TRENDS IN THE NORTHERN TERRITORY ABORIGINAL HEALTH KEY PERFORMANCE INDICATORS 2010–2021

AMSANT phn NORTHERN TERRITORY An Australian Government Initiative RURAL Workforce AGENCY NT Australian Government NORTHERN TERRITORY GOVERNMENT

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We acknowledge the traditional custodians of this land and pay our respect to Elders past, present and emerging. This report was produced on Larrakia land. We recognise the health inequalities experienced by Aboriginal people in the Northern Territory (NT) are a result of the complex interactions between social, political, historical and economic determinants. This report provides one process for ensuring that indicators of health care are monitored, and health services are accountable to their Aboriginal service populations.

We acknowledge the contribution of primary health care services and staff in NT communities, working to optimise health in remote areas. We also recognise the work of staff recording, collating and providing health client data. We thank the NT Department of Corporate and Digital Development (DCDD) for administering the AHKPI data in conjunction with primary health care services and providing the data for this analysis.

The authors are grateful for the leadership of the AHKPI steering committee and Aboriginal Health Forum. Our thanks go to NT Primary Health Network (NT PHN) for commissioning this report and providing resources for the publication.

FOREWORD

We are proud to present the second trend report of the Northern Territory (NT) Aboriginal Health Key Performance Indicators (AHKPI), reporting data from 2010 to 2021.

The indicators were developed and are overseen by the NT Aboriginal Health Forum - a collaboration of Aboriginal Medical Services Alliance NT (AMSANT), the NT Government, the NT Primary Health Network and the Australian Government. The AHKPIs describe key health service activities across the breadth of Aboriginal Primary Health Care (PHC), enabling shared learnings as we work together to improve Aboriginal health. Our biannual reporting on the indicators is critical for continuous quality improvement and strengthening accountability to our communities.

The 2010-2021 trend report details improvement across many of the indicators. We are delighted to report that adult health checks among Aboriginal clients have more than tripled in the 10 years since data was first collected. We have also seen important gains in maternal and child health indicators including: first antenatal visits before 13 weeks gestation, lower levels of childhood ear disease and less anaemia among children and pregnant women. Sexual health screening rates have also increased since this indicator was added in 2016. These outcomes are a result of greater health awareness in the community and the hard work of our PHC staff.

The COVID-19 pandemic has had an unprecedented impact on healthcare services across the NT. Many of the indicators that were tracking upward have unfortunately seen declines in the pandemic years of 2020 to 2021. We also know that, globally, the healthcare workforce has not recovered since the pandemic and staff shortages across the Aboriginal PHC sector remain extremely challenging. At the same time, the burden of chronic conditions continues to grow, meaning that support for Aboriginal PHC in the NT is increasingly important for the entire NT Health system. We thank those involved in the delivery of Aboriginal PHC across the NT for their commitment to excellence and tireless efforts to ensure care reaches our families and communities across the NT.

This report documents critical pathways to continuous quality improvement and is a resource to focus primary care efforts in our clinics and communities. There is substantial work remaining to ensure Aboriginal health outcomes are further strengthened. Improving health outcomes requires commitment and collaboration between communities, Aboriginal community controlled services and government.

Aboriginal PHC is a critical foundation for the NT Health system where prevention, health promotion and chronic disease care help to ensure that Aboriginal Territorians enjoy their best possible health and wellbeing. Our AHKPIs are fundamental to this service mandate because they enable opportunities for continuous quality improvement and provide performance feedback to the communities we serve.

The Honourable Natasha Fyles MLA
Chief Minister
Minister for Health

Robert McPhee
Chair Aboriginal Health Forum

ACRONYMS

ACCHO	Aboriginal Community Controlled Health Organisation
ACE	Angiotensin-converting enzyme
ACR	Albumin/creatinine ratio
AHC	Adult health check
AHKPI	Aboriginal Health Key Performance Indicator
AHP	Aboriginal health practitioner
AHW	Aboriginal health worker
AMSANT	Aboriginal Medical Services Alliance of the Northern Territory
ARB	Angiotensin receptor blockers
ARF	Acute Rheumatic Fever
BPG	Benzathine benzylpenicillin G
CARPA	Central Australian Rural Practitioners Association
CHD	Coronary heart disease
CKD	Chronic kidney disease
CQI	Continuous quality improvement
eGFR	estimated glomerular filtration rate
FaFT	Families as First Teachers
GP	General Practitioner
GPMP	General Practitioner management plans
Hb	Haemoglobin
KPI	Key Performance Indicator
MBS	Medicare Benefits Schedule
MWC	Midwives Collection
nKPI	national Key Performance Indicators
NTAHF	Northern Territory Aboriginal Health Forum
NT	Northern Territory
NTG	Northern Territory Government
NT Health	Northern Territory Department of Health
PCIS	Primary Care Information System
PHC	Primary health care
RHD	Rheumatic heart disease
STI	Sexually transmissible infection
TCA	Team care arrangements
TIS	Tackling Indigenous Smoking
VPD	Vaccine preventable disease
WHO	World Health Organization

CONTENTS

EXECUTIVE SUMMARY

This report presents findings of the Northern Territory (NT) Aboriginal Health Key Performance Indicator (AHKPI) trends from 2010 to 2021.

It examines data on 22 health indicators, building on the 16 indicators reported previously for 2010 to 2014 and is the first to incorporate both quantitative and qualitative data from primary health care (PHC) services. [1,2]

Improving health through delivering culturally safe, comprehensive and appropriate PHC to Aboriginal people in the NT occurs through a collaboration of NT Health and Aboriginal Community Controlled services. This sector works in partnership across shared priorities and through mutually agreed key performance indicators to improve services, funding and programs. The NT AHKPIs are an important standardised approach to measuring service delivery and health outcomes for Aboriginal peoples in the NT.

The 22 AHKPIs reported cover a range of health areas, including health provision, maternal and child health, preventive health, chronic disease management and sexual health. The AHKPIs have evolved in response to information needs, health care priorities and service recommendations with oversight from the NT Aboriginal Health Forum. The NT AHKPI steering committee oversees the technical and clinical reference groups that work to continually tailor the AHKPI reporting suite. PHC service providers for Aboriginal and Torres Strait Islander people in the NT submit quantitative and qualitative AHKPI data biannually for AHKPI reporting.

In this 12-year trend report, each AHKPI is presented overall and where appropriate, by demographic and health service characteristics as quantitative data. Qualitative data is used to help inform the findings and are summarised as key enablers, barriers and ideas for performance improvement identified by PHC staff. We present the main findings by Chapter order below.

The NT AHKPI background, methods of data collection, terminology, limitations and a summary (Table 2) of overall trends in each AHKPI are presented in Chapter 1. Among the 22 AHKPI's indicators, improvements were found within 8 indicators, including four maternal and childhood health, one preventative health; two chronic disease management indicators; and one indicator on sexual health screening. Conversely there has been a decline in the performance within six AHKPI's including childhood immunisation coverage and timeliness, child health checks, cervical cancer screening, blood pressure monitoring; and rheumatic health disease prophylaxis.

Service population and health care provision is presented in Chapter 2. The population captured in the reporting of AHKPIs comprises of clients serviced by health clinics. This population broadly aligned with the NT Aboriginal population with 89.1% coverage of the total NT Aboriginal population in 2010 and 84.9% in 2021. There was a 14.5% increase in the AHKPI resident population between 2014 (n=71,775) and 2021 (n=82,189). The increase in population is in accordance with increases observed across the NT population data, however is slightly higher than the 2021 census population data indicating registration of some residents at multiple health centres and potential duplication in data.

For health care provision, there was a 14.2% increase in the total number of health care episodes of care, from 784,103 to 895,330 per year, however per population episodes of care have decreased from 12.4 episodes of care per person to 10.9. While the episodes of care per population decreased, over ten episodes of care annually per resident represents a high level of health care access among this population.

Maternal and childhood health AHKPIs inclusive of: timing of first antenatal visit, anaemia in pregnancy, childhood vaccination coverage and timeliness, birthweight, and weight, ear disease and anaemia in children are presented in Chapter 3. Improvements were observed in antenatal appointments within the first 13 weeks of gestation. There were reductions in anaemia during pregnancy and underweight children; an increase in childhood testing for anaemia and a decrease in anaemia in children. Adversely, childhood vaccination coverage and immunisation timeliness has declined since 2019. The proportion of low birth weight babies remained unchanged. Since 2017, there have been significant improvements in childhood ear disease outcomes in the Top End and Darwin region.

Preventative health AHKPIs presented in Chapter 4 include adult and child health checks, cervical cancer screening and tobacco use. The findings reveal a significant increase in adult health checks across all age groups and regions, with females more likely to have health checks than males. However, there has been a decrease in child health checks since they were first implemented as an AHKPI in 2019. Cervical screening for cancer rates were highest in smaller health services with less than 500 clients. Screening and recording of current smoking status remained consistent with prevalence of smoking remaining high, particularly among males. These findings suggest that while there have been improvements in preventative health indicators in the Aboriginal population, there is still a need for targeted public health promotion to reduce preventable risk factors, increase earlier disease detection and improve health literacy across the population.

Chronic disease management AHKPIs, presented in Chapter 5 include chronic disease management plans and team care arrangements for clients with type 2 diabetic and coronary heart disease (CHD); glycaemic and blood pressure measurement and control for clients with type 2 diabetes; retinal screening for clients with type 1 or type 2 diabetes, prescription of angiotensin-converting enzyme (ACE) inhibitors in clients with type 2 diabetes and albuminuria; chronic kidney disease (CKD) risk assessment and outcome for clients over 30 years old; cardiovascular disease (CVD) risk assessment for clients over 20 years and antibiotic prophylaxis coverage in clients diagnosed with rheumatic heart disease (RHD).

There were improvements in the chronic disease management plans and team care arrangements[3] for clients with type 2 diabetes and clients with CHD, and increases in regular glycosylated haemoglobin (HbA1c) testing for those with type 2 diabetes across the reporting period. Declining outcomes were observed in the following AHKPIs related to diabetic clients: blood pressure (BP) checks; normal blood pressure result; and retinal screening. The report found that older age groups had better glycaemic control and a stable rate in provision of angiotensin-converting enzyme (ACE) inhibitor for type 2 diabetic clients with albuminuria. The number of benzathine benzylpenicillin G prescriptions for RHD prophylaxis doubled between 2014 and 2021, while the proportion of clients receiving at least 80% of prescribed doses declined to 37.7% in 2021 from a peak of 45.4% in 2019.

There is a need to ensure that monitoring and program resourcing is proportionate to the increases in chronic disease prevalence and burden.[4, 5] Further, the growing number of clients with multiple chronic conditions highlights the need for robust systems to ensure client follow-up and quality improvement processes are key features of service delivery. There is further work to do on chronic disease management and prevention (particularly in relation to blood pressure monitoring and retinal screening). However, increases in chronic disease management plans and team care arrangements suggests that more clients with key chronic conditions are receiving increased access to standardised medical and allied health schedules of care.

Sexual health testing coverage (Chapter 6) for chlamydia and gonorrhoea has remained stable since 2015, while coverage for testing of syphilis and HIV has improved since 2016. Females were tested more frequently than males, and younger residents were less likely to be tested. Smaller health services had higher testing rates than larger services.

Qualitative observations from health services described enablers and barriers for improving AHKPIs. A reoccurring theme across AHKPIs was the importance of relationships with community members, particularly ensuring culturally appropriate, ongoing engagement with community and individuals. This was achieved through the employment and retention of committed and stable staff, with a mix of genders for client preference, Aboriginal staff and dedicated portfolios (e.g. chronic disease co-ordinator, child health nurse) supported by education, adequate resourcing and outreach services. Provision of services closer to home, such as point of care testing and staff living locally, removed barriers to achieving positive outcomes particularly during the travel restrictions and border closures associated with the response to the COVID-19 pandemic. Lack of health literacy was identified as a significant barrier for improving AHKPIs. Advances in technology and treatment such as the availability of point of care testing (e.g. HbA1c) and prescribing iron infusion late in pregnancy as a standard treatment for anaemia were enablers for improving AHKPIs. Health services noted there are many factors beyond health that influence the AHKPI outcomes such as poverty, education, quality of housing, food security, cultural priorities, access to transport and the mobility of families. This is consistent with scientific literature that identifies the importance of addressing social determinants and enabling cultural determinants.[6-8] Intervention-focused work on the social determinants will require collaboration between community and other services to improve health outcomes among Aboriginal peoples.

The impact of the COVID-19 pandemic on PHC delivery was observed in the results. This included declines in results during 2020-2021 for the following indicators: episodes of care, child immunisation rates, timeliness of infant immunisations, ear disease examinations in children, adult health checks, cervical screening, glycosylated haemoglobin (HbA1c), BP and chronic kidney disease testing in type 2 diabetics, RHD prophylaxis coverage and sexually transmissible infection screening. As expected, declines were greater for key performance indicators (KPI) measured over 12 months than KPIs measured over longer time periods. The pandemic had many deleterious effects on PHC services including workforce shortages due to border closures, client hesitation in attending health services, community lock downs, and the redeployment of PHC staff to other roles (such as vaccine clinics, contact tracing and public health response work). This observation is consistent with trends reported by the national Key Performance Indicators (nKPIs) and other health care indicators.[9, 10]

The performance of larger health services across a range of AHKPIs was lower compared to smaller health services. This observation included the following AHKPIs: birth weight, adult health checks, cervical screening, cardiovascular risk assessments, HbA1c testing and retinal screening in type 2 diabetics and sexually transmissible infection screening. This finding is one area that would benefit from further research and may be partially explained by the higher presentations of acute health needs in larger services. Acute presentations are immediate health emergencies that necessarily take priority over routine PHC service delivery.

The AHKPIs provide one way of measuring progress in reducing disparities in PHC access and improving health outcomes among Aboriginal peoples in the NT. By monitoring long term trends in the AHKPIs, health services can identify areas for improvement, target resources, and work towards closing the gap in health outcomes between Aboriginal and non-Aboriginal Australians.

CHAPTER 1. BACKGROUND

INTRODUCTION

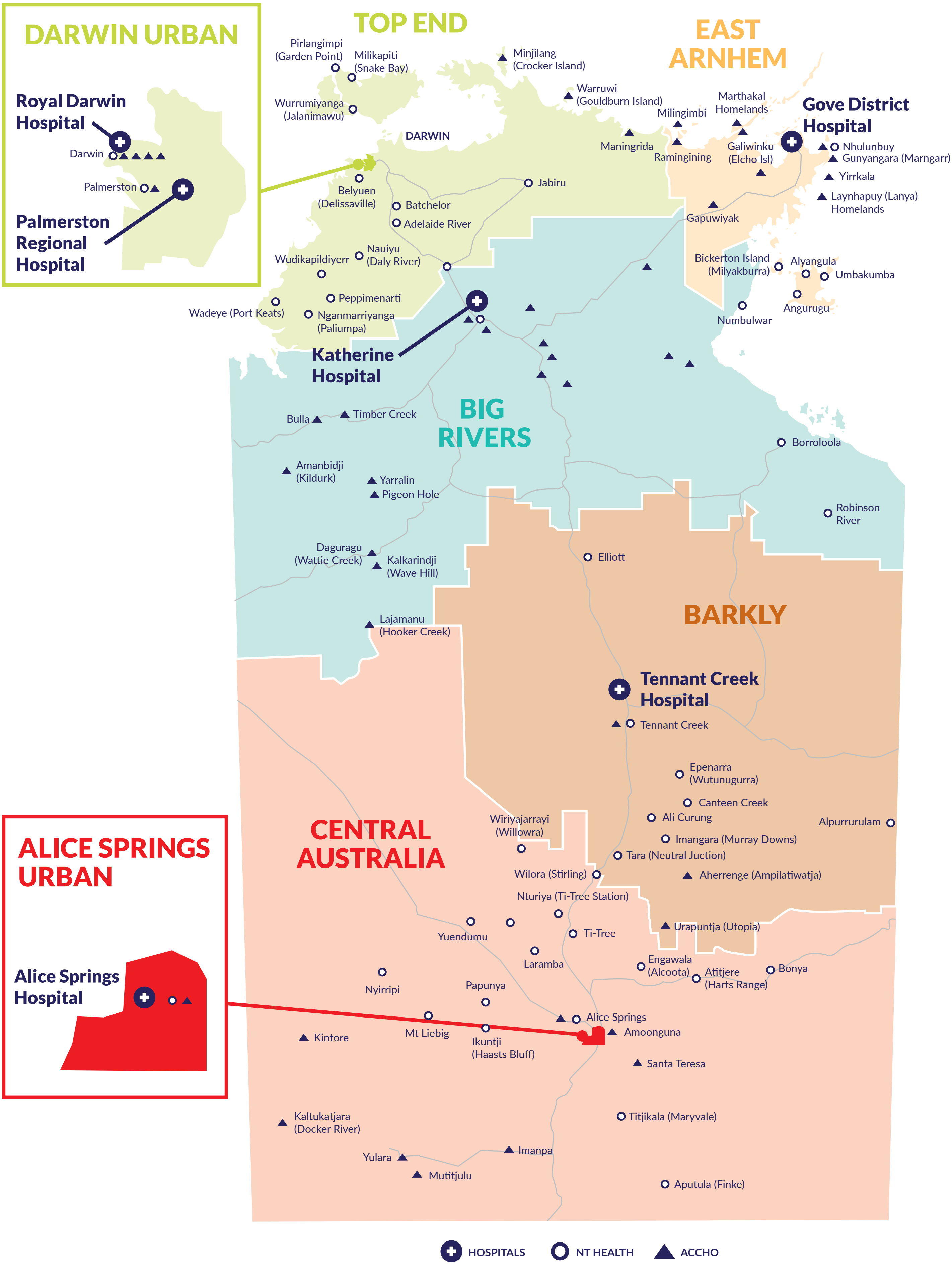
Improving the health status of Aboriginal and Torres Strait Islander peoples (hereafter respectfully referred to as Aboriginal peoples) is a significant challenge. The inequalities in health outcomes compared with non-Aboriginal people remains unacceptably wide. This gap in health outcomes is due to a range of factors, including socioeconomic disadvantage, poor access to quality health care, lower health literacy and service and system barriers. Addressing these issues remain critical to improving the health and wellbeing of Aboriginal peoples in the NT.

The geographic distribution of the NT makes health care delivery challenging. The sparse population of 232,595 people in the NT is widely dispersed across 1.3 million square kilometres.[11] Aboriginal peoples comprise 61,115 (26.3%) of the NT population, of whom 74.8% live in remote or very remote areas.[11] Providing culturally appropriate health care services that cater to the diverse needs, languages and cultures can be difficult for health care providers across the NT.

Delivering culturally safe and appropriate PHC services to Aboriginal peoples is a shared priority of the PHC sector in the Northern Territory (NT). This sector includes NT Health and Aboriginal Community Controlled Health Organisations (ACCHO) who are responsible for PHC services in the NT (Figure 1). In accordance with the Pathways to Community Control program, initiated in 2007, a graduated transfer of primary health services from NT Government to ACCHOs has been and remains an ongoing policy priority.[12] From 2010 to 2021, six clinics in Arnhem land were transferred to community controlled services.[12] In 2021, two-thirds of the total Aboriginal primary health client contacts occurred at ACCHO services.[13] Other stakeholders contributing to PHC are non-government organisations, schools, dental services, the Commonwealth Government and private General Practitioners. Working in partnership across shared priorities and through mutually agreed key performance indicators assists with monitoring progress and supports decisions on services, funding and programs.

This is the second publicly released report (the first report was produced in 2016[3]) on trends in the NT AHKPIs and describes 12 years of data from 2010 to 2021, enabling visibility of long-term trends. It is the first trend report to incorporate qualitative data from health service providers.

Figure 1. Map of primary health care services by type of service provider, NT Health or Aboriginal Community Controlled Health Organisations (ACCHO)



ABORIGINAL HEALTH KEY PERFORMANCE INDICATORS

The NT AHKPIs were developed by the Northern Territory Aboriginal Health Forum (NTAHF), that comprises the Commonwealth Department of Health, Aboriginal Medical Services Alliance Northern Territory (AMSANT), the NT Primary Health Network (PHN) and NT Health.[14]

The goal is to improve primary health care (PHC) services for Aboriginal Australians in the NT by building capacity at the service level, and to collect, analyse and interpret data at the system level that will inform understanding of trends in individual and population health outcomes, identify factors influencing these trends and inform appropriate action, planning and policy development.[14]

Data are collected against a set of indicators (known as the AHKPIs) focusing on maternal and child health, preventative health and chronic disease management. The dataset also includes population and episodes of care information, and has recently added screening for sexual health. The collection commenced in June 2010 and is ongoing with data being collected every six months from over 80 Indigenous-specific PHC clinics across the NT. Reports are provided to each primary health service provider with comparisons on each health community result against the overall NT results. Service providers are invited to provide a commentary of their results to identify any contextual issues, barriers and enablers to aid interpretation of the AHKPIs. This baseline information is crucial in assessing and improving Aboriginal health outcomes as well as assisting the further development of future indicators and providing information towards developing an NT wide model of continuous quality improvement.[14]

The AHKPI collection includes a set of process-of-care and health-status indicators as identified in Table 1. The process-of-care indicators are largely influenced by the services provided and workforce in the organisations and are aligned with evidence-based practise in PHC. Health outcomes are influenced by a range of factors, including social determinants (such as education, employment, housing, access to resources, racism) and cultural determinants, some of which are beyond the immediate control of services. The suite of AHKPIs has grown and evolved over time, adapting to changes in guideline recommendations and expanding to encompass a wider range of key performance indicators.

The reporting of indicators need to be viewed in context of the broader environment in which organisations operate and the data are collected. In particular, it is important to acknowledge that the indicators only capture a subset of the important work that organisations do each day. Data from this collection can still however make important contributions when used by health service providers at the local level to identify opportunities and to measure progress towards achieving change, or when used to inform policy decisions. The NT AHKPI collection overlaps somewhat with the national Key Performance Indicators (nKPI) for Indigenous specific PHC. However, there are key differences in definition of population and clients between the datasets, and there a number different indicators. For example, childhood anaemia, STI testing, childhood immunisations and retinal screening are specific health priorities identified for the Northern Territory which are measured in the AHKPIs but not in the nKPIs. While, the nKPIs capture smoking in pregnancy, body mass index (BMI) and alcohol consumption among those over 15 years old, these are not currently recorded in the AHKPIs.

GOVERNANCE AND OVERSIGHT

The National Framework Agreement, enacted in each Australian jurisdiction between 1996 and 1999, includes a range of measures to improve health outcomes for Aboriginal people. The establishment of the NT Aboriginal Health Forum (NTAHF) was a key part of the agreement as a collaborative process to inform planning and resource allocation. It constitutes a formal partnership between service providers, health commissioners, policy makers and AMSANT with a particular focus on improving Aboriginal PHC. There are five strategic focus areas of the NTAHF: PHC services, hospitals and specialist care, social determinants of health, health system strengthening and monitoring, and progress evaluation.

The NTAHF has played a key role in the development of Aboriginal heath policy and reform, the transition of government-led services to community control, the development of regionalisation strategies and initiatives such as the NT AHKPI collection and the continuous quality improvement program. The NTAHF has responsibility for overseeing the reporting, monitoring and evaluation of the NT AHKPI system with support from sub-committees.

A key committee providing high level advice to the NTAHF is the AHKPI Steering Committee comprising of representatives from: the Australian Government Department of Health, AMSANT, NT Health, Department of Corporate and Digital Development and the NT Primary Health Network. This committee is delegated the role of NT AHKPI data collection sponsor and aims to improve generation and strategic use of NT AHKPI data to improve health outcomes through Aboriginal PHC systems.

Table 1. Northern Territory Aboriginal Health Key Performance Indicators by population focus, process and health outcomes

DOMAIN	AHKPI NAME	POPULATION	PROCESS INDICATOR	HEALTH OUTCOME INDICATOR
Health care provision	Episodes of care	All	Episodes of care	–
	Client contacts	All	Client contacts	–
Maternal and child health	First antenatal visit	Pregnant women	Timing of antenatal visit	–
	Anaemia in pregnancy	Pregnant women	Haemoglobin tested & recorded	Antenatal anaemia
	Birth weight	Live babies born	Weight at birth recorded	Birth weight measurement
	Fully immunised children	Age < 6 years	–	Children fully immunised
	Timeliness of immunisation	1 month to < 12 months	Timeliness of immunisation	–
	Underweight children	Age < 5 years	Children weighed	Underweight children
	Anaemic children	6 months to < 5 years	Haemoglobin tested & recorded	Anaemic children
	Ear disease in children	Age 3 months to < 6 years	Children examined for ear disease	Evidence of ear disease
Preventive health	Health checks	All	Health checks undertaken	–
	Cervical cancer screening	Female aged 25 to 74 years	Screened for cervical cancer	–
	Tobacco use	Age ≥ 15 years	Smoking status recorded	Tobacco use
Chronic disease management	Chronic disease management plan	Type 2 diabetes and/or coronary heart disease	GP Management Plan undertaken Team Care Arrangement undertaken	–
	HbA1c testing and measurements	Type 2 diabetes and age > 4 years	Diabetic testing undertaken	HbA1c measurements/results
	Angiotensin-converting enzyme (ACE) Inhibitor	Type 2 diabetes and albuminuria	ACE inhibitor prescription coverage	–
	Blood pressure (BP) control	Type 2 diabetes and age > 14 years	Blood pressure recorded	BP measurement outcomes
	Chronic kidney disease (CKD)	Age > 30 years	Assessed for CKD	Risk of CKD
	Rheumatic heart disease (RHD)	RDH or Acute Rheumatic Fever	Adherence to prophylaxis prescriptions	–
	Cardiovascular risk assessment	Age ≥ 20 years	Cardiovascular risk assessment undertaken	Risk of cardiovascular disease
	Diabetic retinopathy	Type 1 or 2 diabetes	Screened for retinopathy	–
Sexual health	Sexually transmissible infections	Age 15 to 34 years	STI testing undertaken	–

METHODS

Study design and population

This report is a time series study comprising annual cross-sectional AHKPI results. The study population is the NT resident Aboriginal population and all indicators focus on this population (or select age groups) for reporting. Only the health care provision indicators include data for all clients inclusive of resident and visitors, and are reported by Aboriginal status. The AHKPI dataset is an aggregated dataset and client level data is not available.

Data have been collected biannually at census dates in June and December. The period of data covered varies by indicator. For example, the data reporting periods up to the census date include: 6 months (e.g. blood pressure measurements), 12 months (e.g. testing for anaemia in children) or 2 to 5 years (e.g. cervical screening). The data is inclusive of NT Health clinic data and ACCHO data, but there are separate processes for maintaining this collection*. Quantitative reports and feedback were obtained from staff of PHC services reporting enablers, barriers and ideas for improvement on each AHKPI for that reporting period, with data provided in May 2023.

For this study, data were extracted from the data warehouse following consultation and approval from the NT AHKPI steering committee and ethics approval obtained from the Human Research Ethics Committee of Northern Territory Health and Menzies School of Health Research; Reference 2022-4407. Data were inclusive of the reporting periods 2010 to 2021.

Variables

The outcome variables are the AHKPIs listed in Table 1. Each indicator includes the reporting of numerator and denominator information. The covariates used to analyse outcome data include: gender inclusive of male, female and non-determinant (low cell size means that this is often not presented in the data); age groups (dependent on the indicator, for example some indicators are adult populations only), NT region (based on geographical distribution of health clinics within NT Government defined regions as shown on the map in Figure 1), and health service size based on the resident population and categorised as: small (0-250 residents); medium (251–500 and 501–1,000 residents); and large (>1,000 residents). Appendix 1, Table 4 lists communities, health services and associated health services sizes by NT region for health services contributing data for AHKPIs.

Analysis

Descriptive analysis was undertaken and reported by demographic characteristics, NT region in which health service operates (Figure 1) and the size of the population for which the PHC service provides care. Indicators were reported by calendar year, except for glycosylated haemoglobin (HbA1c) testing and measurements, and blood pressure control which were reported six monthly in accordance with a more frequent testing requirement.

Population denominators were reported by each primary health service and are based on the residential population. Where the sum of the numerators should have equalled the denominator population and there was a discrepancy; the sum of the numerators were used in place of the reported denominator. For example, if there were results for 6 individuals but only 5 individuals reported in the population denominator, the population denominator was changed to 6.

Data were reported by calendar year, utilising December census dates for indicators with a reporting period of 12 months or more. For indicators with 6 monthly reporting, June and December census dates were used for reporting. Data were not reported when determined to be implausible such as abrupt, unexplained changes in trend not supported in reporting periods immediately before or after the change (e.g. health checks).

Binomial regression models were fitted to test and compare trends over the reporting years and reported as a p value. Trends in the indicators were evaluated overall and by demographic and health service characteristics. A change in outcome was considered statistically significant if the p value was less than 0.05. Analysis was undertaken in Stata standard edition, version 17.

Literature and qualitative data from health services

A literature review was undertaken for AHKPI topics to enable comparisons and contextualise findings with service changes or technological advances. AHKPI qualitative narratives from NT health service staff with local knowledge and lived experience identified enablers and barriers to achieving optimal AHKPI outcomes and ideas for improvements. Themes from these qualitative health service reports were summarised using thematic analysis and have been included in the last paragraph of each AHKPI.

* At census dates, ACCHO data files are uploaded via a portal to the NT Health data warehouse to accompany NT Government clinic data. NT Government clinic data is stored as aggregated, quantitative clinical information from a mixture of NT Health data sources such as the Primary Care Information System (PCIS) and Midwives Collection (MWC).

TERMINOLOGY

An Aboriginal client is defined as an Aboriginal or Torres Strait Islander person who is resident in the community (and area) serviced by the organisation. A baby is considered to be Aboriginal if at least one parent identifies as Aboriginal.[1]

"A resident is an individual who is identified as a regular client of the health service, who usually resides in the community serviced by the health centre, and has been present in the community for at least 6 months of the reporting period, and has had some contact with the health service in the previous 2 years or has recently moved to the community and intends to stay there, and is not deceased, as at the end of the reporting period".[1] Of note, this differs from the national Key Performance Indicators (nKPI) which define a regular client as a client who attended a particular PHC organisation at least three times in the previous 2 years.[15]

LIMITATIONS

The AHKPI data is an aggregate, non-identifiable dataset provided by health services. This means that only cross-sectional analyses can be undertaken and no casual inferences can be made. This analysis can monitor outcomes in health care provision and describe or test differences over time and between sub-populations based on demographic or locational categories. However, the data cannot be used to track outcomes in individuals over time or test exposure and outcome relationships.

Further, there have been limitations with the defining of resident population. Due to the mobility of the service population in NT, it is inevitable that some individuals would have been counted as a resident in more than one health service in the same reporting period. Duplicate client records cannot be removed because the data structure is an aggregate format and individuals cannot be identified. Hence, some indicators in the AHKPI results are likely to be an under report of the true service delivery because clients may be captured by multiple clinics but receive the service only in one clinic. This under reporting is unable to be quantified due to the aggregate, de-identified nature of the AHKPI data collection.

Additionally, the data should not be used to determine prevalence of disease or a condition due to the following limitations: potential duplication in clients reported by services; inconsistent reporting by services of some indicators across years; and increased disease detection over time associated with testing or systems improvements. In this setting, reporting of clinical activity is reliant on busy frontline staff entering data in the midst of competing priorities, access to functioning information and communication technology at the point of health delivery, often in very remote places with very high staff turnover. While health staff have professional obligations to document all care provided, it is possible that some episodes of care may be incomplete which could underestimate the services provided.

We have summarised the findings by NT region and health service size to prevent identification of individual health services. This grouping assumes health services in and across the regions have a very similar resident population. This assumption can be problematic particularly where the region has a combination of urban and remote locations. For example, the Top End and Darwin region includes health services that service people in remote West Arnhem and the Darwin urban area. Population demographics and access to PHC across this region vary significantly. Furthermore, confounding will have influenced the reporting, including the distribution of urban verses remote based clinics and the different population structures by NT region. These confounders cannot be controlled for due to the data structure.

The lack of workforce data is a key limitation of this current dataset. In the health service narratives accompanying the quantitative data, recurring themes included: high staff turnover, a reliance on short-term agency staffing, and vacancies in dedicated portfolio staff (e.g. child health, diabetes educator and chronic disease). These workforce dynamics contribute to the lack of continuity of care, in particular for health prevention and promotion activities. Also described was the high burden of acute care presentations that presents an opportunity cost, diverting finite staff away from core PHC activity to deal with emergency care.[16]

SUMMARY OF AHKPI FINDINGS

A summary of findings for each AHKPI is shown in Table 2 with a green tick ✓ indicating a statistically significant improvement, an equals sign ≈ demonstrates stable or little or no statistically significant change over time and red cross ✗ indicating statistically significant reduction in outcomes.

Table 2 Summary of AKPKI trends 2010–2022

MEASURE	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	OVERALL TREND
Number of Aboriginal residents in primary health care services					60,959	63,546	65,742	67,633	69,265	68,203	67,874	69,456	
HEALTH CARE PROVISION													
Mean number of episodes of care per person					12.4	11.8	11.8	11.6	11.0	11.0	10.8	10.9	✗
Mean number of client contacts per person					15.6	15.2	15.4	15.6	15.1	15.1	14.4	14.9	≈
MATERNAL AND CHILD HEALTH													
First antenatal visit within 13 weeks gestation (%)	44.5	45.0	46.7	49.1	49.2	49.3	54.6	54.8	57.6	56.5	58.2	54.0	✓
Anaemia in pregnancy:													
o tested for anaemia (%)										90.2	92.6	90.5	≈
o anaemic (%)										47.7	44.9	40.4	✓
Low birth weight (%)	14.6	16.1	12.4	13.8	12.4	15.4	15.3	14.1	16.0	13.7	17.2	14.8	≈
Fully immunised children < 6 years (%)	84.9	89.3	78.4	89.6	91.0	87.4	87.3	86.5	86.7	82.9	85.0	81.1	✗
Timely Immunisations < 12 months (%)				80.3	81.0	81.5	80.7	76.2	77.5	80.7	75.2		✗
Underweight children													
o weight measured (%)	86.3	81.9	86.1	86.8	89.5	87.5	89.5	89.3	87.6	90.1	87.3	87.0	≈
o underweight (%)	4.4	4.1	4.7	4.4	4.1	4.4	4.3	4.3	4.2	3.5	3.5	3.7	≈
Anaemia in children:													
o Hb tested (%)	59.7	61.5	70.8	72.6	77.3	76.4	75.6	75.9	74.5	75.9	70.4	65.7	✓
o anaemic (%)	15.6	14.5	19.5	17.5	16.9	14.4	13.4	13.5	12.0	11.5	10.7	9.4	✓
Ear disease in children:													
o examined (%)								74.6	76.2	78.2	74.0	71.9	≈
o with ear disease (%)								21.2	18.8	18.6	15.7	14.5	✓

Key: Statistically significant trends ✓ = improved; ✗ = not improved/declined; ≈ = stable or no change.

The years 2020 and 2021 are shaded to reflect the COVID-19 pandemic, as many AHKPIs were impacted over this period and may not reflect overall trends. Where cells are blank, data is not available for this period.

MEASURE	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	OVERALL TREND
PREVENTATIVE HEALTH													
Adult health checks (%)	17.4	17.7	21.0	37.3	52.6	49.7	55.8	57.0		59.4	57.5	52.5	✓
Child health checks (%)										47.7	43.9	39.3	✗
Cervical cancer screening:													
o 2nd yearly (%)		38.1	42.4	45.9	46.1	46.7	46.8	42.7					≈
o 5 yearly (%)									65.4	66.4	65.0	57.3	✗
Smoking status:													
o documented (%)							63.5	65.9	66.8	68.0	67.7	63.1	≈
o current smokers (%)						55.3	55.0	54.8	55.1	54.6	53.9	53.5	≈
CHRONIC DISEASE MANAGEMENT													
Chronic Disease Management Plan for clients with:													
o diabetes (%)		56.5	59.8	63.0	64.8	64.0	66.0	69.3	70.2	68.6	64.2	61.9	✓
o CHD* (%)		56.4	60.5	63.2	65.8	65.7	67.2	67.8	67.6	65.7	62.4	61.5	✓
o diabetes & CHD* (%)		65.5	68.9	72.0	74.1	72.4	75.1	76.1	75.9	73.5	68.4	66.9	≈
Team Care Arrangements for clients with:													
o diabetes (%)		43.8	49.2	55.1	59.1	59.9	62.4	66.0	55.7	66.5	62.0	59.7	✓
o CHD* (%)		44.9	51.7	55.3	59.9	60.6	62.3	63.8	55.1	62.9	59.9	58.6	✓
o diabetes & CHD* (%)		53.4	61.3	66.2	63.1	62.8	64.6	67.3	67.2	66.7	60.8	59.2	✓
Glycaemic control for clients with diabetes:													
o tested 6 monthly (%)	56.3	54.8	60.1	64.7	67.7	64.9	68.5	70.4	67.5	69.4	67.2	69.8	✓
o good control (%)				32.3	35.2	34.4	37.4	37.1	37.2	36.4	30.8	34.4	≈
Angiotensin-converting enzyme inhibitors prescription for clients with diabetes & albuminuria (%)	79.5			89.7	91.6	86.5	85.0	83.3	82.8	83.3	82.0	82.8	≈

Key: Statistically significant trends ✓ = improved; ✗ = not improved/declined; ≈ = stable or no change.

The years 2020 and 2021 are shaded to reflect the COVID-19 pandemic, as many AHKPIs were impacted over this period and may not reflect overall trends. Where cells are blank, data is not available.

*CHD: Coronary heart disease

MEASURE	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	OVERALL TREND
Blood pressure (BP) measurements for clients with diabetes:													
○ tested 6 monthly (%)					81.4	80.6	80.6	81.0	79.5	79.6	76.8	72.9	✗
○ BP normal limits (%)					45.9	49.1	47.7	47.3	44.8	44.4	42.3	40.9	✗
Chronic kidney disease risk, clients > 30 years:													
○ kidney function tested (%)						72.6	73.7	74.7	75.3	76.4	75.0	71.4	≈
○ normal risk (%)						37.9	40.5	42.6	44.0	44.3	44.1	42.6	✓
○ high/severe risk (%)						7.1	7.1	7.1	6.8	6.6	6.8	6.8	≈
Rheumatic heart disease ≥80% benzathine penicillin G doses administered (%)					40.3	43.0	45.0	44.9	44.3	45.4	43.2	37.7	✗
Cardiovascular risk for clients ≥20 years:													
○ assessed (%)							41.1	48.4	46.5	46.0	48.3	44.2	≈
○ high risk of disease (%)							35.2	35.8	33.8	33.1	34.3	36.3	≈
Retinal screening for clients with diabetes (%)							29.9	33.9	33.5	31.4	29.7	28.4	≈
SEXUAL HEALTH													
Tested for sexually transmissible infection (%)							25.6	37.2	38.1	40.8	40.2	35.7	✓

Key: Statistically significant trends ✓ = improved; ✗ = not improved/declined; ≈ = stable or no change. The years 2020 and 2021 are shaded to reflect the COVID-19 pandemic, as many AHKPIs were impacted over this period and may not reflect overall trends. Where cells are blank, data is not available for this period.

CHAPTER 2. HEALTH CARE PROVISION

KPI 1.1 KEY FINDINGS

- From 2010–2021, the total number of episodes of care increased 14.2%, from 784,103 to 895,330; however rate of episodes per person decreased from 12.4 (2014) to 10.9 (2021).
- The episodes of care per resident population was high across all NT regions and years, at greater than eight episodes of care per resident client.
- The total client contacts increased 30.1% from 942,573 client contacts in 2010 to 1,226,705 client contacts in 2021. Analysed per person, client contacts remained stable from 15.6 (2014) to 14.9 contacts per person in 2021.
- There has been a 14.5% increase in the resident population* between 2014 (n=71,775) and 2021 (n=82,189).

*Note population data was collected from 2014 onwards.

KPI 1.1 EPISODES OF CARE

An episode of care is defined as a contact between a client and one or more staff members of a service.[1] The indicator provides a count of the overall number of individual client visits to a primary care service. This data has been collected since December 2010.

The number of episodes of care increased from 784,103 in 2010 to 895,330 in 2021, representing a 14.2% increase (Figure 2). Between 2017 and 2020, there was a slight decline in episodes of care. The declines in 2017 and 2018 are within range of previous years. From 2019 to 2020, the decrease in episodes of care could be explained by COVID-19 measures in which non-urgent PHC appointments and services were avoided.

The majority of care episodes were provided to Aboriginal residents (Figure 3). In 2010, 80.5% of clients receiving an episode of care were Aboriginal residents, 8.5% were Aboriginal visitors, 8.3% were non-Aboriginal residents and 1.9% were non-Aboriginal visitors. In 2021, 75.1% of clients receiving episodes of care were Aboriginal residents, 13.6% were Aboriginal visitors, 7.5% were non-Aboriginal residents and 3.4% were non-Aboriginal visitors.

Figure 2 Number of episodes of care in Northern Territory Primary Health Care Services, 2010–2021

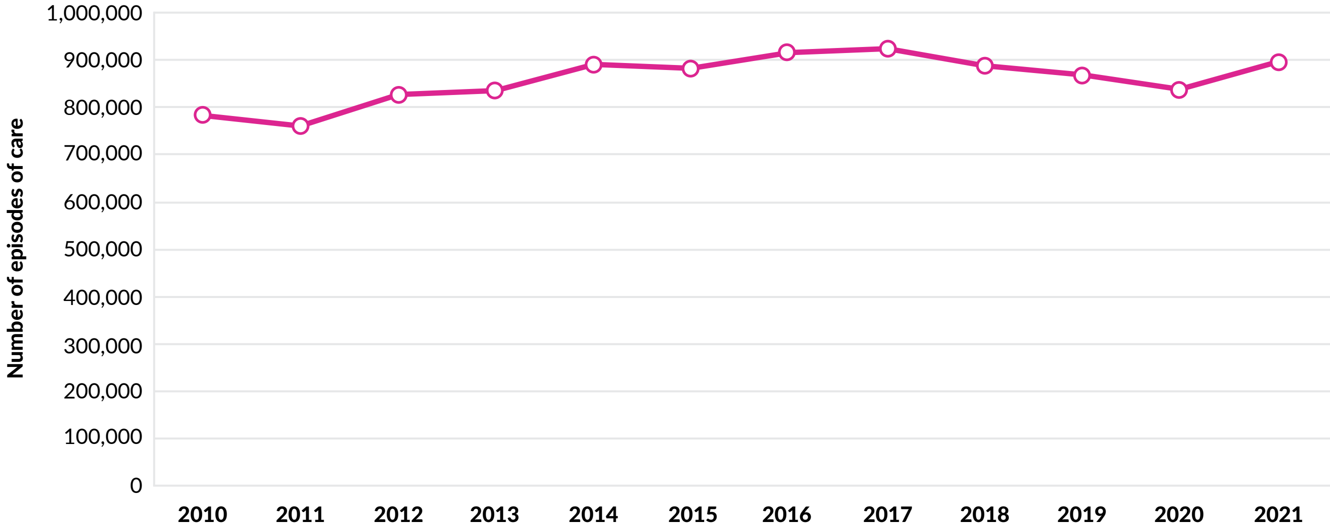
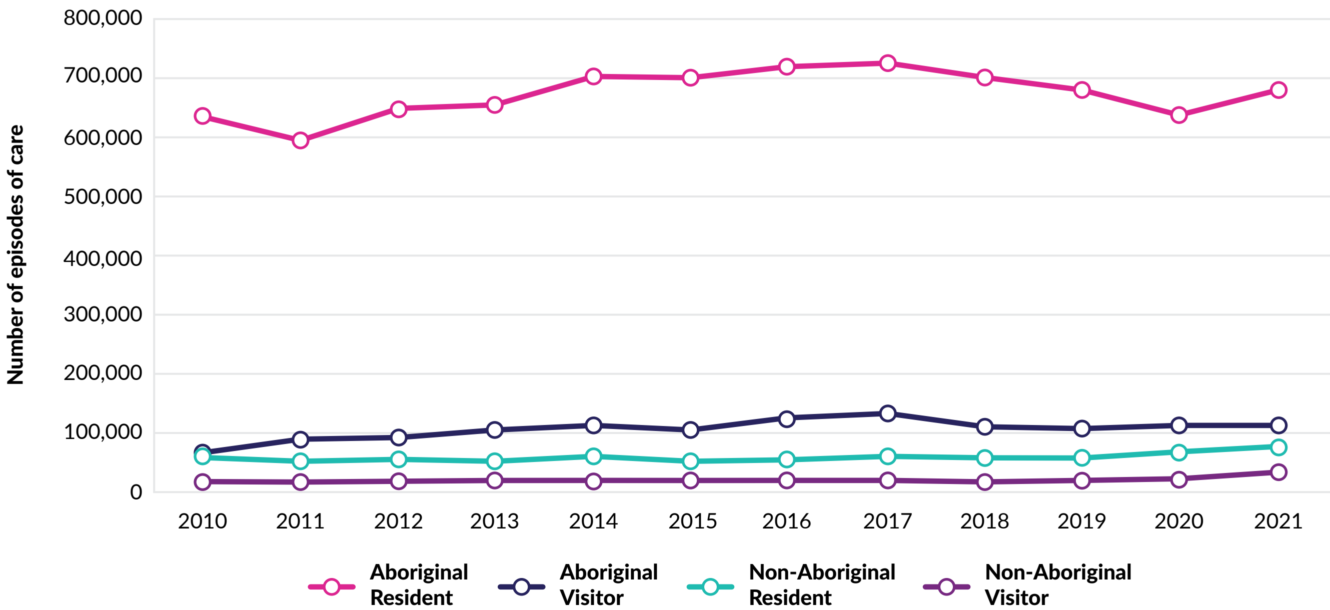


Figure 3 Number of episodes of care by Aboriginal status and residency, 2010–2021*



Note: *Data in this figure excludes episodes of care provided to those clients with not stated Aboriginal status (n=42,616, 0.4%).

While there has been overall growth in the number of episodes of care, there were no observable changes by age groups from 2011 to 2021 (Figure 4). The greatest number of care episodes each year were provided to those aged 25–44 years and 45–64 years. There was no difference in episodes of care by gender.

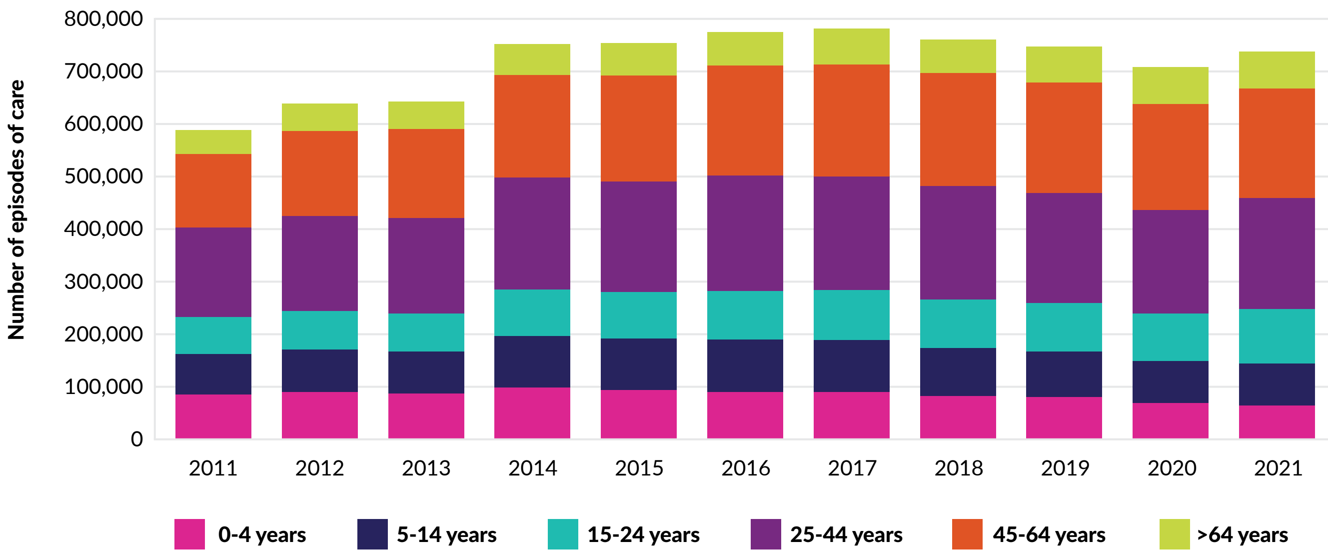
By regions, Central Australia had the highest number of episodes of care across all years up to 2020 (Figure 5). In 2021, the Top End had the highest number of episodes of care.

Population data was included in the AHKPIs dataset from 2014, providing the opportunity to calculate rates of episodes of care. The mean episodes of care per population declined from 12.4 episodes per person in 2014 to 10.9 episodes per person in 2021 (Figure 6). Overall, rates were lowest in the Barkly region at 8.9 episodes of care per person in 2014 and highest in Central Australia at 16.0 episodes of care per person in 2014.

In 2021, the mean episodes of care per person and general trend by region were:

- **Top End and Darwin** – 9.1 episodes of care per person. Stable trend from 2014-2021.
- **East Arnhem** – 13.7 episodes of care per person. Stable trend from 2014-2021.
- **Big Rivers** – 12.7 episodes of care per person. Stable trend from 2014-2020 and a slight increase in 2021.
- **Barkly** – 8.3 episodes of care per person. Trend increase from 2014-2020, and decline in 2021.
- **Central Australia** – 11.6 episodes of care per person. Declining trend from 2014-2020.

Figure 4 Number of episodes of care provided to Aboriginal residents* by age group, 2011–2021



Note: *Figure excludes: 2010 data because of the different categorisation of age groups: 0-14, 15-24, 25-44, 45-64, >64 (n= 784,103, 7.6%); episodes of care provided to visitors (n=1,555,856, 15.1%), episodes of care provided to non-Aboriginal residents (n=936,647, 9.1%) and episodes provided to those with unknown Aboriginal status (n=42,616, 0.4%).

Figure 5 Number of episodes of care by NT region, 2010–2021

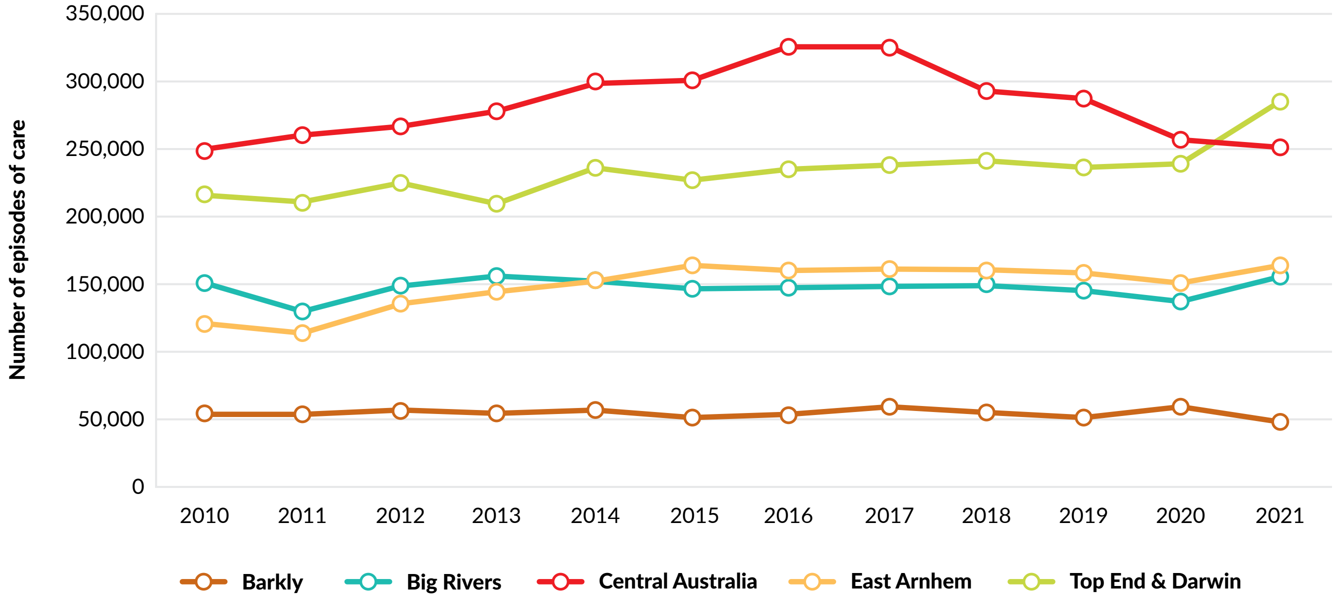
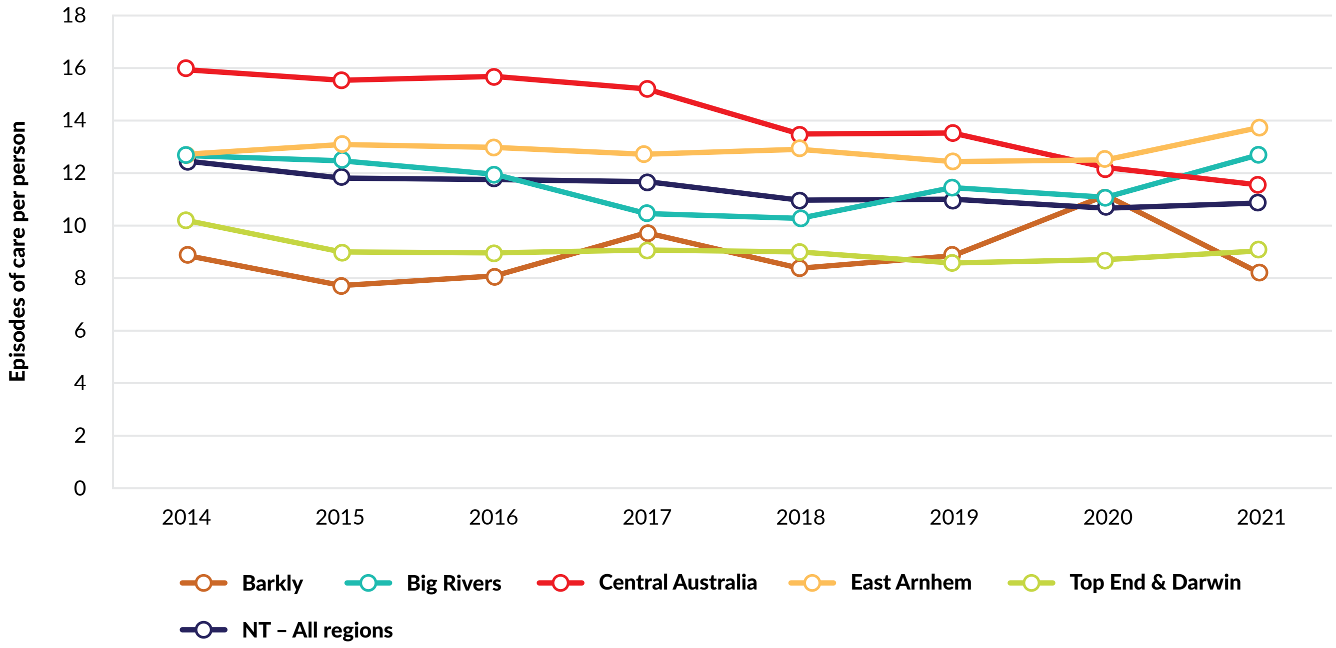


Figure 6 Mean number of episodes of care per person by NT region, 2014*–2021



Note: *Population was added to AHKPI data from 2014.

