



Atlas of Mental Health Care of the Kimberley Region (Western Australia)



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University



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Abbreviations and Definitions

Abbreviation	Definition
ABS	Australian Bureau of Statistics
AOD	Alcohol and Other Drugs
ATSI	Aboriginal and Torres Strait Islander
BSIC	Basic Stable Input of Care
DESDE-LTC	Description and Evaluation of Services and Directories in Europe for Long-Term Care
ICLS	Individualised Community Living Strategy
IRSD	Index of Relative Socio-economic Disadvantage
LGA	Local Government Area
MTC	Main Type of Care
NDIS	National Disability Insurance Scheme
NHMSPF	National Mental Health Service Planning Framework
NGO	Non-Government Organisation (or community service provider)
PHaMs	Personal Helpers and Mentors Program
PHN	Primary Health Network
PIR	Partners in Recovery
SEIFA	Socio Economic Indexes for Areas
SSAMHS	Statewide Specialist Aboriginal Mental Health Services
WA	Western Australia
WAPHA	Western Australian Primary Health Alliance
WHO	World Health Organisation

Executive Summary

In Australia in any given year, approximately 20% of the population experience mental illness (Jorm et al., 2017). Each year it is estimated one in five Western Australians between 16 and 85 years has a mental illness (Western Australian Mental Health Commission (WAMHC), 2015). This equates to 395,000 persons, with a severity profile similar in proportion to national estimates. However, Australians living with serious mental illness, and those with drug and alcohol issues, continue to struggle with disconnected, complex and fragmented health and social service systems (National Mental Health Commission (NMHC), 2014).

The 2014 National Review of Mental Health Programmes and Services by the NMHC drew attention to the need of local planning of care for people with a lived experience of mental illness in Australia, and the relevance of a bottom-up approach to understanding “services available locally [in] the development of national policy” (NMHC, 2014). In its response to this review, the Australian Government prioritised integrated regional planning and service delivery, and the development of a stepped model of care: a model predicated on the availability to consumers of a mental health care system characterised by a broad range of different types of services at several levels of need (Australian Government Department of Health, 2015). Integrated regional planning and service delivery is a focus of the Fifth National Mental Health and Suicide Plan, which “commits all governments to work together to achieve integration in planning and service delivery at a regional level” and “recognises that [Primary Health Networks] PHNs ... provide the core architecture to support integration at the regional level” (Australian Government Department of Health, 2017).

The principles guiding the Western Australian Mental Health, Alcohol And Other Drug Services Plan 2015–2025, “Better Choices, Better Lives” (WAMHC, 2015) include a focus on providing an appropriate mix of supports, with “a holistic approach that acknowledges the impact of the social determinants of health and wellbeing such as housing, education, and employment”, and “improved system navigation, collaboration and integration”. Western Australian Primary Health Alliance (WAPHA)’s position statement on mental health includes a recognition of the need to “commission and plan mental health services adopting a stepped care approach, on the basis of local mental health needs and integration and co-ordination with other services” and to “Improve the integration between primary, secondary and tertiary services and across mental, physical and social services” (WAPHA, 2015).

The Atlas of Mental Health Care of the Kimberley region (Western Australia) aligns with these objectives. It provides an inventory of available services specifically targeted for people with a lived experience of mental illness. This will inform service planning and the allocation of resources. It is a tool for evidence-informed planning that critically analyses the pattern of mental health care within the care delivery system of the Kimberley region.

In 2015, the Western Australia Primary Health Alliance (WAPHA) commissioned the external firm ConNetica to map the existing mental health services in each of the state’s three Primary Health Networks (PHNs), using the Description and Evaluation of Services and Directories for Long-Term Care (DESDE-LTC) developed by the team of Professor Luis Salvador-Carulla, at the Centre for Mental Health Research, Australian National University (ANU). DESDE-LTC-based services Atlases are generated by collecting service data to construct a preliminary version of the Atlas, and then obtaining and incorporating feedback from stakeholders. Three versions of the Atlas are produced: 1) Alpha version made by the working group based on surveys and interviews; 2) Beta version (version for comments) completed after revision with the public agencies and the key stakeholders; and 3) final version completed with feedback provided by the local stakeholders and consumer organisations after the launch of the Beta version.

