

# **TREATMENT DEMAND MODELLING FOR ALCOHOL AND OTHER DRUG TREATMENT IN THE ACT**

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## List of acronyms

ABS	Australian Bureau of Statistics
ACNC	Australian Charities and Not-for-Profits Commission
ADIS	Alcohol & Drug Information Service
AIHW	Australian Institute of Health and Welfare
AMC	Alexander Maconochie Centre
AOD	Alcohol and Other Drugs
AODTS-NMDS	Alcohol and Other Drug Treatment Services National Minimum Data Set
ATOD	Alcohol, Tobacco and Other Drugs
ATODA	Alcohol Tobacco and Other Drug Association ACT
BEACH	Bettering the Evaluation and Care of Health
CADAS	Court Alcohol and Drug Assessment Scheme
CAHMA	Canberra Alliance for Harm Minimisation and Advocacy
CBT	Cognitive Behavioural Therapy
CHN	Capital Health Network
DASL	Drug and Alcohol Sentencing List
DASPM	Drug and Alcohol Services Planning Model
DPMQ	dispensed price for maximum quantity
DRG	Diagnostic Related Group
FTE	Full-Time Equivalent
GBD	Global Burden of Disease
GP	General Practitioner
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10 <sup>th</sup> Revision, Australian Modification
NCMHCD	National Community Mental Health Care Database
NDSHS	National Drug Strategy Household Survey
NHMD	National Hospital Morbidity Data
NIAA	National Indigenous Australians Agency
NOPSAD	National Opioid Pharmacotherapy Statistics Annual Data collection
NRMCD	National Residential Mental Health Care Database
NRT	Nicotine Replacement Therapy
NSP	Needle Syringe Program
OMT	Opioid Maintenance Treatment
OSR	Online Service Report
PBS	Pharmaceutical Benefits Scheme
PHN	Primary Health Network (PHN)
SBI	Screening and Brief Intervention
SUSOS	Service Users' Satisfaction and Outcomes Survey

## 1. Introduction and project aims

Effective responses to the problems associated with alcohol, tobacco, and other drugs cover policy and interventions to reduce or constrain the supply of these substances; policies and interventions to prevent the uptake of substance use; and policies and interventions to reduce the harms associated with alcohol, tobacco, and drug use. This project concerns this last, demand and harm reduction pillar of the National Drug Strategy. The provision of harm reduction and treatment responses is a highly effective way to reduce the health burden of alcohol, tobacco, and other drugs. Treatment works and is associated with improvements across physical and psychological health and wellbeing. While we do not have recent Australian data, it is well recognised that for every \$1.00 invested in treatment, society saves approximately \$7.00 (Ettner et al, 2006).

The National Framework for Alcohol, Tobacco and other Drug Treatment aims to provide a nationally endorsed shared understanding, and common reference point for alcohol and other drug treatment funders, treatment providers and practitioners, and people who use substances and their families, friends, and significant others. The Framework facilitates strategic planning for the Australian treatment service system and provides the context for national and state treatment policies, programs, and processes. Treatment is defined as:

“Structured health interventions delivered to individuals (by themselves, with their families, and/or in groups) to reduce the harms from alcohol, tobacco, prescribed medications or other drugs and improve health, social and emotional wellbeing.”

Each jurisdiction has a role to play in ensuring effective treatment planning, treatment purchasing, and treatment resourcing. This project aims to improve the ACT’s ability to effectively plan, purchase, and resource alcohol and other drug (AOD) treatment in the ACT.

As noted in the National Framework: “Alcohol and other drug treatment should be carefully planned to meet population needs and occur in a coordinated and joined up way between, within and across funders and between government and non-government sectors, be undertaken in a timely and efficient manner, and engage treatment consumers in planning processes”. We hope this project contributes towards that overarching national goal.

This project aimed to model the projected total demand for AOD services in the ACT, and to compare that with current levels of service delivery in order to conduct a gap analysis.

## 2. Project methods - overview

The project entailed three components:

1. Modelling the total demand and resources to meet that treatment need in the ACT
2. Estimating the current amount of service delivery
3. Analysing the gap between total projected demand and met demand.

The work was undertaken in consultation with a group of stakeholders (see Appendix 1), who provided expert advice and support across all the components. A key aim of the project was to work with the stakeholder group, inclusive of NGO and government AOD service providers, ACT Health, the CHN and other stakeholders as required to ensure the work is informed by, and grounded in, their expertise.

The modelling work was undertaken using the Drug and Alcohol Services Model (DASPM). DASPM is a decision support tool. Its most recent iteration is 2020, undertaken by the Drug Policy Modelling

Program research team for Queensland Health. This version of the model was used to predict total demand for this project. Parameters in the model (such as the population base and the treatment rate) were modified to suit the ACT (as detailed below). A number of fixed features of DASPM could not be varied for this ACT project, including for example the types of treatment specified in the model.

Importantly, for the gap analysis (component 3), it is vital to compare like with like: ensuring that what is (or is not) included in the DASPM model is paralleled in the inclusions (or exclusions) from the current met demand. This required careful review of all the components of DASPM as well as the met demand analyses to ensure that the comparisons being made were valid.

The outputs from DASPM are:

- Number of people in receipt of treatment:
  - Intensive interventions
  - Screening and brief interventions <sup>1</sup>
- Clinical workforce requirements
- Beds
- Costs

These form the basis for the gap analysis.

This report proceeds as follows: the first section outlines the DASPM, the second met demand, and the third the gap analysis.

## 3. Modelling total demand

### 3.1 DASPM overview

DASPM is a population-based treatment planning tool, which starts with the general population of the ACT over the age of 10 years, regardless of AOD problem prevalence. The prevalence of drug dependence (by drug class) is then applied to the population to estimate the number of people who could receive intensive treatment. A separate set of calculations is used to derive the number of people 'at risk' of developing alcohol or drug use disorders, who then are slated to receive screening and brief interventions.

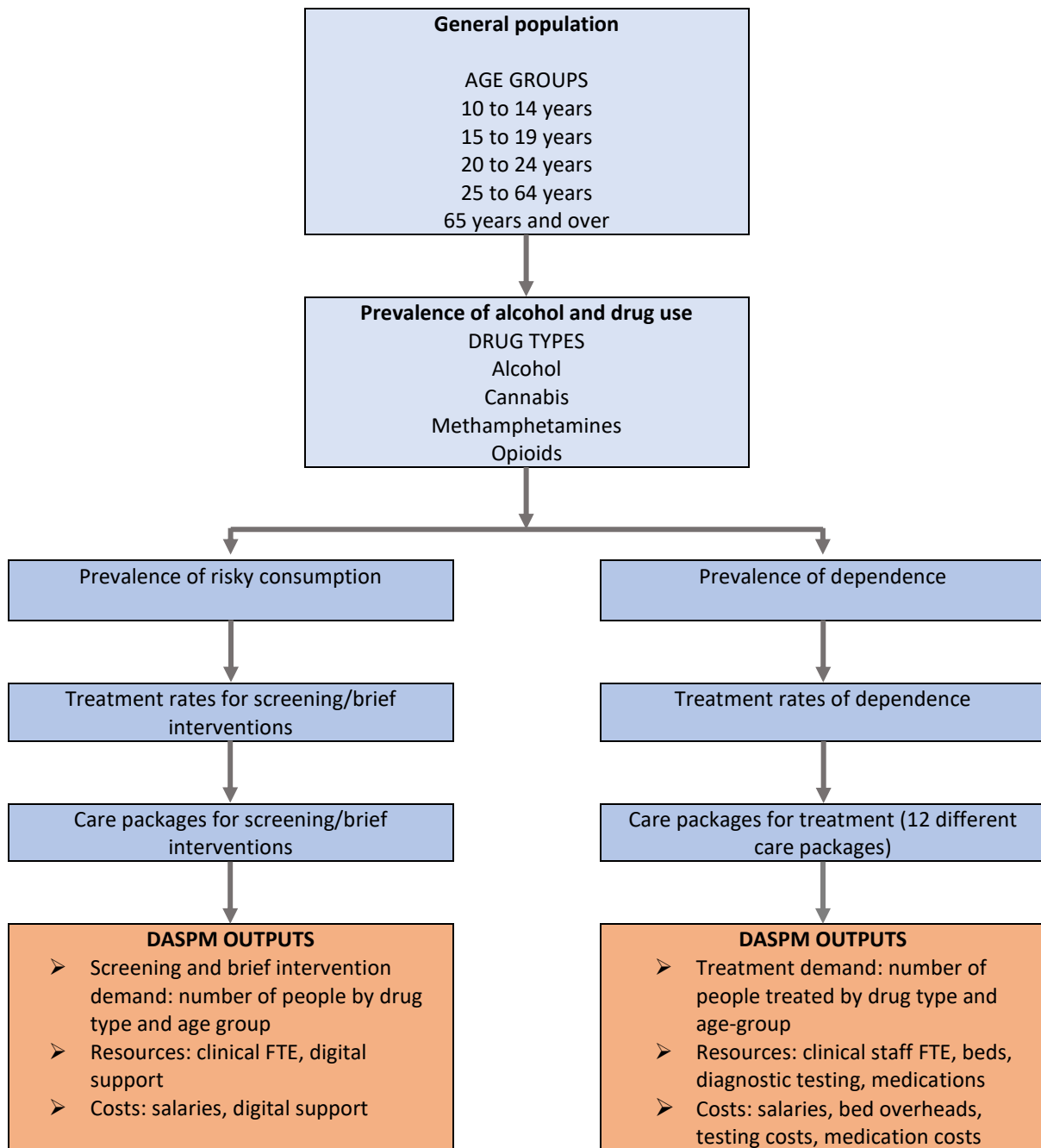
Of the total population who meet diagnostic criteria for dependence, only a proportion will receive treatment in any one year. The treatment rates reflect realistic estimates of the projected treatment demand volume. The treatment rates represent the number of people assigned to receive a care package in DASPM. The care packages describe treatment over the course of a one-year period, for the purposes of estimating resources. The level of care that is specified in a care package is deemed adequate; anything less is considered unsatisfactory. Care package allocations are also specified, detailing what proportion of the treatment population get allocated to which care packages. A range of expert reference groups were consulted when designing the care packages. The care packages represent evidence-based and/or expert judgement regarding the care required for one year.

Each care package specifies the types of services to be provided, and the workforce (staff hours) required to deliver that service. Various modelling is then carried out, which involves linking all the components of the model together to produce final treatment planning projections. Please see Figure 1 for an overview of DASPM.

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<sup>1</sup> See later in report, the met demand estimates for Screening and Brief intervention are difficult to obtain, and hence a gap analysis for Screening and Brief Intervention was not able to be undertaken.

Figure 1: Diagrammatic representation of DASPM



The DASPM model can be used to generate planning projections for the ACT. The model is organised around five age-groups and four drug types.

The age-groups in the model are:

- 10 to 14 years
- 15 to 19 years
- 20 to 24 years
- 25 to 64 years
- 65 years and over

Children under 10 years of age are not covered in the model.

Treatment for the following drug types are included in the model:

- Alcohol
- Cannabis
- Methamphetamine
- Opioids (inclusive of heroin and pharmaceutical opioid misuse)

The bulk of AOD treatment services are covered in the model, including:

- Screening and brief interventions
- Case management and care coordination (for every client)
- Psychosocial interventions (group and individual counselling, weekly over six weeks)
- Assertive street work and assertive community outreach (only applicable to 19 years and under in this current version of DASPM).
- Withdrawal management: inpatient, community residential, and outpatient (noting that all the withdrawal programs within DASPM include medications)
- Residential rehabilitation (two models: a six week CBT residential program, and a four month modified TC program)
- Day program (a non-residential rehabilitation program, 5 days a week over 5 weeks)
- Opioid Maintenance Treatment (OMT)
- Digitally assisted support services (as part of Screening and Brief Interventions)

Clinical care within DASPM is described in a series of “care packages”. These care packages are comprised of various clinical services over the course of year (they do not directly map to the current notion of ‘episodes of care’). There are 12 different care packages within DASPM:

1. Psychosocial interventions (outpatient)
2. Withdrawal (outpatient) + Psychosocial interventions (outpatient)
3. Withdrawal (community residential) + Psychosocial interventions (outpatient)
4. Withdrawal (inpatient hospital) + Psychosocial interventions (outpatient)
5. Withdrawal (outpatient) + Day program
6. Withdrawal (community residential) + Day Program
7. Withdrawal (community residential) + Residential Rehabilitation A
8. Withdrawal (community residential) + Residential Rehabilitation B
9. Withdrawal (inpatient hospital) + Residential Rehabilitation A
10. Withdrawal (inpatient hospital) + Residential Rehabilitation B
11. OMT
12. Opioid withdrawal + Psychosocial interventions (outpatient)

As seen in this list, care over the course of a year often includes withdrawal (across three possible settings: outpatient, community residential and inpatient) combined with some form of post-withdrawal treatment, whether that be outpatient psychosocial treatment, a day program or residential rehabilitation.<sup>2</sup> Not every care package applies to every drug (for example OMT care is reserved for opioid dependence), and not every care package is available to all age groups (for example residential rehabilitation is not allocated to people over the age of 65 in the current version of DASPM). Each care package is tailored to drug type and age groups.

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<sup>2</sup> As can be seen here, DASPM focusses on intensive treatments (as described in the National Framework for Alcohol, Tobacco and other Drug Treatment). This does not have strong alignment with First Nations approaches to AOD treatment, which centre country, culture, and the individual-family-community nexus and concentrate on social and emotional wellbeing rather than specialist AOD treatment types per se.

There are a number of service types and clinical activities that are not covered in the current version of DASPM. These include:

- Consultation liaison services
- Sobering up centres/services
- Childcare for children of people in residential treatment
- Drop-in services

Prevention programs are also not currently included within DASPM.

In this current version of DASPM, harm reduction resources for the population not in drug treatment are not included. Harm reduction services for those who are in treatment are covered in DASPM.<sup>3</sup> Naloxone is included in the model as part of the OMT care package (two scripts and doses per annum per client).

Needle syringe programs are not covered by the current version of DASPM. We have generated a separate analysis of syringe distribution (please see Appendix 2).

These various exclusions from DASPM should not be taken to suggest that all the above (including prevention programs, sobering up centres, Consultation Liaison, harm reduction services for people outside the treatment system etc) are not central parts of an effective system for responding to alcohol and drug-related harm in the ACT. It simply means that DASPM analyses cannot comment about the need for these or the gaps in the current system for these programs and services.

### 3.2 DASPM Limitations and constraints

This project was not resourced to modify the DASPM, thus the analyses herein pertain to the four drug classes covered by DASPM: alcohol, cannabis, methamphetamines, and opioids. Analysis of the ACT specialist treatment presentation data, as given in Table 1 shows that this covers 93.32% of treatment presentations.

*Table 1: ACT treatment presentations by drug type (2019/20)*

Drug type	Clients	Proportion	Cumulative proportion
Alcohol	1,626	41.24%	41.24%
Amphetamines	887	22.50%	63.74%
Opioids	652	16.53%	80.27%
Cannabis	515	13.05%	93.32%
Cocaine	103	2.62%	95.94%
Ecstasy (MDMA)	52	1.31%	97.25%
Nicotine	39	1.00%	98.25%
Benzodiazepines	39	0.98%	99.23%
Other	14	0.36%	99.59%
Other sedatives and hypnotics	6	0.15%	99.74%
Other stimulants & hallucinogens	5	0.13%	99.87%
Not stated	3	0.08%	99.95%
Volatile solvents	2	0.05%	100%
TOTAL	3,943	100.0%	

<sup>3</sup> This includes 12 x 10 minute brief harm reduction interventions, and for 20% of people in OMT, harm reduction related group counselling. These resources can be distributed flexibly.

This current version of DASPM does not include an independent treatment package for tobacco cessation (tobacco is not one of the four drug classes covered by DASPM). However, given the high proportion of people who attend AOD treatment who smoke, tobacco cessation interventions are built into all care packages across DASPM. This includes a brief intervention and nicotine replacement therapies and/or cessation medications. It is applied to 70% of all people who present for treatment (in 2018, 76.9% of clients of AOD services in the ACT reported smoking, ATODA 2020).