KPI 1.1 CLIENT CONTACTS

Client contacts are defined as the total number of human resources involved during client care, including health professionals, administrative staff and those involved in the logistics (e.g. field officers and drivers).[1] The management of chronic disease requires a multidisciplinary health care team including GPs, medical specialists, practice and remote area nurses, allied health professionals, Aboriginal health practitioners (AHP) and Aboriginal health workers (AHW). Most health centres are staffed by nurses, AHPs or AHWs, with regular visits from GPs, medical specialists and allied health professionals. This indicator measures the total number of staff contacts contributing to the care of clients, inclusive of Aboriginal and non-Aboriginal residents, and visitors.

There has been a steady growth in the number of client contacts from 2010 to 2021 (Figure 7). In 2010, PHC services reported 942,573 client contacts, increasing to 1,226,705 client contacts in 2021. This represents a 30.1% increase in client contacts. In 2020, there was a slight decrease in the reported clients contacts (n= 1,116,188 contacts), associated with service changes during the COVID-19 pandemic. Service changes included ceasing non-urgent primary health care appointments and attempting to increase telehealth appointments.

Outside the pandemic years, although the number of client contacts has increased, the mean episodes of care per person has remained stable from 2014 to 2021 (Figure 8). There were 15.6 contacts per client in 2014 and 14.9 contacts per client in 2021.

Figure 7 Number of client contacts, 2010–2021

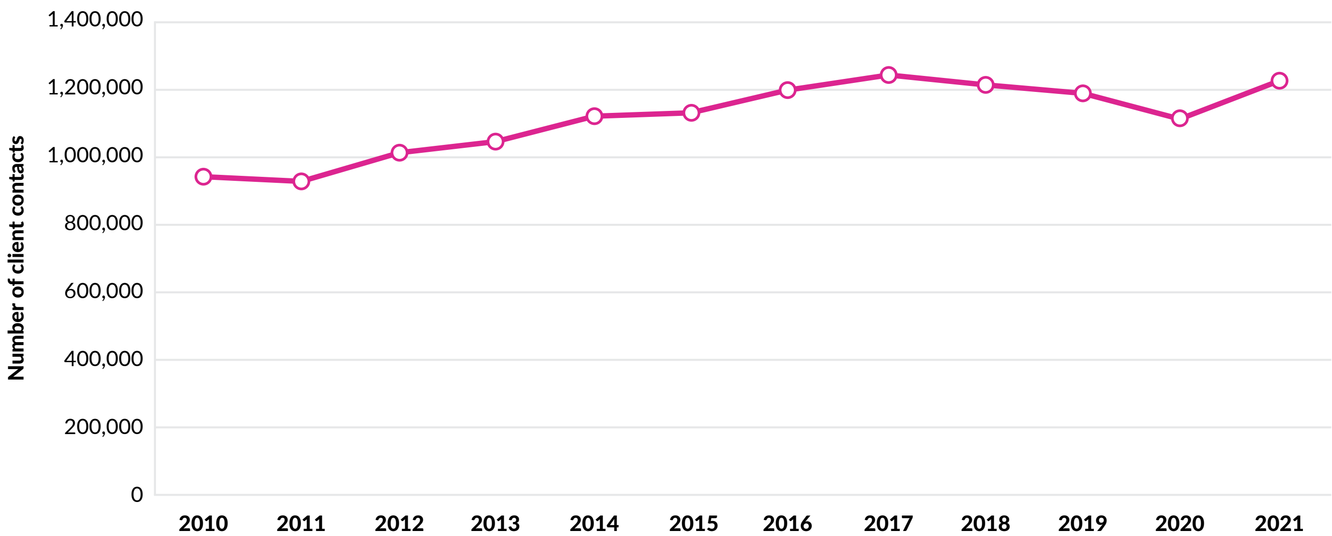
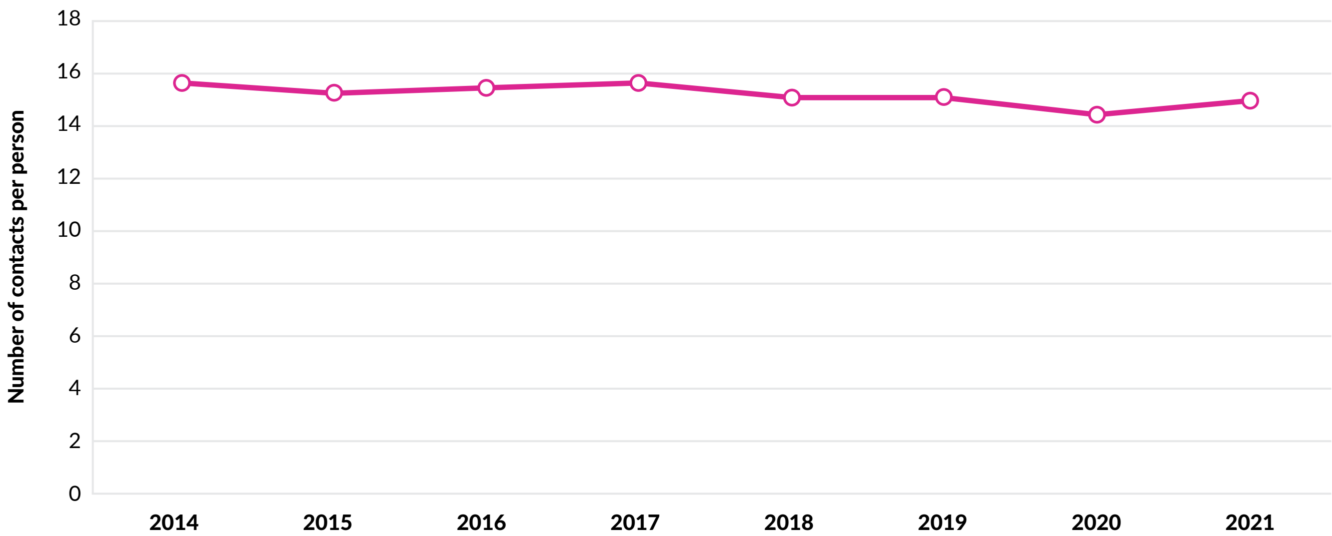


Figure 8 Mean number of client contacts per person, 2014*–2021



Note: *Population was added to AHKPI data from 2014.

By region, Central Australia had the greatest number of client contacts from 2010 to 2020, averaging 364,314 per year, and ranging from 298,131 to 431,163 (Figure 9). In 2021, Top End and Darwin had the most client contacts at 374,440. There were fewer client contacts in the other regions, reflecting their smaller service populations.

By service size, the largest growth in the number of client contacts has been in health services with>1,000 residents (Figure 10). The number of client contacts remained stable for small services (0-250 clients, 251-500 residents, 501-1000 residents) in the reporting period. Noting the number of client contacts aligns with the health service size, larger services (>1,000 residents) report more client contacts than smaller services.

Figure 9 Number of client contacts by NT region, 2010–2021

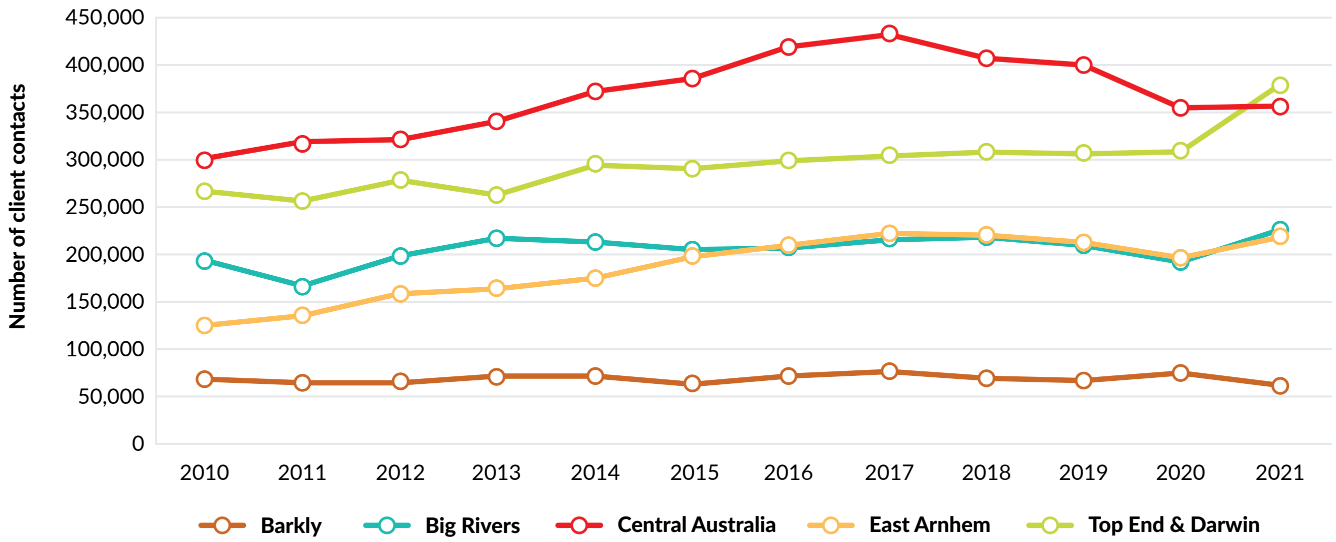


Figure 10 Number of client contacts by health service size, 2010–2021

HEALTH SERVICE OBSERVATIONS

Health services stated the greatest enablers for optimal episodes of care and client contacts were committed and stable health and administrative staff who had good rapport and engagement with community, inclusive of local and portfolio-specific staff (e.g. chronic disease or child health nurse). For men, a dedicated men's only clinic, men's health forums and the availability of male staff to provide culturally appropriate care were important. Staff shortages, particularly during COVID-19 related travel restrictions and redirection of usual outreach staff to the vaccination campaign were voiced as major barriers for 2020–2021. Insufficient accommodation for outreach staff, population mobility and staff turnover were barriers to provision of health services. Many services cited challenges to recruit and retain staff and recommended improving support for local employment.

KPI 1.1 RESIDENT POPULATION

The definition of a resident is 'an individual identified as a regular client of the health service, who usually resides in the community serviced by the health centre, has been present in the community for at least 6 months of the reporting period, and had some contact with the health service in the previous 2 years or has recently moved to the community and intends to stay there, and is not deceased as at the end of the reporting period'.[1]

The AHKPI population has been recorded in the dataset since 2014. There has been a 14.5% increase in the population serviced between 2014 (n=71,775) and 2021 (n=82,189) (Figure 11). This is slightly higher than the 74,877 estimated NT resident Aboriginal population in 2021, suggesting there is some duplication of residents across health centres, which overestimates the AHKPI population.[17] The relative proportion of females to males and Aboriginal to non-Aboriginal residents has remained stable over the period. The slight drop in population in 2019 and 2020 was due to less non-Aboriginal residents and fewer residents with not stated Aboriginal status in these years. The proportion of Aboriginal people serviced by PHC services accounted for 88.1% (n/N = 60,959/69,217) of the total NT Aboriginal population in 2014 and 92.8% (n/N=69,456/74,877) of the NT Aboriginal population in 2021.[11]

The service population recorded in 2021 was 82,189 people, including 51.7% females and 48.2% males. Within this population: 84.5% were Aboriginal, 14.6% were non-Aboriginal and less than 0.9% were missing Aboriginal status (Figure 12). By age groups, Aboriginal females 25-44 years were the largest group.

Figure 11 Number of residents in primary health care services in the NT, 2014–2022

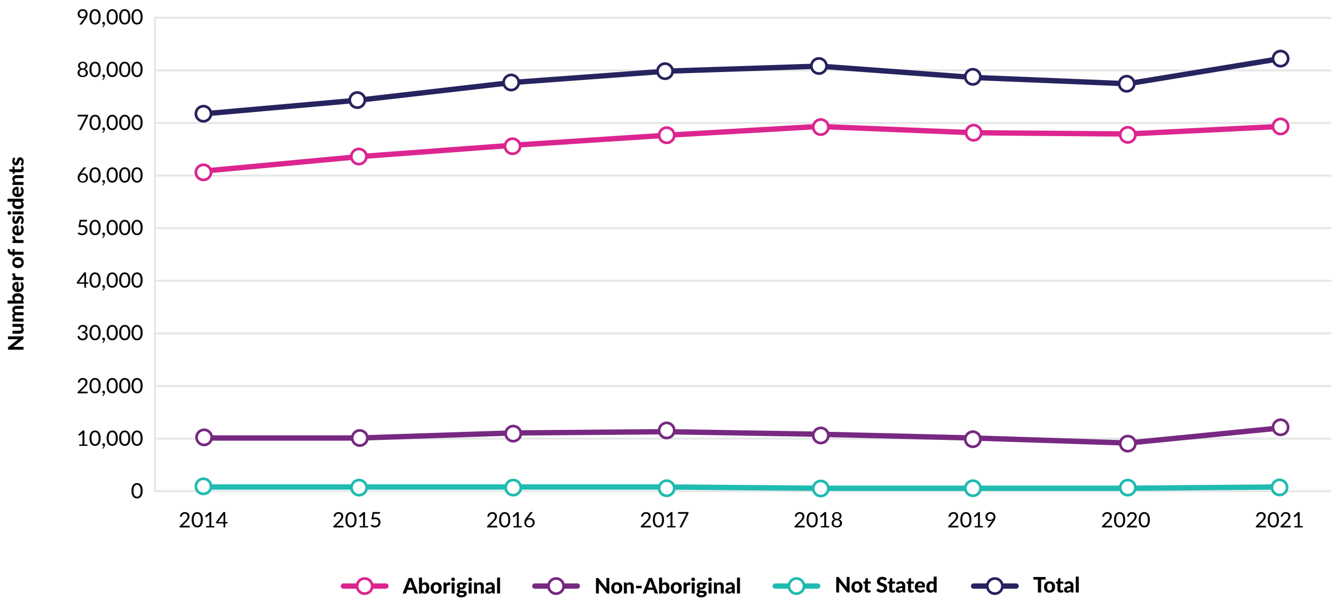
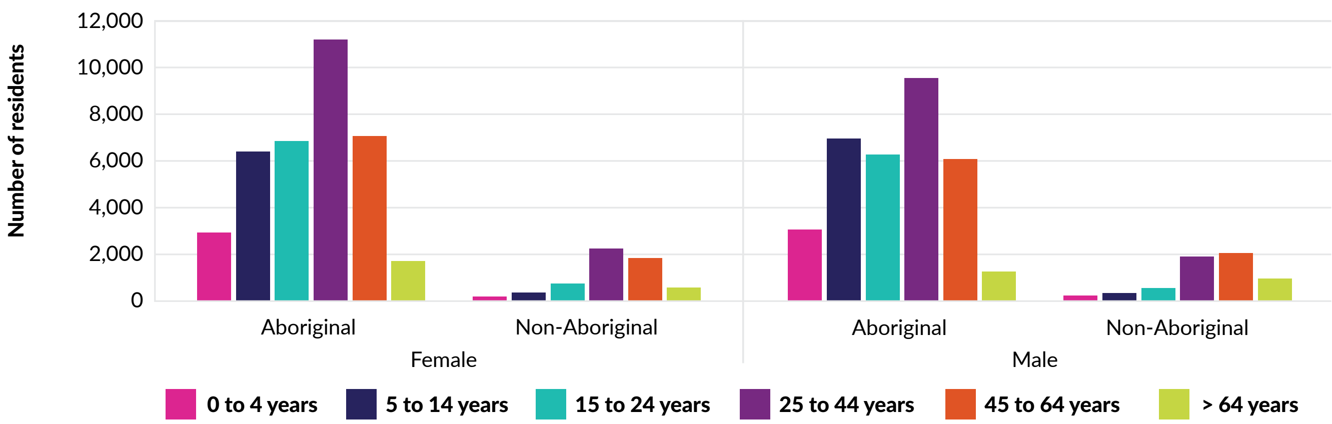


Figure 12 Health Service population of Aboriginal and non-Aboriginal residents by gender and age group, 2021



Note: Data in the figure excludes clients with Aboriginal status recorded as 'not stated' (n=702, 0.1%).

CHAPTER 3. MATERNAL AND CHILD HEALTH

KPI 1.2.1 FIRST ANTENATAL VISIT

KPI 1.2.1 KEY FINDINGS

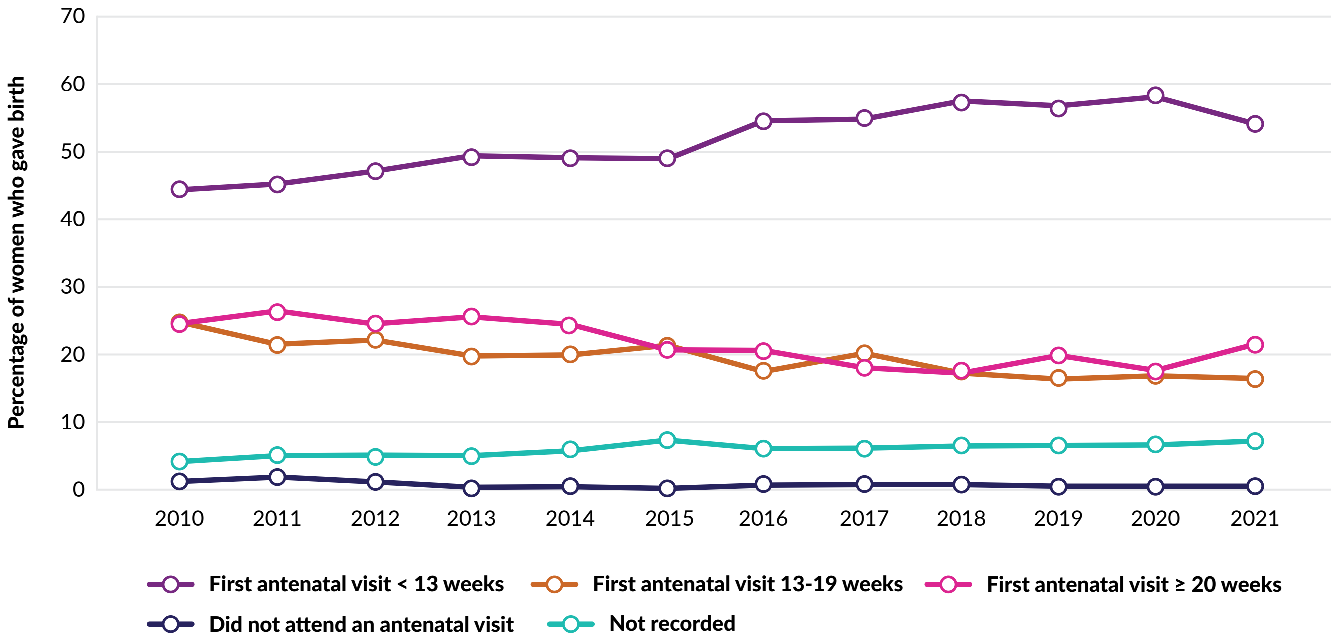
- There has been a significant increase in women attending antenatal appointments within the first 13 weeks of gestation, rising from 44.5% in 2010 to 54.0% in 2021.
- Antenatal attendance within 13 weeks gestation increased across all maternal age groups, but women aged less than 20 years were less likely to attend an antenatal appointment early in pregnancy compared to their older peers.
- Big Rivers had the highest proportion of women attending antenatal appointments within 13 weeks and greatest gains in early antenatal attendance, rising from 47.5% of women in 2010 to 57.9% in 2021.

Antenatal care is an important intervention to identify and modify factors that may affect the health of the mother and child.[18] The World Health Organization (WHO) recommends the first antenatal visit occurs within the first trimester (before 13 weeks) to assess maternal health status, detect multiple pregnancies and major congenital defects.[18] Perinatal outcomes are associated with the timing and quality of antenatal care with evidence suggesting Aboriginal women tend to access antenatal care later and have fewer visits.[19, 20]

This AHKPI measures residents who gave birth to an Aboriginal baby during the reporting period and timeliness for the first antenatal visit, categorised into first visit before 13 weeks gestation, visit between 13 and 19 weeks, over 20 weeks gestation and no antenatal visit during pregnancy.[1]

The number of live births peaked at 1,201 births in 2012, decreasing to 1,023 births in 2021. Figure 13 shows there was a significant increase in the proportion of women attending antenatal appointments before 13 weeks of gestation from 44.5% of pregnant women in 2010 to 54.0% in 2021 ($p<0.001$). The highest attendance at antenatal care in early gestation was observed in 2020 with 58.2% of pregnant women having their first antenatal visit within 13 weeks gestation.

Figure 13 Proportion of women attending first antenatal visit by gestational age, 2010–2021



It is important to note that there was a lower proportion of first antenatal visits reported in the AHKPI dataset than the results reported by the Perinatal Registry in the annual NT Mothers and Babies reports. In these reports, at 2010 50.0% of Aboriginal mothers had an antenatal visit before 13 weeks gestation[21] increasing to 71.9% of Aboriginal mothers in 2020.[22] This might reflect a lower data quality in the AHKPI, the use of different datasets for reporting (in AHKPIs, this indicator is reported by ACCHOs from their client database whereas NT Health clinics report from the Midwives Collection) and different approaches used to handling of missing data. We recommend further investigation should be undertaken, particularly in regards to the results found in the Barkly region that have been removed from this report due to very low proportions observed.

The increased proportion of women attending antenatal appointments prior to 13 weeks gestation was observed across all age groups (Figure 14). Pregnant women under 20 years were less likely to attend an antenatal appointment before 13 weeks gestation compared to older women ($p<0.001$). The majority (72.5%) of women giving birth were aged 20 to 34 years, 19.3% were under 20 years and 8.3% were over 34 years.

Among NT regions, Big Rivers had the highest proportion of women attending antenatal appointments within the first 13 weeks of gestation and the greatest increase in early antenatal attendance, rising from a baseline of 47.5% of women in 2010 to 57.9% in 2021 (Figure 15). All regions showed a positive trend in antenatal attendance within 13 weeks gestation from 2010 to 2021.

Figure 14 Proportion of women who gave birth and attended the first antenatal visit within 13 weeks gestation by maternal age, 2010–2021

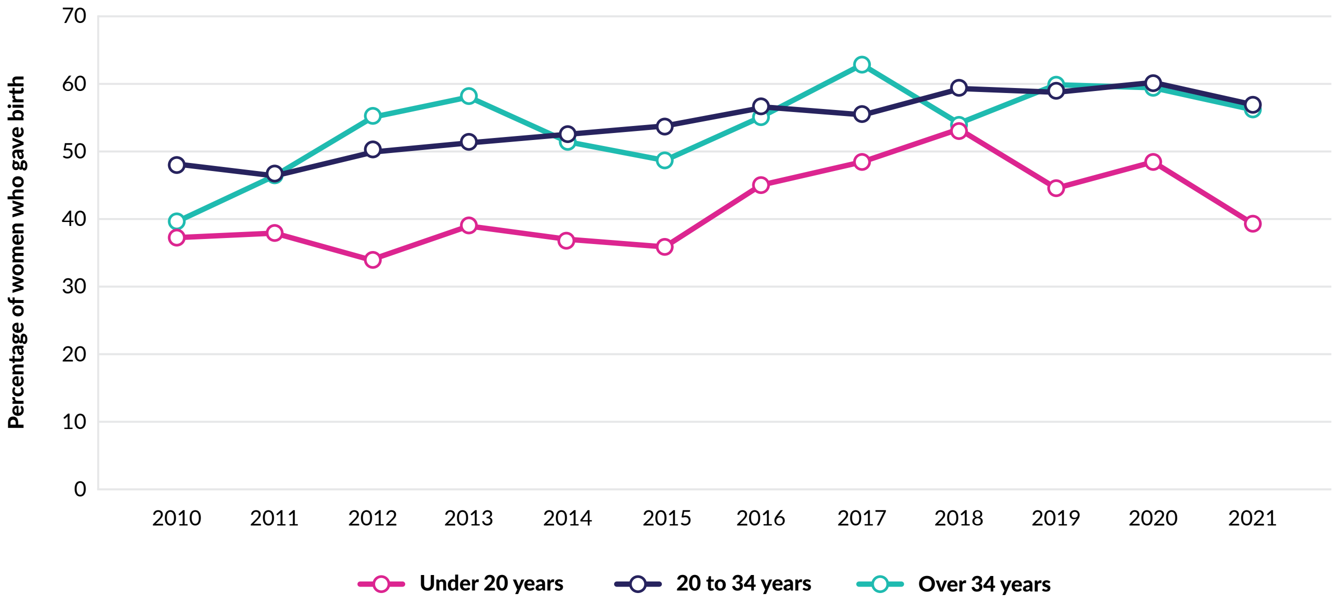
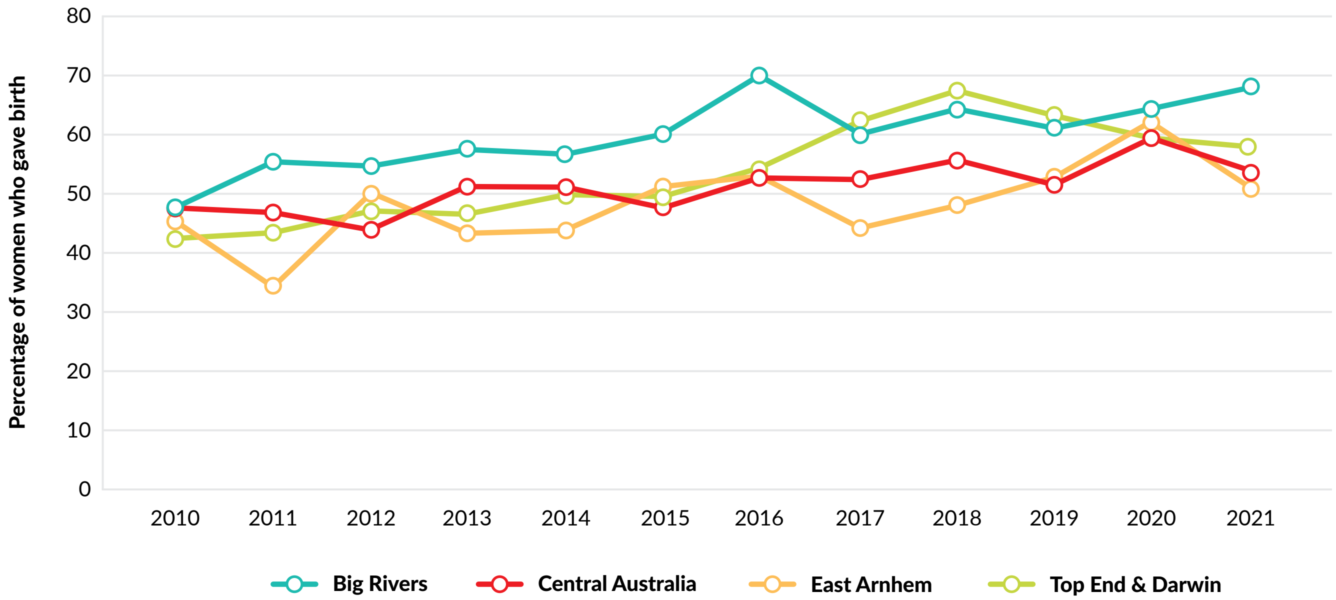


Figure 15 Proportion of women attending first antenatal visit within 13 weeks gestation by NT region*, 2010–2021



Note: *Barkly region has been removed due to potential erroneous data.

HEALTH SERVICE OBSERVATIONS

Health services stated that a midwifery workforce was a major enabler of early pregnancy care and antenatal clinic attendance.[16] In particular, services expressed that antenatal attendance was enhanced where there was a long-term, committed and pro-active midwife (resident or outreach service) who had good rapport and engagement with young female community members. Conversely, a cited barrier was the inability to recruit and retain a midwife and provide coverage during midwife absences of leave. Lack of client and/or health practitioner awareness of pregnancy prior to 13 weeks was stated as another reason for late antenatal attendance.

KPI 1.2.2 ANAEMIA IN PREGNANCY

KPI 1.2.2 KEY FINDINGS

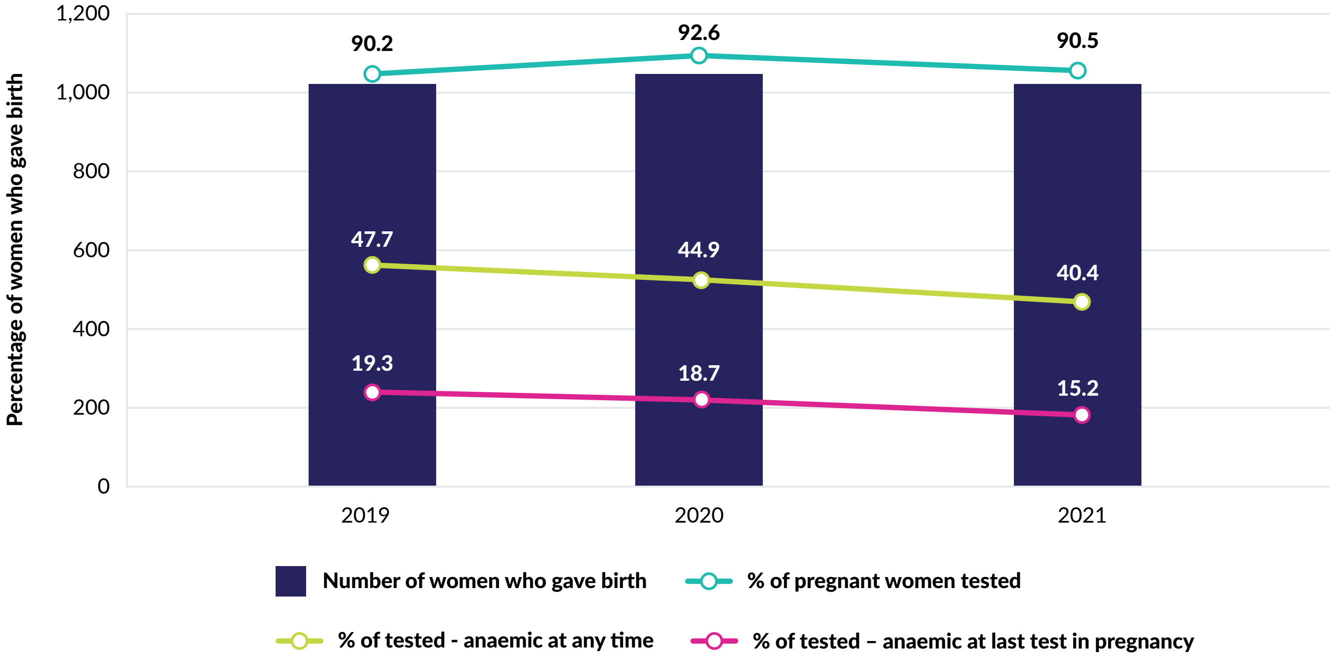
- Between 2019 and 2021, over 90% of women were tested for anaemia during pregnancy.
- The proportion of women who were anaemic at any time during pregnancy decreased from 47.7% in 2019 to 40.4% in 2021.
- A much lower proportion of women, ranging 15.2% in 2021 compared to 19.3% in 2019, were anaemic on their last test in pregnancy, indicating effective interventions to correct low haemoglobin levels following an abnormal result earlier in pregnancy.

Haemoglobin (Hb) levels are a measure of the oxygen carrying capacity of the blood and are one indicator of nutritional status.[23] Testing during pregnancy is recommended for early identification, investigation and treatment of the underlying cause of anaemia (low concentrations of Hb) to promote optimal health outcomes for mother and child.[1, 23]

This AHKPI reports anaemia testing and results for resident women giving birth to an Aboriginal baby during the annual reporting period. Anaemia is defined as a haemoglobin level of less than 110g/L up to 20 weeks of pregnancy, or less than 105g/L from 20 weeks of pregnancy.[1, 23] Results are reported as the proportion of women with evidence of anaemia at any time during pregnancy and at their last test during pregnancy. Collection of data for this AHKPI commenced in 2019.

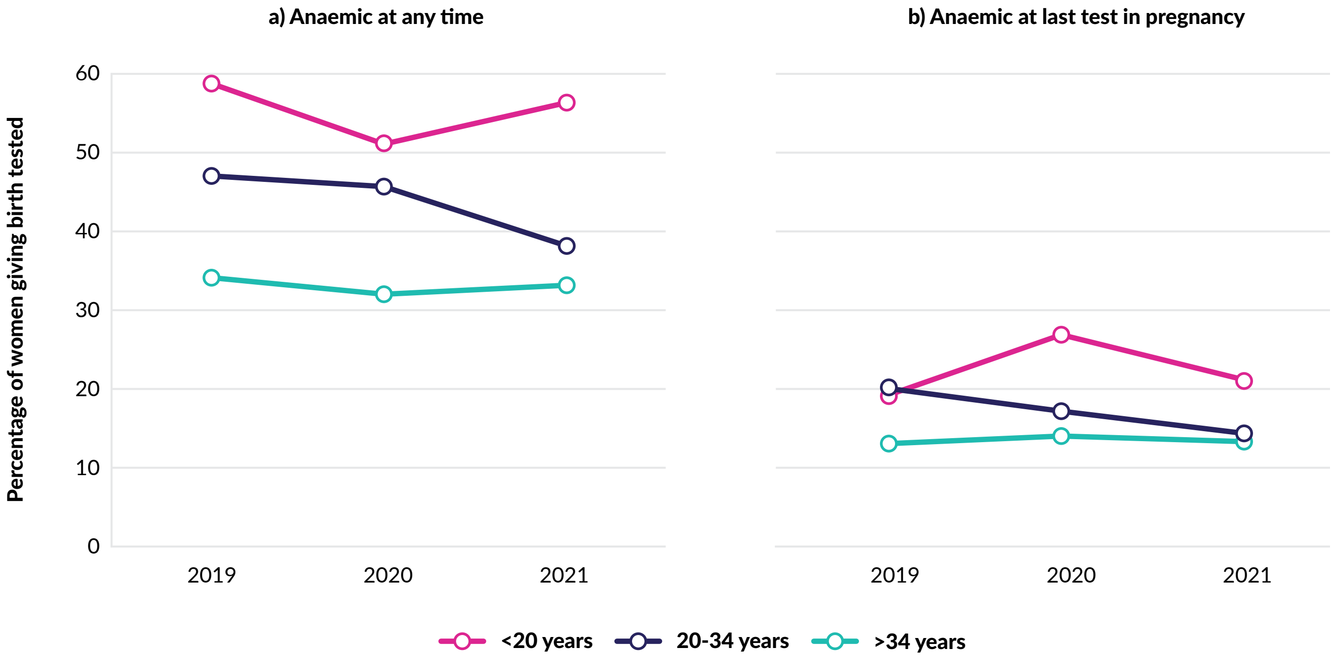
Between 2019 and 2021, 90.2% to 92.6% of pregnant women were tested for anaemia (Figure 16). The proportion of women who were anaemic at any time during pregnancy decreased from 47.7% in 2019 to 40.4% ($p<0.01$) in 2021. A lower proportion of women, 15.2% compared to 19.3% were anaemic on their last test in pregnancy in 2021, suggesting effective and acceptable interventions to correct low haemoglobin levels were implemented over time.

Figure 16 Number of women who gave birth to an Aboriginal baby, proportion tested for anaemia and proportion of women tested who were anaemic at any time and at last test in pregnancy, 2019–2021



Younger women were more likely to be anaemic during pregnancy (Figure 17). Between 51.0% and 59.0% of pregnant women under 20 years were anaemic at any time during pregnancy. This was significantly higher than women aged 30 to 34 years (range 38.1% to 46.8%) and over 34 years (32.1% to 34.8%) ($p<0.001$). While the gap between age groups had narrowed by the last test in pregnancy, the proportion of women under 20 years who were anaemic at their last test remained significantly higher than for other women in 2020 and 2021 ($p<0.05$).

Figure 17 Proportion of women tested who were anaemic (a) at any time and (b) on the last test in pregnancy by maternal age, 2019–2021



HEALTH SERVICE OBSERVATIONS

Health services reported that factors that influence anaemia in pregnant women included: food security, health literacy and antenatal care arrangements, including a consistent relationship with a midwife. Clients' engagement with a proactive and consistent midwife was seen as a major enabler to addressing anaemia in pregnancy. Health services also suggested the ability to refer a client to a dietitian to assist with education was an important enabler. Important enablers for decreasing antenatal anaemia include: good collaboration between primary health care teams and opportunities for remote area nurses to assist midwives in assessing and addressing anaemia in pregnancy and the incorporation of iron infusion late in pregnancy as standard treatment.

KPI 1.3 BIRTH WEIGHT

KPI 1.3 KEY FINDINGS

- The majority of babies were born with normal birth weight (81.5% to 86.6%); 12.4% to 16.1% were of low birth weight and 1.0% to 1.8% high birth weight. This remained consistent across all years.
- Health services over 1,000 people had a higher proportion of babies born with low birth weight (13.7% to 18.1%) compared to health services with less than 1,000 people (10.0% to 16.0%).

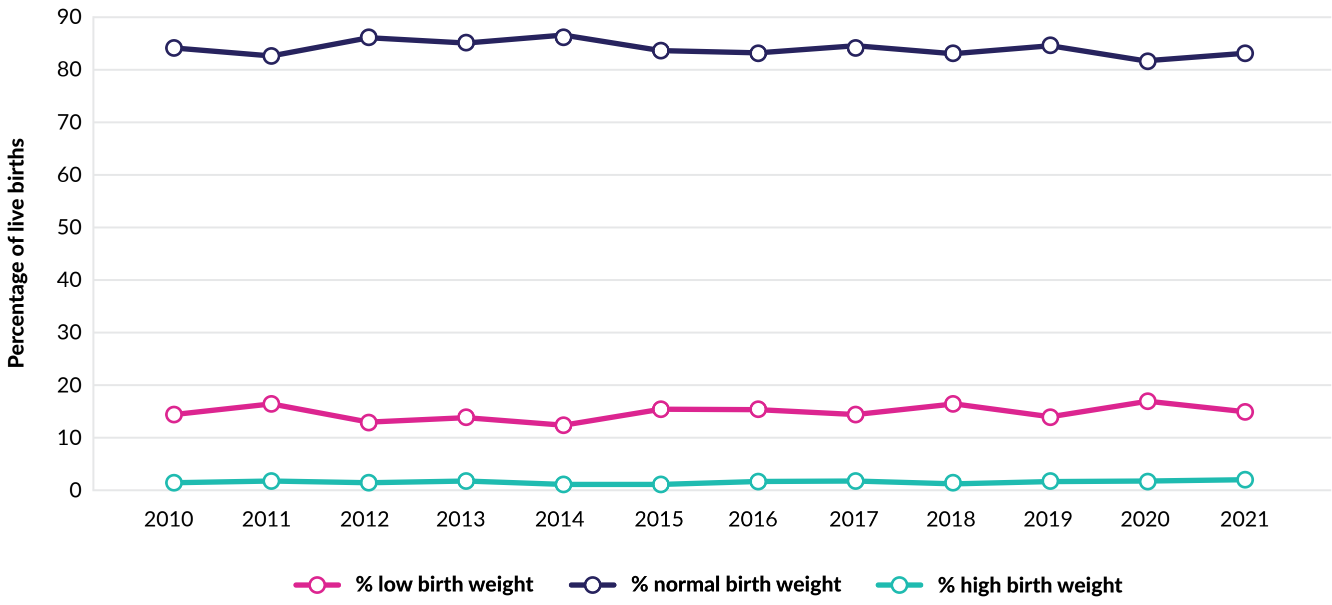
Low birth weight is associated with neonatal mortality and morbidity, inhibited growth, and cognitive development and chronic diseases in adult life including hypertension, type 2 diabetes, obesity, cardiovascular disease and renal disease.[24, 25] Modifiable factors that contribute to low birth weight include poor maternal health and nutritional status, smoking, excessive alcohol consumption and poor living conditions associated with high prevalence of infections.[25, 26]

This AHKPI measures the proportion of Aboriginal live births with a low birthweight (less than 2,500 grams), normal birth weight (2,500 to 4,499 grams) and high birth weight (4,500 grams and over).

From 2010 to 2021, the proportion of babies born with a low, medium and high birth weight remained consistent (Figure 18). The majority of babies were born with normal birth weight, ranging from 81.5% to 86.6% of births. This is lower than normal birth weight reported among the Aboriginal population nationally, where 89.5% of babies in 2019 had a healthy birth weight.[27]

Low birth weight in the NT was between 12.4% and 16.1% of births between 2010 and 2021 (Figure 18). This was higher than the national rate, for which the proportion of Aboriginal babies born with low birth weight remained constant, approximate 9.2% of births were of low birth weight between 2013 and 2019.[27]

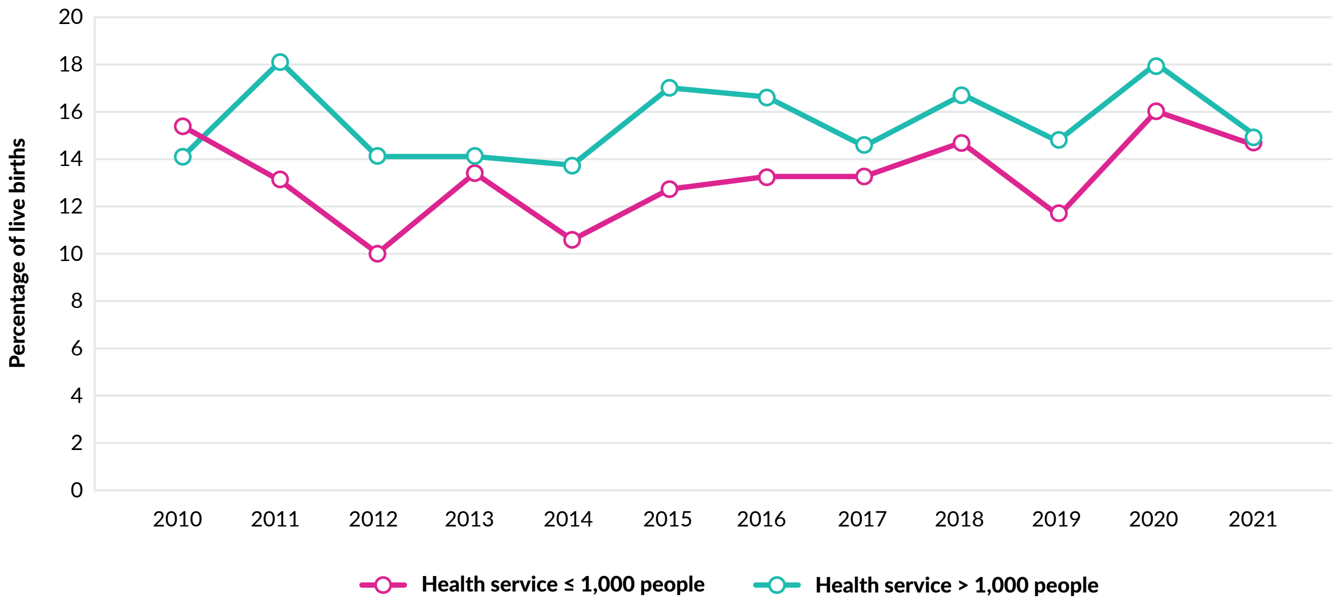
Figure 18 Proportion of live births with low, normal and high birth weight, 2010–2021



While extremes of maternal age are a known risk factor for low birth weight,[25, 28] this was not observed in NT AHKPI data. The proportion of babies born with low birth weight was similar across maternal age groups of under 20 years (11.3% to 18.6%), 20 to 34 years (9.3% to 17.2%) and over 34 years (9.0% to 25.0%).

From 2011, for health services over 1,000 people, 13.7% to 18.1% of babies were born with a low birth weight which was significantly higher than 10.0% to 16.0% of low birth weight babies in health services of up to 1,000 people ($p<0.001$; Figure 19).

Figure 19 Proportion of live births with low birth weight by health service size, 2010–2021



HEALTH SERVICE OBSERVATIONS

In the performance reports, there was limited commentary from health services regarding enablers and barriers to low birth weight outcomes. Engagement of community though a regular midwife and dietician who had good rapport with pregnant clients was identified as an enabler. It was noted that outcomes of this indicator could be influenced by social determinants of health such as food security, education and income which are outside the control of health services.[16]

KPI 1.4.1 FULLY IMMUNISED CHILDREN

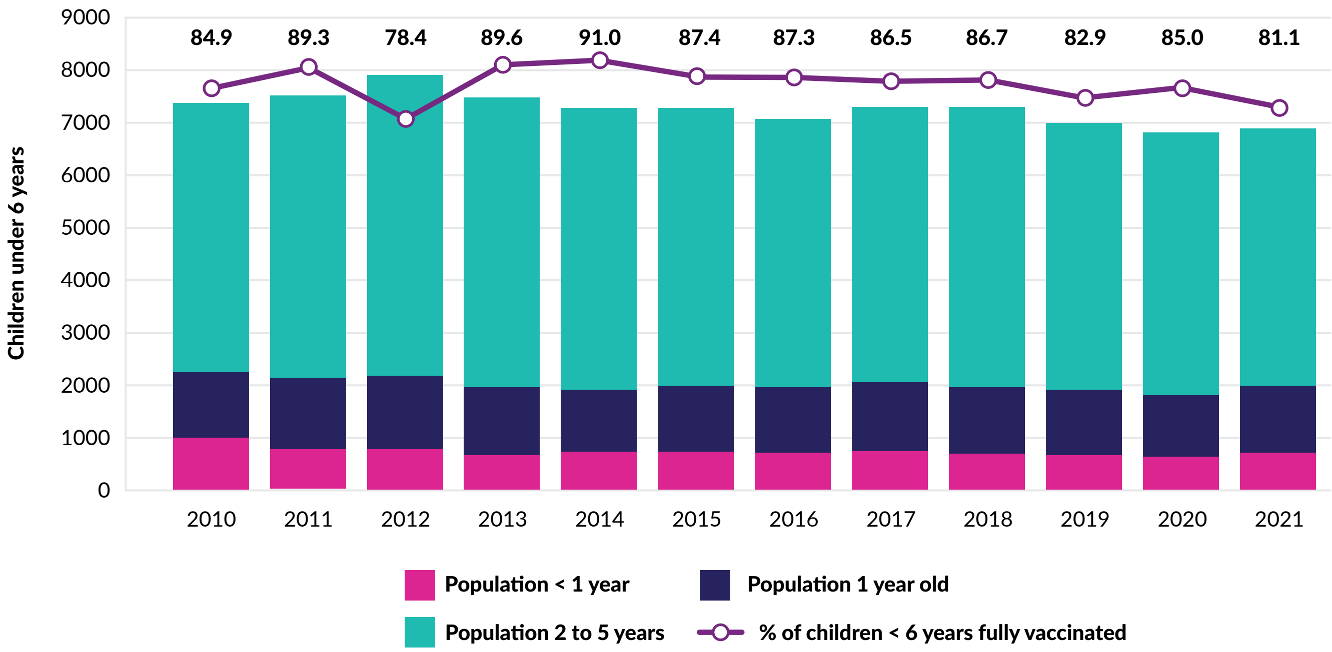
KPI 1.4.1 KEY FINDINGS

- For children aged under 6 years, vaccine coverage peaked at 91.0% in 2014. There was a significant decline in vaccination coverage from 86.7% in 2018 to 81.1% in 2021.
- Highest vaccine coverage was achieved in children aged 6 to 11 months (range 82.0% to 92.3%) and children aged 2 to 5 years (range 77.5% to 92.4%), with lowest coverage in 1 year olds (74.6% to 88.0%).
- Big Rivers (90.5% to 96.4%) and East Arnhem (from 2013; 90.8% to 95.0%) attained the highest vaccine coverage of children under 6 years.
- Top End and Darwin showed a significant decline in vaccine coverage from 88.7% in 2014 to 73.1% in 2021.

Immunisation is an effective and safe way to reduce morbidity and mortality from vaccine preventable disease, protecting both the individual and wider community by reducing transmission of infectious diseases.[29] Age appropriate immunisation schedules are regularly tailored to reflect the latest research on optimal timing and safety of vaccines, availability of new vaccines and prioritisation related to severity and likelihood of exposure to a disease.[29]

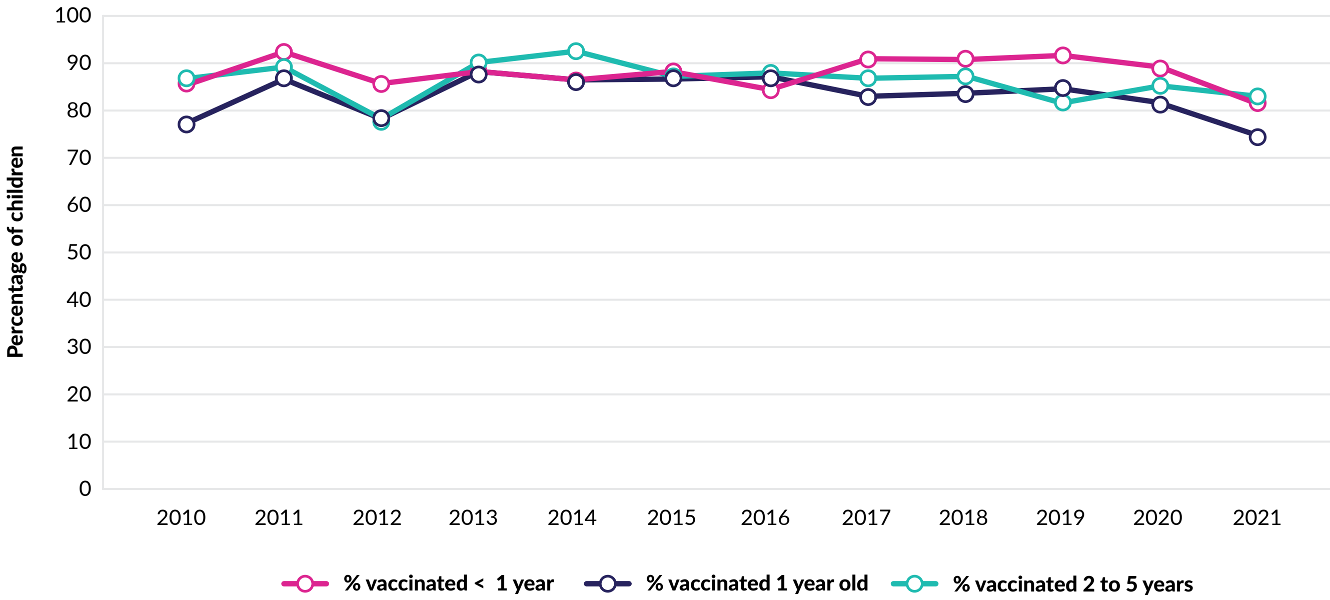
Child vaccine coverage has been an AHKPI since 2010 and reported annually by age groups: 6 to 11 months, 12 to 23 months (1 year old) and 2 to 5 year olds. Fully vaccinated refers to someone who has received all age appropriate immunisations in accordance with the NT immunisation schedule for that reporting period. Note the immunisation schedule is updated regularly to reflect best-practice evidence in timing of vaccinations and is based on Australian guidelines. Figure 20 shows the NT Aboriginal population aged under 6 years has declined from a peak of 7,899 children in 2011 to 6,883 in 2021, representing a decrease in the number of children requiring vaccination. For all ages under 6 years combined, vaccine coverage ranged from 78.4% (2012) to 91.0% in 2014. From 2019, a significant decline in vaccination coverage was observed ($p<0.05$).

Figure 20 Population number by age group and proportion of children under 6 years fully immunised, 2010–2021



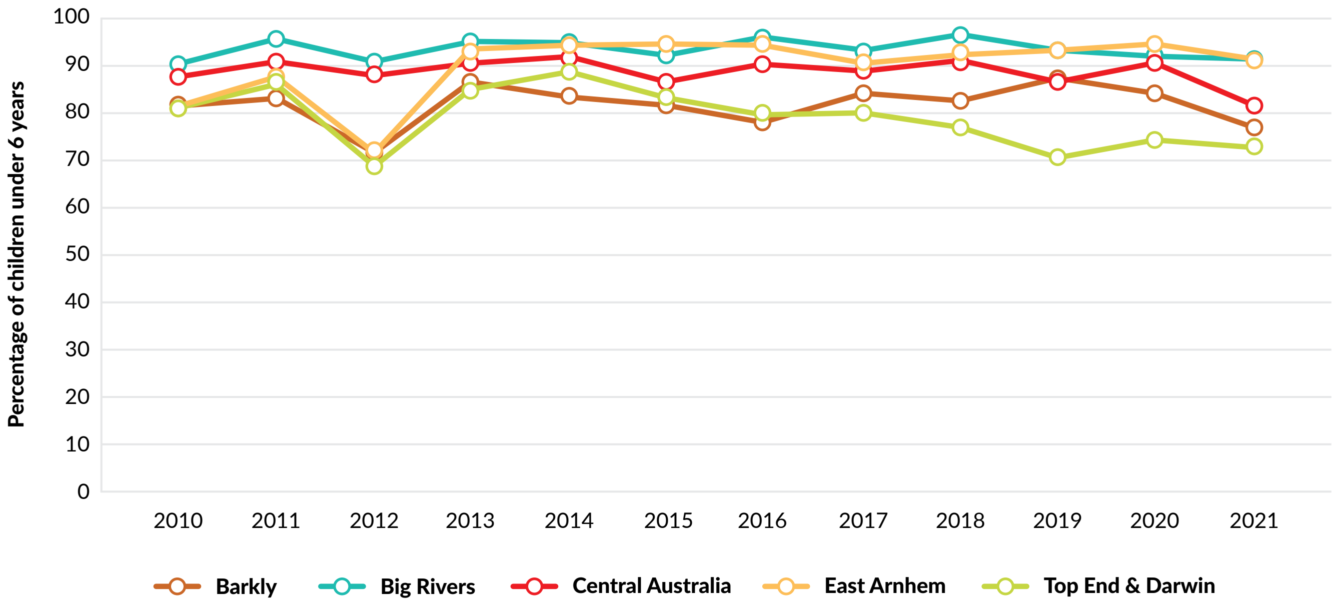
Highest vaccine coverage was achieved in children aged 6 to 11 months (range 82.0% to 92.3%) and children aged 2 to 5 years (range 77.5% to 92.4%), with lowest coverage in 1 year olds (74.6% to 88.0%) (Figure 21). The drop in coverage observed in 2012 is likely to be an anomaly of the denominator data, as this dip is not reflected in NT immunisation rates reported by NT Centre for Disease Control and NT population data does not show an increase in children under 6 years for this period.[17, 30]

Figure 21 Proportion of children under 6 years fully immunised by age group, 2010–2021



Big Rivers consistently attained the highest vaccine coverage (90.5% to 96.4%) while East Arnhem vaccinated 90.8% to 95.0% of children under 6 years from 2013 onward (Figure 22). There was a large reduction in childhood vaccination coverage for Top End and Darwin, Barkly and East Arnhem in 2012. Top End and Darwin region showed a significant decline in vaccine coverage from 88.7% in 2014 to 73.1% in 2021 ($p<0.001$; Figure 22).

Figure 22 Proportion of children under 6 years fully immunised by NT region, 2010–2021



HEALTH SERVICE OBSERVATIONS

Adequate and long-term health care staff and investment of community members in the immunisation of their children were cited as major enablers of children vaccination.[16] Conversely, lack of family awareness of vaccination schedules and reluctance of family members to bring children into the clinic for vaccination when parents were away from community were stated as barriers. Immunisations administered in other communities using a different electronic record system and patient recall systems were identified as a further barrier to vaccination data completeness. Lists provided by the Centre for Disease Control were cited as helpful for identifying overdue vaccines for children. Suggested improvements included expanded utilisation and functionality of the Australian Immunisation Register to coordinate data capture and recalls for future vaccines.