ConNetica produced the Alpha version of the Integrated Atlas in two separate reports: The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia – Volume I Metropolitan Perth,

which describes the mental health services operating in Perth North PHN and Perth South PHN as of 2016 (Hopkins et al., 2017a); and The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia – Volume II Country WA (Hopkins et al., 2017 b) which describes the mental health services in Country WA PHN and its seven sub-regions. Final versions of these reports were completed in May 2017 by ConNetica following incorporation of feedback.

The Atlas of Mental Health Care of the Kimberley Region (Western Australia) is the Beta or revised version of the Kimberley Region sub-section of The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia – Volume II Country WA Atlas. It provides complementary information, and all contextual information related to regional healthcare can be found in the primary document. While the Alpha version developed by ConNetica included services for people with Alcohol and Other Drugs (AOD) issues, for this Beta version, only mental health services are included. Revisions to the Alpha version include amendments to some service codes, taking into account additional information. Full Time Equivalents (FTEs) have also been added where this information was made available. However, a comprehensive and fully updated Atlas will require inclusion of all FTEs, a final updating of codes in accordance with the most recent version of DESDE-LTC, integrated with the National Mental Health Service Planning Framework (NMHSPF).

In June 2017, the University of Queensland (UQ) began training PHN representatives to use the NMHSPF. Following this training, WAPHA identified the need to compare and explore the complementarity of both approaches and the potential combined use of NMHSPF and the Atlas for health planning in WA. WAPHA commissioned the development of semantic mapping between the two systems of UQ and ANU.

Data collection for the Atlas project took place during a time of intense change to the role of PHNs in commissioning of services, and the implementation of the National Disability Insurance Scheme (NDIS). Additionally, the complexity and unique characteristics of service provision across remote areas presented unique challenges. Many teams in regional areas must necessarily be flexible and adaptive and frequently provide both Acute and Non-Acute care of varying intensities. Functions that may be provided by separate clinical teams in the Metropolitan area are often covered by the one team in regional areas. Additionally, it is acknowledged that given the remote nature of some communities, emergency services, hospital emergency departments and many generalist services (including Aboriginal services) provide responses to and support for mental health issues. Additional analysis around the unique characteristics of rural and remote service provision, including bed occupancy, care transfer rates and the unique characteristics of the Aboriginal services would be highly beneficial.

To be used for local health planning, this tool should be combined with other relevant sources of data on the local system such as: 1) health resource utilisation and pathways of care; 2) financing flows; and 3) projected service needs potentially applying the NMHSPF. This Atlas comes at a pivotal moment in time, with reforms underway both at state and federal level.

Summary of Findings

A total of 47 mental health service delivery teams were identified across the Kimberley region. Of these, 12 teams, or 26%, were provided by the Non-Government (NGO) Sector, with the remainder provided by public health services.

The Atlas reveals key characteristics of the provision of mental health services across the Kimberley region when compared to other regions in Country Western Australia. These are:

Key Findings- Kimberley Region

- The Kimberley region has the largest number of teams per 100,000 adults across all Country Western Australia PHN (CWAPHN) regions.
- The relatively high rate of teams in the region is most evident in Outpatient care, particularly Acute and Non- Acute Mobile health related teams, with duplication of some services and relatively low diversity of service types.
- There is a relatively high number of specialised teams, with implications for flexibility of care.
- There is an absence of Day Care, Accessibility, Self help or Information services. The gap in Day services is similar to the rest of the CWAPHN region and to all similarly mapped areas in Australia.

There is no generally accepted 'perfect' system of care for mental health. Needs, environments and circumstances vary significantly between regions, and indeed even within regions. This should be reflected in regional and sub- regional variations in care. What is generally accepted is that there should be a balance between the different types of care. Consistent with national and state strategies, future system structure should rely less heavily on Acute inpatient care, and provide more resources in Non-Acute Residential care, early intervention and prevention, and community based Outpatient care. Whilst still contentious in the Australian context, it is also considered that an ideal balance of care would include more Day programs, particularly those specifically targeted at providing supported employment, vocational training and assistance, structured programs and social opportunities.