Alcohol and other drug treatment services provide many activities and services beyond providing treatment to an individual. DASPM focusses on the resources required for treatment of individuals (and treatment of their families when the individual is in treatment). It does not include providing advice and support to family members absent the person experiencing AOD problems. Nor does it cover community education and other activities that AOD services are engaged in. In that sense it is a tool to predict direct care clinical resources.

The DASPM predicts the resources required for AOD treatment, but not resources required for other services, including social welfare services (housing and employment services), and mental health services.

Further details, specific to the ACT are discussed in the following sections. The key DASPM input parameters entered in order to generate the predictions for the number of people and services to be received (by age and drug class) are:

- The population
- The prevalence of alcohol, cannabis, methamphetamine, and opioid dependence
- The prevalence of risky consumption for the four drugs covered by DASPM
- The treatment rate.

After considering each of these in the below sections, Section 3.7 then provides a summary of the way in which costs are calculated in the DASPM. Section 3.8 provides the results of the DASPM modelling.

### 3.3 Population of the ACT

Population projections covering 2016 to 2066 are used within DASPM. These are taken from the Australian Bureau of Statistics (ABS) population projections (Series B). Table 2 shows the population projections for the ACT by age-group, for the year periods 2021 to 2025.

*Table 2: ACT population projections 2021 to 2025 (ABS Series B) (see Note)*

Age (years)	2021	2022	2023	2024	2025
10 to 14	26,696	27,514	28,251	28,790	29,198
15 to 19	26,536	27,353	28,234	29,136	30,191
20 to 24	36,185	36,420	36,667	36,920	37,162
25 to 64	239,461	243,546	247,500	251,046	254,542
65 +	59,054	60,976	62,941	64,863	66,802
TOTAL	387,932	395,809	403,593	410,755	417,895

Note: Source for forward projected population is taken from Population Projections Australia, 2017-2066 (medium series, B): <https://www.abs.gov.au/statistics/people/population/population-projections-australia/latest-release>

The general population projections are based on assumptions of fertility, mortality, and migration, and are not specific to the ACT. Given the recent changes to migration, the ABS has yet to issue revised general population projections. For the purposes of this project, where we are not engaged

in forward projections, we concentrate on a single year (in this case using the 2021 ABS ACT population). While this only provides a single year analysis, the reality is that both drug use and population changes are relatively small all things being equal, and both move in the same direction (increases in population size are associated with proportional increases in the numbers of people requiring treatment). Therefore the findings should be applicable across the coming years as an indication of where the gaps might be for the ACT ATOD treatment service system.

### 3.4 Cross-border issues, and impacts on total population

DASPM takes the total population of the planning area, in this case the ACT. However, some residents of the ACT seek and receive treatment in NSW. We assume that for planning purposes, any ACT resident who is being treated in NSW should be planned to be treated in the ACT (that is, the absence of treatment availability in the ACT is a gap to be attended to in the modelling). For this reason we do not adjust down the starting population in DASPM.

Some NSW residents seek and receive treatment in the ACT. This largely reflects the fact that Canberra operates as a regional hub for AOD treatment for parts of the NSW. This can be seen clearly in the below Figure, taken from the ATODA Needs Assessment. As can be seen in Figure 2, the largest number of non-ACT residents receiving treatment in the ACT come from the surrounding regional areas. The DASPM modelling for the ACT therefore needs to take into account this role as a regional hub and needs to accommodate the population of non-ACT residents who may seek AOD treatment in the ACT.

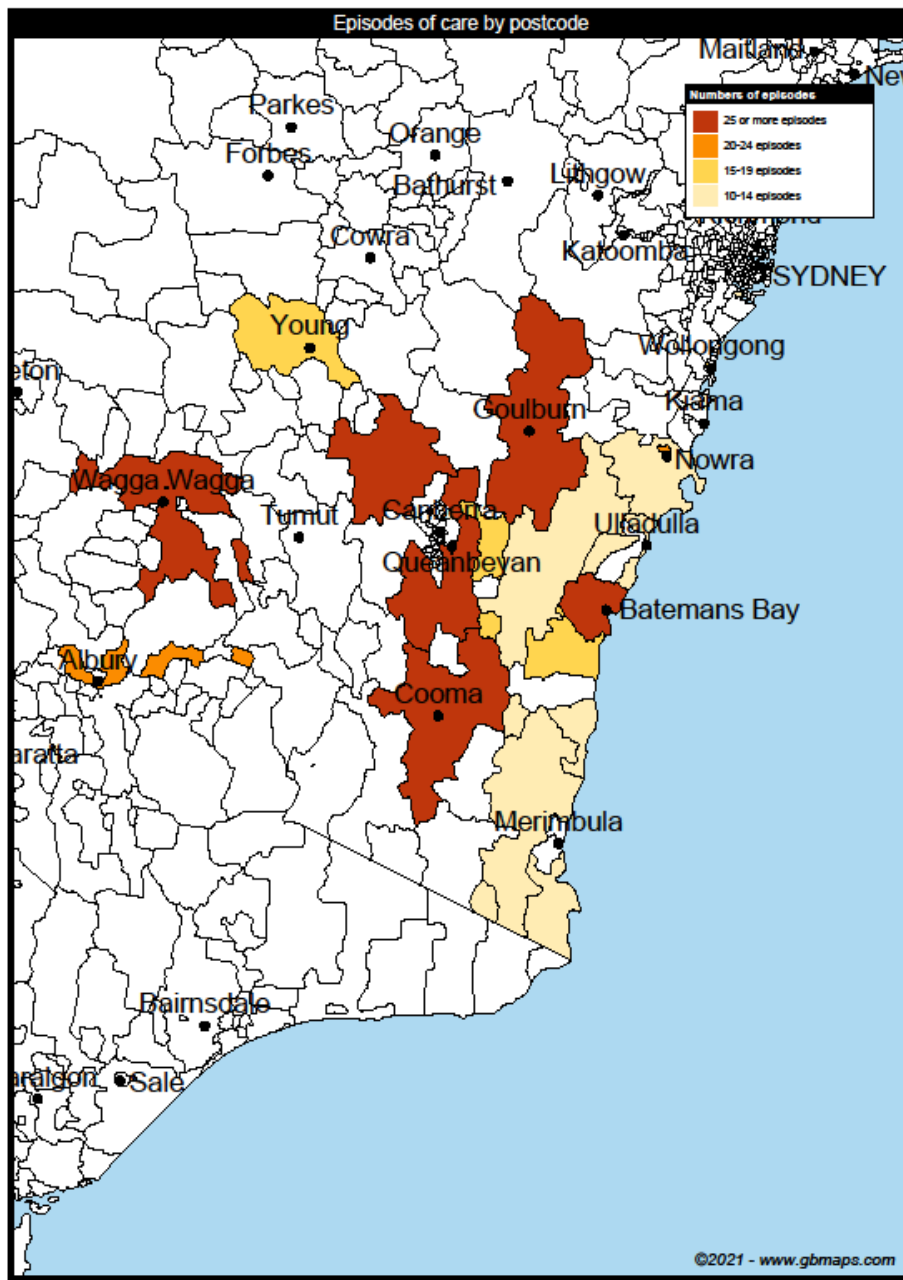
There were 1,170 episodes of care provided to non-ACT residents in 2019/2020.<sup>4</sup> This includes episodes for both intensive treatment (withdrawal, rehabilitation etc) and for Assessment Only and Education Information. We need to convert the number of episodes of care to unique people.<sup>5</sup> The 1,170 episodes of care represents 737 people. In an ideal world, the DASPM population for this planning exercise would therefore be the ACT plus the regional populations. However, to include the total regional population as the starting basis for the planning estimates would overinflate the projected demand (as there are NSW services that meet demand from this population). The most parsimonious solution is to add in the number of non-ACT residents receiving treatment (n=737) at the point of the model where the projected demand for treatment is established (see section 3.9). This is a conservative approach (effectively it assumes that projected demand equals current demand for non ACT residents).

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<sup>4</sup> For planning purposes, it is preferable to eliminate any COVID effects in the data. COVID started to impact on AOD service delivery from March 2020 (with disrupted and/or reduced service delivery). While this only therefore reflects slightly more than one quarter of the 2019/2020 databases, we have sought wherever possible to use 2018/2019 data, adjusted up to 2021. Here, however, we do not have 2018/2019 data on non-ACT residents receiving treatment in the ACT, so we rely on 2019/2020, noting that this may underestimate interstate demand.

<sup>5</sup> DASPM counts people, not episodes, so all episodes of care data need to be converted to unique individuals. The presence of unique identifiers in databases assists with this conversion. The AIHW also provide data on the ratio of episodes of care to unique individuals. We use the ACT ratio of EOC to individuals, which is an average of 1.588 episodes per person.

Figure 2: Map of ACT and surrounding NSW region showing postcodes with ten or more episodes (ACT, 2019-20) (Data source: ACT AODTS-MDS, 2019-20; Figure source: ATODA Needs Assessment)



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### 3.5 Prevalence of AOD dependence in the ACT

For intensive treatment, the relevant population is those who experience alcohol or other drug dependence.<sup>6</sup> DASPM uses the Global Burden of Disease (Vos et al., 2020) to determine the rates of alcohol and other dependence. These are national figures. Table 3 shows the Global Burden of Disease (GBD) rates for dependence, by drug class and age group.

*Table 3: AOD dependence rates estimated for Australia, GBD 2019 (by age group)*

Age (years)	Alcohol dependence	Cannabis dependence	Methamph dependence	Opioid dependence
10 to 14	0.14%	0.35%	0.00%	0.00%
15 to 19	1.36%	3.24%	0.48%	0.28%
20 to 24	3.37%	2.79%	2.21%	1.18%
25 to 29	3.49%	1.68%	2.40%	1.42%
30 to 34	3.34%	1.00%	1.45%	1.21%
35 to 39	3.60%	0.67%	0.83%	0.95%
40 to 44	3.65%	0.52%	0.48%	0.70%
45 to 49	3.03%	0.40%	0.26%	0.49%
50 to 54	2.38%	0.28%	0.14%	0.34%
55 to 59	2.02%	0.18%	0.08%	0.23%
60 to 64	1.72%	0.11%	0.05%	0.15%
65 to 69	1.45%	0.07%	0.04%	0.10%
70 to 74	1.23%	0.05%	0.03%	0.07%
75 to 79	1.12%	0.04%	0.02%	0.06%
80 +	1.19%	0.02%	0.02%	0.07%

When applied to the ACT population (2021 reference year), Table 4 provides the number of people estimated to be dependent on alcohol and other drugs in the ACT in 2021.

*Table 4: Numbers of people dependent on drugs in the ACT by age group (applying GBD rates to the ACT population)*

Age (years)	Alcohol	Cannabis	Methamphetamine	Opioids	Total
10 to 14	37	93	-	-	130
15 to 19	361	860	127	74	1,422
20 to 24	1,219	1,010	800	427	3,456
25 to 64	7,253	1,644	2,009	1,840	12,746
65 +	748	28	17	46	839
TOTAL	9,618	3,635	2,953	2,387	18,593

Is it reasonable to use the national Global Burden of Disease data on dependence rates for the ACT? There are no directly comparable ACT data sources for rates of alcohol or drug dependence, but we can use the National Drug Strategy Household Survey (NDSHS) to assess whether there are differences between national averages and ACT averages on measures of problematic consumption, to get a sense of whether using the national GBD rates is reasonable. Table 5 shows data from the

<sup>6</sup> Note that 'dependence' (as per DSM-5 or ICD-9) is distinguished from alcohol or drug abuse, and from risky consumption. These are dealt with under the SBI components of DASPM.

NDSHS and compares the national rates on a number of measures of problematic consumption<sup>7</sup> with the ACT-specific rates from the same survey.

*Table 5: Comparison of the ACT with national averages on key statistics in the National Drug Strategy Household Survey Data (2019)*

<b>Risky consumption definitions</b>	<b>ACT</b>	<b>National</b>
Alcohol: Single occasion risk: At least weekly risky drinking (> 4 standard Drinks on occasion)	11.4%	13.5%
Alcohol: Lifetime risk: more than 2 standard drinks per day	13.8%	16.8%
Cannabis: use in the past 12-months	10.5%	11.6%
Methamphetamine: use in the past 12-months	0.3%	1.3%
Opioids: Any opioid use in the past 12 months (includes heroin and pharmaceutical opioid use for non-medical purposes)	2.2%	2.8%
Tobacco: Daily tobacco smokers	8.2%	11.0%

As can be seen in the above table, it appears that the rates of AOD use in the ACT are generally lower than the national average. The Stakeholder Group noted that there may be under-reporting in the NDSHS survey responses by Canberrans given that the jurisdiction is small and highly policed, and this may be associated with a fear among some people to disclose drug use.

Wastewater data from the Australian Criminal Intelligence Commission suggest higher amounts of cannabis in wastewater from the ACT than other jurisdictions, and lower amounts of methamphetamine in ACT wastewater than other jurisdictions.<sup>8</sup> On the other hand, given that the ACT service system operates as a regional hub (see Figure 2), the regional NSW wastewater data suggest that the population being served by ACT services aligns reasonably well with the national averages from the GBD.

Neither the NDSHS nor the wastewater data can provide prevalence estimates of dependence for DASPM purposes. After discussion with the Stakeholder Group, the national GBD figures were retained, noting that the model results may project a slightly higher total potential treatment demand population than may be the case in reality. Sensitivity analyses were conducted, which involved increasing the prevalence of cannabis dependence, and decreasing the prevalence of methamphetamine dependence. See Appendix 3 for the revised prevalence estimates used in the sensitivity analyses. (The results are discussed in Section 3.9).

<sup>7</sup> Note: the NDSHS does not measure “dependence” (or any other diagnostic category), so these various measures are used only for comparability purposes between the ACT and the national averages.

<sup>8</sup> Wastewater data, as reported by the Australian Criminal Intelligence Commission (<https://www.acic.gov.au/sites/default/files/2021-10/National%20Wastewater%20Drug%20Monitoring%20Report%202014.pdf>) as at April 2021 suggests that methamphetamine use may be lower in the ACT than the national average (Figure 9, ACIC report), cannabis may be higher than that national average (Figure 23 ACIC report), and while heroin is lower (Figure 21 ACIC report), oxycodone is higher (Figure 17 ACIC report) and fentanyl is the same as the national average (Figure 18 ACIC report).

### 3.6 Prevalence of risky consumption in the ACT

The DASPM requires an estimate of the proportion of the population who may be at risk of dependence (in order to project the need for Screening and Brief Interventions). There are many ways to define ‘risky’ consumption that precedes the development of dependence. It can be defined as any consumption in the past year, past month, past week, or more conservatively only daily consumption could be considered risky. There is also variation in the quantity of consumption that is considered risky, be it 4 standard drinks on one occasion, or it might be more than 10 standard drinks on one occasion.

In DASPM, the table below provides the descriptions of how ‘risky consumption’ was defined for the 15-19 year old, 20-24 year old and 25 years + age groups. Risky consumption rates were not able to be calculated for the 10-14 year age group due to a lack of data; therefore, DASPM does not project the resources for brief interventions for the 10-14 year old population.