KPI 1.4.2 TIMELINESS OF INFANT IMMUNISATIONS

KPI 1.4.2 KEY FINDINGS

- The proportion of children under one year receiving timely vaccination decreased from a peak of 81.5% in 2015 to 75.2% in 2020.
- Big Rivers had the highest rates of timely vaccinations from 86.1% of vaccinated children in 2013 to 94.5% in 2020.
- Barkly had a significant improvement in the proportion of children receiving timely vaccinations from 61.8% in 2015 to 69.3% in 2020, but had the lowest proportion of timely vaccinations overall.

As Aboriginal children are overrepresented in incidence of vaccine preventable diseases (VPD), timely vaccination of infants is an important strategy in reducing susceptibility to severe outcomes of VPD.[31]

This AHKPI measures the timeliness of immunisations in children, reporting the percentage of children under 12 months who have received all age appropriate immunisations on time.[1] Reporting for this indicator commenced in 2013. Between 2013 and 2017, children aged one month to under 12 months were included. From 2018 to 2020, age of children included were those aged six months to 12 months. In 2021, reporting for 4 month and 12 month old vaccinations were separated into two discrete reporting categories and an additional AKPHI was introduced, reporting timeliness of 18 months immunisations. For this report, we describe trends from 2013 to 2020 for which vaccine timeliness of children under 12 months were reported collectively.

The proportion of children receiving timely vaccination remained unchanged from 2013 to 2016, ranging between 80.3% and 81.5% (Figure 23). From 2017 to 2020, timely vaccination has overall declined, reaching the lowest percentage of 75.2% in 2020, a significant decrease from the 2013 baseline ($p<0.05$; Figure 23).

Big Rivers had a higher proportion of timely vaccinations, between 86.1% and 94.5% from 2013 to 2020, significantly higher than all other regions ($p<0.001$; Figure 24). The lowest proportion of timely immunisations was observed in Barkly (range 57.0% to 78.8%) (Figure 24), but this region had significant improvements in timeliness of vaccinations over time increasing from 57.0% of children receiving vaccinations in 2016 to 67.3% in 2020.

Figure 23 Number of children aged 1–11 months (2013–2017), 6-11 months (2018–2020) and proportion who received timely immunisation, 2013–2020

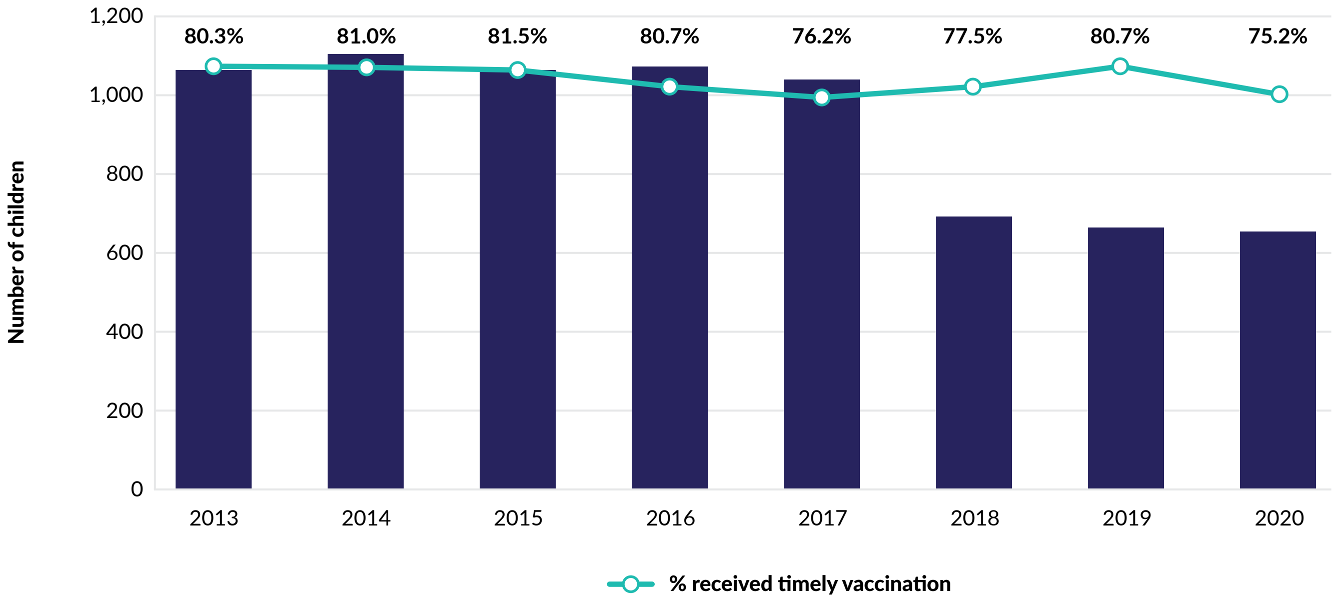
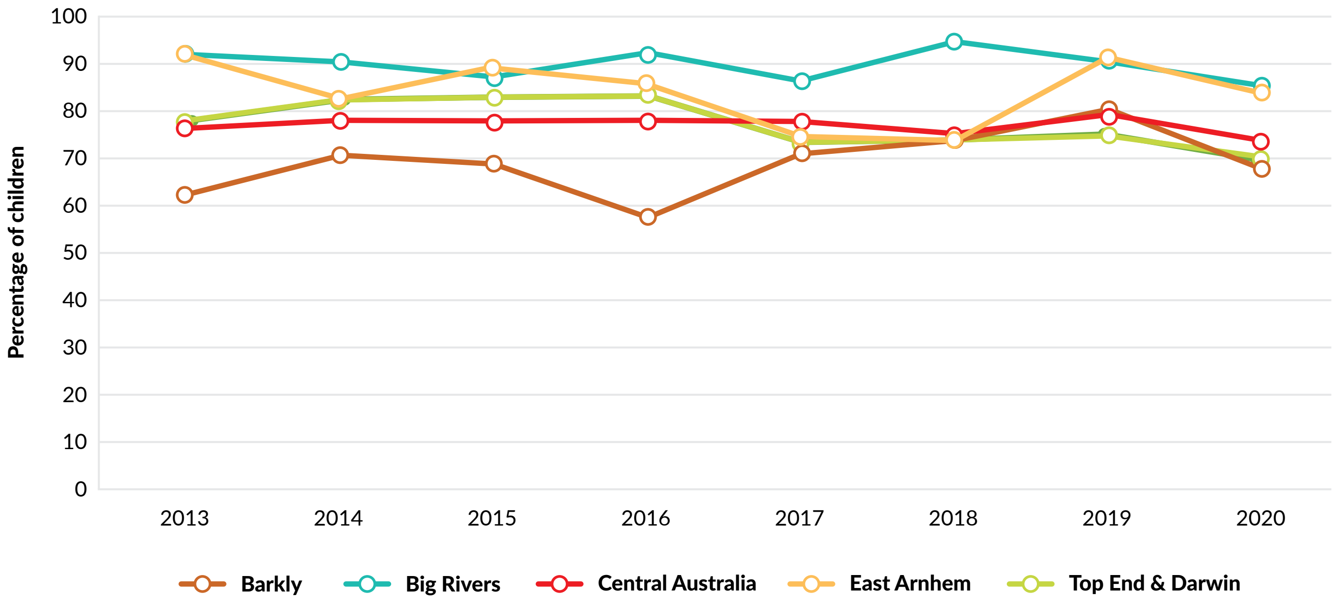


Figure 24 Proportion of children aged 1–11 months (2013–2017) and 6-11 months (2018–2020) who received timely immunisation by NT region, 2013–2020



HEALTH SERVICE OBSERVATIONS

Enablers and disablers for timely vaccination identified by health care providers mirrored those voiced in the previous section, KPI 1.4.1 fully immunised children. Further to those enablers, many health services acknowledged improved outcomes can be achieved with dedicated long-term AHPs responsible for delivering the 'Healthy Under 5' program. AHPs were noted to be trusted by families, as they have familiarity and rapport with community members. Acute clinical demand hampered or delayed client recalls for vaccinations.

KPI 1.5 UNDERWEIGHT CHILDREN

KPI 1.5 KEY FINDINGS

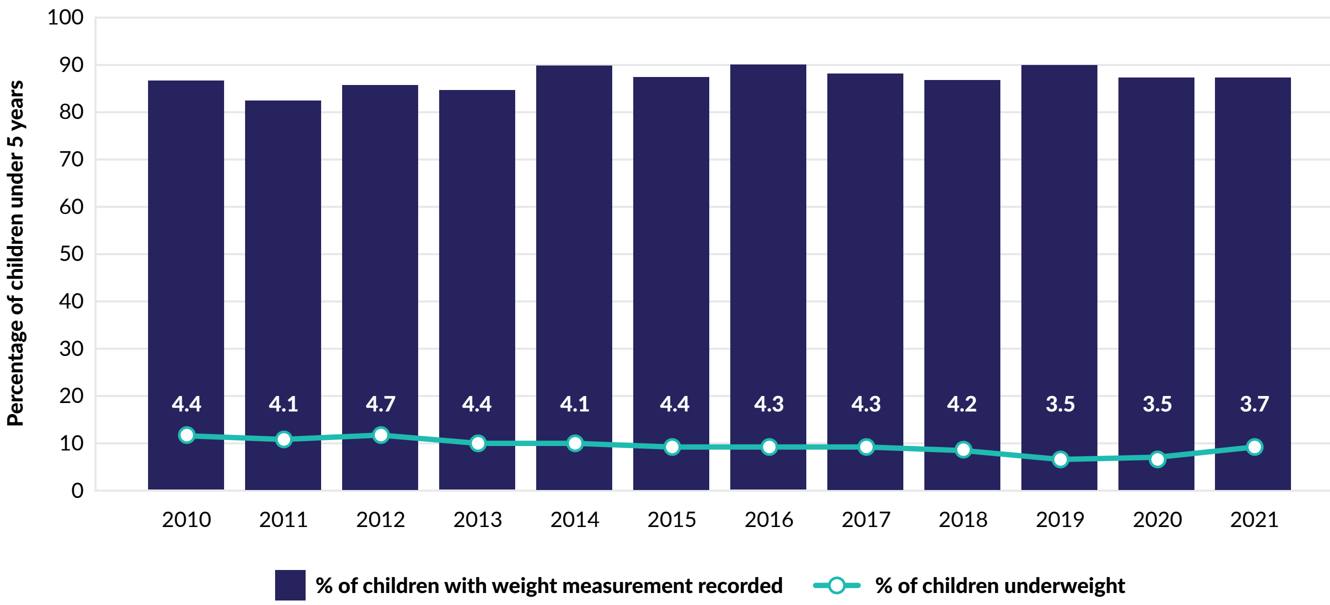
- Weight measurement for children age under 5 years peaked prior to the pandemic in 2019 with 90.1% of children weighed. The percentage of children weighed in 2021 (87.0%) was comparable to 2010 (86.3%).
- The proportion of underweight children declined marginally from 4.4% in 2010 to 3.7% in 2021. This decline was driven by larger health services.
- East Arnhem had a higher proportion of underweight children (range 5.5% to 8.5%) in comparison with all other regions (range 1.3% to 5.6%).
- Larger health services had significantly more underweight children (range 3.9% to 5.1%) compared to small services under 1,000 people (range 2.6% to 3.5%).

This AHKPI measures the proportion of Aboriginal children under 5 years of age who had their weight measured in the preceding year and the proportion reported as underweight. Child growth is an indicator of a child's nutritional status and burden of paediatric illnesses, with an underweight status indicating potential undernutrition which is linked to poor physical and mental development.[32] A child is considered to be underweight if the most recent weight measurement is less than two standard deviations under the mean weight for their age.[1]

Data for the AHKPI has been collected since 2010.

The proportion of children with a recorded weight peaked in 2019 with 90.1% of children weighed. This was significantly higher than the beginning (87.0% in 2010) and end of the study period (87.0% in 2021) ($p<0.001$; Figure 25). A declining trend in the percentage of underweight children was observed from 4.4% of children weighed in 2010 to 3.7% of children in 2021 (not significant; $p>0.05$).

Figure 25 Proportion of children under 5 years who had weight measured and proportion underweight, 2010–2021*



Note: *Data for East Arnhem, 2010 and Top End & Darwin, 2010-2012 excluded due to data incongruity.

Trends in the proportion of children with a weight measurement recorded in each NT region are shown in Figure 26. Three regions showed a significant improvement in the proportion of children weighed: Top End and Darwin from 74.8% of children weighed in 2010 to 82.9% in 2021 (p<0.001), East Arnhem from 80.7% in 2010 to 92.5% in 2021 (p<0.001) and Central Australia from 83.4% in 2010 to 89.0% in 2021 (p<0.001). Big Rivers had a consistently high percent of children weighed over the study period (range 86.0% to 96.8%). Barkly remained stable over the reporting period, with the exception of 2011.

There were significant differences between the regions and proportion of underweight children (Figure 27). For the years 2013 to 2021, East Arnhem had a significantly higher proportion of underweight children (range 5.5% to 8.5%) compared to all other regions (p<0.001). Big Rivers (range 3.8% to 5.6%) and Top End (3.4% to 4.9%) had a similar proportion of underweight children which were significantly higher than Barkly (1.3% to 3.4%) and Central Australia (1.6 to 2.7%) (p<0.001).

Figure 26 Proportion of children under 5 years who had a weight measurement by NT region, 2010–2021

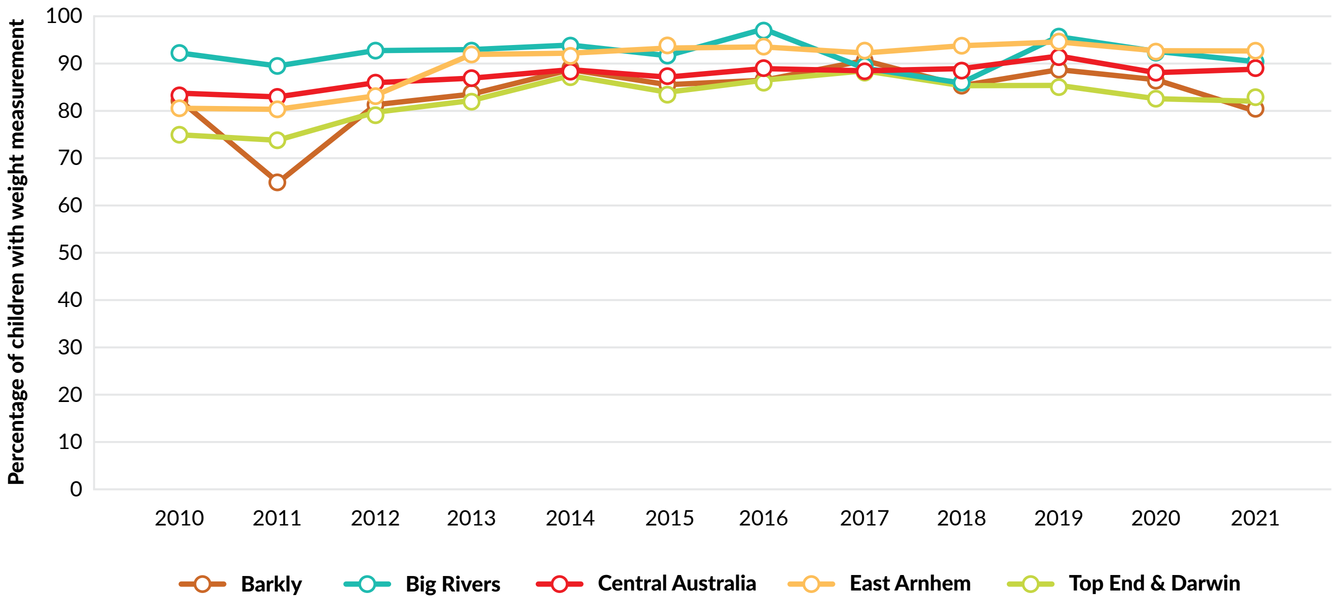
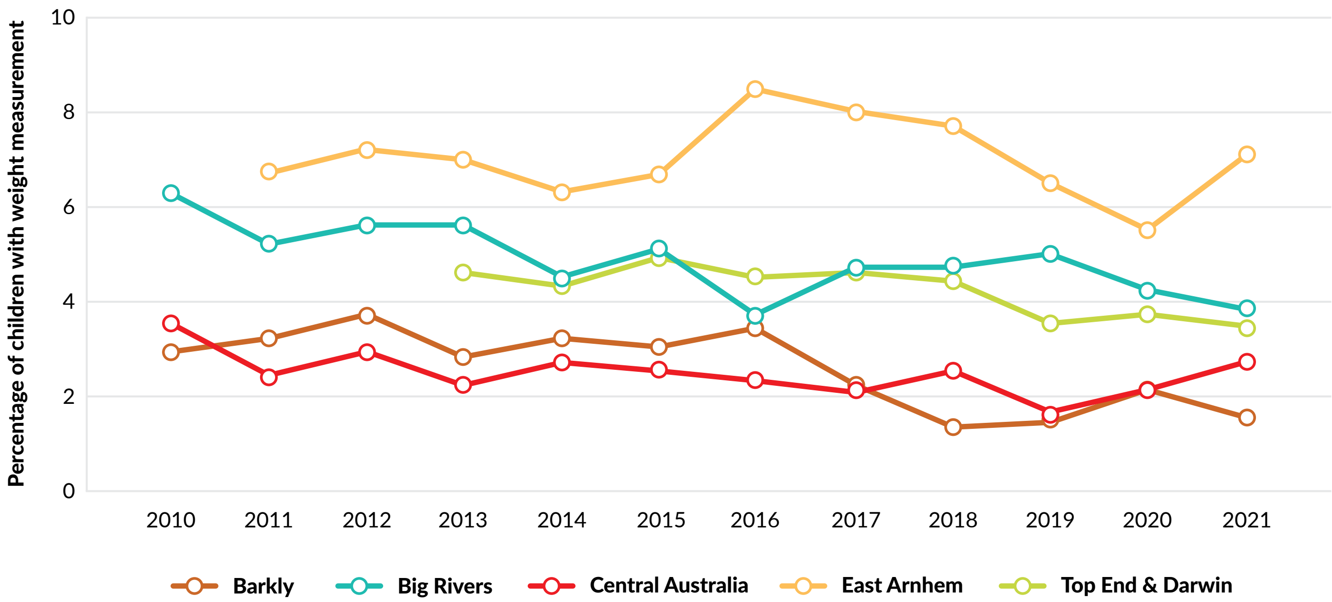


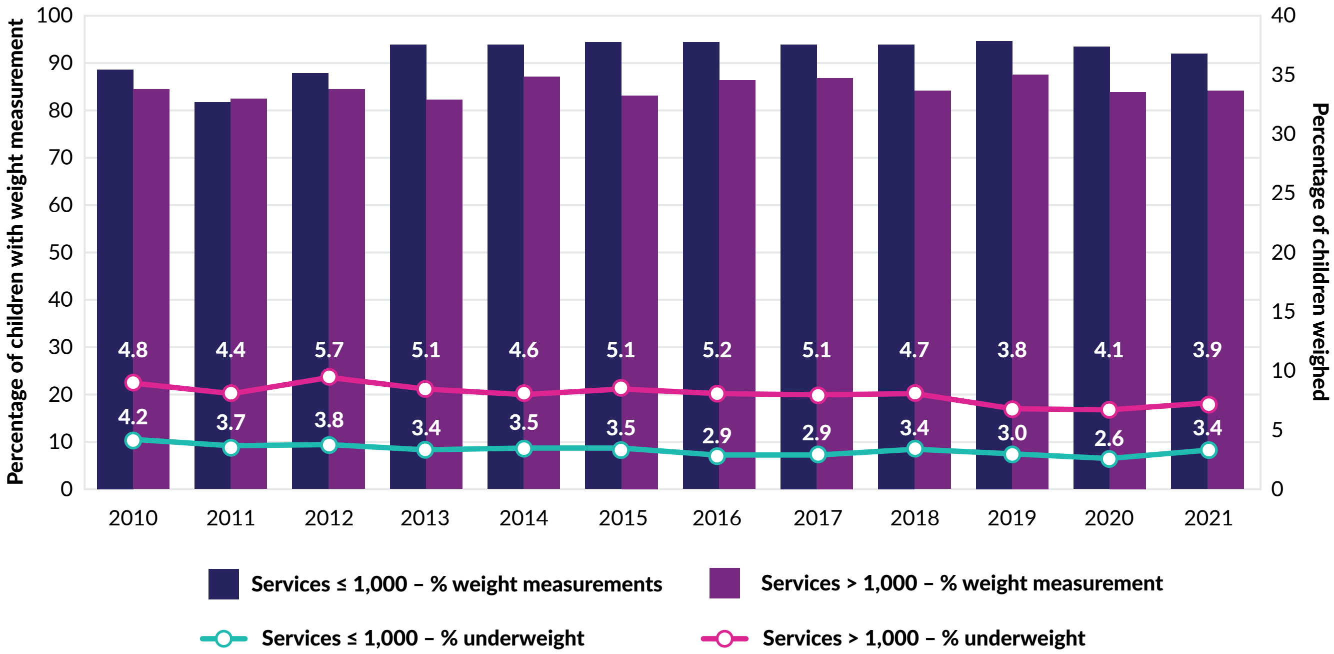
Figure 27 Proportion of underweight children (under 5 years old) with weight measurements by NT region, 2010–2021*



Note: *Data for East Arnhem, 2010 and Top End & Darwin, 2010-2012 excluded due to data incongruity.

Figure 28 shows the proportion of children who had their weight measured and the proportion who were underweight by health service size from 2013 to 2021. Smaller health services consistently measured weight in a higher proportion of children (range 92.0% to 94.5%) compared to health services over 1,000 people (range 82.4% to 87.5%) ($p<0.001$). A significantly higher proportion of children weighed in the largest health services were underweight (range 3.9% to 5.1%) compared to services under 1,000 people (range 2.6% to 3.5%) ($p<0.001$). While the proportion of children underweight in the largest health services trended down from 5.1% in 2013 to 3.9% in 2021, this decrease was not significant ($p>0.05$). The proportion of children underweight in the smaller health services remained consistent over time.

Figure 28 Proportion of children under 5 years who had weight measured and proportion of underweight by health service size, 2013–2021*



Note: *Data for East Arnhem, 2010 and Top End and Darwin, 2010-2012 excluded due to data incongruity.

HEALTH SERVICE OBSERVATIONS

Planning and regular assessments against growth charts, as provided by care givers, were identified as enablers of improved outcomes for underweight children. Good relationships between families, stable health staff members responsible for the 'Healthy Under 5' program and other health care staff (clinic driver, outreach dietitian and child health nurse/s) were also observed as enablers. Conversely, rolling agency staff and reduced staffing particularly during COVID-19 travel restrictions were barriers.

KPI 1.6 ANAEMIC CHILDREN

KPI 1.6 KEY FINDINGS

- Testing for anaemia in children aged 6 months to under 5 years increased from 59.7% in 2010 to 65.7% in 2021.
- The proportion of anaemic children decreased from 15.6% in 2010 to 9.4% in 2021.
- From 2018 to 2021, 13.0% to 21.0% of children were no longer anaemic in follow-up testing, indicating successful treatment following a low Hb result.
- Children under 2 years old were more likely to be anaemic (range 16.3% to 30.6%) compared to children aged 2 to 4 years (range 10.9% to 14.5%).
- Top End and Darwin had the lowest proportion of anaemic children ranging from 9.7% to 24.2%, while Barkly had the highest, between 20.6% and 39.6%.

Haemoglobin (Hb) level is a measure of the oxygen carrying capacity of the blood and is an indication of nutritional status. Hb measurement can be undertaken at the point of care within the primary health care setting.[33] A child aged 6 to 11 months is defined as anaemic if they have a Hb level less than 105 g/L, and in children aged 1 to 4 years anaemia is defined as a Hb of less than 110 g/L.[34]

This AHKPI reports the number of Aboriginal children aged from 6 months to under 5 years who had an Hb test during the year and the number of those tested who were considered anaemic. Data has been reported since 2010 with age at time of test collected from 2015. In this report, anaemia is measured at two points, at the most recent test performed in the year (2010 to 2021) and by any test performed during the year (2018 to 2021).

The proportion of children tested for anaemia has increased significantly from 59.7% of children in 2010 to 65.7% in 2021 ($p<0.001$; Figure 29). Recent years have shown a decline in the proportion of children tested from the peak of 77.3% in 2014, despite introduction of non-invasive Hb testing in recent years.[35]

Figure 29 Proportion of children 6 months to under 5 years who had haemoglobin (Hb) testing and results of most recent test, 2010–2021

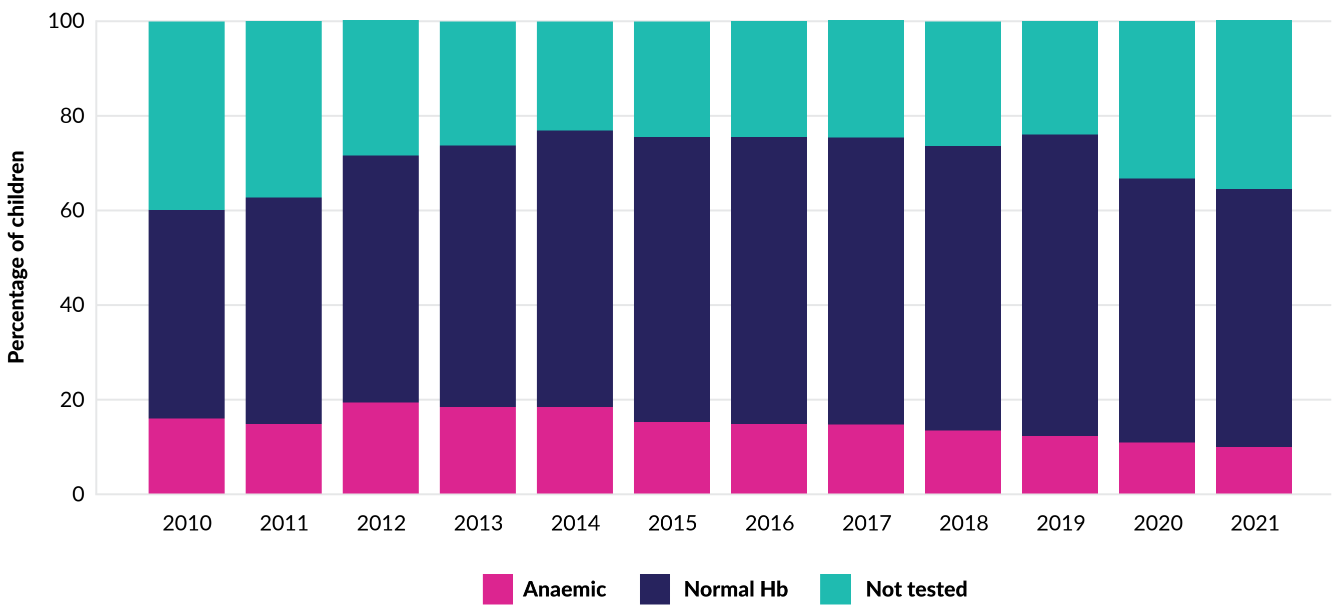


Figure 30 shows the proportion of children who were anaemic at any time during the year and at the most recent test in the same year. From 2018 to 2021, between 13.0% and 21.0% of children were no longer anaemic when tested later in the year (calculated by the formula children treated = percent anaemic on any test – percent anaemic on the most recent test). This result indicates successful treatment following an initial low Hb result.

For those children who received a test, Figure 31 shows the percentage who were anaemic by age group. A significantly lower proportion (10.9% to 14.5%) of older children aged 2 to 4 years were anaemic compared to children under 2 years (range 16.3% to 30.6%) ($p<0.001$). All age groups showed a decline in the proportion of children with low Hb ($p<0.01$). The decline in children with anaemia has occurred across all NT regions (Figure 32). Top End and Darwin had the lowest proportion of anaemic children ranging from 9.7% to 24.2% (Figure 32). Barkly had the greatest decline from 39.6% of child with anaemia in 2012 down to 26.1% of children with anaemia in 2021 (Figure 32).

The more recent decline in testing rates for childhood anaemia warrants some discussion, particularly given the recent introduction of non-invasive testing. A second concern is the apparent decline in anaemia that coincided with the introduction of the non-invasive Hb testing technology. Incorrect administering of this technology can result in increased number of false negative results. As such, field evaluation is warranted to exclude the possibility of false negative results.

Figure 30 Proportion of children 6 months to under 5 years tested for anaemia who were anaemic on the most recent test (2010–2021) and anaemic at any time during year (2018–2021)

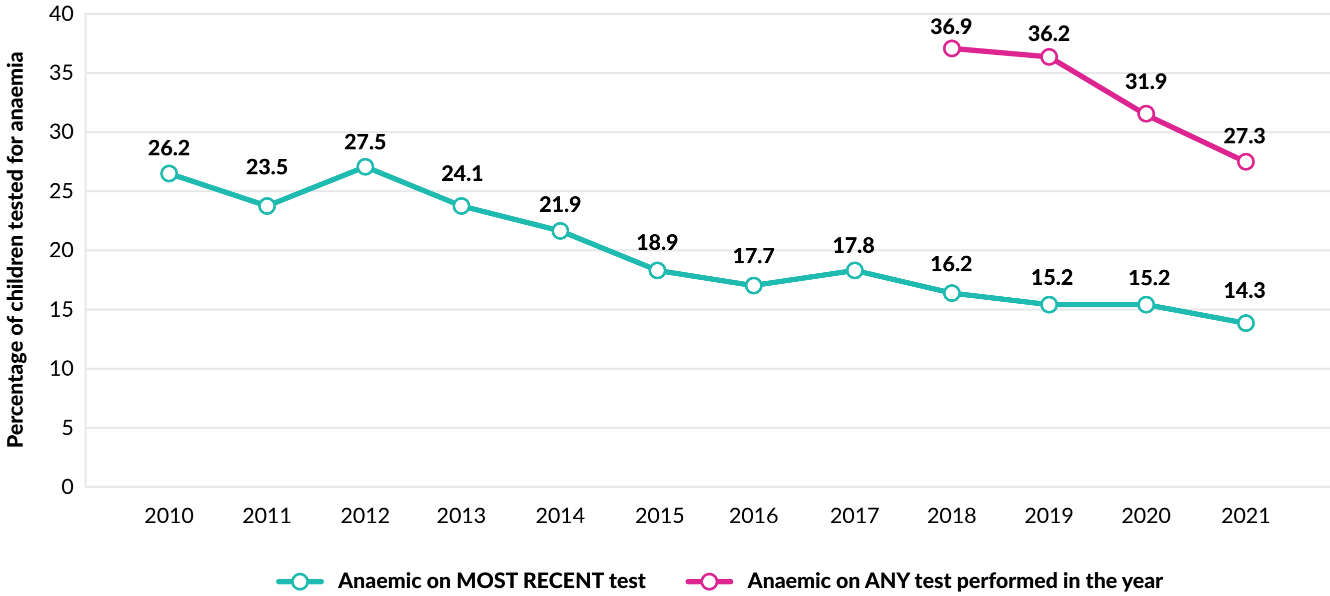
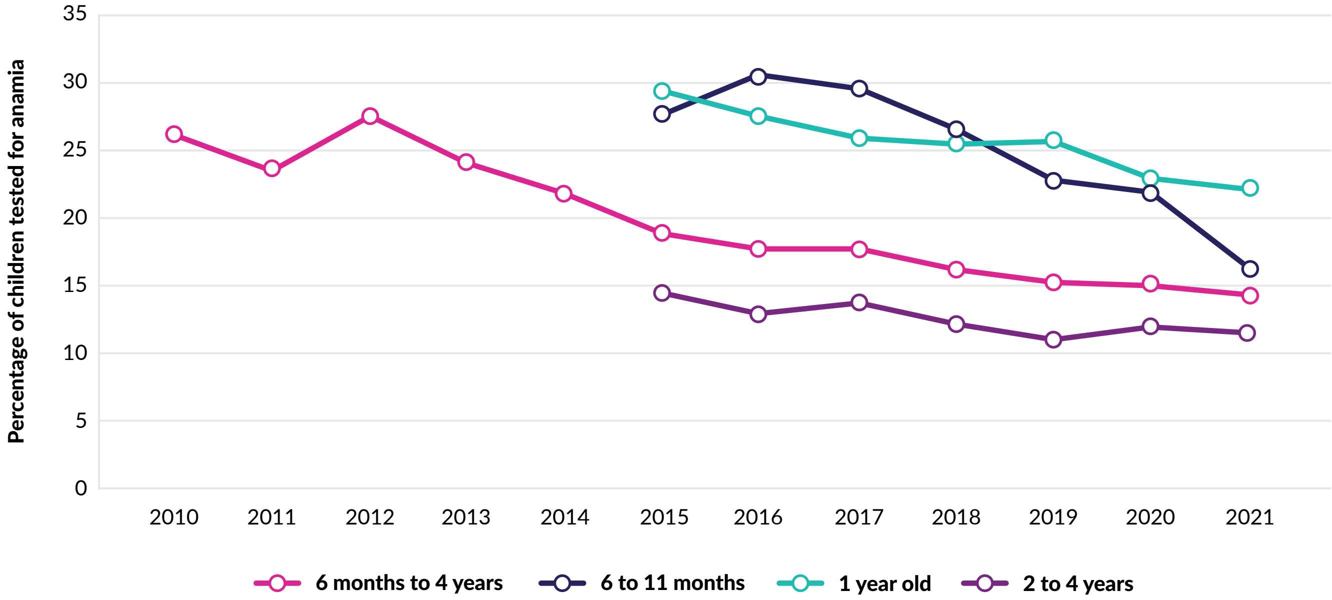
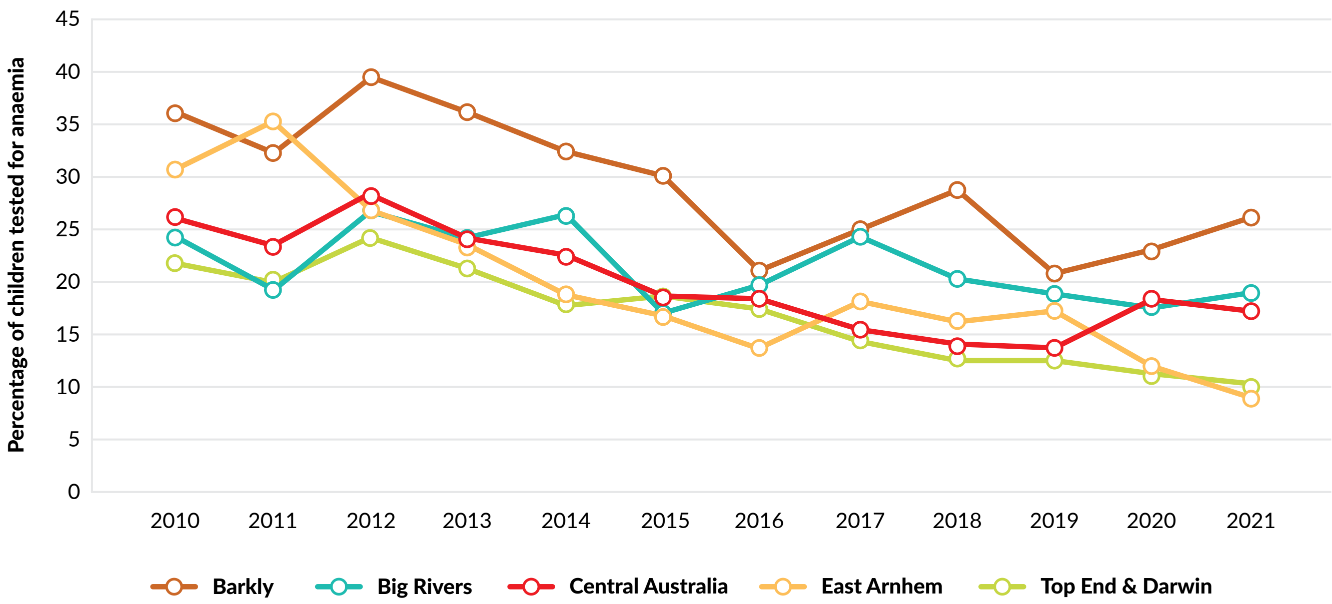


Figure 31 Proportion of children tested who were anaemic on the most recent test by age group, 2010-2021*



*Age group data collected from 2015

Figure 32 Proportion of children who were anaemic on the most recent test by NT region, 2010-2021



HEALTH SERVICE OBSERVATIONS

A key reported enabler for anaemia testing and treatment was the Healthy Under 5 Kids program as children in this program are screened every six months. This systematic screening and management approach has ensured that children with anaemia are identified and treated earlier. Stable clinic staff (including local Aboriginal staff) and outreach teams that enable community engagement and health promotion were also considered important.

Changes in testing technologies (implemented in 2019) were identified as a barrier by health services. Services reported that these changes were likely to affect results due to a loss in confidence in the administration of test among clinical staff and a potential increase in false negatives due to incorrect testing procedures. Other barriers reported included a lack of retention of child health staff and chronic disease educators, and the lack of engagement with schools to support child health check programs. Knowledge and experience of practitioners using the technology for testing was also a documented barrier to anaemia testing.

KPI 1.20 EAR DISEASE IN CHILDREN

KPI 1.20 KEY FINDINGS

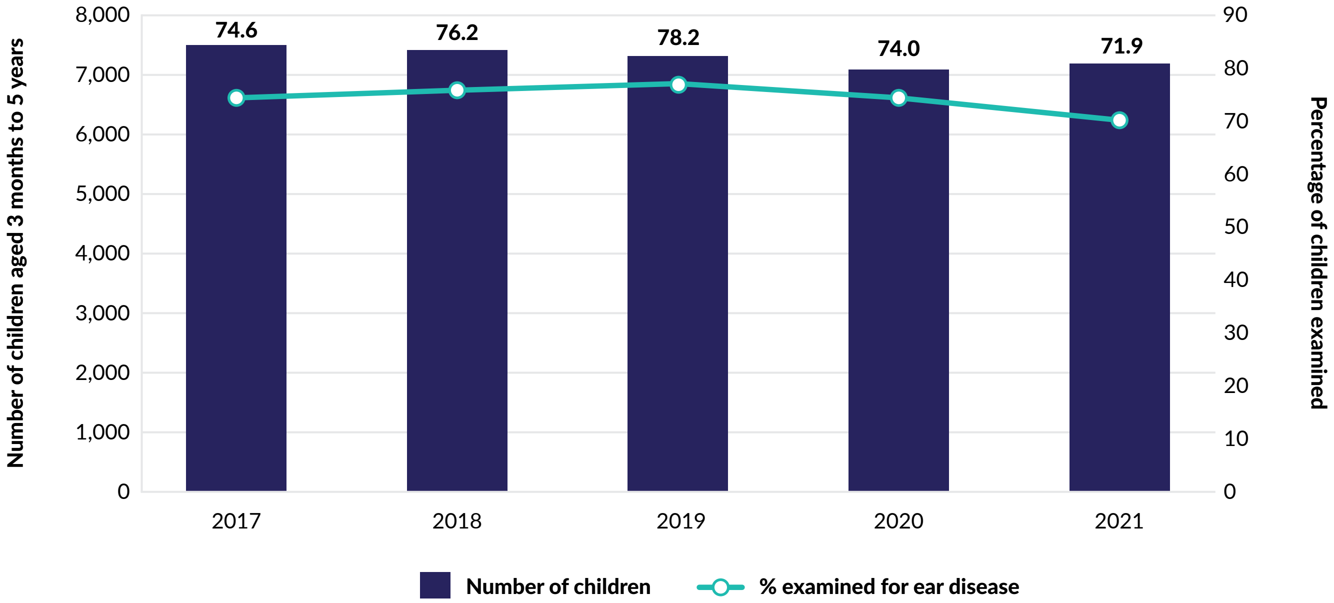
- Between 2017 and 2021, 71.9% to 78.2% of children aged 3 months to 5 years were examined for ear discharge. The proportion of children examined for ear discharge peaked in 2019 at 78.2% of children and significantly declined in subsequent years to 71.9% of children screened in 2021.
- The percentage of children with evidence of ear discharge at any time during the year has declined from 21.2% in 2017 to 14.5% in 2021. This decline was primarily driven by reductions in Top End and Darwin, from 29.5% in 2017 to 12.4% in 2021. All other regions had an unchanged disease trend.
- Children aged 1 to 2 years old were more likely to be examined for ear discharge (range 78.6% to 82.5%) and more likely to have ear discharge (16.7% to 23.4%) compared to children aged 3–11 months and 3– 5 years (examined 61.2% to 76.1%; disease 5.8% to 21.1%)

Ear disease in children is very common and usually starts in the first year of life and can lead to permanent damage of ear and loss of hearing if left untreated. Early intervention, including appropriate treatment of the first infection may reduce the risk of chronic ear disease, hearing loss and reduce the risk of language delay.[36-38]

This AHKPI measures the proportion of Aboriginal resident children from 3 months to under 6 years old who had an ear examination and evidence of ear disease (discharge from ear) in the preceding year from 2017 to 2021. The outcome measures are as follows: the proportion with evidence of ear discharge at any time during the annual reporting period and proportion with ear discharge at the most recent examination in the reporting period.

The number of children aged 3 months to 5 years declined from 7,539 in 2017 to 7,122 in 2021 (Figure 33). The proportion of children examined for ear discharge peaked in 2019 at 78.2% of children and significantly declined since, to 71.9% of children screened in 2021 ($p<0.001$).

Figure 33 Number of children aged 3 months to 5 years and proportion examined for ear discharge, 2017–2021



The percentage of children observed to have ear discharge at any time during the year has significantly declined from 21.2% in 2017 to 14.5% in 2021 ($p<0.001$; Figure 34). The proportion of children with evidence of ear discharge at the last examination in the year also declined from 9.3% in 2017 to 6.8% in 2017. The lower proportion at follow-up indicates resolution of ear discharge. The proportion of individuals examined for ear discharge and the decline in ear discharge was similar for males and females.

Children aged 1 to 2 years old were significantly more likely to be examined for ear discharge (range 78.6% to 82.5%) and more likely to have evidence of ear discharge (16.7% to 23.4%) compared to children aged 3 to 11 months (examined 61.2% to 72.5%; discharge 5.8% to 14.6%) and 3 to 5 years (examined 70.1% to 76.1%; discharge 13.9% to 21.1%) ($p< 0.001$; Figure 35). The older age groups, (children aged 1–2 and 3–5 years) showed a significant decline in ear discharge from 2017 to 2021 ($p< 0.001$), whereas the youngest age group (3–11 months) showed a significant decline in ear discharge from 2017 to 2020 ($p<0.05$). There was an increase in disease observed from 2020 to 2021 which coincided with a decrease in examinations in children aged 3–11 months.

Figure 34 Proportion of examined children aged 3 months to 5 years with ear discharge at any time during the year and on most recent examination, 2017–2021

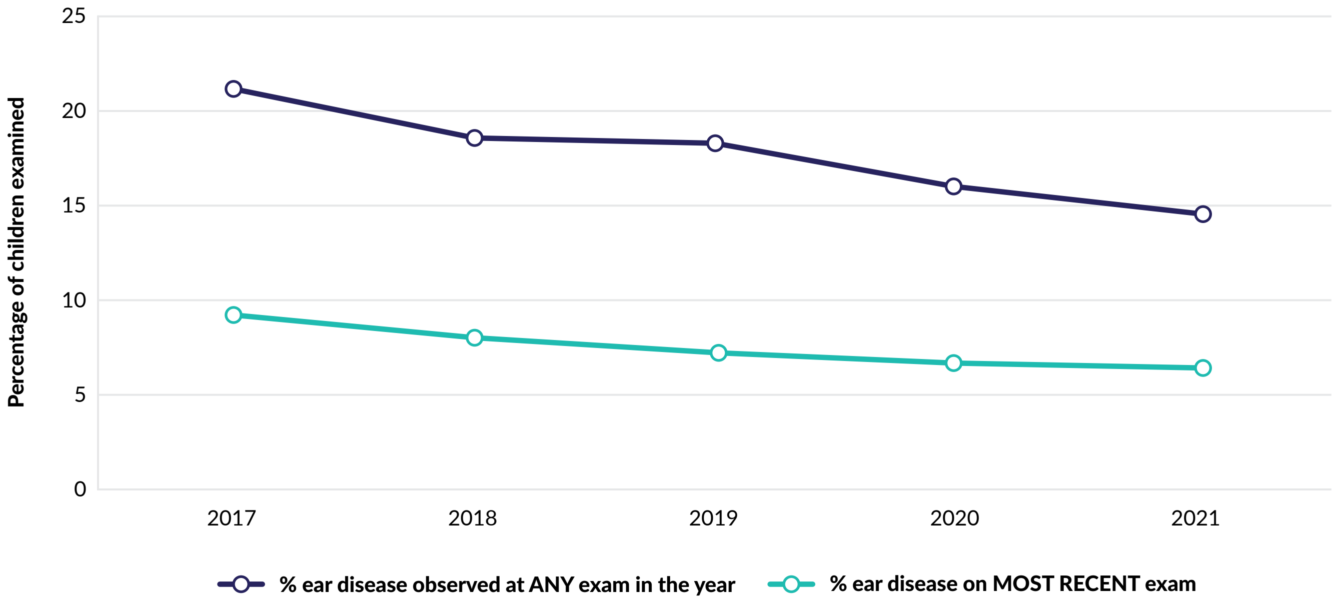
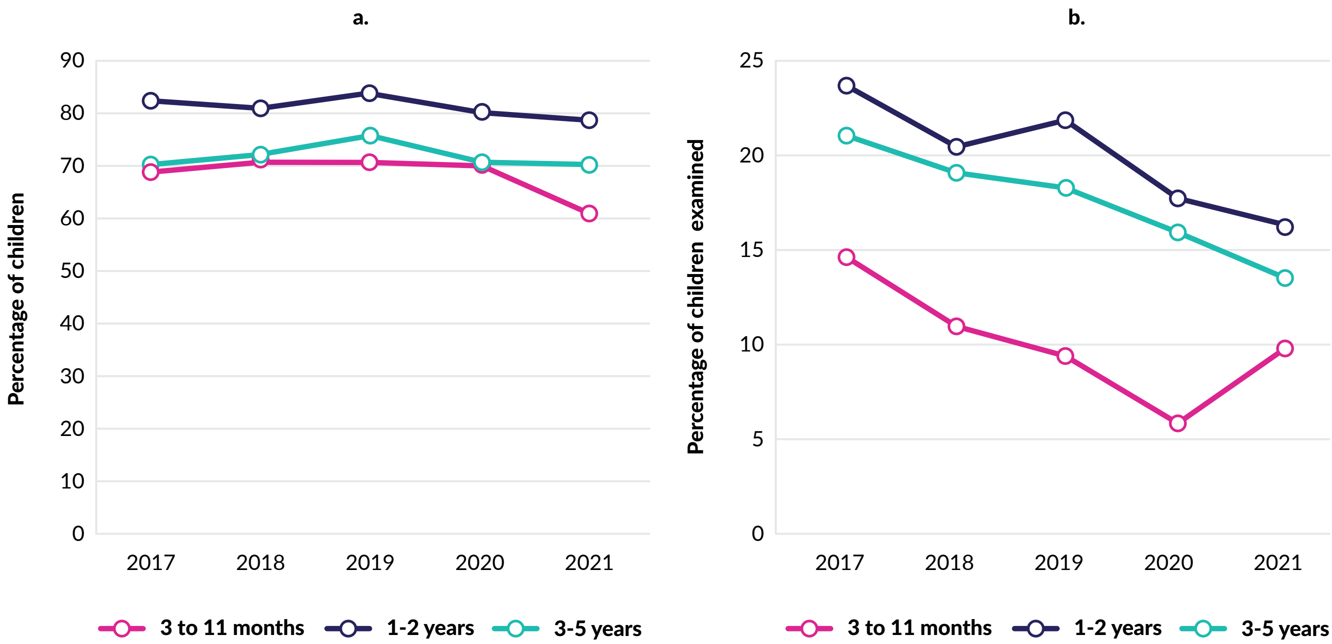
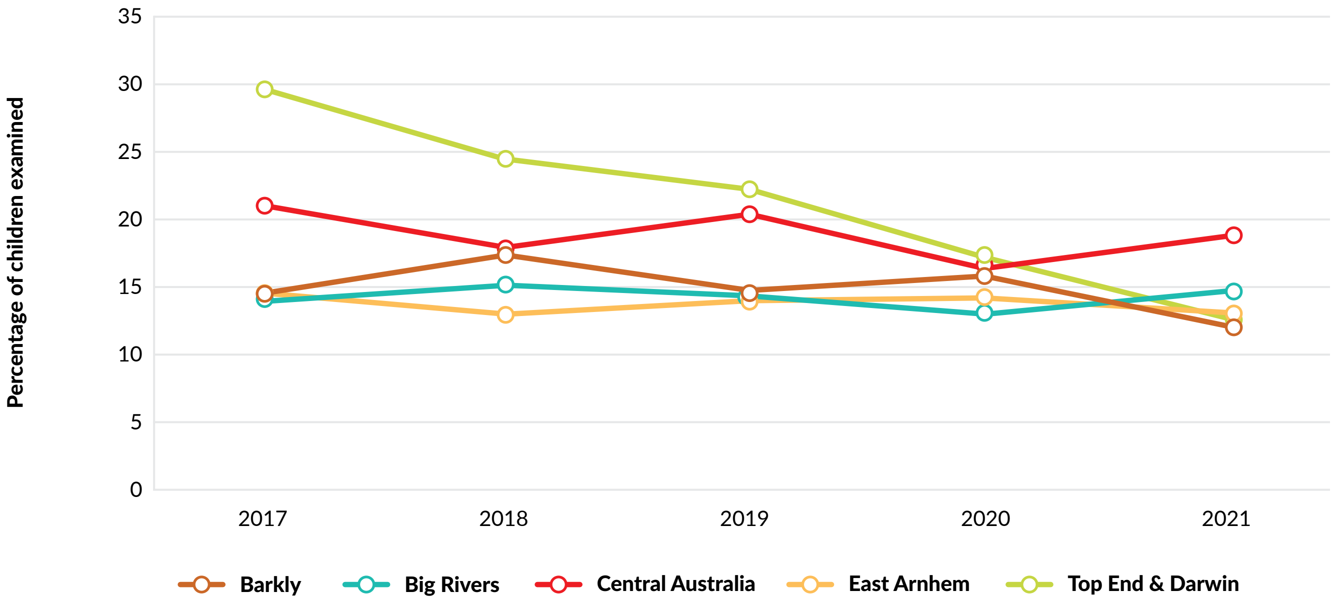


Figure 35 Proportion of children examined (a) for ear disease and (b) with evidence of ear discharge at any time in the year by age group, 2017–2021



The decline in ear disease was primarily explained by reduced infections in children in the Top End and Darwin region, where the percentage of ear disease in children examined at any time during the year decreased from 29.5% in 2017 to 12.4% in 2021 ($p<0.001$; Figure 36). No other regions showed a significant decrease in ear disease from 2017 to 2021. There were no observable differences in testing behaviours by region.

Figure 36 Proportion of children aged 3 months to 5 years examined with ear discharge, 2017–2021



HEALTH SERVICE OBSERVATIONS

Enablers of this AHKPI were: dedicated child health staff supported by regular staff education; the incorporation of ear health checks in the 'Healthy Under 5' program and regular visits from government funded hearing health services.[16, 39] From 2020, the improved streamlining of referrals to ear, nose and throat specialists were noted by health services. Health hygiene education through crèche and the Families as First Teachers (FaFT) program were identified to improve understandings among care givers of the importance of ear checks and maintaining ear health.[40] Other enablers included the utilisation of electronic records service items to identify children due for ear examinations and improving staff documentation of ear health checks in client data records.

CHAPTER 4. PREVENTATIVE HEALTH

KPI 1.10 HEALTH CHECKS

1.10 KEY FINDINGS

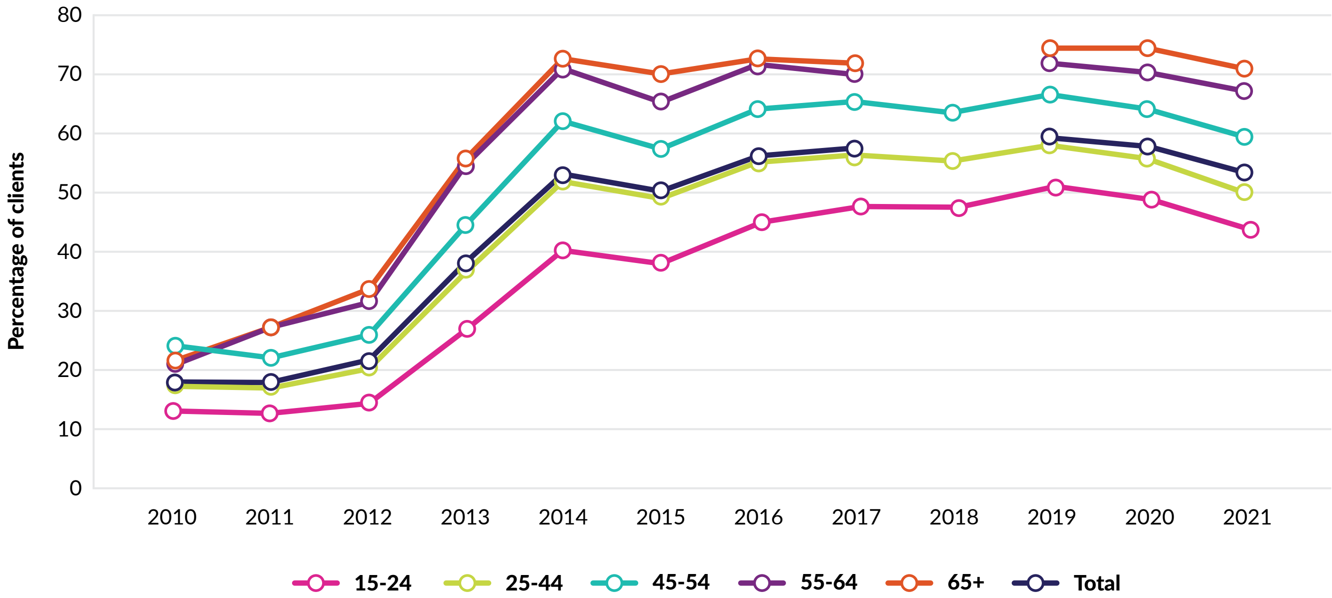
- There was a threefold increase in adult health checks (AHCs) from 2010 to 2022, from 17.4% in 2010 to 52.5% in 2021. The steepest increase was observed from 2010 to 2014. From 2019 to 2021, there was a decrease in child health checks from 47.7% to 39.3%.
- The increase in AHCs was observed across all age groups. Females were more likely to have health checks compared with male clients.
- Increases in AHCs was observed in all NT regions. For age group 15–54 years, the greatest growth in proportion of clients receiving AHCs was observed in Top End & Darwin (9.6% to 49.7%) and East Arnhem (8.4% to 50.2%). For clients aged 55 years and over, the greatest growth in AHCs were observed in East Arnhem (9.8% to 73.4%) and Barkly (13.6% to 72.5%).
- The lowest proportion of AHCs were among the largest health services with more than 1,000 clients for the period 2011–2021 for all adult age groups.