1. Framework

There has been considerable reform in mental health science, treatment and care over the last three or four decades, both internationally, and within Australia. Much of the philosophy of mental health care reform has been built on key principles of community psychiatry, with four linked areas of action (Vazquez-Bourgon et al., 2012):

- i. deinstitutionalisation and the end of the old model of incarceration in mental hospitals;
- ii. development of alternative community services and programs;
- iii. integration with other health services; and
- iv. integration with social and community services.

More recently, this has also included a focus on recovery orientation and person-centred care (Ibrahim et al., 2014).

Australia started this journey of reform in 1983, with David Richmond's report on care for people experiencing mental ill- health and intellectual disabilities in New South Wales: Inquiry into Health Services for the Psychiatrically Ill and Developmentally Disabled. It took a further 10 years, and the Human Rights Commission inquiry (The Burdekin Inquiry), to establish the first National Mental Health Strategy (Mendoza et al, 2013). Since then, there have been considerable systemic changes made, including the closure or downsizing of many large psychiatric hospitals, the development of the community mental health movement (NMHC, 2014), the implementation of the NDIS and the introduction of PHNs as commissioners of mental health services.

The journey is therefore still very much in progress, and the application of reform has been patchy. For example, the Australian mental health system still has high rates of readmission to Acute care, with at least 46% of patients hospitalised being readmitted during the year following the admission (Zhang et al., 2011). There are also high rates of compulsory community treatment orders, ranging from 30.2 per 100,000 population in Tasmania, to 98.8 per 100,000 population in Victoria (Light et al., 2012), and high rates of seclusion, with 10.6 seclusion events per 1,000 bed days in 2011-12 (Australian Institute of Health and Welfare (AIHW), 2015). These features are associated with a system characterised by fragmented, hospital-centric, incohesive provision of care. It has been argued that a clear service model is lacking, that reform has not been informed by evidence, and that quality and access to care is a lottery dependent on postcode (Mendoza et al., 2013).

There is also increasing recognition of parallels between mental health and drug and alcohol use, both at an individual and health system level. Mental health and drug and alcohol issues are often co-morbid, and the historical demarcation between the mental health and AOD sectors has begun to lessen. Many of the principles around mental health reform also have relevance to the delivery of AOD services.

1.1 What are Integrated Atlases?

The WHO Mental Health Gap Action Program (mhGAP) has highlighted the need for a comprehensive and systematic description of all the mental health resources available in a region, and the utilisation of these resources (World Health Organisation, 2008). It is important to not only know the numbers of services in each health area, but also to describe what they are doing, and where they are located. This information can also enable an understanding of the context of health-related interventions that are essential for the development of evidence-informed policy (Health Foundation, 2014).

This is further supported by one of the key recommendations made by the National Review of Mental Health Programmes and Services by the National Mental Health Commission (NMHC, 2014), which is the need for comprehensive mapping of mental health services.

The National Review draws attention to local level of mental health planning in Australia, and the relevance of a bottom- up approach to understanding “services available locally [in] the development of national policy”. It also calls for responsiveness to the diverse local needs of different communities across Australia:

“Mental Health Networks, in partnership with Local Health Networks, should conduct comprehensive mapping of mental health services, programmes and supports available in regional, rural and remote areas through Commonwealth, state and territory and local governments, private and not-for-profit sectors.” (NMHC, 2014, p. 84)

The ‘integrated care model’ has challenged the way health- related care should be assessed and planned (Goodwin, 2013). It enables us to identify new routes for linked, consumer- centred approaches to care. Greater integration relies on a global picture of all the services available, regardless of which sector is funding them (i.e. Health, Social Welfare and Family, Employment, Criminal Justice). Such ‘systems thinking’ enables policy planners to capture the complexity of service provision holistically, and ensures that planning of health services accounts for contextual factors that might affect its implementation and sustainability (context analysis). It offers a comprehensive way of anticipating synergies and mitigating problems and barriers, with direct relevance for creating policies that integrate the different systems of care (De Savigny & Adam, 2009; Aslanyan et al., 2010). This is particularly important in the social and disability care sector, which is characterised by increasing personalisation of services, care co-ordination programs such as Partners in Recovery (PIR), and the transfer of social services to the NDIS. Indeed, there are only a handful of locations across Australia to systematically develop an innovative, system wide and sustainable service model for providing coordinated and integrated care services (New South Wales (NSW) Health, 2014).