*Table 6: DASPM definitions of risky consumption*

Drug type	Definition of risky consumption
Alcohol	<ul style="list-style-type: none"> <li>- Heavy episodic drinking (more than 11 standard drinks on one occasion) for the 15-19 and 20-24 age groups.</li> <li>- More than 4 standard drinks everyday/most days for the 25-64 and 65+ age group</li> </ul>
Cannabis	<ul style="list-style-type: none"> <li>- Any cannabis use in the past year for the 15-19 years</li> <li>- Once a week or more in the past year for the 20 years +</li> </ul>
Methamphetamine	<ul style="list-style-type: none"> <li>- Methamphetamine use at least once a month in the past year</li> </ul>
Opioids	<ul style="list-style-type: none"> <li>- Pharmaceutical opioids: using pharmaceutical opioids for non-medical purposes about once a month</li> <li>- Heroin: any consumption</li> </ul>

DASPM takes the above definitions to source rates of risky consumption. As data specific to the ACT were not available, we used national data sources and then applied the rates to the proportion of the population represented by the ACT. For alcohol, cannabis and pharmaceutical opioids we used rates reported in the 2019 National Drug Strategy Household Survey (NDSHS). For risky methamphetamine consumption, Degenhardt et al. (2016) report monthly use as 2% nationally. For heroin, according to NDSHS, any heroin use in the past year is estimated to be 0.1% of the population. However the NDSHS is highly unreliable (surveying only people in households) and misses the majority of injecting drug use. Estimating occasional or “recreational” heroin use is also very difficult. Using a variety of epidemiological triangulation methods, Degenhardt et al (2004) suggest that the best available figure is 0.4% of the population (Degenhardt, Rendle, Hall, Gilmour, & Law, 2004).

The ACT population numbers for at risk consumption for each drug class were identified. Then the alcohol or other drug dependent population (already accounted for in DASPM in the intensive interventions) were subtracted to project the numbers of people for screening and brief intervention.

### 3.7 Treatment rate for the ACT

The treatment rate for those with risky consumption is 100%, that is the model assumes that everyone with risky consumption will receive some form of brief intervention in the course of a year.

For those with dependence, not everyone can or should receive care as described in DASPM. The treatment rates for the ACT were developed using a number of data sources: the existing DASPM treatment rates, the current numbers receiving treatment (to establish a minimum rate), consideration of structural factors that are avoidable barriers to treatment (around 17% of people from global research who do not seek treatment report avoidable structural barriers as the reason for not doing so), recovery without treatment, and engagement in self-help (outside scope of DASPM).

The resultant treatment rates used in this analysis were as follows:

- Alcohol dependence: 40%
- Cannabis dependence: 30%
- Methamphetamine dependence: 50%
- Opioid dependence: 90%
- All drugs (average): 47%

### 3.8 Resources in the DASPM

The care packages in DASPM detail a vast range of activities in the form of minutes of care, bed days, prescription medications, dosing time, and diagnostic testing. Each type of activity, whether staff time in minutes, medications and so on, are then converted into a resource estimate, representing the quantum of the resources required (FTE, beds, medications etc) and then those resource estimates are converted into costs.

The largest cost component is clinical salaries. The care packages document the number of minutes of direct clinical care. These 'minutes of direct care' are then converted into one clinical FTE by taking into account the standard working week hours for each type of profession in the model, annual and sick leave provisions, and the amount of indirect care provided per minute of direct care (a total of 38% is added for indirect care).<sup>9</sup> The annual base salaries for DASPM were taken from award rates. These were: \$75,038 for an AOD worker; \$96,586 for a nurse/allied health worker and \$276,717 for an Addiction Medicine Specialist. We cross-checked the first two of these (AOD worker and Nurse/Allied Health) against data provided by ATODA. Recognising that there are a range of salaries, the ATODA data (taken from the workforce survey) confirmed that these two figures represent appropriate averages in the ACT.

To move from the base salary to a final salary, on-costs (super, leave loading, payroll tax)<sup>10</sup> plus a flat 15% administration overhead (personnel departments, CEO time, ward clerk, other clerical support etc) are added to the base salary, which generates a final salary.

The number of beds required takes into account bed occupancy rates (87% for community residential beds). Overhead costs associated with each bed were taken from relevant data sources,

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<sup>9</sup> It is very difficult to derive an average ratio of direct to indirect care time by clinical staff. The 38% is a statistical average, and will vary by position, role and individual. Based on its workforce profile data, ATODA advises that the split may be 40-60, so 38% is a slightly conservative estimate.

<sup>10</sup> On-costs varied by position type but range between 19% and 23%.

including a report by the Network of Alcohol other Drug Agencies (NADA) (NADA, 2019), the National ABF Framework, using the relevant Diagnostic Related Groups (DRG) codes, and past DASPM work (NSW Ministry of Health Project Team, 2013).

A range of prescription medications are listed in the care packages. The cost of the medications covered in the model is estimated using the Pharmaceutical Benefits Scheme (PBS). Depending on which one is listed on the PBS website, either the price ex manufacturer, or dispensed price for maximum quantity (DPMQ), is used when estimating a cost per dose for the model.

Dosing time for the OMT care packages and the 28-day opioid taper was calculated based on a standard per day cost associated with dosing taken from a research report (Chalmers, Ritter, Heffernan, & McDonnell, 2009) and converted to 2021 dollars. The Medicare Benefits Schedule Book (operating from 1 July 2019) was sourced when pricing the various diagnostic tests included in the model.

Capital works, like the infrastructure of the buildings and facilities which house the beds and workforce, are not covered in the DASPM model.

### 3.9 Predicting total demand for AOD treatment in the ACT

The results of the DASPM modelling are provided here.

Total projected demand comprises two estimates: the projected number of people to receive intensive treatment (withdrawal, counselling, rehabilitation, OMT etc); and the projected number of people to receive Screening and Brief Interventions (the at risk population). Table 7 provides the results.

*Table 7: Total projected demand for treatment (intensive and brief interventions), number of people per annum (2021 to 2030)*

	2021	2022	2023	2024	2025	2030
Intensive treatment	9,085	9,241	9,394	9,526	9,658	10,332
Brief interventions	42,332	43,122	43,926	44,714	45,542	49,431
Total # of people	51,417	52,363	53,320	54,240	55,200	59,763

Note: The table includes the N=737 people receiving treatment in the ACT who are not residents of the ACT. All remaining tables and DASPM analyses include these people in the projected total demand analyses.<sup>11</sup>

In the year 2030, the model suggests that 59,763 people will require some form of intervention. The model forecasts that the annual increase, in line with population forward projections is in the order of 2%. The remainder of this report focusses on the data for the single year, 2021.

#### *Intensive treatment*

Using DASPM it was estimated that 9,085 people should receive intensive interventions for alcohol and other drug problems in the ACT in the year 2021 (see Table 8).

<sup>11</sup> Of the 737 non-ACT residents who receive treatment in the ACT, 59% (n = 435) were added to intensive interventions, and 41% (n = 302) added to brief interventions, consistent with assigning EOC of Assessment Only and E&I to the DASPM SBI category, and all others to the DASPM intensive treatment category (see also Appendix 4).

Table 8: DASPM projected number of people to receive intensive interventions, by drug type and age group, 2021

Age (years)	Alcohol	Cannabis	Methamphetamine	Opioids	Total
10 to 14	39 (28%)	98 (72%)	0 (0%)	0 (0%)	137 (100%)
15 to 19	152 (27%)	271 (48%)	67 (12%)	70 (13%)	560 (100%)
20 to 24	512 (31%)	318 (19%)	420 (25%)	404 (24%)	1,654 (100%)
25 to 64	3,047 (48%)	518 (8%)	1,055 (17%)	1,739 (27%)	6,359 (100%)
65 +	314 (84%)	9 (2%)	9 (2%)	43 (11%)	375 (100%)
Total	4,064 (45%)	1,214 (13%)	1,551 (17%)	2,256 (25%)	9,085 (100%)

Note: Due to rounding the percentage points do not always add to exactly 100%

As noted earlier, while the main DASPM analyses used the Global Burden of Disease for the prevalence of dependence, wastewater data may suggest that cannabis use is higher and methamphetamine use is lower in the ACT than the national average. Appendix 3 provides the sensitivity analyses, varying the prevalence of cannabis and methamphetamine dependence. The number of people to be treated may vary between 9,031 (sensitivity analysis 2) and 9,505 (sensitivity analysis 1). (see Table A3).

In order to treat the 9,085 people with alcohol and other drug treatments in the ACT in 2021, it was projected that 396 clinical staff (FTE) are needed (in 2021 reference year). The position types and numbers are given in Table 9. The salary costs for intensive treatment amount to \$49 million per annum.

Table 9: Projected clinical workforce – intensive treatments

Intensive interventions	Full-time equivalent (FTE) clinical staff	\$
AOD workers	229	\$22,781,503
Nursing and allied health	140	\$18,575,507
Peer treatment support workers	7	\$744,911
Addiction medicine specialists	10	\$3,892,376
General practitioners	10	\$2,793,591
<b>TOTAL</b>	<b>396</b>	<b>\$48,787,888</b>

In addition to the projected clinical workforce, there are additional resources in bed-based services (the costs associated with beds over and above workforce costs) as well as various operating costs such as medications and so on.

DASPM projected that 164 beds are needed (in 2021 reference year), costing an estimated \$7,348,461 in bed overheads per annum (see Table 10).

Table 10: Number of beds required to treat the above projected populations

Treatment type	Beds
Residential rehabilitation	128
Inpatient (hospital)	8
Community residential detox	28
<b>TOTAL</b>	<b>164</b>

The total costs associated with intensive treatments as projected by DASPM for the ACT is given in Table 11: \$66,825,392

*Table 11: Costs projections for intensive treatments only*

Cost category	Projected costs
Clinical FTE	\$48,787,888
Beds	\$7,348,461
Medications	\$6,396,983
OMT dosing costs	\$932,147
Diagnostic testing	\$3,359,913
<b>TOTAL (\$)</b>	<b>\$66,825,392</b>

*Screening and Brief Intervention*

For screening and brief intervention (the population at risk), DASPM projects that 42,332 people should receive brief interventions for risky alcohol and other drug consumption in the ACT in the year period 2021 (see Table 12).

*Table 12: DASPM projected number of people to receive screening and brief intervention, by drug type and age group, 2021*

Age (years)	Alcohol	Cannabis	Methamphetamine	Opioids	Total
10 to 14	-	-	-	-	-
15 to 19	2,928 (42%)	3,295 (47%)	470 (7%)	280 (4%)	6,973 (100%)
20 to 24	3,700 (68%)	1,299 (24%)	326 (6%)	87 (2%)	5,412 (100%)
25 to 64	9,328 (38%)	10,115 (41%)	3,812 (15%)	1,467 (6%)	24,722 (100%)
65 +	2,122 (41%)	2,609 (50%)	-	494 (9%)	5,225 (100%)
<b>Total</b>	<b>18,078 (43%)</b>	<b>17,318 (41%)</b>	<b>4,608 (11%)</b>	<b>2,328 (5%)</b>	<b>42,332 (100%)</b>

Note: Due to rounding the percentage points do not always add to exactly 100%

The clinical FTE associated with Screening and Brief Intervention is 15 FTE, at a cost of \$3,040,931.

The total costs associated with all treatment provision in the ACT in 2021 (both intensive interventions and screening/brief interventions) was projected to be \$70 million, inclusive of 411 clinical staff (FTE), 164 beds, medications, OMT dosing costs, diagnostic testing, and digital support service costs (see Table 13).

*Table 13: Costs projected to treat the above projections (intensive interventions and SBI)*

Cost category	Projected costs
Clinical FTE (Note 1)	\$51,828,819
Beds	\$7,348,461
Medications	\$6,396,983
OMT dosing costs	\$932,147
Diagnostic testing	\$3,359,913
Digital support services	\$445,285
<b>TOTAL (\$)</b>	<b>\$70,311,608</b>

Note 1: Clinical FTE: Intensive treatments FTE=396 + SBI FTE =15, total FTE = 411. Intensive treatment salary costs \$48,787,888 + SBI salary costs \$3,040,931 = \$51,828,819

## 4. Estimating current service provision

In order to derive the gap between projected/modelled demand and current demand and services, we need an accurate picture of current demand and services. This included estimates for:

- The number of people in receipt of treatment in the ACT
- The current clinical workforce
- The current residential rehabilitation and withdrawal beds
- The current funding amounts

Each of these estimates of current met demand and services used a variety of methods. Overall, there is no single source of data for these estimates and uncertainties are inevitable. As a result, the figures below should be taken to be indicative only (but still serve to provide the basis for a useful gap analysis). Private services are not included. We do not know how many ACT residents seek and receive AOD treatment through private facilities (private hospital care is partly recorded in the National Hospital Morbidity Database, which we include, but this does not include all private care facilities, nor people receiving treatment through private psychologists).<sup>12</sup> This means that the estimate of current met demand is conservative.

All the below estimates of current service provision and met demand are tailored to the ways in which DASPM generates the projected estimates. Thus, they are tailored for the specific aims of this report and should not be used outside the context of a comparison with DASPM. For example, the clinical workforce analysis below does not include administrative or executive staff, as the DASPM full-time equivalent projections are for clinical (direct care staff) only. Likewise, the current investment estimates exclude current funding for services which are outside the scope of DASPM projections (for example peak body funding).

### 4.1 The number of people in receipt of treatment in the ACT

As we need to estimate all the people receiving care and support in the ACT (not just those recorded by the specialist AODTS-NMDS database), we needed to access a number of different datasets. These are given in Table 14.

The reference year for the data is 2018/2019, in order to not underestimate the number of people receiving care due to the reduced numbers caused by social distancing requirements under COVID-19. Where required, figures from years other than 2018/19 were converted to 2018/19 figures. For comparability purposes between DASPM and current met demand, current demand is expressed by age group, and by the drug classes covered by DASPM.

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<sup>12</sup> The Drug Policy Modelling Program is very mindful of this significant limitation with met demand analyses across Australia. We have commenced work (currently unfunded) to try and address this gap in knowledge.

Table 14: Databases used to estimate current met demand in the ACT

Database <sup>1</sup>	Treatment settings/types
Alcohol and other drug national minimum database (AODTS-NMDS)	Includes number of people treated by publicly funded treatment agencies. The following treatment types were categorised as intensive interventions: <ul style="list-style-type: none"> <li>• Counselling</li> <li>• Withdrawal management</li> <li>• Support and case management</li> <li>• Rehabilitation</li> <li>• Pharmacotherapy</li> <li>• Other</li> </ul> Also includes number of people receiving brief interventions: <ul style="list-style-type: none"> <li>• Assessment only</li> <li>• Information and education</li> </ul>
National Hospital Morbidity Data (NHMD)	Closed episodes of in-patient treatment provided by hospitals (Principal Diagnosis substance use disorder)
National opioid pharmacotherapy statistics annual data collection (NOPSAD)	Point in time (day) measure of people in Opioid Maintenance Treatment (OMT)
The National Community Mental Health Care Database (NCMHCD)	Client contacts with government operated and funded community and ambulatory mental health care services (Principal Diagnosis substance use disorder)
Bettering the Evaluation and Care of Health (BEACH)	Treatment encounters with a GP (Principal Diagnosis substance use disorder)

Note 1: There is another dataset, the national residential mental health care database (NRMCD). This was not sourced for this project because it reports a negligible amount of service contacts in the ACT where the principal diagnosis is substance use disorders ( $n \leq 5$ ). The Online Service Report (OSR) was not accessed for Aboriginal and Torres Strait Islander health services due to changes to the collection (substance use services no longer reported). Instead, treatment estimates were accessed for each organisation in the ACT through annual reports.

The technical details of the methods used to estimate the number of unique clients receiving treatment in the ACT in any one year by age group and drug class can be found in Appendix 4. In summary, each dataset was analysed to identify unique clients, by age group and by drug class (primary presentation or principal drug of concern). In some instances the database provided national estimates, not specific to the ACT. Here two methods were used to convert the national estimate to an ACT estimate: a population-based estimate (applying the ACT proportion of the national population) and an AODTS-NMDS estimate (applying the ACT proportion as represented in the AODTS-NMDS national data). These two different methods provide a 'high' estimate of current met demand and a 'low' estimate of current met demand. (The full details are given in Appendix 4).

Once the number of unique clients was established, duplication across datasets needed to be dealt with. The same person may appear in more than one database in a year (that is receive an AOD treatment episode, plus be admitted to hospital for an AOD related condition to be treated, plus receive care from their GP for AOD). We cannot simply sum the total across all databases to derive unique clients in any one year. We applied a number of assumptions and used past research to remove duplicates, following methods used previously (Chalmers & Ritter, 2014).