The Aboriginal and Torres Strait Islander Health Assessment (health checks) are available to: children between ages of 0 and 14 years, adults between the ages of 15 and 54 years and people over the age of 55 years. The health checks for Aboriginal and Torres Strait Islander peoples are funded through Medicare (MBS Item 715). Health checks are comprehensive physical and psychosocial health assessments with an aim of ensuring that Aboriginal people receive culturally targeted primary health care commensurate with their needs.[41-43] Increasing access to these structured Indigenous-specific health assessments has been a key strategy in the Australian Government's Close the Gap policy commitments, including improving life expectancy within a generation by 2031.[44] Such systematic assessments through primary health care have the potential to diagnose and address undetected disease earlier and provide better treatment of existing disease, thereby reducing morbidity, improving quality of life and reducing health care costs.[45,46]

This AHKPI captures both adult health checks (AHCs) and alternative health checks. A health check may be marked as alternative adult health assessment when core assessments are performed by a practice nurse, Aboriginal health practitioner (AHP) or Aboriginal health worker (AHW).[3] For the purpose of this report, MBS Item 715 or alternative health check are combined. A health check is recommended for adult clients every two years. AHCs have been collected as an AHKPI since 2010 for age groups: 15-24 years, 45-54 years and 55-64 years. In 2019, child health checks for age groups, 0-4 years and 5-14 years, were added to the AHKPIs. Child health checks are reported separately due to the limited reporting period (2019–2021) and data was not analysed by NT region or health service size. In 2018, health checks for adults aged 15 to 54 years (KPI 1.10) and adults aged 55 years and over (KPI 1.11) were merged into a single AHKPI. Data from this transitional period in 2018 for these age groups is inconsistent with 2017 and 2019 and therefore has been removed for reporting.

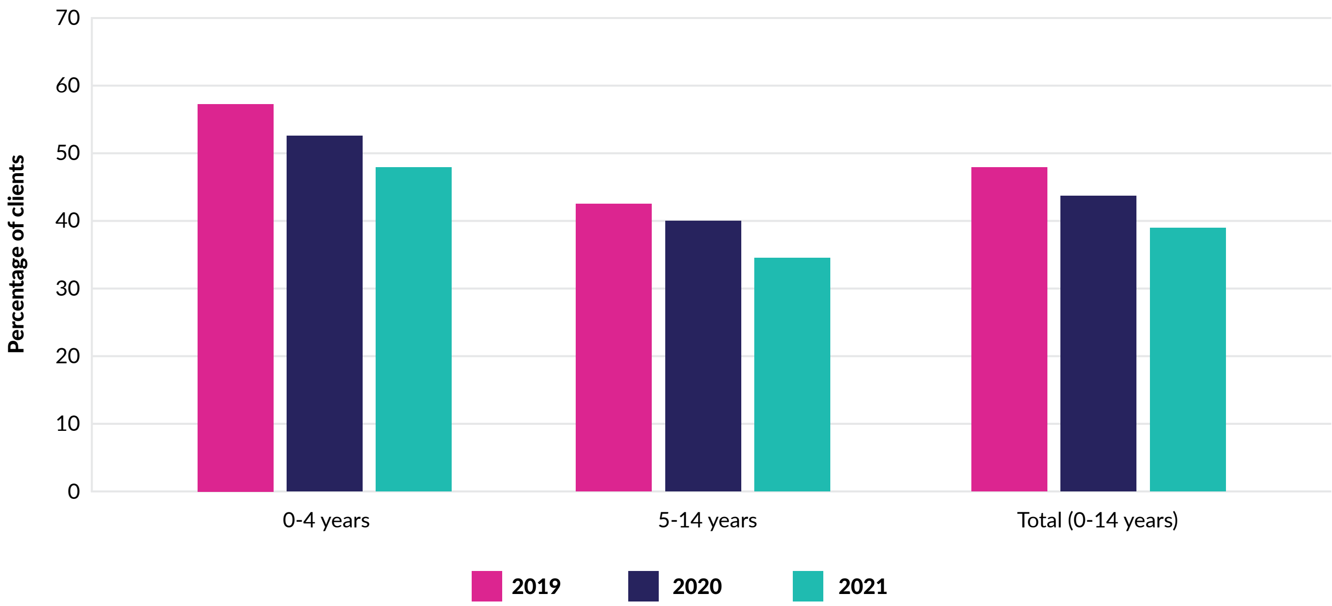
The proportion of AHCs increased from 2011 to 2021 in total and by all age groups (Figure 37). The steepest increase was observed from 2010 to 2014. A small decline was observed in 2020 and 2021, which correlated with the COVID-19 pandemic.[42] In 2021, 52.5% of resident clients received a health check within the previous two years. Adults aged 65 year and over had the highest proportion of health checks, at 70.6% in 2021. The lowest proportion of AHC occurred in the 15-24 year age group, at 43.2% in 2021. From 2019 to 2021, there was a decrease in child health checks from 47.7% to 39.3% (Figure 38), likely a result of this measure being added during the COVID-19 pandemic.

Figure 37 Proportion of adult clients who had a health check by age group, 2010–2021



Note: KPI 1.11 Merged into KPI 1.10 on 10/05/2019, 2018 data quality is not publishable.

Figure 38 Proportion of children who had a health check by age group, 2019–2021



The proportion of AHCs increased across all NT regions in the age groups 15–54 years and 55 year and over (Figure 39). For age group 15–54 years, the greatest growth in the AHCs was observed in the Top End & Darwin (from 9.6% to 49.7% of clients with an AHC), and East Arnhem (from 8.4% to 50.2% of clients with an AHC).

For age group 55 years and over, the greatest growth in AHCs over the reporting period was observed in East Arnhem (from 9.8% to 73.4% of clients with an AHC) and Barkly (from 13.6% to 72.5% of clients with an AHC) (Figure 40). At the end of the reporting period in 2021, all NT regions had over 60% of clients aged 55 years and over with an AHC.

The amount of AHCs differed by health service size. The larger services (> 1,000 clients) had a lower proportion of clients with adult health checks for those aged 15 to 54 years (Figure 41), and 55 years and over (Figure 42) compared with all smaller health services.

Similar to national trends in adults, females were more likely to have had a health check than males (Figure 43).[42] However, the difference between genders was smaller for age group 55 years and over compared with young adults.

Figure 39 Proportion of clients aged 15 to 54 years who had an adult health check by NT region, 2010–2021

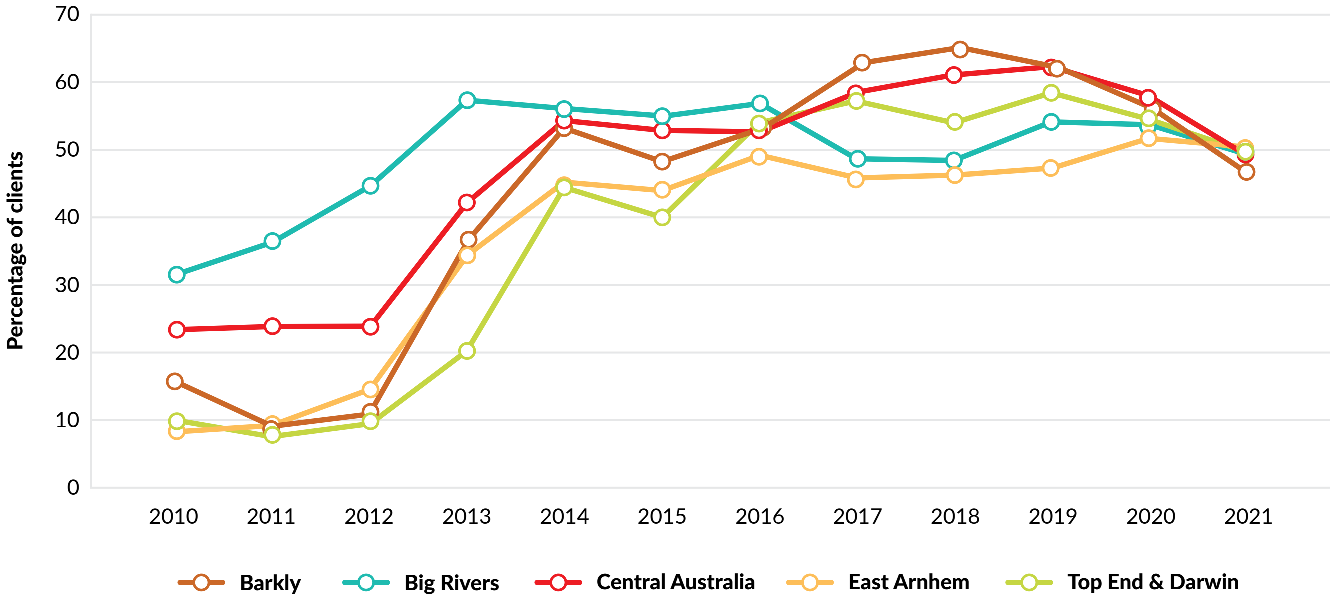
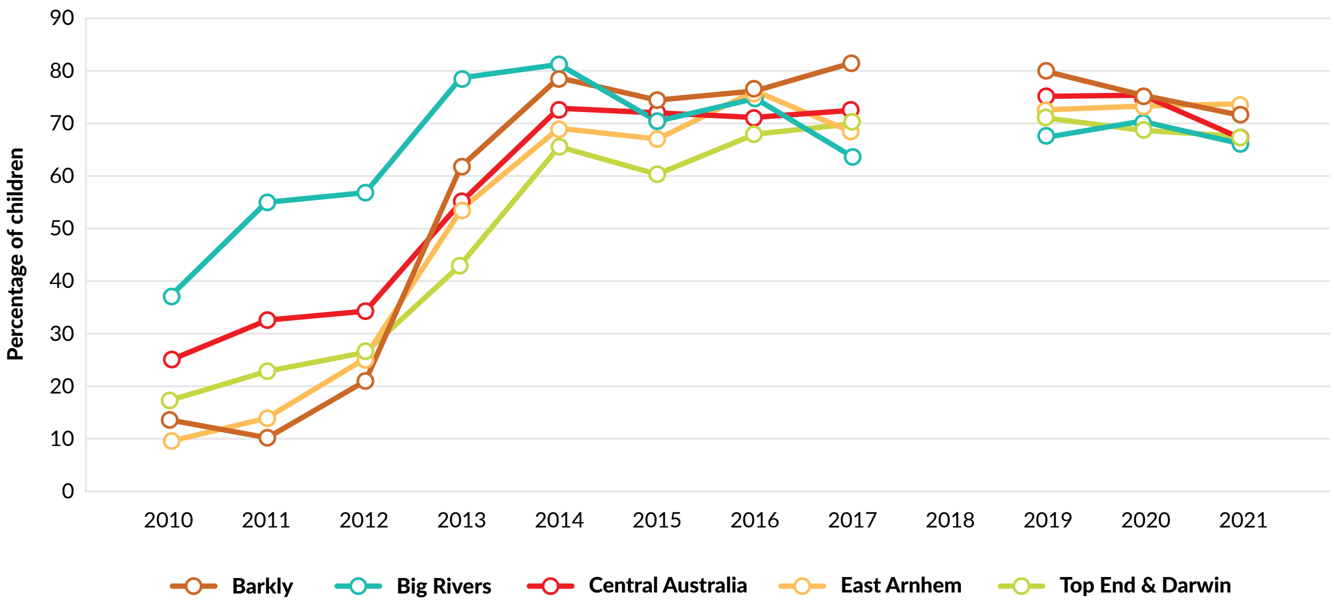


Figure 40 Proportion of clients aged 55 years and above who had an adult health check by NT region, 2010–2021



Note: KPI 1.11 Merged into KPI 1.10 on 10/05/2019, 2018 data quality is not publishable.

Figure 41 Proportion of clients aged 15 to 54 years who had an adult health check by health service size, 2010–2021

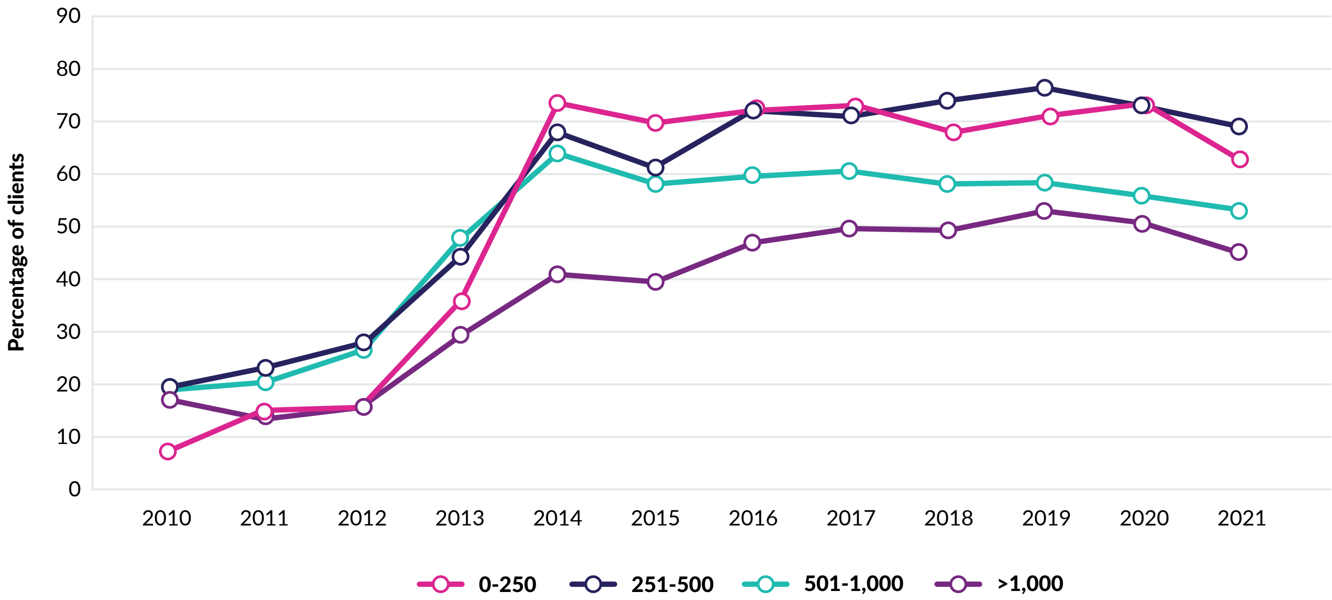
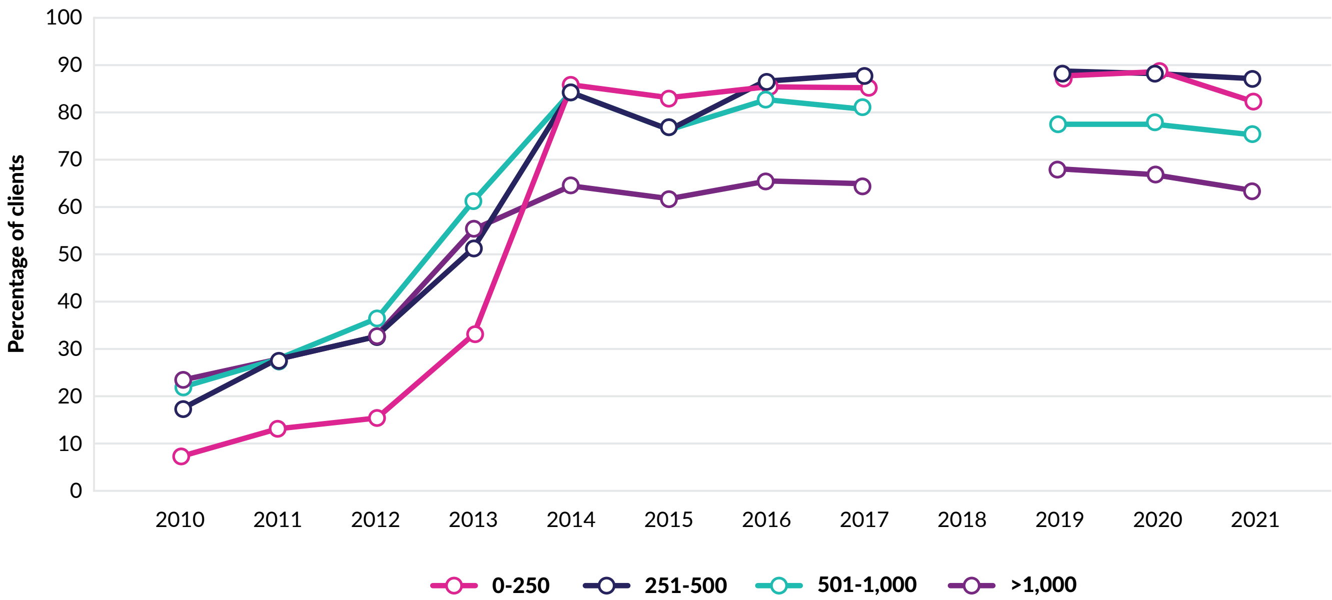
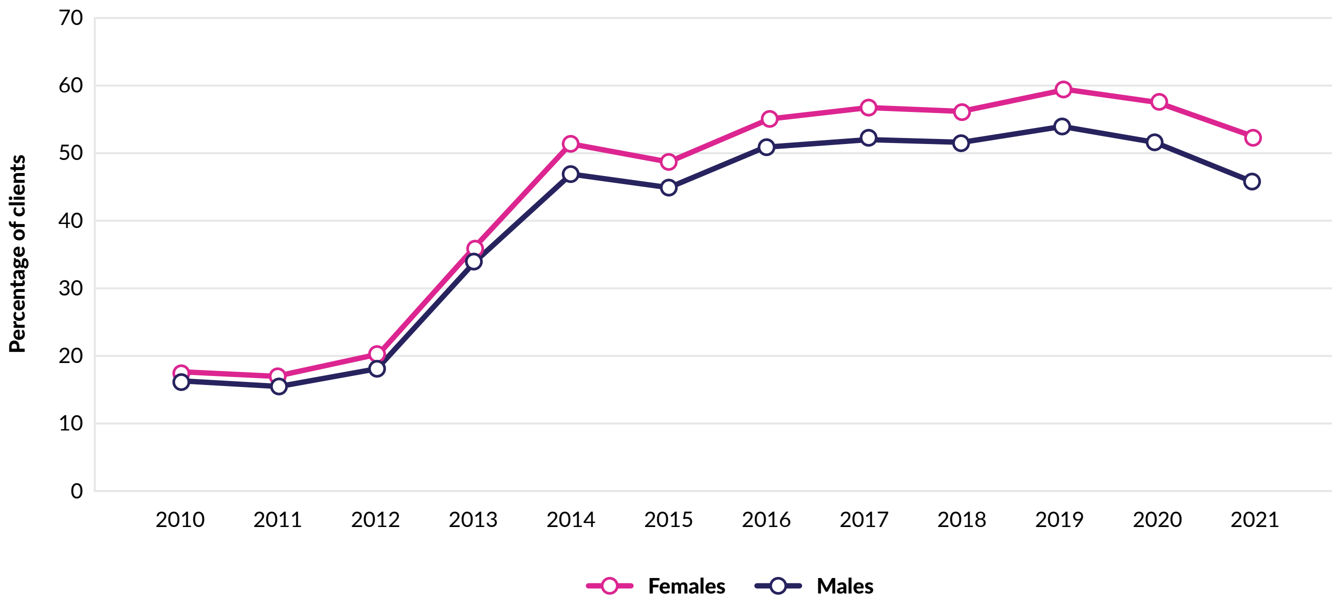


Figure 42 Proportion of clients aged 55 year and over who had an adult health check by health service size, 2010–2021



Note: KPI 1.11 Merged into KPI 1.10 on 10/05/2019, 2018 data quality is not publishable.

Figure 43 Proportion of clients aged 15 to 54 years who had an adult health check by gender, 2010–2021



HEALTH SERVICE OBSERVATIONS

Health providers noted AHCs can be difficult to prioritise due to the extensive time needed to complete a comprehensive assessment with limited GP availability. Health checks often compete with other services priorities of acute and chronic disease needs.[16] Enablers included a whole team approach with initial checks undertaken by an AHP or nurse with GP completion of checks in a subsequent appointment; supported by a local health clinic driver with access to a client appointment recall list and continuous quality improvement (CQI) to assist in identification of incomplete assessments. The 'Deadly Choices' initiative implemented in some services was identified as a useful health promotion tool for health checks.[47] AHPs were seen as a significant enabler to promote getting a health check, particularly among male clients. During COVID-19, staff levels, fatigue and travel limitations were noted to decrease the initiation of health checks in some services. However, concurrent increased telehealth services enabled some clinics to increase health checks through support of off-site GPs.

KPI 1.12 CERVICAL SCREENING

KPI 1.12 KEY FINDINGS

- Between 2011 and 2017, 38.1% to 47.0% of women were screened for cervical cancer in the preceding two years (biennial screening recommended).
- From 2018 to 2020, 65.4% to 66.4% of women were screened in the preceding five years with a significant decline in 2021 to 57.3% (five yearly screening recommended).
- Smaller health services up to 500 people achieved the highest screening, with 39.1% to 65.2% of women screened for cervical cancer in the preceding two years (2011– 2017), and 68.2% to 83.8% in preceding five years (2018– 2021). During the same periods, health services over 1,000 residents screened 35.6% to 42.7% of eligible women clients two yearly and 52.2% to 61.0% five yearly.

Cervical screening is a National Screening Program first introduced in 1991 and has been associated with a reduction in illness and death from cervical cancer through early identification and treatment of pre-cancerous lesions.[48]

The current recommendation is for women aged 25 to 74 years to receive a Human Papillomavirus (HPV) screening test every five years. Five-yearly cervical screening replaced two yearly pap tests on 1 December 2017 in response to the rollout of an effective HPV vaccination program, emerging new testing technologies and modelling based on the literature.[49] At the same time, age recommendations for screening changed from 20 to 69 years prior to 1 December 2017, to the current target age group of 25 to 74 years.

As the new testing regimen was introduced, the AHKPI reported the number of eligible women who underwent cervical screening in the preceding two, three, four and five years. This indicator has been adapted to reflect changes in recommended frequency of screening. Originally the indicator reported cervical screening in the preceding two years. In 2013, any screening in the preceding three years was added and screening in the preceding five years was added in 2014. In 2021, second and third yearly screening was discontinued, and four yearly reporting commenced. Data is available for 2011 to 2021.

Figure 44 shows trends in percentage of women receiving cervical cancer testing within the preceding two, three and five years. In accordance with guideline recommendations up to 2017, 38.1% to 46.8% of eligible women received cervical screening in the preceding two years. Between 2018 and 2020, 65.4% to 66.4% of eligible women received cervical screening in the preceding five years, slightly higher than the national coverage of 62.3%.[49] The impact of COVID-19 is shown in 2021 with proportion of women screened in the preceding five years significantly declining from 65.4%-66.4% in 2018-2019 to 57.3% in 2021 ($p<0.001$).

Women under 50 years were more likely to receive screening compared to older women (Figure 45; $p<0.001$). Between 2011 and 2017, 39.1% to 48.8% of women aged 20 to 49 years received screening in the preceding two years, while 35.1% to 44.3% of women aged 50 to 79 years received screening. For 2018 to 2021, 54.5% to 68.5% of women 25 to 49 years of age received screening compared to 55.8% to 63.0% of women aged 50 to 74 years (Figure 45).

The smallest health services up to 500 people screened a significantly higher proportion of women, achieving 39.1% to 65.2% of second yearly screening from 2011 to 2017 and 68.2% to 83.8% five yearly screening from 2018 to 2021. By contrast, health services with over 1,000 residents screened the lowest proportion of women, 35.6% to 42.7% on second yearly screening (2011 to 2017) and 52.2% to 61.0% on five yearly screening (2018–2021) ($p<0.001$; Figure 46).

Figure 44 Proportion of women receiving 2, 3 and 5 year cervical screening, 2010–2021

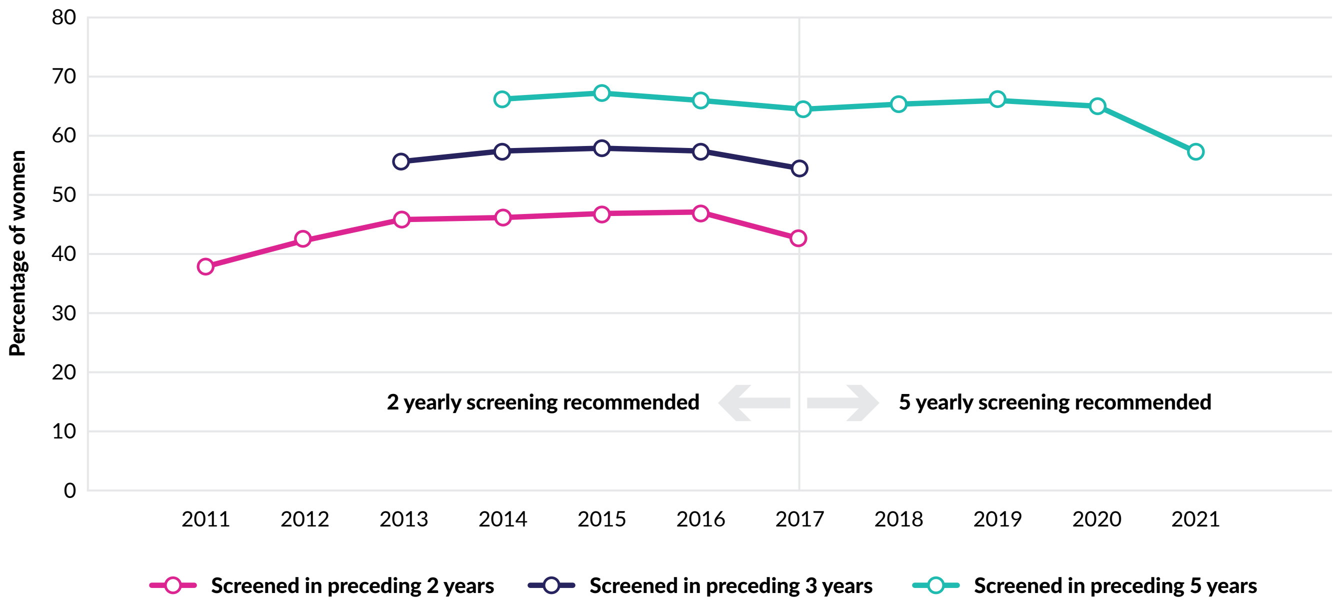


Figure 45 Proportion of women receiving cervical screening in accordance with guidelines (2 yearly 2011–2017; 5 yearly 2018–2021) by age group

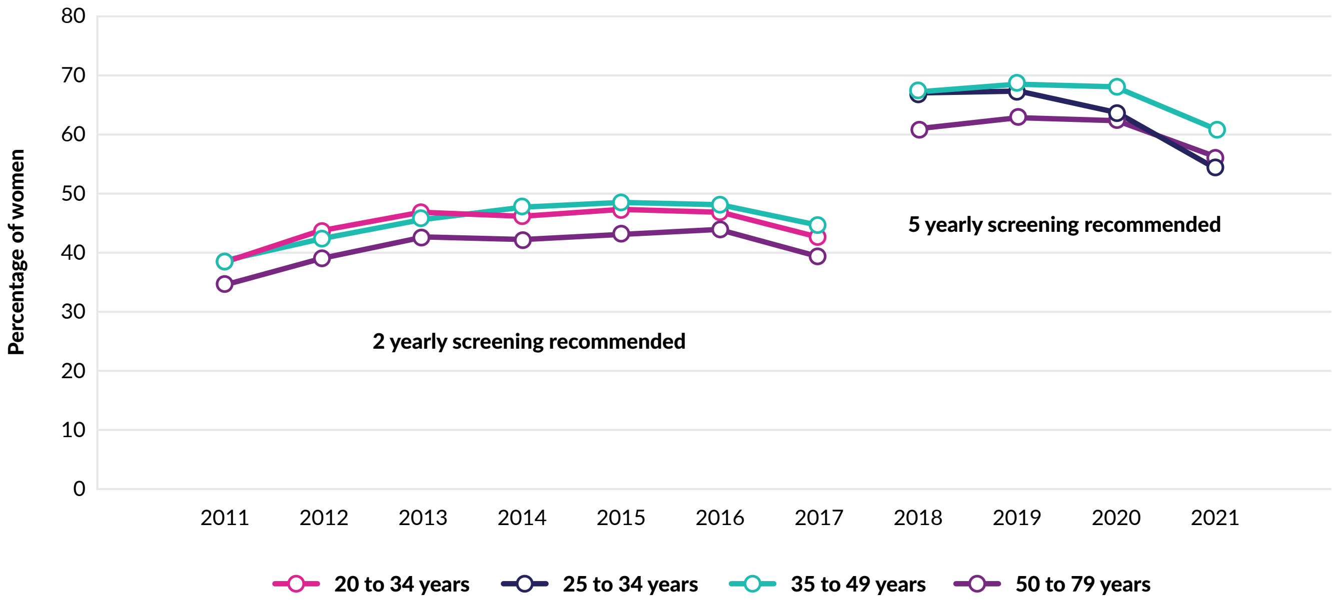
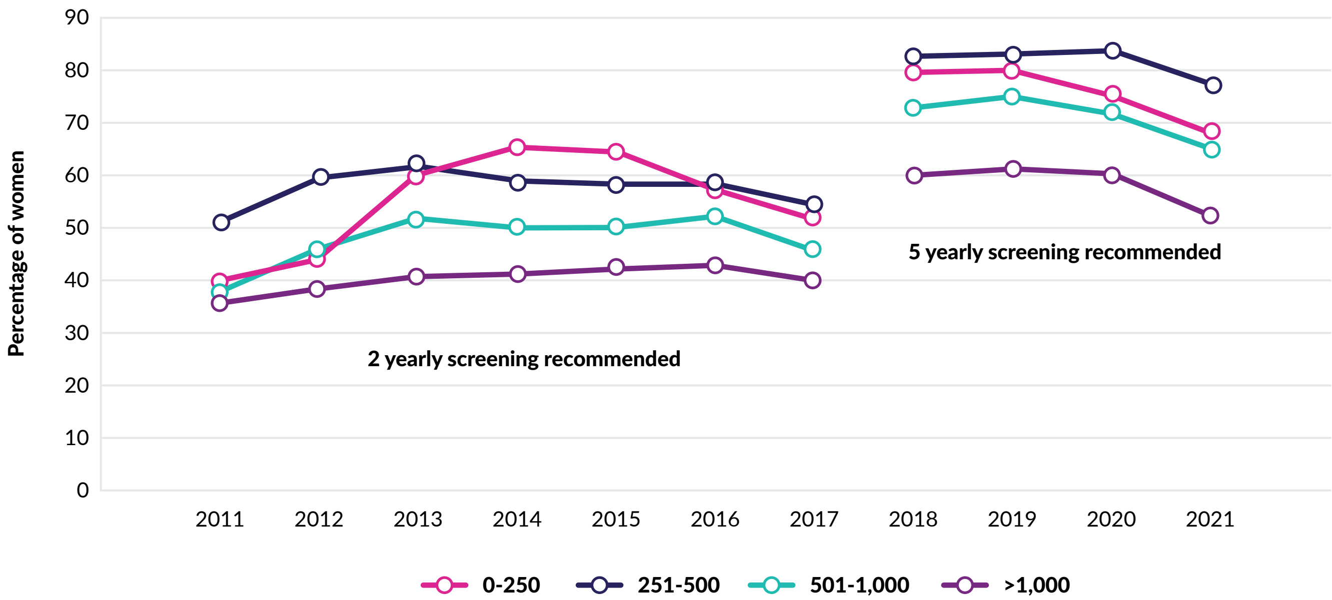


Figure 46 Proportion of women receiving cervical screening in accordance with guidelines (2 yearly 2011–2017; 5 yearly 2018–2021) by health service size



HEALTH SERVICE OBSERVATIONS

Health services have suggested that five yearly testing has been more achievable then two yearly screening. The barriers to cervical screening included mobility of clients; lack of retention of staff; poor access to staff training with clinic staff untrained in cervical screening; and, the over-reliance on midwife outreach services to undertake and oversee screening of clients. The outreach services by midwifery staff was further reduced during the COVID-19 pandemic in 2020–2021, which contributed to the more recent declines in screening rates.[16] Additionally, health service staff reported that "many clients decline testing". Improvements suggested by community clinics included: staff training in the 'Well Women's Health Course', encouraging women to self-collect specimens (now available for all women without abnormalities) and cleansing eligible population lists to obtain an accurate population denominator.

KPI 1.16 TOBACCO USE

KPI 1.16 KEY FINDINGS

- The recording of a client's smoking status has remained stable, 63.1% and 63.5% of all clients aged 15 years and over had their smoking status recorded in 2016 and 2021, respectively.
- There has been a small non-significant decrease in the proportion of current smokers from 54.7% (n=18,300) of clients in 2015 to 53.5% (n=18,302) in 2021. The prevalence of smoking remains high suggesting that this is an area requiring further public health intervention.
- Male clients were more likely to smoke than female clients, but the gap between genders is narrowing. In 2021, 60.3% of males smoked compared to 48.4% of females.
- Between 2015 and 2021, there was a significant decline in the prevalence of current smokers in the Top End and Darwin region, from 59.7% in 2015 to 56.8% in 2021.

Tobacco use is one of the most important modifiable risk factors contributing to the chronic disease burden and life expectancy gap between Aboriginal and non-Aboriginal people.[50] This AHKPI data captures updated recording of clients smoking status by clinician and the smoking status for clients 15 years and over (current smoker, ex-smoker less 12 months, ex-smoker>12 months, and non-smoker). Data has been collected from 2015 to 2021, with the associated client population data collected from 2016 onwards. This section firstly looks at the recording of smoking status and then analyses if there has been changes in the proportion of client's smoking.

RECORDING OF SMOKING STATUS

Recent studies suggests that clinician's asking questions of client's smoking status and providing brief interventions can influence quitting motivations and supports reduction in amount of cigarettes smoked.[51-53] In 2014, an Aboriginal population health cohort study found almost all Aboriginal and Torres Strait Islander smokers (who saw a doctor in the last 12 months) recalled being asked by clinicians whether they smoked and among smokers, over three quarters recalled being provided with advice on quitting.[53] Clinical protocols for opportunistic health promotion (such as through Adult Health Checks) help to reduce smoking prevalence and also enable health services to collect current data on smoking prevalence to monitor change over time.[54]

The recording of smoking status is defined as the number of Aboriginal clients aged 15 and over whose smoking status has been recorded by the primary health care service within the preceding 2 years. This analysis of recording of smoking status is limited to only 2016–2021, due to the unavailability of a denominator population in prior reporting periods.

The proportion of clients with a recorded smoking status remained relatively stable at 63.5% in 2016 and 63.1% in 2021. There was a peak of 69.5% of clients with a recorded smoking status in 2019 (Figure 47). Improving the recording of smoking status among the client population will likely support the ability to better assess changes in the prevalence of smoking. Female clients were more likely to have their smoking status recorded compared with male clients (Figure 47).

CLIENT SMOKING STATUS

Smoking status is captured as a client's self-reported response to clinician's question on smoking and includes the following options: current smoker, never smoked and ex-smoker. An ex-smoker is further categorised into ex-smoker less than 12 months and ex-smoker greater than 12 months. In the analysis below, only clients with a recorded smoking status are included.

There has been very little change in the smoking status of the client population between 2015 and 2021 (Figure 48). In 2015, the proportion of clients who were current smokers was 54.7% and in 2021 it was 53.5% of clients. Ex-smokers and non-smokers also did not change statistically across the reporting period.

Figure 47 Proportion of clients with smoking status recorded by gender, 2016–2021

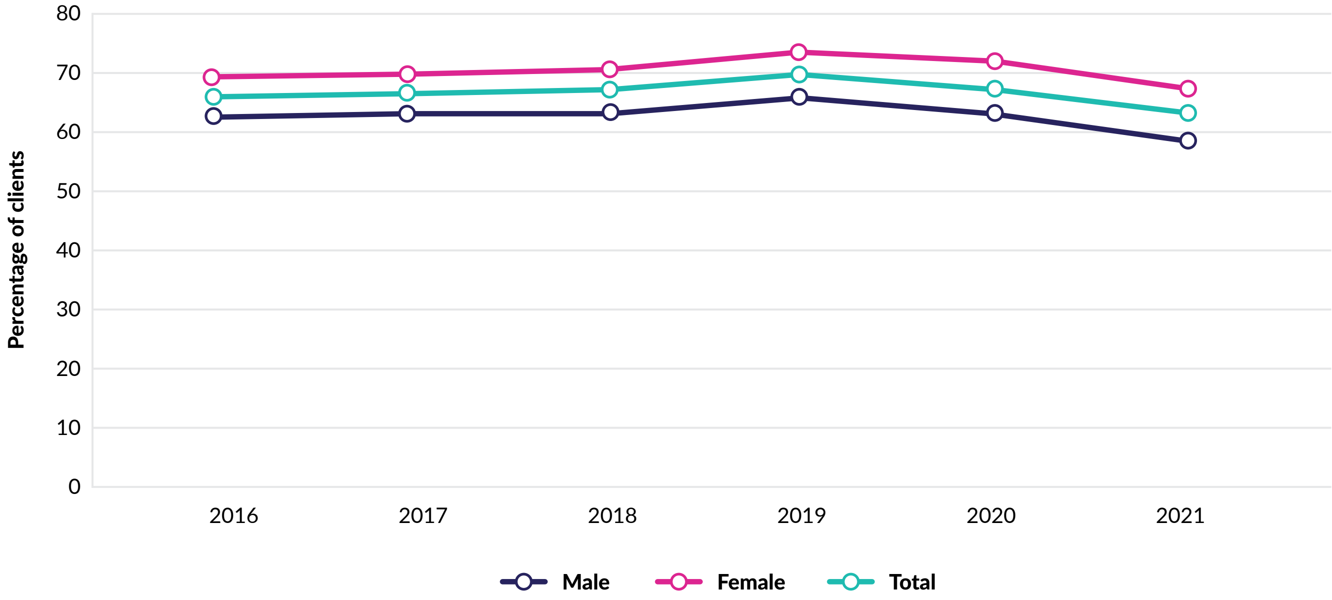
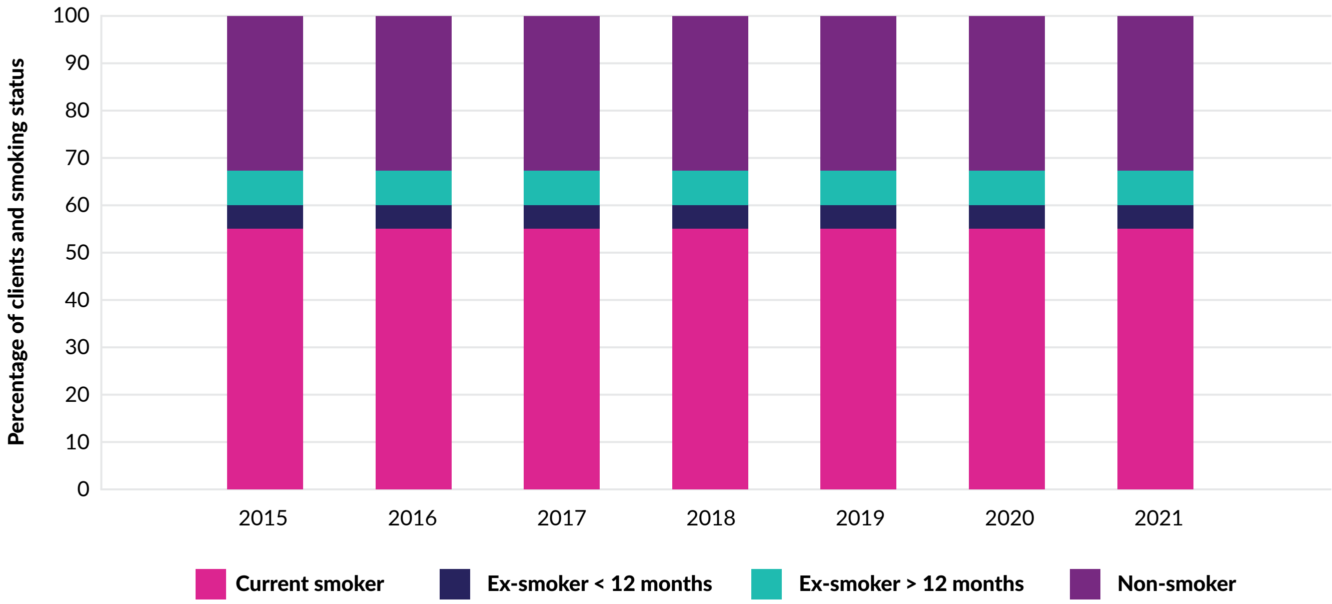


Figure 48 Smoking status (proportions) of clients*, 2015–2021



Note: *Figure includes only clients with a recorded smoking status.

By gender, male clients were more likely to smoke than female clients in all years from 2015 to 2021 (Figure 49) ($p<0.05$). Over time, the gap between genders has narrowed slightly. In 2016, there was 14.9% difference between male smokers (63.0%) compared with female smokers (48.1%). In 2021, there was a 11.8% difference between genders, 60.3% of males were current smokers compared with 48.4% of females.

Over time, smoking prevalence did not decline significantly across different age groups (Figure 50). However, there were significant differences between age groups. Those in the oldest age group, greater than 64 years, were less likely to be a current smoker than younger age groups ($p<0.05$). The lower smoking prevalence among the older age group may be a result of smokers dying prematurely, with current estimates suggesting that current smokers die 10 years earlier than non-smokers.[55] Smoking prevalence was highest in the age group 25 to 44 years, ranging between 62.4% and 64.1% annually.

Central Australia (range 43.6% to 45.4%) and Barkly (49.2% to 50.5%) had a significantly lower prevalence of current smokers compared to all other regions (range 54.5% to 64.8%) ($p<0.001$) (Figure 51). Between 2015 and 2021, only Top End and Darwin region demonstrated a significant decline in the proportion of current smokers (from 59.7% in 2015 to 56.8% in 2021; $p<0.001$).

Figure 49 Proportion of clients who are current smokers by gender, 2015–2021

Figure 50 Current smoking prevalence by age group, 2015–2021

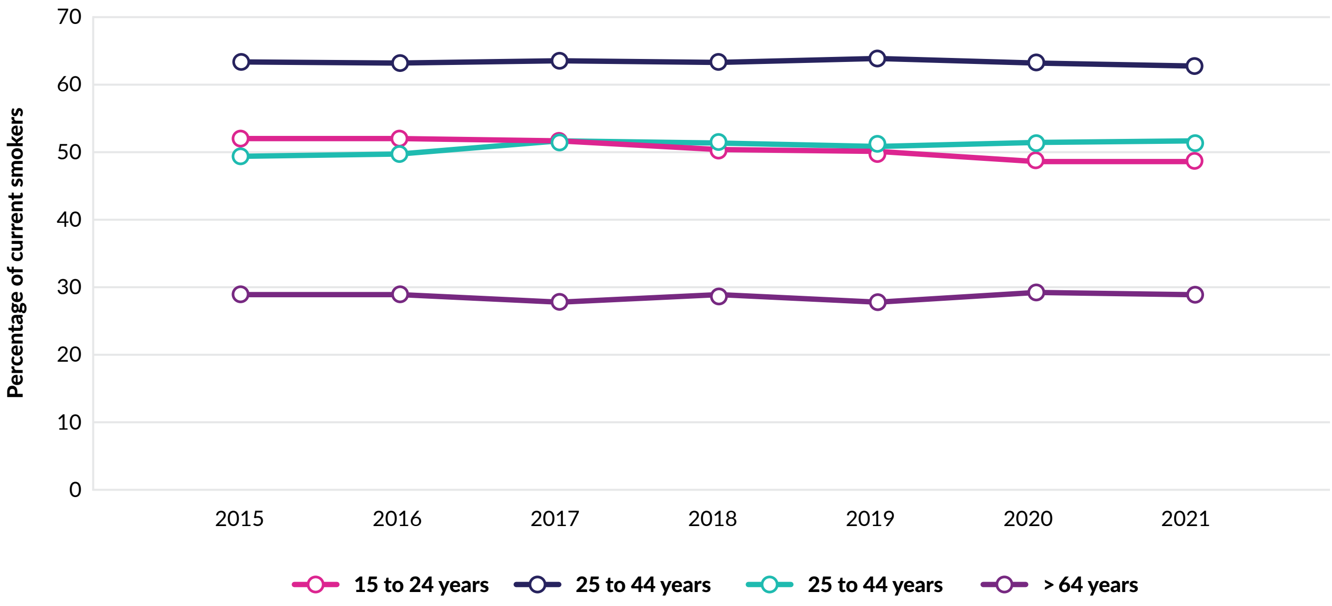
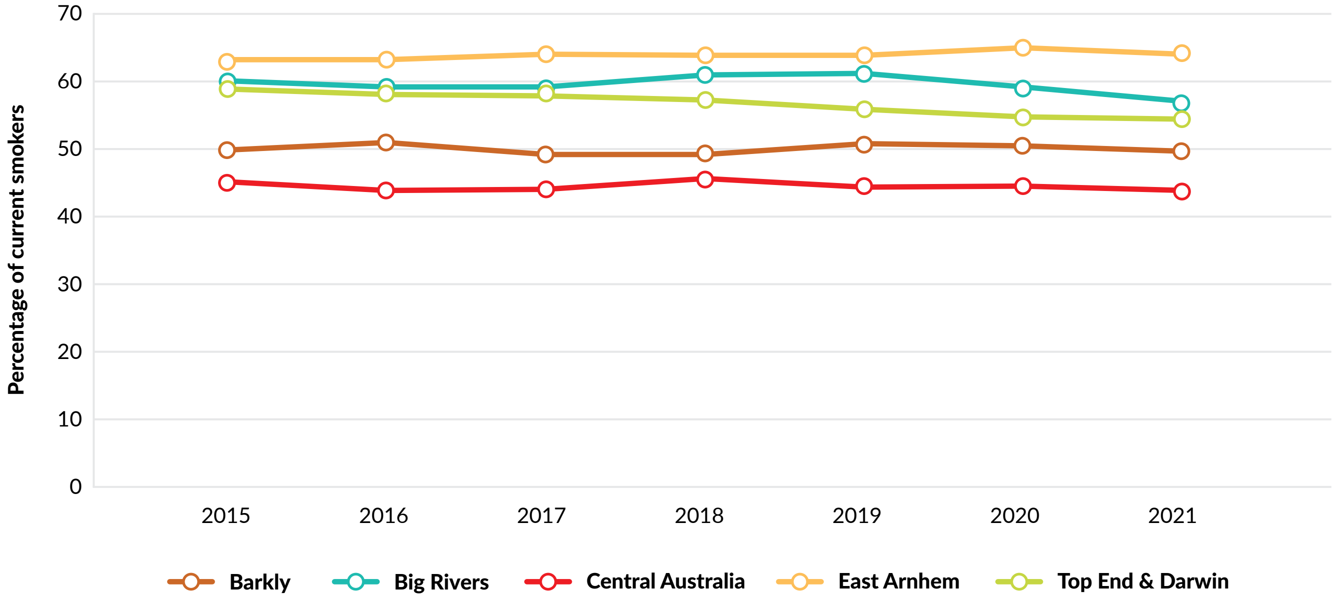


Figure 51 Current smoking prevalence by region, 2015–2021



HEALTH SERVICE ENABLERS

Enablers for this AHKPI include the implementation of long term and culturally appropriate smoking cessation strategies and resources; education and upskilling of a multi-disciplinary team (e.g. community workers, nurses, alcohol and other drugs services) in taking smoking history of client, delivery of brief interventions, documentation and ongoing support for clients to cease smoking.[16] Dedicated, active and continuous programs such as the Tackling Indigenous Smoking (TIS) initiative were beneficial. Barriers to addressing smoking behaviours were suspension of tobacco-specific programs (2015–2016 and during the COVID-19 pandemic), high staff turnover and insufficient time available for health promotion activities due to competing acute care demands. A theme articulated by health providers was limited health literacy in communities regarding the effects of smoking and the negative perceptions generated by health staff that smoked. It was noted that despite significant increases to the cost of tobacco over the period of this report that smoking prevalence remained high. Evidence from a recent study on tobacco sales at Aboriginal community stores in the NT has suggested that there were declines in tobacco sales following price rises due to tobacco tax increases. It may be that quantities of tobacco consumed (for example, number of cigarettes per day) could be more sensitive to price increases than smoking prevalence.[56]


CORPORATION

CHAPTER 5. CHRONIC DISEASE MANAGEMENT

KPI 1.7 CHRONIC DISEASE MANAGEMENT PLANS

KPI 1.7 KEY FINDINGS

- Between 2011 and 2021, there was an increase in the number and proportion of current general practitioner management plans (GPMPs) for clients diagnosed with type 2 diabetes and clients diagnosed with coronary heart disease (CHD). From 56.5% (n=3,684) to 61.9% (n=12,691) GPMPs for diabetic clients, and from 56.4% (n=1,090) to 61.5% (n=4,251) GPMPs for clients diagnosed with CHD.
- Both the number and proportion of type 2 diabetic clients and CHD clients receiving Team Care Arrangements (TCAs) for chronic diseases management increased significantly from 2011 to 2021. From 43.8% (n=2,856) with TCA in 2011 to 59.7% (n=12,254) for diabetic clients, and from 44.9% (n=867) to 58.6% TCAs for clients diagnosed with CHD.
- Alternative GPMPs and TCAs contributed a very small proportion (>5%) of care management for clients diagnosed with diabetes and/or CHD.

Preventable chronic diseases contribute to the burden of disease among Aboriginal people.[4, 5] Primary health care is integral to effective chronic disease care. Good care can reduce hospitalisations,[57] reduce complications and improve long term health outcomes.[58, 59] General Practitioner Management Plans (GPMP) and Team Care Arrangements (TCA) support primary health care responses for people with chronic conditions and are renumerated for under the Medicare Benefit Scheme (see Box 1 and Box 2).

GENERAL PRACTITIONER MANAGEMENT PLANS (GPMP)

Individuals who have a chronic (or terminal) medical condition are eligible for a GPMP, recommended to be undertaken every 2 years and with a biannual review. This AHKPI reports the number of Aboriginal residents with type 2 diabetes and/or coronary heart disease (CHD) who have a current GPMP or alternative GPMP (Box 1). This AHKPI captures both all GPMP in the last 2 years (since 2011 onwards) and those who received a GPMP in the last year (since 2012 onwards). GPMP and TCAs are valid for 2 years, as such the reporting of this AHKPI has used the period prevalence of 2 years. This AHKPI includes all clients 15 years and older, and in 2019 was changed to include clients 5–14 years.

Box 1 General Practitioner Management Plans (GPMP)

Chronic Disease Management Plans for the purpose of this indicator are defined as:

1. MBS item 721 - General Practitioner Management Plan (GPMP), (Medicare Benefit Schedule) Preparation of GPMP (Item 229,721) Review of GPMP or TCA (233, 732); or
2. Alternative Chronic Disease Management Plan. The following mandatory items are included in the alternative General Practitioner Management Plan: a. Assessing the patient to identify and/or confirm the entire patients health care needs, problems and relevant conditions b. Agreeing management goals with the patient for the changes to be achieved by the treatment and services identified in the plan c. Identifying any actions to be taken by the patient d. Identifying treatment and services that the patient is likely to need and making arrangements for provision of these services and ongoing management e. Documenting the patient's needs, goals, patient actions, treatment/services and a review date i.e. completing the GPMP document.

From 2011 to December 2021, there has been an overall increase in the recorded number of clients diagnosed with type 2 diabetes and/or CHD who have a GPMP (Figure 52). The greatest increase in GPMPs occurred in clients with type 2 diabetes, which increased from 3,684 clients in 2011 to 12,691 clients in 2021. This large increase may be partially explained by increases in the number of services participating in the KPI reporting, better detection and reporting and potential duplication of client reporting across services and growth in the number of people living with diabetes.[60,61] Over the same period, the number of clients with CHD with a current GPMP increased from 1,090 clients to 4,215 clients. The increased growth from 2019 onwards was partially explained by a change in AHKPI definition to include clients aged 5–14 years. However, note the overall number of clients aged 5–14 years diagnosed with diabetes and/or CHD remained very low over this period, there were 18 diabetic clients (aged 5–14 year old) in 2018. This increased to 111 clients in December 2021. The 5-14 year age group represents only 0.1% of clients diagnosed with diabetes in 2019 and 0.5% of clients with diabetes in 2021.

The trend was similar by the proportion of clients with a GPMP. Over the reporting period (2011–2021), there has been an increase in the proportion of clients with a GPMP (Figure 53) for all disease groups increasing from: 56.5% to 61.9% for clients diagnosed with type 2 diabetes; 56.4% to 61.5% for clients diagnosed with CHD; and 65.5% to 66.9 for clients diagnosed with CHD and type 2 diabetes.

