTIFIED NEED BASED ON THE SOCIAL DETERMINANTS OF HEALTH

A SDoH approach highlights that the issues the PHN wish to address – especially in the most disadvantaged areas – are multi-faceted and require a holistic, collaborative system approach (Institute for Voluntary Action Research, 2015).

This section quantifies the five metrics to provide a brief view of overall need across the region. A summary of the identified priority issues and areas of need is also detailed in section 10.

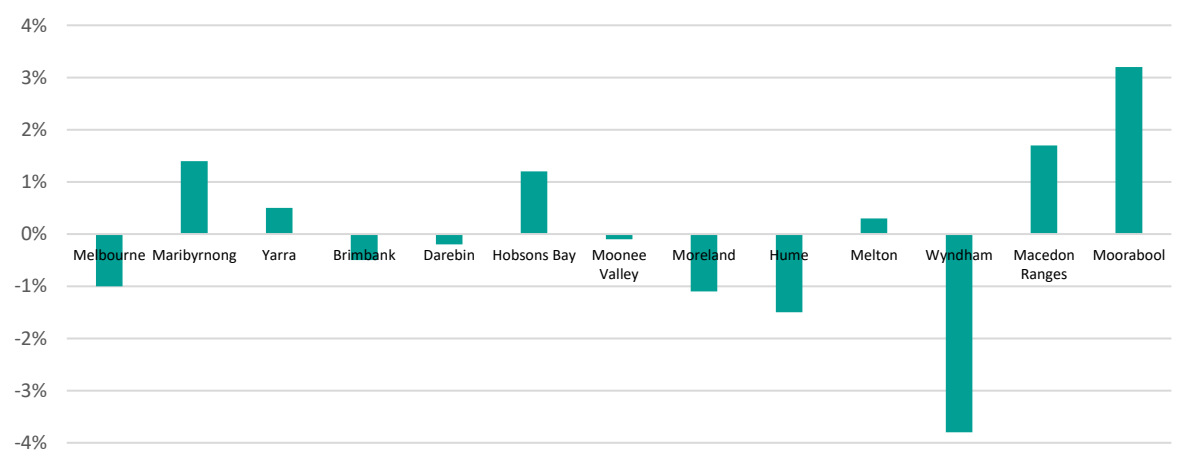
Looking at metric scoring across the SDoH (see Table 99), Melton (top 3 of all metrics), Hume and Brimbank are the highest areas of need. When per capita need is adjusted for all the metrics of SDoH, Wyndham, Hume and Brimbank have the highest proportion of need.

Table 99. Quantified population health need based on the Social Determinants of Health

Region	LGA	Metric 1	Metric 2	Metric 3	Metric 4	Metric 5	Overall population need
		Population	Social context	Determinants of health status	Access to health care services	Health consequences	
Inner city	Melbourne	9.8%	0.08	0.09	0.06	0.08	**8.8%**
	Maribyrnong	4.9%	0.08	0.07	0.08	0.08	**6.3%**
	Yarra	5.4%	0.03	0.08	0.06	0.08	**5.9%**
Suburban	Brimbank	10.5%	0.16	0.08	0.07	0.07	**10.0%**
	Darebin	8.3%	0.08	0.07	0.08	0.09	**8.1%**
	Hobsons Bay	5.1%	0.08	0.06	0.09	0.07	**6.3%**
	Moonee Valley	6.5%	0.03	0.06	0.08	0.08	**6.4%**
	Moreland	9.6%	0.06	0.07	0.07	0.09	**8.5%**
Growth area	Hume	12.7%	0.13	0.08	0.09	0.08	**11.2%**
	Melton	9.2%	0.10	0.09	0.12	0.09	**9.5%**
	Wyndham	15.3%	0.08	0.08	0.09	0.06	**11.5%**
Peri-urban	Macedon Ranges	1.5%	0.03	0.06	0.05	0.05	**3.2%**
	Moorabool	1.1%	0.06	0.09	0.07	0.08	**4.3%**

Population trends are quite closely associated with disadvantage so as you might expect the equity loadings do not change too much. Equity loadings do redistribute a small proportion from where population over inflates need to where the smaller populations have generally underestimated need. So compared to solely per capita need allocation, Maribyrnong, Yarra, Hobsons Bay, Moonee Valley, Macedon Ranges and Moorabool have a higher need allocation when adjusted for SDoH (see Figure 75).

Figure 75. Change in need due to the Social Determinants of Health



8

COMMUNITY CONSULTATION

8.1 Key messages

NWMPHN has a strong commitment to community engagement and empowerment. This commitment is reflected in the community consultation strategy adopted as part of the HNA roadmap.

KEY MESSAGES FROM OUR ENGAGEMENT WITH THE COMMUNITY

The key messages from our engagement with the community are described in Table 100.

Table 100. Key messages from our engagement with the community

	The **cost of healthcare** – especially dental and oral care – is high and beyond the economic means of people living on lower incomes. Consequently, they are often reliant on bulk-billed services.
	The demand for bulk-billed services exceeds supply, as evidenced by **long waiting times** and the **inability to get an appointment**. This means that people on lower incomes are more likely to be unable to access primary healthcare when they need it, resulting in poorer health outcomes.
	**Distance to services, transportation costs** and **ability to use transport** are a significant issue for those people reliant on public transport but who live in areas which are poorly serviced by it, as well as those who are geographically distant from the services they need to access (e.g., peri-urban areas). This means that people on lower incomes who are likely to be more reliant on public transport and living in less well-serviced localities are more likely to find it difficult to access primary healthcare services when they need it, resulting in poorer health outcomes.
	The immense diversity in our region means that healthcare funders and providers need to continue focusing on building their awareness and understanding to enable more **culturally safe and appropriate care** to be delivered. This will ensure that people from culturally diverse backgrounds, LGBTIQ+ and Aboriginal and Torres Strait Islander communities are able to access the primary healthcare they need and to enjoy health outcomes on parity with the wider community.
	**Stigma** is a significant issue affecting all members of the community and make people more likely to hide symptoms or illness, keep them from seeking health care immediately, and prevent individuals from adopting healthy behaviours.
	Some people **don't know where to go for healthcare** or **how to navigate the health system** which often means they don't get the treatment they need, or they end up at the Emergency Department. This is particularly so for people with limited English language proficiency, young people, people who have experienced incarceration, and people who are experiencing housing instability or homelessness. This means there is a need for build health literacy through more information delivered in appropriate languages and formats, greater outreach and engagement; no "wrong door" when accessing services; and services which are flexible in meeting people where they're at.
	COVID-19 restrictions were reported to be a **barrier to accessing the care that was needed** during the last 12 months. This was most significant for the older population (35 and above), those who do not identify with a priority population, female and from the suburban (Brimbank, Darebin, Hobsons Bay, Moonee Valley and Moreland) and growth areas (Hume, Melton, Wyndham).

8.2 Community survey

DATA COLLECTION

The online community health needs survey was used to capture community feedback on their state of health and wellbeing, as well as their experience of accessing health care services.

There were four parts to the survey:

1	'About you'	To ensure we are hearing from a range of people living in our region
2	'Your Health and Wellbeing'	To help us understand the care and support community members may need.
3	'Your Experience of Health Care'	To help us to understand what accessing health care services is like for members of the community.
4	'More About You'	These final questions tell us if we are hearing from a diverse range of people.

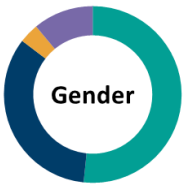
The survey was promoted through People Bank, social media and provider networks, as well as using paid social media advertising. Particular attention was given to reaching priority cohorts and the profile of survey respondents was regularly reviewed to identify gaps to address through additional promotion.

Limitations of the data collection

In addition to the limitations raised in section 1.4 it should be noted that, many survey questions did not require a response or were only asked to specific groups of respondents. As such, some questions did not receive a response from all respondents. For each question, data presented in the following sections includes only those who responded to that particular question.

RESPONDENTS

1607 people across NWMPHN region responded to the survey. Responses were anonymous and no questions were mandatory.



51.6%	Female
33.7%	Male
3.6%	Self-described
11%	Did not respond

4.9% of respondents were Aboriginal and/or Torres Strait Islander.

53.8% of respondents were from culturally and linguistically diverse backgrounds.

88% of respondents (n = 1428) told us which **priority population** they identified with.

21% of respondents identified as a carer.

21% of respondents identified as LGBTIQ+.

15% of respondents were living with disability.

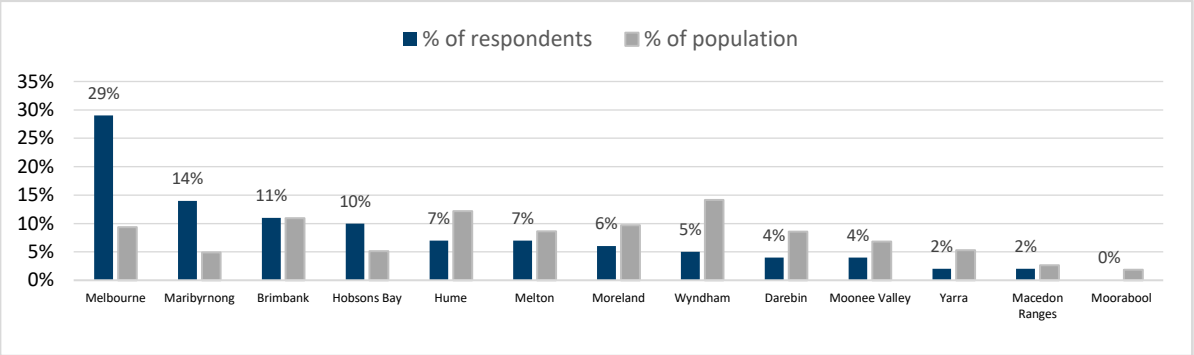
- 8% of respondents were experiencing unstable housing or homelessness.
- 3% of respondents had experienced incarceration.
- 2% of respondents were of refugee or asylum seeker background.

NWMPHN has a large refugee or asylum seeker population, in future HNA community engagement we will do more to connect with this community and ensure they can share their lived experience in a way that is accessible and culturally appropriate.

Respondents were asked to identify the postcode of where they live. We received responses from the community in each LGA, however the rate of response varied and for some LGAs was not reflective of the population in the area. Figure 76 shows the percentage of respondents by LGA

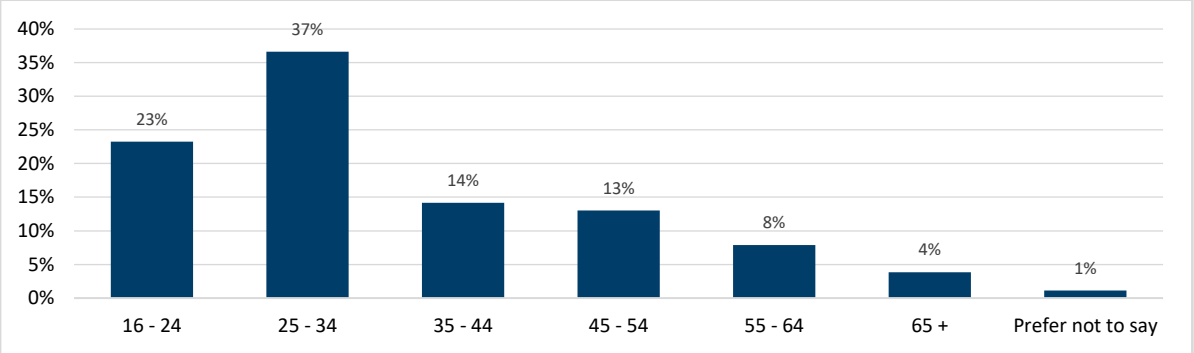
against the % of the population. Paid social media advertising was used to target certain LGAs throughout the survey period to lift representation of responses.

Figure 76. Number of survey responses by LGA compared to percentage of the population



The **age of respondents** was also monitored to ensure we had a reasonable spread across the age groups. Responses were accepted from only community members aged 16 and above. The proportion of responses receive was in line with the population.

Figure 77. Number of survey responses by age



COMMUNITY HEALTH AND WELLBEING NEEDS

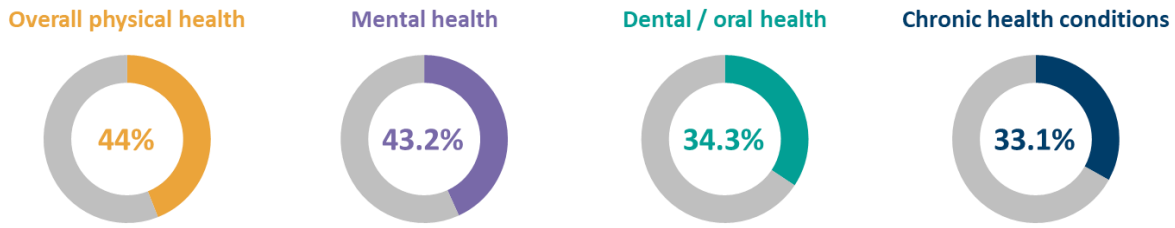
Health of the community

88% of respondents (n = 1428) reported good, very good or excellent health; however, 28% reported their health had worsened in the past 12 months.

People with fair or poor health were more likely to be older, be living with a disability, or live in Brimbank, Melton, Moreland or Darebin. Females, refugee/ asylum seekers and LGBTIQ+ people reported that their health compared to 12 months ago was worse.

Health issues of concern in the community

Respondents are most concerned (extremely to moderately concerned) about the following issues.



Dental/oral health and chronic health conditions were of particular concern to people who identify as LGBTIQ+, people living with disability, people experiencing unstable housing or homelessness, people who have experienced incarceration, and people of refugee or asylum seeker background.

Accessing health care

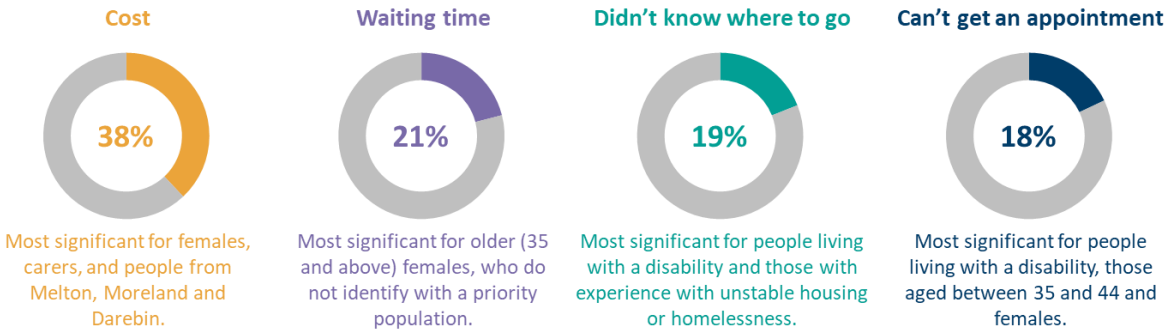
Of those who need it, 55% of respondents (n = 1222) often or always get access to the health care they need. 20% never or rarely get access. This is highest for care required for the use of alcohol and other drugs (31%) and mental health (30%).

Table 101. Percentage of respondents accessing the health care that's needed

	Never or Rarely	Sometimes	Often or Always
A chronic health condition	21%	23%	55%
Dental and oral health	22%	27%	50%
Maternal and child health	20%	21%	57%
Use of alcohol and other drugs	31%	16%	51%
Mental health	30%	23%	45%
Physical health	16%	20%	60%
Total	**20%**	**23%**	**55%**

The most significant barriers in never or rarely getting the health care that's needed is cost (41%), waiting time (27%), that they didn't know where to go (23%) and work commitments (22%).

Overall (n = 1476), the **top 4 barriers in getting the care needed** were reported as follows.



Health care cost was the most significant barrier in people never or rarely getting the health care they need, and it impacts people on low incomes, carers, and females who rely on bulk-billed services. The high level of demand for these services means it can be difficult to get an appointment and there are long waiting times. The cost of dental and oral care is of concern among older people.

In addition, respondents reported the following:

- **The stigma of specific health concerns/conditions prevents some people from seeking healthcare.** For example, mental health issues are stigmatised in some culturally and linguistically diverse communities, whilst the willingness of young people to seek mental healthcare is influenced significantly by the attitudes of their peers and parents/carers.
- **Some people feel stigmatised by their current or past situation when accessing healthcare**, including people who have experienced incarceration, are experiencing homelessness and/or substance use issues.
- **Distance to services and transport costs are also a significant barrier for some people,** particularly those who are not working; people who are experiencing unstable housing or homelessness; people who have experienced incarceration; and people living in peri-urban areas.
- **COVID-19 restrictions** were also reported to be a barrier to accessing the care that was needed (24%). This was most significant for the older population (35 and above), those who do not identify with a priority population, female and from the suburban (Brimbank, Darebin, Hobsons Bay, Moonee Valley and Moreland) and growth areas (Hume, Melton, Wyndham).

