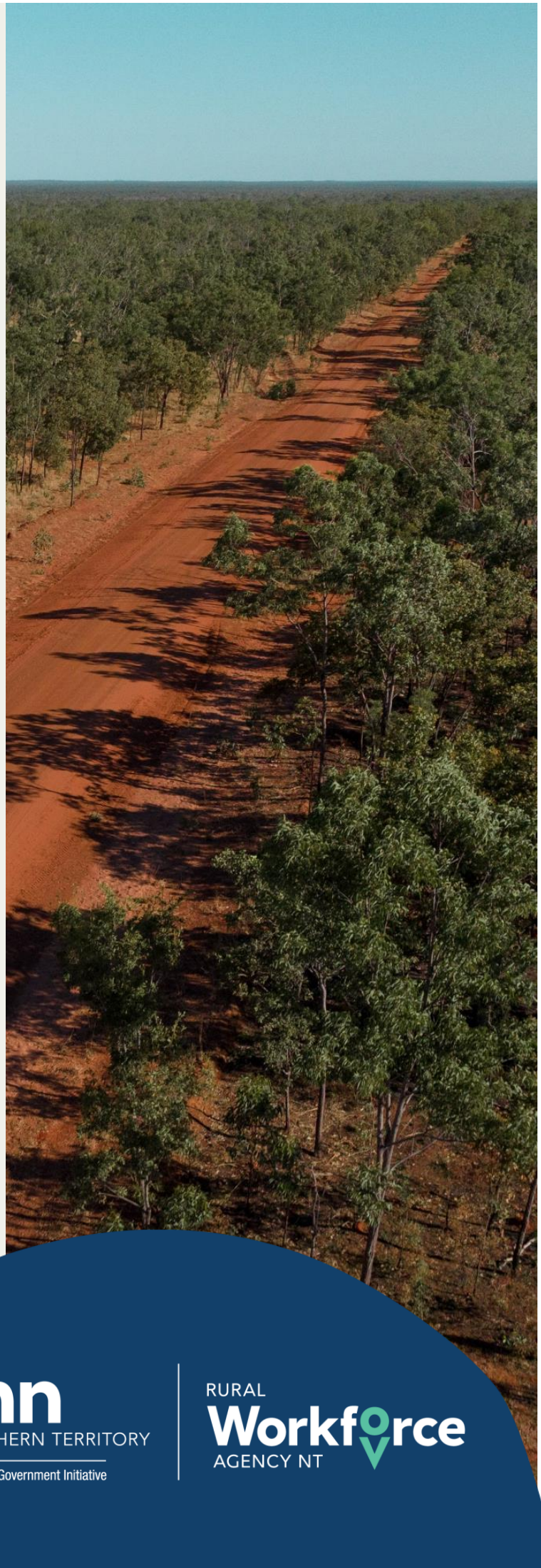
NORTHERN TERRITORY PRIMARY HEALTH NETWORK PROGRAM NEEDS ASSESSMENT

2024-2027



phn NORTHERN TERRITORY
An Australian Government Initiative

RURAL Workforce AGENCY NT

Acknowledgement

Northern Territory Primary Health Network acknowledges the First Nations people of the Country on which we work and live, and we recognise their continuing connection to land, waters and skies. We pay our deepest respects to Elders present, emerging and across time.

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Introduction

Spanning nearly 1.3 million square kilometres from Central Australia's desert landscapes to the tropical coasts of the Arafura Sea, the Northern Territory Primary Health Network (NT PHN) region encompasses five distinct areas: Central Australia, Barkly, Big Rivers, East and West Arnhem lands and the Top End. Darwin is the largest population centre, with other key hubs including Alice Springs, Katherine, Tennant Creek and Nhulunbuy. This vast and culturally diverse environment, home to a significant Aboriginal and Torres Strait Islander population, poses unique challenges and opportunities for healthcare delivery.

This Needs Assessment summarises the health and service needs of the entire NT region, focusing on primary health care. It draws on national and local data, policy reviews, research and consultations and program-specific needs assessments. This iteration incorporates current health priorities, paying close attention to social determinants and lifestyle factors that shape health outcomes. The NT's small population, widely dispersed across a large and often inaccessible geographic area, in addition to the needs of Aboriginal and Torres Strait Islander people brings significant considerations in the social determinants of health. Addressing the social determinants of health, supporting self-determination and community control, and providing integrated, coordinated service delivery across sectors (not just health) are critical to the NT context. This needs assessment aims to reflect the impact of a range of factors on the health and wellbeing of Territorians.

The NT context also creates a challenging service delivery environment within which to effectively capture, report on and address health needs. The needs assessment has reliance on a wide range of national and local datasets with different timeframes and variable errors (including confidence intervals) relating to sampling and responses. The small, widely dispersed population results in many data sources being unreliable due to small sample sizes, or remote and very remote populations being excluded. The complexities related to geography and population in the NT, and the significant differences in health outcomes require that both Aboriginal and Torres Strait Islander and non-Aboriginal population data are considered for most indicators.

With these above-described characteristics, a picture emerges of the complexity surrounding identifying and allocating resources effectively to meet the needs of the population. NT PHN seeks to utilise collated data to make evidence-based decisions while balancing stakeholder values with the realities of limited resources. Critically, in addressing the needs of Aboriginal and Torres Strait Islander people, NT PHN takes leadership from its Strategic Plan, underpinned by a Commitment to Aboriginal and Torres Strait Islander peoples and communities.

NT PHN is a member of the NT Aboriginal Health Forum, the principal NT jurisdictional Aboriginal health planning partnership that provides strategic guidance and makes decisions about key policy issues to improve Aboriginal and Torres Strait Islander health and wellbeing. NT PHN is committed to Aboriginal Community Control in the planning, development and management of primary health care and community care services and the optimal expression of the right of Aboriginal people to participate in decision making. It supports the Closing the Gap priority reforms and the principles of Aboriginal Community Controlled primary health care.

NT PHN recognises the sovereignty of Aboriginal and Torres Strait Islander peoples over data generated by and about them. The collection and use of health and health-related data about Aboriginal and Torres Strait Islander people must be carried out in partnership with Aboriginal and Torres Strait Islander people and organisations to ensure its purpose is transparent, meaningful, and useful, and can be directly linked to improved health outcomes and/or better service delivery for Aboriginal and Torres Strait Islander people. It must protect confidentiality and privacy and incorporate informed consent and feedback mechanisms.

Key limitations of the needs assessment

Service mapping has been limited due to considerations around the value of this activity at a sector wide level relative to resource intensive inputs, limited local data and constant changes resulting from issues with recruitment and retention. NT PHN has instead relied on gap analysis utilising key informants and consultation. The NTPHN needs assessment process would benefit from dedicated resource and processes that are effectively and systematically able to draw on tailored and program-specific consultations, learnings and assessments, and it is working towards this. Holistic considerations between social and health issues are an important ongoing feature of robust needs assessments in the NT.

While the needs assessment is updated annually, the dynamic nature of the healthcare environment and availability of data provides that the needs assessment cannot be an exhaustive source of current information. NT PHN encourages readers to seek further information from reputable sources as relevant to their needs.

A note on terminology

NT PHN acknowledges and respects the diversity of language, culture and Country represented by Aboriginal and Torres Strait Islander peoples. The term ‘Aboriginal and Torres Strait Islander’ is used wherever possible throughout this document to align with NT PHN use of terminology.

Other terminology worth noting includes:

- LGBTIQA+: Lesbian, gay, bisexual, transgender, intersex, queer, asexual people, or other diverse identities.
- Mental disorders: The Australian Bureau of Statistics defines a mental disorder as a 'clinically significant disturbance in an individual’s cognition, emotional regulation, or behaviour'. The term itself covers a range of disorders including Anxiety, Affective and Substance Use disorders.
- Victim-survivors (of family, domestic and sexual violence): It is understood that victim-survivorship may also include victim-survivors that have used violence.
- Overall, throughout the document, NT PHN endeavours to use inclusive language, while acknowledging that language and terminology is also evolving and terminology used may not capture all experiences and preferences in all the ways that they exist.

1. Outcomes of the health needs analysis

1.1 Improving child and adolescent health

- Underweight children
- Anaemia
- Immunisation
- Childhood development vulnerability
- Infections including otitis media; trachoma; Acute Rheumatic Fever (ARF)
- Mental health, smoking and sexually transmissible infections in young people

1.1.1. Underweight children

The proportion of underweight children decreased from 4.4% to 3.7% between 2010 and 2021 with larger health services experiencing higher rates of underweight children. East Arnhem had a higher proportion of underweight children in comparison with all other regions (Boyd et al. 2023).

1.1.2. Anaemia

The proportion of anaemic children decreased from 15.6% in 2010 to 9.4% in 2021. Children under 2 years old were more likely to be anaemic. Top End and Darwin had the lowest proportion of anaemic children, while Barkly had the highest (Boyd et al. 2023).

1.1.3. Immunisation

In the NT, 91% of children are fully immunised by age 5 years, compared to Australia's rolling annual percentage of 94% (DoHAC 2024). Data by statistical areas shows that Darwin city, Daly, Tiwi and West Arnhem have the highest rates of immunised children at age one year (around 95%), which is maintained at five years for Daly, Tiwi and West Arnhem, but drops to 91% for Darwin city (DoHAC 2024). The lowest rates of immunisation at age 1 year are in Barkly (83.3%), but this increases to 92.7% by age 2 years and is maintained at age five years. Katherine demonstrates 87% at age 1, 83% at age 2, but 92% by age five years (DoHAC 2024).

Anecdotal evidence from the NT Immunisations Working Group suggests that hesitancy with COVID-19 vaccines flowed to National Immunisation Program (NIP) vaccines. This aligns with existing global data showing that confidence in routine vaccinations has declined during the COVID-19 pandemic (Sinuraya et al 2024). Sinuraya et al (2024) recommend that efforts to address vaccine hesitancy promote trust in healthcare systems and increase the likelihood of individuals seeking preventive health services; and that vaccine hesitancy requires a comprehensive, culturally sensitive approach that considers local contexts and realities.

1.1.4. Childhood Development

The Australian Early Development Census involves teachers responding to approximately 100 questions across the five domains of child development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based) and communication skills and general knowledge. Children in the NT are developmentally more vulnerable than children in other parts of Australia (De Vincentiis et al 2021). In 2021, 23.4% of NT children were vulnerable on two or more domains compared

with 11.4% nationally. Between 2009 and 2021 there was a decrease in the proportion of children vulnerable in physical health and wellbeing, language and cognitive skills (school-based) and communication skills and general knowledge domains and an increase in the proportion of children who were vulnerable in social competence and emotional maturity domains (DESE 2021).

1.1.5. Otitis Media

Otitis Media (OM) is inflammation of the middle ear caused by bacterial or viral pathogens. Population surveillance across remote Northern Territory and Western Australian communities found that almost 90% of young children had OM (Leach et al 2021). The high rates of OM are linked to poor housing conditions, overcrowded housing, exposure to tobacco smoke, education, and overall social and economic disadvantage (DeLacy, Dune and McDonald 2020). If left untreated or not treated adequately, OM often results in persistent mild to moderate conductive hearing loss, which reduces children's exposure to language and delays language learning development (Yaofeng He et al 2020). This can also affect cognitive development, comprehension, speech and language development affecting social and emotional wellbeing, behaviour, social interaction and school attendance (Yaofeng He et al 2020). Hearing impairment is associated with greater risk of child maltreatment and youth offending among boys (Yaofeng He et al 2020).

The percentage of children with evidence of ear discharge recorded in the NT Aboriginal Health Key Performance Indicators reduced from 21.2% in 2017 to 14.5% in 2021 (Boyd et al, 2023). This reduction was primarily the result of reduction in Top End and Darwin, with other regions remaining the same. Children aged 1 to 2 years old were more likely to have ear discharge (Boyd et al, 2023).

1.1.6. Trachoma

Trachoma is a disease of the eye caused by infections with the bacterium Chlamydia trachomatis (WHO 2024). Australia committed to eliminate trachoma as part of the WHO Global Alliance for the Elimination of Trachoma by the year 2020 (Barksby 2022). Australia's national response to trachoma began when 13 regions were identified as being at risk in 2006, out of which 4 were still classified as having endemic trachoma in 2021 (The Kirby Institute, 2023). The national trachoma prevalence rate in children aged 5–9 years decreased from 14% in 2009 to 3·3% in 2021 to 1.8% in 2023; however, the target of elimination has not yet been met (Barksby 2022; AIHW 2024).

Trachoma generally occurs in dry, dusty environments and is strongly associated with poor living conditions and sanitation. Repeated infections, especially during childhood, lead to scarring of the eyelid, causing it to contract and distort, eventually damaging the cornea leading to vision loss and blindness (The Kirby Institute 2023). Blindness from trachoma is irreversible (WHO 2024).

In 2022, 42 communities are considered at-risk of trachoma in the NT (The Kirby Institute 2023). In 2021, Endemic levels of trachoma were reported in 42% of the screened at-risk communities (16 out of 38 screened) (The Kirby Institute, 2023). Hyperendemic levels of trachoma were reported in 8% of the screened at-risk communities (The Kirby Institute 2023).

1.1.7. Acute Rheumatic Fever

As described in the Chronic Conditions and Infectious Disease sections below, Acute Rheumatic Fever (ARF) develops from streptococcal infections and is most common in children aged 5-14 years, with the highest risk for people who live in rural or remote locations and in crowded housing (Healthdirect Australia 2024). The impact of ARF is high as it leads to Rheumatic Heart Disease, of which the incidence rate of has doubled over the last decade in the NT (see *Chronic Conditions* below).

1.1.8. Adolescent health

Indicators of health of young people in the NT demonstrates high need. The average proportion of young men, aged 15-24 years that are current smokers is 46.3% compared with 18% across Australia (De Vincentiis et al 2021). The proportion of young women, aged 15-24 years that are current smokers is 24.5% compared with 10.3% nationwide (De Vincentiis et al 2021).

Sexually transmissible infections (STIs) are experienced at higher rates in young people in the NT than in other parts of Australia. Data on chlamydia and gonorrhoea reveals important findings. Chlamydia notifications among young people aged 15-24 years occur at more than double the rate of young people across Australia, with nearly 4,000 per 100,000 population in the NT, as compared with 1,600 across Australia (De Vincentiis et al 2021). Rates of gonorrhoea are even higher, with young people reporting more than 7 times the rate of other jurisdictions in Australia (2016.3 notifications versus 266.8 notifications, respectively) (De Vincentiis et al 2021).

Mental health is a broad concept, and conditions in childhood can significantly impact health and wellbeing into adulthood (Mulraney et al. 2021). Hospital admission rates for mental health conditions are just one measure of mental health and in the NT, young people are hospitalised at a rate of 267 per 10,000 population (3%), versus 51 per 10,000 population in Australia (0.5%) (De Vincentiis et al. 2021). Suicide is the leading cause of death for 15-24year olds in the NT (De Vincentiis et al. 2021).

1.2 Improving maternal health

- Low birthweight
- Smoking during pregnancy
- Alcohol during pregnancy
- Diabetes in pregnancy
- Age of motherhood
- Increased risk of FDSV

1.2.1. Low birthweight

Birthweight is a key determinant of child health, a risk factor for cognitive development, neurological and physical disabilities and health outcomes continuing into adulthood including risk of Type 2 diabetes, high blood pressure, metabolic and cardiovascular diseases (AIHW 2020). In 2020, the rate of low birthweight for Aboriginal and Torres Strait Islander babies was higher in the Northern Territory (14.6%) than any Australian Jurisdiction (9.6% nationally) (DTFNTG 2024). Larger health services (over 1,000 people) had a higher proportion of babies born with low birth weight than smaller health services. Jabiru-Tiwi,

Nhulunbuy, Katherine, Tennant Creek and Apatula regions had the highest proportion of low birthweight babies (12% or greater) (AIHW 2022b).