Figure 52 Number of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a current General Practitioner Management Plan (GPMP), 2011–2021

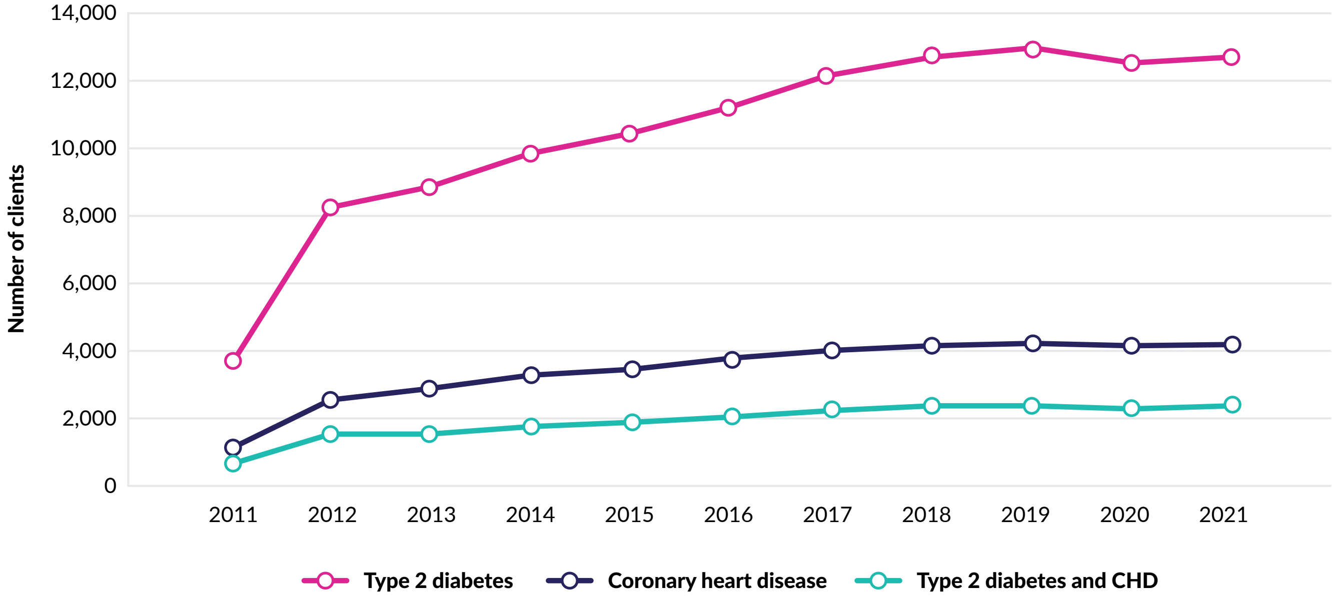
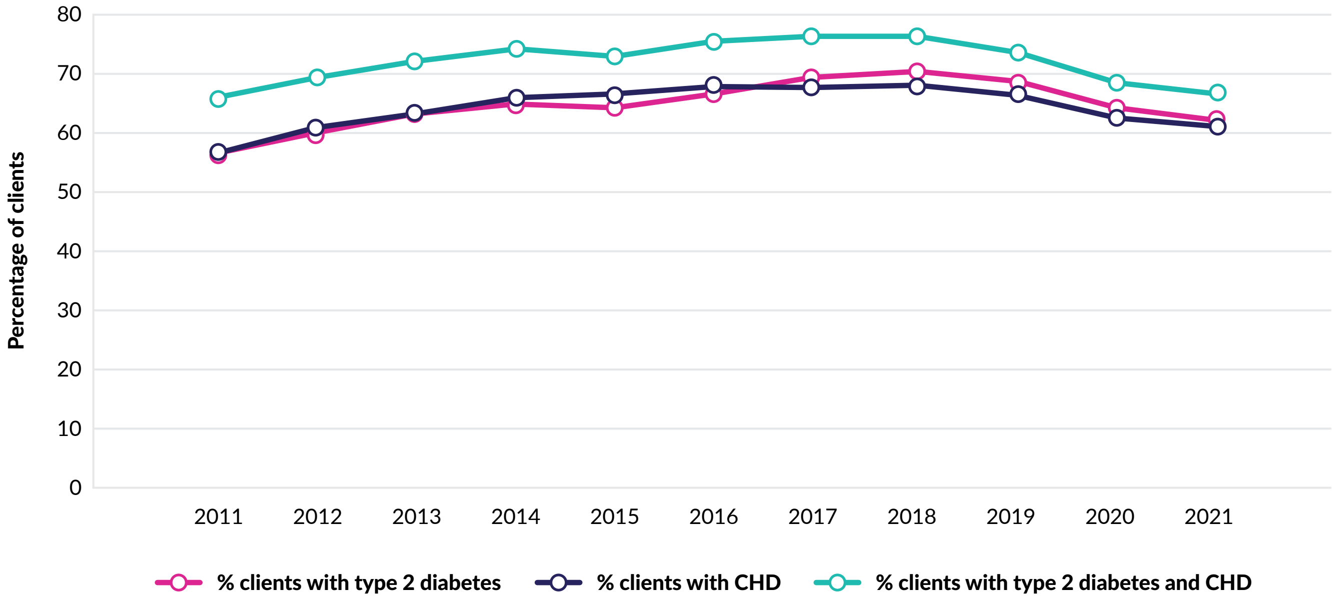


Figure 53 Proportion of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a General Practitioner Management Plan (GPMP), 2011–2021



By region, GPMPs for clients with type 2 diabetes and/or CHD increased over the period 2011 to 2021 for regions: Central Australia (56.0% to 71.3%); East Arnhem (60.7% to 69.8%); and, Top End and Darwin (63.0% to 66.7%) (Figure 54). There were decreases observed in Big Rivers (72.4% to 68.2%); and, Barkly (72.9% to 52.1%) from 2011 to 2021.

TEAM CARE ARRANGEMENTS (TCA)

TCAs involve care provided by a multidisciplinary team, typically including the usual medical practitioner and at least two other collaborating health care providers. Each practitioner or clinician must provide a different type of ongoing treatment or service. Not all members of the care team need to be Medicare eligible health professionals.

Among clients diagnosed with diabetes and/or CHD, there has been an increase in the number of TCAs from (Figure 55):

- 2,856 clients with a TCA in 2011 to 12,254 clients in 2021 for those diagnosed with type 2 diabetes;
- 867 clients in 2011 to 4,015 clients in 2021 for those diagnosed with CHD; and,
- 516 clients in 2011 to 2,110 clients in 2021 for those diagnosed with type 2 diabetes and CHD.

There was a significant increase in the percentage of diabetic clients with a TCA from 2011 to 2021, with 43.8% of type 2 diabetic clients with a TCA in 2011 increasing to 59.7% of clients in 2021 ($p<0.05$; Figure 56). There was also a significant increase for clients with CHD on TCA from 44.9% in 2011 to 58.6% in 2021. For clients with type 2 diabetes and CHD the proportion with a TCA remained stable over the reporting period. The proportion of clients with alternative TCA for clients with type 2 diabetes and CHD was low at less than 2% of clients across all years.

Central Australia and East Arnhem had an increase in the proportion of clients with type 2 diabetes and/or CHD who had a TCA. Over the reporting period, TCAs increased from 38.0% to 67.4% for Central Australia and from 53.8% to 64.1% for East Arnhem (Figure 57). For all other regions, the proportion fluctuated slightly without an observable trend. Since 2019, the regions of Barkly and Big Rivers had declines in the proportion of clients with type 2 diabetes and/or CHD who had a TCA.

Box 2 Team Care Arrangements

Team Care Arrangements (MBS Item 723) are an expansion of GPMPs that detail allied health workers and other member of the team who implement any part of the GPMP. The service is coordinated by a GP and involves two or more other health care providers. Patients may be eligible for both a GPMP and TCA; however each service can be provided independently. Other MBS items related to Chronic Disease Management Plan Team Care Arrangements (TCA). Medicare Benefit Schedule are: Item 230, 723 – coordination of the development of TCA; Items 231, 729 – Contribution to a multidisciplinary care plan or to a review for a patient who isn't in a residential aged care and; Items 232, 731-Contribution to an Multidisciplinary Care Plan or to a review for a resident in an aged care facility

An alternative TCA is recorded if practice nurses, Aboriginal Health Practitioner (AHP) or Aboriginal Health Workers (AHWs) are involved in their development in the absence of a GP.[1, 3]

Figure 54 Proportion of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a General Practitioner Management Plan (GPMP) by NT region, 2011–2021

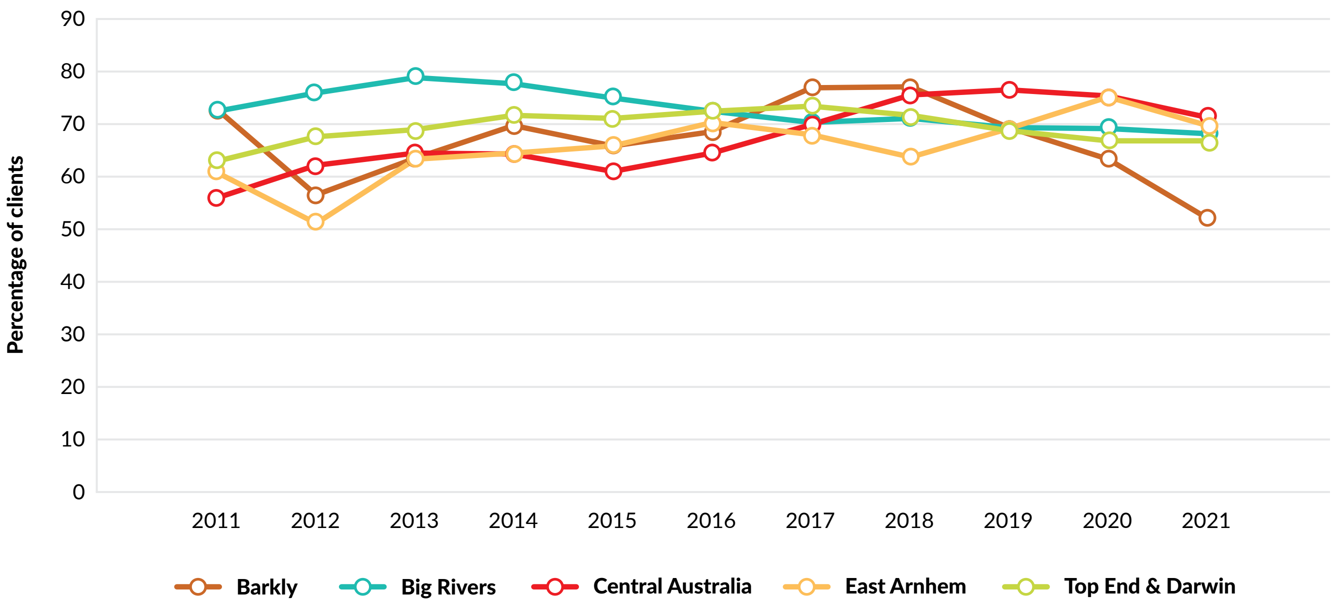


Figure 55 Number of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a Team Care Arrangement (TCA), 2011–2021

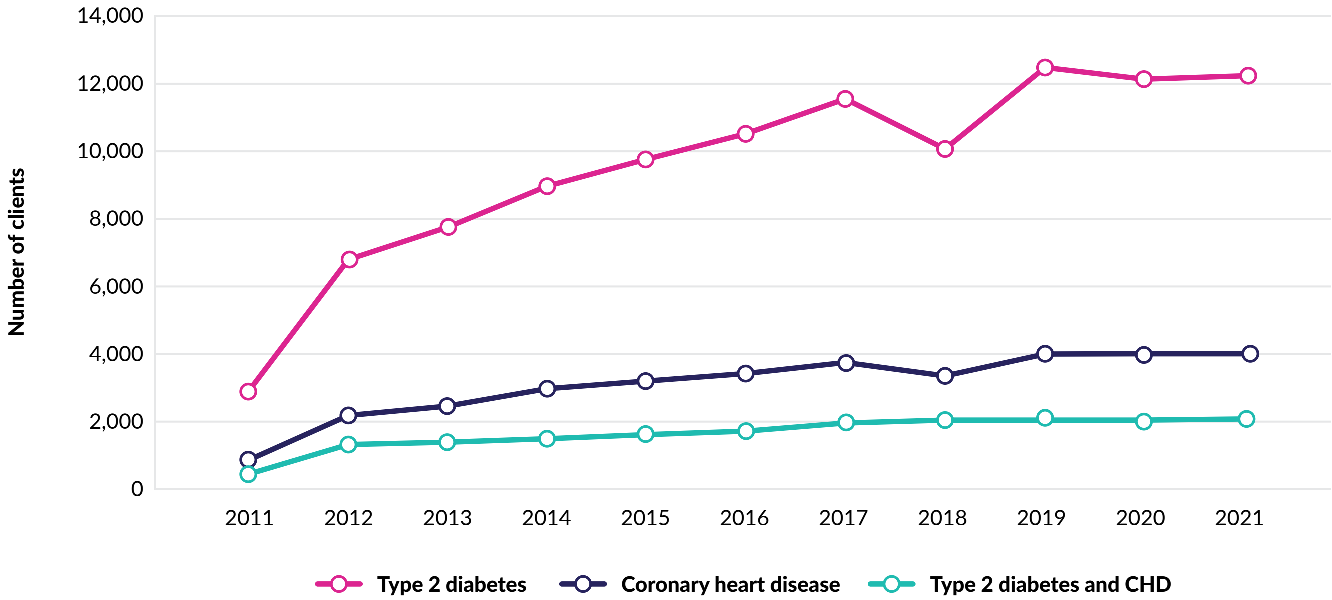


Figure 56 Proportion of clients diagnosed with type 2 diabetes and/or Coronary Heart disease (CHD) with a Team Care Arrangement (TCA), 2011–2021

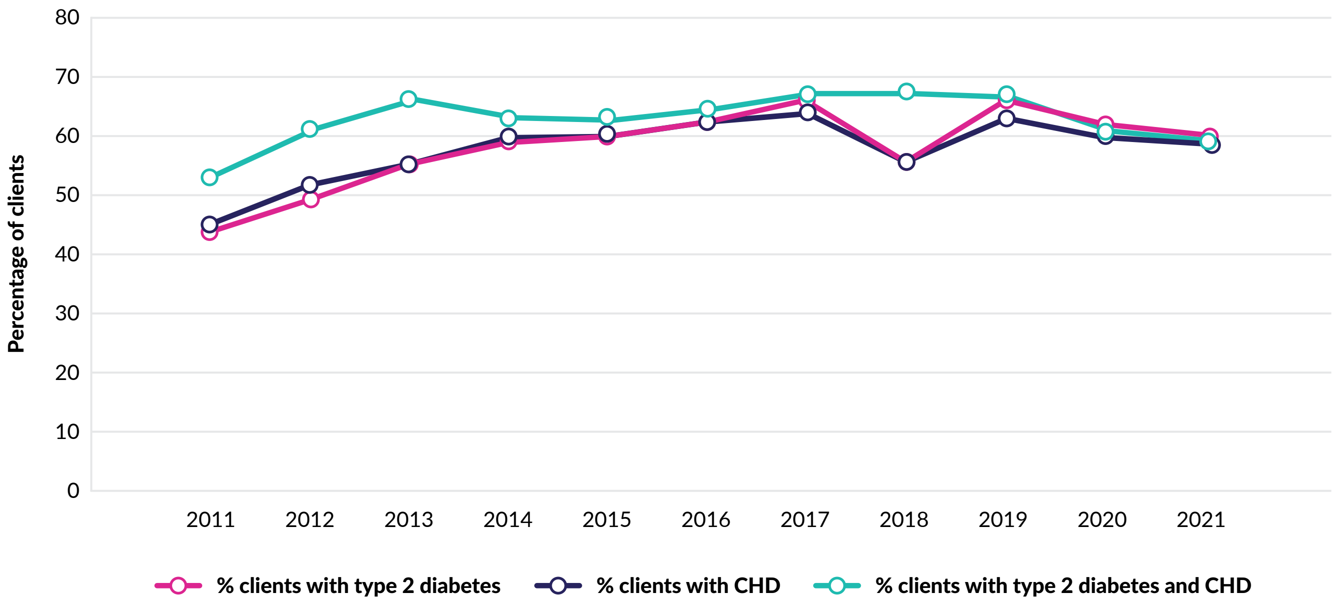
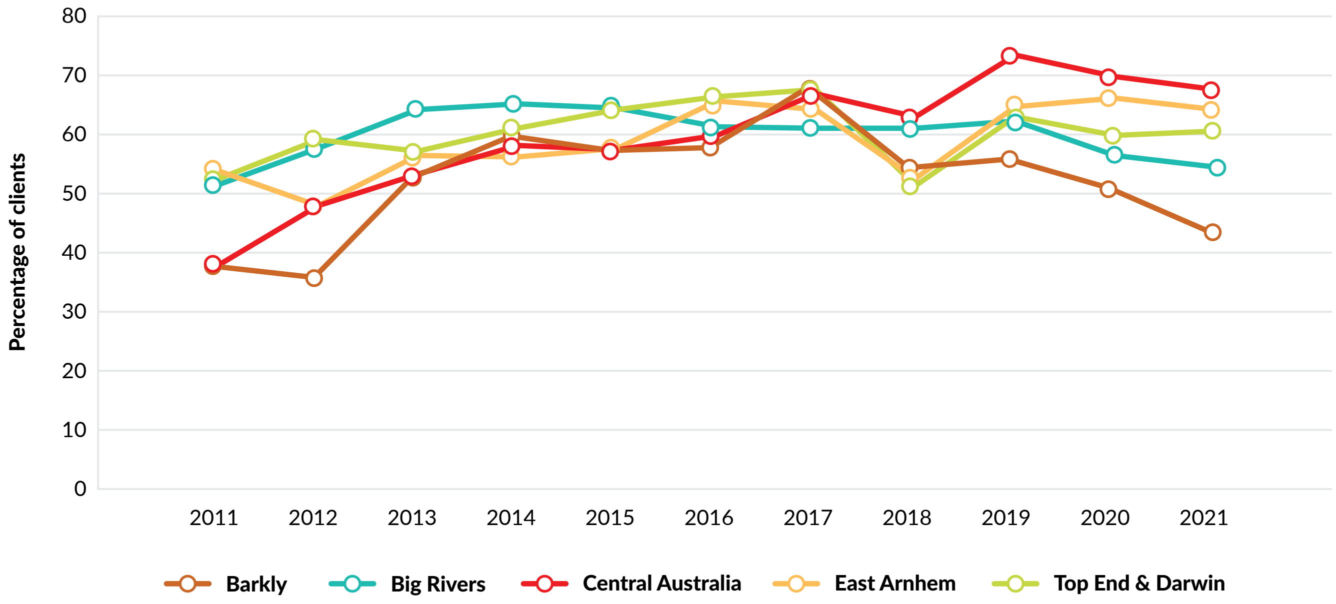


Figure 57 Proportion of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a Team Care Arrangement (TCA) by NT region, 2011–2021



HEALTH SERVICE OBSERVATIONS

The enablers identified for increasing the numbers of clients with a GPMP and/or TCA included: proactive and appropriately skilled chronic disease health staff; reporting tools (e.g. primary health care traffic light reports and appointment recalls); sufficient GP hours with quarantined hours devoted to chronic disease portfolio; and, the selection of the correct Medicare items.[16] Continuity of staff and safe environment in the health clinic (e.g. private consultation rooms and client's choice of staff gender) enabled greater client engagement in these services. COVID-19 travel restrictions was seen as an enabler in some communities as it reduced client travel, enabled better access to clients and supported GP and allied health visits to communities in some regions and services. The decline in TCA coverage in 2020 and 2021 was associated with reduction of PHC staff time available for chronic disease care due to the redirection of resources to support the response to the COVID-19 pandemic.

KPI 1.8 GLYCOSYLATED HAEMOGLOBIN (HbA1c) TESTING AND MEASUREMENTS

KPI 1.8 KEY FINDINGS

- 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.
- Between 54.8% and 71.3% of clients received HbA1c testing in the preceding 6 months (2010 to 2021) and 77.0% to 85.0% of clients received HbA1c testing in the preceding 12 months (2015 to 2021). Testing peaked in 2016 and was lowest in 2010 and 2021.
- The proportion of type 2 diabetic clients with good glycaemic control (HbA1c ≤ 7%) remained unchanged between 2013 and 2021, ranging from 30.8% to 37.4% of those tested.
- The proportion of clients with the poorest glycaemic control (HbA1c ≥ 10%) remained stable over the reporting period, between 24.1% and 30.5%.
- Older age was associated with better glycaemic control with 44.9% to 56.1% of clients over 64 years tested achieving their treatment target compared to 17.0% to 37.3% of 15 to 44 year olds.

Glycosylated haemoglobin (HbA1c) indicates the average blood glucose level bound in red blood cells in the previous six to eight weeks and is the gold standard for assessing glycaemic control.[10] In people with type 2 diabetes, optimal glycaemic control is indicated by an HbA1c level less than or equal to 7% or less than or equal to 53 mmol/mol.[62] Higher levels are associated with diabetes-related complications, in particular the microvascular complications of retinopathy, neuropathy and nephropathy.[63]

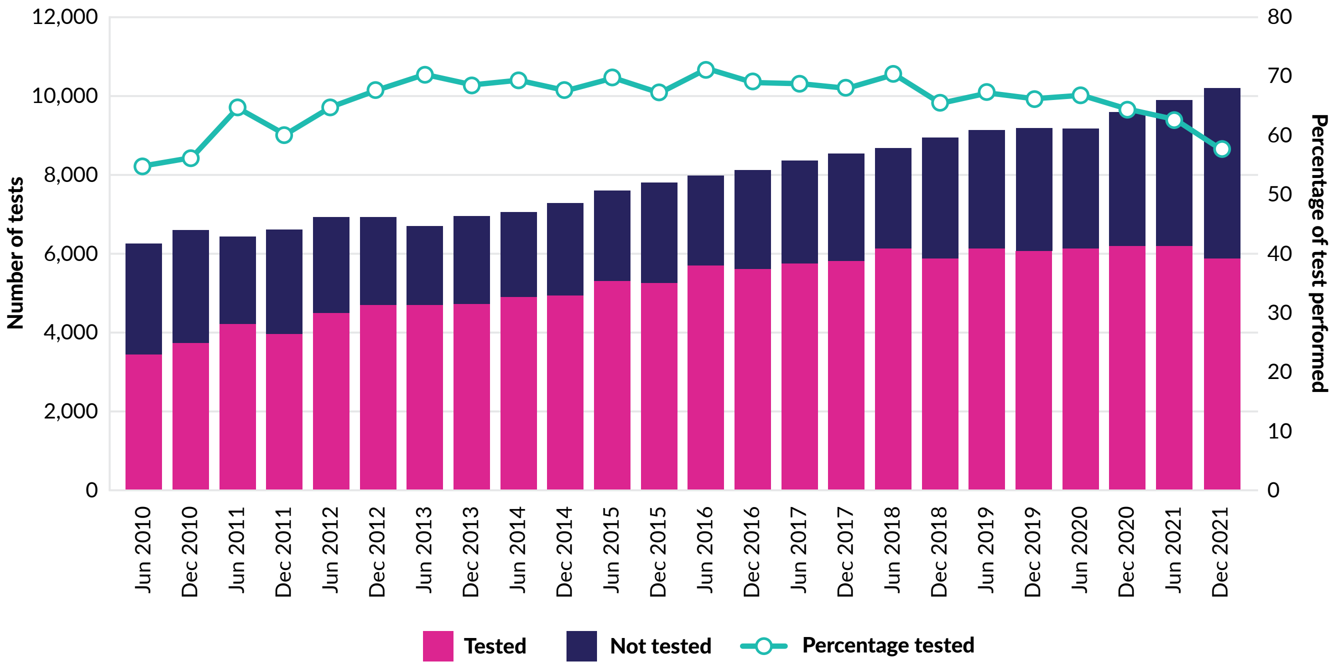
There are two AHKPI indicators related to HbA1c. The first is the proportion of persons with diabetes who had an HbA1c test within the preceding six months (reported since 2010) or in the preceding 12 months (reported since 2015). The second indicator, reported since 2013, provides the latest HbA1c result obtained in the preceding 12 months, reported within four ranges; (i) ≤7% (≤ 53 mmol/mol), (ii) 8% (54 to 64mmol/mol), (iii) 9% (65 to 85 mmol/mol) and (iv) ≥10% (≥ 86mmol/mol). Good glycaemic control (normal range) is an HbA1c measure of ≤ 7%. The population denominator for these two indicators includes Aboriginal resident clients aged five years or older diagnosed with type 2 diabetes. Ages 5 to 14 years have been included in reporting since the second half of 2018 and only one test per person is counted for each reporting period.

The number of type 2 diabetic clients increased by 63.2%, from 6,236 clients requiring testing in the six months ending June 2010 to 10,180 in the six months ending December 2021 (Figure 58). This increase is potentially due to increased diabetes prevalence, increased reporting by services and better disease detection.[61] The inclusion of 5 to 14 year olds in reporting from 2018 contributed 10 to 41 tests each reporting period, representing only a small proportion of the increase in testing numbers. The proportion of clients who received testing increased from 54.8% in 2010 to a peak of 71.3% in 2016. In December 2021, the proportion tested declined close to baseline with 57.6% of clients tested.

From 2015 to 2021 when 12 monthly HbA1c testing was reported, 77.0% (2021) to 85.0% (2016) of type 2 diabetic clients received testing in the preceding year.

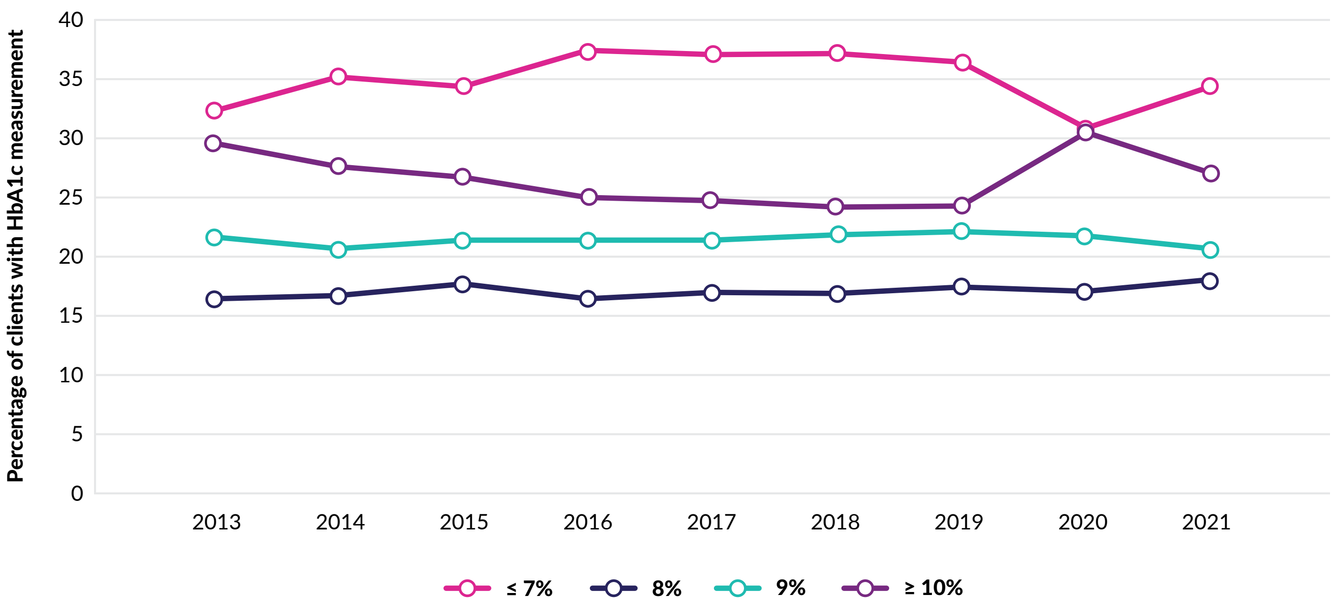
[Figure 59](#) shows the percentage of people with good glycaemic control (HbA1c ≤ 7%), ranging from 30.8% to 37.4% between 2013 and 2021. The peak of people attaining good glycaemic control coincided with the peak in testing from 2016 to 2018, associated with increased availability and promotion of point of care testing machines in communities accompanied by staff training[16, 64] The proportion of people with poor glycaemic control (≥ 10%) remained between 24.1% and 30.5% with the lowest outcomes in 2020.

Figure 58 Proportion of clients over 4 years* with type 2 diabetes who had a HbA1c measurement result recorded within the preceding 6 month period, 2010–2021



*Age group 5 to 14 years reported from June 2019 onwards.

Figure 59 Glycosylated haemoglobin (HbA1c) results for tested clients over 4 years old with type 2 diabetes, 12 month periods, 2013–2021



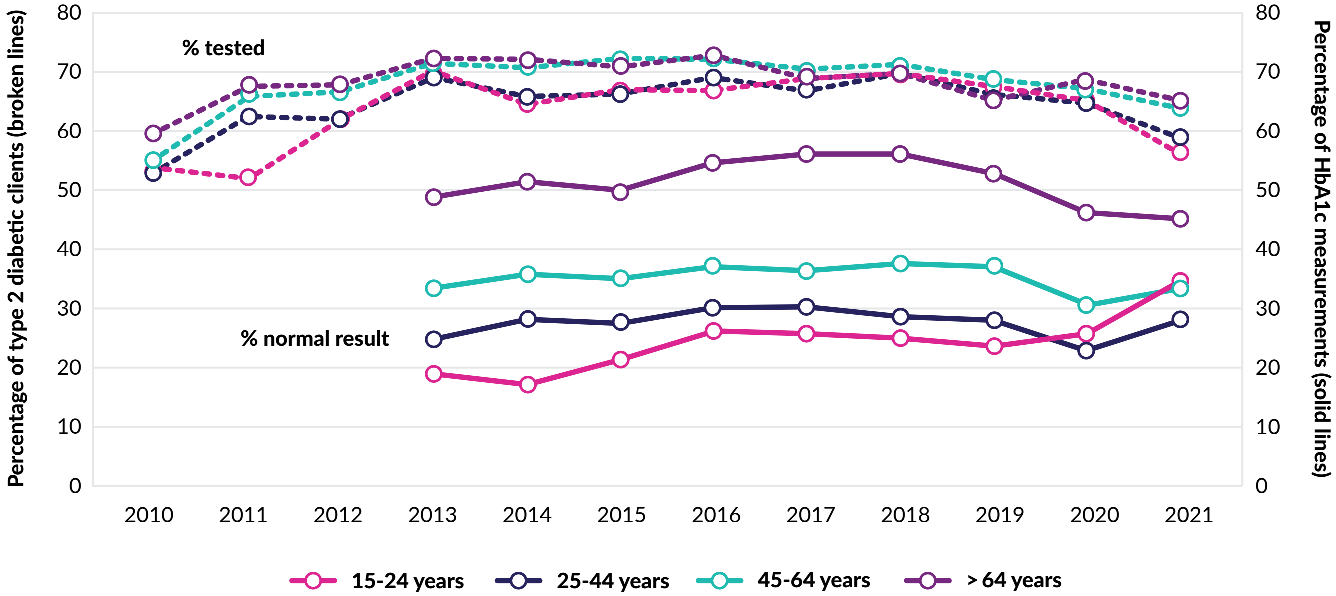
Males were less likely to be tested (range 53.3% to 69.0%) compared to females (55.6% to 72.7%) ($p<0.001$). Achievement of treatment target was similar across males and females with 31.9% to 39.0% of males and 30.1% to 37.0% of females having an HbA1c result of 7% or lower.

The oldest age group (>64 years) was associated with better glycaemic control compared to all other age groups; with 44.9% to 56.1% of clients over 64 years returning a HbA1c result within normal range compared to 17.0% to 38.5% of 15 to 64 years olds ($p<0.05$; Figure 60). This finding among the older age group may be associated with a healthy survival effect. The increase in normal results in 2021 in the youngest three age groups coincided with a downturn in testing observed in these age groups.

The smallest health services (under 500 clients) tested the highest proportion of their type 2 diabetic clients (56.5% to 83.7%) and had the lowest proportion of clients with a glycaemic control of 7% or under (22.1% to 34.3%) (Figure 61). By contrast, the largest health services undertook a significantly lower proportion of testing (52.6% to 65.8%) and of those tested had the highest proportion with results indicating good glycaemic control (34.4% to 41.1%) ($p<0.01$). Qualitative narratives from smaller services identified that frequently, diabetic clients were well known to and engaged with health staff potentially impacting on higher testing in smaller communities.[16] Access to cheaper and fresher food within larger communities was also cited as an enabler of better glycaemic control.

The testing rates improved in East Arnhem region (from 56.2% in 2010 to 66.7% in 2021) with declines in testing observed in all other regions (particularly associated with later COVID-19 pandemic years 2020 and 2021) (Figure 61). The highest proportion of clients with good glycaemic control (≤7%) were observed in the regions of Top End and Darwin, and East Arnhem.

Figure 60 Proportion of type 2 diabetic clients tested (broken lines) and proportion of clients tested with a normal result (solid lines) by age group, 2010–2021*



*Note: Ages 5-14 years excluded due to small numbers, reported since 2018

Figure 61 Proportion of type 2 diabetic clients tested (broken lines) and proportion of residents tested with a normal result (solid lines) by health service size, 2010– 2021

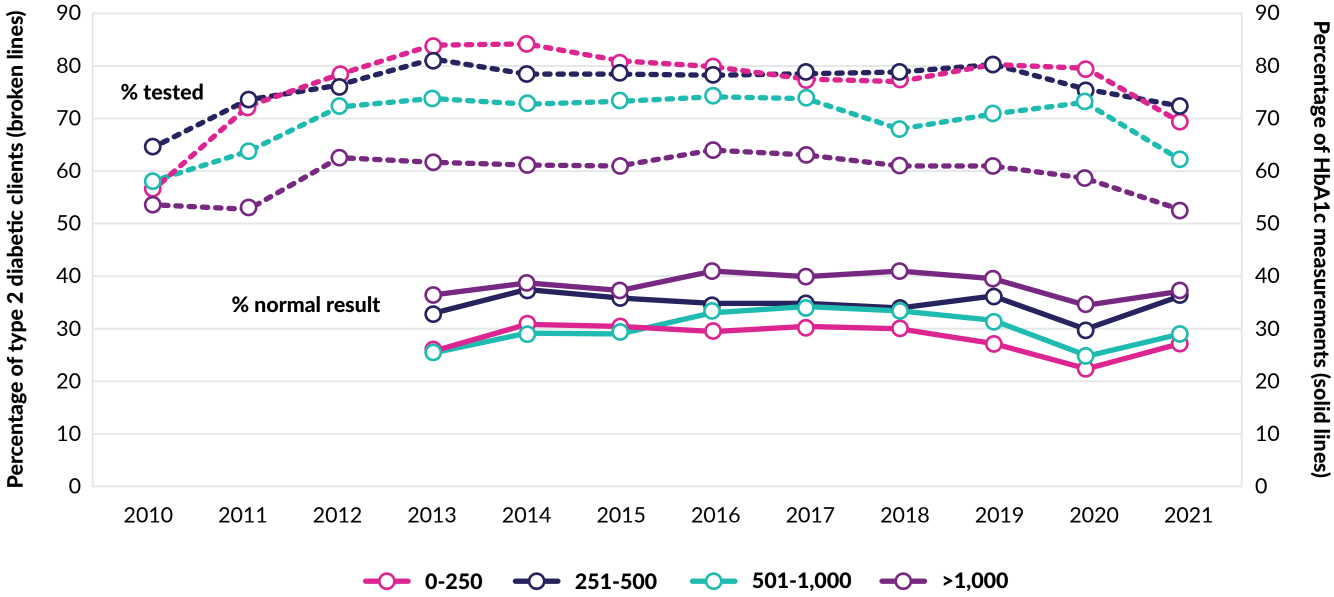
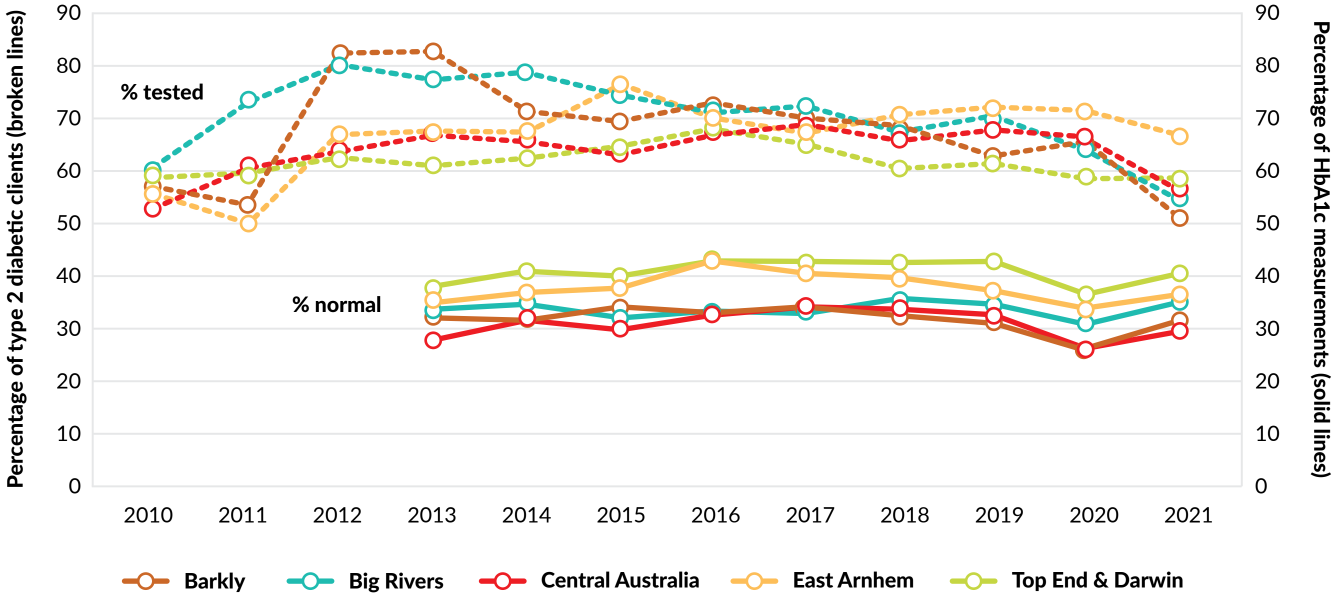


Figure 62 Proportion of type 2 diabetic clients tested (broken lines) and proportion of residents tested with a normal result (solid lines) by NT region, 2010– 2021



HEALTH SERVICE OBSERVATIONS

Enablers identified for this AHKPI included: availability and use of point of care testing in tandem with appropriately trained staff; continuity of dedicated health staff with diabetes portfolio ownership; regular diabetes educator support, diabetes days and adherence to care plans and medications.[16] Access to healthy food choices was also an enabler with client knowledge of their condition sustained through good relationships and ongoing client education supported by culturally appropriate and targeted resources, including consideration of appropriate language and health literacy levels.

KPI 1.9 ANGIOTENSIN-CONVERTING ENZYME (ACE) INHIBITORS

KPI 1.9 KEY FINDINGS

- From 2014 to 2021, Angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB) prescribing remained relatively stable for type 2 diabetic clients with albuminuria. The majority of clients with this condition were prescribed ACE inhibitor compared with ARB.
- Males were slightly more likely to be prescribed ACE or ARB than females.
- Older age groups between 45-64 years and ≥65 years were more likely to be prescribed ACE inhibitors or ARB than those from younger age groups (15–24 years and 25–44 years).

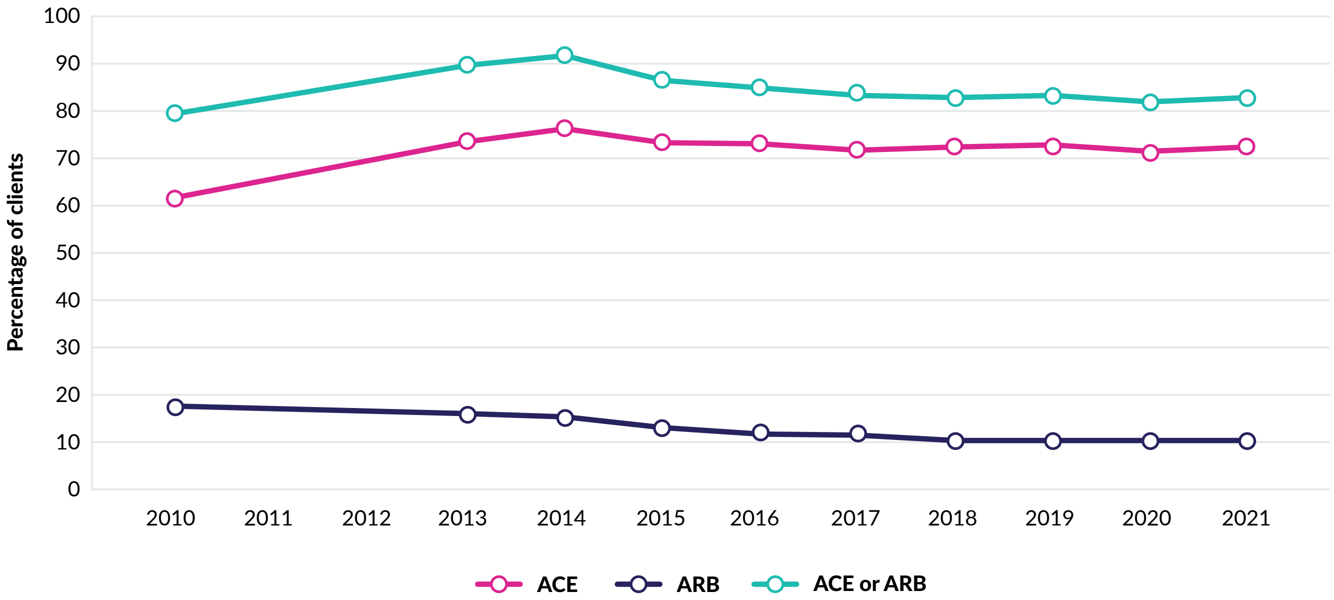
Elevated levels of albumin in the urine are an early clinical marker of vascular dysfunction in the kidneys. Chronic conditions including diabetes, hypertension and abdominal obesity, are major contributors to high rates of albuminuria among Aboriginal people.[65, 66] To delay progression in end stage kidney disease and reduce cardiovascular risk, angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARB) are available treatments for albuminuria. Prior to 2013, combination treatments of ACE inhibitor and ARB were offered to clients. However, more recent studies have indicated that the use of combination therapy in patients with proteinuric diabetic kidney disease does not provide an overall clinical benefit and is associated with an increased risk of adverse events, including hyperkalaemia and acute kidney injury.[67, 68]

This indicator measures the number of Aboriginal clients with type 2 diabetes and albuminuria that have been prescribed ACE inhibitor or ARB. The measure also captures counts of clients on combined ACE inhibitor/ARB, but this category is not reported as these recent case numbers are very low (n<30) and no longer clinically supported. From 2010 to 2019, the reported counts include Aboriginal clients in the age groups: 15–24 years, 25–44 years, 45–64 years and ≥65 years. From 2021 onwards, the age group 15–24 years were not reported. Results by type of medication and total are presented firstly. For analysis by age group and gender, clients prescribed with either ACE inhibitor or ARB are combined for reporting.

The overall trends in prescribing of ACE inhibitor or ARB medication for clients with type 2 diabetes and albuminuria have been relatively consistent across the reporting period, with approximately 80% of diabetic clients diagnosed with albuminuria prescribed ACE inhibitor or ARB (Figure 63). By medications there were some differences. From 2011 to 2014, there was an increase in prescribing ACE inhibitors among diabetic clients with albuminuria from 61.8% to 73.5%. From 2014, the prescribing of ACE inhibitor was consistent and ranged between 71.7% and 76.2%. The prescribing of ARB was less common among clients, and declined from 20.7% in 2012 to 10.5% in 2022. The pattern was similar among males and females, although male clients with type 2 diabetes and albuminuria were marginally more likely than female clients to be prescribed ACE inhibitor or ARB (Figure 64).

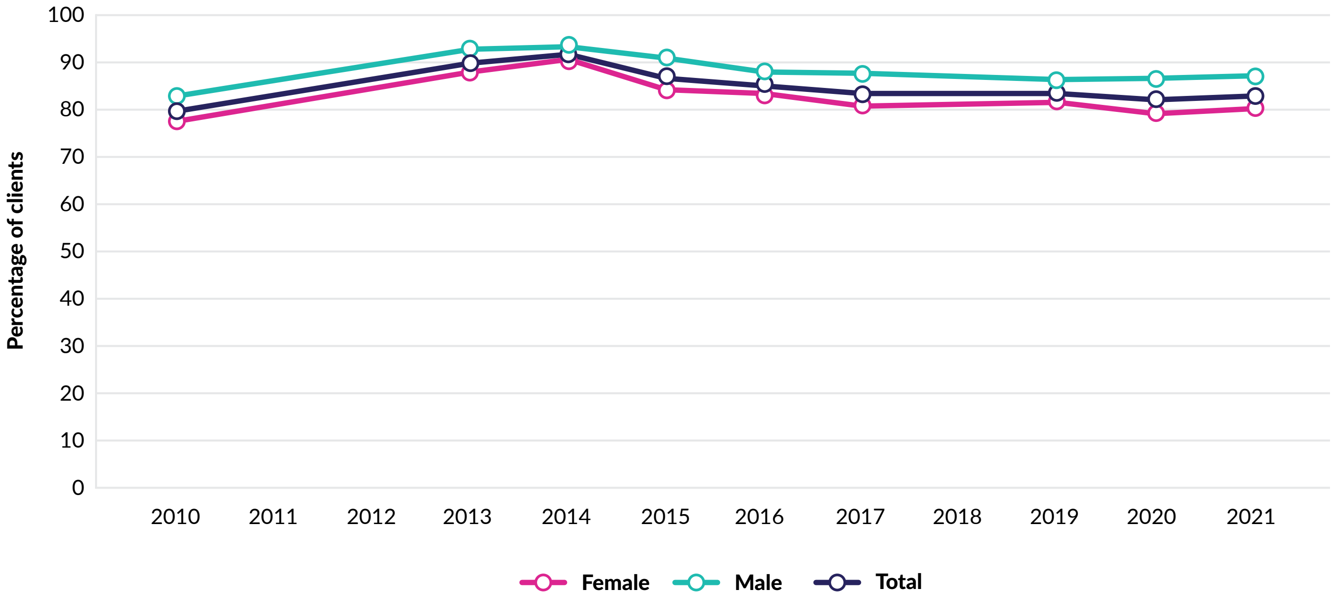
By age group as shown in Figure 65, the provision of ACE inhibitors and ARB was highest among those clients in older age groups (45–64 years, 65 years and older) compared with younger age groups (15–24 years, 25–44 years).

Figure 63 Proportion of ACE inhibitor or ARB prescriptions in type 2 diabetic clients with elevated albumin levels, 2010–2021



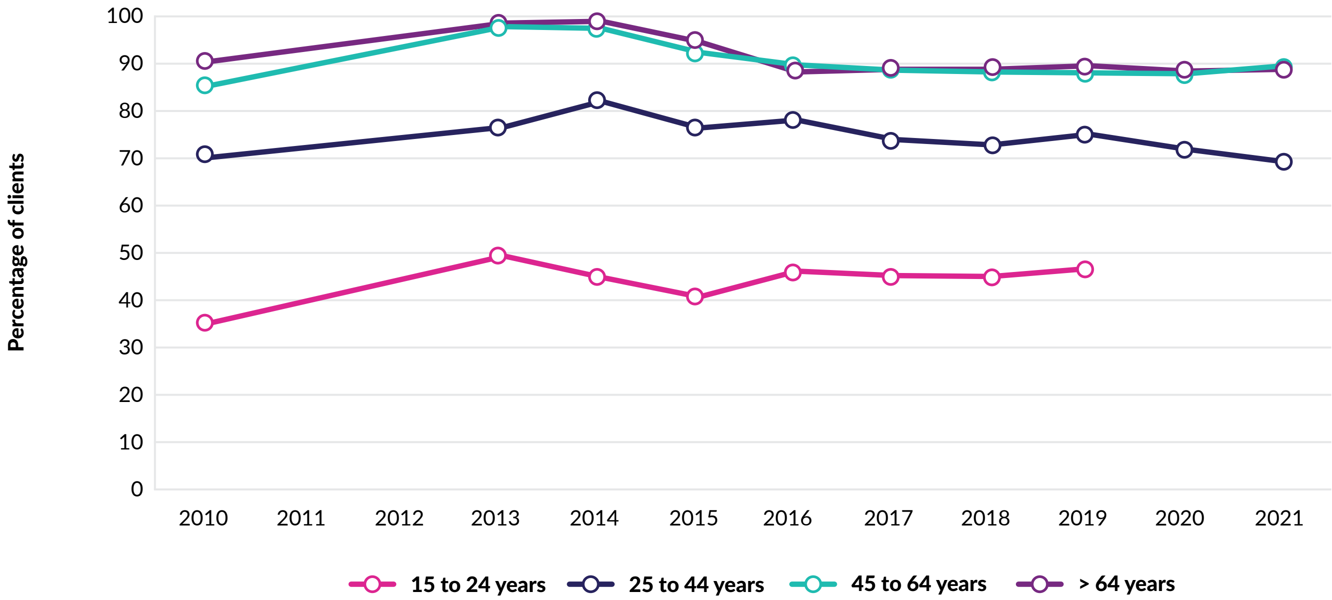
Note: Data from 2011/12 is not reported due to data quality issues.

Figure 64 Proportion of ACE inhibitor/ARB prescriptions in type 2 diabetic clients with elevated urine albumin levels by gender, 2010–2021



Note: Data from 2011/12 is not reported due to data quality issues.

Figure 65 Proportion of ACE inhibitor/ARB prescriptions in type 2 diabetic clients with elevated urine albumin levels by age group, 2010–2021



Note: Data from 2012/13 is not reported due to data quality issues and for age group (15–24 years) no data was reported in 2020 and 2021.

HEALTH SERVICE OBSERVATIONS

Dedicated chronic disease staff working collaboratively with stable rural medical practitioners (RMP), familiarity with the Central Australian Rural Practitioners Association (CARPA) guidelines and up to date care plans were identified as enablers of the AHKPI.[16] Client education and understanding of health and medication is seen as a major factor in medication compliance.

KPI 1.13 BLOOD PRESSURE (BP) CONTROL

KPI 1.13 KEY FINDINGS

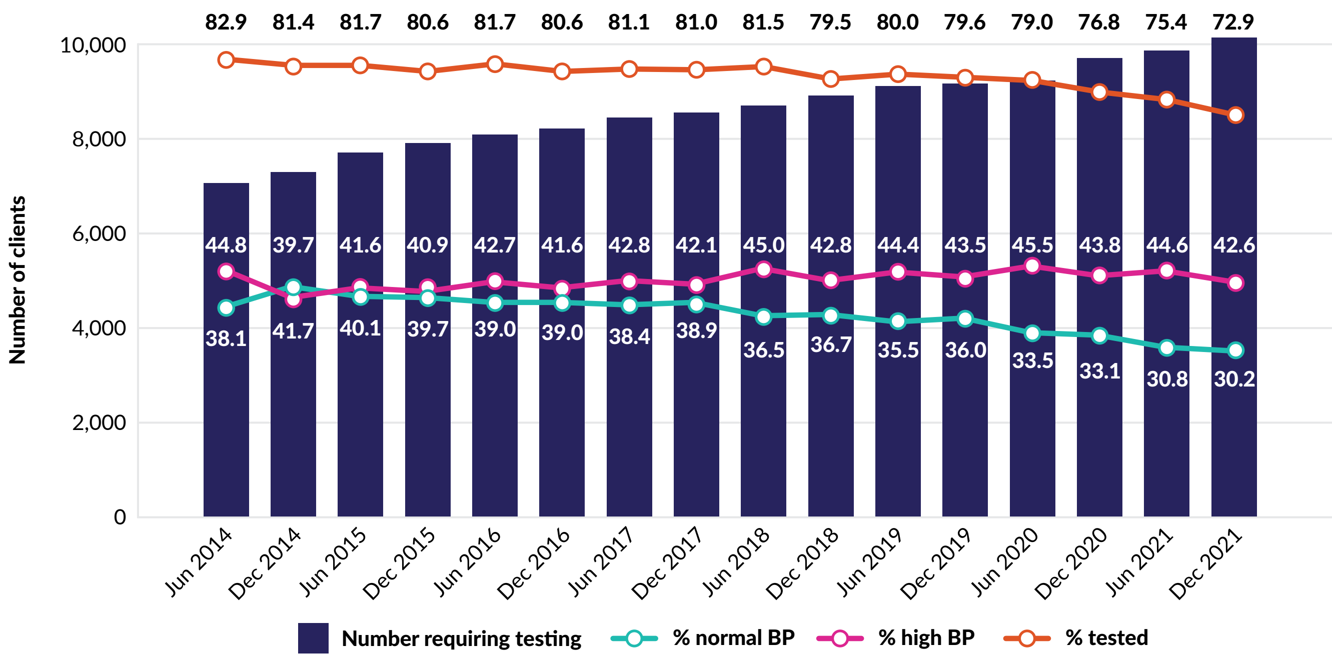
- The number of people requiring regular blood pressure (BP) monitoring following type 2 diabetes diagnosis increased 43.6% between 2014 and 2021, from 7,050 to 10,127 clients.
- The proportion of eligible clients who had 6 monthly BP measurements declined from 82.9% in 2014 to 72.9% in 2021.
- Among clients tested, the proportion with 'normal' BP decreased from 2014 to 2021 for both genders; from 40.4% to 36.0% of males and 49.0% to 44.5% of females.
- East Arnhem had the highest proportion of normotensive measurements (49.8% to 59.7% of clients tested) while Big Rivers and Barkly had the lowest proportion (32.6% to 48.2%).

Maintaining blood pressure (BP) below a systolic of 130mmHg and diastolic less than 80mmHg reduces the risk of cardiovascular disease, stroke and renal disease.[69] Hypertension is more prevalent in patients with diabetes and in combination with diabetes contributes to an increase in the risk of cardiovascular and kidney disease.[70]

This AHKPI measures testing within the preceding 6 months and results for Aboriginal resident clients over 14 years of age with type 2 diabetes. A 'normal BP' is defined as BP less than 130/80 mmHg. Data for this AHKPI is available from 2014 to 2021.

There has been a 43.6% increase in the number of type 2 diabetic clients aged 15 years and over requiring regular BP measurements from 7,050 clients in 2014 to 10,127 clients in 2021 (Figure 66). As the number of people requiring testing has increased, the proportion of clients who had their BP measured in the preceding 6 months significantly decreased, declining from 82.9% in 2014 to 72.9% in 2021 ($p<0.001$). The declining proportion of normal BP readings from 2014 to 2021 was proportionate to the decrease in BP testing as the percentage of people with high BP remained constant across the study period.

Figure 66 Number of type 2 diabetic client's aged 15 years and over and proportion who received a blood pressure measurement in the preceding 6 months by outcome, 2014–2021*



*Note: Denominator for % normal and % high includes all persons eligible for testing

The proportion of clients who had a normal BP result has declined over time, from a peak of 41.7% in 2015 to 30.2% in 2021. This decline was significant for both males and females for whom proportion of people tested with normal BP declined from 40.4% to 36.0% (males) and 49.0% to 44.5% (females) between 2014 and 2021 ($p<0.05$; Figure 67). Females were more likely to have a normal BP result compared to males, a trend which was observed across all years ($p< 0.001$).

East Arnhem had a significantly higher proportion of normal BP measurements among type 2 diabetic clients tested compared to other regions, and ranged from 49.8% to 59.7% of clients tested ($p<0.001$; Figure 68). Big Rivers and Barkly had the lowest proportion of normal BP measurements, ranging from 32.6% to 48.2%. All regions showed a declining proportion of normal BP measurements over time with significant declines observed in Barkly and Central Australia ($p<0.05$).