COMMUNITY EXPERIENCE OF ACCESSING HEALTH CARE

Health care use

In the past 12 months, **most respondents had visited a health professional in the previous 12 months, with GP/family doctor visits being most common (62.3%).** Of those, who had visited a GP, 93% reported they had a main GP/family doctor, health care centre or clinic they attended.

75% of respondents reported that health professionals were always or mostly aware of important medical history, they always explained things in a way they could understand, and that they were clear on what to do next for their care or treatment. However, this was not the case for everyone.

25.1% of respondents advised that health professionals don't always (sometimes, rarely or never) know important information about their medical history, with people who have experienced incarceration and people of refugee and asylum seeker background particularly affected.

25% advised that things were *sometimes* explained by the health professional in a way they could understand, with the demographic characteristics of these people broadly reflecting those of all respondents.

31% sometimes knew the most important things to do next with their medical are or treatment, with the demographic characteristics of these people broadly reflecting those of all respondents.

In the past 12 months, 85% of respondents (n = 1370) have delayed accessing healthcare. *Respondents were able to select more than one response.*

Table 102. Top reasons for delaying care

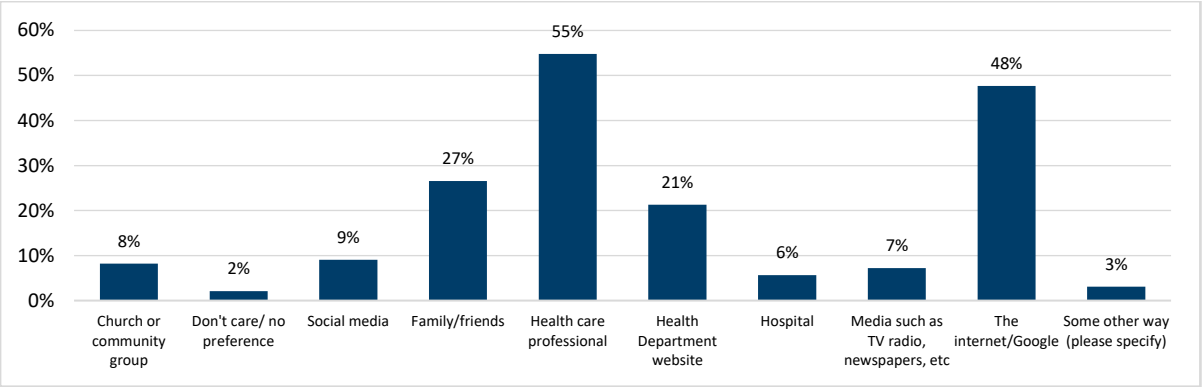
Care type	Respondents	Top reasons delayed seeking care
Preventative care such as breast screen, paper smears, blood tests.	33%	COVID-19 (31%) Couldn't get an appointment (29%)
Dental or oral health	30%	Cost (46%) COVID-19 (45%)
Felt unwell/general ailment	28%	Cost (38%) COVID-19 (33%)
Regular / scheduled general check up	27%	COVID-19 (39%) Cost (31%)
Mental health issue	16%	Cost (49%) COVID-19 (47%)

People living with a disability, experiencing unstable housing or homelessness, who have experienced incarceration, or are from refugee or asylum seeker backgrounds were also significantly likely to delay accessing important health care such as maternal and child health and urgent or emergency care.

Access to health information

Many people source health information from health professionals and the internet, however some vulnerable population groups rely on other sources. When in need of health information, more than half of respondents (55%) (n = 786) sourced health information from a health care professional, followed by the internet/Google (48%) and family/friends (27%).

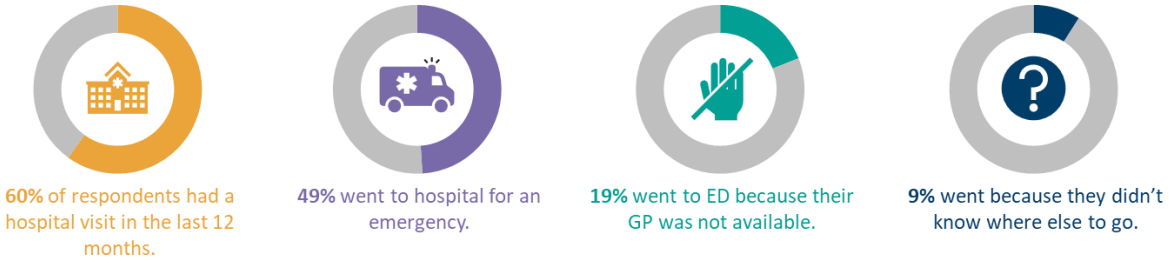
Table 103. Sources of health information for the community



There are some differences amongst the priority populations.

Family/Friends	Media such as TV, radio and newspapers	Hospitals	Social media, religious/ community groups, and media
Highest for LGBTIQ+	Highest for younger people (aged 25 to 34)	Highest for people living with disability, carers or those experiencing unstable housing or homelessness	People who have experienced incarceration, people experiencing unstable housing or homelessness, and people of refugee or asylum seeker background.

Experience of accessing healthcare at hospital



60% of respondents had a hospital visit in the last 12 months (n = 864). Half of all hospital visits (49%) involved a visit to the Emergency Department (ED), with young people (aged 25 – 34) our priority populations (carers, people of Aboriginal and Torres Strait Island origin, and people living with a disability) most likely to attend.

Many people attended the ED because (their physical or mental health condition was serious). Among those attending Emergency, 54% attended due to a serious physical or mental condition (n = 228), or because they sent by their GP. However, 19% (n = 83) attended because the GP was not available or they could not get an appointment, or because they didn't know (9%) where else to go.

People living with a disability, people from refugee or asylum seeker background and older people were less likely to know who to contact if they were worried after leaving hospital. Most who attended hospital (87%) (n = 741) were told who to contact if they were worried about their condition or treatment after leaving hospital. People living with a disability and people from refugee or asylum seeker backgrounds were almost twice as likely not to be advised of who to contact, whilst older people were almost three times as likely not to be advised.

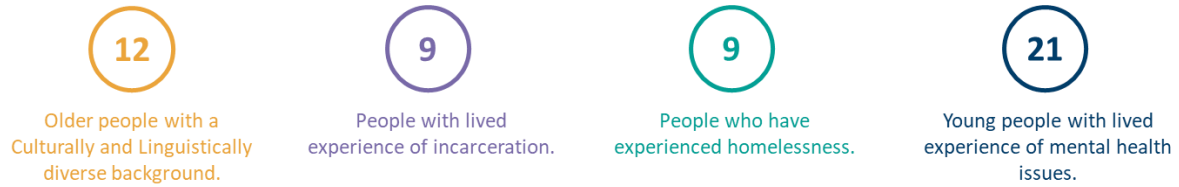
Most people who attended hospital (85%) (n = 727) were provided with a summary document outlining the care received at hospital, however 60% of people who were not told who to contact if concerned about their condition or treatment after being discharged also reported not receiving a summary of their treatment.

8.3 Focus groups

DATA COLLECTION

Targeted discussions with community groups were used to provide insights where we have had limited engagement through other activities and/or had low response rates in the community health needs survey where used. Providers and community support groups were engaged to help identify community members willing to participate.

A total of **44 people were engaged** through **six focus groups** and **four in-depth interviews**.



Two focus groups and two in-depth interviews were conducted with **priority population groups** to explore their experience of accessing health care, including barriers.

This included:

- 12 members of cohealth's Community Advisory Committee. Participants were mainly **older people**, and approximately half were from **culturally and linguistically diverse backgrounds**.
- 9 members of an RMIT Think Tank focused on justice which includes **people with lived experience of incarceration**.
- Two in-depth interviews with **people who have experienced homelessness**.

In addition, four focus groups which focused on **mental health** were conducted with **young people**.

This included:

- 6 Members of the Youth Advisory Committee and FREEZA program from the City of Maribyrnong.
- 11 Members of the Youth Advisory Committee from the City of Hume.
- Two in-depth interviews of members of an LGBTIQ+ support group for young people from the City of Brimbank.
- Two in-depth interviews with young people who have lived experience of the justice system.

COMMUNITY HEALTH NEEDS AND EXPERIENCE OF ACCESSING SERVICES

Older people from culturally and linguistically diverse backgrounds

Poor health administration	Communication challenges	Long waiting times	Cost of dental and oral care	Understanding the next steps for treatment	Self-advocacy

Poor health administration. Some participants provided examples of how poor administration had impacted their experience of the health care system, including lost x-rays and delayed appointments.

Communication challenges. Some people from non-English speaking backgrounds described difficulties understanding and being understood by healthcare providers, especially when accessing services online. Interpreting services are available, however they need to be booked in advance and the healthcare professional requires a certain level of skill and experience to be able to work well with the interpreter to deliver a high quality of care.

"I have 8 children. When you see the doctors face to face…when it is telehealth it is completely different…very hard when you have a language barrier to communicate what you need. When we go

to the [children's] hospital we get everything checked up. Many people think going to the hospital is easier. It is face to face and we get everything we need. We don't feel satisfied with telehealth."

Long waiting times. Waiting times for bulk-billed services were long prior to the COVID-10 pandemic and have become even longer since then.

"Right now I need…good dental care. When I had breast cancer I saw [the dentist] every three months. The next time I can see them now is 12 months and I need to get a doctor's note to say that it's a medical necessity. Otherwise the wait is two years. If I'm having difficulty what's happening to people who have more difficulties. I know how to make the system work, I'm fortunate. COVID has thrown everything out so far, they couldn't do any of their procedures and now they can't have as many bookings."

Cost (of dental and oral care). Dental and oral healthcare is expensive, particularly for people on lower incomes and especially if they are ineligible for a healthcare card.

Understanding the next steps for treatment. Some people reported being unclear about the next steps after seeing a healthcare professional.

"My friend visited the GP and was referred to a dentist. My friend waited for three months for the dentist to call and make an appointment…they didn't realise they had to call the dentist to make the appointment."

Self-advocacy. Several participants shared their experience of being discharged from hospital before they were able to care for themselves, or before they had received all the treatment they needed.

"I was discharged from hospital after surgery. I live alone and hadn't recovered enough to care for myself. I explained that I needed to stay longer in hospital…and was allowed to stay an extra day."

People with lived experience of incarceration

Access to medical information	Reduced value on health	Difficulty navigating the health system	Stigma

Access to medical information. The prison health system is a separate health system and patient information is shared with the wider Medicare-funded health system regarding. Consequently, important medical history about a person who has been incarcerated may not be available after their release to a health practitioner.

Reduced value on health. All participants shared how difficult it is to get the care they need whilst in prison. One participant reported that this can result in prisoners taking less care of their health whilst in prison and post-release – which has important implications for their ongoing health and wellbeing.

"I requested access to a psychologist during my first year in prison, and was finally granted access in my third year, three months before I got out. The psych was great and we developed a good relationship…but I wasn't able to continue seeing them after release because of how the service was funded."

Difficulty navigating/accessing services when back in the community. In prison, almost every aspect of a prisoner's life is controlled. Participants reported that the transition back to community life – where so many decisions need to be made daily – is very difficult. It can be particularly difficult for people to navigate the health system after leaving prison and to access the healthcare they need, particularly if they have complex health issues.

"After getting out of prison, I had to work really hard to get the treatment I needed. I was lucky to find a really good psychologist and they helped me to connect with other services. However, it was very much a 'lucky dip' in terms of finding the right service and the right person. You have to be really good at self-advocating."

Stigma. Participants reported experiencing stigma due to the limited understanding and experience of practitioners and health administrators in working with people who have been incarcerated.

"Every time you have to spill your guts and tell your whole story again. Sometimes the doctor wants to know what you were in [prison] for."

People with lived experienced of homelessness

Food and other support	Stigma	Accessing care	Long waiting times

Food and other support. One participant noted that food is readily available in the City of Melbourne, however other simple things like socks, or a shower, or a person to ask if you're OK, or if you need healthcare are more difficult to come by.

"There are plenty of people [experiencing homelessness) who actually want to talk to somebody.

Stigma. This is a significant issue, particularly when a person has been unable to shower for a few days. If they are homeless and have other complex issues (e.g., mental health, substance use) then it can be even harder to seek help.

"You get judged by a lot of people. They don't want to talk to you... Personally, for me, the judgement is the main barrier for accessing care. You can go 2 – 3 days without a shower. You smell a little. You're self-conscious…while you're high as a kite you don't feel it."

"When I attend a hospital in an emergency, they don't see me as a patient. They just see my homeless status, my mental health status, my drug abuse status. They don't see the issue even when it's unrelated."

"I think that it is so critical that I had a GP who had an understanding about ice. No judgement at all…[they were] caring and concerned. I went to a clinic that has a reputation for being more aware…You have so much internal guilt and shame you don't need judgment from health professionals."

Accessing care. Accessing services for a person experiencing homelessness is extremely challenging, with many organisations unable to provide care to people who do not have a fixed address. No fixed address also makes a person ineligible for a healthcare card and for Centrelink benefits.

Long waiting times. Waiting times for psychosocial and other services can result in people disengaging from seeking the help they need.

"Once you've been told to put your name on a list once, twice, three times, four times you give up."

Waiting times for drug treatment services can extend the period during which people experience drug-related harm, mental health issues and homelessness.

"I was on the waiting list for rehab. I lived at the park near the rehab. I needed to be physically close so if they called, I'd be there."

"People look for treatment and don't get it...they're in and out of emergency and psych wards…which could be avoided if treatment was available before it escalates."

Young people with lived experience of mental health issues

Stigma	Relationship with mental health practitioners	Difficulty navigating the system	Awareness of services	Distances to services	Cost	Eligibility criteria

Stigma associated with mental health issues and accessing mental healthcare. Several sources of stigma which young people experience include unsupportive parental attitudes, cultural attitudes towards mental health, and the absence of peer-to-peer role models which normalise mental health and the importance of mental healthcare.

"My friend's mum say that depression isn't real…it's just people trying to get attention."

"My parents are from a cultural background where mental health isn't talked about. If I needed it then I'd have to access mental health support without them knowing about it."

Relationships with their mental health practitioners. Young people talked about the importance of feeling comfortable and developing a trusting relationship with their mental health practitioner. They want to be listened to, not judged, and supported to develop the awareness, knowledge and skills to be well. However, a young person may feel less confident to negotiate a change in practitioner if they are not feeling comfortable and, unfortunately, may instead choose to disengage from treatment.

"Vibing is really important…it's not going to work if you don't vibe together."

Difficulty navigating the system. Young people were aware of a broad range of mental health services; however, they were frequently unsure which service would be most appropriate for them and how to go about accessing the service. When experiencing a mental health issue, service navigation can be overwhelming.

Schools are an important service access point, however young people reported they were only aware of the services available and how to access them because they had a friend who had done so. In addition, many young people were unaware that they could get a mental health plan from their GP/family doctor which would enable them to access mental care at no cost or low cost.

Awareness of services. The internet was an important source of information about the services available. However, some young people shared information with their peers about healthcare professionals and health practices who they consider are/are not good. This 'grapevine' was particularly active among young people who identify as LGBTIQ+ as they share information about supportive providers.

"I'd never heard of headspace until my disability employment worker told me about it and I've been there ever since. I sometimes wonder why it took so long for me to find and why I ended up finding out about it by chance from [a disability employment worker]".

A range of barriers impact upon service access including:

Distance to services and public transport. Young people living in peri-urban areas are more likely to be geographically distant from services and reliant on less frequent public transport. Transportation costs may be prohibitive.

Cost. Service cost is a significant barrier for a young person who may be:

- At school and wanting to access services without the knowledge of their parents/family
- Studying vocational or tertiary education
- Unemployed.

Eligibility criteria. Young people with complex mental health needs need support in the lead up to and during the transition as they age out of youth mental health services for example, headspace.

Young people commented that eligibility criteria can result in people being excluded when in need of care or being shunted around from place to place.

"I called an ambulance during a serious mental health episode and was taken to Emergency. At Emergency, I was assessed as being serious enough to be admitted and told to return home and given a number to call [mental health triage service]. When I got home, I rang the service and was told to go back to the Emergency Department again."

CASE STUDY ONE: Relationship with their health practitioner and long waiting times

Rodney* was married with two children and had a professional job when a series of traumatic events led him to become 'quite lost in drug and alcohol use' and homeless.