To align with the DASPM, estimates of met demand are presented in relation to the two DASPM categories of treatment:

- **intensive interventions** delivered to people who meet criteria for alcohol and drug dependence; and
- **screening/brief interventions** delivered to people identified as at risk for the development of alcohol or drug dependence.

Table 15 provides the details for which episodes of care/clinical services were assigned as intensive interventions and which as screening and brief interventions to align with DASPM.

*Table 15: Current ACT treatment data, divided into intensive and screening/brief interventions*

<b>DASPM category of projected demand</b>	<b>Treatment types being delivered in the ACT</b>
<b>Intensive interventions</b>	<ul style="list-style-type: none"> <li>• Counselling</li> <li>• Support and case management</li> <li>• Pharmacotherapy for relapse prevention</li> <li>• Withdrawal management (outpatient and community residential)</li> <li>• Opioid Maintenance Treatment (OMT)</li> <li>• Rehabilitation</li> <li>• Drug and alcohol support provided by Aboriginal and Torres Strait Islander Services</li> <li>• In-patient treatment provided by public and private hospitals (where Principal Diagnosis is a substance use disorder)</li> <li>• Ambulatory mental health care services (where Principal Diagnosis is a substance use disorder)</li> </ul>
<b>Screening and Brief interventions</b>	<ul style="list-style-type: none"> <li>• Assessment only</li> <li>• Information and education</li> <li>• Consultation Liaison</li> <li>• Treatment encounters with a GP where Principal Diagnosis is a substance use disorder (excluding OMT)</li> </ul>

It was estimated that between 4,332 and 5,237 people are provided intensive interventions for alcohol and other drugs covered by DASPM in the ACT per annum (see Table 16). This includes people receiving treatment under corrections orders (eg CADAS and DASL) and in-reach to the Alexander Maconochie Centre; appropriately because these people are included in the total demand population estimates (section 3).

Table 16: The number of people (low and high estimates) in receipt of intensive interventions in the ACT in any one year, by age group and drug class

Age (years)	Alcohol		Cannabis		Methamphetamine		Opioids		All DASPM drugs	
	Low	High	Low	High	Low	High	Low	High	Low	High
10-14	4	5	18	18	5	5	0	0	27	28
15-19	53	53	128	128	88	88	6	6	275	275
20-24	98	102	76	76	93	95	60	60	327	333
25-64	1,301	2,009	229	244	603	706	1,425	1,437	3,558	4,396
65+	72	129	0	1	1	1	72	74	145	205
TOTAL	1,528	2,298	451	467	790	895	1,563	1,577	4,332	5,237

For the screening and brief interventions, it was very difficult to establish an accurate estimate of met demand. Screening and Brief Interventions are provided in a variety of non-specialist and specialist settings. We do know the amount of SBI provided in specialist settings (from the Assessment only and Education and Information episodes in the AODTS-NMDS). This amounts to 1,488 clients (see Appendix 4). The second data source we have available for SBI is the GP data derived from a survey conducted between 2008 and 2013.<sup>13</sup> This is less than ideal but suggests that between 3,565 and 8,320 people received a brief intervention from a GP in 2021. In total, therefore, we have a low estimate of 5,019 people and a high estimate of 9,774.

Missing from this are telephone services, GP screening activities where the presentation is not concerned with AOD, and screening that occurs in other healthcare settings (such as hospitals). On telephone services, we have not been able to source data regarding the number of people who access the ADIS telephone service in the ACT and who do not then subsequently attend treatment in the same year.<sup>14</sup> The Cancer Council ACT (CFACT) provides brief interventions to people for smoking cessation (alongside their other functions). The 2018/19 annual report noted that 247 participants took part in 31 smoking educational seminars, 34 one-on-one brief interventions were provided, and over 500 quit packs were handed out. St Vincent's Hospital Quitline services also provide telephone counselling for smoking cessation to ACT residents. Tobacco is not covered as a stand alone drug in DASPM, so we would need to know what proportion of these people also experienced problems with other substances (for which they received support). There is no way of knowing this, and we suspect that the tobacco cessation support offered by these services is likely to be for people who are not also dependent on other drugs.

There are no records that cover internet-based, online, virtual brief interventions (such as the many apps that now exist to assist people to cut down on drinking).

Our overall assessment, therefore, is that while DASPM can project the need for Screening and Brief Interventions in the ACT (see Table 12 above), we cannot establish a rigorous met demand figure by which to conduct a gap analysis.

<sup>13</sup> The BEACH data, see Appendix 4.

<sup>14</sup> Those people who do call ADIS and it results in a referral to treatment will be counted as part of the AODTS-NMDS database.

## 4.2 The current clinical workforce

In line with the way in which DASPM predicts the size and composition of the clinical full-time equivalent (FTE) workforce, the data presented here refer to clinical (direct care) positions only.

The data source for these estimates is the recently completed ACT Alcohol and Other Drug Workforce Profile 2021 as analysed by ATODA on our behalf. Eight alcohol and other drug services that provide AOD treatment participated in the 2021 Workforce Profile; however, the two that did not participate have relatively smaller numbers of AOD staff. We only include filled FTE positions and exclude vacant FTE positions (as vacant positions indicate the presence of unmet demand). We also exclude the following positions as they are not covered within the DASPM FTE calculations: administrator, executive, manager, researcher.<sup>15</sup> Peer treatment support estimates were sourced directly from treatment services.

The workforce survey did not include the two Aboriginal and Torres Strait Islander services in the ACT (Gugan Gulwan and Winnunga). Both services employ AOD workers (as seen in their annual reports) but no current figures could be obtained for FTE. We use the 2017 ACT ATODA workforce survey (ATODA, 2019, p. 10), which notes that there were 7 clinical FTE estimated in Aboriginal and Torres Strait Islander community-controlled services.

The current FTE by clinician type is given in the below table. The size of the AOD workforce in the ACT was estimated at approximately 187 clinical FTE.

*Table 17: Current clinical FTE for the ACT (filled positions)*

Clinician type	FTE
AOD worker	120
Nursing and allied health	48
Peer treatment support workers	3
Addiction medicine specialist	4
General practitioner	3
Pharmacist	1
Psychiatrist	1
Aboriginal and Torres Strait Islander services (estimate)	7
<b>TOTAL</b>	<b>187</b>

The ability to obtain an accurate current FTE specific to OMT prescribers is difficult. The two types of doctors in the above table (AMS and GP) provide OMT prescribing as well as other medical services associated with AOD treatment. However, outside of these figures there are also private GP prescribers in the OMT program. There are 49 private GP prescribers in the ACT (NOPSAD database), but we do not have data on their average caseload numbers in order to develop an approximate FTE from these private GP services. If we assume, however, that on average each of these GPs has 10 OMT clients, the approximate FTE that would contribute to current service levels is 0.8 FTE.<sup>16</sup>

<sup>15</sup> Although those positions are covered in the cost projections, see earlier description of DASPM cost approach.

<sup>16</sup> 49 GPs, with 10 clients each = 490 clients, each receiving 3 hours prescribing time per annum (comprising one 60 minute session, and four 30 mins consultations over the course of a year, on average – some receive

### 4.3 Current number of beds in the ACT

According to the ATODA Needs Assessment 2021, there are 12 residential withdrawal beds in the ACT. Ten of these beds are within a hospital-like setting. In DASPM there are two types of residential withdrawal: one is inpatient hospital withdrawal, the other is community residential withdrawal. The inpatient hospital beds parameterised in DASPM are staffed by doctors (AMS) and nurses and allied health, with 24 hour medical and clinical care. The community residential withdrawal within DASPM has a visiting GP for any prescribing and has overnight support workers but does not have full 24 hour medical coverage. In terms of patients, the inpatient hospital withdrawal package is configured largely for alcohol withdrawal with complications (e.g. delirium tremens, risk of seizure etc), whereas the community residential withdrawal is configured for all drug classes with less complex clinical presentations. In both models of care within DASPM, medications are prescribed (there are no non-medical residential withdrawal beds in DASPM as this does not conform to best practice evidence).

Neither the ten beds within a hospital-like setting and the 2 beds in a (unmedicated) community withdrawal unit fit readily/easily within the DASPM. Furthermore we were advised that the unmedicated withdrawal beds in residential rehabilitation services are ones which are only used as required (they can also serve as rehab beds when required). In light of this, we count ten dedicated withdrawal beds in the ACT (and do not distinguish between settings for that withdrawal).

The recent ATODA Needs Assessment noted that there were currently 104 residential rehabilitation beds in use in the ACT. This count reflected the reduction in beds due to COVID-19. As this report removes COVID impacts, we have confirmed with the ACT Health Directorate that there are 115 residential rehabilitation beds in the ACT.

### 4.4 Current funding

There are multiple funding sources for ACT AOD treatment services.

These include:

- ACT Health Directorate
- Canberra Health Network
- Commonwealth Department of Health
- National Indigenous Australians Agency
- Philanthropy
- Client fees

Accurate information about all the treatment funding in the ACT is difficult to obtain. Approximate amounts and some assumptions are needed to derive a figure for total current AOD treatment funding. In addition the figures used for this report need to be tailored to the cost estimates produced by DASPM. For example, drink drive programs are not included within the DASPM therefore any funding for those programs needs to also be excluded from the analysis.<sup>17</sup>

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more, some receive less) = 1,470 hours per annum. Assuming 1 doctor works 1,800 hours per annum (7.5 hrs x 5 days x 48 weeks), to deliver 1,470 hours of care requires 0.8 FTE.

<sup>17</sup> There are some methodological anomalies to note: in some cases the funding represents the value of contracts/agreements (i.e. funding amounts) and in other cases (notably client fees, philanthropy) the estimate is derived from the amount spent. These are two different kinds of \$ data. Importantly, however, neither of them speak to how much it costs to provide a service.

Funding for AOD treatment provided to people under correctional or custodial orders is included, where that funding comes from the ACT Health Directorate. Any additional funding that is provided by Justice Health, Justice and Community Safety Directorate or Corrective Services is not directly included. Private health insurance funding, for those people treated in private system and/or private beds within NGOs is also not included.

Table 18 provides a summary of the data sources used to derive the current estimate of AOD treatment funding in the ACT. All figures are approximate and based on best available data, as detailed in the table below.

Table 18: Current funding data sources

Funder	Source and notes
<b>ACT Health Directorate</b>	<p>Provided by the ACT Health Directorate.</p> <p>This included/excluded the following:</p> <ul style="list-style-type: none"> <li>• Includes ADS and NGO AOD treatment and support services (includes Equal Remuneration Order payments for staffing)</li> <li>• Includes budget for DASL and drug diversion treatment places</li> <li>• Includes Gugan Gulwan and Winnunga Nimmityjah AOD program funding</li> <li>• Excludes CAHMA, ATODA, NSP (run by Directions Health Services), Quitline, CatholicCare sobering up shelter, supplementary support (e.g. child care, sharps collection, etc.)</li> </ul> <p>The figures provided were cross-checked against NGO contracts (detailed in: <a href="https://tenders.act.gov.au/contract/">https://tenders.act.gov.au/contract/</a>) and other public domain sources (such as annual reports).</p>
<b>Commonwealth Department of Health AOD treatment grants</b>	<p>ACT NGO contracts were sourced from the Murray motion (<a href="http://www.health.gov.au/internet/main/publishing.nsf/Content/health-contracts-index.htm">http://www.health.gov.au/internet/main/publishing.nsf/Content/health-contracts-index.htm</a>)</p> <p>This figure is an under-estimate, as some organisations are listed as their parent company (e.g. The Salvation Army).</p>
<b>CHN</b>	<p>Provided by Capital Health Network.</p>
<b>Other govt sources</b>	<p>This is a back calculation of other confirmed sources of AOD treatment funding. For example, annual reports for specialist AOD treatment (and ACNC records) were accessed and dedicated treatment funding that was not accounted for through the ACT government or the Commonwealth or CHN records was included here.</p>
<b>Client fees – residential rehab</b>	<p>National data indicate there are variations in the fees paid by clients. 80%-85% of Centrelink payments (and varies by NewStart; Disability Support, other) and amounts anywhere between \$650 and \$800 per fortnight; flat fees between \$350 per fortnight to \$480 per fortnight (and in some cases there are assessment fees etc).</p> <p>In addition, for some clients fees are waived (and/or not paid).</p> <p>Taking an average of all of the above, we assume \$500 per fortnight in client fees, equally \$13,000 per annum for each rehab bed.</p>

Funder	Source and notes
	We assume an 85% bed occupancy rate.
<b>Client fees – dosing fees</b>	These were estimated based on the number of clients being dispensed at pharmacy in the ACT (NOPSAD census, 2020, n=802). Clients in the ACT pay a flat rate of \$14.70 per week. The figure has been cross-checked with CAHMA.
<b>Philanthropy</b>	<p>There are no firm data sources for philanthropic contributions to AOD treatment in the ACT. We know that charitable organisations contribute to the costs of running AOD treatment services. Some figures have been provided in confidence.</p> <p>The philanthropy figure was cross-checked against a 2014 calculation of the proportion of philanthropic funding to AOD treatment nationally, which represented 3% of funding (Ritter et al., 2014).</p> <p>We believe this is a significant under-estimate of the philanthropic contributions.</p>

National Indigenous Australians Agency (NIAA) funding was not able to be sourced but funding allocated to ATOD in the two Aboriginal and Torres Strait Islander services has been included above.

Overall, our assessment of the data is that there are a number of areas of uncertainty (Commonwealth AOD treatment funding, other government sources, philanthropy); all of these suggest that the current funding estimate is too low. At the same time, the available funding amounts include some screening and brief interventions (the Assessment only and Education and Information episodes provided by specialist ATOD services). We have no way of removing the funds dedicated to these SBI services. (See funding gap analysis).

Table 19: Current funding amounts, ACT, 2021 by source

Funding source	\$ for treatment services <sup>18</sup>
ACT Health Directorate	\$21,700,000
Commonwealth DoH AOD treatment grants	\$3,655,080
Capital Health Network	\$3,091,863
Other government sources	\$462,402
Client fees – residential rehabilitation	\$1,144,000
Client fees – dosing fees	\$613,048
Philanthropy	\$1,500,000
<b>TOTAL</b>	<b>\$32,166,393</b>

The veracity of the current AOD treatment spend cannot be confirmed. But for the purposes of this gap analysis, we are confident that the \$32 million remains a useful figure to compare with the projected investment required as predicted by DASPM.

<sup>18</sup> The amounts listed here are not the total investment, but the amount of funding relevant to the DASPM resource prediction. For example, ACT health Directorate provides funding to ATODA. As this is not direct care, it is not included in this table.

## 5. Gap analysis

Having outlined the projected predicted DASPM demand, and then the current levels of service delivery in the ACT, this section summarises the gap between these two estimates. The focus is on intensive interventions given the lack of suitable data to assess the gap for screening and brief interventions.

As noted in the met demand section above, those episodes (and clients) associated with Assessment Only and Education/Information have been removed from the met demand analysis. However adjustments are required to the clinical FTE and funding analyses to ensure more valid comparisons. These are dealt with under the respective sections of the below gap analysis.

### 5.1 The gap between numbers receiving and projected numbers to receive treatment in the ACT

The comparison between the number of people projected to receive treatment from DASPM and the number of people currently receiving treatment in the ACT is relatively straightforward (no adjustments to the current met demand are required, as this already takes into account the relevant drug types and treatment types).

The table below provides the comparison between the numbers of people currently receiving intensive treatment in the ACT (between 4,332 and 5,237 people each year) and the projected demand (9,085 people each year). The gap is between 3,848 more people needing treatment and 4,753 more people needing treatment.

*Table 20: The gap between numbers receiving and projected numbers to receive intensive treatment in the ACT by drug type*

Drug type	Met demand (low – high)	Total demand (DASPM)	Minimum untreated #	Maximum untreated #	Met demand rate
Alcohol	1,528 – 2,298	4,064	1,766	2,536	38%-57%
Cannabis	451 – 467	1,214	747	763	37%-38%
Methamphetamines	790 – 895	1,551	656	761	51%-58%
Opioids	1,563 – 1,577	2,256	679	693	69%-70%
TOTAL	4,332 – 5,237	9,085	3,848	4,753	48%-58%

The largest gap in terms of numbers is people with alcohol dependence (between 1,766 and 2,536 additional people to be treated each year). That alcohol represents the largest drug type gap is consistent with all the modelling exercises in other jurisdictions. The gaps for the other three drug types are of similar size to each other and are about half or a third as large as the gap for alcohol.