1.2.2. Smoking during pregnancy

Tobacco smoking during pregnancy can be harmful to the unborn child. Smoking is associated with increased risk of pre-term birth, placental complications and perinatal death. In 2022, about 1 in 8 (8.3%) women in Australia reported smoking during pregnancy, but nearly 1 in 5 (18.3%) women in the NT reported smoking during pregnancy (AIHW 2024). Data from 2019 for the NT shows that the proportion of women smoking in pregnancy differed substantially across regions, from 1 in 10 women in Greater Darwin to 1 in 2 women in Top End (10.6% versus 51% respectively) (De Vincentiis et al, 2021). Further disparities were seen between Aboriginal and non-Aboriginal pregnant women in the NT; overall 48.4% of Aboriginal and Torres Strait Islander women that are pregnant reported smoking, versus 6.1% of non-Aboriginal pregnant women (De Vincentiis et al, 2021). This had not changed significantly since 2013 (De Vincentiis et al, 2021). Katherine, Nhulunbuy and Jabiru-Tiwi also had the highest proportions of maternal smoking rates (Boyd et al. 2023).

1.2.3. Alcohol in pregnancy

Exposure to alcohol during the antenatal period is a major risk factor for a range of conditions in children, collectively referred to as Foetal Alcohol Spectrum Disorder (FASD). In the NT, approximately 5 in 100 babies (4.6%) were exposed to alcohol in the first trimester. This proportion varies across regions and reduces over the term of pregnancy, with the highest rates of exposure in the first trimester in the Big Rivers and Barkly regions (11.4% and 10.6% respectively). FASD is further described in the Alcohol and Other Drugs section below.

1.2.4. Diabetes in pregnancy

A study by Hare et al. (2020) found rates of gestational diabetes and pre-existing diabetes among Aboriginal women in the Northern Territory rose significantly, from 3.4% and 0.6% respectively in 1987 to 13% and 5.7% in 2016. Among non-Aboriginal women, rates of gestational diabetes increased from 1.9% in 1987 to 11% in 2016, while pre-existing diabetes was uncommon. A report by AIHW (2022b) found that mothers with pre-existing diabetes are more likely to have pre-term birth, pre-term induced labour, caesarean section, hypertension and longer stay in hospital than mothers with gestational diabetes or without diabetes in pregnancy. Hare et al. (2020) also found that mothers with gestational diabetes were at highest risk of induced labour and were more likely to have a pre-term birth, caesarean section, hypertension and longer hospital stay than mothers without diabetes in pregnancy. Mothers with gestational diabetes are seven times more likely to develop type 2 diabetes later in life. They are also more likely to experience cardiovascular disease, malignancies and ophthalmic disease.

Babies of mothers with pre-existing diabetes have higher rates of stillbirth, pre-term birth, high birthweight, low Apgar score, high-level resuscitation, admission to special care nursery/neonatal intensive care unit, and longer stay in hospital than babies of mothers with gestational diabetes or without diabetes in pregnancy. Babies of mothers with gestational diabetes have higher rates of all adverse effects studied, except for stillbirth, and high and low birthweight, than babies of mothers without diabetes (Sheiner 2020). Children born to mothers with gestational diabetes are also at higher risk of developing type 2 diabetes,

experience obesity, cardiovascular disease, impaired neurodevelopmental outcomes and ophthalmic disease later in life (AIHW 2010; Hare et al. 2020).

1.2.5. Age of motherhood

Aboriginal mothers in the Northern Territory are younger with 42.7% of Aboriginal women who gave birth in the Northern Territory in 2020 being aged 24 years and under. Aboriginal and Torres Strait Islander mothers aged under 20 years are more likely to smoke during pregnancy, be underweight, have an episiotomy and give birth to a baby who was of low birthweight or small for gestational age (AIHW 2023a).

1.2.6. Risk of Family, Domestic and Sexual Violence

Pregnancy increases the risk of domestic violence (NTG 2020). There is a raft of implications for pregnant women experiencing domestic violence, including 4 times higher rate of depression and 10 times higher rates of anxiety leading to challenges around securely attaching to their infant. Pregnant women who experience domestic violence also have higher rates of miscarriage, pre-term birth and low birthweight (Gomez Aristizabal et al, 2022).

1.3 Reducing the risk of chronic conditions and improving the management of chronic conditions

- Incidence and prevalence of diabetes in adults and young people
- Rates of cardiovascular disease, respiratory disease and chronic kidney disease
- Cancer causing years of life lost
- Rheumatic heart disease due to preventable infectious disease
- Eye, ear and oral health issues
- Underlying factors affecting development and management of chronic disease including diet and nutrition, obesity, physical activity and smoking

(See also Social Issues Affecting Health, Health Literacy and Alcohol and Other Drugs section)

1.3.1. Diabetes in adults and young people

A study by Hare et al. (2022) found the burden of diabetes in the remote Aboriginal population of the NT is among the highest in the world. The prevalence was greatest in Central Australia, where 40% of adults now have diabetes. They found a young age of onset and severe chronic hyperglycaemia which is likely to be accompanied by a high burden of diabetes complications and premature mortality.

A study by Titmuss et al. (2021) estimated the prevalence of youth type 2 diabetes among 15–24-year-old in Northern Australia. In Central Australia the prevalence was 31.1 cases per 1000. Prevalence was higher in females across all regions. They found unacceptably high HbA1c values, suggesting a concerning trajectory ahead without intervention. The study demonstrates high prevalence of type 2 diabetes among Aboriginal and Torres Strait Islander youth in northern Australia, arguably the highest reported prevalence in any population of youth internationally.

1.3.2. Cardiovascular disease, respiratory disease, chronic kidney disease and cancers

A study by Zhao et al. (2022) analysed Years of Life Lost (YLL) for chronic conditions. Years of life lost is a measure of both the number of premature deaths and the number of years that were lost. One YLL

represents one year of life lost. They reported that chronic conditions were the top four causes of YLL for Aboriginal and Torres Strait Islander people and the top two for non-Aboriginal people living in the NT between 2014 and 2018. In the NT Aboriginal and Torres Strait Islander population, cardiovascular disease and cancer explained nearly half of YLL (47%) after the age of 30 years. In the NT non-Aboriginal population, cancer alone accounted for 41% of all YLL over the age of 40 years. Differences between NT Aboriginal and Torres Strait Islander population and the non-Aboriginal population include kidney disease (20.41 times), cardiovascular disease (4.27 times) and cancer (2.05 times). Eighty per cent of the mortality gap between Aboriginal and Torres Strait Islander and non-Aboriginal Australians is due to chronic conditions (NTG 2024c).

Years of life lost due to cardiovascular disease is significantly higher in Barkly and Top End regions. Respiratory diseases are highest in Top End and Big Rivers and chronic kidney disease is highest in Top End and Barkly regions (Zhao et al, 2022). Rates of end stage kidney disease for Aboriginal people in remote NT is up to 30 times the national average (NTG 2024c). YLL decreased by 10% in the Aboriginal population and 7% in the non-Aboriginal population between 2009–2013 and 2014–2018, with the greatest reduction in endocrine (39%) disorders (Zhao et al, 2022).

1.3.3. Rheumatic heart disease

Over the decade from 2012 to 2021, the incidence rate of rheumatic heart disease (RHD) in the Northern Territory approximately doubled (AIHW 2024g). Rheumatic heart disease is the fourth most life-shortening cardiovascular disease in the NT Aboriginal Population (Zhao, 2022). It is a chronic condition resulting from damage to heart valves caused by one or several streptococcal infections resulting in rheumatic fever (WHO, 2020). There is no cure for RHD and the damage to the heart valves are permanent, however, the precursor to RHD – acute rheumatic fever – is preventable (WHO, 2020). People who live in overcrowded and poor conditions are at greatest risk of developing the disease (WHO, 2020). Depending on the severity of the disease, treatment for heart failure or heart rhythm abnormalities can also be required (WHO, 2020).

1.3.4. Eye, ear and oral health

Infectious and other disease precursors to chronic eye, ear and oral health problems are described throughout this document in this section as well as sections related to the Improving child and adolescent health and Infectious disease. Here, the chronic impact is described.

Visual impairment is the partial or full loss of sight in one or both eyes. Eye diseases are more common with increasing age. Eye disease and vision problems are a common long-term health condition reported by Aboriginal and Torres Strait Islander people, with around one-third reporting long-term eye conditions (AIHW 2024). According to the National Eye Health Survey an estimated 15,000 Aboriginal and Torres Strait Islander people aged 40 and over experienced vision impairment and blindness in 2016 (Foreman et al 2016). Aboriginal and Torres Strait Islander people over the age of 40 have 3 times the rate of vision loss of non-Aboriginal and Torres Strait Islander people (AIHW 2024). The reasons vary, but some are either preventable or amenable to treatment. For example, diabetic retinopathy is a chronic disease resulting from high levels of blood glucose that causes small blood vessels in the eye to leak and bleed, which is one of the leading causes of vision impairment and blindness in Aboriginal and Torres Strait Islander people (causing 5.2%) (Foreman et al 2016). Other leading causes are uncorrected refractive error (61%) and cataracts (20%) (Foreman et al 2016). Additionally, trachoma, discussed in the section on Improving child

and adolescent health is present in remote Australia and can lead to blindness. For non-Indigenous Australians, leading causes of vision loss are uncorrected refractive error (61%), cataracts (13%) and age-related macular degeneration (10%) (Foreman et al 2016).

Ear and hearing health is vital for overall health and quality of life (AIHW 2023b). Age of onset of hearing loss can have different impacts, with early onset (i.e. in childhood) impacting the development of spoken language, reading ability and educational attainment (Dobie and Van Hemel 2005). Such difficulties can have lifelong consequences for wellbeing, employment, income, social success, contact with the criminal justice system and attaining future potential (AIHW and NIAA 2024d). Hearing loss among Aboriginal and Torres Strait Islander people is widespread and much more common than for non-Aboriginal Australians (AIHW and NIAA 2024d). Otitis Media, described elsewhere in this document is a significant cause of irreversible hearing loss in Aboriginal children (AIHW 2023b). The National Aboriginal and Torres Strait Islander Health Survey of 2018-19 identified that among those who volunteered to undergo a hearing test, , an estimated 43% of Aboriginal Australians aged 7 and over had measured hearing loss in one or both ears (AIHW and NIAA 2024d).Rates were higher in remote areas than non-remote areas (AIHW 2024d).

Good oral health is an integral part of good general health and wellbeing. It can affect a person's diet and nutrition and, therefore their overall health can have a range of social impacts. Additionally, oral diseases have been shown to intensify other chronic diseases and be associated with cardiovascular disease, diabetes, stroke and pre-term low birthweight (AIHW and NIAA 2024e). Data for oral health can be difficult to collect – there are jurisdictional differences in the operation of public dental services and national population surveys of oral health occur only around every ten years (Brennan et al 2019). It is relevant to note that remote and very remote locations were excluded from the last national survey, limiting the applicability of NT data to the entirety of its population and notably for its Aboriginal and Torres Strait Islander population which was significantly underrepresented in the survey sample (Brennan et al 2019). Nevertheless, data that exists suggests that oral health is a significant issue in the NT, particularly for the Aboriginal population. Aboriginal and Torres Strait Islander children and adults have much higher rates of dental disease than their non-Aboriginal counterparts across Australia, which has been largely attributed to the social determinants of health, such as poverty, racism and the consequences of colonialism (AIHW and NIAA 2024e).

Aboriginal and Torres Strait Islander people are more likely than non-Aboriginal Australians to have multiple caries, have lost all their teeth and/or to have gum disease (AIHW and NIAA 2024e). They are also less likely to receive the dental care that they need and between 2003 and 2018, for Aboriginal and Torres Strait Islander people, the total burden attributable to oral disorders increased by 17% (AIHW 2022d). Aboriginal and Torres Strait Islander children in the NT aged 0-4 were hospitalised for dental conditions at 1.6 times the rate of non-Aboriginal children between 2017-2019 (AIHW and NIAA 2024e).

1.3.5. Diet and nutrition

Fifty-seven per cent of people living in the NT aged 18 years and over do not meet the recommendation for the daily consumption of fruit or vegetables (54.4 nationally) (ABS 2022a). This data excludes very remote parts of Australia and discrete Aboriginal and Torres Strait Islander Communities which comprise a significant portion of the NT population. 23.4% of Aboriginal or Torres Strait Islander people in the NT eat less than one serve of fruit and 19.5% eat less than one serve of vegetables per day (AIHW 2022c).

1.3.6. Obesity

According to the National Health Survey 2022 (ABS 2022a), 62.9 % of all people in the NT aged 18 years and over are overweight or obese compared with 64.8% nationally. This data excludes very remote parts of Australia and discrete Aboriginal and Torres Strait Islander communities which comprise a significant portion of the NT population. The Aboriginal and Torres Strait Islander Health Performance Framework reports 59% of Aboriginal or Torres Strait Islander people in the NT were overweight or obese in 2018-19. The proportion was lower than all Aboriginal and Torres Strait Islander Australians (71%) although there was an increase from 56% in 2012-13 (AIHW 2020).

1.3.7. Physical activity

About 75% of people living in the NT aged 18 years and older do not meet the guidelines for physical activity compared with 76.5% nationally (ABS 2022a). This data excludes very remote parts of Australia and discrete Aboriginal and Torres Strait Islander Communities which comprise a significant portion of the NT population.

The National Aboriginal and Torres Strait Islander Health Performance Framework, with limited available data, reports that 80.4% of Aboriginal and Torres Strait Islander children in the NT aged 4–14 participated in at least 60 minutes of physical activity daily in 2014-15, compared to 75.7% nationally (AIHW 2020).

1.3.8. Smoking

The NT has the highest Aboriginal and non-Aboriginal smoking prevalence of any Australian jurisdiction. In 2018-19, 50% of the NT's Aboriginal and Torres Strait Islander people aged 18 and over smoked daily, with the lowest prevalence in Darwin (34% among women and 37% among men) and highest in East Arnhem (53% among women and 56% among men) (NTTCAC 2021). In 2017-18, 17% of the NT's non-Aboriginal people aged 18 and over smoked daily. There was no significant change in proportion of current smokers among Aboriginal and Torres Strait Islander people in the NT aged 15 and over between 2008 and 2018-19, whereas there was a decrease Australia wide (NTTCAC 2021).

In 2018-19, 56% of Aboriginal and Torres Strait Islander people in the NT aged 15 and above who smoked daily or weekly had attempted to quit in the past year. During the same period, 43% of Aboriginal and Torres Strait Islander people aged 18 and above in Darwin who have ever smoked are now successful ex-smokers compared to 14% in the rest of the NT. Additionally, 83% of NT Aboriginal and Torres Strait Islander children aged 0-14 lived in a household where no one smoked indoors, even though 74% lived with someone who smoked daily (NTTCAC 2021).

1.4 Addressing social and cultural determinants and system issues affecting health

- Food security, particularly in remote areas
- Housing and overcrowded dwellings
- Historical and cultural factors
- Contact with child protection and criminal justice
- Education
- Employment

1.4.1. Food security

Food insecurity has been linked to a range of health outcomes including gestational diabetes, low birth weight, malnutrition and anaemia in infants and children, early childhood development, and long-term outcomes including obesity and chronic disease (Davy 2016). Results from the Northern Territory Market Basket Survey 2021 show that a healthy food basket costs 52% more in remote stores than district centre supermarkets. The same basket was most expensive in East Arnhem region and least expensive in Katherine region. Between 2019 and 2021, the average cost of the healthy food basket increased by 6% in remote stores and by 9% in district centre supermarkets. Sixty eight per cent of remote stores are owned by the community or a store group, 65% have a store committee and 65% have a nutrition policy (NT Health 2021a).