"For me, I knew it (my drug and alcohol use) was an issue, so I spoke to my GP. They were amazing. A real blessing. The only reason I spoke to them was because I knew they wouldn't be judgemental. You have so much internal guilt and shame (about your addiction) you don't need judgment from health professionals." It can be a real barrier to seeking help.

Rodney's GP referred him to a drug and alcohol service however Rodney had to wait 6 weeks to receive the care he needed. *"The huge issue for me was the waiting time to get a drug and alcohol worker. You're on your own until you get your first appointment. Anything can happen in the meantime."*

Rodney feels that people's motivation to receive help needs to be matched with the capacity of the system to provide it. *"People look for treatment and don't get it, they end up in and out of emergency and psych wards which could be avoided if treatment was available before it escalates."*

Rodney is now rebuilding his life after attending a 3-month rehabilitation program and post rehab program. *"I went from being a high-functioning, capable person to a person who hit rock bottom. I needed a lot of support to get back on my feet. I still do…"*

He recalls that *"when things have been going well, it's because there's been coordination between the different services"* and *"the service providers have been compassionate and empathic."*

"It just makes the world of difference. Being judged is the worst thing you can do. Being supported means the world."

CASE STUDY TWO: Barriers due to stigma and service navigation

When Sami* became homeless, he found it easy enough to access food however getting other basics such as a shower and clean socks was challenging. As a result, he found it hard to access the health care he needed as he was worried about being judged. *"You get judged by a lot of people. They don't want to talk to you. You smell. Personally, for me, the judgement is the main barrier for accessing care."*

In addition to showers and clean laundry, Sami believes that having someone who is trained to listen and provide guidance to people (as part of providing food services), would help immensely. *"There's a group of people who really want the help and don't know how to access it. There is no one guiding them through it. Some of the food services…there's no one there who is qualified to talk to you and ask 'are you ok?'."*

When Sami found the courage to seek help he was often turned away as he was unable to provide a fixed address. They would just say 'we can't help you'. *"It's difficult. 99% of services want some sort of ID".*

Finally, Sami did receive the health care he needed, and it was having someone to listen to him and see him as a whole person that had the most impact. *"The main thing that works…is someone who takes an interest in you as a person."*

His advice for health providers working with people experiencing homelessness or drug and alcohol dependence, *"show them that there is genuinely someone who wants to talk to them. Once they trust you, they'll drop their guard."*

*Names have been changed

8.4 Other community engagement

The HNA is not the only time we engage with the community to understand their needs. The key messages from the various engagement activities undertaken by NWMPHN over the last two years have also been considered. A summary of some of these are provided below.

Table 104. Other community engagement informing the HNA

Engagement activity	Description	Key messages
Blueprint for Better Health (Regional Mental Health, Alcohol and Other Drugs (AOD) and Suicide Prevention Plan) Year: 2020	Engaged with over 600 diverse community members via a survey, interviews, focus groups and workshops to explore the key issues they experience with mental health services in our region.	• People don't know when, how or where to go for help • When attending services, people often do not feel safe, heard, or understood • The GP's role is critical but there are barriers to appropriate GP car. • There are few options between primary care and crisis care.
Person-Centred Care in Melbourne's Centre, North and West: A Summary of Focus Groups and Interviews Year: 2020	Engaged with 8 community members to examine their experiences of receiving primary health care in our region to inform our Person-Centred Care Strategy.	Barriers to accessing health care • Distance to services • Cost • Waiting times • Lack of flexibility of services • Poor communication from services providers (including poor use of interpreters) • Difficulty navigating services.
Evaluation of the Integrated Team Care program - supporting Aboriginal and Torres Strait Islander people Year: 2021	13 clients of the service were interviewed about their experiences to determine the impact of the program.	Issues with accessing care outside of the program • Distance to services (and lack of transport) • Low health literacy • Difficulty navigating the system • Lack of cultural safety in primary care.
Long-COVID Consultation: Understanding the needs and experience of people with long-COVID in North Western Melbourne Year: 2021	Interviewed 6 people living with long-COVID in our region to understand their experiences of accessing health care and determine the type of ongoing support they require.	Main areas for improvement in the delivery of care and support to people with long-COVID • Increasing awareness of people with long-COVID on the importance of seeking help • Increasing awareness of health professionals on the ongoing needs of people with long-COVID • Ensuring primary care providers have access to current best practice guidelines to guide their care.

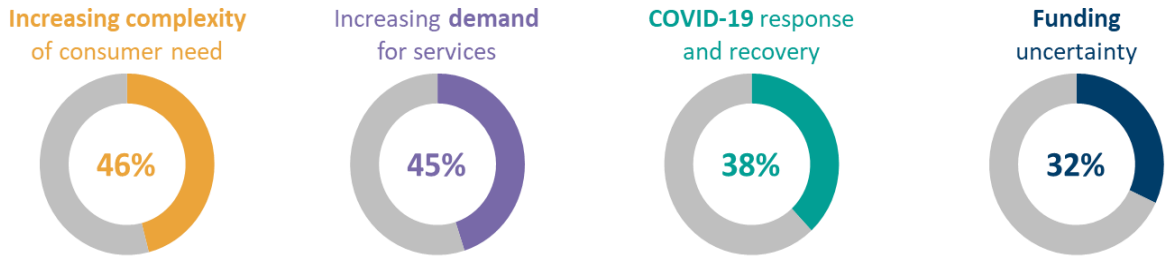
9

MARKET ENGAGEMENT

9.1 Key messages

Providers highlighted a range of demand and supply pressures and broader system challenges that are impacting on population health and the ability of the market to meet growing health needs.

The most significant challenges facing organisations include:



Lack of available services to refer to (24%), workforce shortages (23%), increasing costs of service delivery (21%) and lack of integration and service fragmentation (18%) were also of concern.

Providers emphasised the impact of increasing demand as the population is not only growing, but also becoming more complex in terms of their health needs and diversity. The most urgent priority consistently highlighted by providers was the growing demand for mental health services. This was thought to be particularly critical pre-COVID 19 and has been intensified because of the impacts of the pandemic being felt by current clients, new clients, their families, the community and providers. There have also been flow on impacts into workforce identified such as practitioner burnout.

System challenges, including the fragmentation of the primary and community care sector and the lack of integration at a broader system level, were seen to have a compounding impact on demand and supply pressures.

Where demand is increasing and supply is insufficient, waitlists are growing and care is being delayed. This is placing greater pressure on acute care settings which, in turn, are increasingly looking to direct demand back to the primary and community care sector. The lack of integration was also seen to create difficulty navigating the healthcare system, for both clients and providers, generating flow-on impacts for demand and supply.

A high-level summary of the insights from our engagement with the market are summarised in Table 105 and more detail is provided in the sections that follow.

Table 105. Key messages - demand pressures, supply pressures and system challenges

Demand pressures
1. **Increasing demand** for mental health services was consistently highlighted as a critical priority by all provider types with unmet demand across both primary and tertiary care.
2. **Population growth** was highlighted by many providers throughout the region as a major pressure, leading to increased demand for services. Growth areas in the region were identified as also presenting a challenge.
3. **Increasing complexity** of client needs including more clients presenting with comorbid conditions, or longer-term conditions. These create additional demand pressures as they require more intensive, coordinated and long-term treatment.
4. **Increasing diversity** of the population and changing population cohorts including clients with diverse backgrounds such as culture, language, gender and sexuality and ability. The impacts of social disadvantage were also highlighted and the need to consider the social determinants of health in service planning.
5. **Impact of COVID-19** is continuing to have major impacts on the market through increased demand for services and reductions in provider capacity. Providers are also anticipating longer term demand issues.

Supply pressures

1. **Supply gaps by service type** include mental health, alcohol and other drugs including clients with dual diagnosis. Other gaps included a growing prevalence of chronic disease particularly patients with multiple chronic conditions, some gaps in cancer care and dental services.
2. **Supply gaps by population cohort** include children, young people and families, services for Aboriginal community, culturally appropriate services and languages for diverse communities, and services catering for LGBTIQ+ communities.
3. **Supply gaps by geographic area** include growth areas (Hume, Wyndham and Melton), outer catchment areas (Macedon Ranges and Moorabool), pockets of entrenched disadvantage in inner city areas and areas of social disadvantage in several LGAs.
4. **Workforce shortages** including recruitment and retention issues for General Practice and community health. In addition, shortages were flagged in workforce areas including community nurses and community allied health.
5. **Funding shortages** include providers indicating that as client needs increase in complexity, funding arrangements do not enable providers to adequately manage this complexity.

System challenges

1. **Barriers to access** include availability, affordability and appropriateness of some services, challenges of access due to travel requirements, health literacy and navigation challenges for some clients.
2. **Sector fragmentation** resulting in a lack of coordination of care and service planning and exacerbation due to the competitive nature of commissioning and siloed funding streams.
3. **Lack of system integration** included the lack of operability across information systems, inconsistent processes and communication around care transfer and a lack of aligned strategic and operational planning between settings of care.

9.2 Engagement approach

Ongoing engagement and building relationships with the market is central to the role of NWMPHN. While this engagement occurs regularly through channels such as commissioning, engagement via expert advisory groups and collaborative arrangements, a formal market insights approach was undertaken for the development of the HNA.

The HNA market insights engagement was undertaken to capture insights to help inform strategic thinking in key areas such as market failure, workforce and other pressures. The purpose of the engagement included:

- Exploring demand, supply and system pressures that are impacting the market
- Identifying barriers to accessing healthcare services and gaps in the market
- Considering opportunities for collaboration and integration across the sector.

Insights were gained through engagement with NWMPHN's provider market. This was done through interview, survey and workshops.

30 interviews with 28 providers across general practice, commissioned service providers, community health, tertiary providers and peak bodies.

- 9 General Practices including a mix of General Practitioners, Practice managers and practice nurses.
- 11 commissioned service providers including community health and specialist providers
- 8 tertiary providers including major hospitals and acute mental health providers.
- 2 peak bodies.

An **online survey** disseminated to all service providers in the region, which received **418 responses**.

22 respondents did not work in the region.

Of the remainder:

27%	worked in General practice
26%	worked in the mental health sector
26%	worked in allied health sector
43%	worked in community health
54%	worked in clinical roles

Participants provided services in a range of locations across the region, with a greater proportion providing services in suburban and inner-city areas.

Out of 411 respondents, providers worked in the following areas:

59%	in **Suburban areas** (Darebin, Brimbank, Hobsons Bay, Moreland, Moonee Valley)
43%	in the **Inner city** (Melbourne, Maribyrnong, Yarra)
40%	in **Growth areas** (Hume, Melton, Wyndham)
14%	in **Peri-urban areas** (Macedon Ranges, Moorabool)

Targeted **GP workforce planning workshops** were also held, with all general practices within the region invited to attend. GP, practice nurse and non-clinical staff were in attendance.

Limitations of the data collection

In order to ensure participation from a wide sample of interviewees, efforts were made to engage the following groups: A range of small, medium and large providers, providers from across the primary, community and tertiary sectors, stakeholders working in a range of roles, from general practitioners to practice managers to Chief Executive Officers. Nevertheless, it is important to note that the providers selected for interview are not necessarily a representative sample of the broader provider market.

Many survey questions did not require a response or were only asked to specific groups of respondents. As such, some questions did not receive a response from all 418 respondents. For each question, data presented in the following sections includes only those who responded to that particular question.

9.3 Demand pressures

INCREASING DEMAND FOR SERVICES DUE TO POPULATION GROWTH

Population growth is leading to increased demand for services, particularly in growth areas.

Providers indicated that increasing demand for services was a challenge throughout the region but was particularly of note in population growth areas. In growth areas, families with young children were perceived by providers as driving demand for services.

There is **ongoing unmet demand in inner city areas** - some providers, particularly mental health and alcohol and other drugs services noted that the focus on pushing services out into new growth areas ignored the ongoing need for services in inner city areas.

As the region grows in diversity there is an **increasing need for services to support more vulnerable populations**. Providers highlighted that in parts of the region with high numbers of migrant and culturally and linguistically diverse population, there can be challenges accessing affordable care. Where clients can afford care, often:

- The care available is often not culturally appropriate which creates barriers to clients accessing services.

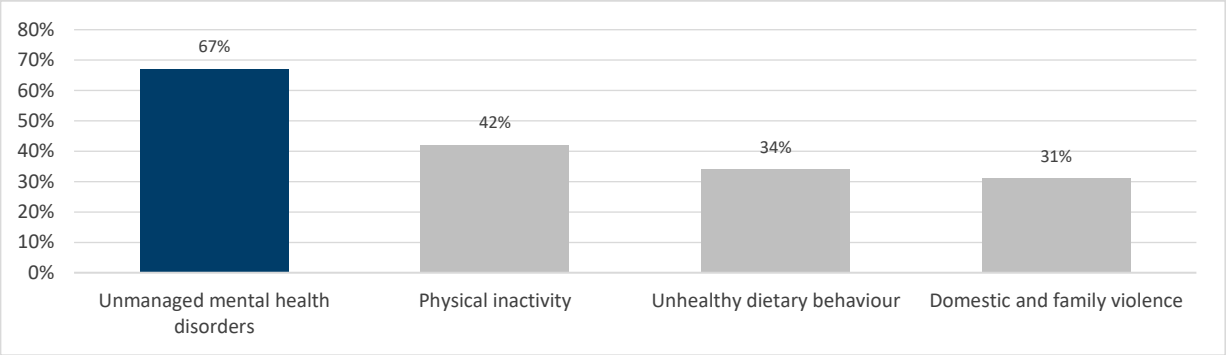
- There is a lack of trust in healthcare/government among clients which also creates barriers to clients accessing services.

INCREASING DEMAND FOR MENTAL HEALTH SERVICES

Mental health was consistently highlighted as a critical priority by all provider types with unmet demand across both primary and tertiary care.

When asked what they consider to be the main health risks faced by the communities they serve, unmanaged mental health disorders was selected by 67% of respondents.

Figure 78. Main health risks facing communities according to providers



When asked about the health care system in the region, 51% of respondents either agreed or strongly agreed that the system was effective at improving physical outcomes for clients, with **only 25% agreeing that the system was effective at improving mental health outcomes for clients**.

Providers consistently indicated that the demand for mental health services was continuing to increase. Factors that were increasing demand included:

- Population - Growth in the population meant demand for services in general was increasing
- Cost of mental health services - GPs indicated that many of their clients were either:
    - Unable to access Area Mental Health Services due to the long waitlists
    - Unable to access private psychologists due to either the long waitlists or due to cost
- COVID-19 -The pandemic was creating an increase in demand for mental health services provided in the community and in hospital.

Providers indicated that the limited supply of community mental health practitioners (both public and private) limited the ability of clients to access mental health care. Multiple GPs noted that waiting lists for psychologists were saturated and they were no longer accepting new clients. There were particular concerns about access to community mental health practitioners for vulnerable populations.

"Mental health services are underfunded and under resourced. There are not enough clinicians to meet demands and the clinicians currently working are at risk of burn out due to increased demand and complexity"

The 'missing middle' were also flagged to be of high risk, those clients that were too unwell for community-based care but not unwell enough for inpatient hospital care, therefore potentially not receiving required care.

"Clinical mental health services are extremely hard to access and people are regularly turned away because they aren't sick enough, those same people can also be turned away from community mental health because they are too sick"

A lack of appropriate models of care for mental health care for growing vulnerable populations in the region included:

- **LGBTIQ+**: fewer services available further away from metropolitan Melbourne.

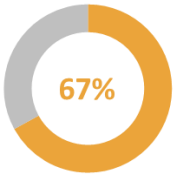
- **Aboriginal communities**: Shortage of staff with lived experience workforce shortages of staff lived experience - providers indicated that the extent to which services actively recruited staff with lived experience was highly variable.
- **CALD communities**: Providers noted that there were shortages within the workforce of staff embedded within CALD communities. Providers indicated that the extent to which services actively recruited staff that were based in the communities they were managing was highly variable.
- **Intersectionality**: The lack of appropriate services for vulnerable populations was particularly problematic for clients experiencing intersectionality and overlapping forms of marginalisation.

INCREASING COMPLEXITY OF CONSUMER NEEDS

Providers observed that the majority of their clients experienced mental health distress, chronic conditions and socioeconomic disadvantage

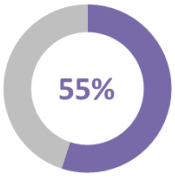
Providers surveyed raised concerns about mental illness and problematic use of alcohol and other drugs. This is consistent with providers interviewed who raised the increasing complexity of clients including clients with co-morbid conditions including, chronic disease, mental health and AOD dual diagnosis. This was often intensified by socioeconomic disadvantage and for clients from vulnerable populations.