The ‘balanced care model’ is also relevant to the development and application of integrated care and health atlases. Thornicroft and Tansella (2013) suggest that a balance between hospital and community care is needed for adequate mental health care, and that: (i) out-patient clinics; (ii) community mental health teams; (iii) Acute in-patient services; (iv) community residential care; and (v) work/occupation need to be developed in all countries.

Evidence of the link between social determinants and mental disorders has also grown in the past 15 years. Poverty, and its bedfellows unemployment and social exclusion, are all positively associated with common mental disorders (WHO & Calouste Gulbenkian Foundation 2014; Lund et al., 2011). The social determinants of health are similarly implicated in other health related behaviours such as excessive alcohol consumption and drug use (Marmot & Allen, 2014), as well as in co- morbidities between mental health and substance use disorders (Salom et al., 2014).

An emerging hypothesis linking social status and mental disorders focuses on the frequency, severity and duration of stressful environments and experiences. It goes on to propose that these adverse experiences can be cushioned by what might be termed personal and social scaffolding: self- agency, self- regulation, emotional, informational, social connections and instrumental resources (Bell et al., 2013; ConNetica, 2015).

Within these broad social and service contexts, Integrated Atlases are powerful tools for service planning and decision-making, particularly in times of fiscal constraint. These Integrated Atlases include detailed information on social and demographic characteristics and health-related needs, as well as data on service availability and care capacity. Atlases detect gaps, and benchmark areas for change. Whilst the Integrated Atlases developed around the world to date have most often focused on mental health, the methodology and taxonomy can be applied to a range of health issues, and the coupling of mental health and AOD within an Integrated Atlas has now been undertaken in several Australian states. Integrated Atlases allow comparison between areas, highlighting variations, and detecting gaps in the system. The holistic service maps produced through an Integrated Atlas also allow policy planners and decision makers to build bridges between the different sectors and to better allocate services (Salvador-Carulla et al., 2015a).

The capacity of policy planners and decision makers to understand the landscape in which they work (including areas of under-or over-supply), make bridges between the different sectors, and better allocate services, is particularly important as mental health services become more 'person- centred' (placing the person and their needs at the centre of their care), and public investment focuses on person- centred care co- ordination programs, such as PIR, or the NDIS. In addition, the new knowledge presented in the Atlas supports evidence and knowledge informed planning, decision-making and future service commissioning.

The importance of context

Evidence- informed policy combines 'global evidence' available from around the world with 'local evidence' from the specific setting in which decisions and actions will be taken. This includes a detailed analysis of the area, considering the prevalence of mental health problems and other demand driven indicators, together with the availability of resources (Oxman et al., 2009).

It is important, however, to highlight that evidence alone does not make decisions. An in- depth understanding of the local context is crucial to the implementation of any new strategy, and local context and relevance shape the lens through which policy makers appraise the salience of evidence (Oliver et al., 2014). Evidence has to be also valued and filtered by policy makers, and lack of perceived relevance is a frequently cited barrier to the uptake of evidence by policy makers (Oliver et al., 2014). Evidence must also be supported and supplemented by the knowledge and experience of both the people working within, and those using, the services provided by the system.

It is expected that the Atlas of Mental Health Care of the Kimberley Region will support a systems approach to planning, and, thus improve the provision of care through facilitating the integration and co- ordination of services, both in terms of service commissioning and delivery. Ultimately this will be reflected in the quality of care provided, and in the longer term, better health outcomes for people with a lived experience of mental illness.