Figure 67 Proportion of type 2 diabetic clients tested who had a normal BP measurement in preceding 6 months, by gender, 2014–2021

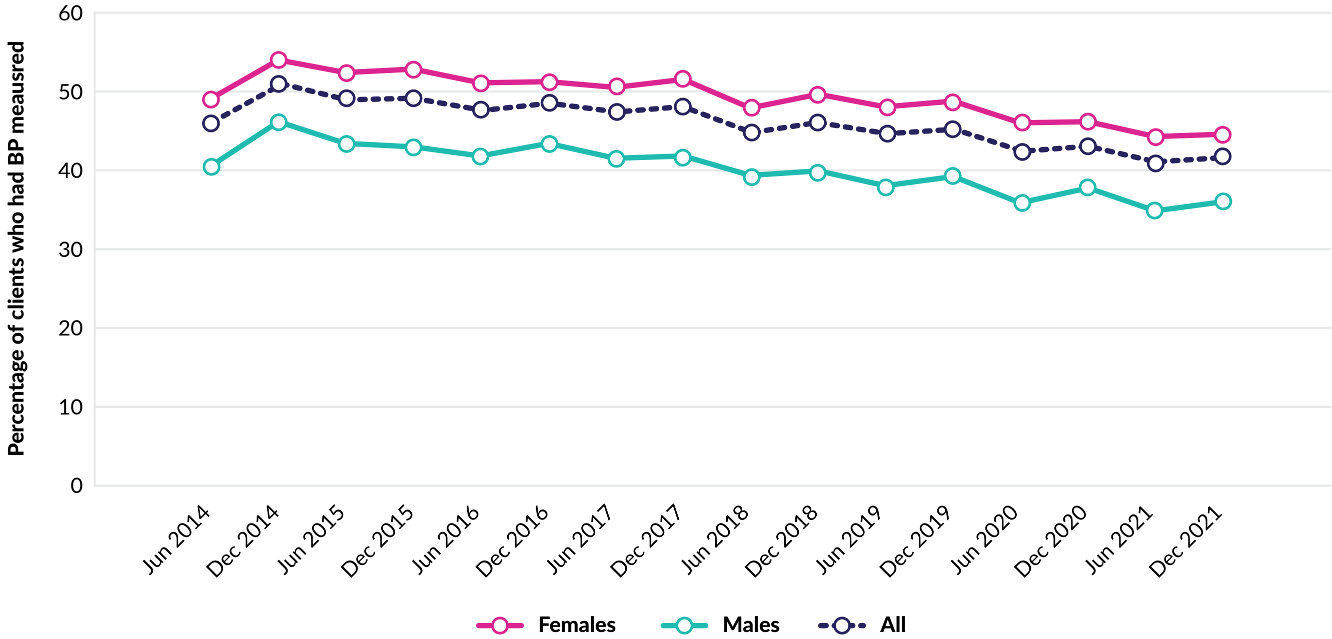
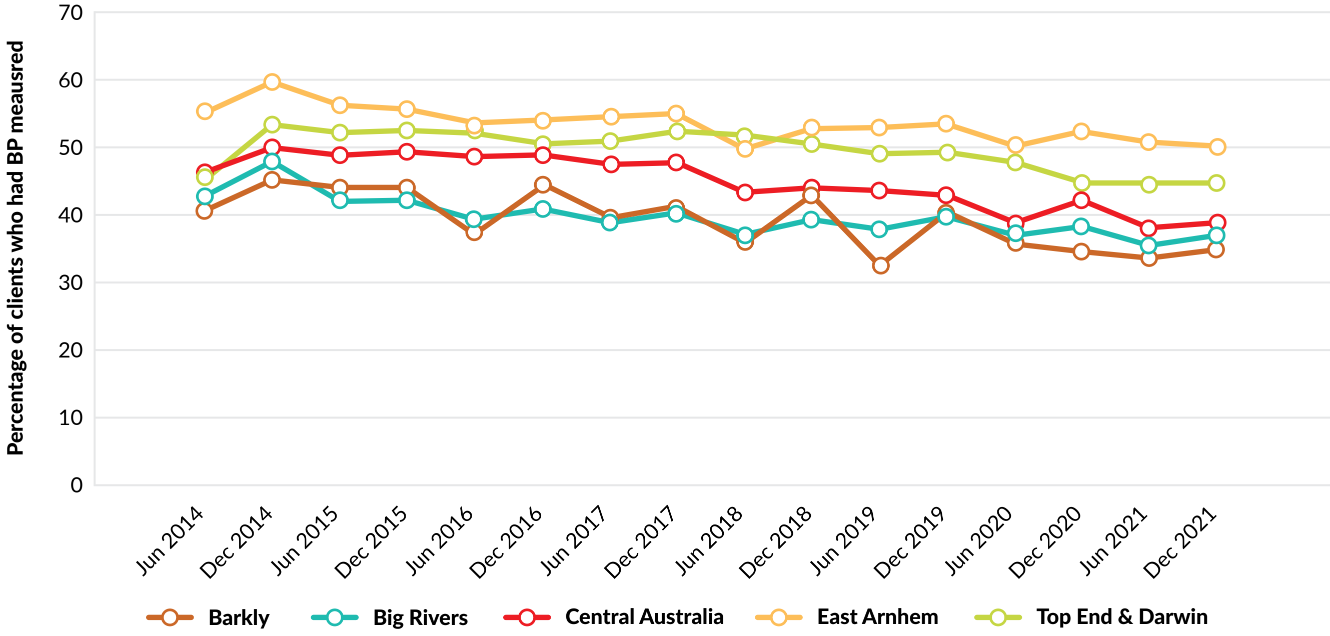


Figure 68 Proportion of type 2 diabetic clients with normal BP measurement in preceding 6 months, by NT region, 2014–2021*



*Note: Denominator includes only those who were tested

HEALTH SERVICE OBSERVATIONS

Observed enablers of BP testing and control included opportunistic BP testing at every clinic visit, chronic disease management plans and follow up of people with elevated or borderline BP measurements.[16] It was noted the ease and non-invasive nature of BP testing along with sufficient and maintained equipment and attention to BP documentation were also enablers. Medication compliance along with other determinants such as diet, smoking and social stressors were observed as major barriers to BP control. Appropriate educational resources to improve health literacy were identified as important for empowering people to actively pursue better BP control.

KPI 1.14 CHRONIC KIDNEY DISEASE

KPI 1.14 KEY FINDINGS

- Between 2015 and 2021, 58.4% to 64.8% of clients aged over 30 years received biennial screening for chronic kidney disease (CKD).
- Among clients screened for CKD an increasing proportion had a normal CKD risk rating, from 37.9% in 2015 to 42.6% in 2021. Each level of higher risk rankings remained unchanged, with ranges for mild risk 22.3% to 23.9%, moderate risk 10.9% to 12.4%, high risk 2.4% to 2.9% and severe risk 3.9% to 4.5%
- The proportion of those with severe risk of CKD increased with age: 2.4% to 3.3% of 31–44 year olds; 8.5% to 8.9% of 45–64 year olds; and, 16.5% to 17.9% of clients over 64 years; were at severe risk of CKD disease.
- Barkly and Central Australia regions had the highest proportion of high/severe risk of CKD (range 9.3% to 10.8%). The lowest proportion of high/severe CKD risk was observed in East Arnhem and Top End and Darwin (range 4.0% to 5.6%).

This AHKPI measures the proportion of Aboriginal resident clients over 30 years screened for kidney disease in the preceding two years.[1] Screening requires testing for estimated glomerular filtration rate (eESR) and albumin/creatinine ratio (ACR), which together provide an indicator of how efficiently the kidneys have filtered and removed waste products from the blood in the preceding 3 months.[1, 71] Early detection and treatment slows the progression of renal disease, delaying the need for dialysis.[1] This AHKPI reports proportion of people screened for kidney disease and stratified outcomes from 'Normal Risk' to 'Severe Risk' of kidney disease as defined in Table 3. Data collection for this AHKPI commenced in 2015.

Table 3 Testing outcome criteria for 'Risk' rating for Chronic Kidney Disease

KIDNEY DISEASE SCREENING OUTCOMES	CRITERIA		
	Estimated glomerular filtration rate (eGFR) mL/min/1.73m^2	Albumin/creatinine ratio (ACR) mg/mmol	
		Females	Males
Normal Risk	≥60	< 3.5	< 2.5
Mild Risk (either of 2 scenarios)	45 to 60	< 3.5	< 2.5
	≥60	3.5 to 35	2.5 to 25
Moderate Risk (either of 2 scenarios)	45 to 60	3.5 to 35	2.5 to 25
	≥60	35 to 300	25 to 300
High Risk (either of 2 scenarios)	15 to 45	≤ 300	≤ 300
	45 to 60	35 to 300	25 to 300
Severe Risk (either of 2 scenarios)	≤ 15	NA	NA
	NA	>300	>300
Incomplete testing (either of 2 scenarios)	No eGFR test recorded	< 300	<300
	>15	No ACR test recorded	

Between 58.4% to 64.8% of clients received both an eESR and ACR test in the preceding two years with the peak testing observed in 2020 (Figure 69).

Figure 70 shows outcomes for clients over 30 years who were tested in the preceding two years. The proportion of clients with normal CKD increased from 37.9% in 2015 to 42.6% in 2021 (p<0.001). The higher risk rankings remained unchanged from 2015 to 2021, with ranges for mild risk 22.3% to 23.9%, moderate risk 10.9% to 12.4%, high risk 2.4% to 2.9% and severe risk 3.9% to 4.5%.

While the increasing proportion of normal risk CKD outcomes was observed across all age groups, the increase was most pronounced in the youngest age group of 31 to 44 years (Figure 71). Risk increased with age with between 2.4% to 3.3% of 31 to 44 year olds at high or severe risk of disease, 8.5% to 8.9% of 45 to 64 year olds and 16.5% to 17.9% of clients over 64 years at high or severe risk of CKD disease.

All regions contributed to the increase in normal risk outcomes from 2015 to 2018–2019, however this trend was only sustained in Top End and Darwin after 2019 (Figure 72). The change in normal risk outcomes between 2015 and 2018 did not impact the proportion of clients at high or severe risk of disease. Barkly and Central Australia had the highest proportion of high or severe risk of CKD (range 9.3% to 10.8%), followed by Big Rivers (7.0% to 7.5%) and lowest in East Arnhem, Top End and Darwin (range 4.0% to 5.6%).

Figure 69 Proportion of clients aged over 30 years screened for kidney disease, 2015–2021

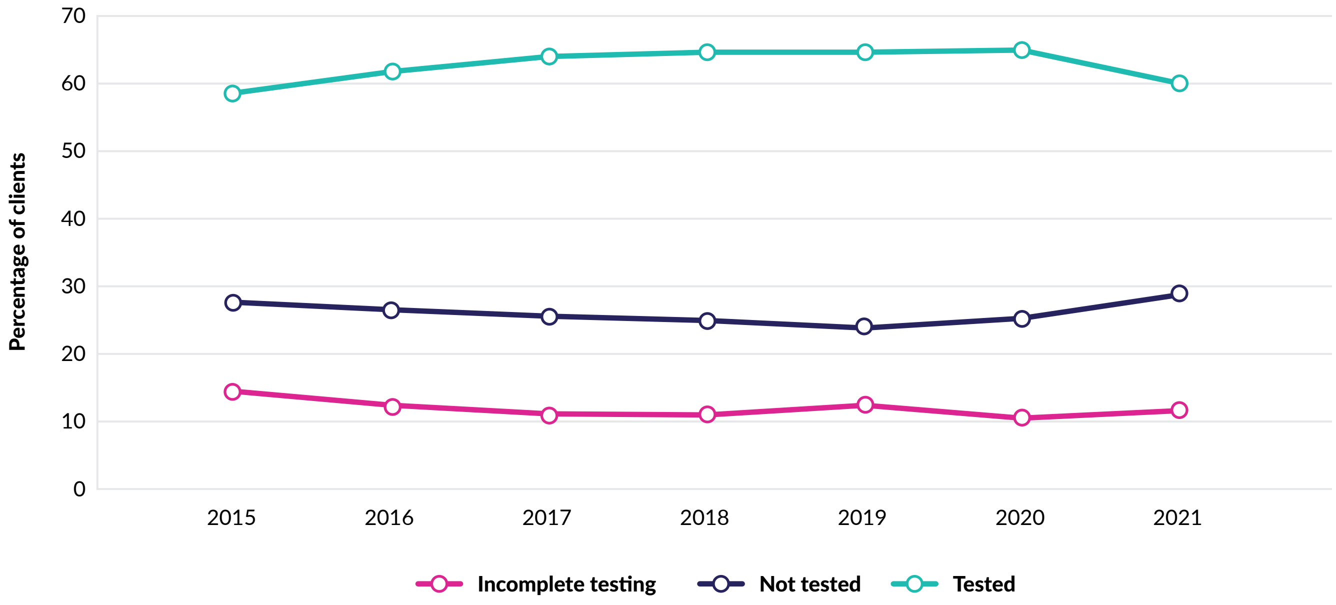


Figure 70 Chronic kidney disease risk for clients with a screening result, 2015–2021

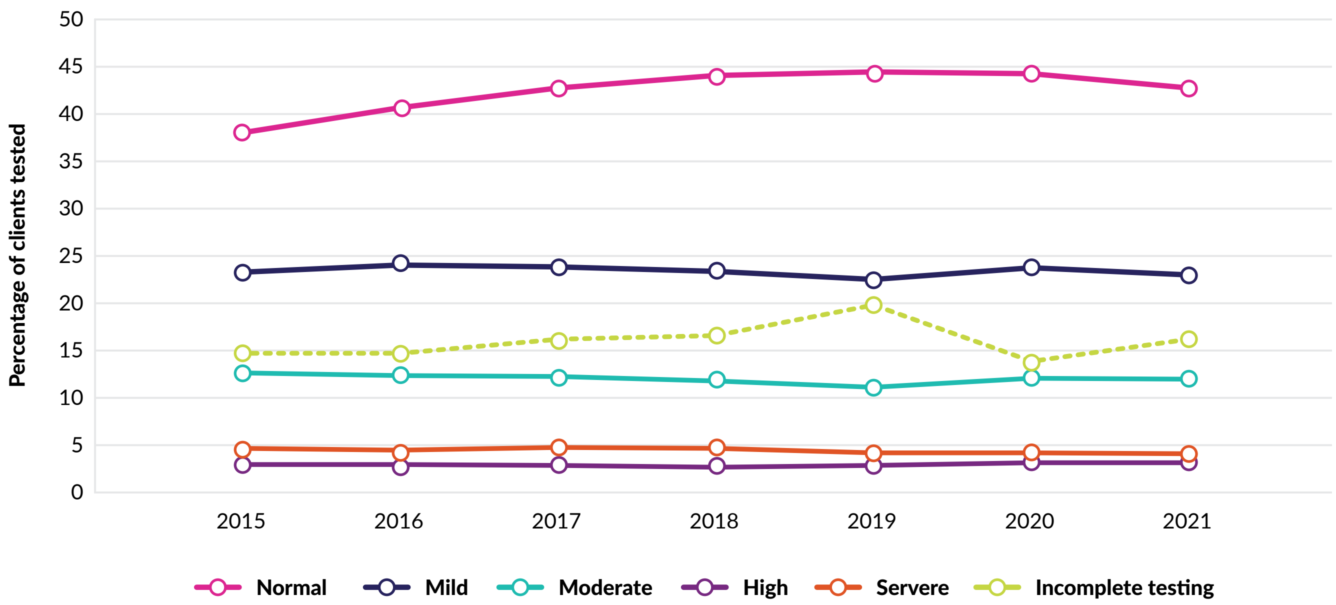


Figure 71 Chronic Kidney disease risk by age group, 2015–2021

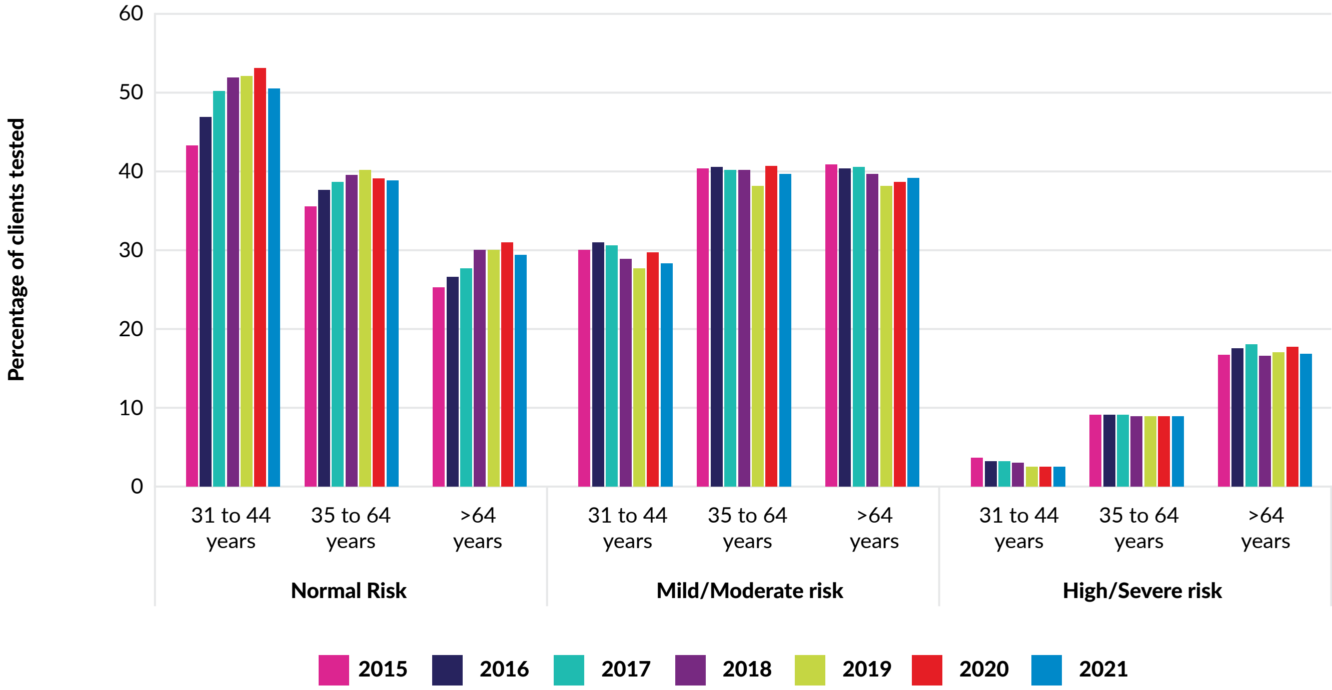
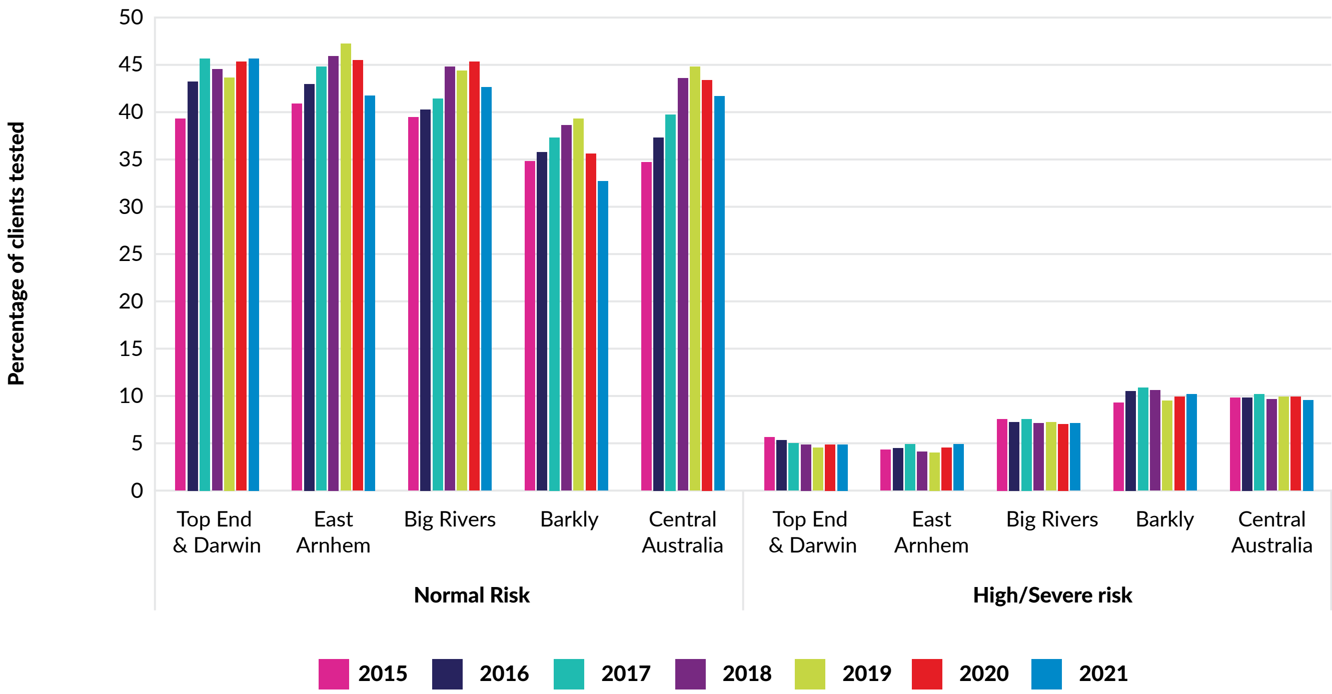


Figure 72 Proportion of normal and high/severe risk results for kidney disease screening by NT region, 2015–2021



Note: Clients with a mild/moderate CKD risk result are excluded from this figure.

HEALTH SERVICE OBSERVATIONS

Enablers identified by health staff were inclusion of renal testing in routine health checks and care plans; health promotion and education utilising culturally appropriate resources, a dedicated renal program with support from renal services and rapport with clients and transportation for clients to the health clinic and for pathology transport to laboratories.[16]

KPI 1.15 RHEUMATIC HEART DISEASE

KPI 1.15 KEY FINDINGS

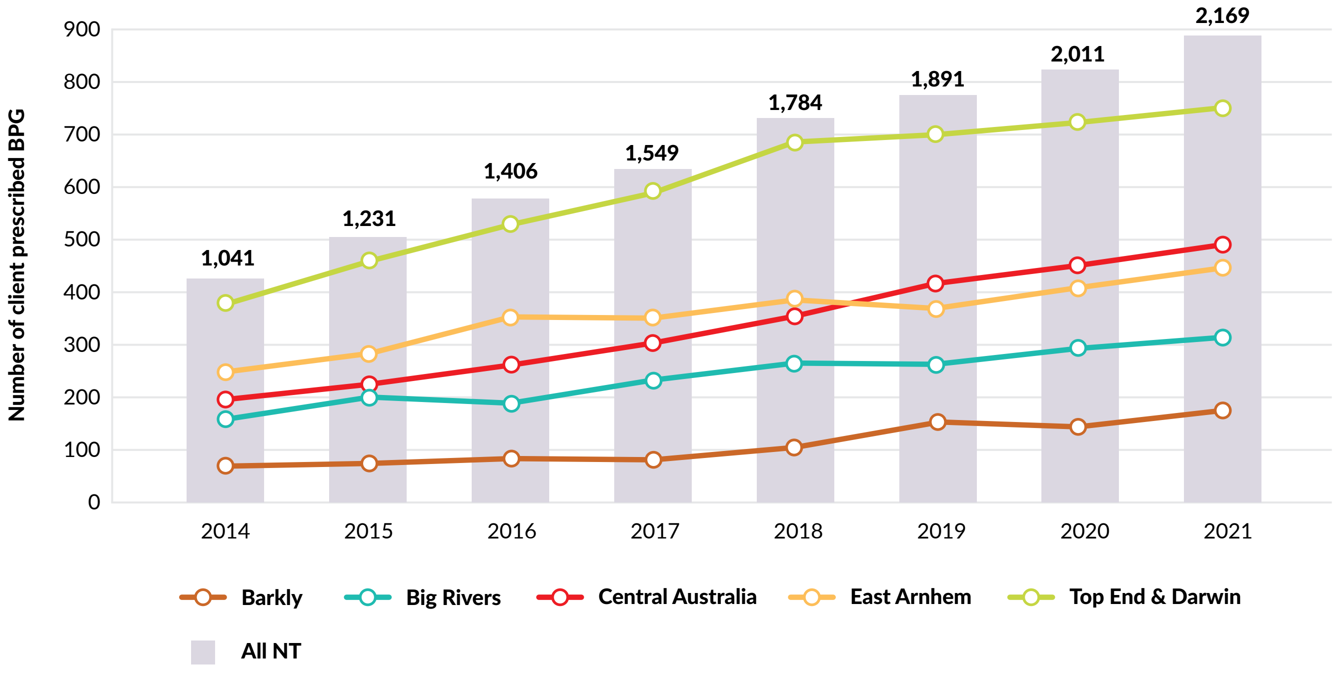
- The number of benzathine benzylpenicillin G (BPG) prescriptions for Rheumatic Heart Disease (RHD) or Acute Rheumatic Fever (ARF) prophylaxis has doubled between 2014 and 2021, from 1,041 to 2,169.
- Adherence to ≥ 80% of prescribed doses of BPG was highest during the period 2016 to 2019 (range 44.3% to 45.8%), with a decline to 37.7% in 2021 in conjunction with the COVID-19 pandemic.
- East Arnhem, Top End and Darwin regions achieved the highest adherence to ≥ 80% of BPG doses.

Acute rheumatic fever (ARF) is an autoimmune response following group A streptococcal infection.[72] Episodes of ARF can cause permanent damage to the heart values, leading to rheumatic heart disease (RHD).[72] Consistent and regular administration of long-acting benzathine benzylpenicillin (BPG) has been shown to prevent Group A Streptococcal infection, recurrence of ARF and development or progression to RHD.[72]

This AHKPI reports clients with a history of ARF or RHD who have been prescribed two to four weekly benzathine benzylpenicillin G (BPG) prophylaxis and adherence to prescribed doses. Thresholds of adherence are divided into three groups: (i) 80%-100% of doses administered (desired outcome), (ii) 50%-79% of doses, and (iii) less than 50% of BPG injections received during the preceding year.[1] Data has been collected since 2014.

Figure 73 shows the number of BPG prescriptions doubled from 1,041 clients in 2014 to 2,169 clients in 2021. These additional primary health care needs have been observed across all NT regions.

Figure 73 Number of clients prescribed benzylpenicillin G (BPG) overall and by NT region, 2014–2021

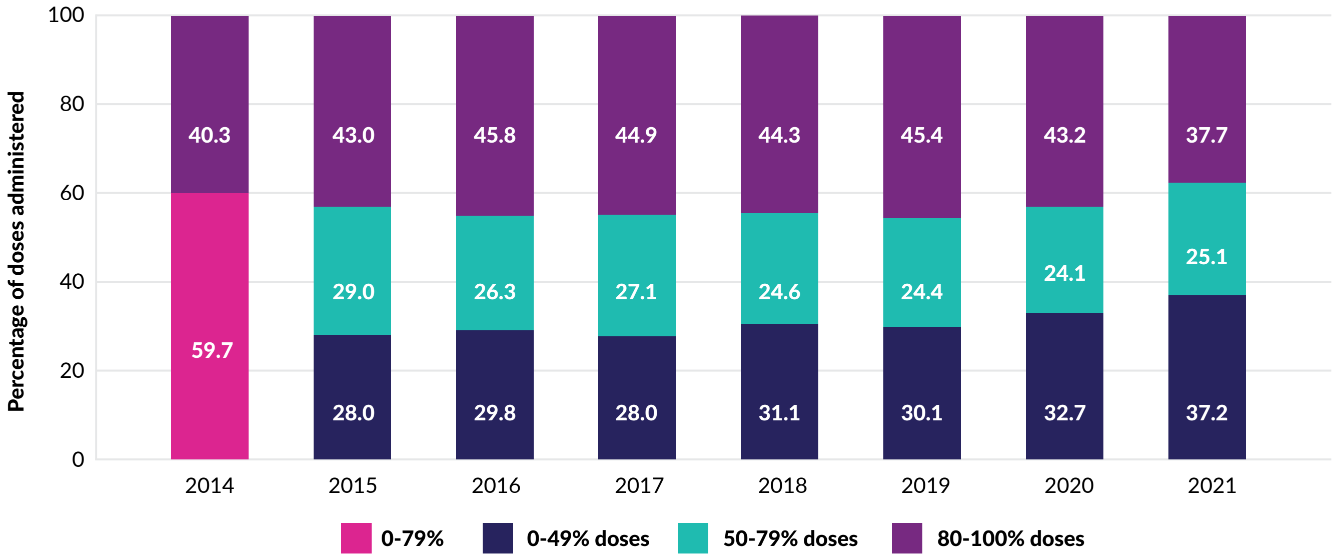


Trends in percentage of doses administered annually for 2014 to 2021 are shown in Figure 74. Significant improvements in the proportion of clients who received between 80%-100% of doses were observed from 2016 to 2019 (44.3% to 45.8%) compared to 2014 (40.3%; p<0.05). This improvement was observed following allowance for a reduced timeframe between BPG administration from 28 days to 21 days in 2016 enabling a wider timeframe in which to administer BPG to achieve 4 weekly compliance.[16] Associated with increasing prescriptions and the COVID-19 pandemic, percentage of clients receiving 80%-100% of doses returned to a baseline of 43.2% and 37.7% in 2020 and 2021. Clients receiving 50%-79% of prescribed doses declined between 2015 and 2021 (from 29.0% to 25.1%; p<0.05) with a corresponding increase in clients receiving less than 50% of doses from 28.0% in 2015 to 37.2% in 2021 (p<0.05).

The number of BPG prescriptions were consistently higher for females than males (Figure 75). Both genders showed a similar annual trend in proportion receiving 80%-100% of doses from 2014 to 2021.

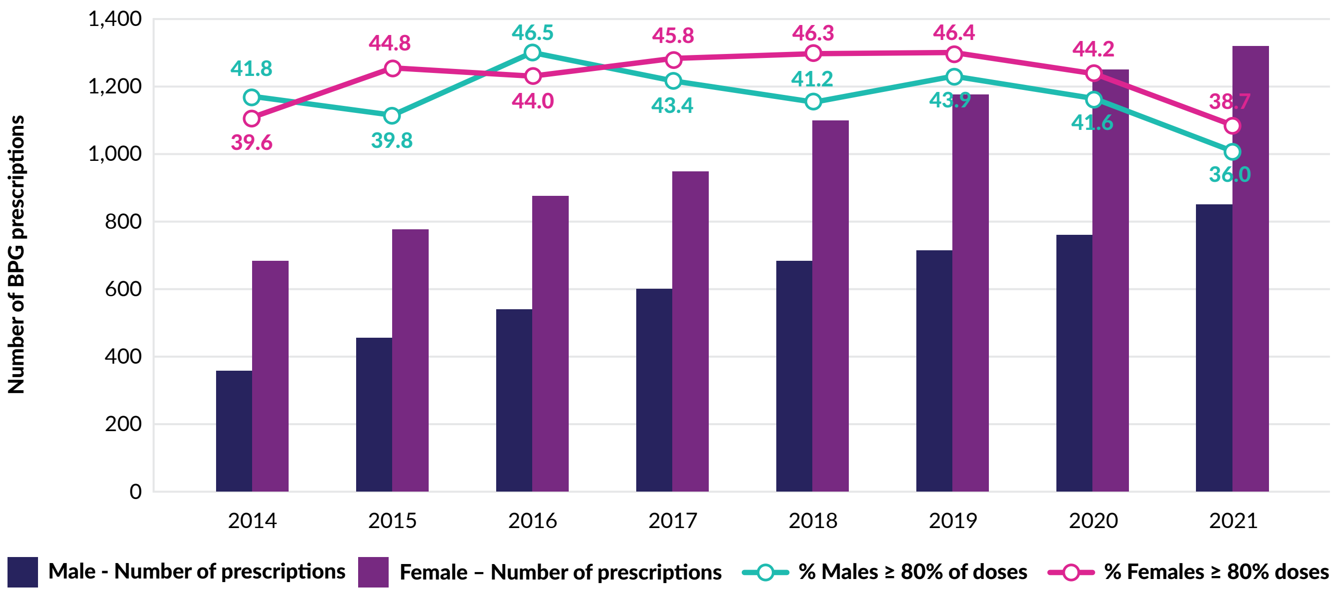
A significantly higher proportion (range 43.3% to 58.7%) of the younger clients, under 15 years, and older clients (range 48.3% to 58.0%), over 44 years, received 80%-100% of prescribed doses compared to those clients aged 15 to 44 years (range 30.1% to 42.4%) (p<0.001). The gains observed in 2016 to 2019 were largely driven by clients aged 0 to 14 years, the only age group to show statistically significant increases in the proportion receiving 80%-100% of (p<0.05; Figure 76).

Figure 74 Rheumatic heart disease secondary prophylaxis outcomes, 2014–2021



Note: *Separate categories for 0-49% and 50%-79% doses administered were introduced in 2015.

Figure 75 Number of benzathine benzylpenicillin G (BPG) prescriptions and percentage of ≥80% of doses administered by gender, 2014–2021



All regions showed improvements in the percentage of clients receiving 80%-100% of doses, peaking between 2016 and 2019. However all regions, also had drops from 2019 to 2021 (Figure 77). East Arnhem, Top End and Darwin achieved a significantly higher proportion of clients with 80%-100% doses administered (range 41.6% to 54.9%) from 2014 to 2021 compared to all other regions ($p < 0.05$). The biggest increase was observed in Big Rivers with a peak of 57.4% of 80%-100% of doses administered in 2017, compared to 33.8% in 2014. Barkly had the lowest proportion of 80%-100% of doses administered ranging from 8.5% in 2015 to a peak of 27.3% in 2019.

Figure 76 Proportion of clients who received ≥80% of prescribed benzathine benzylpenicillin G (BPG) doses by age group, 2014–2021

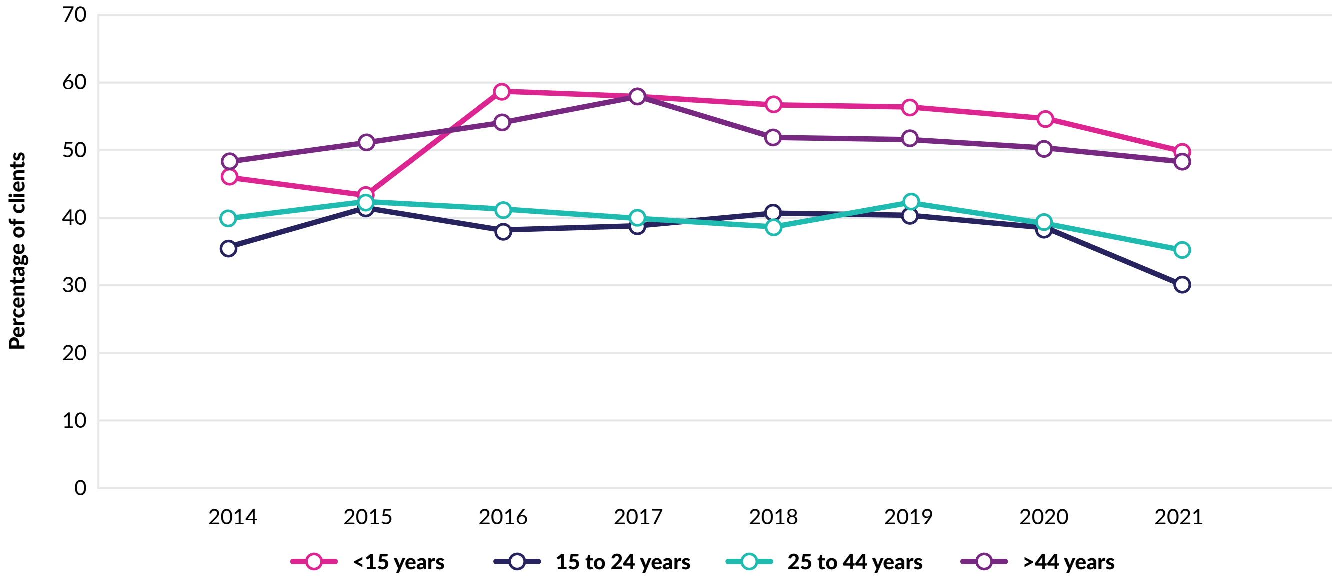
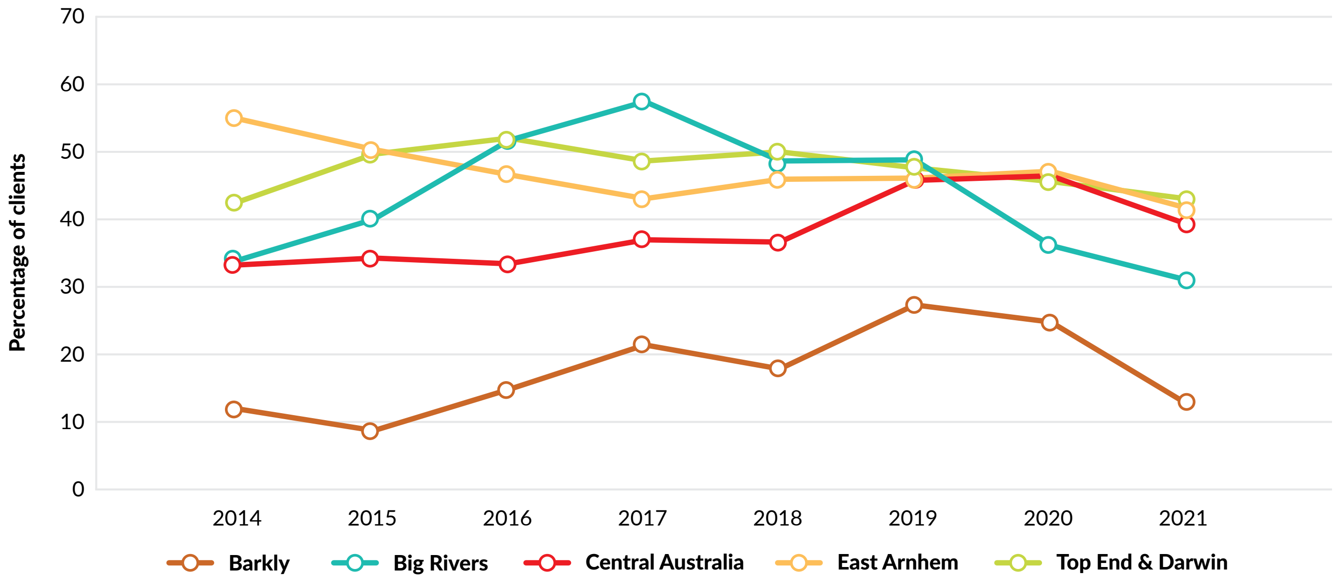


Figure 77 Proportion of clients who received ≥80% of prescribed benzathine benzylpenicillin G (BPG) doses by NT region, 2014– 2021



HEALTH SERVICE OBSERVATIONS

Enablers to receiving RHD prophylaxis included dedicated and consistent health staff that are well known to the client and family; client and staff understanding of RHD and consequences of missed BPG doses; effective appointment recall systems with communication to family; active finding of clients in community, including support from the RHD Register; fast tracking clients who presented to the health clinics to reduce waiting times; improved techniques for injection administration and strategies to reduce pain.[16] Many clinic staff noted the reluctance of teenagers to receive a painful injection when feeling well and the difficulty of tracking down this highly transient age group between other communities and boarding schools requiring cross health service communication.

KPI 1.18 CARDIOVASCULAR RISK ASSESSMENT

KPI 1.18 KEY FINDINGS

- The proportion of adult residents (aged 20 years or older) with a record of a five yearly risk assessment for cardiovascular disease (CVD) was stable from 2016 to 2021. Overall, 41.4% to 48.3% received a CVD risk assessment during 2016 to 2021.
- The youngest age group (20 to 34 years) had the lowest proportion of CVD risk assessments (range 34.5% to 41.4%); while the oldest group (75 years and over) showed a drop from 60.2% completion of CVD risk assessments in 2016 to 47.2% in 2021.
- Health services with 251-500 clients had the highest proportion of clients with a CVD risk assessment for the period 2016–2020.
- High CVD risk was recorded in 33.1% to 36.3% of clients assessed, and was highest in the 75 years and older age group of whom 97.6% to 98.6% were assessed as high risk.
- By region, Barkly (41.8% to 48.4%) had the highest proportion of clients with a high CVD risk assessment compared to all other regions (range 26.7% to 41.1%)
- Females had higher proportion of CVD risk assessment than males, but males had higher proportion of CVD risk assessment recorded as "high" than females for the period 2016-2021.

Cardiovascular disease (CVD) is the leading cause of preventable morbidity and mortality in Aboriginal peoples. CVD accounts for a quarter of Aboriginal deaths overall and 21% of all premature years of life lost in Australia.[73] CVD events and CVD-related mortality in the Aboriginal population occur, on average, about 10–20 years earlier than the non-Aboriginal population.[74] A consistent approach to CVD risk assessment and management from an early age will support further improvements in Aboriginal health.[75]

Cardiovascular risk assessment uses a combination of risk factors to calculate the probability that an individual will develop a cardiovascular event or other vascular disease within a specified time frame (usually 5 years).[43] CVD risk calculation includes modifiable risk factors and age/gender of clients based on the Framingham equations.[1] This multiple risk factors approach is considered cost effective and minimises under-treatment and over-treatment compared with single risk factor approaches.[75] This AHKPI includes all clients, who are aged 20 years and over, who have had a cardiovascular risk assessment recorded within the previous 2 years. This AHKPI also reports the number of adult clients (≥20 years age) whose five yearly CVD risk was categorised as: low (< 10% chance of CVD event), moderate (10–15% chance of CVD event), and high (> 15% chance of CVD event). Data has been collected from 2016.

CLIENTS WITH A CARDIOVASCULAR RISK ASSESSMENT

The proportion of adult clients (aged ≥ 20 years) with a CVD risk assessment remained relatively stable from 2016 to 2021 (Figure 78). A CVD risk assessment was recorded for 41.4% of clients in 2016 and 44.2% of clients in 2021. By age groups, the trend also remained stable over the reporting period. At the end of the reporting period, the highest proportion of clients with a CVD risk assessment was among the 55 to 74 year age group, at 52.8% in 2021, while the lowest proportion was among the 20 to 34 years age group at 36.1% in 2021.

Figure 79 displays the proportion of CVD risk assessment by NT regions. With the exception of Top End and Darwin, all other regions have increased the proportion of clients with CVD risk assessment over the reporting period. The greatest growth was in the Barkly (increasing from 21.8% to 44.6%) and East Arnhem (increasing from 25.1% to 47.1%). Central Australia had a high proportion of clients with a CVD risk assessment over 49% in 2019 to 2021, and over time increased from 39.4% in 2016 to 49.2% in 2021. Top End and Darwin assessed 56.8% of clients in 2016 decreasing to 39.7% in 2021.

By health service size, the highest proportion of CVD risk assessment were observed among the health services with 251–500 clients, followed by services with 0–250 clients (Figure 80).

Females were slightly more likely to have a CVD risk assessment than males for the period 2016–2021 (Figure 81).

Figure 78 Proportion of clients over 20 years with a cardiovascular risk assessment, 2016–2021

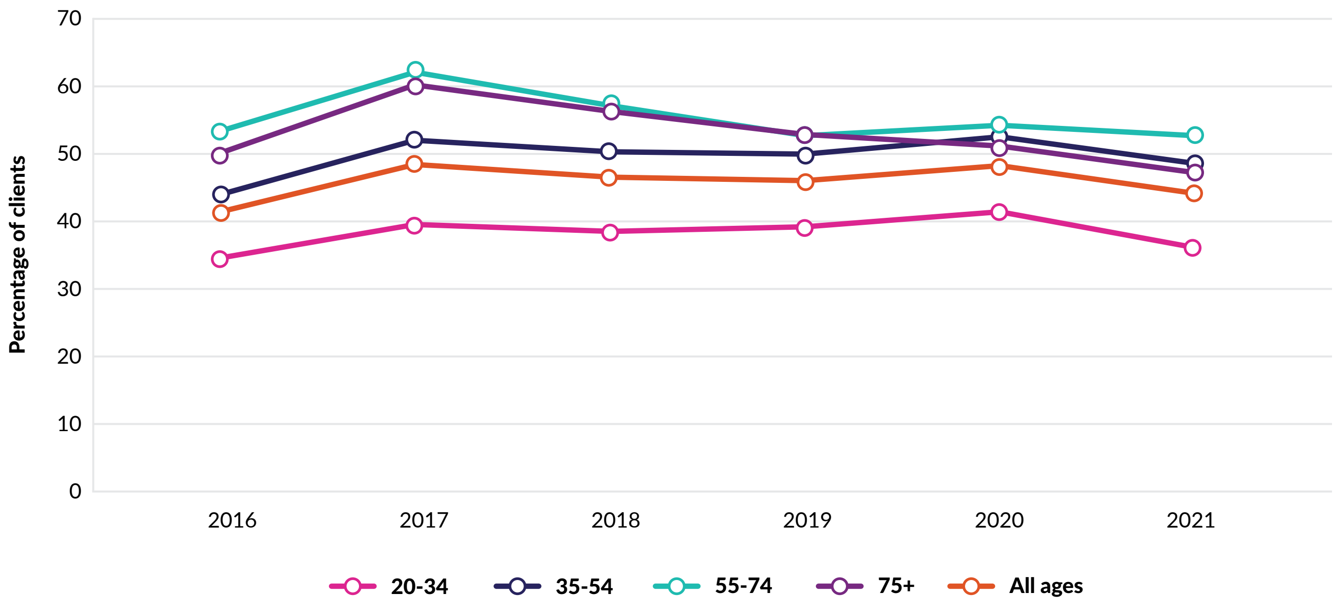


Figure 79 Proportion of clients aged 20 years and over with a cardiovascular risk assessment recorded by NT region, 2016–2021

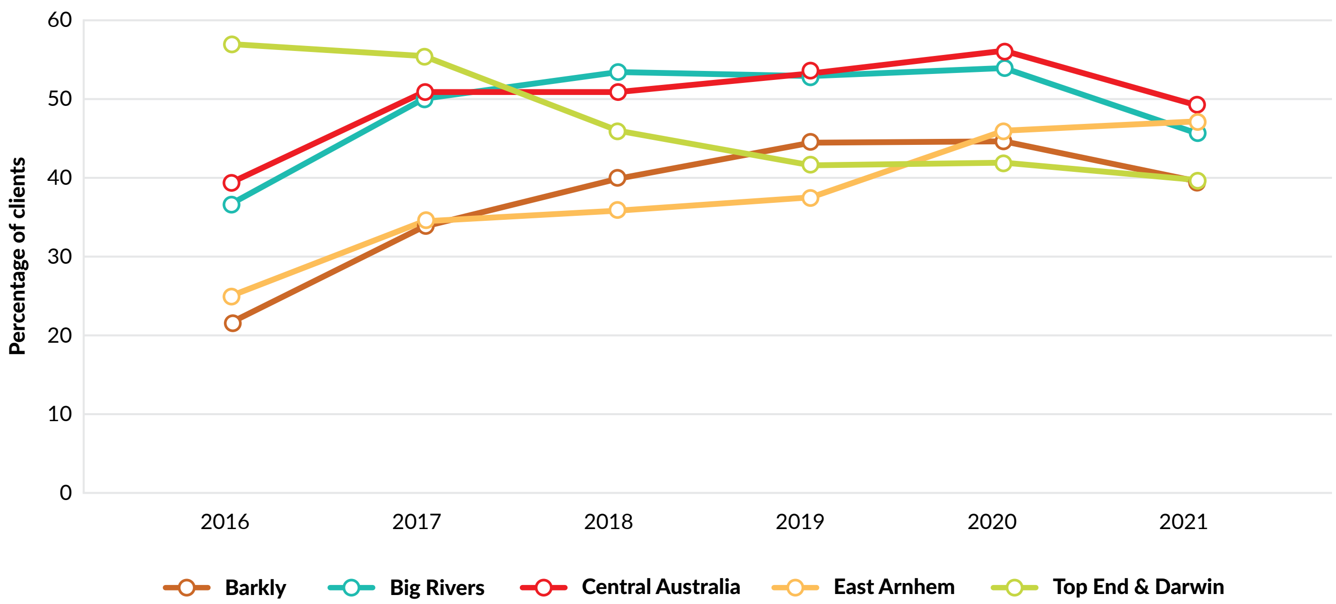


Figure 80 Proportion of clients aged 20 years and over with a cardiovascular risk assessment by health service size, 2016–2021

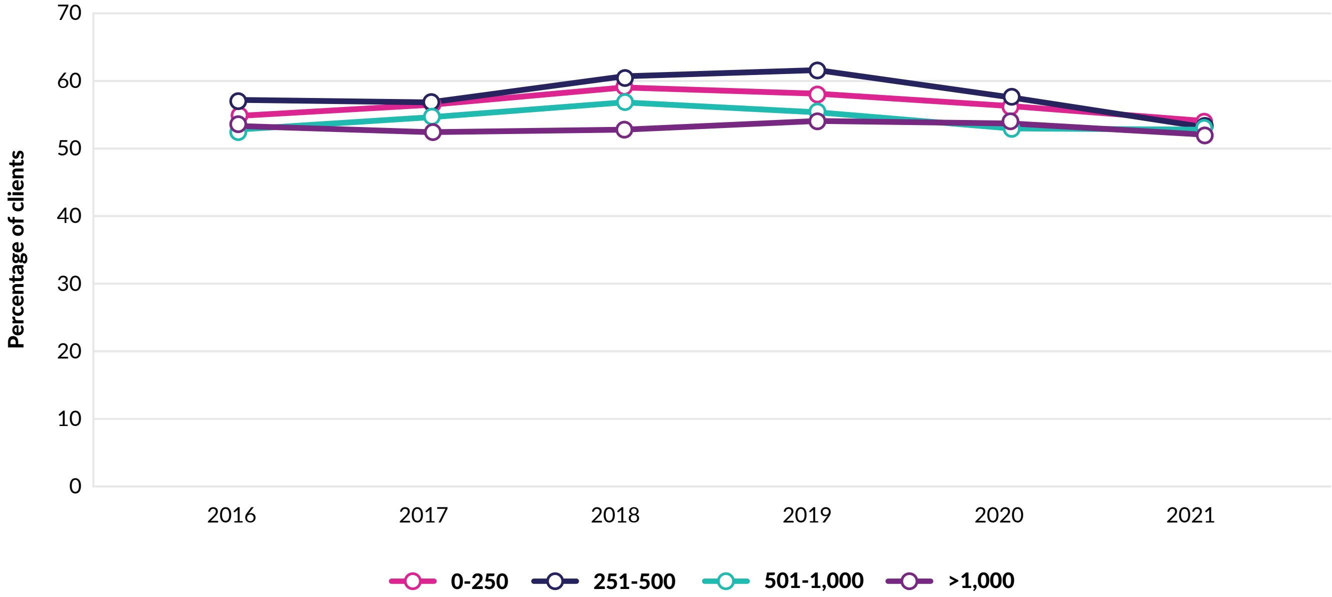
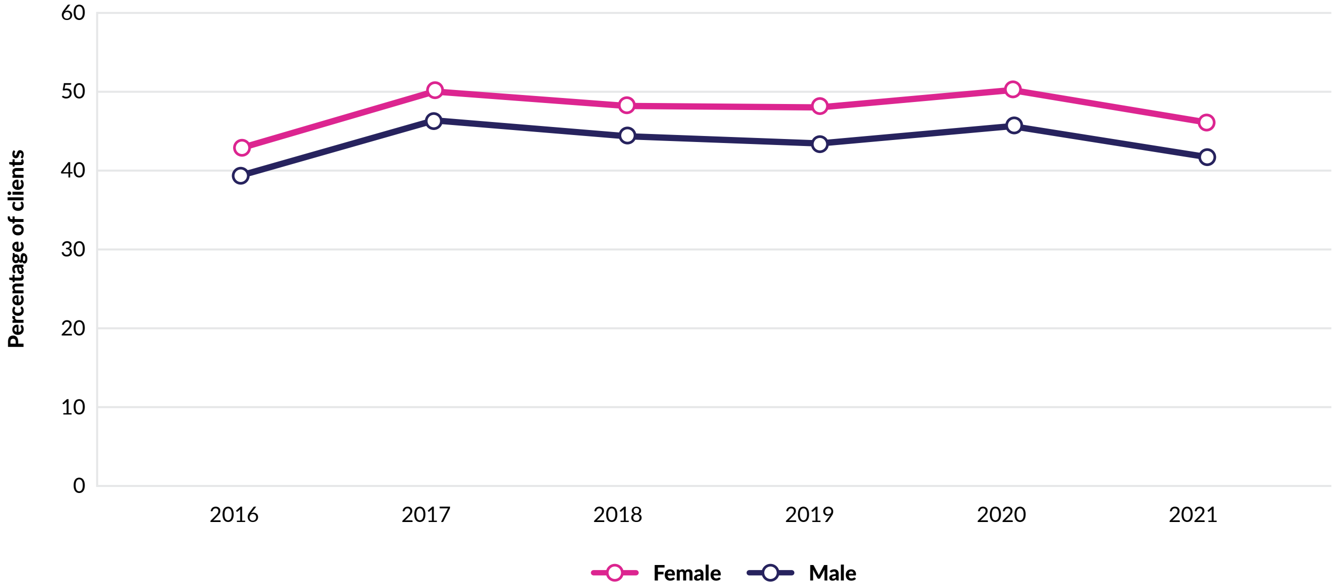


Figure 81 Proportion of clients aged 20 years and over with a cardiovascular risk assessment recorded by gender, 2016–2021



OUTCOMES OF CARDIOVASCULAR RISK ASSESSMENT

Among clients with a recorded CVD risk assessment, 35.0% of clients had CVD risk recorded as "high", 11.0% had a 'moderate' CVD risk and 55.0% "low" risk (Figure 82).

More clients in the older age groups had a high CVD risk than those in younger age groups, with the greatest risk among clients 75 year or older. In 2016, 97.9% of clients in the age group 75 years or older were assessed as high CVD risk, increasing marginally to 98.6% in 2021. Similarly, the majority of clients aged 55 to 74 years (73.9% to 77.1%) were recorded as high CVD risk. Among younger age groups (20 to 34 years, 35 to 54 years), there were less clients recorded as high CVD risk across all reporting years, but still a third of clients in aged 35 to 54 years had a high CVD risk.

Figure 83 shows the proportion of clients recorded as having high CVD risk by NT region. Barkly had the most clients with a high CVD risk, followed by Central Australia and Big Rivers for the period 2016 to 2021.

Although males were less likely to have a CVD risk assessment, they were slightly more likely to have their CVD risk assessed as high compared to female clients (Figure 84). Being male is known and non-modifiable risk factor in CVD.[76] CVD risk increases for women after menopause.