When looked at proportionally (that is the % met demand), the lowest gap is for opioids (also consistent with all other modelling work to date), and for the ACT the largest proportional gap is for cannabis – with around 60% untreated for cannabis dependence.

Recalling that the treatment rate in DASPM is an average of 47%, that is the model projects demand to treat on average 47% of all people who meet criteria for dependence, these figures represent the minimum gap.

Table 21: The gap between numbers receiving and projected numbers to receive intensive treatment in the ACT by age group

Age-group	Met demand (low – high)	Total demand (DASPM)	Minimum untreated #	Maximum untreated #	Met demand rate
10-14 years	27 – 28	137	109	110	20%
15-19 years	275 – 275	560	285	285	49%
20-24 years	327 – 333	1,654	1,321	1,327	20%
25-64 years	3,558 – 4,396	6,359	1,963	2,801	56%-69%
65 years and over	145 – 205	375	170	230	39%-55%
TOTAL	4,332 – 5,237	9,085	3,848	4,753	48%-58%

The above table provides the same gap analysis but this time by age group rather than drug class. In terms of numbers of people, the largest gap is adults 25 to 64 years (at between 1,963 and 2,801 more people to be treated). The next largest gap is for 20 to 24 year olds. When looked at proportionally, the largest gap is for 10 to 14 year olds (currently treating between 27 and 28 children; needing to treat between 109 and 110 children), and for 20 to 24 year olds (currently treating between 327 and 333 people; needing to treat between 1,321 and 1,327 20 to 24 year olds).

## 5.2 The gap for clinical workforce

The current clinical workforce (see Table 17) covers treatment for all drug classes (not just the four drugs covered by DASPM), plus the provision of both intensive treatment and screening and brief intervention. In order to improve the validity of the comparisons between the DASPM projected clinical workforce and the current clinical workforce, the FTE associated with these need to be removed.

We reduced the current FTE by 7%<sup>19</sup> to account for drug classes not covered by DASPM (see Table 1). It is difficult to remove FTE associated with brief interventions: FTE are fungible and any simple approach, such as taking the proportion of episodes that are brief interventions would be wildly inaccurate as the clinical time for a brief intervention is substantially different to clinical time for rehabilitation. Our approach here was to use DASPM to predict the FTE resources associated with assessment only, and then use the ratio of the FTE for assessment only to other treatment interventions as a guide. The details for the calculations are given in Appendix 5. Those calculations suggest that around 3% of FTE is associated with assessment only. Hence we reduce the current FTE by 3%. Table 22 provides the calculations.

<sup>19</sup> As the four drug classes cover 93.32% of all episodes of care.

Table 22: Adjustments to current clinical workforce for comparability purposes

	Original FTE (Table 17)	Remove drug types not covered by DASPM (7%)	Remove % of FTE associated with assessment only (3%)	Final FTE for comparison with DASPM (rounded)
AOD workers	120	111.6	108.3	108
Nursing and allied health	48	44.6	43.3	43
Peer treatment support workers	3	2.8	2.7	3
Addiction medicine specialists	4	3.7	3.6	4
General practitioners	3	2.8	2.7	3
Pharmacist	1	0.9	0.9	1
Psychiatrist	1	0.9	0.9	1
Aboriginal and Torres Strait Islander services (estimate)	7	6.5	6.3	6
<b>TOTAL</b>	<b>187</b>			<b>169</b>

As can be seen above, the current ACT clinical FTE profile to be compared with the DASPM projections is 169 FTE. DASPM projects that the ACT needs 396 clinical FTE (see Table 9) to meet demand for AOD treatment. Table 23 provides the gap analysis, by profession type. Around 100 more AOD workers in addition to 100 more nurse/allied health staff would be required to meet the projected total demand for treatment. Five more Addiction Medicine Specialists and seven more full-time equivalent General Practitioners are projected to be required.

Table 23: The gap for the clinical workforce

Intensive interventions	DASPM Full-time equivalent (FTE) clinical staff	Current ACT clinical FTE	Gap (full-time equivalent)
AOD workers <sup>1</sup>	229	112	117
Nursing and allied health <sup>1</sup>	140	46	94
Peer treatment support workers	7	3	4
Addiction medicine specialists <sup>1</sup>	10	5	5
General practitioners <sup>2</sup>	10	3	7
<b>TOTAL</b>	<b>396</b>	<b>169</b>	<b>227</b>

Note 1: to align with DASPM, the Aboriginal workers were split between the AOD workers (n=4), and nurse allied health (n=2). The pharmacist (1 FTE) from the current profile has been added to the nursing and allied health category, and the psychiatrist (1 FTE) has been added to the addiction medicine specialist category  
 Note 2: for OMT prescribing there may be an additional 0.8 FTE in the current profile, see earlier.

### 5.3 The gap for number of beds in the ACT

The current bed numbers (10 withdrawal and 115 residential rehabilitation beds) are for all drug types. There are no data suggesting that people receiving bed-based services are there for principal drugs of concern other than the four drugs covered by DASPM so no adjustments need to be made to the met demand side of the equation.<sup>20</sup>

<sup>20</sup> We do not need to remove any beds for assessment only. SBI are not bed-based services.

Recognising the caveats noted earlier about the best classification for the withdrawal beds (comparing ACT with the DASPM models of care), it is more sensible to consider the inpatient withdrawal and the community residential withdrawal beds together. DASPM predicts a total of 36 beds for some form of residential withdrawal (see Table 10). The ACT currently has 10 beds.<sup>21</sup>

For residential rehabilitation beds, the DASPM predicts a need for 128 beds (see Table 10). The ACT currently has 115 beds.

Table 24: Beds – gap analysis

Bed-based treatment types	DASPM Beds	Current bed #'s	% of beds currently covered
Inpatient (hospital) withdrawal and community residential withdrawal <sup>1</sup>	36	10	27%
Residential rehabilitation	128	115	90%
<b>TOTAL</b>	<b>164</b>	<b>125</b>	<b>76%</b>

Note 1: combines hospital inpatient beds (n=8) with community residential withdrawal (n=28).

It appears that there is a significant gap for the ACT in residential withdrawal, with a more than triple the number of beds required to meet the projected demand.

For residential rehabilitation, while the projected gap is relatively small (with 90% coverage), we understand that 38 of the 115 beds are funded by philanthropic funding which is not secure. If those 38 beds are removed from the current bed numbers, then the gap for residential rehabilitation beds is also substantial.

## 5.4. The resources gap

As reported earlier, the estimate of current ACT AOD intensive treatment is \$32,166,393.

This current investment figure needs to be adjusted for comparison purposes. Firstly, we need to exclude those drug classes not covered by DASPM (the drug classes of which account for 93.32% of all clients presenting, see Table 1). There is no way of parsing out the various current investments by drug type. The only approximation is to take 93.32% of all investment as the best comparator for the gap analysis.<sup>22</sup> Taking 93.32% of \$32,166,393 leaves the current ACT investment at \$30,017,678.

Secondly, some of this current investment is in Screening and Brief Intervention, provided by the AOD specialist services (as seen in Assessment Only and Education & Information episodes of care, which comprise 41% of all clients, see Table A8). However, the time (and hence cost) associated with these episodes relative to main treatment types such as rehabilitation or withdrawal is trivial. (Indeed, the DASPM prediction is that SBI to treat 42,332 people would cost \$3 million). If we apply the 3% figure (see Appendix 5) to the current investment, we get a revised figure of \$29,117,148.

<sup>21</sup> As noted elsewhere, the residential rehabilitation services do have 2-4 beds potentially available for unmedicated withdrawal as required, but these are not seen as formal withdrawal beds per se (and DASPM does not model unmedicated withdrawal).

<sup>22</sup> This approach assumes that all drug classes require largely equivalent treatment resources. It is a big assumption but there is no way to separate out the current investment by drug class.

Given the scale we are dealing with here, plus the temptation to introduce false precision, we have retained \$30,017,678 (original figure less other drugs), noting that it might be \$29 million but also recognising that we are likely under-estimating current investment.

In order to compare like-with-like, the DASPM intensive treatment cost outputs also need adjustment for comparability purposes. The DASPM cost projections need to exclude some costs not covered in the current investment analysis. This applies to the DASPM costs covered by the Commonwealth through Medicare and PBS funding. The table below shows those calculations, removing the medications (PBS), diagnostic tests (PBS) and GP costs from the clinical FTE costs (covered by Medicare).

*Table 25: DASPM resource predictions: original; taking out SBI; and taking out costs covered by Commonwealth government*

<b>Cost category</b>	<b>Original DASPM intensive interventions only (Table 11)</b>	<b>Revised calculation for comparison, excluding CW funding</b>
Clinical FTE	\$48,787,888	\$45,994,297
Beds	\$7,348,461	\$7,348,461
Medications	\$6,396,983	Covered by CW
OMT dosing costs	\$932,147	\$932,147
Diagnostic testing	\$3,359,913	Covered by CW
<b>TOTAL (\$)</b>	<b>\$66,825,392</b>	<b>\$54,274,905</b>

We then see that current investment at approximately \$30 million is about \$24 million short of the projected investment required to meet demand. Importantly, this does not tell us which funder is responsible for that cost gap, especially given the complex funding arrangements across Australia with multiple funders and philanthropic contributions. However, we remind the reader that DASPM projects costs to treat on average 47% of people meeting diagnostic criteria for alcohol and or drug dependence in any one year. As such, it is a conservative gap analysis. At the same time, we also remind readers that private services are not included in the met demand analysis.

What the gap analysis points to is the need for a substantial increase in resources for intensive AOD in the ACT. The DASPM as currently configured does not permit analysis of the treatment types per se (the model uses care packages which bundle withdrawal, psychosocial support, rehabilitation, case management all together).

All modelling exercises rely on judgement and the use of best available input data. Despite data gaps (such as some workforce data, the current investment data, and data for some age groups) we are confident that we have accessed and analysed the most accurate available data sources for this project. Careful attention has been paid to ensuring that what is counted in current service delivery (met demand) matches what is counted in the modelling of projected demand. We see modelling results as the beginning of the dialogue, rather than as a precise forecasting exercise.

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## Appendix 1: Stakeholder Reference Group

Name	Organisation	Position Title
Jennifer Harland	Alcohol and Drug Services, Canberra Health Services	Acting Operational Director
Chris Gough	CAHMA & The Connection	Executive Director
Sue-Ann Polden	CatholicCare	Director
Abbey Andrews	CatholicCare	AOD Programs, Manager / Special Projects
Bronwyn Hendry	Directions Health Services	CEO
Stephanie Stevens	Directions Health Services	Director of Service Delivery
Sharon Tuffin	Karralika Programs Inc.	CEO
Anna McKenry	Karralika Programs Inc.	Clinical Services Director
Daniel Ross	Canberra Recovery Services, The Salvation Army	Manager
Julian Docherty	Canberra Recovery Services, The Salvation Army	Program Manager
Lachlan Dean	Ted Noffs Foundation	Manager
Mark Ferry	Ted Noffs Foundation	Chief Operating Officer
Susan Clarke-Lindfield	Toora Women Inc.	Executive Director
Rebecca Wood	Toora Women Inc.	Director of AOD and Clinical Services
Devin Bowles	Alcohol Tobacco and Other Drug Association ACT (ATODA)	CEO
Adam Poulter	Alcohol Tobacco and Other Drug Association ACT (ATODA)	Deputy CEO

Note: the ACCHOs were not able to attend the meetings. They were contacted for assistance with met demand data.

## Appendix 2: Needle syringe programs (NSP) gap analysis

### *Predicted population need for NSP*

Total predicted population need for NSP is estimated from the numbers of people estimated to inject drugs in the ACT, multiplied by how many needles each person needs per annum. It is estimated that people inject drugs in Australia at a rate of between 4.3 and 7.6 per 1000 people aged between 15 to 64 years (Larney et al., 2017). When applying this rate to the ACT population (year period 2021), we estimate that between 1,299 and 2,297 people inject drugs in the ACT. It is estimated that of people who regularly inject drugs in Australia, the average number of syringes needed per person per annum is 640 syringes (Kwon et al., 2019).

Therefore, total predicted supply of needles/syringes equals the numbers of people estimated to inject drugs in the ACT (between 1,299 and 2,297 people) multiplied by 640 needles. This results in an estimate of between 831,360 and 1,470,080 syringes needed in the ACT per annum in 2021.

### *Met demand – current levels of needle/syringe distribution*

According to the NSP National Minimum Data Collection Report (Heard, Iversen, Geddes, Kwon, & Maher, 2020), 949,864 syringes were provided through NSPs in the ACT in 2019-20.

### *Gap analysis*

There is a gap of anywhere between 0 and 520,216 needles in the ACT in 2021.

*Table A1: Gap analysis: needle syringe services*

	Total demand	Met demand	Gap	Met demand rate
Number of syringes	831,360 - 1,470,080	949,864	0 – 520,216	65% - 100%

### Appendix 3: Sensitivity analyses on prevalence of drug use

Per the wastewater findings, it appears that cannabis consumption may be higher in the ACT compared to the national average, and methamphetamine consumption is lower. As such, we conducted sensitivity analyses to reflect these patterns. This involved modifying the prevalence data input into DASPM. The prevalence rates included in DASPM are sourced from the Global Burden of Disease. In sensitivity analysis 1, we simply doubled the prevalence rates for cannabis, and halved the prevalence rates for methamphetamine (based on wastewater graphs). In sensitivity analysis 2, we used the lower and upper values from the Global Burden of Disease to modify the prevalence rates (lower for methamphetamine and upper for cannabis). The prevalence rates used for each analysis are presented in the below table.

*Table A2: Input prevalence rates: national GBD data (main analysis); inputs for sensitivity analysis 1 and sensitivity analysis 2*

		GBD prevalence value (main DASPM analysis)	Prevalence valued doubled for cannabis and halved for methamphetamine (sensitivity analysis 1)	GBD upper value for cannabis and lower value for methamphetamine (sensitivity analysis 2)
Methamphetamine	10 to 14	0.00%	0.00%	0.00%
	15 to 19	0.48%	0.24%	0.33%
	20 to 24	2.21%	1.11%	1.51%
	25 to 29	2.40%	1.20%	1.69%
	30 to 34	1.45%	0.73%	0.97%
	35 to 39	0.83%	0.42%	0.54%
	40 to 44	0.48%	0.24%	0.30%
	45 to 49	0.26%	0.13%	0.17%
	50 to 54	0.14%	0.07%	0.08%
	55 to 59	0.08%	0.04%	0.05%
	60 to 64	0.05%	0.03%	0.03%
	65 to 69	0.04%	0.02%	0.02%
	70 to 74	0.03%	0.02%	0.02%
	75 to 79	0.02%	0.01%	0.01%
80 +	0.02%	0.01%	0.01%	
Cannabis	10 to 14	0.35%	0.69%	0.48%
	15 to 19	3.24%	6.48%	4.29%
	20 to 24	2.79%	5.59%	3.72%
	25 to 29	1.68%	3.36%	2.36%
	30 to 34	1.00%	2.01%	1.38%
	35 to 39	0.67%	1.34%	0.93%
	40 to 44	0.52%	1.03%	0.73%
	45 to 49	0.40%	0.80%	0.58%
	50 to 54	0.28%	0.56%	0.40%
	55 to 59	0.18%	0.37%	0.26%
	60 to 64	0.11%	0.22%	0.16%
	65 to 69	0.07%	0.15%	0.11%
	70 to 74	0.05%	0.10%	0.07%
	75 to 79	0.04%	0.07%	0.05%
80 +	0.02%	0.04%	0.03%	

We conducted three DASPM analyses which varied based on the above prevalence rates (everything else was consistent with the main DASPM analysis). The outputs are presented in the below table.