1.2 Methodology

Typically, atlases of health are formed through lists or directories of services, and the inclusion of services is based on their official or everyday titles. This is particularly problematic for the following reasons (Salvador-Carulla et al., 2011):

1. the wide variability in the terminology of services and programs even in the same geographical area, and the lack of relationship between the names of services and their actual functions (e.g. Day hospitals, Day clinic), as the service name may not reflect the actual activity performed in the setting;
2. the lack of a common understanding of what a service is. The word 'service' is an umbrella term that is used to describe very different components of the organisation of care. It merges permanent, highly structured services, with clinical units, or even short-term programs and interventions.

DESDE-LTC

DESDE-LTC has been utilised to overcome these limitations in this project (Salvador-Carulla et al., 2013). It is an open-access, validated, international instrument for the standardised description and classification of services for Long Term Care. Whilst originally developed around health issues requiring long term care, the application of the DESDE-LTC across mental health (and AOD) in Australia necessarily includes services across a spectrum of care intensity and duration.

The DESDE-LTC includes a taxonomy tree and coding system that allows the classification of services in a defined catchment area according to the main care structure/activity offered, as well as to the level of availability and utilisation. It is based on the activities, not the name, of the service provider. The classification of services based on the actual activity of the service therefore reflects the real provision of care in a defined catchment area.

It is important to note that in research on health and social services there are typically different units of analysis, but comparisons should be made across a single and common 'unit of analysis' group. Different units of analysis include: Macro- organisations (e.g. Local Health Networks), Meso- organisations (e.g. Hospitals), and Micro- organisations (e.g. Services). They could also include smaller units within a service: Main Types of Care, Care Modalities, Care Units, Care Intervention Programs, Care Packages, Interventions, Activities, Micro Activities or Philosophy of Care.

Analysis based on DESDE-LTC is focused on the evaluation of the service delivery teams or Basic Stable Inputs of Care.

1.3 Basic Stable Inputs of Care

A Basic Stable Input of Care (BSIC) is best described as a team of staff working together to provide care for a group of people. It could also be described as a service delivery or care team.

These teams must have time stability (typically they have been funded for more than three years or have funding secured for three years) and structural stability. Structural stability means that they have administrative support, and two of the following: their own space (which can be in a shared office), their own finances (for instance a specific cost centre) and their own forms of documentation (i.e. they collect data and produce reports on their service activities). There are several criteria that help to define a BSIC (Table 1).

TABLE 1 BASIC STABLE INPUT OF CARE CRITERIA

Criterion	
A	Has its own professional staff
B	All activities are used by the same clients
C	Time continuity
D	Organisational stability
D.1	The service is registered as an independent legal organisation (with its own company tax code or an official register). If NOT:
D.2	The service has its own administrative unit and/or secretary's office and fulfils two additional descriptors (see below). If NOT:
D.3	The service fulfils three additional descriptors
D3.1	It has its own premises and not as part of other facility (e.g. a hospital)
D3.2	It has separate financing and specific accountability (e.g. the unit has its own cost centre)
D3.3	It has separated documentation when in a meso-organisation (e.g. end of year reports)

Classification of BSIC

Once BSIC are identified using the above criteria, the Main Types of Care (MTC) they provide are examined and classified.

Each BSIC is classified by using one or more codes based on the MTC they deliver. Some services might include a principal structure or activity (for example a 'Residential' code) and an additional one (for example, a 'Day Care' code).

There are six main classifications of care within the DESDE-LTC, as described below (0).

Residential Care - used to classify facilities which provide beds overnight for clients for a purpose related to the clinical and social management of their health condition. These include inpatient hospital wards, crisis shelters, Residential rehabilitation services and inpatient withdrawal units. Residential Care is divided into Acute and Non-Acute branches (Figure 2).

Day Care- used to classify facilities which: (i) are normally available to several clients at a time (rather than delivering services to individuals one at a time); (ii) provide some combination of treatment for problems related to long-term care needs (e.g. providing structured activities or social contact/and or support); (iii) have regular opening hours during which they are normally available; and (iv) expect clients to stay at the facility beyond the periods during which they have face to face contact with staff: these include the more traditional long-stay Day programs (Figure 3).

Outpatient Care - used to code care provided by service delivery teams which: (i) involves contact between staff and clients for some purpose related to the management of their condition and associated clinical and social needs; and (ii) is not provided as a part of delivery of Residential or Day services (Figure 4). These include outreach services. Quite often, Outpatient Care also involves the provision of information and support to access other types of care.