A 2018 study across five NT communities showed vegetable intake was affected by food security with 84% of participants reporting food insecurity. The study concluded that the ability to take advantage of interventions and make a positive change in dietary intake will be difficult to achieve without addressing underlying socio-economic constraint (Brimblecombe et al 2018). A 2019 study among predominantly Aboriginal and Torres Strait Islander people in Katherine reported food insecurity among 60% of the participants (Quilty et al. 2019).

Many NT stakeholders made submissions into the 2022 parliamentary inquiry into food security in Australia, highlighting its multifaceted nature in remote Northern Territory (Commonwealth of Australia 2023). Supply-chain interruptions were highlighted as having the potential for 'indiscriminate, widespread acute food insecurity across the population.' Supply chains in the Top End were noted as particularly fragile, easily cut and expensive to maintain, leading to a high level of food insecurity in remote communities, and higher prices for fresh produce (Commonwealth of Australia 2023).

1.4.2. Housing

Housing is a key determinant of health. In 2021, the Social Health Atlas of Australia reported that 21.2% of people live in crowded dwellings in the NT. Of these people, 10,000 live in severely crowded dwellings and about one in 2 (53.7%) Aboriginal persons live in crowded dwellings and more than 9,800 of these people live in severely crowded dwellings. Overcrowding is highest in East Arnhem, West Daly, West Arnhem, Roper Gulf, and McDonnell LGAs (PHIDU 2021).

A study conducted in the Barkly region found that there are much higher levels of crowding in bush communities and towns than officially recorded, with averages of 7.3-10.8 people and maximum of 20-22 people per household, reported in the households surveyed (Hall et al., 2020). Crowding increases the likelihood of health hardware malfunction and results in householders living with non-functional hot water systems, windows, kitchen facilities, washing machines and toilets, among other health hardware.

The study links this to difficulty performing healthy living practices such as washing bodies, clothes and bedding, hygienic sanitation, and safe food preparation. The study found high rates of preventable, hygiene-related infectious diseases with over half of the total infectious disease diagnoses were (in order from most frequent diagnoses): skin (boils, sores, scabies and school sores), respiratory (upper and lower respiratory tract), and ear, nose and throat infections (middle ear/otitis media, tonsillitis, ear canal and pharyngitis/sore throat). Other notable diagnoses included trachoma, conjunctivitis, gastroenteritis,

rheumatic fever and tooth decay. Chronic kidney disease and rheumatic heart disease were likely the outcome of repeated infection (Hall et al. 2020).

1.4.3. Historical and cultural factors that affect health

The health of Aboriginal and Torres Strait Islander people is deeply influenced by historical factors, particularly the effects of colonisation, which led to widespread trauma, social disruption, and loss of access to traditional lands and cultural practices (AIHW 2024). The forced removal of children, the Stolen Generations, inflicted profound harm on families and communities, resulting in enduring intergenerational trauma and negative impacts on social and emotional well-being (AIHW 2024; Paradies 2016). These colonial policies also disrupted economic independence and access to traditional food sources. Colonisation is recognised as having a fundamental impact on the disadvantage and poor physical and mental health of Indigenous peoples worldwide, through social systems that caused and maintain disparities and transgenerational trauma (AIHW 2024; Guthrie et al 2020).

Cultural factors, such as connection to land, kinship, language, and participation in cultural practices, play a critical role in promoting the health and wellbeing of Aboriginal Australians. For Aboriginal and Torres Strait Islander people, factors such as cultural identity, family and kinship, country and caring for country, knowledge and beliefs, language and participation in cultural activities and access to traditional lands are protective factors that can positively influence health and wellbeing (AIHW 2024).

1.4.4. Contact with child protection and criminal justice

Family connections are affected by child removal, family violence, incarceration and the pervasive effects of intergenerational poverty (AIHW 2024). Aboriginal and Torres Strait Islander children are over-represented in all aspects of the child protection system, reflecting complex reasons including the history of trauma and stressors that has impacted parents and communities (AIHW 2024). In addition, Aboriginal and Torres Strait Islander people experience contact with the criminal justice system – as both offenders and victims – at much higher rates than non-Aboriginal Australians. Detention and imprisonment compounds existing social and economic disadvantage and affects families and the broader community.

On average across the period of 2017-2024, 97% (37 of 38.8 daily average) of children in youth detention in the NT were Aboriginal (NTG 2023a; Territory Families) and 89% (797 of 892) of children in out-of-home care were Aboriginal (Productivity Commission 2024). These figures are not on track to meet Socio-economic Outcome Area 12: Aboriginal and Torres Strait Islander children are not overrepresented in the child protection system (Productivity Commission 2024).

1.4.5. Education

Education has a significant impact on people's long-term social and economic circumstances (De Vincentiis et al 2021). School helps to provide children and young people with the skills they need to achieve their goals and take advantage of future opportunities. Attendance is one way of measuring children and young people's engagement with schooling, noting that it can be hard for children to catch up on educational opportunities that they miss while absent from school. In general, 80% attendance is used as a threshold for being able to keep up with classroom learning (De Vincentiis et al 2021). School attendance and engagement are key drivers of Target 5 of the National Agreement on Closing the Gap (Closing the Gap 2020).

Improving low school attendance among Aboriginal and Torres Strait Islander children is recognised as a national priority. In 2014, the Council of Australian Governments set a target of meeting the average 93% attendance of non-Aboriginal children for Aboriginal and Torres Strait Islander children. School attendance in grade 7 in the NT is varied across regions. In the Greater Darwin region, attendance (note that this data is based on NT Government schools) is 87.5% overall, though the break down between Aboriginal and non-Aboriginal students suggest that rates are lower in Aboriginal students (75%) than non-Aboriginal students (91%) (De Vincentiis et al 2021). Attendance in the regions show similar disparities between Aboriginal and non-Aboriginal students, with Barkly, East Arnhem, and Top End figures suggesting less than half of Aboriginal students are attending school (45.2%, 43.6%, and 40.8% respectively) (De Vincentiis et al 2021).

Education is key to increasing Aboriginal and Torres Strait Islander pathways to success and is associated with increased wellbeing across all other aspects of life. Evidence shows Aboriginal and Torres Strait Islander young people can thrive in education and reach their potential when supported by strength-based, high-expectation approaches. There has been some success in the transfer of community-control of education. In their latest report on Closing the Gap, the Productivity Commission heard several cases of Aboriginal Homeland communities that have taken responsibility for service delivery in education, establishing independent, Aboriginal community-controlled education institutions that have bypassed the state and territory education system (and are funded by the Australian Government and other avenues such as philanthropy). A new model established by the Yothu Yindi Foundation in Arnhem Land reports significant results, achieving and maintaining outstanding attendance rates and providing a learning environment that has seen the children thrive. Community control has been noted as a critical part of the success (Productivity Commission 2024).

1.4.6. Employment

A person's educational qualifications can influence their health status and outcomes, including better prospects for employment and income, which can help people access good quality housing, healthy food and health care services (AIHW 2024f). Employment lies at the heart of socioeconomic opportunity (AIHW 2023c). The proportion of Aboriginal and Torres Strait Islander people with employment decreases consistently with increasing remoteness. In contract, the proportion of non-Aboriginal Australians who are employed does not decrease with remoteness. The proportion of Aboriginal and Torres Strait Islander people employed in 2021 was the lowest in the NT with31%, which has remained roughly the same since 2006.

1.5 Improving Health Literacy

- Poor literacy
- Supporting people whose primary language is not English
- Lack of culturally appropriate and responsive considerations
- Enhance two-way knowledge exchange opportunities

The Australian Commission on Safety and Quality in Healthcare (ACSQHC) defines health literacy as how people understand information about health and health care, and how they apply that information to their lives, use it to make decisions and act on it (ACSQHC 2024). They emphasise the importance of building health literacy in Australia and acknowledge health literacy skills as pivotal to empowerment to enable

people and their communities to make effective decisions about their own health, their families health, and that of their communities (Smith et al. 2019).

Further, the ACSQHC reinforces in its definition of health literacy that the concept has both individual and environmental components to it (ACSQHC 2024). This contrasts with earlier definitions that focused more on an individuals' attitudes and behaviours. It raises the importance of an explicit focus on the environment within which people think and make health-related decisions. Also, there is a need for improving health settings and systems to better meet the health needs of the individuals, families and communities (Smith et al. 2019). Health literacy is increasingly recognised as part of a dynamic, two-way relationship and developing a more comprehensive understanding of health literacy is an important step towards improving it (Lloyd et al 2018).

It is difficult to attribute health outcomes to health literacy, but there is a clear relationship between the two. The ACSQHC estimates that people with low health literacy are between one-and-a-half and three times more likely to experience an adverse health outcome than those with higher health literacy (AMA 2021). Notably, this association is independent, which means that health literacy levels even predict health outcomes when other determinants of health like socio-economic status are considered (AMA 2021).

In Australia, only about 40% of adults have the level of individual health literacy required to meet the demands of everyday life (ACSQHC 2024). A range of factors can influence health literacy including age, educational attainment, disability, culture and language and Aboriginal and Torres Strait Islander status (ACSQHC 2024). In the NT context, health literacy is impacted by poor literacy and numeracy, a high proportion of people whose primary language is not English, and cultural diversity.

In 2021 only 52% of people in the NT spoke English at home compared with 72% nationally (ABS 2021). Nearly 58.5% of Aboriginal people in the NT speak Australian Indigenous languages at home (ABS 2021). There are more than 100 Aboriginal languages spoken in the NT. These languages can vary greatly in their grammatical structures, concepts and vocabulary (NTG 2024a). At the time of writing, there was no current Territory-wide health literacy strategy in place.

1.6 Reducing infectious disease

- Lower respiratory infection
- Tuberculosis
- Urinary tract infection
- Melioidosis
- Streptococcal infections and impacts: rheumatic fever, kidney disease
- Scabies
- COVID-19
- Immunisation rates

(See section on Improving child health for other infectious disease including otitis media and trachoma)

1.6.1. Lower respiratory infection

Lower respiratory infection has been reported as the most life-shortening infectious disease in the NT (Zhao, 2022).

1.6.2. Tuberculosis

Tuberculosis (TB) is the second most life-shortening infectious disease in the Aboriginal population (Zhao, 2022). The NT had the highest rate of TB in Australia between 2015-2018 (11 cases per 100 000 versus 5.2 cases per 100,000), with most cases occurring in those born overseas and in Australian Aboriginal and Torres Strait Islander people (Meumann et al. 2021). TB rates in NT Aboriginal peoples have dropped markedly but remain consistently higher than in non-Aboriginal Australian-born people (Meumann et al. 2021). Overcrowding is a direct risk factor for tuberculosis transmission while undernutrition is an important risk factor for developing active disease (WHO, Global Tuberculosis Programme).

1.6.3. Urinary tract infection

Urinary tract infection (UTI) is the second most life-shortening infectious disease in the non-Aboriginal population and third most life-shortening disease in the Aboriginal population (Zhao 2022**).**

1.6.4. Melioidosis

Melioidosis is a serious disease caused by bacteria that live in tropical soils and water and is endemic in northern Australia (NTG 2024d). It is the third most life-shortening infectious disease in the non-Aboriginal population (Zhao 2022).

1.6.5. Streptococcal infections

Streptococcal infections can result in acute rheumatic fever (ARF). This, in turn, can lead to rheumatic heart disease (a chronic condition), which is the fourth most life-shortening cardiovascular disease in the Aboriginal population of the NT (Zhao, 2022) (see section on chronic conditions above). Australia has the highest documented rates of ARF and rheumatic heart disease in the world; and the disease disproportionately affects Aboriginal and Torres Strait Islander peoples (NTG 2024b). In the decade from 2012 to 2021, incidence rates of ARF among Aboriginal and Torres Strait Islander people increased by 108% in the NT (AIHW 2024g). Rheumatic fever is most common in children aged 5-14 years, and the highest risk exists for people who live in rural or remote locations and in crowded housing (Healthdirect Australia 2024).

Secondary infection with Streptococcus and Staphylococcus bacteria can be associated with inflammation of the kidneys (post-streptococcal glomerulonephritis) which increases the risk of kidney failure later in life (NT Health; Stumpers and Thomson 2013).

Streptococcal infections can also lead to bacterial septicaemia, which can lead to potentially life-threatening complications from an overwhelming response from the immune system (NT Health).

1.6.6. Scabies

Scabies is a skin condition common in many Northern Territory remote Aboriginal communities where it is reported to affect as much as 25% of adults and 35% of young children (NT Health). It is a disease of poverty and is formally recognised as a Neglected Tropical Disease with the World Health Organisation. It is transmitted by direct physical contact and predominantly affects people living in crowded conditions with poor hygiene and malnutrition. Scratching scabies can lead to streptococcal infection (NT Health).

1.6.7. Emergency and pandemic response

NT has had 111,254 COVID-19 cases and 111 COVID-19 deaths as of 12 March 2024. This represents 45.2 cases per 100 residents compared with 46.04 nationally and 0.045 deaths per 100 residents compared with 0.095 nationally (COVID Live, 2024). Nearly 78.2% of the NT population had a first vaccination compared with 86.5% nationally. About 12.3% have had a fourth vaccination compared with 21.6% nationally (COVID Live, 2024).

NT PHN has roles and responsibilities as a supporting agency in a pandemic response for the NT (NTG 2024e). These are outlined in Northern Territory Pandemic Plan and shared in the service needs analysis below.

1.6.8. Immunisation

About 91% of Aboriginal and Torres Strait Islander children in the Northern Territory are fully immunised at 5 years (DoHAC 2024). For all age groups, except under 5 years, the influenza vaccination coverage rate is lower in the NT than the Australian average (Immunisation Coalition 2024). Just 33.9% of those aged 65 years and older received influenza vaccination compared to 60.5% nationally (Immunisation Coalition 2024). Aboriginal and Torres Strait Islander people in the NT have higher vaccination rates for all age groups under 50 years of age than any other Australian jurisdiction while rates for those over 65 years are lower than the Australian average (Immunisation Coalition 2024).

1.7 Sexual health

- Sexually transmissible infections and blood borne viruses

1.7.1. Sexually Transmissible Infections and Blood Borne Viruses

The NT has the highest rates of sexually transmissible infections (STI) and hepatitis B and C notifications in the country (NT Health 2019c). Rates among Aboriginal 10–14-year-olds are over ten times those of their non-Aboriginal peers (UNSW, 2022) and Aboriginal and Torres Strait Islander people in the 15-24year age group experience the greatest burden of syphilis infection in the NT (NT Health 2024). There has been a decrease in rates of infectious syphilis from 2019 and hepatitis B and C from 2013 (UNSW 2022), though at the time of writing, there is a reported ongoing syphilis outbreak in the NT (NT Health 2024). Syphilis can be passed on during pregnancy from mother to child. Two cases of congenital syphilis were notified in 2023, and one of these babies was stillborn (NT Health 2024).

There is an ongoing public health risk in the NT related to the proximity of the Territory to many countries with high prevalence rates of STI and Blood Borne Viruses (BBV), some with emerging (multi) drug resistant STI infections (NT Health 2019c). It is pertinent that those who travel to and from these countries are diagnosed and treated to avoid onward transmission (NT Health 2019c).

Priority populations for NT Health for reducing STI and BBVs include Aboriginal and Torres Strait Islander people, people with HIV and viral hepatitis, men who have sex with men, trans and gender diverse people, people who inject drugs, young people (10-29 years), sex workers, people travelling to and from high prevalence countries, and women within the above priority populations (NT Health 2019c).