Figure 82 Category of cardiovascular disease (CVD) risk in assessed clients, 2016– 2021

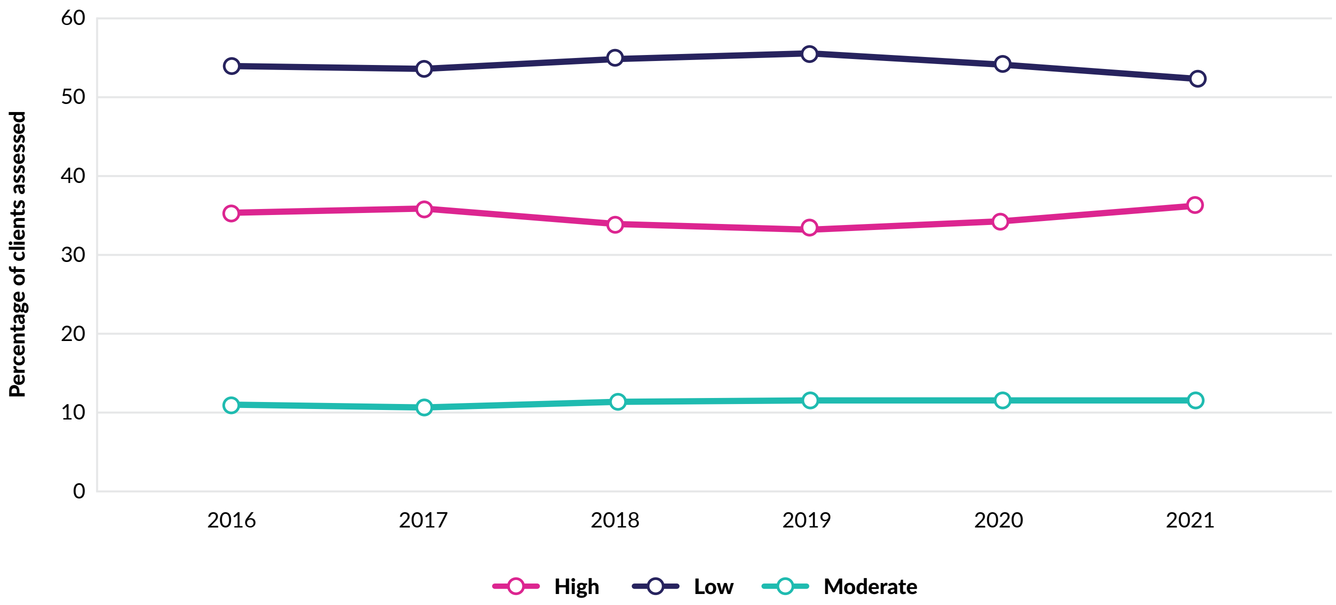


Figure 83 Proportion of high cardiovascular disease (CVD) risk in assessed clients by NT regions, 2016–2021

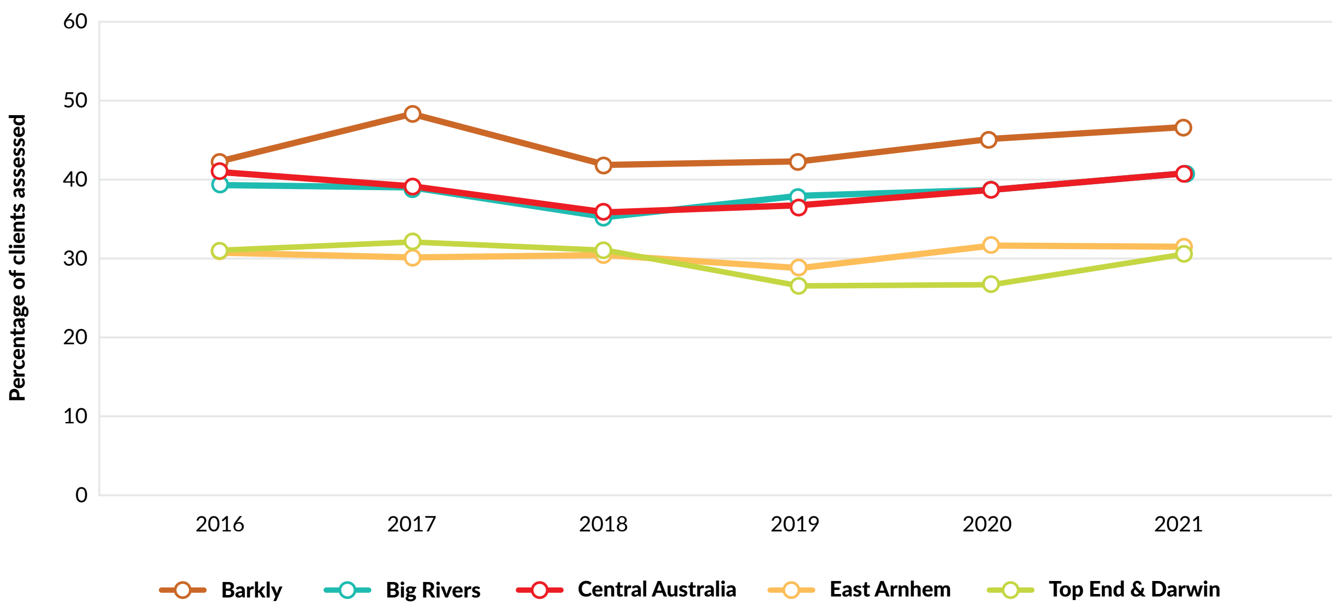
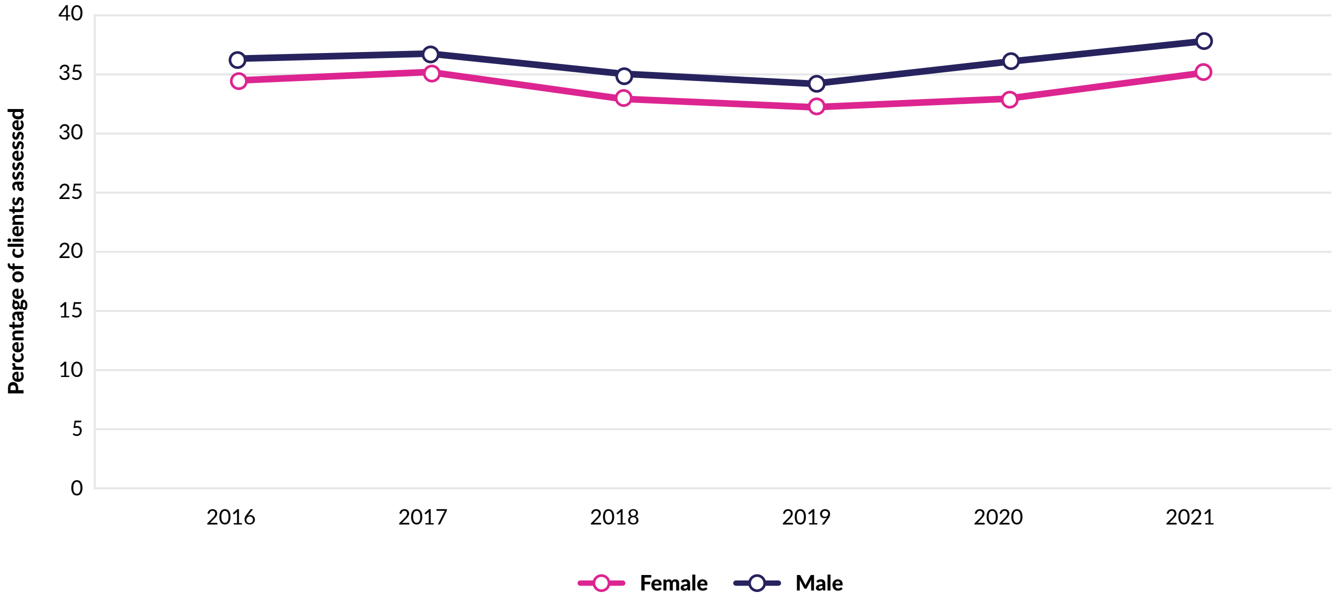


Figure 84 Proportion of high cardiovascular disease (CVD) risk in assessed clients by gender, 2016– 2021



HEALTH SERVICE OBSERVATIONS

Initially, staff reported that when this indicator was first introduced there was lack of staff knowledge and expertise on CVD assessments and suggested there was a need for more staff training. CVD assessments are in the Central Australian Rural Practitioners Association (CARPA) Standard Treatment Manual and this guideline on standard treatment should be reviewed by health service staff through professional development and learning activities. In 2016, health services also reported that clients had complained about the length of time required to complete the CVD assessment. As such in later years, health services have reported the need to implement continuous reminders and refreshers on CVD assessments to staff, but also suggested that service improvements such as: routine recalls including through the use of traffic light reports, addition of CVD calculators in patient record management systems, implementing CVD assessments in routine care and appointments, and using pathology results in CVD risk assessments, have assisted in the better identification of clients needing assessment and the timeliness of assessments.

In more recent reports, some services reported that the assessments are quick and easy to do because the clinical items are available in patient record management systems through a CVD calculator. High smoking prevalence in a community was considered a contributor to prevalence of high CVD risk, and many services suggested the ongoing importance of linking CVD risk assessments with brief interventions and health promotion on key modifiable risk factors. A particular gap for CVD assessments was younger adults who do not present as often to clinics and/or have greater levels of mobility between remote communities and major towns. Continuity of staff with knowledge of community members and men's only clinic times was considered important in models of care to support CVD assessments and ongoing care arrangements following assessments. Chronic disease educators, diabetic educators or similar staff with a dedicated portfolio for chronic disease management were also considered as enablers for this indicator. Some services reported that COVID-19 disrupted routine care, including the conduct of CVD assessments and adult health checks.

KPI 1.19 DIABETIC RETINOPATHY

KPI 1.19 KEY FINDINGS

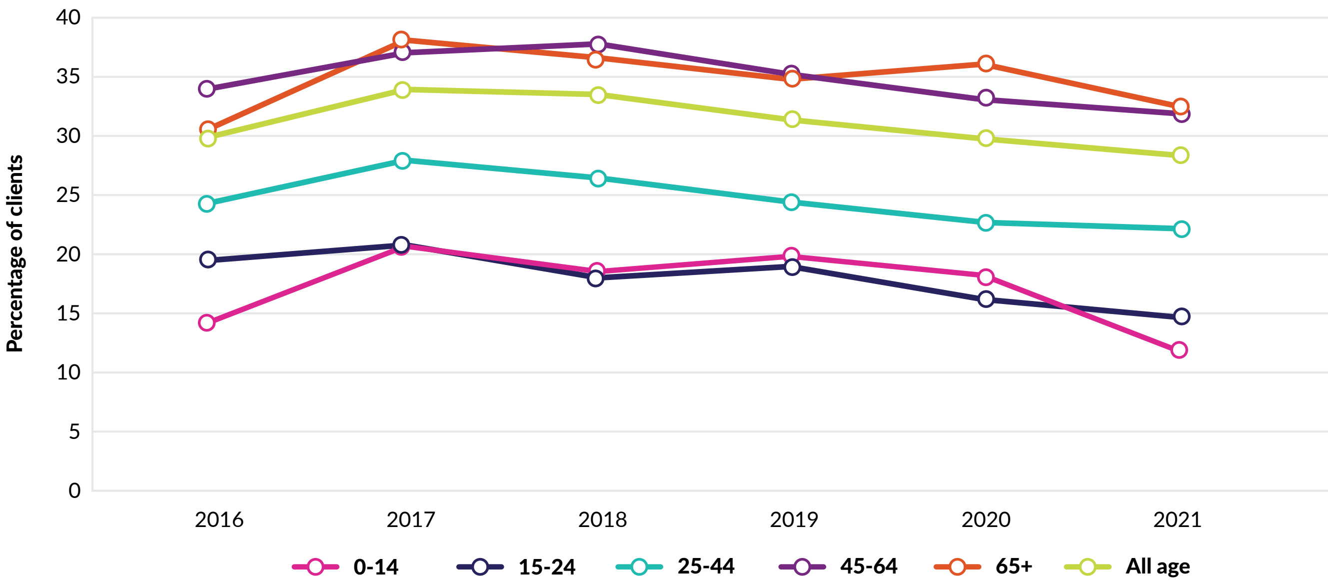
- Overall, retinal screening in clients with either type 1 or type 2 diabetes was stable during the period 2016-2021, with the proportion of client screened ranging from 28.4% to 33.9%.
- Diabetic clients of older ages (≥ 45 years) were more likely to have retinal screening than younger clients (< 45 years). Female clients with diabetes were slightly more likely to have retinal screening than male clients.
- Uptake of retinal eye exam among diabetic clients differed across NT regions between 2016 and 2021. The coverage increased in East Arnhem (from 28.9% to 41.1%) and Barkly (from 11.6% to 40.2%) but declined in Big Rivers from a high level of 49.3% initially to 29.9%. It remained stable in Central Australia and Top End and Darwin.
- Coverage of retinal screening in diabetic clients differed by health service size. Collectively, small sized services (0-250 clients, 251-500 clients) had a relatively high screening proportion. The screening proportion in large services (more than 1,000 clients), on average, was lower in 2021 than 2016.

Diabetes is a prevalent health condition among the Aboriginal population in the NT,[74] including increasing earlier onset in young adults and youth.[4, 77] Diabetic retinopathy related blindness and vision loss is one of the more common complications of diabetes, which can be mitigated with early detection.[78] As diabetic retinopathy is often asymptomatic and the related vision loss is largely avoidable, retinopathy screening is an important aspect of minimising preventable blindness. The diabetic retinal screening program provides early detection of eye disease.[79,80] It is important that diabetic clients have access to annual eye checks so that diabetic retinopathy is detected early.[81]

This AHKPI reports the number of clients with type 1 or type 2 diabetes who were screened for diabetic retinopathy in the preceding 12 months.

Figure 85 presents the proportion of resident clients with diabetes type 1 or type 2 that had a retinal eye exam. Overall, the proportion of diabetic clients with a retinal exam was stable from 2016 to 2021. In 2016, 29.9% of diabetic clients had a retinal screen and 28.4% of diabetic clients received a retinal screen in 2021. Clients aged 65 years and over had the highest proportion of retinal eye exams for the period 2017 to 2021.

Figure 85 Proportion of retinal eye exams in diabetic clients by age group, 2016–2021



Coverage of retinal eye exam in diabetic clients differed by NT region (Figure 86).The proportion of diabetic clients who had a retinal exam increased in East Arnhem and Barkly for the period 2016–2021, but the proportion decreased in Big Rivers in the reporting period. The proportion of diabetic clients with retinal exams remained stable in Top End and Darwin and Central Australia. Feedback from services in Central Australia and Barkly indicated that data for this indicator has been underreported due to the presence of two systems on which ophthalmologists are required to enter clinical information, including an ophthalmologist specific database and the client information system (e.g. PCIS or Communicare).[16]

Collectively, smaller health services (0–250 clients, 251–500 clients) had a higher level of retinal screening among diabetic clients compared with larger health services (501–1,000 and >1,000), as shown in Figure 87.

Females were slightly more likely than males to have a retinal eye exam (Figure 88).

Figure 86 Proportion of retinal eye exams in diabetic clients by NT region, 2016–2021

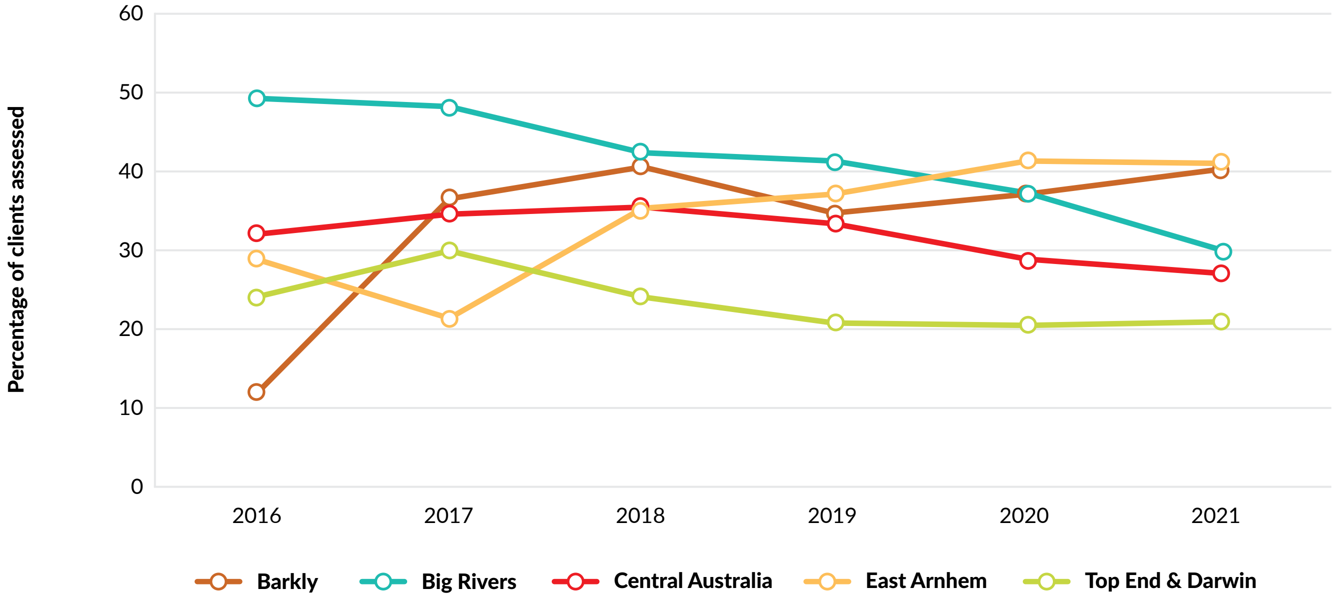


Figure 87 Proportion of retinal eye exams in diabetic clients by health service size, 2016–2021

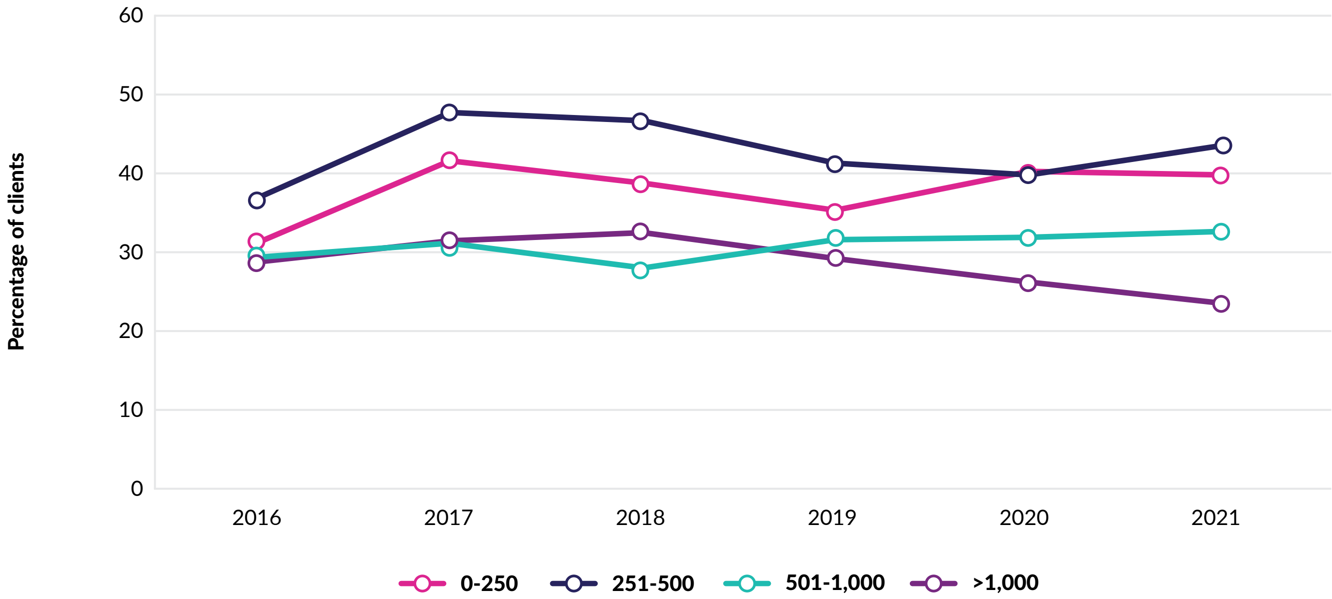
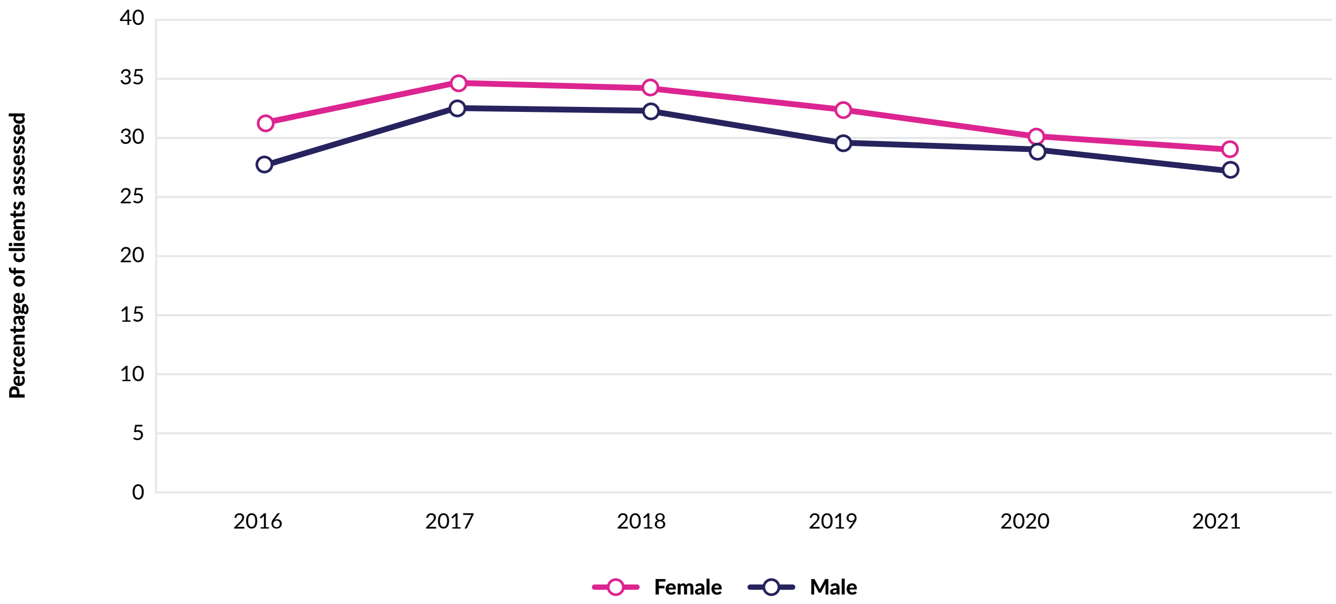


Figure 88 Proportion of retinal eye exams in diabetic clients by gender, 2016–2021



HEALTH SERVICE OBSERVATIONS

Health services suggested that enablers to improving retinal screening included increased access to optometrists and/or regular specialist visits from dedicated teams that also have the skills to use digital retinal screening cameras and take on the responsibility to enter data on eye health into patient record management systems. Other enablers included: retinal assessments added to care plans, education and training on digital retinal screening cameras for current clinic staff; health service focus on diabetes portfolio with dedicated practitioners; referrals to eye health program for all new clients diagnosed with diabetes; and regular eye health outreach program across the regions. Barriers to eye health checks included a lack of continuity of care, lack of regular visits by optometry teams and a lack of cameras and appropriate technology in some clinics. Where cameras have been available, some services reported there was limited staff trained to use digital retinal screening cameras. In some areas, health services suggested that the camera was bulky and difficult to transport for outreach visits, including to service clients living in homelands and outstations.

In other areas, clients were required to travel into the main service centres to access eye health checks. The addition of retinal assessment to careplans was important, but some services noted that retinal screening could not be provided due to the lack of appropriately trained staff. Another barrier was that the eye dilation medication required for camera is currently not on schedule 100 medication order.

Ideas to improve services for retinal screening included: establishing a dedicated team visiting communities; increased communication on scheduled community visits and liaison with clinic staff for patient recall lists; increased roll out of retinal cameras (supported by training) to clinics to support screening; and, a clinical audit and evaluation of existing practices. This audit could include assessing approaches for prioritising referrals and recalls, progress notes and allied health professional/s documentation. Community based health promotion and education that highlighted the importance of eye health for diabetics and was followed up with scheduling of appointments to screen clients were also suggested improvements. Technological suggestions included improved digital retinal cameras that are smaller (but more robust) to support it being transported to remote locations and technologies that do not require eye dilation.

CHAPTER 6.
SEXUAL HEALTH

KPI 1.17 SEXUALLY TRANSMISSIBLE INFECTIONS

KPI 1.17 KEY FINDINGS

- Overall, testing for all sexually transmissible infections (STIs) in young people aged 15-34 years increased from 25.6% in 2016 to 35.7% in 2021. Testing peaked in 2019, declining in 2021 associated with the COVID-19 pandemic.
- By infection type, chlamydia and gonorrhoea had the highest testing coverage (range 43.9% to 49.8%), with no significant increase observed over the reporting period.
- Testing for syphilis and HIV improved from 2016 to 2021, with coverage increasing from 33.9% to 41.6% (syphilis) and 27.0% to 38.0% (HIV). Testing peaked in 2019 at 49.0% and 42.8% respectively.
- Females (range 36.6% to 53.8%) were more likely to be tested for STIs than males (30.9% to 43.4%).
- Younger clients aged 15 to 19 years (coverage range 23.1% to 36.3%) were less likely to undergo STI testing compared to clients 20 years and older (26.5% to 43.0%).
- Smaller health services tested a higher proportion of residents for all STIs (range 38.9% to 58.6%), significantly greater than services over 500 people (22.2% to 47.6%).

Improving testing rates for sexually transmissible infections (STI) and Blood Borne Viruses (BBV) among priority populations are a key action area of the NT Sexually Transmissible Infection and Blood Borne Viruses Strategic and Operational Plan 2019–2023.[82] Targeted testing in high risk populations of often asymptomatic STI and BBV enables early detection and treatment, reducing complications from infection and further transmission.[83]

Introduced in 2015, this AHKPI measures the proportion of 15 to 34 year old clients receiving annual STI testing. In 2015, the STIs included in the AHKPI were chlamydia and gonorrhoea. In 2016, additional STIs of syphilis and human immunodeficiency virus (HIV) were included.

Despite a 12% increase in the target population requiring testing, the percentage of 15 to 34 year old clients receiving testing has remained relatively stable (Figure 89). Chlamydia and gonorrhoea were the most commonly tested STIs, with testing ranging from 43.9% to 49.8% of clients tested each year. While the percentage of clients tested for syphilis (33.9% to 49.0%) and HIV (27.0% to 42.8%) were lower, testing for these STIs improved between 2016 and 2021 with the increasing inclusion of comprehensive STI testing in adult health care plans and greater resourcing for sexual health.[16] Coinciding with the COVID-19 outbreak, a slight decrease in the proportion tested for all STIs was observed in 2021.

Females were more likely to be tested for all STIs than males (p<0.001; Figure 90). Despite a decline from the peak of testing for both genders in 2019 (females 53.8%, males 43.4%), testing for all STIs increased significantly between 2016 (females 36.6%, males 30.9%) and 2021 (females 47.3%; males 35.0%) (p<0.001).

Figure 89 Proportion of 15 to 34 year old residents receiving sexually transmissible infection testing, by type of test and year, 2015–2021

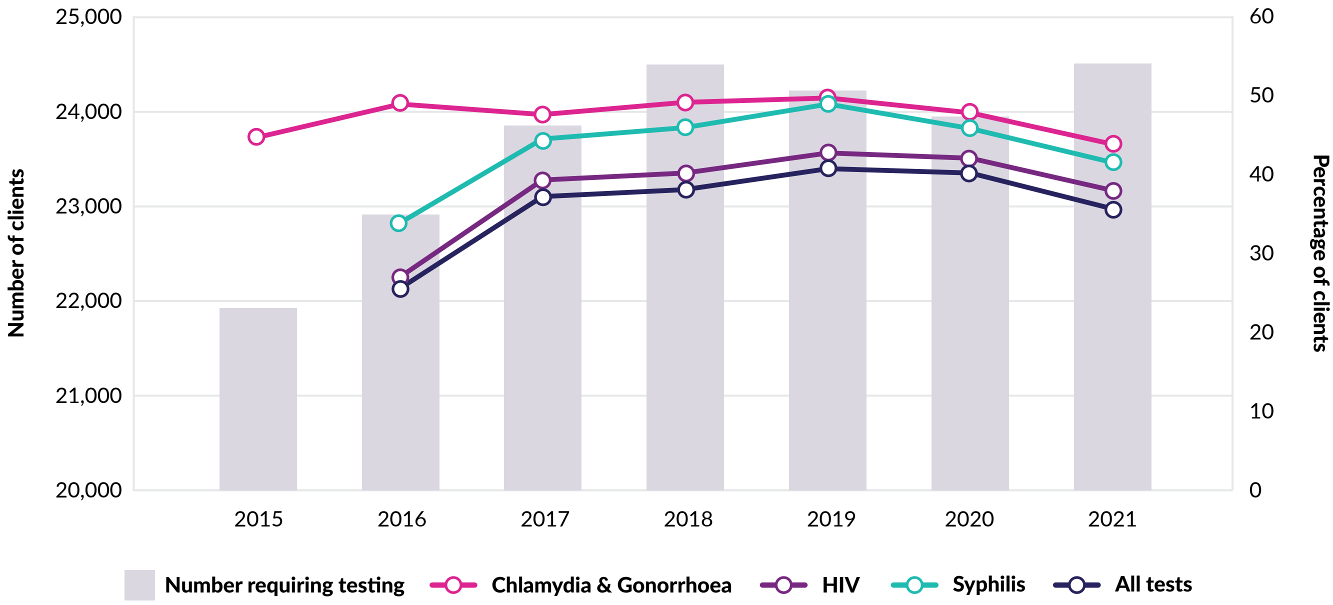


Figure 90 Proportion of 15 to 34 year old clients who received testing for all sexually transmissible infections by gender, 2016–2021

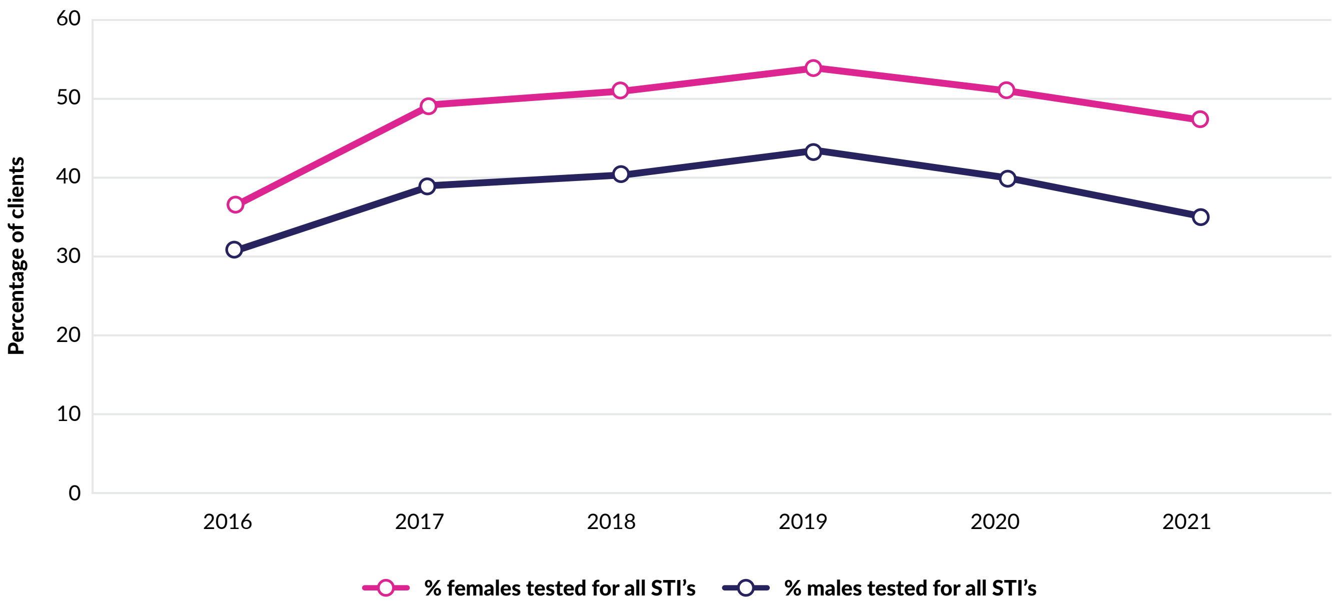


Figure 91 shows a similar proportion of all STI testing for clients 20 years and older (26.8% to 43.0%). STI testing in 15 to 19 year old clients was significantly lower (23.1% to 36.3%) (p<0.001). The same trend was observed for chlamydia and gonorrhoea, syphilis and HIV testing individually. STI testing increased across all age groups from 2016 to 2021.

All regions showed significant improvements in proportion of clients receiving all 4 STI tests of chlamydia, gonorrhoea, syphilis and HIV (p<0.001; Figure 92). Central Australia and East Arnhem tested the highest proportion of clients for all STI's, range 25.4% to 49.9%, while the lowest testing proportion was observed in Barkly, 13.9% to 30.7%.

The services with less than 501 clients tested the highest proportion of residents for all STI's, (range from 38.9% to 58.6%), which was significantly higher than health services of 501 to 1,000 people (38.9% to 47.6%) and over 1,000 people (22.2% to 36.0%) (p<0.001; Figure 93). All service sizes, except the smallest services (under 250 clients) significantly increased the proportion of clients tested for all STI's between 2016 and 2021 (p<0.001).

Figure 91 Proportion of 15 to 34 year old clients who received testing for all sexually transmissible infections by age group, 2016–2021

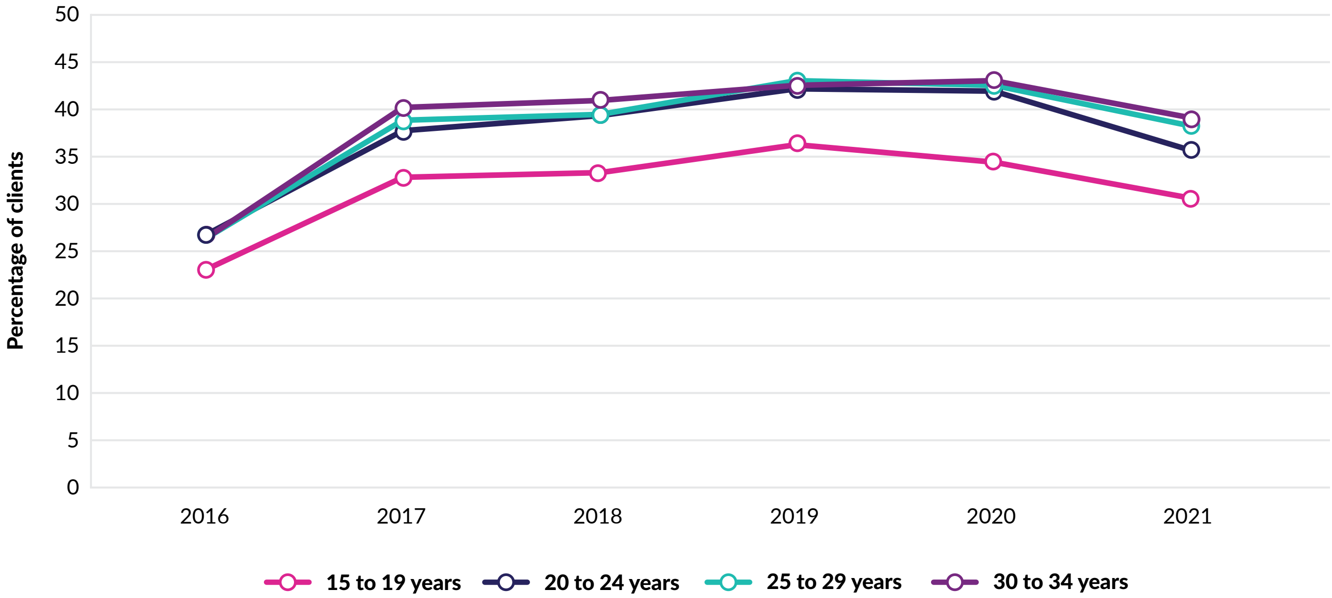


Figure 92 Proportion of 15 to 34 year old clients who received testing for all sexually transmissible infections by NT region, 2016–2021

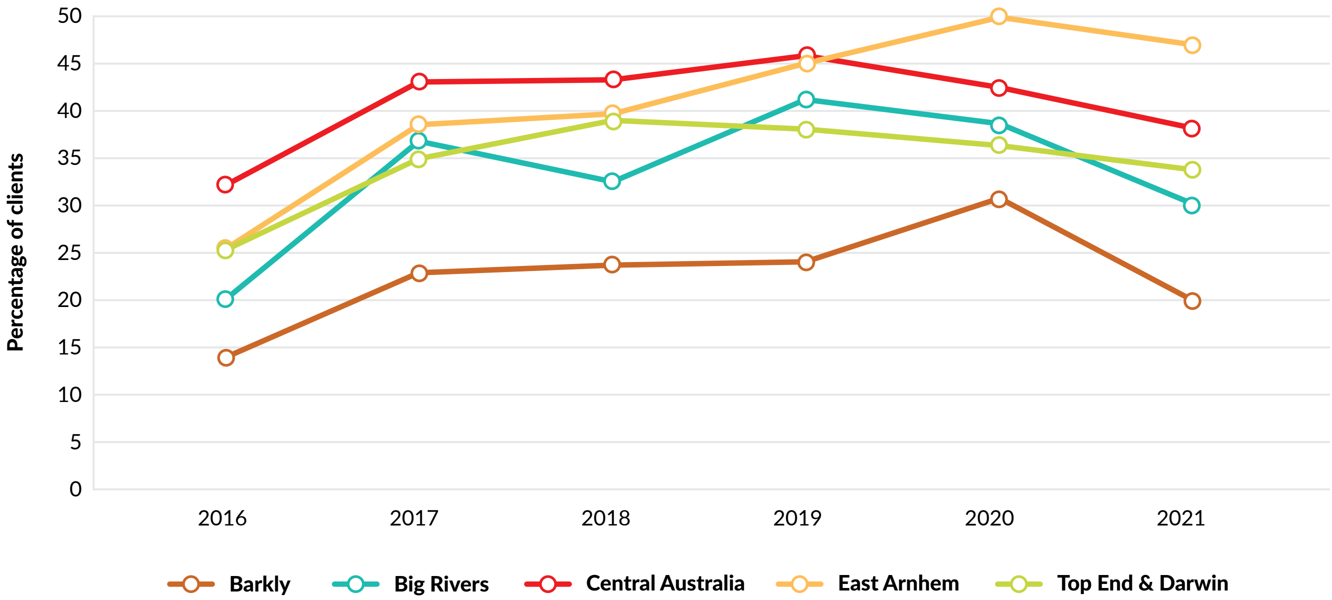
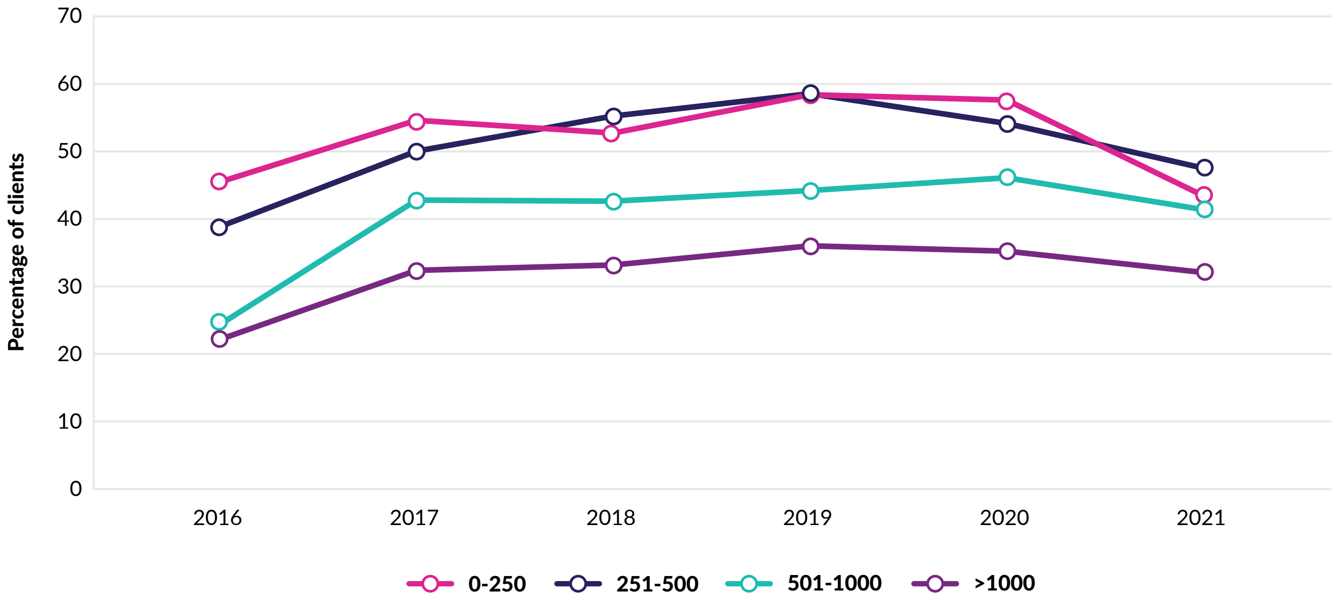


Figure 93 Proportion of 15 to 34 year old clients who received testing for all sexually transmissible infections by health service size, 2016–2021



HEALTH SERVICE OBSERVATIONS

Gender-congruent staffing, private clinics and education/health promotion drives were identified as enablers of STI testing.[16] Provision of education, community visits, quality improvement projects and co-ordinators, feedback from the NT Centre for Disease Control, and research studies such as the Sexually Transmitted Infections in Remote communities: Improved and enhanced (STRIVE) primary health care project from 2011 to 2013 were seen to improve clinician awareness and opportunistic testing. Health promotion with community engagement through youth workers and football events provided occasions to address STI testing questions and increased testing among difficult-to-reach target groups, such as young adults.[84] Active contact tracing in conjunction with health promotion and community engagement were also observed as enablers to increase STI testing rates. The capability of point-of-care testing was identified as an enabler for opportunistic testing and early treatment, especially in clinics who reported issues with transporting specimens.

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APPENDIX 1 COMMUNITIES AND HEALTH SERVICES

Table 4 Communities and health services contributing to Aboriginal Health Key Performance Indicator (AHKPI) data by NT Government region and health service size classifications, 2010–2021

REGION	GOVERNANCE	HEALTH SERVICE SIZE (SERVICE POPULATION)
DARWIN AND TOP END		
Adelaide River	NT Health	251 - 500
Batchelor	NT Health	501 - 1,000
Belyuen	NT Health	0 - 250
Daly River	NT Health	251 - 500
Darwin	Danila Dilba Health Service	> 1,000
Jabiru	NT Health	> 1,000
Ludmilla (Bagot)	Danila Dilba Health Service	> 1,000
Maningrida	Mala'la Health Service Aboriginal Corporation (≥ 2021)*	> 1,000
Milikapiti (Snake Bay)	NT Health	251 - 500
Minjilang (Croker Island)	Red Lily Health Board Aboriginal Corporation (≥ 2021)*	251 - 500
Nganmarriyanga (Palumpa)	NT Health	251 - 500
Gunbalanya (Oenpelli)	NT Health	> 1,000
Peppimenarti	NT Health	251 - 500
Pirlangimpi (Garden Point)	NT Health	251 - 500
Wadeye (Port Keats)	NT Health	> 1,000
Warruwi	NT Health	251 - 500
Wurrumiyanga	NT Health	> 1,000
EAST ARNHEM		
Alyangula	NT Health	501 - 1,000
Angurugu	NT Health	501 - 1,000
Bickerton Island	NT Health	0 - 250
Galiwinku	Miwatj Health Aboriginal Corporation	> 1,000
Gapuwiyak	Miwatj Health Aboriginal Corporation (≥ 2019)*	501 - 1,000
Gunyangara	Miwatj Health Aboriginal Corporation	251 - 500
Laynhapuy	Miwatj Health Aboriginal Corporation	501 - 1,000
Marthakal	Miwatj Health Aboriginal Corporation	251 - 500
Milingimbi	Miwatj Health Aboriginal Corporation (≥ 2016)*	> 1,000
Nhulunbuy	NT Health	501 - 1,000
Numbulwar	NT Health	501 - 1,000
Ramingining	Miwatj Health Aboriginal Corporation (≥ 2019)*	> 1,000
Umbakumba	NT Health	251 - 500
Yirrkala	Miwatj Health Aboriginal Corporation (≥ 2012)*	> 1,000

REGION	GOVERNANCE	HEALTH SERVICE SIZE (SERVICE POPULATION)
BIG RIVERS		
Barunga	Sunrise Health Service	251 - 500
Binjari	Wurli Wurlinjang Health Service	0 - 250
Borroloola	NT Health	> 1,000
Bulman	Sunrise Health Service	251 - 500
Jilkminggan	Sunrise Health Service	251 - 500
Kalkaringi	Katherine West Health Board Aboriginal Corporation	> 1,000
Manyallaluk (Eva Valley)	Sunrise Health Service	0 - 250
Mataranka	Sunrise Health Service	251 - 500
Minyerri (Hodgson Downs)	Sunrise Health Service	501 - 1,000
Ngukurr	Sunrise Health Service	> 1,000
Pine Creek	NT Health	251 - 500
Robinson River	NT Health	0 - 250
Timber Creek	Katherine West Health Board Aboriginal Corporation	501 - 1,000
Urapunga (Rittarangu)	Sunrise Health Service	0 - 250
Wugularr (Beswick)	Sunrise Health Service	501 - 1,000
Wurli Wurlinjang	Wurli Wurlinjang Health Service	> 1,000
Yarralin	Katherine West Health Board Aboriginal Corporation	251 - 500
BARKLY		
Ali Curung	NT Health	501 - 1,000
Canteen Creek	NT Health	0 - 250
Elliott	NT Health	251 - 500
Epenara (Wutungurra)	NT Health	0 - 250
Lake Nash (Alpurrurulam)	NT Health	501 - 1,000
Tara	NT Health	0 - 250
Tennant Creek	Anyinginyi Health Aboriginal Corporation	> 1,000
CENTRAL AUSTRALIA		
Alcoota (Engawala)	NT Health	0 - 250
Alice Springs	Central Australian Aboriginal Congress	> 1,000
Amoonguna	Central Australian Aboriginal Congress	251 - 500
Ampilatwatja	Ampilatwatja Health Centre Aboriginal Corporation	501 - 1,000
Aputula (Finke)	NT Health	0 - 250
Areyonga (Utju)	Central Australian Aboriginal Congress	0 - 250
Bonya	NT Health	0 - 250
Docker River (Kaltukatjara)	NT Health	251 - 500
Haasts Bluff (Ikuntji)	NT Health	0 - 250
Harts Range (Atitjere)	NT Health	251 - 500
Hermannsburg (Ntaria)	Central Australian Aboriginal Congress & NT Health	501 - 1,000
Imanpa	NT Health	0 - 250
Kings Canyon (Watarrka)	NT Health	0 - 250
Kintore (Pintubi)	Pintupi Homelands Health Service	501 - 1,000
Lajamanu	Katherine West Health Board Aboriginal Corporation	501 - 1,000

REGION	GOVERNANCE	HEALTH SERVICE SIZE (SERVICE POPULATION)
Laramba	NT Health	251 - 500
Maryvale (Titjikala)	NT Health	0 - 250
Mt Liebig (Amunturrngu)	NT Health	0 - 250
Mutitjulu	Central Australian Aboriginal Congress	251 - 500
Nyrippi	NT Health	0 - 250
Papunya	NT Health	501 - 1,000
Pmara Jutunta (Six mile)	NT Health	0 - 250
Santa Teresa (Ltyentye Arpurte)	Central Australian Aboriginal Congress	501 - 1,000
Stirling (Wilora)	NT Health	0 - 250
Ti Tree	NT Health	251 - 500
Urapuntja (Utopia)	Urapuntja Health Service Aboriginal Corporation	501 - 1,000
Wallace Rockhole	Central Australian Aboriginal Congress	0 - 250
Willowra	NT Health	0 - 250
Yuelamu	NT Health	0 - 250
Yuendumu	NT Health	501 - 1,000
Yulara	NT Health	> 1,000

*Staged transitioned from NT Health to community controlled organisation (Year in brackets indicates date transition finalised) [12, 85]

APPENDIX 2 TABLES OF DATA PRESENTED IN FIGURES

KPI 1.1 HEALTH CARE PROVISION

Table 5. Number of episodes of care in Northern Territory Primary Health Care Services, 2010–2021 (Figure 2)

YEAR	NUMBER OF EPISODES OF CARE
2010	784,103
2011	761,221
2012	826,700
2013	836,411
2014	892,153
2015	881,538
2016	916,242
2017	925,536
2018	887,455
2019	868,746
2020	836,995
2021	895,330

Table 6. Number of episodes of care by Aboriginal status and residency, 2010–2021 (Figure 3)

YEAR	ABORIGINAL RESIDENT	ABORIGINAL VISITOR	NON-ABORIGINAL RESIDENT	NON-ABORIGINAL VISITOR	NOT STATED RESIDENT	NOT STATED VISITOR	TOTAL
2010	631,552	66,858	64,918	15,073	4,122	1,580	**784,103**
2011	591,670	90,449	58,681	16,439	2,903	1,079	**761,221**
2012	642,702	100,183	62,467	17,333	2,878	1,137	**826,700**
2013	646,588	108,627	55,905	21,607	2,329	1,355	**836,411**
2014	695,903	115,064	57,776	19,427	2,541	1,442	**892,153**
2015	695,999	107,479	56,215	18,579	1,926	1,340	**881,538**
2016	713,984	121,661	57,008	20,441	1,920	1,228	**916,242**
2017	717,207	127,023	57,431	21,042	1,537	1,296	**925,536**
2018	696,408	113,944	53,848	20,495	1,482	1,278	**887,455**
2019	683,935	109,895	52,948	19,543	1,378	1,047	**868,746**
2020	644,170	117,996	53,231	19,052	1,488	1,058	**836,995**
2021	672,143	121,727	67,161	30,027	2,220	2,052	**895,330**

NOTE: Data in this figure excludes episodes of care provided to those clients with not stated Aboriginal status (n=42,616, 0.4%)

Table 7. Number of episodes of care provided to Aboriginal residents by age group, 2011–2021 (Figure 4)

YEAR	AGE GROUP (YEARS)						TOTAL
	0-4	5-14	15-24	25-44	45-64	>64	
2011	85,664	76,378	71,151	171,038	141,918	45,521	**591,670**
2012	88,613	83,733	72,339	182,745	161,165	54,107	**642,702**
2013	87,077	79,631	72,870	183,580	170,484	52,946	**646,588**
2014	97,629	100,059	88,938	213,288	195,869	61,079	**756,862**
2015	94,455	96,726	89,645	213,055	203,578	62,086	**759,545**
2016	89,733	99,695	95,210	221,061	208,566	65,461	**779,726**
2017	88,636	101,673	94,901	216,949	215,288	67,393	**784,840**
2018	82,751	92,119	93,290	215,973	216,198	65,342	**765,673**
2019	80,418	87,112	92,620	209,592	214,182	68,214	**752,138**
2020	68,058	80,446	90,622	200,573	203,394	68,951	**712,044**
2021	64,889	79,522	104,890	211,370	211,666	69,262	**741,599**

Table 8. Number of episodes of care by NT region, 2010–2021 (Figure 5)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2014	55,125	152,055	298,248	151,072	235,653
2015	48,849	144,933	300,412	162,172	225,172
2016	51,449	145,582	325,655	158,718	234,838
2017	57,502	147,248	324,377	159,730	236,679
2018	50,174	148,571	289,791	158,766	240,153
2019	49,561	142,852	287,643	153,820	234,870
2020	57,860	135,212	254,791	149,591	239,541
2021	44,361	153,758	249,788	163,131	284,292

Table 9. Mean number of episodes of care per person by NT region, 2014–2021 (Figure 6)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN	NT – ALL REGIONS
2014	8.9	12.8	16.0	12.6	10.2	12.4
2015	7.7	12.5	15.6	13.1	9.0	11.8
2016	8.1	12.0	15.7	13.0	9.0	11.8
2017	9.8	10.5	15.2	12.7	9.1	11.6
2018	8.4	10.3	13.5	12.9	9.0	11.0
2019	8.9	11.4	13.5	12.5	8.7	11.0
2020	11.2	11.1	12.2	12.5	8.7	10.8
2021	8.3	12.7	11.6	13.7	9.1	10.9

Note: Population data was added to AHKPI data from 2014.