Significant unmanaged mental illness



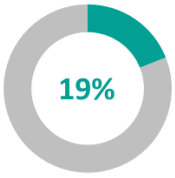
of providers indicated that unmanaged mental illness was one of the main health risks facing the community they served.

Moderate to high levels of distress



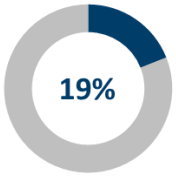
of providers indicated that more than half of their clients had moderate to high levels of psychological distress (including depression and anxiety).

Problematic use of drugs



of providers indicated that one of the main risks was the problematic use of drugs.

Problematic use of alcohol



of providers identified the problematic use of alcohol as one of the main risks.

When asked about areas where they saw clients 'falling through the net,' again, providers frequently raised mental health, including long waitlists in the public sector and the challenges managing complex clients. They raised particular concerns about clients with complex mental and physical health conditions and suggested that siloed funding and approaches exacerbated this problem, highlighting more flexible and client centred care as a possible way forward.

"How do you treat someone's physical and mental health concerns if they have unstable housing, low food security, have no money, have legal issues and/or are experiencing domestic violence at the same time?"

Survey respondents also highlighted eligibility gaps, noting that people who were not eligible for either NDIS or My Aged Care support, not meeting intake criteria for specific services, or ineligible for Medicare were 'falling through the net'.

Clients potentially 'falling through the net' include:

- Clients with complex mental and physical health conditions.
- Vulnerable groups.
- Those not eligible for specific supports (for example, NIDS or My Aged Care).

Survey respondents also raised concerns about vulnerable groups falling through the net, including CALD populations, children, youth, people experiencing homelessness or housing insecurity, the elderly, people experiencing family violence and low-income families. Many of the same gaps and challenges were noted, for example mental health, but respondents highlighted how vulnerable groups often faced the double disadvantage of higher needs coupled with poorer access to care.

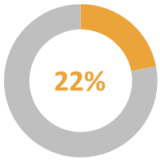
INCREASING DIVERSITY OF THE POPULATION AND CHANGING POPULATION COHORTS

There is an ongoing challenge in needing to deliver tailored services to vulnerable populations while also improving the capability of 'mainstream' services to manage clients from marginalised groups.

Providers highlighted ongoing demand among specific cohorts including children, young people and families, Aboriginal and Torres Strait Islander peoples, culturally and linguistically diverse communities, people who identify as LGBTIQ+ and people with disability.

Children, young people and families

Concerns were raised about social disadvantage among young families, particularly in growth areas where this was thought to be more prevalent. Concerns were also raised about the shortage of some mental health and allied health practitioners for children and adolescents in the community.



22% of providers surveyed agreed or strongly agreed that the number of services for young people in the region was adequate.

Specific examples raised by providers included a shortage in the number of paediatric allied health practitioners and child and adolescent mental health practitioners based in the community.

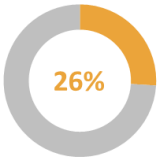
It was also noted that, during COVID-19, there were increases in:

- Acute mental health presentations for young people
- Domestic and family violence.

It was noted that this is continuing to increase demand for services among this cohort, especially for mental health services.

Aboriginal and Torres Strait Islander peoples

Providers noted that Aboriginal people in the region were disproportionately more likely to be impacted by mental illness while at the same time less likely to have access to culturally appropriate care services.



26% of providers agreed or strongly agreed that the number of services for Aboriginal or Torres Strait Islander people in the region was adequate.

The lack of an Aboriginal Community Controlled Health Service meant that for many Aboriginal people, they were travelling long distances to access care.

Providers noted it was particularly difficult to assess population health needs of Aboriginal people and communities in the region because:

- Clients often travelled long distances to access services, making it difficult to define population needs by the geographic region
- Demand for their services was lower than would be expected given the size of the Aboriginal population in the region.

Providers also noted that the low number of Aboriginal people presenting to health services is concerning given the disproportionately high burden of disease experienced by this cohort.

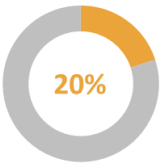
Culturally and linguistically diverse communities

The north western region of Melbourne is notable for its culturally and linguistically diverse communities. Providers particularly highlighted the concentration of CALD communities in the growth areas and a smaller hub of mostly international students in and around the CBD.

However, many providers from across the region noted some specific challenges CALD communities often faced. These challenges included:

- The lack of culturally appropriate services - 36% of survey respondents agreed or strongly agreed with the notion that services were appropriate, accessible, and safe for CALD people.
- Language barriers to care (with lack of access to interpreters or health promotion material in clients' primary language).
- Navigating the Australian health system.
- Suspicion among some communities of government and other institutions.
- Availability and appropriateness of health and social services care for refugees and asylum seekers.

People who are LGBTIQ+



Only 20% of providers either agreed or strongly agreed that the number of services for people who identify as LGBTIQ+ in the region was adequate.

Providers noted that there are few LGBTIQ+ specific providers, particularly in the West, with most services located in the inner city.

Providers noted that there are few LGBTIQ+ specific providers, particularly in the West, with most services located in the inner city.

Providers also emphasised that 'mainstream' services that were available often lacked basic understanding of appropriate care. Examples included failing to acknowledge pronouns and a lack of understanding of endocrinological services.

A provider that delivered specialised primary care for clients who identify as LGBTIQ+ noted that there were specific challenges navigating tertiary care. One general practice provider indicated that they frequently worked with the Royal Children's Hospital to support clients who chose to undergo treatment for gender dysphoria. Despite the collaboration, often primary care providers still faced challenges coordinating ongoing care across multiple specialists.

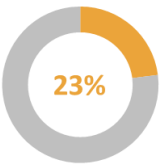
"There are...limited mainstream GPs and mental health care practitioners who are confident in working with LGBTIQ community members which can impact on consumers experience and make them feel unsafe."

Intersectionality

Multiple providers highlighted the need to consider the intersectionality of clients (i.e., that people may identify with multiple different groups and may experience multiple forms of marginalisation). They also noted that there were few services that supported clients experiencing overlapping forms of marginalisation.

"Services tend to be funded in very narrow ways, being exclusive rather than inclusive, that make it hard to meet the complex needs of the clients and allow service providers to apply flexible and intersectional approaches"

People with disability



Only 23% of providers either agreed or strongly agreed that that there was an adequate number of services available for people with disability.

Providers provided feedback about concern regarding people with disabilities, noting that many people missed out on care if they were not eligible for the NDIS.

Providers provided feedback about concern regarding people with disabilities, noting that many people missed out on care if they were not eligible for the NDIS. A number of challenges were raised in relation to accessing NDIS funded services, including:

- Eligibility - providers noted that a number of clients may benefit from NDIS support but did not meet eligibility criteria.
- Assessments - many families faced financial difficulties funding assessment and diagnosis of disabilities (which is not funded by the NDIS).
- Navigating the system - many noted that clients needed support navigating the system and to better understand what support was available to them.

9.4 Supply pressures

SUPPLY GAPS BY SERVICE TYPE

Mental health

Providers consistently raised mental health as an urgent service gap across the region.

Only 18% of providers either agreed or strongly agreed that the number of **psychiatric services** in the region was adequate.

Only 19% of providers either agreed or strongly agreed that the number of **psychological services** in the region was adequate.

Providers indicated that there were service gaps in the following areas:

- Access to services in the community - Multiple providers noted that Area Mental Health Service lists were saturated. Private psychologist lists were also saturated to the extent that many psychologists were no longer accepting new clients.
- The missing middle - Multiple providers described a 'missing middle' of service provision for mental health disorders for clients that were too unwell for community-based care, but not unwell enough to warrant inpatient hospital care.
- Eating disorders - Some providers noted an increase in eating disorders, particularly among organisations with a younger client cohort.
- Vulnerable populations - Providers also noted that there were gaps in the number of services that were tailored to vulnerable populations. The gaps were twofold:
    - The overall number of services for vulnerable populations was low
    - The services that were available were often not designed to provide culturally safe and inclusive care.

Dual diagnosis

Several providers across both community and acute care recognised that there was an increasing need for services to support clients with dual diagnoses (mental illness and people experiencing problematic use of alcohol and other drugs). Of particular concern was the capacity for alcohol and other drug services to manage clients with significant mental health issues. Providers argued that the divide between services and funding streams limited collaborative care for people with dual diagnosis.

Providers recognised the need for these services at different stages from prevention and early intervention in the management of complications for clients with dual diagnoses.

"Mental health and AoD support- often when clients are ready to seek support they cannot be seen immediately which means they often relapse, continue using or have decided not to engage depending how long the waiting time has been, In AoD, you often need to accept clients as they are referred in order to have an increased chance at success and engagement."

Some examples where organisations were starting to invest in new services included:

- Prevention and early intervention - Alcohol and other drugs prevention programs focused on peer support and early intervention programs for vulnerable populations
- Managing complications in a community setting - One community mental health provider was looking for opportunities to partner with alcohol and other drug treatment providers to work better with communities to manage social complications related to problematic use of alcohol and other drugs such as financial hardship and family violence
- Managing complications in an acute care setting - One hospital provider recently completed the development of a dual diagnosis inpatient service in recognition of the fact that, historically, there were challenges managing mental health issues for clients admitted under alcohol and other drugs services

Chronic disease

Many providers noted that they had observed that the burden of chronic disease was increasing in the region. Providers noted different challenges associated with this, including:

- The increasing prevalence of chronic disease - Different providers observed that the region had a 'higher than average' prevalence of chronic disease.
- Multiple comorbidities - Clients increasingly had multiple, interacting chronic conditions that were complex to manage. Providers noted clients with multiple comorbidities also frequently had comorbid mental illness.
- Beyond COVID - There were concerns raised that many clients were delaying routine care for chronic conditions during the pandemic. There are concerns that clients will deteriorate without care, making conditions more challenging to manage post-COVID.

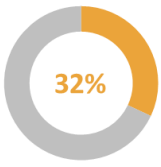
Cancer

It was noted that there were some gaps in relation to cancer specific care. This included:

- Access to specialist care - It was noted that there was a shortage of medical oncologists and radiation oncologists across the region.
- Models of care to support out-of-hospital cancer care - It was noted that there were opportunities for more care to be provided out of hospital. For example, one provider noted that there were about 1,000 regimens of chemotherapy that could be provided safely at home, but currently, only 40-50 were done at home.

Dental services

Providers raised numerous concerns about the availability of public dental services relating to both acute and routine dental care.



Only 32% of providers either agreed or strongly agreed that there was an adequate number of dental or oral health services available.

One provider claimed that dental services were not available in emergency situations. Another noted that the waitlist could be as long as three years for more routine care.

SUPPLY GAPS BY POPULATION COHORT

Providers also pointed to shortages in appropriate services for more vulnerable cohorts, including children and young people, Aboriginal and Torres Strait Islander people, culturally and linguistically diverse communities and people identifying as LGBTIQ+.

SUPPLY GAPS BY GEOGRAPHIC TYPE

Providers highlighted specific service gaps and emerging issues for different geographic areas across the NWMPHN region. These are summarised in Figure 79.

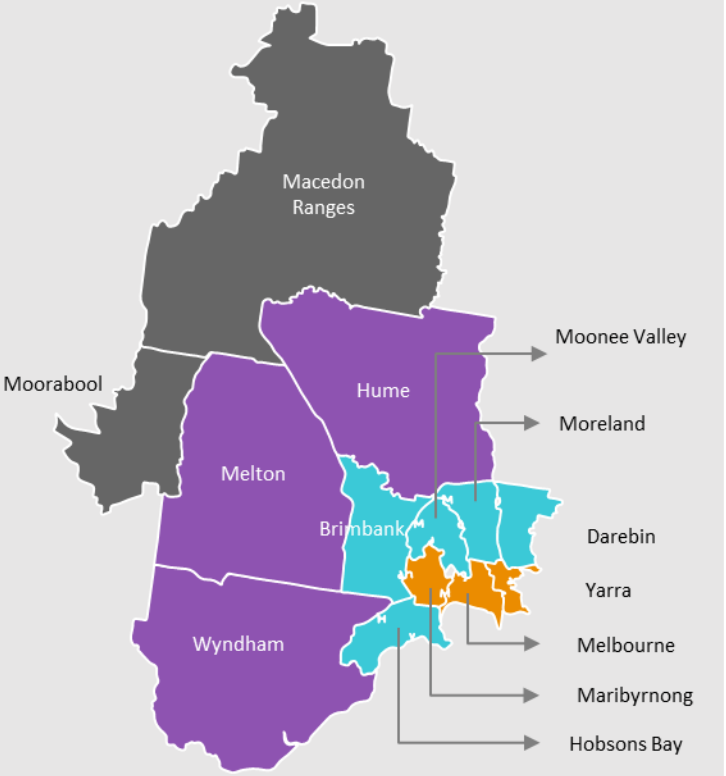
Figure 79. An overview of supply gaps by sub-region

Peri-urban (Macedon Ranges, Moorabool)

- 8% (19 out of 225 respondents) of survey respondents agreed that the number of services for people living in rural areas was adequate.
- Providers surveyed from more regional LGAs of Moorabool and Macedon Ranges were 3.5 to 8 times more likely to consider distance to services one of the main barriers to accessing care than providers in the other LGAs.

Growth area (Hume, Melton, Wyndham)

- A high proportion of young families
- High levels of social disadvantage with high number of 'working poor'
- High rates of family violence
- High density of public housing
- CALD communities have limited access to culturally appropriate services
- High burden of mental illness and problematic use of alcohol and other drugs.



Suburban (Brimbank, Darebin, Hobsons Bay, Moonee Valley, Moreland)

- Significant areas of social disadvantage with high rates of poverty and public housing
- One provider believed that the pockets of affluence meant the level of disadvantage was underestimated.

Inner city (Maribyrnong, Melbourne, Yarra)

- Despite the shift in focus to growth areas, there are still areas of entrenched poverty in the inner city.
- These areas often have a high burden of mental illness and problematic use of alcohol and other drugs.
- These suburbs also often require more services to support the higher density of vulnerable populations including more targeted services for Aboriginal populations.

WORKFORCE SHORTAGES

Community health

Community health providers reported that short-term funding contracts for commissioned services made it difficult for providers to both attract and retain staff. Providers indicated that it was difficult for them to give employees certainty when the funding for their positions needed to be constantly reviewed.

"There is a huge lack of allied health professionals within the community, particularly at a price range able to support the disadvantaged."

There is a noted limited supply of certain health practitioners. Providers noted that there was competition between providers over a limited number of practitioners, in particular:

- Community nurses - Multiple community providers noted that it was difficult to compete with the salaries offered by hospitals. In turn, hospitals indicated that there was a short-term deficit of hospital nurses because many transferred to COVID-19 vaccination hubs.
- Allied health - Many providers noted that there was a limited supply of community allied health practitioners across a range of specialisations including early childhood, disability and aged care. One provider noted that wait times for allied health could be up to 12 months.

General Practices

Multiple challenges were noted for general practice, including:

- The **decreasing size of the workforce** overall, general practices noting that the GP workforce was ageing.
- **Challenges in attracting and retaining GPs** to bulk-billing general practices. Bulking billing general practices noted that the shortage of GPs overall meant GPs could be more selective in their pay and conditions. As a result, many GPs chose to work in mixed-billing clinics. Bulk-billing general practices that took on GP registrars indicated there were difficulties in attracting those GPs back to their practice once they were fully qualified due to the financial incentives of working in private practice.
- **After hours workforce** - Providers noted that after hours services were often staffed by a mixed of International Medical Graduates (IMGs) and GP registrars and there is an immediate shortage due to the impact of COVID-19 and there are fewer junior doctors choosing to specialise in general practice.

FUNDING

"The west is severely underserved and the population is growing all the time. There was already a big divide between west and east Melbourne pre pandemic, COVID-19 has made that divide much bigger...the mental health system in the west is at breaking point."

Insufficient funding to meet growing demand

Providers emphasised that current resource allocations are insufficient to ensure adequate supply to meet growing demand across the region. This was raised especially in the context of mental health, where providers emphasised a need for greater investment in services in the region.

General Practice facing long-term financial viability issues

General practices also raised long-term concerns about their financial viability. Bulk-billing general practices highlighted that they are considering shifting their funding models away from bulkbilling as funding arrangements under the MBS are insufficient to remain viable as a business.

"Most primary care is privately owned and funded by clients and/or Medicare. This system is going down the drain. As a result, practices are being sold, and GPs are moving from the region. It is an impending catastrophe"

Funding models do not match increasing complexity of many clients

"The complexities of the [north west Melbourne] region in relation to social, economic, diversity, welfare, physical and mental wellbeing etc. compound the need for services and require greater than average resource allocation."