1.8 Supporting At-Risk populations

- Aboriginal and Torres Strait Islander people
- Homelessness
- Culturally and linguistically diverse (CALD) people
- Lesbian, gay, bisexual, transgender, intersex, queer, asexual people, or other diverse identifies (LGBTIQA+)
- People living with a disability
- Older people
- Veterans
- People affected by Domestic Sexual and Family Violence and Child Abuse

1.8.1. Aboriginal and Torres Strait Islander people

Aboriginal and Torres Strait Islander people in the NT comprise a large proportion of the population, experience a high degree of intersectional disadvantage and suffer the greatest health disparity. In deference to this, NT PHN does not address Aboriginal and Torres Strait Islander health as a separate area, rather as a priority across all domains of primary and mental health care. The ABS (2021) National Census reported in 2021 that 61,115 Aboriginal and Torres Strait Islander people in the NT, make up 26.3% of the NT population in comparison to 3.2% nationally. They also reported that Aboriginal and Torres Strait Islander people in the NT were half as likely to attend tertiary education in comparison to Aboriginal and Torres Strait Islander people nationally. Only 35.4% of Aboriginal and Torres Strait Islander people in the NT were in employment compared to 54.1% for Aboriginal and Torres Strait Islander people nationally (ABS 2021). Nearly 10% of all Aboriginal and Torres Strait Islander Australians live in the NT (AIHW 2020). The NT had the lowest Aboriginal and Torres Strait Islander life expectancy for any jurisdiction (2020-2022 the 65.6 years for males, 69.4 years for females). This represents a gap of 15 years for males, and 14.4 years for females (comparison Non-Aboriginal Australians). A gap has increased between 2015-2017 and 2020-2022 by 1.4 years and 0.9 years respectively (ABS 2023a). NT Health reports that while Aboriginal and Torres Strait Islander people make up approximately 30% of the NT population, they comprise approximately 70% of consumers in the NT public hospital services (NT Health).

NT PHN is committed to Aboriginal Community Control in the planning, development and management of primary health care and community care services as the optimal expression of the right of Aboriginal people to participate in decision making. It supports:

- the Closing the Gap priority reforms
- formal partnerships and shared decision making
- building the community-controlled sector
- transforming government organisations (cultural safety and responsiveness of mainstream institutions)
- shared access to data and information at a regional level (Closing the Gap 2024).

The principles of Aboriginal Community Controlled primary health care are:

- a holistic view of health care which includes physical, social, spiritual and emotional health of people
- capacity-building of community-controlled organisations and the community itself to support local and regional solutions or health outcomes
- local community control and participation
- partnering and collaborating across sectors, and
- recognising the inter-relationship between good health and the social determinants of health (ATNS 1989).

1.8.2. Homelessness and mobile population

NT Shelter (2024) reports that 5.62% of all people in the NT are experiencing homelessness, which is 12 times the national average rate of homelessness. This is even higher for people under the age of 18, at 16.5%. A lack of resources is responsible for turning away 39% of people who seek shelter. Illness and poor health, physical access to health care, affordability, medication security and difficult health pathways are barriers preventing homeless people from accessing primary care (Davies and Wood 2018). Aboriginal and Torres Strait Islander people are considerably overrepresented in the homeless population of the NT, making up 87% of the homeless population (Territory Families 2024).

Homelessness is a culturally defined and multidimensional phenomenon (Holmes and McCrae-Williams 2008). Official definitions, however, are typically not ambiguous and are based on the absence of various forms of shelter (Holmes and McCrae-Williams 2008). The Australian Bureau of Statics defines homelessness as the lack of one or more elements that represent 'home'. A person is considered homeless if their current living arrangement is in a dwelling that is inadequate, has no tenure or it is short tenure and not extendable, or their current living arrangement does not allow them to have control of, and access to space for social relations (ABS, 2012).

In the NT, living rough as a category of homelessness is locally referred to as staying in the 'Long Grass' (Holmes and McCrae-Williams 2008). Research has shown that living in the long grass is likely to have an adverse effect on health, wellbeing and life quality (Holmes and McCrae-Williams 2008). Holmes and McCrae-Williams (2008) explored the views and experiences of 550 participants, including 122 Aboriginal or Torres Strait Islander people staying in the long grass. Contrary to dominant perceptions of staying in the long grass as a choice linked to lifestyle and cultural predisposition, the most common reason for staying in the long grass cited by those staying there was to escape family problems (Holmes and McCrae-Williams 2008). Family problems were exacerbated by a lack of housing in their communities. For a large proportion of participants, they had been staying in the long grass for over six months, indicating a level of chronicity as a way of life. The study identified the difficulty of maintaining health while staying in the long grass and recommended planning, resourcing and delivering of services for improved health (Holmes and McCrae-Williams 2008).

The geography and health infrastructure of the NT also necessitates an increased level of mobility for members of the population. Complex or specific health needs that cannot be adequately addressed in a remote setting due to current healthcare constraints means that the NT relies on transporting population to and from key centres, such as Darwin. People may be housed temporarily in a hostel during this time, while they are receiving healthcare. According to national definitions of homelessness, temporary

accommodation in a hostel may be considered within the scope of the definition. It is reasonable to also consider that these community members coming in for health treatment staying at a hostel may be feeling additionally vulnerable and have ongoing health and wellbeing needs during their stay, as well as potential barriers to accessing primary health care. NT PHN has been actively exploring ways to support the primary health needs of people staying in hostel accommodation.

The Indigenous Australian Health Program is a foundational funding source that supports Aboriginal Community Controlled Health Organisations to deliver comprehensive primary care to their communities. Funding certainty under the model has allowed them to operate in areas where a fee for service model is not viable or appropriate (KPMG 2020). However, challenges exist when supporting mobile populations, for example, where a remote client attends a clinic in a regional centre, they attract only the funding amount for the rural centre. This then doesn't reflect the additional needs they may have because of their remote home community, the complexity of accessing health care at a location which is not their usual health service, and their transient circumstances.

1.8.3. Culturally and linguistically diverse (CALD) people, including refugees and asylum seekers

In 2021, the Northern Territory Government (2021) reported 37,449 people in the NT were born in predominately non-English speaking countries. This population as a proportion of the NT population has grown significantly in the past fifteen years. Darwin (28%), Palmerston (16%) and Alice Springs (16%) had a higher proportion of the population born in non-main english-speaking countries. It was also reported that growth in the proportion of the population born in non-main english-speaking countries is most notable in remote local government areas, particularly West Daly, Central Desert and East Arnhem. This growth also translates to larger numbers in Alice Springs where a 33% increase equates to an increase of more than 1000 people.

Darwin is a settlement location for the Humanitarian Settlement Program. It is well established that health outcomes for refugees and people with humanitarian visas are worse than the general Australian population (Mahimbo, Hayen & Dawson, 2024). They are more likely to self-report long-term conditions, including diabetes, kidney disease, stroke and dementia (Mahimbo, Hayen and Dawson 2024). Humanitarian entrants are at risk of poor health outcomes due to exposure to trauma, challenges of the migration experience and barriers to accessing health care pre- and post-arrival (AIHW 2023d). For those who have been held in immigration detention, health care costs are significantly higher, shouldering over 50% more burden than other asylum seekers (Mahimbo, Hayen and Dawson, 2024).

1.8.4. Lesbian, gay, bisexual, transgender, intersex, queer, asexual people, or other diverse identities (LGBTIQA+)

Population data for LGBTIQA+ people in the NT is not readily available. Data is available through various surveys. The results of a national survey for LGBTIQA+ people in 2019 reported:

- One in 2 (49%) had ever experienced sexual assault
- 3 in 5 (61%) had ever experienced violence from an intimate partner
- 8 in 10 (81%) with severe disability had ever experienced family violence (AIHW 2024a).

AIHW (2024a) reports that Aboriginal and Torres Strait Islander LGBTIQA+ people and LGBTIQA+ people in regional and remote areas may experience higher levels of discrimination, higher risk of family, domestic and sexual violence and have a lack of support services.

1.8.5. People living with a disability

More than one in 9 people in the NT live with a disability (Territory Families 2022b). The Australian Early Development Census (ADET 2019) shows that 23% of children in the NT assessed as developmentally vulnerable on two or more domains (11% nationally). These rates were even higher in remote communities in the NT, particularly West Daly, Victoria Daly, Barkly, remote Central Australia, and East Arnhem, where over half of children assessed were developmentally vulnerable on two or more domains of development. The NDIS (2024) reports that 6,030 people in the NT are benefiting from the NDIS. Territory Families (2022b) reports that only one fifth of people with a disability are eligible for the NDIS and 50%of NDIS recipients identify as Aboriginal, compared with 5.7%nationally. A further 6.5%of participants identify as culturally and linguistically diverse (Office of the Public Guardian 2024). Thin market issues affect access to services, including impacting affordability in private practice services.

1.8.6. Older people

Older people in the NT experience a significantly greater number of years lived with a disability compared to older people nationally, across most conditions including cardiovascular diseases, endocrine disorders, hearing and vision disorders, infectious diseases, musculoskeletal disorders, neurological conditions, and oral disorders. (AIHW 2015). People in the NT aged 65 can expect to live fewer years in good health (11.8 years for men and 13.4 years for women) and have the lowest percentage of remaining life as healthy years (69% for men and 67% for women) compared with other states and territories. The burden of disease is higher in the NT than in other state or territory across all age groups. The gap between rates for the NT and other jurisdictions widened with increasing age and was most pronounced from age 65 (AIHW 2018).

Older people in the NT have a higher incidence of dementia, hearing and vision loss and chronic renal disease due to causes other than ageing such as smoking, inadequate nutrition, substance abuse, previous head injury, recurrent infection and poor living conditions (Lowe 2019; Li et al. 2014). McConville et al (2013) found that unlike other States and Territories, risky behaviours are less likely to reduce in the NT as people grow older.

AIHW (2022) have reported older people in the NT to have fewer Medicare subsidised GP and allied health attendances than other states and territories. Attendances are lowest in Katherine, Daly-Tiwi-West Arnhem and Alice Springs regions. Data is unavailable for Barkly and East Arnhem regions. They also report that NT aged care residents have fewer GP attendances (11 per residential aged care patient) than any other PHN area (maximum 23 per residential aged care patient).

Anecdotally, health professionals have raised the need for improved osteoporosis management support in the community with NT PHN. Zoledronic acid infusions are required annually, but referrals tend to be redirected to the hospital due to lack of options and affordability in the primary care setting.

1.8.7. Veterans

There is a significant defence presence in the NT with major defence bases located in Darwin and Katherine regions. Concurrently over 93% of Department of Veterans Affairs (DVA) clients reside in Darwin, Palmerston, Litchfield and Katherine local government areas (DVA 2024). In June 2024, there were 6,045 DVA clients and 6,122 veterans living in the NT (DVA 2024). Veterans are 86% male nationally with higher rates of long-term health conditions than non-veterans (AIHW 2024b). The 2020-2021 National Health Survey found that male veterans were twice as likely (21%) to report having a long-term anxiety related disorder compared to male non-veterans (AIHW 2024b). It was also found that male veterans had higher rates of smoking and alcohol consumption in comparison to non-veterans (AIHW 2024b).

1.8.8. People affected by family, domestic and sexual violence and child sexual abuse

Rates of family, domestic and sexual violence (FDSV) are higher in the NT than anywhere else in Australia (NTG 2018a). Family and domestic violence rates are three times higher, and sexual assault rates are 50% higher than the national rate (NTG 2018a).

While the NT has a diverse population, the prevalence of violence in Aboriginal and Torres Strait Islander communities, which make up 30% of the population, has particular gravity and has been characterised as an epidemic and national emergency (Brown 2019). Aboriginal and Torres Strait Islander women are 32 times more likely than non- Aboriginal and Torres Strait Islander women to be hospitalised for family violence-related assaults and Aboriginal and Torres Strait Islander women and girls make up 91% of reported sexual assaults, with half of those being under the age of 19 (NTG 2018a). While the issue of FDSV is widespread across the NT, women who live in regional or remote areas experience higher rates of intimate partner violence (NTG 2018a).

The geography of the NT creates additional challenges to the problem. The NT is home to 76 remote communities (BushTel 2024) – many of which have a general lack of access to a whole range of fundamental services and infrastructure. Aboriginal and Torres Strait Islander peoples' over-representation in FDSV experiences is also reflected in the geographical dispersion of FDSV in the NT, with the highest rates of injury in predominantly remote Aboriginal and Torres Strait Islander areas.

Overall, Aboriginal and Torres Strait Islander women, adolescents and children are victim-survivors of highest need, followed by subgroups within this population including pregnant women, young women (adolescent), and women in increasingly remote areas (NTG 2018a; NT Police, Fire and Emergency Services 2023). Nevertheless, other vulnerable groups identified in this assessment through both literature and stakeholder interviews included:

- women from some CALD, refugee or asylum-seeking backgrounds (Commonwealth of Australia 2021)
- male victim-survivors (NTG 2018a)
- elderly people (DCLS 2019)
- people with disabilities (Centre of Research Excellence in Disability and Health)
- sexuality and gender diverse people (NTG 2020)
- people with mental health issues (Gillespie et al 2023).

In terms of regions, remote areas of Tennant Creek (Barkly), Alice Springs and Katherine (Big Rivers) are reported as having the highest reported rates of domestic violence and sexual violence in descending order (NT Police, Fire and Emergency Services 2023). Child-specific services in remote regions were noted as particularly lacking (NT PHN 2023).

1.9 Mental health and suicide prevention

- Mental health conditions burden of disease higher than national average
- Rates of psychological distress and mental health hospitalization
- At-risk population groups
- Social issues and socio-economic disadvantage
- Rates of deaths by suicide, disparities in subgroups and increasing over time.

1.9.1. Mental health

Mental health conditions contribute 16.3% of the burden of disease in the NT compared with 7.4% nationally by mental illness and substance use disorders (AIHW 2018).

The National Mental Health and Wellbeing Study (NMHWS) provides recent estimates and reports that in 2020-2022, 51.7% of people in the NT had a lifetime mental disorder (meaning that they had a mental disorder at some time in their life), and 28.8% had a 12-month mental disorder (meaning they had sufficient symptoms of that disorder within the 12 months prior to the study) (ABS 2023b). This is higher than the national average of 42.9% of people experiencing a lifetime mental disorder and 21.5% of people experiencing a 12-month mental disorder (ABS 2023b). Importantly, the NMHWS excluded very remote areas of Australia and discrete Aboriginal and Torres Strait Islander communities, which make up 21% of the NT population, and may have a significant impact on the modelled estimates shared above (ABS 2023b).

The 2014-2015 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) was conducted in remote areas and included discrete Aboriginal and Torres Strait Islander communities (ABS 2016). This survey reported that 29% of Aboriginal people over 15 who self-reported depression, anxiety, behavioural or emotional problems, and/or harmful use of, or dependence on drugs or alcohol, are described as having a mental health condition (ABS 2016).

Overall, mental disorders account for more than three times the burden of disease in Aboriginal than non-Aboriginal people in the NT (Zhao et al 2022). The mental health hospitalisation rates for Aboriginal people in 2018-2019 were approximately 2.3 times the rate of non-Aboriginal people in the NT (AIHW 2021) and proportionally, rates of high or very high psychological distress are higher in the Aboriginal population (30.8%) than non-Aboriginal (13.2%) (ABS 2019).

The NT burden of disease due to mental disorders fell by 39% between 2009–2013 and 2014–2018. While burden of disease due to alcohol, drug use, anxiety and other mental health and substance use disorders decreased between 1999 and 2018, depressive disorders, eating disorders and schizophrenia increased (Zhao et al 2022). The National Aboriginal and Torres Strait Islander Health Survey reports that among all states and territories, the proportion of people with a mental or behavioural condition is the lowest in the NT. However, it is important to acknowledge that this finding may be due to a smaller population, as well as

low screening and assessment rates that may mask the detection and diagnosis of some mental health issues (NT PHN 2021).