Table 10. Number of client contacts, 2010–2021 (Figure 7)

YEAR	NUMBER OF CLIENT CONTACTS
2010	942,573
2011	927,047
2012	1,014,275
2013	1,046,262
2014	1,120,333
2015	1,133,051
2016	1,198,700
2017	1,243,622
2018	1,216,058
2019	1,185,856
2020	1,116,188
2021	1,226,705
Total	**13,370,670**

Table 11 Mean number of client contacts per person, 2014–2021 (Figure 8)

YEAR	CLIENT CONTACTS PER PERSON
2014	15.6
2015	15.2
2016	15.4
2017	15.6
2018	15.1
2019	15.1
2020	14.4
2021	14.9

Table 12. Number of client contacts by NT region, 2010–2021 (Figure 9)

YEAR	TOP END & DARWIN	EAST ARNHEM	BIG RIVERS	BARKLY	CENTRAL AUSTRALIA	TOTAL
2010	264,173	123,112	191,481	65,676	298,131	942,573
2011	253,722	132,640	165,557	62,819	312,309	927,047
2012	276,195	156,278	196,124	66,416	319,262	1,014,275
2013	261,100	164,008	214,062	69,791	337,301	1,046,262
2014	294,471	174,553	211,827	70,790	368,692	1,120,333
2015	288,101	197,100	201,529	64,091	382,230	1,133,051
2016	297,988	209,484	205,063	70,275	415,890	1,198,700
2017	302,431	217,743	216,007	76,278	431,163	1,243,622
2018	307,638	219,726	217,448	67,205	404,041	1,216,058
2019	305,082	209,963	208,031	66,243	396,537	1,185,856
2020	308,159	192,720	189,058	73,526	352,725	1,116,188
2021	374,440	216,719	223,993	58,067	353,486	1,226,705
Total	**3,533,500**	**2,214,046**	**2,440,180**	**811,177**	**4,371,767**	**13,370,670**

Table 13. Number of client contacts by health service size, 2010–2021 (Figure 10)

YEAR	0-250 RESIDENTS	251-500 RESIDENTS	501-1000 RESIDENTS	>1000 RESIDENTS	TOTAL
2010	81,144	168,038	224,259	469,132	942,573
2011	84,285	167,957	232,428	442,377	927,047
2012	80,896	172,490	252,746	508,143	1,014,275
2013	79,462	164,790	243,417	558,593	1,046,262
2014	84,493	164,254	244,375	627,211	1,120,333
2015	83,320	169,158	249,654	630,919	1,133,051
2016	81,553	177,439	260,521	679,187	1,198,700
2017	80,967	173,426	264,786	724,443	1,243,622
2018	76,775	176,357	261,456	701,470	1,216,058
2019	77,265	171,103	247,262	690,226	1,185,856
2020	72,619	158,102	234,323	651,144	1,116,188
2021	64,417	175,430	245,769	741,089	1,226,705
Total	**947,196**	**2,038,544**	**2,960,996**	**7,423,934**	**13,370,670**

Table 14. Number of residents in primary health care services in the NT, 2014-2022 (Figure 11)

YEAR	ABORIGINAL	NON-ABORIGINAL	NOT STATED	TOTAL
2014	60,959	10,026	790	71,775
2015	63,546	10,141	754	74,441
2016	65,742	11,128	750	77,620
2017	67,633	11,339	766	79,738
2018	69,265	10,794	648	80,707
2019	68,203	10,000	568	78,771
2020	67,874	9,071	571	77,516
2021	69,456	12,031	702	82,189

Table 15. Health Service population of Aboriginal and non-Aboriginal residents by gender and age group, 2021 (Figure 12)

AGE GROUP (YEARS)	FEMALE		MALE	
	ABORIGINAL	NON-ABORIGINAL	ABORIGINAL	NON-ABORIGINAL
0 to 4	2,925	191	3,067	222
5 to 14	6,421	371	6,981	347
15 to 24	6,860	744	6,294	585
25 to 44	11,211	2,254	9,553	1,920
45 to 64 years	7,075	1,832	6,061	2,059
> 64	1,746	556	1,259	945

KPI 1.2.1 FIRST ANTENATAL VISIT

Table 16. Proportion of women attending first antenatal visit by gestational age, 2010–2021 (Figure 13)

YEAR	NUMBER OF BIRTHS	% ATTENDED FIRST VISIT				
		< 13 WEEKS GESTATION	13 - 19 WEEKS GESTATION	20+ WEEKS GESTATION	DID NOT ATTEND CLINIC	UNRECORDED
2010	1,106	44.5	25.0	24.9	1.4	4.2
2011	1,098	45.0	21.6	26.2	2.0	5.2
2012	1,201	46.7	22.2	24.6	1.5	4.9
2013	1,044	49.1	19.8	25.3	0.7	5.1
2014	1,088	49.2	20.1	24.1	0.5	6.2
2015	1,139	49.3	21.4	20.7	0.6	7.9
2016	1,166	54.6	17.5	20.8	0.9	6.1
2017	1,066	54.8	20.2	18.2	0.7	6.2
2018	1,097	57.6	17.4	17.6	0.8	6.6
2019	1,032	56.5	16.6	19.9	0.5	6.6
2020	1,077	58.2	16.9	17.5	0.6	6.8
2021	1,023	54.0	16.6	21.6	0.6	7.2

Table 17. Proportion of women who gave birth and attended the first antenatal visit within 13 weeks gestation by maternal age, 2010–2021 (Figure 14)

YEAR	UNDER 20 YEARS	20 TO 34 YEARS	OVER 34 YEARS
2010	37.2	48.0	39.5
2011	37.9	46.9	46.3
2012	33.8	49.9	55.6
2013	39.0	51.3	58.3
2014	36.7	52.5	51.4
2015	35.8	53.4	48.6
2016	44.9	56.6	55.2
2017	48.3	55.4	62.8
2018	53.0	59.2	53.8
2019	44.4	58.9	59.8
2020	48.7	59.9	59.5
2021	39.3	56.8	56.3

Table 18. Proportion of women attending first antenatal visit within 13 weeks gestation by NT region, 2010–2021 (Figure 15)

YEAR	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2010	47.5	47.7	45.1	42.4
2011	55.0	46.7	34.2	43.4
2012	54.5	44.0	50.0	47.1
2013	57.5	51.2	43.5	46.6
2014	56.4	50.9	43.9	49.9
2015	60.2	47.6	51.2	49.4
2016	69.7	53.0	53.5	54.0
2017	60.0	52.6	43.8	62.4
2018	64.5	55.7	47.9	67.2
2019	61.1	51.6	52.9	63.2
2020	64.0	59.5	62.1	59.5
2021	68.1	53.9	51.2	57.9

KPI 1.2.2 ANAEMIA IN PREGNANCY

Table 19. Number of women who gave birth to an Aboriginal baby, proportion tested for anaemia and proportion of women tested who were anaemic at any time and at last test in pregnancy, 2019–2021 (Figure 16)

YEAR	NUMBER OF WOMEN WHO GAVE BIRTH	% OF PREGNANT WOMEN TESTED	% OF TESTED - ANAEMIC AT ANY TIME	% OF TESTED - ANAEMIC AT LAST TEST IN PREGNANCY
2019	1,034	90.2	47.7	19.3
2020	1,078	92.6	44.9	18.7
2021	1,025	90.5	40.4	15.2

Table 20. Proportion of women tested who were anaemic (a) at any time and (b) on the last test in pregnancy by maternal age, 2019–2021 (Figure 17)

A) ANAEMIC AT ANY TIME			
YEAR	MATERNAL AGE < 20 YRS	20-34 YRS	> 34 YRS
2019	59.0	46.8	34.8
2020	51.0	45.6	32.1
2021	55.5	38.1	33.7
B) ANAEMIC AT LAST TEST IN PREGNANCY			
YEAR	MATERNAL AGE < 20 YRS	20-34 YRS	> 34 YRS
2019	19.2	20.1	13.5
2020	26.6	17.7	15.6
2021	20.5	14.2	14.1

KPI 1.3 BIRTH WEIGHT

Table 21 Proportion of live births with low, normal and high birth weight, 2010–2021 (Figure 18)

YEAR	% LOW BIRTH WEIGHT	% NORMAL BIRTH WEIGHT	% HIGH BIRTH WEIGHT
2010	14.6	84.3	1.1
2011	16.1	82.3	1.7
2012	12.4	86.4	1.2
2013	13.8	84.9	1.3
2014	12.4	86.6	1.0
2015	15.4	83.6	1.0
2016	15.3	82.9	1.7
2017	14.1	84.4	1.5
2018	16.0	82.8	1.1
2019	13.7	84.8	1.5
2020	17.2	81.5	1.3
2021	14.8	83.4	1.8

Table 22 Proportion of live births with low birth weight by health service size, 2010–2021 (Figure 19)

YEAR	HEALTH SERVICES ≤ 1,000 PEOPLE	HEALTH SERVICES > 1,000 PEOPLE
2010	15.3	14.1
2011	13.1	18.1
2012	10.0	14.1
2013	13.4	14.1
2014	10.5	13.7
2015	12.7	17.0
2016	13.3	16.6
2017	13.3	14.5
2018	14.7	16.7
2019	11.7	14.8
2020	16.0	18.0
2021	14.6	14.9

KPI 1.4.1 FULLY IMMUNISED CHILDREN

Table 23 Population number by age group and proportion of children under 6 years fully immunised, 2010–2021 (Figure 20)

YEAR	POPULATION < 1 YEAR	POPULATION 1 YEAR OLD	POPULATION 2 TO 5 YEARS	% CHILDREN < 6 YEARS FULLY VACCINATED
2010	790	1,434	5,130	84.9
2011	744	1,376	5,393	89.3
2012	741	1,402	5,756	78.4
2013	641	1,321	5,489	89.6
2014	692	1,206	5,371	91.0
2015	714	1,261	5,291	87.4
2016	676	1,250	5,123	87.3
2017	692	1,330	5,273	86.5
2018	658	1,264	5,359	86.7
2019	628	1,240	5,127	82.9
2020	616	1,175	5,011	85.0
2021	672	1,280	4,931	81.1

Table 24 Proportion of children under 6 years fully immunised by age group, 2010–2021 (Figure 21)

YEAR	% VACCINATED < 1 YEAR	% VACCINATED 1 YEAR OLD	% VACCINATED 2 TO 5 YEARS
2010	85.6	77.2	86.9
2011	92.3	87.5	89.3
2012	85.7	78.4	77.5
2013	88.3	88.0	90.2
2014	86.3	87.4	92.4
2015	88.0	86.7	87.5
2016	84.3	87.1	87.8
2017	90.8	82.9	86.8
2018	90.9	83.5	86.9
2019	91.6	84.7	81.5
2020	88.8	81.7	85.3
2021	82.0	74.6	82.7

Table 25 Proportion of children under 6 years fully immunised by NT region, 2010–2021 (Figure 22)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2010	82.1	90.5	87.7	80.9	81.6
2011	83.4	95.6	90.8	87.9	86.7
2012	70.2	91.0	88.1	71.9	69.0
2013	86.3	95.1	90.7	93.1	85.0
2014	83.4	94.8	91.8	94.3	88.7
2015	81.7	92.2	86.9	95.0	83.6
2016	78.0	96.1	90.4	94.6	80.0
2017	84.6	93.0	88.7	90.8	80.0
2018	83.0	96.4	90.7	93.1	77.1
2019	87.5	93.3	86.7	93.4	70.8
2020	84.1	91.8	91.0	94.5	74.2
2021	77.0	91.4	81.4	91.3	73.1

KPI 1.4.2 TIMELINESS OF INFANT IMMUNISATIONS

Table 26 Number of children aged 1–11 months (2013–2017), 6-11 months (2018–2020) and proportion who received timely immunisation, 2013–2020 (Figure 23)

YEAR	NUMBER OF CHILDREN	% RECEIVED TIMELY VACCINATION
2013	1,063	80.3
2014	1,116	81.0
2015	1,084	81.5
2016	1,123	80.7
2017	1,063	76.2
2018	703	77.5
2019	654	80.7
2020	645	75.2

Table 27 Proportion of children aged 1–11 months (2013–2017) and 6-11 months (2018–2020) who received timely immunisation by NT region, 2013–2020 (Figure 24)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2013	61.8	91.8	75.8	91.7	77.6
2014	70.0	90.2	77.6	82.3	82.0
2015	68.4	86.9	77.5	89.0	82.5
2016	57.0	90.9	77.6	85.1	82.9
2017	70.5	86.1	77.3	74.1	73.0
2018	74.6	94.5	74.1	73.4	73.5
2019	80.0	90.2	78.8	90.3	74.7
2020	67.3	85.3	73.4	83.5	69.3

KPI 1.5 UNDERWEIGHT CHILDREN

Table 28 Proportion of children under 5 years who had weight measured and proportion underweight, 2010–2021* (Figure 25)

YEAR	% WEIGHT MEASUREMENT RECORDED	% OF CHILDREN WEIGHED WHO WERE UNDERWEIGHT
2010	86.3	4.4
2011	81.9	4.1
2012	86.1	4.7
2013	86.8	4.4
2014	89.5	4.1
2015	87.5	4.4
2016	89.5	4.3
2017	89.3	4.3
2018	87.6	4.2
2019	90.1	3.5
2020	87.3	3.5
2021	87.0	3.7

*Note: Data for East Arnhem, 2010 and Top End & Darwin, 2010-2012 excluded due to data incongruity

Table 29 Proportion of children under 5 years who had a weight measurement by NT region, 2010–2021 (Figure 26)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2010	82.1	92.1	83.4	80.7	74.8
2011	65.4	89.7	82.9	80.3	73.8
2012	80.6	92.8	86.1	82.7	79.0
2013	84.0	92.9	86.9	91.9	82.0
2014	89.1	93.8	88.4	91.7	87.4
2015	85.7	91.8	87.3	93.8	83.5
2016	86.6	96.8	89.0	93.7	85.6
2017	90.8	89.3	88.5	92.6	88.1
2018	85.4	86.0	88.5	94.0	85.5
2019	88.8	95.9	91.5	94.5	85.3
2020	86.5	92.4	88.1	92.6	82.5
2021	80.6	90.4	89.0	92.5	82.9

Table 30 Proportion of underweight children (< 5 years old) with weight measurements by NT region, 2010–2021* (Figure 27)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2010	2.9	6.3	3.5	*	*
2011	3.2	5.2	2.3	6.7	*
2012	3.7	5.6	2.9	7.2	*
2013	2.8	5.6	2.2	7.0	4.6
2014	3.2	4.5	2.7	6.3	4.3
2015	3.0	5.1	2.5	6.7	4.9
2016	3.4	3.7	2.3	8.5	4.5
2017	2.2	4.7	2.1	8.0	4.6
2018	1.3	4.7	2.5	7.7	4.4
2019	1.5	5.0	1.6	6.5	3.5
2020	2.1	4.2	2.1	5.5	3.7
2021	1.5	3.8	2.7	7.1	3.4

Note: *Data for East Arnhem, 2010 and Top End & Darwin, 2010-2012 excluded due to data incongruity

Table 31 Proportion of children under 5 years who had weight measured and proportion of underweight by health service size, 2013–2021* (Figure 28)

YEAR	SERVICES ≤ 1,000 % UNDERWEIGHT	SERVICES ≤ 1,000 % WEIGHT MEASUREMENTS	SERVICES > 1,000 % UNDERWEIGHT	SERVICES > 1,000 % WEIGHT MEASUREMENT
2013	3.4	93.5	5.1	82.4
2014	3.5	94.0	4.6	86.7
2015	3.5	94.4	5.1	83.1
2016	2.9	94.5	5.2	86.4
2017	2.9	93.9	5.1	86.7
2018	3.4	94.0	4.7	84.1
2019	3.0	94.6	3.8	87.5
2020	2.6	93.4	4.1	83.8
2021	3.4	92.0	3.9	84.2

Note: *2010 to 2012 data omitted as likely inaccurate underweight %

KPI 1.6 ANAEMIC CHILDREN

Table 32. Proportion of children 6 months to under 5 years who had haemoglobin (Hb) testing and results of most recent test, 2010–2021 (Figure 29)

YEAR	% OF CHILDREN		
	NOT TESTED	NORMAL HB RESULT	ANAEMIC
2010	40.3	44.1	15.6
2011	38.5	47.0	14.5
2012	29.2	51.3	19.5
2013	27.4	55.1	17.5
2014	22.7	60.4	16.9
2015	23.5	62.0	14.4
2016	24.4	62.2	13.4
2017	24.1	62.4	13.5
2018	25.5	62.4	12.0
2019	24.1	64.3	11.5
2020	29.6	59.7	10.7
2021	34.3	56.3	9.4

Table 33. Proportion of children 6 months to under 5 years tested for anaemia who were anaemic on the most recent test (2010–2021) and anaemic at any time during year (2018–2021)* (Figure 30)

YEAR	ANAEMIC ON MOST RECENT TEST	ANAEMIC ON ANY TEST PERFORMED IN THE YEAR
2010	26.2	
2011	23.5	
2012	27.5	
2013	24.1	
2014	21.9	*
2015	18.9	
2016	17.7	
2017	17.8	
2018	16.2	36.9
2019	15.2	36.2
2020	15.2	31.9
2021	14.3	27.3

Table 34 Proportion of children tested who were anaemic on the most recent test by age group, 2010-2021* (Figure 31)

YEAR	% ANAEMIC			
	6 MONTHS TO 4 YEARS	6 TO 11 MONTHS OLD	1 YEAR OLD	2 TO 4 YEARS OLD
2010	26.2	*	*	*
2011	23.5			
2012	27.5			
2013	24.1			
2014	21.9			
2015	18.9	27.6	29.4	14.5
2016	17.7	30.6	27.6	12.9
2017	17.8	29.6	25.9	13.7
2018	16.2	26.5	25.5	12.2
2019	15.2	22.8	25.7	10.9
2020	15.2	21.9	23.1	11.9
2021	14.3	16.3	22.1	11.5

Table 35 Proportion of children who were anaemic on the most recent test by NT region, 2010 -2021 (Figure 32)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2010	36.2	24.2	26.2	30.7	21.7
2011	32.3	19.2	23.3	35.3	20.2
2012	39.6	26.8	28.2	26.9	24.2
2013	36.1	24.2	24.1	23.2	21.2
2014	32.3	26.3	22.4	18.8	17.8
2015	30.1	16.8	18.5	16.6	18.6
2016	21.0	19.7	18.0	13.6	17.5
2017	25.0	24.2	15.4	17.9	14.6
2018	28.7	20.2	13.8	16.1	13.1
2019	20.6	18.8	13.7	17.2	12.5
2020	22.7	17.7	18.4	12.1	11.0
2021	26.1	19.0	17.1	8.8	9.7

KPI 1.20 EAR DISEASE IN CHILDREN

Table 36 Number of children aged 3 months to 5 years and proportion examined for ear discharge, 2017–2021 (Figure 33)

YEAR	NUMBER OF CHILDREN	% EXAMINED FOR EAR DISEASE
2017	7,539	74.6
2018	7,499	76.2
2019	7,259	78.2
2020	7,089	74.0
2021	7,122	71.9

Table 37 Proportion of examined children aged 3 months to 5 years with ear discharge at any time during the year and on most recent examination, 2017–2021 (Figure 34)

YEAR	% EAR DISEASE OBSERVED AT ANY EXAM IN THE YEAR	% EAR DISEASE ON MOST RECENT EXAM
2017	21.2	9.3
2018	18.8	8.4
2019	18.6	7.6
2020	15.7	6.9
2021	14.5	6.8

Table 38 Proportion of children examined (a) for ear disease and (b) with evidence of ear discharge at any time in the year by age group, 2017–2021 (Figure 35)

A) EXAMINED FOR EAR DISEASE			
YEAR	3 TO 11 MONTHS	1-2 YEARS	3-5 YEARS
2017	68.8	82.5	70.6
2018	72.5	80.6	74.2
2019	71.6	83.9	76.1
2020	70.8	79.7	71.1
2021	61.2	78.6	70.1

B) EVIDENCE OF EAR DISEASE			
YEAR	3 TO 11 MONTHS	1-2 YEARS	3-5 YEARS
2017	14.6	23.4	21.1
2018	11.1	20.8	19.2
2019	9.4	21.5	18.5
2020	5.8	18	16.5
2021	9.8	16.7	13.9

Table 39 Proportion of children aged 3 months to 5 years examined with ear discharge, 2017–2021 (Figure 36)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2017	14.4	14.0	20.9	14.4	29.5
2018	17.1	15.0	17.7	12.8	24.5
2019	14.4	14.2	20.3	13.8	22.1
2020	15.7	12.9	16.5	14.1	17.2
2021	11.9	14.6	18.7	12.9	12.4

KPI 1.10 HEALTH CHECKS

Table 40 Proportion of adult clients who had a health check by age group, 2010–2021 (Figure 37)

YEAR	15-24 YEARS	25-44 YEARS	45-54 YEARS	55-64 YEARS	65+ YEARS	TOTAL
2010	12.6	17.4	23.8	20.8	21.6	**17.4**
2011	12.3	16.9	21.7	26.7	27.0	**17.7**
2012	14.0	20.1	25.8	31.5	33.4	**21.0**
2013	26.6	36.7	44.2	53.8	55.6	**37.3**
2014	39.9	51.7	61.8	70.7	72.7	**52.6**
2015	38.2	48.9	57.2	65.2	69.7	**49.7**
2016	44.8	54.8	63.9	70.9	72.5	**55.8**
2017	47.5	55.6	65.0	69.8	71.6	**57.0**
2018	47.2	55.1	63.3		*	
2019	50.6	57.7	66.3	71.7	74.2	**59.4**
2020	48.5	55.4	63.9	70.5	74.1	**57.5**
2021	43.2	49.7	59.1	67.1	70.6	**52.5**

Table 41 Proportion of children who had a health check by age group, 2019–2021 (Figure 38)

YEAR	0-4 YEARS	5-14 YEARS	TOTAL
2019	57.8	43.2	**47.7**
2020	53.0	39.8	**43.9**
2021	48.6	35.2	**39.3**

Table 42 Proportion of clients aged 15 to 54 years who had an adult health check by NT region, 2010–2021 (Figure 39)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN	TOTAL
2010	15.8	31.4	23.6	8.4	9.6	**16.9**
2011	8.7	36.6	23.9	9.2	8.3	**16.2**
2012	11.2	44.6	23.9	14.5	9.9	**19.1**
2013	36.6	57.2	42.1	34.5	20.2	**34.7**
2014	53.4	56.0	54.4	45.0	44.2	**49.6**
2015	48.0	54.9	52.7	44.3	40.1	**47.0**
2016	53.3	56.8	53.1	49.3	53.7	**53.2**
2017	62.8	48.7	58.5	45.8	57.5	**54.7**
2018	64.8	46.5	60.9	46.2	54.4	**54.1**
2019	62.1	54.1	62.0	47.2	58.4	**57.1**
2020	56.0	53.4	57.7	51.6	54.6	**54.9**
2021	46.9	49.3	49.4	50.2	49.7	**49.5**

Table 43 Proportion of resident clients aged 55 years and above who had an adult health check by NT region, 2010–2021 (Figure 40)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN	TOTAL
2010	13.6	37.0	25.0	9.8	17.5	**16.9**
2011	10.3	54.6	31.7	13.9	22.9	**16.2**
2012	21.1	56.6	34.4	25.3	26.6	**19.1**
2013	61.9	78.7	55.5	53.4	43.1	**34.7**
2014	78.5	81.2	72.5	68.9	65.8	**49.6**
2015	74.6	70.7	70.9	67.0	60.2	**47.0**
2016	76.3	74.9	71.1	75.6	68.1	**53.2**
2017	81.5	63.6	72.7	69.0	69.9	**54.7**
2018	*					
2019	80.0	67.6	75.1	71.7	71.5	**57.1**
2020	75.0	70.2	74.6	73.5	69.0	**54.9**
2021	72.5	67.0	67.3	73.4	67.3	**49.5**

Note: *KPI 1.11 Merged into KPI 1.10 on 10/05/2019, 2018 data quality is not publishable.

Table 44. Proportion of clients aged 15 to 54 years who had an adult health check by health service size, 2010–2021 (Figure 41)

YEAR	HEALTH SERVICE SIZE (CLIENTS)			
	0-250	251-500	501-1,000	>1,000
2010	7.2	19.0	19.5	17.0
2011	14.7	22.8	20.2	13.8
2012	15.7	27.9	26.9	15.5
2013	35.7	44.2	47.9	29.5
2014	73.5	68.1	64.0	40.5
2015	69.6	60.8	58.1	39.8
2016	72.4	71.9	60.1	47.0
2017	72.7	70.9	60.6	49.6
2018	68.2	73.7	58.1	49.3
2019	70.9	76.3	58.2	53.1
2020	73.4	73.4	55.7	50.7
2021	62.9	69.1	53.0	45.0

Table 45. Proportion of clients aged 55 year and over who had an adult health check by health service size, 2010–2021 (Figure 42)

YEAR	0-250	251-500	501-1000	>1,000
2010	7.3	17.3	21.8	23.7
2011	13.6	28.9	27.4	27.8
2012	15.4	32.9	36.5	32.6
2013	33.0	51.2	61.2	55.3
2014	85.9	84.3	84.7	64.6
2015	82.9	76.4	76.4	61.7
2016	84.9	86.6	82.7	65.5
2017	85.3	87.8	81.3	64.4
2018	*			
2019	87.4	88.8	77.6	68.2
2020	89.3	88.7	78.0	66.9
2021	82.5	87.2	75.4	63.6

Note: *KPI 1.11 Merged into KPI 1.10 on 10/05/2019, 2018 data quality is not publishable.

Table 46 Proportion of clients aged 15 to 54 years who had an adult health check by gender, 2010–2021 (Figure 43)

YEAR	MALES %	FEMALES %
2010	16.5	17.2
2011	15.7	16.6
2012	18.1	20.0
2013	33.8	35.6
2014	47.5	51.5
2015	45.0	48.7
2016	51.1	55.1
2017	52.4	56.8
2018	51.7	56.2
2019	54.3	59.5
2020	51.6	57.7
2021	45.9	52.6

KPI 1.12 CERVICAL SCREENING

Table 47 Proportion of women receiving 2, 3 and 5 year screened for cervical cancer, 2010 –2021 (Figure 44)

<table>
<tr><th>YEAR</th><th>TESTED IN PRECEDING 2 YEARS</th><th>TESTED IN PRECEDING 3 YEARS</th><th>TESTED IN PRECEDING 5 YEARS</th></tr>
<tr><td>2011</td><td>38.1</td><td rowspan="2">*</td><td rowspan="4">*</td></tr>
<tr><td>2012</td><td>42.4</td></tr>
<tr><td>2013</td><td>45.9</td><td>55.9</td></tr>
<tr><td>2014</td><td>46.1</td><td>57.5</td></tr>
<tr><td>2015</td><td>46.7</td><td>57.9</td><td>66.4</td></tr>
<tr><td>2016</td><td>46.8</td><td>57.2</td><td>66.9</td></tr>
<tr><td>2017</td><td>42.7</td><td>54.5</td><td>66.2</td></tr>
<tr><td>2018</td><td colspan="2" rowspan="5">*</td><td>64.1</td></tr>
<tr><td>2019</td><td>65.4</td></tr>
<tr><td>2020</td><td>66.4</td></tr>
<tr><td>2020</td><td>65.0</td></tr>
<tr><td>2021</td><td>57.3</td></tr>
</table>

Note: *Data not reported for this period

Table 48 Proportion of women receiving cervical screening in accordance with guidelines (2 yearly 2011–2017; 5 yearly 2018–2021) by age group (Figure 45)

YEAR	SCREENED IN PRECEDING NO. OF YEARS	20 TO 34 YEARS	25 TO 34 YEARS	35 TO 49 YEARS	50 TO 79 YEARS
2011	2	38.7		39.1	35.1
2012	2	43.8		42.6	39.1
2013	2	46.9		46.5	42.7
2014	2	46.5	*	47.9	42.3
2015	2	47.2		48.4	43.2
2016	2	47.0		48.2	44.3
2017	2	42.5		45.1	39.6
2018	5		66.9	67.3	61.1
2019	5	*	66.9	68.5	63.0
2020	5		63.7	68.0	62.8
2021	5		54.5	61.1	55.8

Table 49 Proportion of women receiving cervical screening in accordance with guidelines (yearly 2011–2017; 5 yearly 2018–2021) by health service size (Figure 46)

PERIOD ENDING	SCREENED IN PRECEDING NO. OF YEARS	HEALTH SERVICE SIZE (NUMBER OF RESIDENTS)			
		0-250	251-500	501-1,000	>1,000
2011	2	39.1	51.1	38.2	35.6
2012	2	44.5	59.5	45.9	38.3
2013	2	59.7	61.7	51.3	40.7
2014	2	65.2	58.8	50.0	41.2
2015	2	64.4	58.2	49.9	42.5
2016	2	57.1	58.2	52.1	42.7
2017	2	51.6	54.3	45.6	39.6
2018	5	79.6	82.5	72.8	60.0
2019	5	80.0	83.0	75.0	61.0
2020	5	75.7	83.8	72.0	59.9
2021	5	68.2	77.0	64.7	52.2

KPI 1.6 TOBACCO USE

Table 50 Proportion of clients with smoking status recorded by gender, 2016–2021 (Figure 47)

YEAR	MALE %	FEMALE %	TOTAL %
2016	61.9	69.2	65.8
2017	62.6	69.7	66.4
2018	62.9	70.2	66.8
2019	65.3	73.1	69.5
2020	63.2	71.7	67.7
2021	58.4	67.2	63.1

Table 51 Smoking status (proportions) of clients, 2015–2021 (Figure 48)

YEAR	CURRENT SMOKER %	EX-SMOKER < 12 MONTHS %	EX-SMOKER > 12 MONTHS %	NON-SMOKER %
2015	55.3	4.9	6.6	33.3
2016	55.0	5.5	6.4	33.1
2017	54.8	5.5	6.6	33.1
2018	55.1	5.3	6.9	32.7
2019	54.6	5.6	6.6	33.2
2020	53.9	5.6	6.8	33.7
2021	53.5	5.6	6.8	34.2

Table 52 Proportion of clients with a recorded smoking status who are current smokers by gender, 2015–2021 (Figure 49)

YEAR	MALE %	FEMALE %
2015	63.4	48.8
2016	62.9	48.8
2017	62.4	48.9
2018	62.5	49.3
2019	61.8	49.0
2020	60.8	48.8
2021	60.3	48.4

Table 53 Current smoking prevalence by age group, 2015–2021 (Figure 50)

YEAR	15 TO 24 YEARS	25 TO 44 YEARS	25 TO 44 YEARS	> 64 YEARS
2015	51.6	63.0	49.4	29.0
2016	52.2	62.9	49.8	29.1
2017	51.5	63.6	51.2	27.8
2018	50.6	63.4	51.5	28.7
2019	50.0	63.9	51.3	27.8
2020	48.8	63.3	51.3	29.2
2021	48.8	62.7	51.2	29.0

Table 54 Current smoking prevalence by region, 2015-2021 (Figure 51)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2015	49.8	59.7	45.2	62.9	59.0
2016	50.9	59.4	43.6	63.6	58.3
2017	49.2	58.7	44.1	64.1	58.2
2018	49.3	60.9	45.4	63.7	57.1
2019	50.4	61.2	44.6	63.9	55.7
2020	50.5	58.8	44.4	64.8	54.6
2021	49.6	56.8	43.7	64.2	54.5

KPI 1.7 CHRONIC DISEASE GENERAL PRACTITIONER MANAGEMENT PLAN (GPMP) AND TEAM CARE ARRANGEMENT (TCA)

Table 55 Number of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a current General Practitioner Management Plan (GPMP), 2011–2021 (Figure 52)

YEAR	TYPE 2 DIABETES	CHD	TYPE 2 DIABETES AND CHD
2011	3,684	1,090	633
2012	8,235	2,571	1,507
2013	8,874	2,828	1,528
2014	9,835	3,277	1,773
2015	10,430	3,447	1,883
2016	11,198	3,711	2,082
2017	12,133	3,982	2,252
2018	12,715	4,139	2,357
2019	12,882	4,217	2,346
2020	12,561	4,129	2,296
2021	12,691	4,215	2,382

Table 56 Proportion of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a General Practitioner Management Plan (GPMP), 2011–2021 (Figure 53)

YEAR	% OF CLIENTS WITH GPMP		
	TYPE 2 DIABETES	CHD	TYPE 2 DIABETES AND CHD
2011	56.5	56.4	65.5
2012	59.8	60.5	68.9
2013	63.0	63.2	72.0
2014	64.8	65.8	74.1
2015	64.0	65.7	72.4
2016	66.4	67.2	75.1
2017	69.3	67.8	76.1
2018	70.2	67.6	75.9
2019	68.6	65.7	73.5
2020	64.2	62.4	68.4
2021	61.9	61.5	66.9

Table 57 Proportion of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a General Practitioner Management Plan (GPMP) by NT region, 2011–2021 (Figure 54)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2011	72.9	72.4	56.0	60.7	63.0
2012	56.5	76.0	62.1	51.1	67.6
2013	63.5	78.9	64.5	63.3	68.9
2014	69.7	77.6	64.3	64.5	71.7
2015	65.9	75.0	60.9	65.8	71.0
2016	68.5	72.5	64.4	70.3	72.5
2017	76.8	70.2	69.9	67.9	73.3
2018	77.0	71.0	75.5	63.7	71.7
2019	69.4	69.4	76.6	69.1	68.7
2020	63.3	69.2	75.3	75.1	66.8
2021	52.1	68.2	71.3	69.8	66.7

Table 58 Number of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a Team Care Arrangement (TCA), 2011–2021 (Figure 55)

YEAR	TYPE 2 DIABETES	CHD	TYPE 2 DIABETES AND CHD
2011	2,856	867	516
2012	6,785	2,194	1,342
2013	7,762	2,474	1,406
2014	8,978	2,984	1,509
2015	9,760	3,180	1,633
2016	10,528	3,440	1,791
2017	11,556	3,746	1,993
2018	10,084	3,377	2,086
2019	12,489	4,037	2,128
2020	12,122	3,963	2,041
2021	12,254	4,015	2,110

Table 59 Proportion of clients diagnosed with type 2 diabetes and/or Coronary Heart disease (CHD) with a Team Care Arrangement (TCA), 2011¬–2021 (Figure 56)

YEAR	% OF CLIENTS WITH GPMP		
	TYPE 2 DIABETES	CHD	TYPE 2 DIABETES AND CHD
2011	43.8	44.9	53.4
2012	49.2	51.7	61.3
2013	55.1	55.3	66.2
2014	59.1	59.9	63.1
2015	59.9	60.6	62.8
2016	62.4	62.3	64.6
2017	66.0	63.8	67.3
2018	55.7	55.1	67.2
2019	66.5	62.9	66.7
2020	62.0	59.9	60.8
2021	59.7	58.6	59.2

Table 60 Proportion of clients with type 2 diabetes and/or Coronary Heart disease (CHD) with a Team Care Arrangement (TCA) by NT region, 2011–2021 (Figure 57)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2011	38.0	51.7	38.0	53.8	52.4
2012	35.7	57.6	47.8	47.8	59.1
2013	52.9	64.1	53.2	56.3	57.0
2014	60.1	65.2	58.1	56.2	61.0
2015	57.7	64.4	57.3	57.7	64.1
2016	58.2	61.2	59.8	65.5	66.4
2017	67.6	60.9	66.8	64.1	67.4
2018	53.9	61.0	62.9	52.6	51.2
2019	56.0	62.2	73.3	64.7	62.9
2020	50.6	56.4	69.6	66.1	59.7
2021	43.4	54.4	67.4	64.1	60.6

KPI 1.8 GLYCOSYLATED HAEMOGLOBIN (HBA1C) TESTING AND MEASUREMENTS

Table 61 Proportion of clients over 4 years* with type 2 diabetes who had a HbA1c measurement result recorded within the preceding 6 month period, 2010–2021 (Figure 58)

PERIOD OF TESTING	NUMBER OF CLIENTS TESTED	NUMBER OF CLIENTS NOT TESTED	% TESTED
Jun-2010	3,415	2,821	54.8
Dec-2010	3,712	2,881	56.3
Jun-2011	4,153	2,267	64.7
Dec-2011	3,966	2,638	60.1
Jun-2012	4,495	2,431	64.9
Dec-2012	4,680	2,228	67.7
Jun-2013	4,715	1,981	70.4
Dec-2013	4,750	2,186	68.5
Jun-2014	4,888	2,159	69.4
Dec-2014	4,913	2,365	67.5
Jun-2015	5,314	2,297	69.8
Dec-2015	5,254	2,559	67.2
Jun-2016	5,699	2,293	71.3
Dec-2016	5,602	2,522	69.0
Jun-2017	5,751	2,611	68.8
Dec-2017	5,807	2,733	68.0
Jun-2018	6,113	2,572	70.4
Dec-2018	5,863	3,090	65.5
Jun-2019	6,120	2,991	67.2
Dec-2019	6,074	3,098	66.2
Jun-2020	6,120	3,056	66.7
Dec-2020	6,185	3,419	64.4
Jun-2021	6,185	3,697	62.6
Dec-2021	5,861	4,319	57.6

Note:*Ages 5 to 14 years reporting introduced in May 2019

Table 62 Glycosylated haemoglobin (HbA1c) results for tested clients over 4 years old with type 2 diabetes, 12 month periods, 2013–2021 (Figure 59)

YEAR	% OF CLIENTS			
	≤ 7%	8%	9%	≥10%
2013	32.3	16.4	21.6	29.6
2014	35.2	16.6	20.6	27.6
2015	34.4	17.6	21.3	26.7
2016	37.4	16.4	21.3	25.0
2017	37.1	16.9	21.3	24.7
2018	37.2	16.8	21.8	24.1
2019	36.4	17.4	22.1	24.2
2020	30.8	17.0	21.7	30.5
2021	34.4	18.0	20.6	27.0

Table 63 Proportion of type 2 diabetic clients tested and proportion of clients tested with a normal result by age group, 2010–2021 (Figure 60)

YEAR	15 TO 24 YEARS		25 TO 44 YEARS		45 TO 64 YEARS		OVER 64 YEARS	
	% TESTED	% NORMAL RESULT	% TESTED	% NORMAL RESULT	% TESTED	% NORMAL RESULT	% TESTED	% NORMAL RESULT
2010	53.1		52.5		55.3		59.5	
2011	52.1		62.4		66.1		67.9	
2012	61.9		61.7		66.5		67.9	
2013	69.7	18.8	68.7	24.8	71.1	33.5	72.1	48.7
2014	64.5	17.0	66.0	28.3	71.1	36.1	71.9	51.3
2015	66.7	21.3	66.3	27.6	71.8	35.2	71.5	49.8
2016	67.2	26.1	69.5	30.0	72.3	37.5	72.7	54.7
2017	70.0	25.6	67.0	30.1	69.5	36.3	69.6	56.0
2018	69.7	24.9	70.0	28.5	70.9	37.8	69.6	56.1
2019	67.5	23.3	65.4	27.9	68.6	37.3	65.4	52.7
2020	65.2	25.6	65.2	22.7	66.9	30.4	68.8	46.4
2021	56.4	34.5	59.2	28.1	64.2	33.5	65.0	44.9

Table 64 Proportion of type 2 diabetic clients tested and proportion of residents tested with a normal result by health service size, 2010– 2021 (Figure 61)

YEAR	HEALTH SERVICE SIZE							
	% TESTED				% TESTED WITH A NORMAL RESULT			
	0-250	251-500	501-1,000	>1,000	0-250	251-500	501-1,000	>1,000
2010	56.5	64.3	57.8	53.5				
2011	72.1	73.1	63.7	52.8				
2012	78.2	76.0	72.4	62.3				
2013	83.7	80.7	73.4	61.7	25.8	32.7	26.0	36.1
2014	83.8	78.6	72.6	61.0	30.7	36.8	29.1	38.1
2015	79.8	79.0	73.3	61.0	29.9	35.8	29.4	36.7
2016	79.7	78.3	73.6	64.1	28.9	33.7	33.2	41.1
2017	77.5	78.2	73.9	63.0	30.1	34.3	34.3	39.7
2018	77.3	78.6	67.8	60.8	30.0	33.7	32.6	40.7
2019	80.2	80.2	70.8	60.6	26.8	35.6	31	39.7
2020	79.3	75.3	73.2	58.2	22.1	29.7	24.5	34.4
2021	69.2	72.0	61.8	52.6	27.3	36.2	28.3	36.9

KPI 1.9 ANGIOTENSIN-CONVERTING ENZYME (ACE) INHIBITORS

Table 65 Proportion of ACE inhibitor or ARB prescriptions in type 2 diabetic clients with elevated albumin levels, 2010–2021 (Figure 63)

YEAR	ACE	ARB	ACE OR ARB
2010	61.8	17.7	79.5
2011	*	*	*
2012			
2013	73.5	16.2	89.7
2014	76.2	15.4	91.6
2015	73.4	13.2	86.5
2016	73.2	11.8	85.0
2017	71.7	11.6	83.3
2018	72.3	10.5	82.8
2019	72.8	10.5	83.3
2020	71.5	10.5	82.0
2021	72.3	10.5	82.8

Note: *Data from 2011/12 is not reported due to data quality issues.

Table 66 Proportion of ACE inhibitor/ARB prescriptions in type 2 diabetic clients with elevated urine albumin levels by gender, 2010–2021 (Figure 64)

YEAR	MALE	FEMALE	TOTAL
2010	82.7	77.5	79.5
2011	*	*	*
2012			
2013	92.7	87.9	89.7
2014	93.3	90.6	91.6
2015	90.7	84.0	86.5
2016	87.9	83.2	85.0
2017	87.5	80.7	83.3
2018	86.2	80.7	82.8
2019	86.2	81.5	83.3
2020	86.4	79.1	82.0
2021	86.9	80.1	82.8

Note: *Data from 2011/12 is not reported due to data quality issues.

Table 67 Proportion of ACE inhibitor/ARB prescriptions in type 2 diabetic clients with elevated urine albumin levels by age group, 2010–2021 (Figure 65)

YEAR	15 TO 24 YEARS	25 TO 44 YEARS	45 TO 64 YEARS	OVER 64 YEARS
2010	35.2	70.3	85.5	90.5
2011	*	*	*	*
2012				
2013	49.4	76.6	97.8	98.5
2014	44.9	82.1	97.4	98.9
2015	40.8	76.5	92.3	94.7
2016	46.1	78.2	89.7	88.3
2017	45.2	73.9	88.6	88.8
2018	45.1	72.8	88.2	88.9
2019	46.7	75.2	88.0	89.5
2020	^	71.9	87.9	88.5
2021		69.3	89.6	88.8

Note: *Data from 2012/13 is not reported due to data quality issues. Age group 15-24 year, no data was reported in 2021 and 2022.

KPI 1.13 BLOOD PRESSURE (BP) CONTROL

Table 68 Number of type 2 diabetic client's aged 15 years and over and proportion who received a blood pressure measurement in the preceding 6 months by outcome, 2014–2021 (Figure 66)

TIME PERIOD ENDING	% NORMAL BP	% HIGH BP	% NOT TESTED	NUMBER REQUIRING TESTING
June 2014	38.1	44.8	17.1	7,050
Dec 2015	41.7	39.7	18.6	7,279
June 2015	40.1	41.6	18.3	7,691
Dec 2015	39.7	40.9	19.4	7,894
June 2016	39.0	42.7	18.3	8,075
Dec 2016	39.0	41.6	19.4	8,207
June 2017	38.4	42.8	18.9	8,443
Dec 2017	38.9	42.1	19.0	8,540
June 2018	36.5	45.0	18.5	8,685
Dec 2018	36.7	42.8	20.5	8,899
June 2019	35.5	44.4	20.0	9,071
Dec 2019	36.0	43.5	20.4	9,131
June 2020	33.5	45.5	21.0	9,261
Dec 2020	33.1	43.8	23.2	9,694
June 2021	30.8	44.6	24.6	9,824
Dec 2021	30.2	42.6	27.1	10,127

Table 69 Proportion of type 2 diabetic clients tested who had a normal BP measurement in preceding 6 months, by gender, 2014–2021 (Figure 67)

PERIOD ENDING	% MALES	% FEMALES	TOTAL %
Jun-2014	40.4	49.0	45.9
Dec-2015	46.1	54.0	51.2
Jun-2015	43.4	52.3	49.1
Dec-2015	42.9	52.8	49.3
Jun-2016	41.7	51.0	47.7
Dec-2016	43.3	51.2	48.4
Jun-2017	41.5	50.5	47.3
Dec-2017	41.7	51.5	48.0
Jun- 2018	39.3	47.9	44.8
Dec-2018	39.8	49.6	46.1
Jun-2019	38.0	48.0	44.4
Dec-2019	39.2	48.7	45.3
Jun-2020	35.8	46.0	42.3
Dec-2020	37.7	46.1	43.0
Jun-2021	34.8	44.2	40.9
Dec-2021	36.0	44.5	41.5

Table 70 Proportion of type 2 diabetic clients with normal BP measurement in preceding 6 months, by NT region, 2014–2021 (Figure 68)

TIME PERIOD ENDING	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
Jun-2014	40.6	42.7	46.0	55.3	45.6
Dec-2015	45.2	48.2	50.0	59.7	53.4
Jun-2015	43.9	42.2	48.9	56.2	52.0
Dec-2015	44.2	42.1	49.3	55.6	52.3
Jun-2016	37.4	39.5	48.6	53.1	52.5
Dec-2016	44.5	41.0	48.9	54.0	50.7
Jun-2017	39.7	38.9	47.5	54.7	50.9
Dec-2017	41.0	40.2	47.7	54.9	52.3
Jun- 2018	36.0	37.2	43.3	49.8	51.7
Dec-2018	43.0	39.3	44.1	53.0	50.5
Jun-2019	32.6	37.9	43.6	53.0	49.0
Dec-2019	40.2	39.7	42.9	53.5	49.4
Jun-2020	35.8	37.5	38.7	50.3	47.7
Dec-2020	34.6	38.3	42.1	52.5	44.8
Jun-2021	33.9	35.7	38.0	50.9	44.4
Dec-2021	34.9	37.2	38.9	50.1	44.7

KPI 1.14 CHRONIC KIDNEY DISEASE

Table 71 Proportion of clients aged over 30 years screened for kidney disease by outcome, 2015–2021 (Figure 69)

YEAR	INCOMPLETE TESTING (%)	NOT TESTED (%)	TESTED (%)
2015	14.2	27.4	58.4
2016	12.1	26.3	61.6
2017	10.9	25.3	63.8
2018	10.8	24.7	64.5
2019	12.1	23.6	64.4
2020	10.2	25.0	64.8
2021	11.4	28.6	59.9

Table 72 Chronic kidney disease risk for clients with a screening result, 2015–2021 (Figure 70)

YEAR	NORMAL (%)	MILD (%)	MODERATE (%)	HIGH (%)	SEVERE (%)	INCOMPLETE TESTING (%)
2015	37.9	23.1	12.4	2.7	4.4	14.4
2016	40.5	23.9	12.2	2.7	4.3	14.6
2017	42.6	23.7	12.1	2.6	4.5	15.8
2018	44.0	23.2	11.6	2.4	4.4	16.4
2019	44.3	22.3	10.9	2.6	4.0	19.6
2020	44.1	23.6	11.9	2.9	4.0	13.6
2021	42.6	22.8	11.8	2.9	3.9	16

Table 73 Chronic Kidney disease risk by age group, 2015–2021 (Figure 71)

YEAR	NORMAL RISK (%)			MILD/MODERATE RISK (%)			HIGH/SEVERE RISK (%)		
	31 TO 44 YEARS	45 TO 64 YEARS	> 64 YEARS	31 TO 44 YEARS	45 TO 64 YEARS	> 64 YEARS	31 TO 44 YEARS	45 TO 64 YEARS	> 64 YEARS
2015	43.2	35.4	25.0	29.7	40.2	40.8	3.3	8.8	16.5
2016	46.7	37.5	26.4	30.8	40.4	40.2	2.9	8.9	17.4
2017	50.1	38.5	27.5	30.4	40.1	40.4	2.9	8.9	17.9
2018	51.8	39.4	29.7	28.6	40.0	39.6	2.7	8.7	16.5
2019	51.9	40.1	29.7	27.5	37.9	38.0	2.4	8.5	16.8
2020	52.9	38.8	30.8	29.5	40.6	38.5	2.4	8.5	17.5
2021	50.4	38.7	29.0	28.2	39.5	39.0	2.4	8.5	16.7

Table 74 Proportion of normal and high/severe risk results for kidney disease screening by NT region, 2015–2021 (Figure 72)

YEAR	NORMAL RISK (%)				
	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2015	34.7	39.4	34.6	40.8	39.2
2016	35.7	40.2	37.2	42.9	43.1
2017	37.2	41.3	39.7	44.7	45.6
2018	38.5	44.7	43.5	45.8	44.4
2019	39.2	44.3	44.7	47.1	43.6
2020	35.5	45.2	43.3	45.4	45.1
2021	32.6	42.5	41.6	41.7	45.6
	MILD/MODERATE (%)				
	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2015	40.7	37.3	34.5	35.1	34.5
2016	39.9	36.3	35.1	35.9	35.9
2017	40.6	35.5	35.4	35.9	35.2
2018	39.3	34.6	34.1	37.1	33.6
2019	39.0	35.1	34.0	36	29.6
2020	39.7	36.0	34.8	37.3	34.3
2021	38.8	33.5	32.9	36.3	34.8
	HIGH/SEVERE RISK (%)				
	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2015	9.3	7.5	9.8	4.2	5.6
2016	10.5	7.2	9.8	4.4	5.3
2017	10.8	7.5	10.1	4.8	4.9
2018	10.6	7.1	9.6	4.1	4.8
2019	9.4	7.2	9.9	4.0	4.5
2020	9.9	7.0	9.9	4.5	4.8
2021	10.1	7.1	9.5	4.9	4.9

KPI 1.15 RHEUMATIC HEART DISEASE

Table 75 Number of clients prescribed benzylpenicillin G (BPG) overall and by NT region, 2014–2021 (Figure 73)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2014	68	157	193	246	377
2015	71	198	222	281	459
2016	82	186	258	327	528
2017	80	230	301	350	588
2018	101	262	351	384	686
2019	150	260	414	367	700
2020	142	291	449	406	723
2021	173	311	490	445	750

Table 76 Rheumatic heart disease secondary prophylaxis outcomes, 2014–2021* (Figure 74)

YEAR	80 TO 100% OF DOSES	50 TO 79% DOSES	0 TO 49% DOSES	0 TO 79% *
2014	40.3			59.7
2015	43.0	29.0	28.0	
2016	45.8	26.3	29.8	
2017	44.9	27.1	28.0	
2018	44.3	24.6	31.1	
2019	45.4	24.4	30.1	
2020	43.2	24.1	32.7	
2021	37.7	25.1	37.2	

Note: *Data not reported

Table 77 Number of benzathine benzylpenicillin G (BPG) prescriptions and percentage of ≥80% of doses administered by gender, 2014–2021 (Figure 75)

YEAR	MALES		FEMALES	
	NUMBER OF PRESCRIPTIONS	% RECEIVED ≥ 80% OF DOSES	NUMBER OF PRESCRIPTIONS	% RECEIVED ≥ 80% OF DOSES
2014	359	41.8	682	39.6
2015	455	39.8	776	44.8
2016	538	46.5	868	44.0
2017	601	43.4	948	45.8
2018	684	41.2	1,100	46.3
2019	716	43.9	1,175	46.4
2020	760	41.6	1,251	44.2
2021	850	36.0	1,318	38.7

Table 78 Proportion of clients who received ≥80% of prescribed benzathine benzylpenicillin G (BPG) doses by age group, 2014–2021 (Figure 76)

YEAR	< 15 YEARS	15 TO 24 YEARS	25 TO 44 YEARS	> 44 YEARS
2014	46.0	35.7	39.8	48.3
2015	43.3	41.4	42.4	51.0
2016	58.7	38.2	41.2	54.1
2017	58.0	38.7	39.8	58.0
2018	56.7	40.7	38.6	51.8
2019	56.3	40.3	42.2	51.6
2020	54.6	38.5	39.1	50.3
2021	49.9	30.1	35.2	48.3

Table 79 Proportion of clients who received ≥80% of prescribed benzathine benzylpenicillin G (BPG) doses by NT region, 2014– 2021 (Figure 77)

YEAR	TOP END & DARWIN (%)	EAST ARNHEM (%)	BIG RIVERS (%)	BARKLY (%)	CENTRAL AUSTRALIA (%)
2014	42.4	54.9	33.8	11.8	33.2
2015	49.5	50.2	39.9	8.5	34.2
2016	51.9	46.6	51.6	14.6	33.3
2017	48.5	42.9	57.4	21.3	36.9
2018	49.9	45.8	48.5	17.8	36.5
2019	47.6	46.0	48.8	27.3	45.7
2020	45.6	47.0	36.1	24.6	46.3
2021	42.9	41.6	30.9	12.7	39.2

KPI 1.18 CARDIOVASCULAR RISK ASSESSMENT

Table 80 Proportion of clients over 20 years with a cardiovascular risk assessment, 2016–2021 (Figure 78)

YEAR	20-34 YEARS	35-54 YEARS	55- 74 YEARS	> 75+ YEAR	ALL AGES
2016	34.5	43.9	53.4	50.2	41.4
2017	39.6	52.0	62.2	60.2	48.4
2018	38.5	50.4	57.2	56.4	46.5
2019	39.3	50.0	52.8	52.9	46.0
2020	41.4	52.6	54.2	51.2	48.3
2021	36.1	48.7	52.8	47.2	44.2

Table 81 Proportion of clients aged 20 years and over with a cardiovascular risk assessment recorded by NT region, 2016–2021 (Figure 79)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2016	21.8	36.7	39.4	25.1	56.8
2017	33.9	49.9	50.7	34.6	55.2
2018	39.8	53.3	50.9	35.9	45.9
2019	44.4	52.8	53.2	37.5	41.7
2020	44.6	53.8	56.0	45.9	41.9
2021	39.6	45.6	49.2	47.1	39.7

Table 82 Proportion of clients aged 20 years and over with a cardiovascular risk assessment by health service size, 2016–2021 (Figure 80)

YEAR	0-250	251-500	501-1,000	>1,000
2016	54.8	57.1	52.8	53.4
2017	56.3	56.7	54.6	52.4
2018	58.9	60.7	56.7	52.7
2019	58.0	61.5	55.3	54.1
2020	56.3	57.5	52.8	53.7
2021	54.0	53.2	52.7	52.0

Table 83 Proportion of clients aged 20 years and over with a cardiovascular risk assessment recorded by gender, 2016–2021 (Figure 81)

YEAR	MALES	FEMALES
2016	39.6	42.9
2017	46.4	50.2
2018	44.5	48.3
2019	43.5	48.2
2020	45.8	50.3
2021	41.8	46.3

Table 84 Category of cardiovascular disease (CVD) risk in assessed clients, 2016– 2021 (Figure 82)

YEAR	HIGH	MODERATE	LOW
2016	35.2	10.8	54.0
2017	35.8	10.4	53.7
2018	33.8	11.2	55.0
2019	33.1	11.3	55.6
2020	34.3	11.4	54.2
2021	36.3	11.3	52.4

Table 85 Proportion of high cardiovascular disease (CVD) risk in assessed clients by NT regions, 2016–2021 (Figure 83)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2016	42.3	39.4	41.1	30.8	31.2
2017	48.4	39.0	39.2	30.2	32.2
2018	41.8	35.3	36.0	30.5	31.0
2019	42.3	38.0	36.8	28.8	26.7
2020	45.2	38.8	38.7	31.7	26.7
2021	46.8	40.8	40.9	31.6	30.6

Table 86 Proportion of high cardiovascular disease (CVD) risk in assessed clients by gender, 2016–2021 (Figure 84)

YEARS	MALES	FEMALES
2016	36.3	34.4
2017	36.7	35.2
2018	35.0	32.9
2019	34.1	32.3
2020	36.0	33.0
2021	37.8	35.1

KPI 1.19 DIABETIC RETINOPATHY

Table 87 Proportion of retinal eye exams in diabetic clients by age group, 2016–2021 (Figure 85)

YEAR	0-14 YEARS	15-24 YEARS	25-44 YEARS	45-64 YEARS	65+ YEARS	ALL AGE
2016	14.1	19.5	24.2	34.0	30.6	29.9
2017	20.6	20.7	27.9	37.1	38.1	33.9
2018	18.5	18.0	26.4	37.7	36.6	33.5
2019	19.8	18.9	24.3	35.2	34.8	31.4
2020	18.1	16.1	22.6	33.1	36.1	29.7
2021	11.8	14.6	22.1	31.8	32.5	28.4

Table 88 Proportion of retinal eye exams in diabetic clients by NT region, 2016–2021 (Figure 86)

YEARS	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2016	11.6	49.3	32.0	28.9	24.0
2017	36.5	48.2	34.6	21.2	29.8
2018	40.6	42.3	35.4	35.2	24.0
2019	34.7	41.3	33.3	37.1	20.7
2020	37.1	37.3	28.8	41.3	20.4
2021	40.2	29.9	26.9	41.1	20.8

Table 89 Proportion of retinal eye exams in diabetic clients by health service size, 2016–2021 (Figure 87)

YEARS	0-250	251-500	501-1,000	>1,000
2016	31.0	36.7	29.3	28.7
2017	41.4	47.7	31.0	31.4
2018	38.7	46.5	27.9	32.4
2019	35.2	41.3	31.4	29.1
2020	40.2	39.7	31.8	26.1
2021	39.7	43.5	32.6	23.3

Table 90. Proportion of retinal eye exams in diabetic clients by gender, 2016–2021 (Figure 88)

YEARS	MALES	FEMALES
2016	27.7	31.3
2017	32.6	34.7
2018	32.3	34.2
2019	29.6	32.4
2020	29.0	30.2
2021	27.3	29.0

KPI 1.17 SEXUALLY TRANSMISSIBLE INFECTIONS

Table 91 Proportion of 15 to 34 year old residents receiving sexually transmissible infection testing, by type of test and year, 2015–2021 (Figure 89)

YEAR	NUMBER REQUIRING TESTING	CHLAMYDIA & GONORRHOEA (%)	HIV (%)	SYPHILIS (%)	ALL TESTS (%)
2015	21,933	44.8	*	*	
2016	22,918	49.0	27.0	33.9	25.6
2017	23,854	47.7	39.3	44.5	37.2
2018	24,501	49.2	40.2	46.0	38.1
2019	24,217	49.8	42.8	49.0	40.8
2020	23,947	47.9	42.1	45.9	40.2
2021	24,510	43.9	38.0	41.6	35.7

Table 92 Proportion of 15 to 34 year old clients who received testing for all sexually transmissible infections by gender, 2016–2021 (Figure 90)

YEAR	% TESTED	
	MALES	FEMALES
2016	30.9	36.6
2017	39.0	49.3
2018	40.4	51.0
2019	43.4	53.8
2020	39.9	51.0
2021	35.0	47.3

Table 93 Proportion of 15 to 34 year old clients who received testing for all sexually transmissible infections by age group, 2016–2021 (Figure 91)

YEARS	15 TO 19 YEARS (%)	20 TO 24 YEARS (%)	25 TO 29 YEARS (%)	30 TO 34 YEARS (%)
2016	23.1	26.8	26.5	26.5
2017	32.8	37.8	38.9	40.2
2018	33.3	39.4	39.5	41.0
2019	36.3	42.2	43.0	42.5
2020	34.4	41.9	42.5	43.0
2021	30.6	35.7	38.3	39.1

Table 94 Proportion of 15 to 34 year old residents who received testing for all sexually transmissible infections by NT region, 2016–2021 (Figure 92)

YEAR	BARKLY	BIG RIVERS	CENTRAL AUSTRALIA	EAST ARNHEM	TOP END & DARWIN
2016	13.9	20.1	32.1	25.4	25.3
2017	22.8	36.8	43.0	38.5	34.9
2018	23.7	32.5	43.3	39.7	38.9
2019	24.0	41.2	45.8	45.0	38.0
2020	30.7	38.6	42.4	49.9	36.3
2021	20.0	30.1	38.1	46.9	33.7

Table 95 Proportion of 15 to 34 year old residents who received testing for all sexually transmissible infections by health service size, 2016–2021 (Figure 93)

YEAR	0-250 (%)	251-500 (%)	501-1,000 (%)	>1,000 (%)
2016	45.5	38.9	24.4	22.2
2017	54.6	50.0	42.8	32.4
2018	52.7	55.2	42.6	33.2
2019	58.4	58.6	44.2	36.0
2020	57.6	54.1	46.1	35.3
2021	43.4	47.6	41.4	32.1

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