Funding shortages were a particular concern among providers given the need for greater care coordination and case management among more complex clients. Providers noted that current funding models make it difficult to manage this increased complexity for a range of reasons:

- Clients with complex needs often require more ongoing, continuous 'case management' approaches to care.
- Clients with complex needs require input from multiple providers, but fragmentation across the system makes it challenging for community and primary care providers to coordinate care.
- Practitioners are often unable to bill for coordination of client care (e.g., participating in case conferences), and are not always clear who should be leading it. Without adequate resourcing, coordination activities can get lost, particularly where services are already overstretched.

9.5 System challenges

System challenges, including the fragmentation of the primary and community care sector and the lack of integration, at a broader system level were seen to have a compounding impact on existing demand and supply pressures. System challenges are summarised into three sections: barriers to health care, sector fragmentation and lack of system integration.

BARRIERS TO HEALTH CARE

A range of barriers to health care were identified by providers for clients to access care, these are summarised into four areas.

Table 106. Four main barriers to care (according to providers)

Waiting times	59% of respondents nominated waiting times as the major barrier for clients to access services. This was supported by findings from stakeholder interviews where providers highlighted problematic waiting times for: • Mental health - Waitlists to see psychologists • Elective surgery - Waitlists for elective surgeries, particularly orthopaedic procedures such as total hip and total knee replacements • Free or low-cost services across all sectors.
Travel distance	Providers interviewed noted that there was a limited number of some services across certain parts of the region, particularly in the North and in the West. Providers surveyed from the more regional LGAs of Moorabool and Macedon Ranges were 3.5 to 8 times more likely to consider distance to services one of the main barriers to accessing care than providers in the other LGAs.
Cost of services	Over half of survey respondents identified cost as a significant barrier to care for clients. In particular, bulk billing general practices acknowledged there was increasingly a financial incentive for them to start charging a gap fee as the cost of providing care increased. These general practices acknowledged that the main reason they had not yet pursued this option was because they knew most of their client cohort would be unable to afford care if they had to pay a gap fee. Despite this, many have begun reviewing their models of care, considering mixed billing models and already reduced some services such as after-hours care. Several providers noted that clients, facing long waitlists to access specialist care, couldn't afford private options, particularly for mental health or dental care.
Navigation of the service system	Providers indicated that there were issues to navigating care at three levels: • Client understanding - Clients had limited understanding of what services are available to them. • Stewarding clients across the system – challenges with providers supporting clients in navigating a complex health system. • Enabling providers - How to enable providers to support clients in accessing the right care and the right time.

SECTOR FRAGMENTATION

While some providers highlighted areas of strong collaboration within primary and community sector, others noted that the sector is fragmented and there is a need for greater communication and collaboration between different providers. Specific pain points highlighted by providers included:

- Referrals - Providers noted often needing to make individuals referrals to multiple specialist providers, particularly for practitioners that are in high demand - e.g., psychologists. This not only increases the time providers spend on administrative tasks, but also results in delays in care.

- Siloed funding streams - Some providers also highlighted the challenges presented by siloed funding streams for specific services and programs, which were seen to limit opportunities for collaboration between providers around shared issues of interest. In some instances, providers were proactively drawing together different funding streams and creating partnerships with other providers. Funding streams were, however, seen as a barrier to this happening more broadly.
- Broader sector partnerships - More broadly, providers also noted limited opportunities to collaborate with partners in the broader social services sector. This was again related to the pain points identified, particularly around siloed funding streams.

LACK OF SYSTEM INTEGRATION

Providers consistently highlighted the need for greater system integration to support a better client experience and better client outcomes. It was recognised that integration presents a significant challenge in the north western Melbourne region. Providers emphasised the challenges this creates across the system to coordinate care, and plan and design services, as well as for clients to navigate the system as they move between different settings of care.

"There is little co-ordination. no one bulk bills. No psychiatrists. Closed books to even get into a service and then long waitlists. GP's only do 15 minutes consult and clients see a different GP each time. No ability to follow up referrals or do warm referrals. Funding for referral services with no actual funding for service providers"

Providers identified a number of specific 'pain points' where the lack of system integration created particular challenges. These included:

- Coordinating between hospitals and general practices - Some hospitals noted that one of the major barriers to better coordination of care with general practices was the inherent fragmentation of primary care, with practices operating as multiple, independent small businesses. Hospitals indicated that this made it impossible for them to engage with the primary care sector.
- Communication when discharging clients from hospital - Providers highlighted the challenges of using different systems and processes for communicating care transfer and discharge. In addition, some GPs noted that there was significant variation in how information about a client's discharge was communicated to them:
    - Some hospital teams called GPs to discuss their discharge plan in addition to providing a written discharge summary
    - Other teams only provided the written the discharge summary
    - There was variation both between hospitals and within the same hospital.

"Poor discharge summaries from hospitals and onerous referral requirements and lack of secure messaging and one referral mechanism for all - not multiple templates and providers"

- Referrals to ED - Some hospital providers noted that, in certain circumstances, there was significant variation in when different GPs referred clients to ED. For example, one noted that some GPs often referred clients to ED because they required timely specialist advice rather than emergency care.
- Strategic and operational planning - Providers argued that service planning exercises were often done in silos across the acute, primary and community care sectors. Providers believed there were opportunities to take a more system-wide approach to strategic planning. Providers emphasised that this siloed service planning created challenges for them to plan and design services while responding to often distinct funder and government priorities.

PRIORITIES

10

10.1 Identified needs

A summary of the identified needs and key issues are shown in the tables that follow. As described in the NWMPHN Health Needs Assessment Framework, the needs have been summarised into four different groups: (A) health conditions, (B) population groups, (C) geographical locations and (D) health system and process. The table also includes the prioritisation outcomes based on the prioritisation process described in section 1.3. A comprehensive list of evidence has not been provided in the 'key issues' column of these tables as we have sought to strategically build on the previous pages in this report.

Evidence base key	Prioritisation key	Prioritisation outcomes
D = Evidence found in population health data analysis C = Evidence found through community consultation M = Evidence found through market consultation	FO = Is the Need Issue a PHN area of focus? E = Does the issue align with existing priorities? F = Is there funding or other resources available to address this? I = Is there likely to be an impact on individuals and/or the community if the issue remains unaddressed? O = Are other groups or agencies working to address the need? Note: where a '-' has been recorded it indicates that question is not applicable according to the prioritisation process	HIGH priority MODERATE priority LOW priority

(A) HEALTH CONDITIONS

Table 107. Summary of identified needs – Health conditions

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
A1	**Oral health** - Access - Cost	- Limited access to dental health services for many cohorts and prohibitively high cost. - Exacerbated by limited availability of bulk-billed services. - Oral health accounts for 5% of PPH in the region (37% among children under 10). - Providers indicated that preventative dental care may have worsened during COVID-19.	◆	◆	◆	N	-	-	Y	Y	**LOW priority** No current activity. Considered out of scope of NWMPHN.
A2	**Mental health** - Increasing demand - Increasing prevalence - Increasing complexity	Overall, a higher demand for services, particularly mental health has been reported, including: - Highest number of ED presentations due to mental health issues were in Melbourne, Hume, Moreland and Darebin. - Increasing demand for mental health services was consistently highlighted by all provider types with unmet demand across both primary and tertiary care. - Long waiting lists for public and private mental health treatment reported. - People aged 20 – 29 and 30 – 39 have the highest rate of hospital presentations relating to mental health. - Higher levels of high or very high self-reported psychological distress than the Victorian average. - Higher numbers than the Victorian average for low or medium level of life being worthwhile.	◆	◆	◆	Y	Y	-	-	-	**HIGH priority** A wide range of commissioned activities are occurring in this space. Mental health is a priority area and NWMPHN has developed a three-year capability horizon plan.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?	
			D	C	M	FO	E	F	I	O		
		- Higher rates of psychological distress the further out from the CBD, with lower uptake of mental health care plans in these areas, than inner city areas - Melbourne, Yarra, Darebin, Moonee Valley, Moreland are locations of specific need for mental health										
A3	**Alcohol and other drug services** - Increasing demand - Increasing prevalence - Increasing complexity	- Higher than the Victorian average rates in some LGAs of alcohol related: deaths, alcohol related assaults, family violence, and serious road injuries. - Alcohol was the major cause for ED presentations for the 20 – 29 age group. - 30% of mental health related presentations due to psychoactive substance use. - Illicit drug use in some LGAs significantly higher - Providers reported that people with AOD use disorder and at least one other comorbid mental health condition were growing in number. - Melbourne, Yarra, Moonee Valley, Moreland and Darebin are locations of specific need for AOD	◆		◆	Y	Y	-	-	-		**HIGH priority** A wide range of commissioned activities are occurring in this space. AOD is a priority area and NWMPHN has developed a three-year capability horizon plan.
A4	**Immunisation** - Lower rates of immunisation - Recording by GPs	- Lower rates in children aged 1, 2 and 5 years - Lower rates for Aboriginal and Torres Strait Islander children - HPV: lower rates in Melbourne and Wyndham - Immunisation status recorded in the catchment is lower than the Australian and State for people aged 65+ (influenza), and for clients with diabetes and COPD	◆			Y	Y	-	-	-		**HIGH priority** This remains a core part of the role of the PHN through support provided to General Practice. Primary care is a priority area and NWMPHN has developed a three-year capability horizon plan.
A5	**Smoking cessation** - Higher rates of daily smokers - Lower rates of smoking status recorded by GPs	- Overall, the proportion of daily smokers (both men and women) in the catchment is above the State average. This includes higher numbers of ex-smokers (male). - Above average rates in in men (aged 18+). - The lowest rate of smoking status recorded by GPs compared to other PHNs.	◆			Y	Y	-	-	-		**HIGH priority** This remains a core part of the role of the PHN through support provided to General Practice. Primary care is a priority area and NWMPHN has developed a three-year capability horizon plan.
A6	**Comorbid conditions** - Increasing complexity - Increasing demand	- There has been an increase in the identification of clients with complex needs including more clients with comorbid conditions, or longer-term conditions. This is creating additional demand pressures as clients with co-morbidities require more intensive, coordinated and long-term treatment. - Many AOD service users are reported to experience mental health comorbidities. - Increasing numbers of clients with dual diagnosis, also have multiple comorbidities			◆	Y	Y	-	-	-		**HIGH priority** A range of commissioned activities are occurring in this space. Primary care is a priority area and NWMPHN has developed a three-year capability horizon plan. The mental health and AOD staircases also reference holistic services approaches.
A7	**Preventative health checks** - Lower rates of screening checks	Lower rates of screening (either below in some or several LGAs) than State or National average in the following areas: - Aboriginal health checks	u	◆	◆	Y	Y	-	-	-		**HIGH priority**

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
	- Higher rates of cancer in some LGAs - Lower rates of recording a range of measures by GPs - Projected lower rates of preventative health checks due to COVID lockdowns	- Bowel screening - Bowel exam - Cervical screen - Blood pressure - Blood lipids (lower in Moorabool, Macedon Ranges, Moonee Valley, Hobsons Bay, Darebin, Yarra, Maribyrnong, Melbourne) - Blood Glucose (lower in Moonee Valley, Hobsons Bay, Darebin, Yarra, Maribyrnong, Melbourne) - Mammogram (ever) – lower in several LGAS - Mammogram in last two years – lower in some LGAs. In addition, low rates of recording by GPs of the following measures including: - HBA1C - Smoking status - Height/weight - Immunisation status Higher rates of cancers are prevalent in some LGAs including: - Moorabool - Maribyrnong Providers have expressed concern that rates of preventative health checks may have been lower because of rolling lockdowns during COVID 19. Consumers also flagged delaying preventative health checks because of lockdowns.									This remains a core part of the role of the PHN through support provided to General Practice. Primary care is a priority area and NWMPHN has developed a three-year capability horizon plan.
A8	**COVID-19** - High rates of mental health distress -	The impacts of COVID-19 are far reaching and are expected to continue. Issues include: - Ongoing impacts of mental health distress amongst the community - Delay in seeking preventative health by community	◆	◆	◆	Y	Y	-	-	-	**HIGH priority** There are a range of activities occurring via funding from Commonwealth and State Governments. This includes provision of support to General Practice, investment in new and additional mental health services including pathways for consumer self-referral and initial assessment. There are also integration activities with other services (including LHNs) to support access to the right mental health care in the right place.
A9	**Chronic conditions** - Higher rates in a range of conditions - High rates of PPHs in a range of conditions	Many providers noted that the region has higher rates of chronic disease than surrounding areas. This is supported by the data which indicates: - Lower uptake of Chronic Disease Management Plans in some LGAs - Higher rates of diabetes, osteoporosis, cardiovascular diseases, than the Victorian average.	◆		◆	Y	Y	-	-	-	**HIGH priority** A range of commissioned activities are occurring.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?	
			D	C	M	FO	E	F	I	O		
	- Lower uptake of management plans	- COPD, heart failure and iron anaemia are the most common principal diagnoses among those hospitalised for ages 60+ (potentially preventable hospitalisations) - Diabetes accounts for 11.6% of hospitalisations - Eating disorders, particularly among younger people - Hume, Melton, Darebin, Hobsons Bay, Moreland and Moorabool are locations of specific need for chronic disease										
A10	**Healthy Eating** - High rates of the population not meeting healthy food guidelines for fruit, vegetables and takeaway food	- Lower rates of men and women consuming fruit and vegetables (compared to State) - Higher rates of adults consuming takeaway (significantly higher in men) - Providers listed unhealthy dietary behaviour as the third main health risk facing the community	◆		◆	N	-	-	Y	Y		**LOW priority** No current activity.
A11	**Physical activity** - High rates of inactivity	- There are significant numbers of adults who are insufficiently active (with slightly higher rates amongst men) - Providers listed physical inactivity as the second main health risk facing the community	◆			N	-	-	Y	Y		**LOW priority** No current activity.
A12	**Blood borne viruses and sexually transmitted infections** - Increasing demand - Increasing rates among young people and women	- Generally high notifications of chlamydia, gonorrhoea and syphilis - HIV notifications in the catchment are proportionately higher - Shifting demographic with BBV/STIs including higher prevalence amongst young people and women (including higher rates of congenital syphilis)	◆		◆	Y	Y	-	-	-		**HIGH priority** A range of activities are occurring including a project to update the HealthPathways on sexual health NWMPHN continues to host the VHITTAL project which provides education and training for the primary health care workforce on diagnosis and treatment of BBV and STIs.