There are several groups at-risk of developing mental health issues. Pregnant women are at risk of perinatal mental disorders, including depression, anxiety, eating disorders and psychoses (Howard et al 2013). These disorders experienced during pregnancy are associated with adverse effects on the foetus, including low birth weight and pre-term delivery, amongst others (Howard et al 2013). Pregnant women experiencing domestic violence are a high-risk sub-category for the development of mental disorders, and depression in pregnancy is associated with poorer newborn outcomes (Gomez Aristizabal et al 2022).

Victim-survivors of family, domestic and sexual violence and child sexual abuse are more likely to experience trauma, depression, panic attacks, phobias, anxiety and sleeping disorders and have higher stress levels and are at greater risk of suicide attempts and misuse of drugs and alcohol (NTG 2020).

People who are sexually and gender diverse have been acknowledged as at a higher risk of developing mental health conditions in the NT (NTG 2019a). Community connectedness and positive relationships can act as protective factors creating a sense of belonging and affirming identity and value for LGBTQ+ people (ABS 2024). At the same time, people in LGBTQ+ communities often experience stigma, discrimination, bullying, violence and exclusion (ABS 2024). As a result, a higher number of people in LGBTQ+ communities experience poorer social, emotional and psychological wellbeing and mental health (ABS 2024).

People from culturally and linguistically diverse backgrounds can be a vulnerable population group when it comes to mental health. Stressful events around migration, seeking asylum, and discrimination can impact wellbeing and mental health for individuals, families and communities (SANE 2024). SANE reports that migrants are under-represented among people who use mental health services in Australia (SANE 2024) and that refugees and asylum seekers have lower access to mental health services (SANE 2024).

Homelessness has a close intersection with mental health. For many people with a mental illness, achieving and maintaining a stable home can prove difficult (ABS 2024). The 2014 General Social Survey found that people who reported a mental health condition were more than twice as likely to have experienced homelessness in their lifetime, compared with people who did not (25% compared with 10%) (cited in ABS 2024). In 2020-21, 31% of Aboriginal and Torres Strait Islander clients seeking specialist homelessness service assistance presented with a current mental health issue. Aboriginal and Torres Strait Islander people are 67% as likely as non-Aboriginal Australians to have claimed psychologist care through Medicare and 58% as likely for psychiatric care (AIHW and NIAA 2024f).

The Australian Government Department of Health and Aged Care acknowledges a number of vulnerable groups in addition to those described above, including people living in rural and remote areas, young people, children, survivors of torture and trauma, expectant and new parents, older Australians, and people with post-traumatic stress (DoHAC 2023). The Royal Commission into Defence and Veteran Suicide (2024) identified preventable injuries and illnesses as a problem, citing deeply held cultural norms related to service and sacrifice as potentially preventing members from seeking help for physical and mental health issues before reaching crisis point (Commonwealth of Australia 2024).

1.9.2. Suicide

According to preliminary data, the NT's age-standardised rate of death by suicide in 2022 was 20.5 per 100,000, compared to the national rate of 12.3 per 100,000, and Aboriginal and Torres Strait Islander people experienced suicide deaths at a higher rate than their non-Aboriginal counterparts (ABS 2023c). The rate of death by suicide for Aboriginal and Torres Strait Islander males was 2.6 times that of non-Aboriginal males (ABS 2023c) and the suicide rate for Aboriginal and Torres Strait Islander females was 2.5 times that of non-Aboriginal females (ABS 2023c).

In addition, there is an increase of death by suicide in Aboriginal and Torres Strait Islander people compared to non-Aboriginal populations since 2001. According to preliminary data available from the AIHW National Mortality Database and ABS Causes of Death (2023e), the national age-standardised rate for deaths by suicide for the non-Aboriginal population has hovered since 2001 at around 12 per 100,000, while the age-standardised rate of death by suicide for the Aboriginal and Torres Strait Islander population has steadily increased from an already higher rate of 19.4 per 100,000 in 2001 to 29.9 in 2022.

The NT has the second highest age-standardised rates of death by suicide for Aboriginal and Torres Strait Islander people across the country. However some progress has been made with the rate of death by suicide halved for Aboriginal and Torres Strait Islander people between the ages of 25-34 years since 2001, from 95.4 per 100 000 to 46.9 per 100 000 in 2022 (ABS 2023c). Though this reduction is an improvement, the age group of 25-34 years still holds the highest rate of risk of death by suicide, particularly for males.

There is a higher rate of suicide deaths for all Aboriginal and Torres Strait Islander people age groups as compared to non-Aboriginal age groups. For young people aged 0-24 years, the age-standardised rate for Aboriginal and Torres Strait Islander young people sits at 16 per 100,000, as compared to 5.2 in the non-Aboriginal population (ABS 2023c).

It is difficult to obtain NT-specific data on other cohorts identified nationally as priority groups under the National Mental Health and Suicide Prevention Agreement. Despite this, it is important to note that these priority populations reside in the NT, including LGBTIQA+ communities and culturally and linguistically diverse (CALD) populations. Private Lives 3 (2020), one of the largest surveys available for the LGBTIQA+ population, run by the Australian Research Centre in Sex, Health and Society (ARCSHS) at La Trobe University, reports that over one in 4 (41.9%) participants reported that they had considered attempting suicide in the past 12 months, and almost three quarters (74.8%) reported having ever considered attempting suicide at some point in their lives (Hill et al. 2020).

In Australia, 'humanitarian entrants' experience 1.7 times the rate of suicide compared to 'other permanent migrants', but slightly lower rates as compared to the 'rest of the Australian population'. Darwin is a settlement location for the Humanitarian Settlement Program.

Data tables on intentional self-harm and suicide show that rates rise with increasing remoteness (AIHW 2024h). The reasons for this are varied and may include lower access to mental health services (NRHA, 2021). Most of the NT is considered remote or very remote according to the Modified Monash Model (MMM) remoteness rankings. Bushtel has community profiles for 76 remote communities in the NT (Bushtel 2024).

The Royal Commission into Defence and Veteran suicide reported an average 3 deaths by suicide every fortnight over the last decade for defence members and veterans (Commonwealth of Australia 2024). The Northern Territory is an important part of the Indo-Pacific region from an economic and regional stability standpoint, making it a strategic location for Defence. All three Australian Defence Force services (navy, army and air force) have multiple northern Australia bases. The NT is home to nearly 10,000 current or ex Australian Defence Force, which is around 4% of the population (ABS 2022b).

While the number of deaths in the NT is one of the lowest across jurisdictions, it should be noted that this is partly due to lower overall population numbers (AIHW, suicide & self-harm monitoring). The age-standardised rate of death by suicide in the NT was 20.5 per 100,000, as compared to NSW with the highest absolute number of deaths, but a rate of 10.8 per 100,000 population (AIHW, suicide & self-harm monitoring). Forty-eight people in the NT died by suicide in 2022, representing 1.5% of all deaths by suicide in Australia (ABS 2023c). Suicide data can be impacted by differences in coronial process, data processes or coding practices and caution is advised when comparing across states and territories. There are also challenges with data in the Aboriginal and Torres Strait Islander population with likely underestimates due to under identification in death data and uncertainties in estimating the population size (ABS 2023c).

1.10 Alcohol and other drug use

- Foetal Alcohol Spectrum Disorder (FASD)
- Volatile substance use
- Smoking rates
- Alcohol misuse
- Prevalence of illicit drug use

1.10.1. Foetal Alcohol Spectrum Disorder (FASD)

Foetal Alcohol Spectrum Disorder (FASD) is a permanent, yet entirely preventable condition caused by drinking alcohol during pregnancy. It is characterised by behavioural and neurodevelopmental disabilities which can result in adverse health, behavioural, educational, social and legal outcomes for a child, as well as adverse effects on the families and communities of those affected (NTG 2017). Those affected by FASD are over-represented in out of home care, justice systems (Bower 2018; Popova 2016). Addressing FASD in the Northern Territory 2018-2024 is an NT whole-of-government strategy that aims to address FASD by increasing awareness of both the public and health and human services, access to sexual health, contraception and pregnancy supports, ensuring access to treatment for alcohol misuse and addressing risk factors (NTG 2018b).

There is no reliable data on the prevalence of FASD nationally or in the Northern Territory. Prevalence in school aged Aboriginal children in the Kimberley (194 per 1000) and juveniles in detention in Western Australia (360 per 1000) have been used as a proxy for understanding potential prevalence in the Northern Territory (CAAC).

Volatile substance use

Volatile substance use is the deliberate inhalation of gas or fumes released from a substance at room temperature, for the purpose of becoming intoxicated often referred to as sniffing, inhaling or chroming

(NTG). The NT Volatile Substances Abuse Prevention Act provides for the prevention of volatile substance abuse and the protection of individuals and communities from harm resulting from volatile substance abuse, and for related purposes (NTG 2021a). In 2021, the Association of Alcohol and Other Drug Agencies (AADANT) responded to coverage in the media relating to a perceived increase in occurrence of volatile substance use noting that rates fluctuate over time and that responses – as with all drug and alcohol use - requires a balance of supply reduction, demand reduction and harm reduction (AADANT, 2021). Northern Territory supermarkets continue to restrict access to aerosol deodorants to manage supply (AADANT 2024).

1.10.2. Smoking

More people in the NT aged 14+ smoke at least daily than any other jurisdiction (14.7% compared with 11% nationally (AIHW 2024i). NT has the third lowest rate of prescription of smoking cessation medication in the nation. The proportion of people who currently smoke is disproportionately high among Aboriginal and Torres Strait Islander populations, and people with mental health conditions or high psychological distress are twice as likely to smoke daily as people without mental health conditions and those with low distress (AIHW 2024i).

Vapes are devices designed to deliver nicotine and/or other chemicals via inhalation of an aerosol vapour (AIHW 2024j). Both lifetime and current use of vapes have increased in the last five years. Around 1 in 2 use them daily and people aged 18-24 have the highest rate of daily vaping across the nation (9.3%) (AIHW 2024j).

1.10.3. Alcohol

There were 41.37 alcohol attributable deaths per 100,000 population in the Northern Territory in 2020 compared with 22.66 nationally (Gilmore et al 2023). More people in the NT aged at 14 and over drink alcohol at least daily than any other jurisdiction (8.2% compared with 5.4% nationally) while the NT PHN region has the second highest proportion of people exceeding the lifetime risk guideline (23.9%) and the highest proportion exceeding single occasion risk guidelines (35.3%) for alcohol consumption (AIHW 2020b).

The rate of alcohol related ambulance attendances in December 2022 was more than four times that of any other jurisdiction (AIHW 2024i).

The burden of disease of alcohol use disorder in the NT Aboriginal and Torres Strait Islander population decreased linearly between 1999 and 2018 but was still about 10 times the non-Aboriginal counterpart in 2014–2018 (Zhao, 2022). An unpublished analysis carried out by the Menzies School of Health Research showed around 11,000 alcohol-attributable hospitalisations for Aboriginal and Torres Strait Islander people in Alice Springs per 100,000 population. This is around twenty times the national average of 510 alcohol-attributable disorder per 100,000 (Boffa 2023). A 2010 study showed that alcohol attributable deaths of Aboriginal and Torres Strait Islander people in the NT was 9 to 10 times the national rate (Skov 2010).

Alcohol related assaults increased 7.33% from 1,980 to 2,125 per annum between November 2022 and November 2023 (NT Police, Fire and Emergency Services, 2023). One in 27 people in Alice Springs experienced alcohol related assault, compared to one in 154 people in Darwin (NTG 2023c).

In 2021–22, 3,066 people in the NT received 5,475 alcohol and other drug treatment episodes from 24 publicly funded agencies (AIHW 2024i). This represented a 25% decrease in treatment episodes from 2020–21 (possibly due to COVID), but still demonstrates a 64% increase since 2012–13 (AIHW 2024i). The NT has the lowest rate of prescription of alcohol cessation medications in the nation (AIHW 2024i).

1.10.4. Other Drugs

The NT has the highest prevalence of illicit drug use in the past 12 months among all Australian states and territories at 25% (AIHW 2024j). According to the NDSHS, the most used illicit drugs in the NT are cannabis (18.9%), cocaine (4.2%) and ecstasy (2.2%) (AIHW 2024j; Brickley et al 2024). Quantitative data indicates that NT residents engaging in illicit drug use exhibit disproportionately high rates of mental health conditions, criminal involvement and drug-related hospitalisations (Brickley et al 2024).

Substance use disorders, suicide and mental health conditions collectively contribute to approximately 36% of the total burden of disease in the NT, three times the national average (Brickley et al 2024). Aboriginal and Torres Strait Islander people are significantly over-represented in alcohol and other drugs (AOD) treatment services (AIHW 2024).

There has been little change in the use of alcohol, tobacco and other drugs between 2016 and 2019. The proportion of the NT population using illicit drugs decreased for the Northern Territory between 2001 and 2019 (from 29% in 2001 to 19.6% in 2019) while it increased for all other States and Territories other than Western Australia (AIHW 2020b).

In 2022, 70 people who inject drugs in Darwin and Palmerston were interviewed (24). About 49% of participants reported using two or more drugs on the day preceding interview. Participants reported recent use of methamphetamine (80%), cocaine (12%), cannabis (70%), morphine (27%; 36% in 2021) and oxycodone (n≤5; n≤5 in 2021). Few participants (n≤5) reported sharing of a needle or syringe in the past month, 20% had re-used their own needles. 40% had received a hepatitis C test and 38% had an RNA test in the past year. 22% reported mental health problems, 30% reported participating in a crime in the past month and 72% of those who drive reported driving within 3 hours of taking an illicit drug. 10% were currently in drug treatment (King et al 2022).

2. Outcomes of the service needs analysis

This section summarises the findings of the service needs analysis. For more information refer to 'Summarising the Findings' in the Needs Assessment Policy Guide.

2.1 Improving child and adolescent health

- Services that specialise in and target children and young people are needed
- Early intervention and access to services are needed, particularly in remote locations
- Prioritising mental health, sexual health, harm reduction and healthy lifestyle for young people
- Multi-sectoral approaches and community and school engagement
- Improving maternal health

2.1.1. Child and adolescent specific services

Child-and adolescent-specific programs and services are variably implemented across the NT, with some regions demonstrating more service delivery than others. This is due to diverse reasons, including challenges related to geography, to recruitment and retention of workforce and capability in the specialised requirements of working with children and youth. The NT government response to a Productivity Commission Inquiry into Early Childhood Education and Care (n.d.) notes that service delivery for Aboriginal children and families in some remote communities has been relatively uncoordinated and in remote settings, less likely to meet the National Quality Standard.

2.1.2. Early and cross-sector intervention

NT health professionals identify drivers of improvements in child health outcomes as including regular screening and assessment, use of patient recall systems, continuity of and relationships with health staff, employment of local Aboriginal staff, community engagement including school engagement and health promotion (AIHW 2022a). Immunisation is a highly effective measure to reduce illness and death due to vaccine-preventable disease, and Aboriginal and Torres Strait Islander people have higher rates of some vaccine preventable disease than non-Aboriginal people (AIHW 2024k). For this reason, extra vaccines are available in addition to the routine vaccinations offered throughout life (AIHW 2024k). In Aboriginal and Torres Strait Islander children living in the NT, the proportion who were fully immunised was slightly less than non-Aboriginal children in ages one and 2 years. However, for those aged 5 years, the proportion of Aboriginal and Torres Strait Islander children who were fully immunised was higher than that of non-Aboriginal children (96% compared with 94%) (AIHW 2024k).

Over the period of 2012-2022, hearing health improved among children and young people receiving outreach services. The proportion of hearing loss has decreased by 21% over this time, from 55% of children and young people that received audiology services to 34% of this cohort (AIHW 2023b). While service delivery targets were met for the Hearing Health Program, services are not yet meeting demand. There were 3,265 Aboriginal children and young people on the audiology waiting list in December 2022 (AIHW 2023b).