*Table A3: Sensitivity analyses, varying cannabis (higher) and methamphetamine (lower): DASPM outputs (Note 1)*

	Main DASPM analysis	Sensitivity analysis 1	Sensitivity analysis 2
Total demand (number of people to be treated)	9,085	9,505	9,031
Clinical FTE	396	399	387
Beds	164	154	154

Note 1: All figures are for intensive interventions (excluding brief interventions)

## Appendix 4: Met demand estimates – technical details

Estimates of alcohol and other drug treatment are collected in many databases in Australia. Synthesising this information is not straightforward. There is variation in the way information is collected. Treatment estimates are sometimes defined as episodes of care, and other times as distinct clients (who may engage in multiple episodes). Some datasets provide state level data others only national data, and few databases provide treatment estimates across age-groups and different drug types. There is also no standard way of defining treatment types which makes generating met demand estimates across treatment types difficult. There is also overlap in the scope of the collections which poses problems for double counting. For all these reasons, estimating met demand required applying a range of assumptions and when necessary conversions, some of which have been laid out in previous work (Chalmers & Ritter, 2014), and built upon in this project. The databases used when estimating met demand are listed below.

*Table A4: Databases sourced to estimate met demand in the ACT*

Database	Notes on database	Treatment settings/types
Alcohol and other drug national minimum database (AODTS-NMDS)	Distributions from 2018-19 unit record data of closed treatment episodes assigned to the number of distinct clients from the same collection Pro-rated to 2021 estimates	Includes number of people treated by publicly funded treatment agencies. The following treatment types were categorised as intensive interventions: <ul style="list-style-type: none"> <li>• Counselling</li> <li>• Withdrawal management</li> <li>• Support and case management</li> <li>• Rehabilitation</li> <li>• Pharmacotherapy</li> <li>• Other</li> </ul> For Screening and Brief Interventions: <ul style="list-style-type: none"> <li>• Assessment only</li> <li>• Information and education</li> </ul>
National Hospital Morbidity Data (NHMD).	2018-19. Hospital separations Pro-rated to 2021 estimates Method 1 and Method 2 (see below) were used to convert national data to ACT estimates	Closed episodes of in-patient treatment provided by hospitals (Principal Diagnosis substance use disorder)
National opioid pharmacotherapy statistics annual data collection (NOPSAD)	2020. Census of clients Pro-rated to 2021 estimates	Point in time (day) measure of people in Opioid Maintenance Treatment (OMT)
The National Community Mental Health Care Database (NCMHCD)	2018-19. Occasions of service Pro-rated to 2021 estimates	Client contacts with government operated and funded community and ambulatory mental health care services <ul style="list-style-type: none"> <li>• (Principal Diagnosis substance use disorder)</li> </ul>
Bettering the Evaluation and Care of Health (BEACH).	Annual estimates, averaged over 2008-2013. Sample of GPs (1,000 GPs, 100 consecutive encounters) Method 1 and Method 2 (see below) were used to convert national data to ACT estimates. Pro-rated to 2021 estimates	Treatment encounters with a GP (Principal Diagnosis substance use disorder and where no opioid maintenance was provided)

Sourcing treatment estimates for this project involved two overarching activities. The first involved estimating, for each dataset separately, the numbers of distinct clients in the ACT in receipt of alcohol and other drug treatment, across the drug types of interest for this project (alcohol, cannabis, methamphetamines, or opioids), and also by age-groups. The second task involved working between the datasets and removing duplications.

The anchor dataset for this project is the AODTS-NMDS (2018-19), which collects information on publicly funded (specialist) alcohol and other drug treatment in Australia. Around half of all treatment estimates (for both intensive and brief interventions) are held in the AODTS-NMDS. When information is lacking in other datasets, data from the AODTS-NMDS has been used when doing conversions. For instance, this involved using the age and drug distributions reported in the AODTS-NMDS, and applying them to datasets where no age and drug specific data is available.

Additionally, the NHMD and the BEACH datasets only provide national alcohol and drug treatment estimates. Thus, we have generated two types of population conversions which have been used to pro-rata national estimates for these databases. The first method involved generating conversions using the ABS data and comparing the size of the national population to the ACT population (see below table A5). The second method involved deriving conversions using the AODTS-NMDS data and comparing the size of the national treatment population to the ACT treatment population (see below table A6). Both set of conversions were then used to pro-rata treatment estimates in datasets where only national data was available, thereby generating ACT treatment estimates. As will become clear, each method produced different results. Method 2 (treatment population conversions) produced higher treatment estimates than Method 1 (general population conversions).<sup>23</sup> This suggests that on average the ACT is treating more people per capita than the national average as reported in the AODTS-NMDS. We have used both methods of conversion for the NHMD and BEACH datasets, and in so doing, method 1 provides low treatment estimates, and method 2 provides high treatment estimates.

*Table A5: ACT population and national population*

Age (years)	National population	ACT population	Population conversion
10-19	3,086,616	49,856	61.91
20-29	3,618,485	66,598	54.33
30-39	3,758,148	71,044	52.90
40-49	3,296,468	59,234	55.65
50-59	3,120,813	49,289	63.32
60+	5,632,555	78,597	71.66

Data source: National, state and territory population, Dec 2020 (Australian Bureau of Statistics, 2020)

<sup>23</sup> The exception was for the 10-19 yrs age-group. For 10-19 yrs, method 1 was used to generate high estimates, and method 2 low estimates.

Table A6: National AOD treatment estimates compared to ACT treatment estimates

Age (years)	National treatment estimates	ACT treatment estimates	Population conversion
10-19	24,296	329	73.85
20-29	39,819	876	45.46
30-39	22,488	1001	22.47
40-49	16,388	857	19.12
50-59	8,953	435	20.58
60+	4,968	178	27.91
National estimates (AODTS-NMDS): Distinct clients who received treatment for their own drug use by principal drug of concern and age group, Australia, 2019–20 ACT estimates (AODTS-NMDS): Distinct clients who received treatment for their own drug use by principal drug of concern and age group, ACT, 2019–20 Methamphetamine is called amphetamines in the AODTS-NMDS Opioids inclusive of all opioids reported in the AODTS-NMDS (codeine, morphine, buprenorphine, heroin, methadone, oxycodone, other opioids, other analgesics). Cases were excluded when the primary drug of concern was not alcohol, cannabis, amphetamines, or opioids			

Because the data sources come from different collection years (some 2018-19, others 2020) we pro-rated all treatment estimates to 2021 based on the changes to the general population in the ACT between the collection year and 2021, as indicated by the ABS projections (series B projections). For instance, if we collected 2018-19 data, the rate of increase in the general population between 2018 and 2021 (as indicated by ABS projection) was used to pro-rata the 2018-19 treatment estimates to 2021 estimates. This was done for all databases.

#### TASK 1: ESTIMATING DISTINCT CLIENTS IN EACH DATABASE

##### Alcohol and other drug national minimum database (AODTS-NMDS, 2018-19)

In 2018-19, it was estimated that 6,533 closed treatment episodes were provided to 3,884 distinct clients in the ACT (this excludes people who sought treatment for others drug use but includes all drug types).

Using the unit record data of closed treatment episodes (2018-19), the total of 6,533 closed treatment episodes were distributed across age-groups, drug types, and the two different DASPM treatment categories. The results are provided in the below table. All percentage points indicate the number of closed treatment episodes as a proportion of the total treatment episodes (n = 6,533), rounded to two decimal places.

Table A7: Episodes of care AODTS-NMDS (2018/19), by age, drug type

	Age	Alcohol	Cannabis	Methamp hetamine	Opioids	Excluded drugs of concern	No drug reported
Intensive treatment	10-14	0.08%	0.34%	0.11%	0.00%	0.05%	0.00%
	15-19	0.95%	2.28%	1.76%	0.11%	0.55%	0.00%
	20-24	1.58%	1.48%	1.71%	0.32%	0.60%	0.00%
	25-64	20.54%	4.41%	11.57%	6.03%	1.85%	0.06%
	65 +	0.72%	0.00%	0.00%	0.00%	0.02%	0.00%
	No age reported	0.02%	0.02%	0.00%	0.00%	0.02%	0.00%
Brief treatment	10-14	0.06%	0.11%	0.00%	0.00%	0.00%	0.00%
	15-19	0.84%	0.90%	0.26%	0.05%	0.41%	0.00%
	20-24	1.82%	0.78%	1.03%	0.46%	0.92%	0.00%
	25-64	15.58%	2.40%	6.18%	6.21%	3.83%	0.05%
	65 +	0.66%	0.02%	0.00%	0.08%	0.15%	0.00%
	No age reported	0.00%	0.00%	0.02%	0.00%	0.03%	0.00%
Intensive treatment includes; counselling, withdrawal management, support and case management, rehabilitation, pharmacotherapy, other. Brief treatment includes; assessment only, information and education. Opioids is inclusive of; codeine, morphine, buprenorphine, heroin, methadone, and other opioids. Age calculated as: YEARFRAC (excel function) based on date of birth and the date at the commencement of the treatment episode. YEARFARC calculates the fraction of the year represented by the number of days between two dates.							

In order to generate estimates of distinct clients, the distributions from the unit record data of closed treatment episodes (displayed above), were applied to the number of 3,884 distinct clients in the ACT. Doing so gives an estimate of the number of distinct clients in the ACT (2018-19), across age-group, and drug type, as seen in the below table. Note: we leave out the percentage of cases with no age reported (0.11% of closed episodes), no drug type reported (0.11% of closed episodes), or a drug type which is not covered in this report (8.43% of closed episodes). As such, the total of distinct clients in the below table (3,548 clients) is less than the denominator of 3,884 clients.

Table A8: Clients in the AODTS-NMDS (2018/19) by age and drug type

	Age	Alcohol	Cannabis	Methamph	Opioids	Total
Intensive treatment	10-14	3	13	4	0	20
	15-19	37	89	68	4	198
	20-24	61	57	66	12	196
	25-64	798	171	449	234	1,652
	65 +	28	0	0	0	28
	<b>Total</b>	<b>927</b>	<b>330</b>	<b>587</b>	<b>250</b>	<b>2,094</b>
Brief treatment	10-14	2	4	0	0	6
	15-19	33	35	10	2	80
	20-24	71	30	40	18	159
	25-64	605	93	240	241	1,179
	65 +	26	1	0	3	30
	<b>Total</b>	<b>737</b>	<b>163</b>	<b>290</b>	<b>264</b>	<b>1,454</b>
All treatment	10-14	5	17	4	0	26
	15-19	70	124	78	6	278
	20-24	132	87	106	30	355
	25-64	1,403	264	689	475	2,831
	65 +	54	1	0	3	58
	<b>Total</b>	<b>1,664</b>	<b>493</b>	<b>877</b>	<b>514</b>	<b>3,548</b>

Finally, these 2018-19 figures have been increased to 2021 figures based on the difference in the general population between 2018 and 2021, as indicated in the ABS projections (series B projections). The results are provided in the below table.

Table A9: Number of clients, by age and drug type estimated for 2021 from 2018/19 data

	Age	Alcohol	Cannabis	Methamph	Opioids	Total
Intensive treatment	10-14	3	15	4	0	22
	15-19	39	95	72	4	210
	20-24	64	59	69	13	205
	25-64	812	174	457	238	1,681
	65 +	29	0	0	0	29
	<b>Total</b>	<b>947</b>	<b>343</b>	<b>602</b>	<b>255</b>	<b>2,147</b>
Brief treatment	10-14	2	4	0	0	6
	15-19	35	37	11	2	85
	20-24	74	31	42	19	166
	25-64	616	95	244	245	1,200
	65 +	27	1	0	3	31
	<b>Total</b>	<b>754</b>	<b>168</b>	<b>297</b>	<b>269</b>	<b>1,488</b>
All treatment	10-14	5	19	4	0	28
	15-19	74	132	83	6	295
	20-24	138	90	111	32	371
	25-64	1,428	269	701	483	2,881
	65 +	56	1	0	3	60
	<b>Total</b>	<b>1,701</b>	<b>511</b>	<b>899</b>	<b>524</b>	<b>3,635</b>

### National Hospital Morbidity Data (NHMD, 2018-19)

The National Hospital Morbidity database is compiled from data supplied by the state and territory health authorities. It is a collection of electronic summary records for separations (that is, episodes of care) in public and private hospitals in Australia. A separation is a completed episode of admitted hospital care ending with discharge, death, transfer or a portion of a hospital stay beginning or ending in a change to another type of care (for example, from acute care to rehabilitation). It does not include episodes of non-admitted care provided in outpatient clinics or emergency departments. The NHMD provides data under two classification systems – the *Principal Diagnoses* and the *Australian Refined Diagnosis-Related Groups* classification systems. The *Principal Diagnoses* classification system is preferred because it is based on the International Statistical Classification of Diseases and Related Health Problems, tenth revision, Australian Modification (ICD-10-AM) – a system also used to collect prevalence data for DASPM through the Global Burden of Disease project.

The Principal Diagnoses ICD-10-AM codes of interest for this project are: F10 (alcohol), F11 (opioids), F12 (cannabinoids), and F15 (stimulants including amphetamines, pseudoephedrine, volatile nitrates and caffeine). These serve as proxy measures for the four drug types covered in this project, albeit imperfectly (i.e., code F15 is used as a proxy for methamphetamine treatment episodes even though these estimates are inclusive of caffeine and other stimulant episodes). The diagnoses covered for each drug include: acute intoxication, harmful use (e.g. episodes of depressive disorder secondary to heavy alcohol consumption), dependence syndrome, withdrawal state, psychotic disorder, amnesia syndrome, and residual and late-onset psychotic disorder.

National estimates of separations by principal diagnoses and age-group as reported in the NHMD, are summarised in the below table.

Table A10: NHMD separations, national (2018/19)

Age (years)	Alcohol n	Cannabis n	Methamphetamine n	Opioids n
10-19	1,613	821	625	56
20-29	5,952	2,549	4,659	826
30-39	11,899	1,308	5,369	1,301
40-49	17,104	614	3,043	1,282
50-59	14,634	320	760	478
60+	12,249	73	81	580
<b>TOTAL</b>	<b>63,451</b>	<b>5,685</b>	<b>14,537</b>	<b>4,523</b>

Data source: Principal Diagnosis data cube under ICD-10-AM Edition 10, 2018-19  
n = separations (national estimates, 2018-19)  
Principal Diagnoses codes: Alcohol = F10 Mental and behavioural disorders due to use of alcohol; Cannabis = F12 Mental and behavioural disorders due to use of cannabinoids; Methamphetamine = F15 Mental and behavioural disorders due to use of other stimulants, including caffeine; Opioids = F11 Mental and behavioural disorders due to use of opioids.

These separations need to be converted to distinct clients. In converting separations estimated in the NHMD to distinct clients, Chalmers and Ritter (2014) used data from the Patient Pathways project – which examines pathways into and through AOD treatment in Australia – and made the assumption that each distinct client will have 2.2 admissions to hospital per annum. We thereby apply the conversion rate of 2.2 to the estimated separations in the NHMD to arrive at estimates of distinct clients (see below table).

Table A11: NHMD clients, national (2018/19)

Age (years)	Alcohol n	Cannabis n	Methamphetamine n	Opioids n
10-19	733	373	284	25
20-29	2,705	1,159	2,118	375
30-39	5,409	595	2,440	591
40-49	7,775	279	1,383	583
50-59	6,652	145	345	217
60+	5,568	33	37	264
<b>TOTAL</b>	<b>28,842</b>	<b>2,584</b>	<b>6,607</b>	<b>2,055</b>

Data source: Principal Diagnosis data cube under ICD-10-AM Edition 10, 2018-19  
Conversion rate of 2.2 (Chalmers & Ritter, 2014) is applied to the estimated separations in the NHMD to arrive at an estimate of distinct clients  
n = estimated distinct clients (national, 2018-19)  
Principal Diagnoses codes: Alcohol = F10 Mental and behavioural disorders due to use of alcohol; Cannabis = F12 Mental and behavioural disorders due to use of cannabinoids; Methamphetamine = F15 Mental and behavioural disorders due to use of other stimulants, including caffeine; Opioids = F11 Mental and behavioural disorders due to use of opioids.