(B) POPULATION GROUPS

Table 108. Summary of identified needs – Population groups

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?	
			D	C	M	FO	E	F	I	O		
B1	**Aboriginal and Torres Strait Islanders** - High rates of preventable conditions - Low rates of health checks - Access	- Higher rates of smoking, family violence, renal failure amongst Aboriginal people. - Suicide related presentations to ED higher in 15 – 25 year-old age group. - High rates of potentially preventable avoidable hospitalisations in some LGAs - Significantly lower rates of MBS health checks than the national level - Providers indicate that not enough known about this cohort particularly re: mental health and AOD – providers observed that there seems to be low rates of Aboriginal people accessing care.	◆	◆	◆	Y	Y	-	-	-		**HIGH priority** A range of commissioned activities are occurring.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
B2	**Culturally and Linguistically Diverse** - Culturally safe care - Barriers to care include stigma - Issues with interpreting services and telehealth	- The overall region is culturally and linguistically diverse but not all LGAs are. - Just under half of Victorian humanitarian arrivals live in the catchment. - Culturally safe care remains a gap and a lack of representation of diverse communities represented in the workforce. - Stigma is a significant issue. - Service navigation is an ongoing issue for many people from CALD communities. - Interpreting services present challenges for clients – they are available, however service providers need experience to be able to work with them effectively. - Telehealth as a mode of service delivery is reported as being challenging for people requiring interpreting services.	◆	◆	◆	Y	Y	-	-	-	**HIGH priority** A range of commissioned activities are occurring.
B3	**LGBTIQ+** - High rates of health issues including mental health - Experience high rates of stigma and discrimination	- Higher proportion of LGBTIQ+ community residing in some LGAs than the proportion in Victoria. - Lack of culturally appropriate care available, particularly further out from the inner city. - Self-reported high levels of stigma including discrimination from healthcare staff. - Higher proportion of community are smokers, higher rates of anxiety/depression, asthma, having two or more chronic conditions higher than the non LGBTIQ+ population. - High rates of family violence. - Lower rates of breast cancer screening.	◆	◆	◆	Y	Y	-	-	-	**HIGH priority** A range of commissioned activities are occurring.
B4	**Children, Young People and Families** - Increasing demand for services - Higher rates of developmental vulnerability	- While overall demand was increasing for services, families with young children are driving demand for services in growth areas - Social disadvantage among young families, particularly in growth areas where this was thought to be more prevalent. - Providers indicated that the number of services available for young people may not be adequate. - Significantly lower rates of developmental vulnerability in a number of local government areas compared to regional, state and national benchmarks. Providers expressed concern that this may have worsened as a result of COVID-19 lockdowns. During COVID-19, there were increases in: - Acute mental health presentations for young people - Domestic and family violence.	◆	◆	◆	Y	Y	-			**HIGH priority** A range of commissioned activities are occurring.
B5	**Older People** - Service navigation issues - Increasing demand	- Projected growth percentages of the age group 65, 70, 80 and 85+ is projected to grow over 11% to 2025, and an additional 12% to 2030 - Higher rates of home care and support recipients and core activity requiring assistance in the catchment compared to Victorian and Australia	◆		◆	Y	Y	-	-	-	**HIGH priority** A range of activities are occurring, particularly in relation to Residential Aged Care Services.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
		- Homelessness and unstable housing a key issue for this population (particularly women) - Service navigation issues particularly for access home care services and aged care - Projected numbers of people with dementia in the catchment is estimated to increase by 3.5 times by 2058 (compared to 2.5 times, Statewide)									Older adults is a priority area and NWMPHN has developed a three-year capability horizon plan.
B6	**International students** - High rates of unmet need including for mental health and sexual/reproductive health	- Limited data but via engagement providers report that is a group that experiences a lack of services particularly for mental health and present to ED acutely unwell. - Sexual and reproductive health issues (including unplanned pregnancies) are reported by providers to also impact this cohort. - Stigma is an issue particularly for menta health related issues.		◆	◆	N	-	-	Y	Y	**LOW priority** Limited targeted activity is occurring outside of sexual health programs and service navigation.
B7	**People with a disability** - Increasing demand - Access	- Providers indicated that there were inadequate numbers of services available for people with a disability - This concern included eligibility criteria for NDIS with many people missing out on care	◆		◆	N	-	-	Y	Y	**LOW priority** Limited role - As part of our psychosocial funding we receive funding to support people with MH and psychosocial needs to be supported to access NDIS assessment.
B8	**People experiencing unstable housing/ homelessness** - Access and navigation barriers - Stigma	Through engagement with providers and people with lived experience this cohort is reported to experience the following problems: - People can't access care without a fixed address and experience issues accessing and storing medication. - Stigma is big issue – very conscious of not being able to access amenities to shower - Are unaware of how to access help that they need and require assistance with navigation - While there are plenty of food services available for people who are homeless, the staff who work there don't know how to link people to the services they need (or ask them if they are ok) - Experience access issues with telehealth (due to access to appropriate devises, data and wifi)	◆	◆	◆	N	-	-	Y	N	**MODERATE priority** There are some activities occurring, primarily through After-Hours Program Supports. This includes support for the Living Room's clinic to be open on Saturdays and for afterhours primary health services. (The Living Room is a primary health service that provides free healthcare and support to improve the physical, mental and social well-being of individuals who are, or at risk of experiencing homelessness).
B9	**People who have been incarcerated** - High numbers living in the catchment - Experience a range of challenges including stigma, navigation and poor health literacy	Anecdotally, providers report that many people who are exiting the prison system are living in the catchment. Through market insights and community engagement this cohort is reported to experience the following problems: - Leave prison without adequate forward health planning. This includes receiving limited prescription medication - Are at times acutely unwell upon leaving prison and attend ED for care (often with mental health issues) - Experience poor health literacy - Face navigation challenges of the health care system with limited support.		◆	◆	N	-	-	Y	N	**MODERATE priority** Targeted activity is currently limited. We are working with primary care to strengthen the established pathways to primary care services. One part of that is accessing data to better understand health needs, we will continue to work with Justice Health to access the data and service information.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
		- Experience high levels of stigma when accessing care and report that many staff have not previously had clients from this cohort.									

(C) GEOGRAPHIC LOCATIONS

Table 109. Summary of identified needs – Geographic locations

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
C1	**Wyndham**	- Highest per capita need and continue to have the among highest need when adjusted for the social determinants of health equity loadings. - High rate of Potentially Preventable Hospitalisations (PPHs)	◆			Y	Y	-	-	-	**HIGH priority** A wide range of commissioned activities are occurring in this area. In addition, place-based commissioning is a principle in our Access and Equity Framework that targets geographic locations to achieve significant change in outcomes in the short and longer term.
C2	**Hume**	- Highest per capita need and continue to have the among highest need when adjusted for the social determinants of health equity loadings. - High rates of chronic disease - High acute service use overall	◆			Y	Y	-	-	-	
C3	**Brimbank**	- Highest per capita need and continue to have the among highest need when adjusted for the social determinants of health equity loadings. - High rate of Potentially Preventable Hospitalisations (PPHs)	◆			Y	Y	-	-	-	
C4	**Melton**	- Highest rate of need across all determinants of health generally associated with high levels of disadvantage. - High acute service use overall - High rates of chronic disease	◆			Y	Y	-	-	-	
C5	**Melbourne**	- High need for AOD, PPHs, and mental health.	◆			Y	Y	-	-	-	

Note: Locations with specific needs are also described in the other groups, for example, Hume, Melton, Darebin, Hobsons Bay, Moreland and Moorabool are included under chronic conditions (A9).

(D) HEALTH SYSTEM AND PROCESS

Table 110. Summary of identified needs – Health system and process

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
D1	**Access barriers to mental health and AOD services** - Siloed service delivery - Culturally safe care limited - Stigma	- Stigma remains a barrier for accessing care, particularly for younger people, older adults, people who been incarcerated, people experiencing unstable housing and CALD communities. - Limited options for culturally safe care. - Providers indicated that the delivery of mental health and AOD is siloed and the delivery of services is fragmented to clients. This is particularly evident for people with a dual diagnosis.		◆	◆	Y	Y	-	-	-	**HIGH priority** A wide range of commissioned activities are occurring in this area. Mental health and AOD are priority areas and NWMPHN has developed a three-year capability horizon plan.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
D2	**Climate change** - Impacts on mental health	- Community members, particularly young people indicate that the effects of climate change, including extreme weather are expected to impact wellbeing, including by increasing anxiety.	◆	◆	◆	N	-	-	Y	Y	**LOW priority** No current activity.
D3	**Cost of health care** - Increasing cost barriers for dental health, increasing gap for private mental health and non-bulk-billing General Practice	Community members indicated that the cost for many services is high and is a barrier for people living on lower incomes. Specific health services were frequently cited as presenting issues in relation to cost. This includes: - Dental/oral care - Access to private mental health treatment - Non-bulk billing General Practices. - As a result of high costs, people are often reliant on bulk-billed services which have often have long waiting lists.		◆	◆	N	-	-	Y	Y	**LOW priority** Limited targeted activities at reducing the cost of healthcare, however we do commission mental health services that are targeted at people on low incomes and at risk of missing out on care - these are provided free of charge.
D4	**Waiting times** - Increasing demand for mental health services and General Practice	- Community members indicated that they experience long waiting times particularly for mental health treatment and General Practice appointments. This view was supported by providers. - Concern was expressed by providers that people on lower incomes are more likely to be unable to access primary healthcare when they need it potentially resulting in poorer health outcomes.		◆	◆	N	-	-	Y	Y	**LOW priority** No current activity.
D5	**Transportation** - Inability to access care either due to geography or access to transport (including either private or public)	Distance to services, transportation costs and the ability to use transport are a significant issue facing many people in the catchment. This impacts on the ability to access health care services. This includes: - People who are reliant on public transport but who live in areas which are poorly serviced by it (e.g., peri-urban areas) - People who are geographically distant from the services they need to access - People who are seeking culturally appropriate care but who need to travel significant distances to access it i.e. People reported long distances to seek treatment from someone from the same country of origin. Providers indicated that: - People who are on lower incomes are more likely to be living in areas that may not have health services that they require, for example, specialist care. - Transportation barriers may make it more difficult to access primary healthcare services when community need it, potentially resulting in poorer health outcomes.		◆	◆	N	-	-	Y	Y	**LOW priority** No current activity. PHN to engage with local councils to share data and insights.
D6	**Culturally safe and appropriate care** - Access	- The diversity in the region means that healthcare funders and providers need to continue focusing on building their awareness and understanding to enable more culturally safe and appropriate care to be delivered. This will ensure that people from culturally and linguistically diverse backgrounds, LGBTIQ+ and Aboriginal and Torres Strait Islander communities are able to access the primary healthcare they need and to enjoy health outcomes on parity with the wider community.		◆	◆	Y	Y	-	-	-	**HIGH priority** A wide range of initiatives are occurring through commissioned activities. Access and Equity framework and action plan developed.

#	Identified need	Key issues	Evidence			Prioritisation					Prioritisation outcome Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
D7	**Stigma** - Access - Appropriate care	Stigma is a significant issue affecting many members of the community with particular cohorts reporting high levels. This includes communities such as: - LGBTIQ+ - People who have been incarcerated - People from CALD communities Of particular concern amongst providers is stigma associated with mental health illness and AOD issues. - Community and providers indicated that people experiencing stigma are more likely to hide symptoms or illness, keep them from seeking health care immediately, and prevent individuals from adopting healthy behaviours.		◆	◆	Y	Y	-	-	-	**HIGH priority** A wide range of initiatives are occurring through commissioned activities. Access and Equity framework and action plan developed.
D8	**System navigation** - Widespread issues exist with service navigation for many in the community	Both providers and community report that system navigating is challenging for many people. Issues include: - Many people don't know where to go for healthcare or how to navigate the health system which often means that they may not get the treatment they need, or they end up at the Emergency Department. - This is particularly so for people with limited English language proficiency, young people, older people, people who have experienced incarceration, international students and people who are experiencing housing instability or homelessness. - Information needs to be provided in appropriate languages and formats - Greater outreach and engagement is required A no "wrong door" when accessing services is needed and services which are flexible in meeting people at their state of health.		◆	◆	Y	Y	-	-	-	**HIGH priority** The PHN is providing an IAR based intake service model for mental health (through HeadtoHelp / Head to Health).
D9	**Health Literacy** - Tailoring of information that caters for diverse needs in the community is required	Health literacy is an important aspect of patient activation and self-management. Both providers and community provided feedback that challenges exist in both understanding the health system and how to navigate the health care sector. This includes: - Information about navigation and how to access the health system is required for a variety of cohorts including people who are leaving prison, newly arrived overseas people and for young people in schools. - Health information is required that is accessible in a range of languages and formats to reach culturally and linguistically diverse communities and communities of different ages.		◆	◆	N	-	-	Y	N	**MODERATE priority** Whilst not a priority focus area for the PHN, health literacy is important for patient activation and self-management. So many of our activities consider the health literacy of patients and consumers and draw on our communications team to support. For example, COVID vaccination campaign messaging via social media.
D10	**Workforce shortages** - Impact of COVID including burnout - Recruitment and retention - Specific issues related to outer catchment	Providers expressed a range of concerns relating to workforce challenges. This includes: - GP recruitment and retention issues are being experienced particularly in the outer catchment areas. This situation has worsened during the pandemic as International Medical Graduates have not been able to enter Australia. This is having flow on impacts with General Practice indicating that they have a reduced capacity to offer after hours services with may also considering removing bulk billing sessions.		◆	◆	Y	N	N	-	N	**MODERATE priority** Activity includes engagement with primary care and commissioned service providers (particularly mental health and AOD) to understand challenges and needs.

#	Identified need	Key issues	Evidence			Prioritisation					**Prioritisation outcome** Including how the identified need is currently being addressed?
			D	C	M	FO	E	F	I	O	
		- Burnout as a result of COVID was reported as a significant issue. This includes the ability to both recruit and retain staff. - Many health practitioners (particularly nurses) were reported to have commenced working in COVID testing sites which has also resulted in a shortage of staff in some areas. - Providers indicated that the limited supply of community mental health practitioners (both public and private) limited the ability of clients to access mental health care. Multiple GPs noted that waiting lists for psychologists were saturated and they were no longer accepting new clients. There were particular concerns about access to community mental health practitioners for vulnerable populations. - There were also shortages of workforce noted for community health, particular allied health. - Concerns were also raised about the shortage of some mental health and allied health practitioners for children and adolescents in the community.									

10.2 Prioritised needs

Table 111 contains a summary of the prioritised needs. The opportunities to action the high priority needs are explored in Section 10.3.

Table 111. Summary of prioritised needs

Priority outcome	HIGH priority	MODERATE priority	LOW priority
Description	The issue aligns with existing PHN priorities. There is funding or other resources available to support activities in this area and/or opportunity to tailor funding to further address this priority.	This issue is not currently aligned to existing PHN priorities however has been identified as having an impact on the population and/or specific cohorts within the catchment. It is likely that the issue will continue to impact on individuals and the community.	This issue is not currently aligned to existing PHN priorities however has been identified as having an impact on the population and/or specific cohorts. It is likely that the issue will continue to impact on individuals and the community. The issue is currently being addressed by other groups or agencies.
Identified needs	A2 Mental health A3 Alcohol and other drug services A4 Immunisation A5 Smoking cessation A6 Comorbid conditions A7 Preventative health checks A8 COVID-19 A9 Chronic conditions A12 Blood borne viruses and sexually transmitted infections B1 Aboriginal and Torres Strait Islanders B2 Culturally and Linguistically Diverse B3 LGBTIQ+ B4 Children, Young People and Families B5 Older people C1 to C5 Locations: Wyndham, Hume, Brimbank, Melton and Melbourne D1 Access barriers to mental health and AOD services D6 Culturally safe and appropriate care D7 Stigma D8 System navigation	B8 People experiencing unstable housing/ homelessness B9 People who have been incarcerated D9 Health literacy D10 Workforce shortages	A1 Oral health A10 Healthy eating A11 Physical activity B6 International students B7 People with a disability D2 Climate change D3 Cost of health care D4 Waiting times D5 Transportation
Potential action	Identify PHN activities and anticipated outcomes.	PHN advocate for unmet community health need.	PHN share data with other agencies, explore opportunities for supportive action/working together.

10.3 Actions and expected outcomes

The opportunities to address the needs identified as **high priority** are described in Table 112, we have included the actions and expected outcome from the identified need as well as potentially lead agency and/or opportunities for collaboration and partnership with stakeholders and community groups. Before any work is to be commenced, the opportunities will need to be further explored to determine their feasibility.

Each identified need has been mapped to the most appropriate priority area and sub-category's as per the required Department coding. It should be noted that many of the identified needs can actually be assigned to more than one sub-category. The 'best fit' has been chosen within this table.