Improved cross-sector interventions for targeting infectious diseases are needed. For example, trachoma prevalence in Australia has declined over the past decade and treatment coverage is high (96% in 2022 – The Kirby Institute, 2023). However, treatment with antibiotics has been considered insufficient to reach

elimination targets in all regions (The Kirby Institute, 2023), and improvements in living conditions are needed to meet this target (Barksby 2022). Continued strengthening of health promotion and environmental improvements, including reducing crowding in households and ongoing maintenance of water and sanitation hardware are considered the mainstay of control and require notable multi-sectoral effort (The Kirby Institute, 2023).

2.1.3. Services to focus on

The Northern Territory Youth Strategy 2023-2033 identifies early identification of issues and referral to early intervention services as a priority for supporting young people in the NT to live a healthy life. It prioritises support for programs focused on mental health, sexual health and reduction of harm associated with tobacco, alcohol and other drugs consumption; and health promotion about the importance of having an active and healthy lifestyle. To do this, it recommends providing culturally and age-appropriate education, and support services that work together to effectively engage young people (NTG 2023a). Importantly, with the younger age of motherhood in the NT, a focus on programs for young people may have relevance for maternal and child health.

Boyd et al. (2023) recommends reduced smoking during pregnancy among Aboriginal and Torres Strait Islander women to be a primary focus to drive improvement in child health. Titmuss et al. (2021) recommend interventions in early childhood developed in partnership with Aboriginal youth to reduce the burden of youth type 2 diabetes.

2.2 Improving maternal health

- Access to perinatal services and early engagement
- Workforce including local workforce
- Community engagement
- Screening and patient recall
- Interventions in pregnancy around alcohol, smoking, diabetes
- Reducing risks related to FDSV in pregnancy

2.2.1. Access to perinatal services early

Access to maternal health services among Aboriginal and Torres Strait Islander women of child-bearing age is lower in the Northern Territory than any other State or Territory. In 2013–15, 99.9% of Aboriginal and Torres Strait Islander women of child-bearing age in NSW lived within one-hour drive of a maternal health service compared with 85% in the Northern Territory (Boyd et al. 2023). Sixty eight percent of Aboriginal and Torres Strait Islander mothers in the NT access antenatal care in the first trimester. While this is fewer than for non-Aboriginal mothers in the NT (86%), it is more than for Aboriginal and Torres Strait Islander mothers nationally (63%) (DTFNTG 2024). The number of women attending antenatal appointments within the first 13 weeks of gestation, rose from 44.5% in 2010 to 54% in 2021, and women in the Big Rivers region were more likely to attend antenatal appointments within 13 weeks (57.9% in 2021) (AIHW 2022b). Women aged less than 20 years were less likely to attend an antenatal appointment early in pregnancy compared to their older peers (DTFNTG 2024). While antenatal shared care arrangements do exist in the NT, barriers and enablers to uptake need to be further understood.

2.2.2. Continuity of care and community engagement

Presence of a long-term, committed and pro-active midwife and strong community engagement contributes to early attendance (AIHW 2022a). NT health professionals identify drivers of improvements in maternal health outcomes as including regular screening and assessment, use of patient recall systems, continuity of and relationships with health staff, shared care between primary care and hospital services and employment of local Aboriginal staff (AIHW 2022a).

2.2.3. Services to focus on

Titmuss et al. (2021) recommend culturally, age, and linguistically appropriate engagement of young people and communities to develop interventions in pregnancy to reduce the burden of youth type 2 diabetes.

Pregnant women are at increased risk of experiencing family, domestic and sexual violence. While ante-natal screening for FDSV risk is available, anecdotally it is reported that its effective implementation can be difficult. Service delivery or interventions that support healthy family relationships for all pregnant women, to reduce risks should be considered.

2.3 Reducing risk of chronic conditions and improving management of chronic conditions

- Prevention and early intervention strategies
- Cross-sector collaboration and governance
- Holistic and addressing social determinants
- Partnerships with Aboriginal Community Control and community-led models
- Health professional education
- New models of care
- Self-management and health literacy
- Chronic disease management, continuity and coordinated care
- Workforce including local and prevention workforce

2.3.1. A renewed focus on prevention and early intervention

The Northern Territory has released a framework for the prevention and early intervention of chronic conditions – Healthy, Well and Thriving 2024-2030 (NTG 2024c). This framework was developed through an extensive consultative process and has resulted in a renewed focus on prevention and early intervention, which has implications for primary healthcare service systems and delivery. It targets key risk factors for intervention – unhealthy food and drink, inactive lifestyles, alcohol and tobacco use – prioritises social and emotional wellbeing; focuses on identifying and treating emerging conditions early; and provide more coordinated responses to chronic preventable conditions (NTG 2024c).

2.3.2. Holistic and systems approach to tackling diabetes

Service needs for diabetes include strengthened systems of care and public health prevention strategies, developed in partnership with Aboriginal communities (Hare et al. 2022). These strategies should be holistic and consider emotional, spiritual and mental well-being, as well as physical health. The enormity of the diabetes burden necessitates population-wide prevention strategies, including cross-sectoral collaboration to address the social determinants of health.

New approaches to preventing and managing type 2 diabetes in young Aboriginal people are urgently required. The uptake of self-management approaches for chronic conditions in primary health care services, particularly in remote Aboriginal and Torres Strait Islander communities in the NT is a challenge. NT Health have previously developed tools to support this approach, however, further resourcing is required (NT Health 2015). These include culturally, age, and linguistically appropriate engagement of young people and communities, advocacy to eliminate underlying socio-economic inequities, interventions in pregnancy and early childhood, adequate resourcing, education of health professionals, and openness to reconsidering current models of care.

One such model that supports greater levels of self-determination and is community-led may be beneficial to supporting better management of chronic disease. The Shared Medical Appointments (SMA) model piloted by the NT PHN has received positive feedback from participants across three pilot sites. Though challenges with implementation continue to exist, funding that allows for flexibility in the delivery of services (for example, going to non-clinical settings, providing transport and spending time building relationships with health practitioners) has been seen as a critical element of its success to-date. Anecdotally, staff report that through building trust with the community and delivering care offsite, follow-up and attendance rates at clinics have also increased.

2.3.3. Screening and management

Aboriginal Health Key Performance Indicators (AHKPIs) show that between 2010 and 2022 there was an increase in the proportion of Aboriginal and Torres Strait Islander clients receiving adult health checks (AHCs) from 17.4% to 52.5%. Females were more likely to have health checks compared with male clients. The greatest growth in proportion of clients aged 15-54 years receiving AHCs was in Top End & Darwin and East Arnhem regions. For clients aged 55 years and over, the greatest growth in AHCs were observed in East Arnhem and Barkly regions (Boyd et al. 2023). In 2021, AHKPIs showed that around 60% of Aboriginal and Torres Strait Islander clients aged over 30 years received biennial screening for chronic kidney disease (CKD). The proportion of adult residents (aged 20 years or older) with a record of a five yearly risk assessment for cardiovascular disease (CVD) was 44.2%, remaining stable over the previous five years. Barkly,Top End and Darwin Regions had the lowest proportions (Boyd et al. 2023).

Higher screening rates are consistently achieved in smaller communities. Enablers for improved screening are staff training, inclusion in routine health checks and care plans, recall systems, health promotion and education utilising culturally appropriate resources, dedicated programs/portfolio's, rapport with clients and transportation for clients (Boyd et al. 2023).

In 2022-23, GPs conducted 40 Medicare subsidised chronic disease management plans per 100 people nationwide while 27 were conducted for every 100 people in the NT (AIHW 2024c). Trends in the Aboriginal Health Key Performance Indicators (AHKPIs) show that between 2011 and 2021 there was an increase in the proportion of Aboriginal and Torres Strait Islander clients with type 2 diabetes (56.5% to 61.9%) and clients with coronary heart disease (56.4% to 61.5%) who have a GP management plan (Boyd et al. 2023). Proactive and appropriately skilled chronic disease health staff, effective information systems, sufficient and dedicated GP hours, continuity of staff and safe environment in the health clinic were reported to contribute to improved client engagement in these services (Boyd et al. 2023). AHKPIs also showed the number of clients with type 2 diabetes requiring regular glycosylated haemoglobin (HbA1c) testing

increased 63.2% from 6,236 clients in 2010 to 10,180 clients 2021. The proportion with good glycaemic control remained unchanged between during the same period with Top End and Darwin, and East Arnhem regions having the highest proportion of clients with good glycaemic control (Boyd et al. 2023).

Medicare subsidised Allied Health attendances include primary health services provided by a broad range of health professionals and are only available to patients with chronic, mental, developmental, and/or complex health conditions with a referral from a GP or specialist medical practitioner. There were 48 allied health attendances for every 100 people in the NT compared with 102 nationally (AIHW 2024c). While the disparity in access to allied health is consistent across most allied health services (podiatry, physiotherapy, exercise physiology and dietetics), diabetes education is provided at a higher rate in the Northern Territory (0.67 per 100 residents) than nationally (0.34 per 100 residents) (AIHW 2024c). Anecdotally, the delivery of allied health services is impeded through current funding arrangements which have a direct impact in best-practice multidisciplinary care service access and affordability.

2.4 Addressing social and cultural determinants and system issues affecting health

- Use a system lens to address issues
- Funding models and guidelines
- Cross-sector and multi-agency collaboration
- Supporting self-determination through community-control
- Cross-sector, multi-agency responses
- Accessibility
- Affordability of private primary health services

2.4.1. Using a system lens to address issues

Many health needs are heavily influenced by social issues in the NT. The NT's Healthy, Well and Thriving Framework acknowledges that only a small part of health is the result of personal decision-making; a much larger part is the result of broader factors, such as the communities we live in, our food system, the environments we are exposed to, and the schools, workplaces and other places where we spend our time (NTG 2024c). A systems approach encourages us to recognise the inter-related causes of preventable chronic conditions and explore solutions at a systems level to create lasting change. It also allows us to be flexible, adaptive and develop solutions that meet local needs and produce local outcomes.

2.4.2. Funding models and guidelines

Unfortunately, many current funding arrangements are a barrier to promoting more efficient integrated and place-based service provision. This is particularly relevant in remote and very remote communities where the cost-of-service delivery is high due to factors including remoteness, high levels of vulnerable and disadvantaged children and the complex needs of children and families.

Funding guidelines that preclude PHNs from funding solutions that address "root causes" related to social determinants is relevant and impactful. For example, changes to the Commonwealth After Hours funding program reduced the ability to fund health-justice interface, domestic violence responses, health literacy and equitable access to in-hours services, which will impact demand for urgent after-hours primary care.

Funding models require sufficient flexibility to support service delivery, integration and place-based approaches that will deliver outcomes (NTG). The terms and conditions of funding should not create a barrier to developing place-based and community-led solutions for achieving outcomes. There is a need to build adaptable and flexible governance models that can enable services across all organisations to collaborate and share resources while maintaining accountability including staff, to work most effectively to service their community (NTG). Additionally, greater transparency of funding streams and uses across organisations and commissioning bodies would improve opportunities for value-based commissioning.

2.4.3. Accessibility in rural and remote locations

The Northern Territory's geographic isolation contributes to higher operating costs and exacerbates the nation-wide workforce shortage contributing to thin market experiences across health, disability and aged care sectors (DCLS; NTG; AMSANT 2019; Woods & Corderoy 2020).

NT's unique primary care structure, supported by around 89 Aboriginal Community Controlled Health Services (ACCHO's) and Aboriginal Medical Services (AMS's) goes a long way in addressing the health needs of rural and remote Territorians. However significant challenges accessing primary care still exist for some Territorians. We hear from:

- non-Aboriginal communities on the rural fringe of regional centres, particularly Darwin including communities of Dundee Beach and Wagait Beach
- non-Aboriginal communities and Stations in remote Northern Territory including Daly Waters
- the estimated 10,000 people living on approximately 500 remote homelands (or outstations) (NTGa).

Despite being outside of their mandate, some of these communities may receive limited support from ACCHO and AMS's. However current funding and service delivery models do not adequately and consistently accommodate rural and remote solutions that reflect the reality of what is needed and can be sustained for these cohorts. NT PHN continue to seek opportunities to 'join up' funding opportunities and test alternative models of service delivery to maximise the viability and sustainability of services in small communities where there are thin markets and limited economies of scale.

Furthermore, improved outreach models are required, and the NT Closing the Gap implementation plan will involve a review of outreach models to match the health needs through improved planning mechanisms and improve referral pathways / access, particularly for remote communities (NTG, APO NT, LGA NT 2023).

Access also relates to other opportunities to intervene upstream, for example, food security. Aboriginal and Torres Strait Islander people are up to six times more likely than non-Aboriginal people to not have food security, and these rates are worse in remote areas (AMSANT 2021). Food security has historically been addressed through funding emergency food relief, but greater emphasis on prevention is needed (AMSANT 2021). Recommendations from the 2021 Food Summit Report include development of a local community-based workforce supporting activities that improve access to traditional foods and develop the skills of young Aboriginal people in cooking, healthy eating and promoting healthy behaviours (AMSANT 2021).

The NT Closing the Gap Implementation Plan commits to increasing the capacity of individual stores to provide sufficient, affordable, quality food and grocery items for residents of remote communities (NTG, APO and LGA 2023).

2.4.4. Affordability of private primary health care

Bulk billing amongst private general practices is rare in the NT (3 out of 43 mainstream general practices bulk bill). Though the introduction of bulk billing incentive payments in 2023 for children under 16 years and those with a concession card may have provided relief for some populations, most NT practices have mixed or private billing. Lack of affordable primary health care poses ongoing pressures to the already strained NT Hospital system (see section below on Care coordination and potentially preventable hospitalisations). Vulnerable populations who may not be able to afford regular gap payments, may not be able to access services in a timely manner (ABS 2023d).

2.4.5. Cross-sector and multi-agency responses

There are several examples where cross-sector and multi-agency responses are being pursued by NT PHN. For example, in Central Australia, legal services are commissioned to provide specialist support to primary care being able to support to victim-survivors of FDSV. This requires expansion to appropriate services for young people and children victim-survivors.

2.5 Improving Health Literacy

- Health literacy training
- Aboriginal workforce (see Workforce section)
- Funding for use of Aboriginal language interpreters
- Health information in language

2.5.1. Health literacy training

It is reported that Australian health professionals have an inadequate understanding of the consequences of low health literacy and limited knowledge of Aboriginal and Torres Strait Islander peoples and communities' health literacy (MacAskill et al. 2022). There is currently a limited understanding of health literacy and no validated assessment tools tailored to this population (MacAskill et al. 2022). A study of young Aboriginal and Torres Strait Islander males identified a well-developed understanding of health, however a lack of culturally responsive and age-appropriate health literacy measurement tools tailored to their needs (Smith et al. 2019). Culturally inappropriate screening has the potential to disaffect; but practitioners could be trained in assessments that better align with Aboriginal and Torres Strait Islander approaches, such as more conversational styles ((MacAskill et al. 2022). NT PHN's Health Literacy Strategy (NT PHN 2018) identified the need to provide and support access to culturally competent health literacy training for health professionals, including training in teach-back, risk communication and the use of decision aids. Workforce turnover in the NT is high and this training is required on an ongoing basis.

2.5.2. Funding for translation and interpreter services

The Northern Territory Aboriginal Interpreting Services (AIS) provides a critical service across the NT. Interpreters are currently booked on a fee for service basis and without dedicated funding there is often

limited use in health settings. Other sectors, such as disability and legal, provide block funding to improve access. Increased access will improve health literacy and health outcomes (NDS 2024).