As these are national estimates, we need to convert them based on the size of the ACT population, based on Method 1 and Method 2 conversions, thus providing low and high treatment estimates. Recalling that the low treatment estimates are based on conversions which assume the ACT has the same treatment rate as the national average, and the high treatment estimates assumes a larger than average treatment rate in the ACT based on AODTS-NMDS treatment estimates. Both the conversions were applied to the above national hospital treatment estimates, thereby providing low and high treatment estimates for the ACT (see below table).

Table A12: NHMD clients, ACT (2018/19)

Age (years)	Alcohol		Cannabis		Methamphetamine		Opioids	
	Low	High	Low	High	Low	High	Low	High
<b>10-19</b>	10	12	5	6	4	5	0	0
<b>20-29</b>	50	60	21	25	39	47	7	8
<b>30-39</b>	102	241	11	26	46	109	11	26
<b>40-49</b>	140	407	5	15	25	72	10	30
<b>50-59</b>	105	323	2	7	5	17	3	11
<b>60+</b>	78	199	0	1	1	1	4	9
<b>TOTAL</b>	<b>485</b>	<b>1,242</b>	<b>44</b>	<b>80</b>	<b>120</b>	<b>251</b>	<b>35</b>	<b>84</b>

Low estimates based on conversions derived from general population comparisons. High estimates based on conversions derived from treatment population comparisons. The opposite was true for 10-19 yrs.

Finally, these 2018-19 figures have been increased to 2021 figures based on the difference in the general population between 2018 and 2021, as indicated in the ABS projections (series B projections). The results are provided in the Table A13.

Table A13: NHMD clients, ACT projection to 2021 from 2018/19 data

Age (years)	Alcohol		Cannabis		Methamphetamine		Opioids	
	Low	High	Low	High	Low	High	Low	High
10-19	10	12	5	6	4	5	0	0
20-29	51	61	21	25	40	48	7	8
30-39	104	246	11	27	47	111	11	27
40-49	142	414	5	15	25	73	10	30
50-59	106	326	2	7	5	17	3	11
60+	80	205	-	1	1	1	4	9
<b>TOTAL</b>	<b>493</b>	<b>1,264</b>	<b>44</b>	<b>81</b>	<b>122</b>	<b>255</b>	<b>35</b>	<b>85</b>

Low estimates based on conversions derived from general population comparisons. High estimates based on conversions derived from treatment population comparisons. The opposite was true for 10-19 yrs.

This gives a high estimate of 1685 NHMD clients, and a low estimate of 694 NHMD clients.

### National opioid pharmacotherapy statistics annual data collection (NOPSAD, 2020)

The NOPSAD collection provides annual data on the provision of opioid pharmacotherapy treatment in Australia. Data are reported on a snapshot day in June each year. In the ACT, data are collected from the Canberra Health Services, Alcohol and Drug Services spreadsheets; from Medication Administration Chart (MAC) Sheets which the community pharmacies provide every month; and via iDose which is a Canberra Health Service database that contains client dosing information in real time.

In the ACT, it was estimated that on a snapshot day there are 1,120 clients (1,118 after applying the age-ranges and rounding) in receipt of opioid pharmacotherapy treatment. In NOPSAD, age distributions are not provided at the state level, but they are provided for people in receipt of opioid pharmacotherapy treatment at the national level. Thus, we apply the national age distribution from NOPSAD (Table S25 of NOPSAD, 2020) to the 1,120 quanta of distinct clients estimated to receive treatment in the ACT. This has been done in the below table, and obviously all treatment cases are matched to the opioid drug type.

Table A14: NOPSAD data, ACT (2020)

Age (years)	Alcohol	Cannabis	Methamphetamine	Opioids n (%)
10-19	-	-	-	1 (0.09)
20-29	-	-	-	85 (7.60)
30-39	-	-	-	284 (25.40)
40-49	-	-	-	379 (33.80)
50-59	-	-	-	255 (22.80)
60+	-	-	-	114 (10.20)
<b>TOTAL</b>	-	-	-	<b>1,118 (100.0)</b>

Data source: Table S25 of NOPSAD, 2020 (Australian Institute of Health and Welfare, 2020)  
n = distinct clients estimated from a snapshot day in June 2020  
These are the age distributions from the national cohort of clients reported to NOPSAD, assigned to the 1,120 clients estimated to receive opioid pharmacotherapy treatment in the ACT  
The 10-19 yrs. age group data reported in this table is taken from the 15-19 yrs. age group data reported in NOPSAD, yet is retained as 10-19 yrs. for consistency.

Even though NOPSAD estimates are for a single day census, the average length of stay for OMT in the ACT is greater than one year<sup>24</sup>, thus we use the above single day estimates as treatment counts across a full year.

These 2020 figures have been increased to 2021 figures based on the difference in the general population between 2020 and 2021, as indicated in the ABS projections (series B projections). The results are provided in the below table.

*Table A15: NOPSAD data, ACT projected to 2021*

Age (years)	Alcohol	Cannabis	Methamphetamine	Opioids n (%)
10-19	-	-	-	1
20-29	-	-	-	87
30-39	-	-	-	290
40-49	-	-	-	385
50-59	-	-	-	258
60+	-	-	-	148
<b>TOTAL</b>	-	-	-	<b>1,169</b>

Data source: Table S25 of NOPSAD, 2020 (Australian Institute of Health and Welfare, 2020)  
n = distinct clients estimated from a snapshot day in June 2020  
These are the age distributions from the national cohort of clients reported to NOPSAD, assigned to the 1,120 clients estimated to receive opioid pharmacotherapy treatment in the ACT  
The 10-19 yrs. age group data reported in this table is taken from the 15-19 yrs. age group data reported in NOPSAD, yet is retained as 10-19 yrs. for consistency.

#### **BEACH data (annual estimated encounters with a GP)**

The BEACH data national estimate for annual encounters with a GP where the principal diagnosis was substance use disorder and no opioid substitute was prescribed or provided was 826,000 per annum on average between 2008 and 2013 (Ritter et al., 2014). Of these, 487,000 were for alcohol use disorders, 271,000 for illicit drug use disorders, and 68,000 for medicinal drug use disorder (Ritter et al., 2014).

These estimates need to align with the DASPM drug types (alcohol, cannabis, methamphetamine, opioids). We can obviously use the figure of 487,000 encounters for alcohol use disorders as a proxy for the alcohol drug type, but we need to split the 271,000 encounters for illicit drug use disorders between cannabis and methamphetamine, and assign the 68,000 encounters for medicinal drug use disorder to the opioid drug type.

In the New Horizons report, the age distributions associated with the BEACH data national estimates for annual encounters with a GP were also reported (Ritter et al., 2014). Having established drug type proxies, we applied the age distributions provided in the New Horizons report in order to estimate age and drug specific GP encounters (as detailed in the below table). Noting that the totals have changed when applying age-ranges which are rounded to one-decimal place.

<sup>24</sup> The average length of stay data was provided to us from the CHS.

Table A16: BEACH data, national estimates, number of encounters (p.a. average 2008-2013)

Age (years)	Alcohol n (%)	Cannabis n (%)	Methamphetamine n (%)	Opioids n (%)
5-14	487 (0.1)	542 (0.4)	542 (0.4)	0 (0.0)
15-24	32,142 (6.6)	21,274 (15.7)	21,274 (15.7)	4,294 (6.3)
25-44	170,937 (35.1)	79,945 (59.0)	79,945 (59.0)	32,776 (48.2)
45-64	221,585 (45.5)	29,539 (21.8)	29,539 (21.8)	19,448 (28.6)
65-74	45,778 (9.4)	1,762 (1.3)	1,762 (1.3)	4,216 (6.2)
75+	16,071 (3.3)	2,304 (1.7)	2,304 (1.7)	7,412 (10.9)
<b>TOTAL</b>	<b>487,000 (100.0)</b>	<b>135,366 (100.0)</b>	<b>135,366 (100.0)</b>	<b>68,146 (100.0)</b>

The BEACH data provides treatment estimates for GP encounters not distinct clients. To convert these encounters to distinct clients we draw on data from the Medicare Benefits Schedule which reports that in the ACT the average GP attendances per person per annum (Medicare Benefits Schedule Statistics, 2016-17) are as follows across the age-groups:

- Under 15 yrs. (3.9 attendances per person)
- 15-24 yrs. (3.1 attendances per person)
- 25-44 yrs. (4.2 attendances per person)
- 45-64 (5.1 attendances per person)
- 65+ (9.5 attendances per person)

These conversion rates are applied to the above data of national GP attendances in order to estimate the numbers of distinct clients.<sup>25</sup> This was done by matching each conversion rate to the respective age-group: the conversion of 9.5 was applied to both the 65-74 and 75+ age-group, and the conversion of 3.9 applied to the 5-14 yrs. age group (the other age-groups matched perfectly). The results are provided in the below table.

Table A17: BEACH data, national estimates (p.a. 20018-2013), number of clients, age ranges as given in BEACH dataset

Age (years)	Alcohol n	Cannabis n	Methamphetamine n	Opioids n
5-14	125	139	139	-
15-24	10,368	6,863	6,863	1,385
25-44	40,699	19,035	19,035	7,804
45-64	43,448	5,792	5,792	3,813
65-74	4,819	185	185	444
75+	1,692	243	243	780
<b>TOTAL</b>	<b>101,151</b>	<b>32,257</b>	<b>32,257</b>	<b>14,226</b>

An issue with this database is that the age-ranges do not match the age-ranges from the other databases in the project. To resolve this, we broke the above treatment estimates into 5 year increments. We assumed equal split within each age-group, the exception being for the 5-14 yrs. age-group where we assumed all estimates lied with those aged between 10-14 years. We then rearranged the treatment estimates from the 5-year increments to align with the age-ranges in the other databases. The results are provided below.

<sup>25</sup> These conversion rates were generated based on all GP attendances in the ACT. Conversion rates specifically for GP attendances related to alcohol and other drugs were not available. Given the complexity of alcohol and other drug problems, it is possible that the attendance per person ratio is likely higher than what we have used above.

Table A18: BEACH data, national estimates (p.a. 2008-2013), number of clients, age ranges adjusted for DASPM

Age (years)	Alcohol n	Cannabis n	Methamphetamine n	Opioids n
10-19	5,309	3,571	3,571	693
20-29	15,359	8,190	8,190	2,644
30-39	20,350	9,518	9,518	3,902
40-49	21,037	6,207	6,207	2,904
50-59	21,724	2,896	2,896	1,907
60+	17,373	1,876	1,876	2,177
<b>TOTAL</b>	<b>101,152</b>	<b>32,258</b>	<b>32,258</b>	<b>14,227</b>

These are national estimates, so again we need to convert them based on the size of the ACT by applying the conversion rates. This provides low and high treatment estimates of distinct clients in the ACT who access GP services for AOD problems per annum, where no opioid substitute was prescribed or provided (see below table).

Table A19: BEACH data, ACT estimates (p.a. 2008-2013), number of clients

Age (years)	Alcohol		Cannabis		Methamphetamine		Opioids	
	Low	High	Low	High	Low	High	Low	High
<b>10-19</b>	72	86	48	58	48	58	9	11
<b>20-29</b>	283	338	151	180	151	180	49	58
<b>30-39</b>	385	906	180	424	180	424	74	174
<b>40-49</b>	378	1,100	112	325	112	325	52	152
<b>50-59</b>	343	1,056	46	141	46	141	30	93
<b>60+</b>	242	622	26	67	26	67	30	78
<b>TOTAL</b>	<b>1,703</b>	<b>4,108</b>	<b>563</b>	<b>1,195</b>	<b>563</b>	<b>1,195</b>	<b>244</b>	<b>566</b>

Low estimates based on conversions derived from general population comparisons. High estimates based on conversions derived from treatment population comparisons. The opposite was true for 10-19 yrs.

The final step involved converting the 2013 estimates from the BEACH dataset to 2021 estimates. The 2013 estimated resident population was compared to the 2021 ABS projections (series B), and the rate generated from this was used to pro-rata the treatment estimates.

Table A20: BEACH data, ACT estimates (updated to 2021 population), number of clients

Age (years)	Alcohol		Cannabis		Methamphetamine		Opioids	
	Low	High	Low	High	Low	High	Low	High
<b>10-19</b>	80	96	53	65	53	65	10	12
<b>20-29</b>	296	354	158	188	158	188	51	61
<b>30-39</b>	446	1,050	209	492	209	492	86	202
<b>40-49</b>	505	1,470	150	434	150	434	69	203
<b>50-59</b>	359	1,105	48	148	48	148	31	97
<b>60+</b>	295	757	32	82	32	82	37	95
<b>TOTAL</b>	<b>1,981</b>	<b>4,832</b>	<b>650</b>	<b>1,409</b>	<b>650</b>	<b>1,409</b>	<b>284</b>	<b>670</b>

Low estimates based on conversions derived from general population comparisons. High estimates based on conversions derived from treatment population comparisons. The opposite was true for 10-19 yrs.

## Aboriginal and Torres Strait Islander health organisations

The Online Service Report (OSR) is the main data collection for Aboriginal and Torres Strait Islander health organisations in Australia. However, the OSR collections from 2017-18 onwards ceased to collect data on the types of services being delivered, thus there is no way of distinguishing substance-use services from the rest of the primary health care services covered in the collections. Therefore, we cannot rely on the OSR collection for this project.

To our knowledge, there are two Aboriginal and Torres Strait Islander health organisations that provide drug and alcohol support in the ACT but do not report to the NMDS: Winnunga Nimmityjah Aboriginal Health and Community Services, and Gugan Gulwan Youth Aboriginal Corporation.

Gugan Gulwan is a First Nations youth service, providing care and support to young Indigenous peoples and their families. Gugan Gulwan Youth Aboriginal Corporation was created “to support young Aboriginal and Torres Strait Islander people in the ACT and surrounding regions to thrive and succeed” (Gugan Gulwan Youth Aboriginal Corporation, 2021, p. 2). Services include case management, group programs, therapeutic work, outreach, health promotion, and family therapy, all focussed on social and emotional wellbeing of young people. While the staffing profile includes AOD workers, this AOD work appears to be integrated across all aspects of wellbeing (and as such does not conform to the way in which DASPM identifies care packages).<sup>26</sup> We could not source data on the number of clients who received AOD interventions from Gugan Gulwan. This means that the met demand figures in this report are conservative, notably for young First Nations people.

Winnunga Nimmityjah Aboriginal Health and Community Services “provides a culturally safe environment in which health and community services are delivered that support the achievement of optimal health and social outcomes for Aboriginal peoples” (Winnunga Nimmityjah Aboriginal Health and Community Services Ltd, 2019, p. 4). It is a large, comprehensive health and wellbeing service with more than 30 programs across a large range of services including primary health care, dental services, housing liaison, midwifery, mental health and wellbeing and health promotion. Like all Aboriginal and Torres Strait Islander services, alcohol and other drug interventions are not isolated from family and country and social and emotional wellbeing. In the Winnunga Annual Report (2018-19) it was reported that 4,800 clients accessed health services from Winnunga in that year period. Furthermore, according to the client satisfaction survey conducted by Winnunga, it was reported that 16% of clients accessing Winnunga did so for tobacco, drug and alcohol support (Winnunga Nimmityjah Aboriginal Health and Community Services Ltd, 2019). This gives us an approximate figure of 768 clients in receipt of ATOD services. Some proportion of those likely received smoking only interventions (for example Figure 7, annual report 2018/19, social health team group sessions, around half the number were provided for smoking cessation as compared to alcohol misuse treatment). This suggests that the 768 clients is an over-estimate. However, given that clients from Gugan Gulwan have not been able to be included, we take the 768 number as a reasonable approximate (see below table). We recognise that for First Nations peoples, the DASPM approach is not culturally appropriate, but as the total demand reflects the whole population, inclusion of Aboriginal and Torres Strait Islander care in the met demand section is appropriate.

As per the methods being followed here, we take the 768 clients and partition out by age and drug type (Table A21) and then adjust up to the reference year (2020/2021, Table A22).