Table 112. Opportunities to address high priority needs issues

#	Identified need	Priority area	Priority sub-category	Actions and expected outcomes	Opportunities for collaboration and partnership
A2	**Mental health** - Increasing demand - Increasing prevalence - Increasing complexity	Mental Health	Access	- Plan, co-design, commission and evaluate programs with people with lived experience and key stakeholders. - Provider and primary care workforce capacity building. - Social media messaging distributed to targeted communities. - Building linkages with non-health stakeholders. - Further building knowledge of demand, supply and system pressures, barriers to access and gaps in service. - Increased availability and knowledge of referral pathways among General Practice, particularly for priority populations. - Continue to develop and embed HealthPathways including capability building and awareness in General Practice. - Process developed for integration of mental health, psychosocial and AOD services and primary care to provide a more holistic service response. - Strengthened integration and referral pathways including local hospital networks. - Development of MOUs and where feasible, joint funding and initiatives with LHNs for stepped care/care pathways and care coordination. - Intake and assessment approach implemented within PHN to enable stepped care. - Communities of practice. - Collaboration with other organisations engaged in health literacy to improve communications. - Data driven approach drawing on evidence to inform commissioning and integrated service planning.	- General Practice - LHNs - Department of Health (Victoria) - Local Government - Expanded Head to Health hubs (partnership with lead agencies to deliver this service) - Commissioned service providers - Non-health stakeholders - Peak organisations and cultural organisations - PHN Expert Advisory Groups (EAGs)
A3	**Alcohol and other drug services** - Increasing demand - Increasing prevalence - Increasing complexity	Alcohol and Other Drugs	Access	- Plan, co-design, commission and evaluate programs with people with lived experience and key stakeholders. - Further building knowledge of demand, supply and system pressures, barriers to access and gaps in service. - Provider and primary care workforce capacity building. - Building evidence base (through data and engagement) of AOD sector and primary care. - Process developed for integration of mental health, AOD services and primary care to provide a more holistic service approach.	- General Practice - Commissioned service providers - Peak organisations - LHNs - Department of Health (State) - Non-health stakeholders - PHN Expert Advisory Groups (EAGs)

#	Identified need	Priority area	Priority sub-category	Actions and expected outcomes	Opportunities for collaboration and partnership
				- Continue to develop and embed HealthPathways including capability building and awareness in General Practice. - Work collaboratively with non-health stakeholders to improve access to services. - Capability and quality improvement needs for AOD services and support primary care defined and prioritised. - Strengthened integration and referral pathways with LHNs. - Regional planning and where possible, joint funding initiatives. - Identify and develop appropriate tools for service navigation.	
A4	**Immunisation** - Lower rates of immunisation - Recording by GPs	Population Health	Immunisation	- Capability building of primary care. - Tailored messaging for targeted communities. - Workforce development – education, training and skill development in primary care (needs identified and plan developed).	- General Practice - Local Government - Cultural organisations - PHN Expert Advisory Groups (EAGs)
A5	**Smoking cessation** - Higher rates of daily smokers - Lower rates of smoking status recorded by GPs	Population Health	Early intervention and prevention	- Capability building of primary care. - Workforce development, education, training and skill development in primary care (needs identified and plan developed). - Tailored messaging for targeted communities.	- General Practice - Local Government - Commissioned service providers - Cultural organisations - PHN Expert Advisory Groups (EAGs)
A6	**Comorbid conditions** - Increasing complexity - Increasing demand	Population Health	Chronic conditions	- Support peer led approaches to our commissioned services. - Plan, co-design, commission and evaluate programs with people with lived experience and key stakeholders. - Workforce development, education, training and skill development in primary care (needs identified and plan developed). - Capability building of primary care and commissioned providers to improve management and how to refer and connect. - Support evidence based co-designing of models of care and pathways – assessment, treatment, management, referral and stepped care. - Integration of mental health into commission for chronic disease management and integration of considerations for chronic disease management into primary mental health care services. - Improving integrated quality improvement including recall and social scripting. - Increased usage of relevant HealthPathways and care pathways. - Risk stratification approaches aligned to pathways of care. - Development of MOUs with LHNs. - Availability and knowledge of referral pathways among General Practice - Communities of practice. - Tailored messaging for targeted communities. - Increased availability and knowledge of referral pathways among General Practice, particularly for priority populations. - Continue to develop and embed HealthPathways including capability building and awareness in General Practice.	- General Practice - Commissioned service providers - LHNs - PHN expert advisory groups - Communities of expertise accessed through the NWMPHN Mental Health and AOD EAG
A7	**Preventative health checks**	Population Health	Early intervention and prevention	- Capability building of primary care.	- General Practice - Commissioned service providers

#	Identified need	Priority area	Priority sub-category	Actions and expected outcomes	Opportunities for collaboration and partnership
	- Lower rates of screening checks - Higher rates of cancer in some LGAs - Lower rates of recording a range of measures by GPs - Projected lower rates of preventative health checks due to COVID lockdowns			- Embed priority prompts into contracts to access health checks especially people with complex mental health issues and/or multi drug use. - Deliver a proactive program of activity linked to QI model, secure messaging and shared care. - Develop a deferred care strategy – with primary and secondary prevention. - Locally targeted program with alignment to State and National communications.	- LHNs (particularly specialist clinics) - Industry groups (unions) - Cultural and community organisations - Local Government
A8	**COVID-19** - High rates of mental health distress - Vaccine hesitancy	Population Health	Access	- Accessibility of mental health system through HeadtoHelp / Head to Health (H2H) intake, including for self-referral. - People accessing H2H supported to access the right type of care for them. - People with more complex needs able to access appropriate support at H2H hubs. - Increased numbers of GP mental health treatment consultations. - Care pathways. - Increased vaccination rates. - Tailored messaging for targeted communities.	- General Practice - Local Government - Cultural and community organisations
A9	**Chronic conditions** - Higher rates in a range of conditions - High rates of PPHs in a range of conditions - Lower uptake of management plans	Population Health	Access	- Evaluate and scale programs (for example, social prescribing, after hours integration activities). - Continue to develop and embed HealthPathways including capability building and awareness in General Practice. - Care pathways developed. - QI activities in General Practice.	- General Practice - Commissioned service providers - LHNs
A12	**Blood Borne Viruses and sexually transmitted infections** - Increasing demand - Increasing rates among young people and women	Population Health	Access	- Plan, co-design, commission and evaluate programs with people with lived experience and key stakeholders. - Provider and primary care workforce capacity building. - Pilot mentoring programs. - Continue to develop and embed HealthPathways including capability building and awareness in General Practice. - QI activities in General Practice. - Community of Practice.	- General Practice - Commissioned service providers
B1	**Aboriginal and Torres Strait Islanders** - High rates of preventable conditions - Low rates of health checks - Access	Aboriginal and Torres Strait Islander Health	Appropriate care (including cultural safety)	- Plan, co-design, commission and evaluate programs with people with lived experience and key stakeholders. - Continue to develop relationships with Aboriginal Community Controlled Organisations. - Commission evidence and community-based activities. - Implementation of NWMPHN RAP.	- ACCHOs - General Practice - Commissioned service providers
B2	**Culturally and Linguistically Diverse** - Culturally safe care	Population Health	Appropriate care (including cultural safety)	- Plan, co-design, commission and evaluate programs with people with lived experience and key stakeholders. - Capability building of general practice and commissioned providers.	- General Practice - Commissioned service providers

#	Identified need	Priority area	Priority sub-category	Actions and expected outcomes	Opportunities for collaboration and partnership
	- Barriers to care include stigma - Issues with interpreting services and telehealth			- Implementation of NWMPHN Access and Equity action plan.	- Cultural and community organisations
B3	**LGBTIQ+** - High rates of health issues including mental health - Experience high rates of stigma and discrimination	Population Health	Vulnerable population (Non-First Nations specific)	- Co-design and evaluate programs with people with lived experience and key stakeholders. - Capability building of general practice and commissioned providers. - Commissioning evidence-based activities. - Implementation of NWMPHN Access and Equity action plan and RAP.	- General Practice - Commissioned service providers - Cultural and community organisations
B4	**Children, Young People and Families** - Increasing demand for services - Higher rates of developmental vulnerability	Population Health	Access	- Co-design and evaluate programs with people with lived experience and with other key stakeholders. - Communities of practice. - Advocacy for increased investment. - Partner with relevant State and Federal agencies, clinical and allied health professionals to implement programs and services that have common goals and priorities. - Refinement and improvement of existing programs and scale up in specific LGAs. - Testing and piloting innovative outreach to support children and families in place. - Capability building of general practice and commissioned providers.	- General Practice - LHNs (especially Royal Children's Hospital) - Commissioned service providers - Schools - Department of Education - Department of Health - Commonwealth Government
B5	**Older People** - Service navigation issues - Increasing demand	Population Health	Access	- Commissioning accessible mental health services for older people in RACF. - Co-design and evaluate programs with people with lived experience and key stakeholders. - Leverage existing programs for service navigation for example, Care Finders Program. - Collaborate with local networks and with communities at risk to provide information and support. - Workforce development with RACFs. - Support RACFS to enable access to virtual care from GPs. - Support RACFs to implement out of hours arrangements. - Commission evidence based early intervention initiatives that contribute to healthy ageing.	- General Practice - RACFS - Home care service providers (inc. private) - Local Government - LHNs - Cultural and community organisations
D1	**Access barriers to mental health and AOD services** - Siloed service delivery - Culturally safe care limited - Stigma	Mental Health	Access	- Further building knowledge of demand, supply and system pressures, barriers to access and gaps in service. - Provider and primary care workforce capacity building. - Development of integrated care pathways.	- General Practice - LHNs - Local Government - Expanded Head to Health hubs (partnership with lead agencies to deliver this service) - Commissioned service providers - Non-health stakeholders - Peak organisations and cultural organisations - PHN Expert Advisory Groups (EAGs)

#	Identified need	Priority area	Priority sub-category	Actions and expected outcomes	Opportunities for collaboration and partnership
D6	**Culturally safe and appropriate care** - Access	Population Health	Appropriate care (including cultural safety)	- Co-design and evaluate programs with people with lived experience and key stakeholders. - Deliver targeted community messages. - Capability building of general practice and commissioned providers. - Support NWMPHN commissioned providers and other services to ensure that services are equitable, accessible and culturally responsive. - Develop and implement additional equity and diversity focussed tools and resources and embed into commissioning processes. - Build partnerships with communities experiencing health inequities.	- General Practice - Commissioned service providers - Local Government - Cultural and community organisations
D7	**Stigma** - Access - Appropriate care	Population Health	Appropriate care (including cultural safety)	- Co-design and evaluate programs with people with lived experience and key stakeholders. - Support NWMPHN commissioned providers and other services to ensure that services are equitable, accessible and culturally responsive. - Develop and implement additional equity and diversity focussed tools and resources and embed into commissioning processes. - Build partnerships with communities experiencing health inequities.	- General Practice - Local Government - Cultural and community organisations - General Practice - LHNs - PHN Expert Advisory Groups (EAGs)
D8	**System navigation** - Widespread issues exist with service navigation for many in the community	Population Health	Access	- Co-design and evaluate programs with people with lived experience and key stakeholders. - Clarification of care pathways for priority conditions and populations. - Provider and primary care workforce capacity building. - Deepen knowledge of structural inequities and cultural safety issues that face some groups. - Develop processes for integrated communications. - Continue to develop and embed HealthPathways including capability building and awareness in General Practice.	- General Practice - LHNs - Department of Health (Victoria) - Local Government

APPENDICES

A

A1. Reflections on our approach

Area	Reflection	Future action
Approach and methodology	We have **established a comprehensive 'roadmap'** for completing the HNA.	We will formalise the documentation of this Roadmap, including the processes and timelines required, to ensure this knowledge is captured and can be used to complete future HNAs.
Engagement processes	**We consider the community survey response rate to be very good, but there is room for improvement** as there were groups that we didn't hear enough from including LGAs and some priority population groups.	We are currently engaging with local government to understand how we might leverage their relationships to achieve greater reach into community. NWMPHN has a large refugee or asylum seeker population, in future HNA community engagement we will do more to connect with this community and ensure they can share their lived experience in a way that is accessible and culturally appropriate.
	The use of social media in promoting these surveys was effective because we used data to modify the target groups for the campaign to ensure uptake in particular areas and for particular groups.	We are documenting what worked and what didn't to continue to build in this area. There is enormous opportunity for the organisation to continue to build on this for future campaigns.
	Listening to our community remains central to our work, particularly for those areas or populations where we feel like we need to hear more or there are emerging issues either in the data or in surveys.	The organisation is continuing to develop its capability in areas such as co-design and human centred design.
	Positive feedback has been received from the NWMPHN Councils members on our approach to engaging them throughout this work.	We will explore how the approach to seeking feedback from the Councils throughout all stages of the HNA can be utilised for other work. This includes having joint, interactive workshops, using 'jamboards' to enable opportunities for council members to contribute thoughts/ideas, particularly when they time poor.
Market analysis	**NWMPHN staff have valuable market insights** that enhances the information we obtain from the market engagement.	We hope to establish a process within our commissioning cycle to capture the market insights from NWMPHN staff on an ongoing basis.
Data and use of analytical tools	**NWMPHN staff have access to a range of data sources** but this is not always visible to others within the and can take time to collect.	We will develop data templates and establish a process for NWMPHN staff to share data across the organisation on an ongoing basis, not just at the time of the HNA.
	We were unable to access some important data including some hospital data and data for prisoners and CALD communities.	We will continue to build relationships with key stakeholders such as Justice, Hospitals and not-for-profit organisations to ensure greater access to important data.

A2. Geographic units for population health data used in health needs assessment

Table 113. Geographic units for population health data used in health needs assessment

Least specific to the region.

Easiest to summarise data comparisons

Most specific to the region.

Most difficult to summarise data comparisons

National	State	Primary Health Network (PHN)	4 Regions	13 Local Government Areas (LGA)	16 Statistical Area 3's (SA3)	18 General Practitioner (GP) catchments	71 Population Health Areas	96 Postcodes	113 Statistical Area 2's (SA2)	171 suburbs	3515 SA1s
-	-	An administrative health region. Australia and 31 PHN regions. Victoria has 6 PHNs.	Based on geography, and population density now and in the future	Administrative divisions that local governments are responsible for.	A regional breakdown of Australia. They often closely align to LGAs (a population between 30,000 and 130,000).	Constructed using MBS data and the Australian Statistical Geographical Standard to map where services are provided and where patients access those services. Also considers workforce, population demographics, rurality and the physical features of an area (topography).	Comprised of individual (larger) SA2s or aggregation of (smaller) SA2s.	Often linked to one area but can be complex especially in places with very few people.	Smallest area for the release of Australian Bureau of Statistics (ABS) non census statistics. Represent a community that interacts together socially and economically (a population of 3,000 to 25,000).	Subdivisions mainly used for address purposes	Smallest unit of release of census data. (a population of 200-800)

CORRESPONDENCE OF GEOGRAPHIC UNITS IN THE NWMPHN CATCHMENT

This is intended to be a reference guide only to support understanding of different population health data in relation to broad geographic regions and LGAs. These indices have not been precisely mapped. For example, PHAs have not been linked to a specific SA3s or GP catchments when there are more than one in any LGA. Similarly, overlapping boundaries are simply marked with an * rather than directly translated to the specific localities.

Table 114. Correspondence of geographic units in the NWMPHN Catchment.

Region	LGA (Local Government Area)	SA3	GP Catchment	PHAs (Population Health Area)
Inner city	Melbourne	Melbourne City	Melbourne City	East Melbourne/ South Yarra - West Parkville Flemington Racecourse/ Kensington North Melbourne Docklands/ Southbank/ West Melbourne Melbourne
	Maribyrnong	Maribrynong	Maribrynong	Seddon - Kingsville/ Yarraville Footscray/ West Footscray - Tottenham Braybrook Maribyrnong
	Yarra	Yarra	Yarra	Abbotsford/ Yarra - North Carlton North - Princes Hill/ Fitzroy North Richmond Collingwood/ Fitzroy
Suburban	Brimbank	Brimbank Keilor*	Brimbank Keilor*	Ardeer - Albion/ Sunshine/ Sunshine West St Albans - South/ Sunshine North Delahey Keilor Keilor Downs Taylors Lakes St Albans – North/ Kings Park Deer Park - Derrimut Cairnlea
	Darebin	Darebin - North Darebin - South	Darebin North Darebin South	Kingsbury Alphington - Fairfield/ Northcote Reservoir - East Thornbury Reservoir - West Preston
	Hobsons Bay	Hobsons Bay	Hobsons Bay	Altona North Altona Meadows Altona Newport/ Williamstown Laverton Seabrook
	Moonee Valley	Essendon Keilor*	Essendon	Essendon - Aberfeldie/ Moonee Ponds Niddrie - Essendon West Airport West/ Essendon Airport/ Keilor East Strathmore Flemington Ascot Vale
	Moreland	Moreland – North Brunswick - Coburg	Moreland -North Brunswick-Coburg	Coburg North Pascoe Vale Brunswick West/ Pascoe Vale South Coburg Fawkner Glenroy/ Gowanbrae/ Hadfield Carlton Brunswick/ Brunswick East
Growth Area	Hume	Tullamarine-Broadmeadows	Tullamarine-Broadmeadows	Sunbury/ Sunbury - South Broadmeadows

		Sunbury	Sunbury Keilor*	Campbellfield - Coolaroo Gladstone Park - Westmeadows/ Tullamarine Roxburgh Park - Somerton Meadow Heights Greenvale - Bulla/ Melbourne Airport Craigieburn - Mickleham
	Melton	Melton-Bacchus Marsh*	Bacchus Marsh - Melton* Burnside	Sydenham Caroline Springs Melton/ Melton South/ Rockbank - Mount Cottrell Melton West Hillside/ Taylors Hill
	Wyndham	Wyndham	Wyndham	Hoppers Crossing - South/ Werribee - South Werribee Wyndham Vale Point Cook Tarneit Hoppers Crossing - North/ Truganina
Peri-urban	Macedon Ranges	Macedon Ranges	Gisborne Romsey	Gisborne/ Macedon/ Riddells Creek Romsey
	Moorabool	Melton-Bacchus Marsh*	Bacchus Marsh - Melton*	Bacchus Marsh

REFERENCES

ABS (Australian Bureau of Statistics) (2011) *1216.0 - Australian Standard Geographical Classification (ASGC), July 2011*, ABS, accessed 21 November 2021.