2.5.3. Understanding Aboriginal world views and two-way health literacy

There is limited research on health literacy among Aboriginal and Torres Strait Islander people and how such concepts relate to cultural and Aboriginal and Torres Strait Islander worldviews (Smith et a, 2019). However, the limited representation of Aboriginal and Torres Strait Islander knowledges within health literacy related policy and practice documents presents a view that social and health inequities are, at least in part, a result of poorly designed public health policies for this population group (Smith et al 2019). Embedding health literacy into the design and delivery of initiatives to support people to make informed decisions about their health and wellbeing and take appropriate action increasingly explores the need for greater two-way knowledge exchange between community members and health professionals.

Given the diversity of languages throughout the NT and numerous cultural and community contexts, health literacy activities devised and delivered locally will be particularly effective. Cultural safety, family and community-centred care, and using individuals who are trusted by the community in the delivery of health care are critical to addressing health literacy in Aboriginal communities (ACSQHC 2014). Perhaps one of the single most effective mechanisms to improve health literacy is to improve local Aboriginal and Torres Strait Islander peoples participation in the health workforce (AIHW 2020).

2.5.4. Health information in language

The NT has over 100 Aboriginal languages and a multicultural population (NTG 2024a). Translating health information into language enables people to understand the information and reduces barriers to care. Melaleuca Refugee Centre (unpublished) recommend centralising resources discussing health conditions in other languages from other jurisdictions. The Aboriginal Health Plan for the NT supports actions to increase health literacy by ensuring consumer resources that are culturally appropriate and responsive for Aboriginal health consumers (NTG 2021).

2.6 Supporting At-Risk populations

At risk-populations in the NT require additional supports to ensure they have equitable access to primary health care.

- Service navigation and advocacy
- Integration with aged care and disability services
- Partnerships with sectors outside of health including housing, hostels, education, employment and social services
- Inclusive and culturally appropriate health services
- Health promotion, prevention and early intervention

(Also see Supporting Health Literacy, Care Coordination and Preventable Hospitalisations)

2.6.1. Service navigation and advocacy

Service navigation, like care coordination, is required for at-risk populations in the NT to ensure they have the support to access services that are available to them. Service navigation provides at-risk populations

with a single point of contact that can connect them with available services. System navigators recognise the key link between health and social services and work to reduce barriers to care (Carter et al. 2018).

Service navigation roles do exist across the NT particularly for older people or people living with mental illness. However, they are often under-resourced and not accessible in remote locations. Advocacy to support these roles and advocate for service gaps that are identified is needed. A needs assessment to inform commissioning of the Care Finder program prioritised the need for navigation services for older people in Katherine, Tennant Creek and for some target groups in Darwin. Most vulnerable populations were identified as Aboriginal and Torres Strait Islander people, people who live in rural and remote areas and those who are homeless or at risk of homelessness (NT PHN 2022). The Melaleuca Refugee Centre (unpublished) recommend collaborating with migrant communities to provide routine health orientation for newly arrived community members to support service navigation. The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023) recommended introducing 'disability health navigators' to assist people with cognitive disability and complex health issues to find their way through the health system.

2.6.2. Integration with aged care and disability services

Integration between primary health, aged care and disability services is needed. The Northern Territory Seniors Policy Implementation Plan (Territory Families 2022a) identified key areas for action in relation to the health and wellbeing of older people in the NT. Actions relevant to primary care include:

- providing accessible and easy to understand information about aged-care options
- promoting and supporting programs and activities that improve the social and emotional wellbeing, and
- continuing to promote and provide advanced personal planning and increasing access to culturally secure palliative care.

There are a range of mainstream services that people with disability are eligible to access. The relatively small and dispersed nature of the NT means services specialising in meeting the needs of individuals living with disabilities are less prevalent. There is a need to improve access to mainstream services, particularly in remote locations. The services should also be culturally safe for Aboriginal and Torres Strait Islander people living with a disability. The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023) made recommendations to address inequality of access and health outcomes which are listed throughout these services need analysis. NT submissions to the Commission suggested solutions to the high representation of Aboriginal and Torres Strait Islander people with a disability in the justice system. The solutions are learning from and partnering with the community-controlled health and justice sectors and adopting trauma-informed approaches that support the social and emotional wellbeing of Aboriginal and Torres Strait Islander people with a disability who interact with the justice system.

2.6.3. Partnerships with sectors outside of health including housing, hostels, education, employment and social services

At-risk populations often require access to services outside of health. These services are required to ensure that people can access the health services they need and manage their own health. The Safe, Respected and Free from Violence Reduction Framework 2018 – 2028 (NTG 2018a) commits to shared responsibilities across sectors and partnerships. Service delivery activities, such as the Family Safety Framework, are a

demonstration of the practical application of a cross-sector collaboration. Though this example demonstrates the efforts to develop partnerships, additional efforts in other areas are required including effective governance, increased transparency and networking opportunities across commissioning and provider bodies, leadership support and adequate resourcing.

2.6.4. Inclusive and culturally appropriate health services

At-risk populations experience many barriers accessing health services. Barriers include stigma, discrimination, racism, language barriers and gaps in services such as LGBTQIA+ specialist services (Rainbow Territory 2020). Health services in the NT need support and resource to ensure services are welcoming to at-risk populations and staff are equipped to provide appropriate services. Rainbow Territory (2020) recommend developing responsive and inclusive health and social service delivery for LGBTIQ people in the NT. They also recommend programs to upskill mainstream general practitioners, and other health and social service providers to respond to the needs of diverse communities of LGBTIQ people across the NT. In addition, Rainbow Territory (2020) identified a need to better access LGBTIQ specialist health services. This includes expansion of the Patient Assisted Travel Scheme (PATS) to enable remote people to access services and cover the costs of accessing interstate services that are unavailable in the NT, such as gender-affirming support, treatment and surgeries.

The Melaleuca Refugee Centre (unpublished) recommend training for health professionals on the Translating and Interpreting Service and cultural humility and/or competency training including training specific to cultural competence in mental health. The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023) recommended further education and training for health professionals to:

- ensure diagnosis and treatment decisions to avoid preconceptions about people with cognitive disability
- improve communication with people with cognitive disability, their families and supporters
- increase access to clinical placements in disability health services for students
- increase awareness and use of adaptations and supports by health professionals to better meet the needs of people with intellectual disability when delivering health care.

Health services for Aboriginal and Torres Strait Islander people need to follow the principles of Aboriginal Community Controlled primary health care (ATNS 1989). This includes local community control and participation, a holistic view of health care, and recognising the inter-relationship between good health and the social determinants of health.

2.6.5. Health promotion, prevention and early intervention

At-risk populations will benefit from increased resourcing and efforts in health promotion, prevention and early intervention. The Northern Territory Seniors Policy Implementation Plan (Territory Families 2022a) identified key areas for action in relation to the health and wellbeing of older people in the NT including improving preventative health, screening and early intervention to reduce the impacts of age-related illnesses, chronic disease and injury. The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023) NT submissions recommended addressing the lack of access to assessment

and screening for early diagnosis of disability in remote areas and access to specialised disability support outside of regional centres in the NT.

Funding is currently heavily weighted to meet the needs of DFSV victim survivors when they are in crisis, while prevention, early intervention and accountability, and systemic enablers and reform receive more limited funding; and fewer initiatives are targeted exclusively to people who are using violence (NTG 2023b). Future investments need to increase resourcing at the front end for drivers and early intervention, without compromising the need to maintain sufficient resourcing to meet demand for crisis responses.

2.7 Care coordination and preventable hospitalisations

- Appropriately funded multidisciplinary team care models
- After hours support
- Digital health
- Preventable hospitalisations
- System integration through cross agency partnerships

Care coordination aims to deliver people-centred care with discrete healthcare events treated as coherent and interconnected over time, consistent with that person's health needs and preferences (Khatri et al 2023). It spans informational, relational and management continuity and supports this integration of care through multidisciplinary teams (Khatri et al 2023). Care coordination is particularly important for people with chronic conditions, those at risk of admission to hospital, or have complex needs.

Reviewing Potentially Preventable Hospitalisations (PPH) can provide an indicator of appropriate individualised preventative health interventions and early disease management delivered in primary and community-based care settings (AIHW 2024p). In 2021-22, the NT had the second highest rate of PPH at 4,700 per 100,000 people with more than double the national average (2,300 per 100 000) (AIHW 2024p). This is related to the intersection of multiple complexities in the region, including workforce shortages, geographical isolation, and high rates of chronic and complex needs, as well as limitations on funding models to develop and deliver place-based solutions.

2.7.1. Right care at the right time through after-hours support

People in the NT accessed Medicare subsidised after hours services at a rate of 21 services per 100 people in 2022-23, with 30% lower than the national rate (31 services per 100) (AIHW 2024c). In 2020-21, there were 745 emergency presentations per 10,000 people in the NT, more than twice the rate of any other Australian state or territory. After hours primary care solutions involving traditional GP-led approaches are constrained by a critical shortage of general practitioners.

Historically, the delivery of urgent after-hours primary care in remote communities has been delivered through on-call Aboriginal Health Practitioners and Remote Area Nurses. With a Territory-wide workforce shortage, and increasing demand, this traditional approach to after-hours service delivery is unsustainable, affects the attraction and retention of health professionals, contributes to burn out and impacts on resource availability for delivery of core in-hours primary health care for the NT's most vulnerable populations. These remote communities require local, culturally appropriate, clinically safe and high quality primary care solutions.

In the NT context, emergency presentations and demand for after-hours services is heavily influenced by other factors including social determinants, access to in-hours services and health literacy. Recent changes to Commonwealth After Hours funding program preclude PHNs from funding solutions that address these "root causes". Addressing health-justice interface, domestic violence responses, health literacy and equitable access to in-hours services will impact demand for urgent after-hours primary care. Urgent Care Clinics established in the NT provide treatment for urgent but non-life-threatening emergencies. The impact of these centres on unmet need in the after-hours period will emerge over time.

2.7.2. Multidisciplinary care, funding models and workforce

The dominance of Aboriginal Community Controlled Health Services in the Northern Territory along with critical workforce shortages, geographical isolation and small populations has created an environment for innovations involving the emergence of strong multi-disciplinary models and expanded scope of practice (Pearson et al 2020). These experiences place the NT in a position to build on these strengths.

However, funding models for multidisciplinary team care is a challenge in the NT. Medicare funding doesn't adequately cover the cost of services due to travel, accommodation and the small size of communities which may only have limited patients per visit. Several programs are funded to cover this funding gap including Integrated Team Care and Medical Outreach Indigenous Chronic Disease Program and the Multidisciplinary Team Care programs. These programs improve the coordination of services and improve access to multidisciplinary team care, however, they are not adequately funded to meet the needs in the NT. Furthermore, workforce challenges such as transience and high staff turnover, a lack of housing, geographical isolation and a need for highly skilled, culturally safe practitioners adds additional complexity to providing adequate and appropriate services.

2.7.3. Digital health as an opportunity

Digital Health offers an opportunity to address the unique challenges of healthcare delivery in an environment where traditional models of service delivery are challenged by economies of scale and a vast geographic area. However, this environment also brings challenges of infrastructure and health literacy. Currently, there is an abundance of activity in the NT's digital health space, so ensuring interoperability and maximising synergies between these activities will be important.

Northern Territory delivered over 80,000 general attendance phone and telehealth services per 100,000 population between July 2022 and February 2024, compared with around 151,000 nationally (Services Australia 2024). Conversely there were 1,049 Telehealth support services with a specialist provided by a nurse on behalf of a GP in the Northern Territory during the same period, compared with 289 nationally (Services Australia 2024).

Continuity and coordination of care through a strengthened digital system has been prioritised in the NT Strengthening our Health System Strategy 2020-2025 (2020). This Strategy aims to develop services that increase access to health information, reduce the need to travel, enable care in the community and provide access to specialist advice. It aims to connect the health system by enhancing provider access to timely and comprehensive health information to improve integration and coordination and continuity of care. Opportunities include telehealth, My Health Record and secure messaging services (AMSANT, NTPHN and NTG 2020).

2.7.4. Workforce opportunities through multi-agency partnerships

An RDPH GP Liaison role (GPLO) was established in 2023 to promote and support the interface between tertiary and primary care providers in the NT. The aim is to facilitate the enhancement of communication, collaboration and integration between Top End general practitioners and hospital specialists, in both directions. The GPLO has developed strong working relationships and partnerships across the health system to support collaborative models of care for the Top End and has now been expanded to cover Central Australia.

The GPLO experience has provided deep insight and learning into key workforce challenges facing the NT that would benefit from integrated solutions across the primary and tertiary health sector. Some key areas of improvement that have been prioritised include discharge communication, transparency and quality of outpatient referrals. Other issues that have been raised to the GPLO further illustrate the need for integrated solutions that consider the NT context – for example, arising challenges associated with the limited workforce pool and requirements surrounding the prescription of Schedule 8 medication by GPs.

2.8 Mental health and suicide prevention

- Improving care across the continuum
- Variable level of access to specialist services
- Improving integrated responses
- Support priorities of Joint Regional Plan and Suicide Prevention Implementation Plan

2.8.1. Improving care across the continuum of need

The current Australian and Northern Territory mental health systems have gaps and inefficiencies so that many people do not receive appropriate treatment and support (NTPHN 2021). Mental health care in the NT often takes place in the primary health care setting with limited specialist and acute care options. Poorer and variable level of access to specialist services can occur in the NT due to location remoteness (NTG 2019b).

2.8.2. Co-investment to improve integrated care that is trauma-informed and culturally responsive

The Northern Territory Mental Health and Wellbeing Plan for Integration and Co-Investment 2024-2029 will be used by Aboriginal Medical Services Alliance Northern Territory (AMSANT), Northern Territory Government (NT Health), National Indigenous Australians Agency (NIAA), and the Northern Territory Primary Health Network (NTPHN) over the next five years to inform co-investment, reduce fragmentation and promote integrated mental health and wellbeing across the Northern Territory. Service needs will centre around supporting the implementation of priorities to:

- integrate Aboriginal and Torres Strait Islander cultural health and healing practices into Primary Health Care and specialist service pathways, guided and led by Aboriginal and Torres Strait Islander people
- expand lived experience of mental illness in the mental health and wellbeing workforce, recognising that the lived experience Aboriginal and Torres Strait Islander peoples will be different
- enhance the Lived Experience of mental illness voice in higher level decision making

- build capacity of communities to develop programs and mechanisms that build resilience of natural helpers, families, kin and community
- work alongside communities to identify 'critical points' where preventative opportunities exist
- support models that work holistically to address co-morbidity
- increase access to specialist mental health services for remote areas 'on country'
- empower individuals and carers through providing tools for self-help and navigation supports
- improve Primary Health Care services capacity to adequately triage, assess and refer appropriately through strengthening and promoting localised care and education pathways
- enhance or establish new place-based, formalised partnerships across sectors that are informed by the needs of community, and ensure Aboriginal and Torres Strait Islander leadership of partnerships when a service is for Aboriginal and Torres Strait peoples
- facilitate access to targeted education, training and continuous quality improvement activities to build local capacity, competency and capability
- prioritise outcome-based commissioning decisions
- improve data reporting and use.

The NT Suicide Prevention Strategic Framework and Implementation Plan has three action areas that service delivery will need to support (NT Health, NTPHN and AMSANT 2023):

- Building stronger communities that have increased capacity to respond to and prevent suicidal behaviour through raising awareness and reducing stigma.
- Informed, inclusive services that provide timely, integrated, compassionate and culturally safe responses that meet the diverse needs of people across the NT, and
- Focused and evidence informed support for the most vulnerable groups of people.

Rainbow Territory (2020) advocate the need for programs to address the mental health and suicide prevention needs of LGBTIQ people prioritising young LGBTIQ people and Aboriginal and Torres Strait Islander LGBTIQ people.

The Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2023) made recommended establishing and evaluating specialised health and mental health services for people with cognitive disability to provide specialist assessment and clinical services.

2.9 Reducing alcohol and other drugs

- Integrated approach between intersecting sectors
- Earlier and brief intervention
- Workforce
- Culturally appropriate, place-based programs
- Case management and social service needs

Alcohol is the most common principal drug of concern in the NT (AIHW 2024m).