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<sup>26</sup> Consistent with work we have done with other jurisdictions, DASPM and its conceptual underpinning – of specialist AOD treatment – is not culturally appropriate for planning First nations services, and it does not conform the First Nations ways of thinking and being. As such it is a highly imperfect way of thinking about AOD interventions with Aboriginal and Torres Strait Islander peoples.

*Table A21: Aboriginal and Torres Strait Islander services, ACT client numbers (pro-rata age and drug types from ACT NMDS proportions)*

Age (years)	Alcohol	Cannabis	Meth.	Opioids	TOTAL
10-19	15	35	17	1	68
20-29	67	38	55	23	183
30-39	83	17	68	41	209
40-49	93	10	35	41	179
50-59	53	5	9	24	91
60+	30	1	1	6	38
<b>TOTAL</b>	<b>341</b>	<b>106</b>	<b>185</b>	<b>136</b>	<b>768</b>
AODTS-NMDS 2019-20 distributions (Table SC ACT 4 and Table SC ACT 6) applied to the count of 768 clients					

These 2018-19 figures have been increased to 2021 figures based on the difference in the general population between 2018 and 2021, as indicated in the ABS projections (series B projections). The results are provided in the below table.

*Table A22: Aboriginal and Torres Strait Islander services, ACT client numbers projected to 2021*

Age (years)	Alcohol	Cannabis	Meth.	Opioids	TOTAL
10-19	15	36	17	1	70
20-29	68	39	56	23	187
30-39	85	17	69	42	213
40-49	95	10	36	42	182
50-59	54	5	9	24	92
60+	31	1	1	6	39
<b>TOTAL</b>	<b>348</b>	<b>108</b>	<b>188</b>	<b>138</b>	<b>783</b>
AODTS-NMDS 2019-20 distributions (Table SC ACT 4 and Table SC ACT 6) applied to the count of 768 clients					

### **The National Community Mental Health Care Database (NCMHCD)**

The NCMHCD (2018/2019) contains data on service contacts provided by public sector specialised outpatient community mental health services in Australia. In the NCMHCD, service contacts with community mental health services are reported by Principal Diagnosis. The Principal Diagnoses ICD-10-AM codes of interest are: F10 (alcohol), F11 (opioids), F12 (cannabinoids), and F15 (stimulants including amphetamines, pseudoephedrine, volatile nitrates and caffeine). At the national level, the number of service contacts are as follows:

- F10 (alcohol): 61,274
- F11 (opioids): 26,941
- F12 (cannabis): 30,263
- F15 (stimulants): 38,873

NCMHCD data at the state level is less detailed than the national data. At the state level, service contacts are only separated based on whether they are assigned a code of F10 (alcohol) or any other drug (F11-F19). For the ACT, the following service contacts are reported in the NCMHCD:

- F10 (alcohol): 2,041 service contacts
- F11-F19 (all other drugs): 7,939 service contacts

When estimating what proportion of the 7,939 service contacts in the ACT are related to F11 (opioids), F12 (cannabis), and F15 (stimulants), the distribution from the national data will be applied

to the 7,939 service contacts. The resultant service contacts for the ACT across the four codes of interest are as follows:

- F10 (alcohol): 2,041
- F11 (opioids): 1,064 (i.e., 13.41% of 7,939)
- F12 (cannabis): 1,196 (i.e., 15.06% of 7,939)
- F15 (stimulants): 1,536 (i.e., 19.34% of 7,939)

These service contacts need to be adjusted based on two factors – they include patient present and patient absent contacts (we are only interested in patient present contacts, as patient absent contacts only involve family members or carers); and they need to be converted to distinct clients. Patient present/absent: in the ACT (2018-19) there were 311,743 service contacts reported to the NCMHCD. Of these, 199,918 (or 64.13%) were patient present contacts. We thus adjust the above service contacts to only include 64.13%, thereby excluding patient absent contacts. The results are as follows:

- F10 (alcohol): 1,309
- F11 (opioids): 682
- F12 (cannabis): 767
- F15 (stimulants): 985

Converting to distinct clients: the NCMHCD also reports an average of 29.1 service contacts per patient in the ACT, thus we apply the conversion of 29.1 to the above estimates, thereby estimating the numbers of distinct client reporting to the NCMHCD:

- F10 (alcohol): 45 (turns into 44 after rounding)
- F11 (opioids): 23
- F12 (cannabis): 26
- F15 (stimulants): 34 (turns into 35 after rounding)

The NCMHCD does not provide data across age-bands at the Principal Diagnoses level. Therefore, we apply the age-distributions from the AODTS-NMDS to the above estimates of distinct clients. This results in treatment estimates of distinct clients in the ACT who report to the NCMHCD for alcohol, cannabis, methamphetamine, or opioid problems (see below table).

*Table A23: NCMHCD ACT estimates of clients (2018/19)*

Age (years)	Alcohol n (%)	Cannabis n (%)	Methamphetamine n (%)	Opioids n (%)
10-19	9	5	7	5
20-29	15	9	12	8
30-39	9	5	7	4
40-49	6	4	5	3
50-59	3	2	3	2
60+	2	1	1	1
<b>TOTAL</b>	<b>44</b>	<b>26</b>	<b>35</b>	<b>23</b>

Summary of results from applying the age-distributions from the AODTS-NMDS to the estimated numbers of distinct clients at the national level from the National Community Mental Health Care Database (2018-19)  
n = estimated distinct clients.  
Principal Diagnoses codes: Alcohol = F10 Mental and behavioural disorders due to use of alcohol; Cannabis = F12 Mental and behavioural disorders due to use of cannabinoids; Methamphetamine = F15 Mental and behavioural disorders due to use of other stimulants, including caffeine; Opioids = F11 Mental and behavioural disorders due to use of opioids.

These 2018-19 figures have been increased to 2021 figures based on the difference in the general population between 2018 and 2021, as indicated in the ABS projections (series B projections). The

results are provided in the below table (note: due to small cell sizes, the pro-rated estimates are the same when rounded to the 2018-19 estimates).

Table A24: NCMHCD ACT estimates of clients, projected to 2021

Age (years)	Alcohol n	Cannabis n	Methamphetamine n	Opioids n
10-19	9	5	7	5
20-29	15	9	12	8
30-39	9	5	7	4
40-49	6	4	5	3
50-59	3	2	3	2
60+	2	1	1	1
<b>TOTAL</b>	<b>44</b>	<b>26</b>	<b>35</b>	<b>23</b>

Summary of results from applying the age-distributions from the AODTS-NMDS to the estimated numbers of distinct clients at the national level from the National Community Mental Health Care Database (2018-19)  
n = estimated distinct clients.  
Principal Diagnoses codes: Alcohol = F10 Mental and behavioural disorders due to use of alcohol; Cannabis = F12 Mental and behavioural disorders due to use of cannabinoids; Methamphetamine = F15 Mental and behavioural disorders due to use of other stimulants, including caffeine; Opioids = F11 Mental and behavioural disorders due to use of opioids.

## TASK 2: Addressing double counting

Having estimated the numbers of distinct clients in each database (and converted the data so all estimates are for 2021, and categorised across DASPM age-ranges), the next task involved removing duplications (that is the same client appearing in two datasets). The AODTS-NMDS was used as the baseline pool of treatment estimates, with the other datasets sequentially included based on the proportion of unique clients assumed to be contained in that dataset.

The same person may appear in more than one database in a year (that is receive an AOD treatment episode, plus be admitted to hospital for an AOD related condition to be treated, plus receive care from their GP for AOD). In this sense, clients are 'duplicated' across the databases, so we cannot simply sum the total across all databases to derive unique clients in any one year.

To remove duplications, the treatment estimates reported in the AODTS-NMDS are used as the baseline pool, and the treatment estimates from the remaining databases are sequentially added after duplication has been removed (Chalmers & Ritter, 2014). This creates both low and high treatment estimates (given the above contain low and high estimates for some databases, such as the hospital and GP data), and it is done separately for intensive interventions and brief interventions.

### Intensive Interventions

*Baseline pool = AODTS-NMDS (excluding assessment only and information and education)*

The baseline pool for both the low and high treatment estimates (intensive interventions) consists of 2,147 clients (Table A9) reported in the AODTS-NMDS. This excludes assessment only and information and education (these are brief interventions).

*Pool 1 = Baseline pool + NOPSAD*

We assume no overlap between AODTS-NMDS and NOPSAD, and therefore add all NOPSAD estimates (n = 1,169, Table A15) are added to the pool.

*Pool 2 = Pool 1 + Aboriginal and Torres Strait Islander Services*

Winnunga do not report to the NMDS (and we assume no overlap between Winnunga and NOPSAD), thus we add all treatment estimates from Winnunga (n = 783, Table A22) to the pool.

*Pool 3 = Pool 2 + NHMD (hospital)*

In the Patient Pathways Project, 27.7% of all those currently receiving specialist alcohol and other drug treatment had also in the same year period been admitted to hospital (inpatient) (Lubman et al., 2014). Thus, we remove the equivalent of 27.7% of the AODTS-NMDS treatment estimates (intensive interventions only) from the NHMD estimates (Table A13). The figure is calculated by removing the duplications for each combination of age-group and drug type class separately (see below table). This results in different estimates than if this was simply done with total estimates. This is because 27.7% of the AODTS-NMDS treatment estimates outstrips the NHMD estimates for some age-group and drug type classes, and instead of introducing negative numbers, in these instances we convert all negative numbers to zero (meaning nothing new is added to the pool for that class). If calculated at the total level (rather than individually by age group and drug type) slightly different figures result. These calculations are done for both the low and high NHMD treatment estimates. This leaves 234 NHMD clients added to the low pool, and 1,137 added to the high pool.

*Pool 4 = Pool 3 + NCMHCD (mental health services)*

In the Patient Pathways Project, 39.0% of all those currently seeking specialist alcohol and other drug treatment had also in the same year period used an outpatient mental health service. Thus, we remove all the NCMHCD data because 39.0% of the AODTS-NMDS (intensive interventions only) outstrips the 128 treatment estimates in the NCMHCD. We therefore assume that all mental health service treatment estimates which are assigned a principal diagnosis of substance use disorders, are already picked up in the AODTS-NMDS.

**Brief interventions**

*Baseline pool = AODTS-NMDS (assessment only and information and education)*

The baseline pool for both the low and high treatment estimates (brief interventions) consists of 1,589 clients reporting to the AODTS-NMDS for assessment only and information and education.

*Pool 1 = Baseline pool + BEACH (GP treatment)*

We assume that there is no overlap between the assessment only and information and education reported to the AODTS-NMDS, and the BEACH dataset. We therefore add all BEACH estimates to the pool for brief interventions, which includes adding 3,390 clients to the low pool, and 7,837 to the high pool.

**Note:** the process of removing duplications has been performed for each age-group by drug type individually. This means that the end results slightly deviate from what would be calculated if the removal of duplications was only performed at the total level.

The end results are provided in the below table. Displayed is an overview of the treatment estimates in each database, before and after duplications were removed. Note, the process of removing duplications has been performed for each row in the below table (not at the total level). This means that the end results deviate slightly from what would be calculated if the removal of duplications was only performed at the total level. Also, the met demand treatment estimates are often arranged into 10-year increments (10-19 yrs, 20-29 yrs, and so on), which is different to the DASPM age-groups. As such, the met demand treatment estimates were rearranged to match the age-groups in DASPM. This was done by splitting the met demand treatment estimates into single year ages based on the spread of closed treatment episodes in the unit record data of the AODTS-NMDS (2018-19). These single year estimates were then rearranged in accordance with the DASPM age groups.

Table A25: Met demand, removal of duplicates across databases (by age and drug class)

			AODTS		NHMD (low)		NHMD (high)		NOPSAD		BEACH (low)		BEACH (high)		Indigenous		NCMHD	
			Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Intensive	Alcohol	10 to 14	3	3	1	0	1	0							1	1	1	-
		15 to 19	39	39	9	-	11	0							14	14	8	-
		20 to 24	64	64	22	4	26	9							29	29	6	-
		25 to 64	812	812	425	200	1,132	907							290	290	28	-
		65 +	29	29	36	28	94	85							14	14	1	-
	Cannabis	10 to 14	15	15	0	-	1	-							3	3	0	-
		15 to 19	95	95	5	-	5	-							33	33	5	-
		20 to 24	59	59	9	-	11	-							17	17	4	-
		25 to 64	174	174	30	-	64	16							55	55	17	-
		65 +	-	-	-	-	0	0							0	0	0	-
	Metham.	10 to 14	4	4	0	-	0	-							1	1	1	-
		15 to 19	72	72	4	-	5	-							16	16	6	-
		20 to 24	69	69	17	-	21	2							24	24	5	-
		25 to 64	457	457	100	-	229	102							146	146	22	-
		65 +	-	-	0	0	0	0							0	0	0	-
	Opioids	10 to 14	-	-	-	-	-	-	0	0					0	0	0	-
		15 to 19	4	4	-	-	-	-	1	1					1	1	5	-
20 to 24		13	13	3	-	3	-	37	37					10	10	3	-	
25 to 64		238	238	30	-	77	12	1,063	1,063					124	124	14	-	
65 +		-	-	2	2	4	4	68	68					3	3	0	-	
	<b>TOTAL</b>	<b>2,147</b>	<b>2,147</b>	<b>693</b>	<b>234</b>	<b>1,684</b>	<b>1,137</b>	<b>1,169</b>	<b>1,169</b>					<b>781</b>	<b>781</b>	<b>126</b>	<b>-</b>	
Brief	Alcohol	10 to 14	2								7	7	8	8				
		15 to 19	35								73	73	88	88				
		20 to 24	74								127	127	152	152				
		25 to 64	616								1,639	1,639	4,238	4,238				
		65 +	27								135	135	345	345				
	Cannabis	10 to 14	4								5	5	6	6				
		15 to 19	37								48	48	59	59				
		20 to 24	31								68	68	81	81				
		25 to 64	95								514	514	1,226	1,226				
		65 +	1								15	15	37	37				
	Metham.	10 to 14	-								5	5	6	6				
15 to 19		11								48	48	59	59					

		AODTS		NHMD (low)		NHMD (high)		NOPSAD		BEACH (low)		BEACH (high)		Indigenous		NCMHD	
	20 to 24	42								68	68	81	81				
	25 to 64	244								514	514	1,226	1,226				
	65 +	-								15	15	37	37				
Opioids	10 to 14	-								1	1	1	1				
	15 to 19	2								9	9	11	11				
	20 to 24	19								22	22	26	26				
	25 to 64	245								235	235	588	588				
	65 +	3								17	17	43	43				
	<b>TOTAL</b>	<b>1,488</b>								<b>3,565</b>	<b>3,565</b>	<b>8,318</b>	<b>8,318</b>				

Note: due to rounding, the numbers in the above table will differ slightly from those reported in the body of this report.

## Appendix 5: Approximating the FTE associated with assessment only and information and education

To make for a balanced comparison to total demand (DASPM) we need to exclude the FTE assumed to be associated with assessment and information/education within the workforce profile survey. Based on the AODTS-NMDS unit record data, 41% of all closed treatment episodes are for assessment and information/education (see Appendix 4). However, we cannot simply exclude 41% of the clinical FTE figure from the workforce profile survey, as brief interventions require less FTE per episode compared to intensive interventions. As such, a DASPM modelling exercise was conducted to determine the size of the FTE associated with assessment and information/education, proportional to the intensity of that treatment. For this exercise we hypothetically take 100,000 people as the total intensive treatment demand population <sup>27</sup> (for ease of calculating). We first provide 41% (which equals 41,000 people) an assessment only unit of service. This is associated with 79 FTE. We then provide the other 59% (59,000 people) the regular DASPM care packages associated with intensive interventions. This is associated with 2,580 FTE. In total, this means there are 2,659 FTE for the hypothetical 100,000 people. Based on this we can approximate that when assessment and information/education account for 41% of treatment, this translates to 3% of the FTE count (79 divided by 2,659).

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<sup>27</sup> This compares to the ACT total intensive treatment demand population of 9,085