——(2016a) *h2033.0.55.001 - Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016*, ABS accessed 1 November 2021

——(2016b) *1270.0.55.002 - Australian Statistical Geography Standard (ASGS): Volume 2 - Indigenous Structure, July 2016*, ABS, accessed 21 November 2021.

——(2018a) *Life Tables for Aboriginal and Torres Strait Islander Australians*, ABS website, accessed 22 November 2021.

——(2018b) Census of Population and Housing: Estimating Homelessness [dataset], accessed 22 November 2021.

——(2018c) *National Health Survey: First results 2017-2018*, ABS website, accessed 2 November 2021.

——(2019a) *Disability, Ageing and Carers, Australia: Summary of Findings*, ABS, accessed 22 November 2021.

——(2019b) *National Health Survey: Health literacy, 2018*, ABS, accessed 22 November 2021.

——(2019c) *National Aboriginal and Torres Strait Islander Health Survey 2018-2019*, ABS, accessed 1 November 2021.

——(2021a) *Data By Region- Region Summaries- Local Government Areas*, accessed 1 November 2021.

——(2021b) *Patient Experiences in Australia: Summary of findings 2020-2021 financial year*, ABS website, accessed 3 December 2021.

——(2021c) *Patient Experiences in Australia: Summary of Findings methodology*, ABS website, accessed 3 December 2021.

ACIC (Australian Criminal Intelligence Commission) (2021) *Illicit Drug Data Report: 2019-2021*, ACIC website, accessed 26 November 2021.

AIHW (Australian Institute of Health and Welfare) (2015) *Premature mortality in Australia 1997–2012*, AIHW, accessed 1 December 2021.

——(2016) Primary Health Care in Australia *Primary Health Care in Australia*, AIHW, accessed 22 November 2021.

——(2018a) *Health Conditions and Risks: High Cholesterol*, accessed 29 November 2021.

——(2018b) *Patients' out-of-pocket spending on Medicare services 2016-17*, AIHW, accessed 22 November 2021.

——(2019a) *Risk factors*, AIHW, accessed 22 November 2021.

——(2019b) *Health conditions, disability and deaths: Diabetes*, AIHW, accessed 22 November 2021.

——(2019c) *Cancer in Australia 2019: in* brief, AIHW, accessed 1 November 2021.

——(2020a) *People with disability in Australia*, AIHW website, accessed 14 November 2021.

——(2020b) *National Drug Strategy Household Survey 2019.* Drug Statistics series no. 32. PHE 270. Canberra AIHW.

AIHW (Australian Institute of Health and Welfare) (2020c) *Biomedical risk factors,* AIHW website, accessed 22 November 2021.

——(2020d) *Overweight and obesity: an interactive insight*, AIHW, accessed 3 November 2021

——(2020e) *Dementia*, AIHW, accessed 1 December 2021.

——(2021a) *GEN Aged Care Data*, accessed 1 December 2021.

——(2021b) *Alcohol, tobacco & other drugs in Australia*, AIHW, accessed 15 November 2021.

——(2021c) *Practice Incentives Program Quality Improvement Measures: National report on the first year of data 2020-21*, AIHW, accessed 1 November 2021.

——(2021d) *Cancer Screening Data* [data set], AIHW, accessed 1 November 2021.

——(2021e) *COVID-19: looking back on health in 2020,* AIHW, accessed 1 November 2021.

——(2021f) *Medicare-subsidised GP, allied health and specialist health care across local areas: 2019-20 to 2020*, AIHW, accessed 1 December 2021.

——(2021g) *Indigenous health checks and follow ups*, AIHW, accessed 1 November 2021.

——(2021h) *Geographical variation in type 2 diabetes among adults registered in NDSS* [Data set], AIHW Type 2 diabetes prevalence, accessed 1 November 2021.

——(2021i) *Deaths in Australia*, AIHW, accessed 22 November 2021.

——(2021j) *Oral and dental care in Australia*, AIHW, accessed 1 November 2021.

Aung E, Chen M, Fairley C, Higgins N, Williamson D, Tomnay J, Cook K, Peel J, Dharmakulasinghe V, Alpren C and Chow E. (2021) 'P087 Spatial and temporal epidemiology of infectious syphilis in Victoria, Australia, 2015–2018', *Sexually Transmitted Diseases,* 97**:**A82-A83.

Ball K, Carver A, Jackson M and Downing K (2015) *Evidence review: Addressing the social determinants of inequities in physical activity and related health outcomes*, Centre for Physical Activity and Nutrition Research, Deakin University and Victorian Health Promotion Foundation (VicHealth), Victoria.

Bradshaw J (1972) 'Taxonomy of social need' in McLachlan, Gordon, (ed) *Problems and progress in medical care: essays on current research, 7th series*, Oxford University Press, London.

City of Melbourne (2016) *Census of Land Use and Employment*, melbourne.vic.gov.au, accessed 26 November 2021.

City of Melbourne (2020) *Social Indicators for City of Melbourne Residents 2020*, data.melbourne.vic.gov.au , accessed 1 November 2021.

City of Melbourne (2021) *StreetCount*, City of Melbourne website, accessed 3 December 2021.

Claridge, 2014 *What is social capital?* Social Capital Research website, accessed 26 November 2021.

COAG (Council of Australian Governments) Health Council (2017) *The Fifth National Mental Health and Suicide Prevention Plan*, Commonwealth of Australia, Canberra.

COAG (Council of Australian Governments) Health Council (2015) *Healthy Mouths, Healthy Lives: Australia's National Oral Health Plan 2015–2024*, South Australian Dental Service, Adelaide.

Crime Statistics Agency (2021) Latest Victorian crime data - Data Tables LGA [data sets], accessed 1 November 2021.

Department of Environment, Land, Water and Planning (2019) *Victoria in Future 2019- Population Projections*, DELWP website, accessed 1 November 2021.

Department of Premier and Cabinet (2018) *Population Diversity in Victoria: 2016 Census*, Department of Premier and Cabinet, State Government of Victoria.

DH (Victorian Department of Health) (2020) *Human papillomavirus (HPV) – immunisation*, betterhealth.vic.gov.au, accessed 22 November 2021.

DH (Victorian Department of Health) (2021a) *Congenital Syphilis in Victoria- Health Advisory,* health.vic.gov.au, accessed 22 November 2021.

DH (Victorian Department of Health) (2021b) *Surveillance of notifiable conditions in Victoria: Victoria and local government areas summary* [dataset] DH Interactive infection disease surveillance reports, accessed 22 Nov 2021.

DoH (Australian Government Department of Health) (2013) *National Primary Health Care Strategic Framework*, DoH, accessed 1 November 2021.

——(2018) *Victoria Primary Health Networks (PHN) resource collection*, DoH, accessed 03 December 2021.

——(2019b) *About passive smoking*, DoH website, accessed 1 November 2021.

——(2020a) *National Immunisation Program Schedule*, DoH, accessed 4 October 2021.

——(2020b) *National Cancer Screening Register*, DoH, ncsr.org.au, accessed 1 November 2021.

——(2021a) *Modified Monash Model*, DoH website, accessed 21 November 2021.

——(2021b), *About the National Bowel Cancer Screening Program*, DoH, accessed 2 November 2021.

—— (2021c) *About the National Cervical Screening Program*, DoH, accessed 2 November 2021.

—— (2021d) *BreastScreen Australia Program,* DoH, accessed 2 November 2021.

—— (2021e) *PHN Childhood immunisation coverage data [data set],* health.gov.au, accessed 4 October 2021.

—— (2021f) *HeaDS UPP Tool* [dataset], DoH Health Workforce Division, accessed 23 September 2021

——(2021g) *HeaDs UPP Health Workforce Planning Tool – Factsheet [PDF 255KB]*, DoH Health Workforce Division, hwd.health.gov.au/headsupp/ accessed 1 November 2021.

——(2021h) PMHC-MDS *About the Primary Mental Health Care- Minimum Data Set (PMHC-MDS)*, pmhc-mds.com, accessed 1 November 2021.

Falster M and Jorm L (2017) *A guide to the potentially preventable hospitalisations indicator in Australia,* Centre for Big Data Research in Health, University of New South Wales in consultation with Australian Commission on Safety and Quality in Health Care and Australian Institute of Health and Welfare, Sydney.

Friel S, Hattersley L and Ford L (2015) *Evidence review: Addressing the social determinants of inequities in healthy eating*, The National Centre for Epidemiology and Population Health, Australian National University for Victorian Health Promotion Foundation (VicHealth), Victoria.

Gunn LD, Davern M, Higgs C, Both A, Roberts R, Rozek J, Giles-Corti B. (2020) *Measuring liveability for the 21 largest cities in Australia: Liveability Report for Melbourne*. Melbourne: RMIT University, Centre for Urban Research.

Heart Foundation (2021) *Key Statistics: Cardiovascular Disease*, heartfoundation.org.au, accessed 22 November 2021.

Ikeda, A and Kawachi I (2010) 'Social Networks and Health' in Steptoe, A *Handbook of Behavioral Medicine: Methods and applications*, Springer, Berlin.

Institute for Voluntary Action Research (2015) *Place-based funding: a briefing paper*, IVAR, London.

Mackenbach J**,** Maas P (1989) 'Social inequality and differences in health: a survey of the principal research findings', in Gunning-Schepers L, Spruit I, and Krijnen J (eds) *Socio-economic inequalities in*

health, questions on trends and explanations, The Hague Ministry of Welfare, Health and Cultural Affairs.

McHale P, Wood S, Hughes K, Bellis MA, Demnitz U and Wyke S (2013) 'Who uses emergency departments inappropriately and when - a national cross-sectional study using a monitoring data system', *BMC Medicine*, (11)1:258, doi:10.1186/1741-7015-11-258.

National Conference for Community and Justice (2021) *Intersectionality,* NCCJ website, accessed 22 November 2021.

NHMRC (National Health and Medical Research Council) (2013) *Australian Dietary Guidelines*, Australian Research Council and Universities Australia, Commonwealth of Australia, Canberra.

NHMRC (National Health and Medical Research Council) (2020) *Australian Guidelines to reduce Health Risks from Drinking Alcohol*, Australian Research Council and Universities Australia, Commonwealth of Australia, Canberra.

NWMPHN (North Western Melbourne Primary Health Network) (2020) *Blueprint for better health*, NWMPHN, Parkville.

NWMPHN (North Western Melbourne Primary Health Network) (2021) *Access and Equity Framework: a framework for improving health equity in the North Western Melbourne PHN region, July 2021 to June 2024*, NWMPHN, Parkville.

Parliament of Victoria Legislative Council Legal and Social Issues Committee (2021) *Inquiry into homelessness in Victoria Final report*, Victoria Government Printer, Melbourne.

Parliament of Victoria, Public Accounts and Estimates Committee (2021) *Inquiry into the Victorian Government's response to the COVID-19 pandemic*, Victoria Government Printer, Melbourne.

Parkinson B, Meacock R, Checkland K and Sutton M (2021) 'How sensitive are avoidable emergency department attendances to primary care quality? Retrospective observational study', *BMJ Quality & Safety*, 30(11):884-892.

PHIDU (Public Health Information Development Unit) (2021a) *Social Health Atlas of Australia: Data by Primary Health Network (including Local Government Areas)* [data set], phidu.torrens.edu.au, accessed 25 November 2021.

PHIDU (Public Health Information Development Unit) (2021b) *Social Health Atlas of Australia: Notes on the data*, PHIDU, Torrens University Australia.

PHIDU (Public Health Information Development Unit) (2021c) *Aboriginal and Torres Strait Islander Social Health Atlas of Australia: Data by Primary Health Network (including component IAREs)*, [data set], phidu.torrens.edu.au, accessed 25 November 2021.

Purcell K (2015) *Evidence Review: Addressing the social determinants of inequities in tobacco use*, Purcell Consulting and Victorian Health Promotion Foundation (VicHealth).

Putnam RD (2020) *Bowling Alone: the Collapse and Revival of American Community Revised*, Simon and Schuster, New York.

RACGP (The Royal Australian College of General Practitioners) (2015) *Australian Smoking, nutrition, alcohol, physical activity (SNAP): A population health guide to behavioural risk factors in general practice*, 2nd edn. Melbourne: RACGP.

RACGP (The Royal Australian College of General Practitioners) (2021). *General Practice: Health of the Nation 2021*, RACGP, East Melbourne.

Roche A, Kostadinov V, Fischer J, and Nicholas R (2015) *Evidence review: The social determinants of inequities in alcohol consumption and alcohol-related health outcomes*, Victorian Health Promotion Foundation (VicHealth), Victoria.

Rockloff M, Browne M, Hing N, Thorne H, Russell A, Greer N, Tran K, Brook K, and Sproston K. (2020) *Victorian population gambling and health study 2018-19,* Victorian Responsible Gambling Foundation, Melbourne.

Services Australia (2021) *About Medicare*, servicesaustralia.gov.au, accessed 13 December 2021.

Sexual Health Australia (2021) *Safer Sex*, Sexual Health Australia, accessed 22 November 2021.

Smart J (2019) 'Needs Assessment', *AIFS Evidence and Evaluation Support practice resource – March 201*9, Australian Institute of Family Studies.

SNAMUTS (Spatial Awareness Network Analysis for Multimodal Urban Transport Systems) (2018) *SNAMUTS Melbourne 2018*, accessed 22 November 2021.

Solar O and Irwin A (2010) A conceptual framework for action on the social determinants of health, *Social Determinants of Health Discussion Paper 2 (Policy and Practice),* World Health Organization, Geneva.

State Government of Victoria (2021) *Understanding intersectionality*, Victorian Government website, accessed 22 November 2ER 021.

Tanahashi T (1978) 'Health service coverage and its evaluation', *Bulletin of the World Health Organization*, 56(2), 295–303.

Tanton R, Dare L, Miranti R, Vidyattama Y, Yule A and McCabe M (2021), *Dropping Off the Edge 2021*: *Persistent and multilayered disadvantage in Australia*, Jesuit Social Services: Melbourne.

Turning Point (2021) *Victorian alcohol and drug statistics* [dataset], supplied directly to NWMPHN.

VAHI (Victorian Agency for Health Information) (2019) *Victorian Population Health Survey 2017*, State of Victoria, Melbourne.

VAHI (Victorian Agency for Health Information) (2020) *The health and wellbeing of the lesbian, gay, bisexual, transgender, intersex and queer population in Victoria: Findings from the Victorian Population Health Survey 2017*, State of Victoria, Melbourne.

Victorian Agency for Health Information (2020) *The health and wellbeing of the lesbian, gay, bisexual, transgender, intersex and queer population in Victoria: Findings from the Victorian Population Health Survey 2017*, State of Victoria, Melbourne.

VAHI (Victorian Agency for Health Information) (2021a) *Victorian Population Health Survey 2019: summary of results*, State of Victoria, Melbourne.

Victorian Agency for Health Information (2021b) *Victorian Admitted Episodes Dataset* (VAED) [data set], supplied to NWMPHN.

Victorian Agency for Health Information (2021c) *Victorian Emergency Minimum Dataset* (VEMD) [data set], supplied to NWMPHN.

Victorian Commission for Gambling and Liquor Regulation (VCGLR) (2021) *Electronic Gaming Machine LGA Level Expenditure* [dataset], www.vcglr.vic.gov.au, accessed 17 November 2021.

Warren D, Daraganova G and O'Connor M (2018) 'Preschool and children's readiness for school', in Warren D and Daraganova G (eds), *Growing Up In Australia – The Longitudinal Study of Australian Children, Annual Statistical Report 2017*, Melbourne, Australian Institute of Family Studies.

Wilkins R, Botha F, Vera-Toscano E and Wooden M (2020) *The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 18*. Melbourne Institute: Applied Economic & Social Research, University of Melbourne.

WHO (World Health Organization) (2018) *Mental health: strengthening our response*, WHO website, accessed 1 November 2021.

WHO (World Health Organization) (2020) *Oral Health - Fact sheet*, WHO website, accessed 1 November 2021.

WHO (World Health Organization) (2021a) *Body Mass Index - BMI*, WHO Europe website, accessed 01 November 2021.

WHO (World Health Organization) (2021b) *Noncommunicable diseases - Fact sheet*, WHO website, accessed 1 November 2021.

WHO (World Health Organization) (2021c) *Asthma - Fact sheet*, WHO website, accessed 1 November 2021.

WHO (World Health Organization) (2021d) *Chronic obstructive pulmonary disease (COPD) - Fact sheet*, WHO website, accessed 1 November 2021.