2.9.1. Addressing underlying drivers through integration across sectors

The Association of Alcohol and Other Drug Agencies NT (AADANT) (2021) reports that most young people receiving intervention by services relating to their AOD use identify as Aboriginal and/or Torres Strait Islander (AADANT 2021). Many come into contact with the criminal justice system due to petty crime while under the influence of AOD use are removed from their Country and kinship network for treatment, producing a range of other issues, both while they are away and upon returning to community. This approach often is not aligned with a Social and Emotional Wellbeing model of service provision (AADANT 2021).

The 2023 Illicit Drug Use Needs Assessment (Alcohol and Drug Foundation 2023) identified many factors influencing illicit drug use and related harms. These include high rates of trauma, unemployment, low income, housing, homelessness & transience and co-occurring mental health conditions. These affect both access to harm reduction and treatment services and the extent of harms caused from illicit drug use. It recommended an immediate need to address alcohol related issues through a combination of supply restrictions, greater compliance and an educative approach (Alcohol and Drug Foundation, 2023). The need for an integrated approach between the health, housing, and justice systems to address the underlying drivers of alcohol misuse, reduce use and harm, and complement alcohol treatment services widely acknowledged in NTPHN region (Stephens et al. 2019; NTG 2023c)

2.9.2. Need for earlier and brief intervention, appropriate intensity and types of care

A study of by Menzies School of Health Research (2019) suggests that there is a large unmet demand for screening and brief intervention, in the order of 18,500 to 19,000 people, and there are insufficient residential rehabilitation beds available (estimated around 15% below a modelled estimate of need) (Stephens et al. 2019). The level of clinical FTE modelled to meet care needs is not met by the current clinical FTE in the NT (Stephens et al. 2019). In 2022-23, 81% clients in the NT received an average of 1.8 treatment episodes (AIHW 2024m). Assessment was the most common main treatment (47% episodes), followed by counselling (17%). The proportion of rehabilitation as the main treatment was 21% in 2022-23 (AIHW 2024m). Aboriginal and Community Controlled Health Organisation (ACCHO) episodes represent the highest number of encounters (41%) (Stephens et al. 2019). The next highest is GP encounters (18%) (Stephens et al. 2019).

The intensity and level of care is not configured in a way that might best meet needs, and more treatment is required to respond to mild and moderate needs (Stephens et al 2019). Community-based treatment options are highly valued (Stephens et al. 2019) particularly for clients with mild and moderate needs. There is a need for case management to improve continuity and coordination of care (AADANT 2021) with mental health services and services addressing social determinants (i.e. housing, justice and employment).

There is a need for both generalist and specialist skill development across services system regarding the unique issues and complexities, particularly among of younger people participating in AOD misuse and the intergenerational nature of alcohol-related trauma in the NT (Alcohol and Drug Foundation 2023; Stephens et al. 2019). The large unmet need in the order of 18,500 to 19,000 people described above indicates a need for improved awareness and skills across the primary care sector. Most of the ‘specialist’ alcohol treatment is provided in Alice Springs (45%) and Darwin (42%) and cost of transport to support access services are high.

2.9.3. Culturally appropriate, place-based models

Culturally appropriate, place based early intervention and education programs are needed to drive prevention, harm reduction and early intervention while activities focusing on young men, Aboriginal and Torres Strait Islander people, and those living in remote communities, noting the significant overlap between these cohorts, will have the greatest impact (AADANT 2021; Alcohol and Drug Foundation 2023). Evidence for effective messaging, harm reduction and prevention methods for these target groups, is outlined in the 2023 targeted Illicit Drug Use Needs Assessment commissioned by NT PHN (Alcohol and Drug Foundation 2023). Service engagement, reach, and effectiveness will be improved through alignment with the Social and Emotional Wellbeing Framework (Commonwealth of Australia 2017), including community involvement and co-design, holistic and coordinated care, culturally appropriate solutions and increasing workforce capability (Alcohol and Drug Foundation 2023).

Targeted intervention for young Aboriginal and Torres Strait Islander men is pertinent given that, in 2021-22, among people receiving AOD treatment in the NT:

- over half (54%) were aged 20-39 years
- 7 in 10 (72%) were males
- 3 in 4 (75%) identified as Aboriginal and Torres Strait Islander, over 4 times higher than the national proportion (18%). (Source: AIHW 2024m)

2.9.4. Added efforts to address Foetal Alcohol Spectrum Disorder

Efforts to address Foetal Alcohol Spectrum Disorder (FASD) should be targeted at prevention, including community education, sexual health supports, screening and referral for pregnant women who misuse alcohol, treatment for women who misuse alcohol and evidence-based strategies to minimise risky drinking. Other responses must include improving early diagnosis and supports for individuals affected by FASD. Improving health professional awareness of FASD and skills in identifying and responding to both at risk pregnancies and children affected by FASD are critical (NTG 2017; NT Health 2018; Legislative Assembly of the NT 2015).

2.10 Infectious disease

- A coordinated cross-sector effort to improve social determinants
- Screening and ongoing primary health checks in partnership with communities
- Continue immunisation promotion and delivery
- Contribute to emergency and pandemic activities

Infectious diseases are an important public health issue and their prevention and control call for a coordinated effort among cross sectoral stakeholders in the NTPHN region. These diseases are preventable with immunisation, personal health hygiene, environmental health, good sexual health and primary health care checks.

Some infections prevalent in the NT are climate-sensitive (e.g. melioidosis) and the tropical north of Australia may hold a disproportionate risk of direct and indirect human health impacts associated with climate change (Hall et al 2021). The proximity to other tropical nations presents risks of importing and

exporting pathogens. In fact, climate change is expected to be a driving cause of increasing infectious disease rates in new populations (Baker et al. 2022).

2.10.1. Improving social determinants to improve health outcomes

Poor environmental health conditions contribute to rates of infectious disease, especially among young children in the Northern Territory (The Kirby Institute 2023). Addressing the social determinants of health, particularly of remote Aboriginal and Torres Strait Islander Communities along with implementation of widespread health strategies based on community consultation will reduce the ongoing burden of infectious diseases (Gramp and Gramp 2021; NTG 2018b)

2.10.2. Partnership with communities

Experience through COVID Pandemic suggests that working in partnership with Aboriginal people to understand the drivers of vaccine hesitancy in each region (including a historical and understandable distrust of the health system) and to deliver culturally appropriate education about vaccines and vaccine preventable diseases are critical for the successful participation of Aboriginal and Torres Strait Islander communities in vaccination programs. The solution requires education provided in Aboriginal languages developed by Aboriginal people, culturally knowledgeable Aboriginal and Torres Strait Islander workers able to engage with communities, and clinicians and the ability to offer financial incentives (21).

2.10.3. Address workforce challenges that impede continued immunisation delivery

Workforce issues need to be addressed to deliver effective access to vaccines across the NT. For example, addressing clinician reluctance to become immunisers or deliver immunisations once certified, enable access to HESA accredited immunisation courses and implementing measures to reduce the impact of FIFO staff on system continuity (addressing recalls).

2.10.4. Being prepared for emergency responses

NT PHN is a participating partner in the NT pandemic plan (NTG 2024e). This includes working with local GPs, health care networks and communities in preparing to support the health needs of people during a pandemic. Key service needs will be implementing any vaccination plans in collaboration with Aboriginal Community Controlled Health Organisations (ACCHOs) and NT government, coordinate access to primary care resources, working with ACCHOs regarding coordination of personal protective equipment, and facilitating the delivery of warnings and public messaging to primary health care sector (NTG 2024e).

2.11 Improve sexual health

- Prevention and early intervention for STI and BBVs
- Targeted programs for young people and other high-risk groups
- Address the prevalence, screening and management of Sexually Transmitted Infections and Blood Borne Viruses through health promotion and screening, particularly in Aboriginal people, young people and newly arrived refugees
- Increasing the skills and capacity of primary care providers

2.11.1. Sexual health

The NT Sexually Transmissible Infections (STI) and Blood Borne Viruses (BBV) Strategic and Operational Plan 2019-2023 aims to strengthen the role of the primary healthcare sector in STI and BBV prevention, testing and early treatment, provide stakeholders with a reference document to guide their activities, improve coordination and collaboration, and avoid the costly duplication of programs. NT PHN shares in the commitments of the plan including prevention activities and testing and linkage to treatment.

A specific focus is required for newly arrived refugees on targeting young people and integrating culturally and linguistically appropriate sexual health education into settlement services.

2.11.2. Capacity building in the primary care workforce

There is a need to provide orientation and continuous professional development to primary healthcare services in relation to STI and BBV screening and management, and an increase in the capacity of GPs to appropriately manage people living with a BBV.

2.12 Improving workforce for primary care

- Access to appropriate workforce
- Aboriginal health workforce
- High turnover
- Sustainability of workforce
- Quality of workforce

2.12.1. Access to workforce

The Rural Workforce Agency of the NT reports a shortage of primary care workforce and services that has been rapidly increasing (RWA 2023). It has selected key priority workforce of general practitioners (GPs), nursing, allied health and Aboriginal health practitioners as priority areas that require attention and development (RWA 2023). Reasons for the decline are varied and reflect some national trends alongside jurisdictional challenges.

Despite a national increase in the number of GPs in Australia from 2016 to 2021, the NT has experienced a consistent decline in its GP population and the nursing workforce is also experiencing a chronic shortage (Scanlan and Srikanthan 2022). NT GP clinics regularly face the threat of closure in remote locations, including in East Arnhem, Central Australia, Big Rivers and Greater Darwin Region.

The allied health professional workforce also faces challenges, and the NT struggles with delivering a comprehensive portfolio of allied health courses due to its small population and the competitive landscape among national universities (RWA 2024). Furthermore, securing clinical placements for undergraduate students and graduate professionals in disciplines such as dietetics, physiotherapy, podiatry, speech therapy, psychology, and social work has become increasingly challenging due to sector capacity constraints (RWA 2024).

2.12.2. Aboriginal health workforce

The Aboriginal health workforce in the NT is crucial. A priority for the primary health workforce in the NT is the improvement of Aboriginal Territorians' health and equity of health service access. The significant

underrepresentation of Aboriginal people in the healthcare workforce adversely affects the cultural responsiveness of health services and, consequently, community engagement. In 2021, 147 Aboriginal Health Practitioners (AHPs) were employed in the NT, a decline from 181 in 2018. Of the 147 AHPs, 130 are clinical practitioners and 17 are non-clinical (RWA 2023).

Stakeholders consistently emphasise the importance of prioritising the Aboriginal workforce in healthcare planning. There are a number of needs identified in the RWA 2023 Needs Assessment to support this workforce. These needs include a better understanding of the importance of the workforce, adaptable and progressive training pathways, opportunities to train on Country, progressive professional development and access to social infrastructure that is both safe and culturally responsive, amongst others (RWA 2023).

2.12.3. Turnover

High turnover rates are a major challenge for the NT's primary healthcare workforce, with remote area rates higher than urban centres. Nurse turnover exceeds 154%, while allied health, primarily concentrated in Darwin, Alice Springs, and regional towns, experiences a turnover rate of 37.8%. Turnover costs each primary healthcare clinic an average of $400,000 yearly (RWA 2024).

The expansive nature of the Northern Territory (NT) requires health services to address the needs of a widely disbursed population. Key population centres, Alice Springs, Darwin, Katherine, Nhulunbuy, and Tennant Creek, serve as hubs for primary and acute care services. In remote regions, communities rely on health clinics staffed by small teams of nurses and Aboriginal Health Professionals, supplemented by periodic visits from medical and allied health professionals (Zhao et al.). These services also experience limited administrative support. Survey results highlight the key reasons for staff departures as heavy workload / burnout, work-life balance, career progression, mental health and wellbeing and lack of support staff and social infrastructure (RWA, 2023).

Stakeholders and survey respondents consistently cite issues with accessing social infrastructure in remote areas (RWA, 2024). Health services face competition for limited housing and childcare resources, as other sectors vie for the same resources (RWA, 2024). The resulting prohibitive cost of purchase or rent, becomes a major deterrent when housing is available. While some remote services offer accommodation, the challenging environmental, funding constraints and social conditions lead to offerings that fail to attract and retain staff (RWA, 2024).

2.12.4. Sustainable workforce

The National Health Workforce Dataset needs to be interpreted with caution for the NT context (RWA, 2023). Locum and agency staff play a significant role in the NT health workforce by filling vacancies, bridging service gaps, and allowing permanent staff to take leave and engage in professional development. However, the temporary and rotating workforce can artificially inflate data sets, and create challenges when it comes to costs, continuity of care, and being culturally responsive (Wakerman et al. 2019).

There is a reported decrease in the effectiveness of services (as measured by outcomes of hospitalisations and years of life lost) associated with higher use of short-term remote staff (Wakerman et al. 2019). Average costs are also significantly higher with agency-employed nurses and it has been estimated that if

staff turnover in remote clinics were halved, the potential savings to the NT health system in primary health care, travel and hospital costs would be approximately $32 million per annum (Wakerman et al. 2019).

Community members want AHPs and local residents to be employed by the clinic long term; they highly value the employment of Remote Area Nurses (RANs) who are both clinically and culturally competent; and want on-country nurse and AHP training (Wakerman et al. 2019). Communities also emphasise the importance of building relationships and engaging with local community members for effective primary healthcare. Wakerman et al (2019) found that clinics with higher staff turnover struggled to elucidate and address community needs. They were more focused on immediate and emergency clinical care, and the need to 'tick off' performance indicators. Many RANs identified the delivery of an effective PHC service as a crucial issue (Wakerman et al. 2019).

The 2023 and 2024 RWA Needs Assessment identifies several health workforce models for rural and remote communities including multidisciplinary models, Nurse practitioner (NPs) led models, single employer models, coordinated multi-agency approaches and flexible funding models as opportunities for a sustainable future workforce. Additionally, supported career pathways to generate a pipeline, increased access to housing, and involving communities as partners are important adjunct activities to establish sustainability (RWA 2023; RWA 2024).

2.12.5. Quality of care

Many health professionals enter roles within the NT with limited exposure to the unique challenges of Aboriginal health, remote health, or tropical health (RWA 2024). Consequently, there is a high demand for professional development in these areas. Additionally, primary healthcare training is essential, covering topics such as chronic disease management and men's and women's health. In remote areas, where regular specialist access is limited, remote health practitioners must operate at the top of extended scopes of practice. This necessitates specialised training in procedural skills, ultrasound and radiography, and mental health (RWA 2024).

Cultural education and trauma-informed care training are an important aspect of professional development in the NT. This training is critical in fostering cultural responsiveness, enhancing connections with community, and facilitating engagement. Across all disciplines, survey respondents consistently identified cultural education as an essential aspect of their professional growth. Survey results reveal only 75% of allied health professionals have completed cultural responsiveness training, and only 60% deem the training sufficient for delivering services in communities (RWA 2024).

High-quality mentoring and supervision are vital for developing the primary healthcare workforce and ensuring future sustainability (RWA 2024). In the NT and remote communities, where a broad range of knowledge and skills are essential, experienced health professionals are scarce, and the workforce is at risk of professional isolation and burnout. Mentorship and supervision play a crucial role in supporting professionals' growth and ensuring community safety (RWA 2024).

Graduate health professionals who choose to work in the NT encounter various challenges during their transition from students to independent beginners (RWA 2024). These challenges encompass the need for cultural and clinical mentorship, social support, role-specific skill development, and integration into new teams and workplaces. Establishing pathways such as the Rural Generalist Pathway and Nurse Practitioner

Pathway within a supportive healthcare system ensure that GPs and nurses receive the necessary training and recognition for the specific skills required in regional and remote healthcare settings. Raising awareness of these pathways is crucial to their adoption (RWA 2024).

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