Accessibility to Care - classifies service delivery teams whose **main function** is to facilitate access to care for clients with long-term care needs. These services do not provide any therapeutic care, and include Care Co-ordination services (Figure 5).

Information for Care - used for service delivery teams whose **main function** is to provide clients with information and/or assessment of their needs. Services providing information are not involved in subsequent monitoring/follow-up or direct provision of care. These include many telephone information and triage type services (Figure 6).

Self-Help and Voluntary Care - used for BSIC which aim to provide clients with support, self- help or contact, with un- paid staff that offer any type of care as described above (i.e. Residential, Day, Outpatient, Accessibility or Information) (Figure 7).

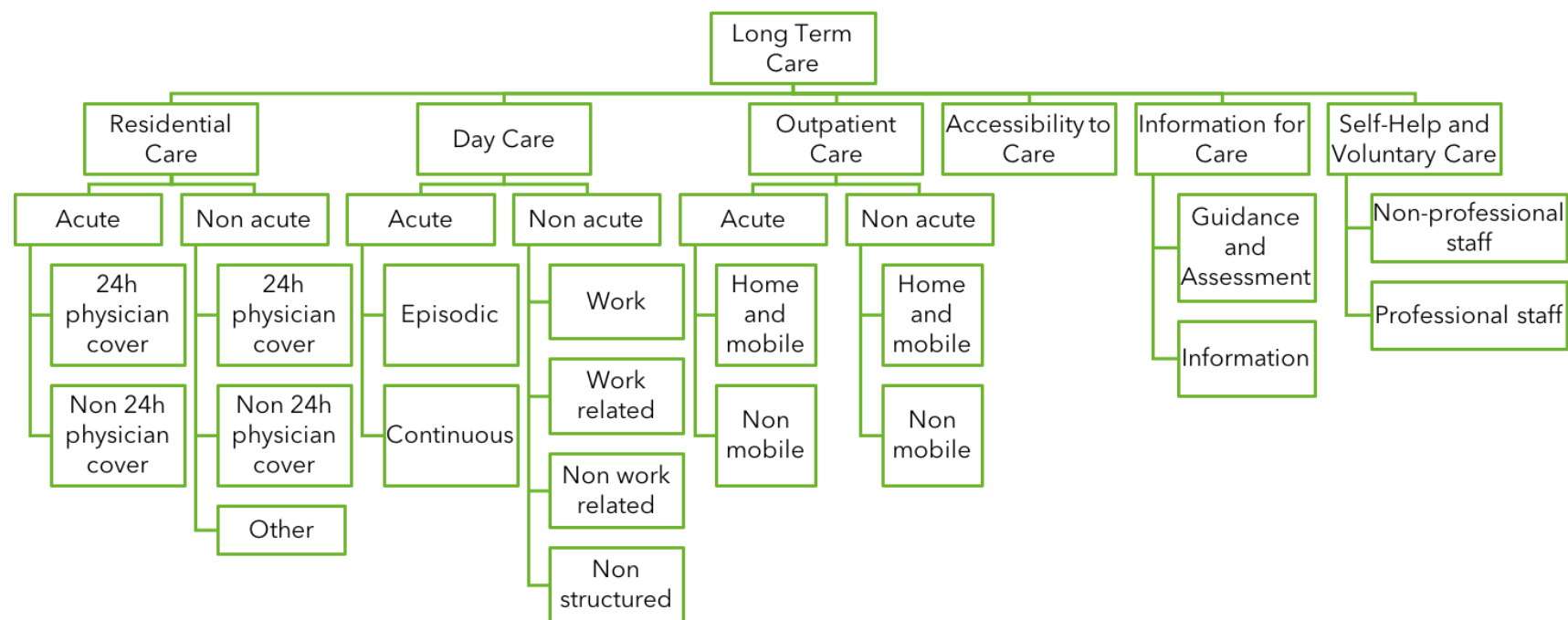


FIGURE 1 MAIN TYPE OF CARE-CORE VALUES

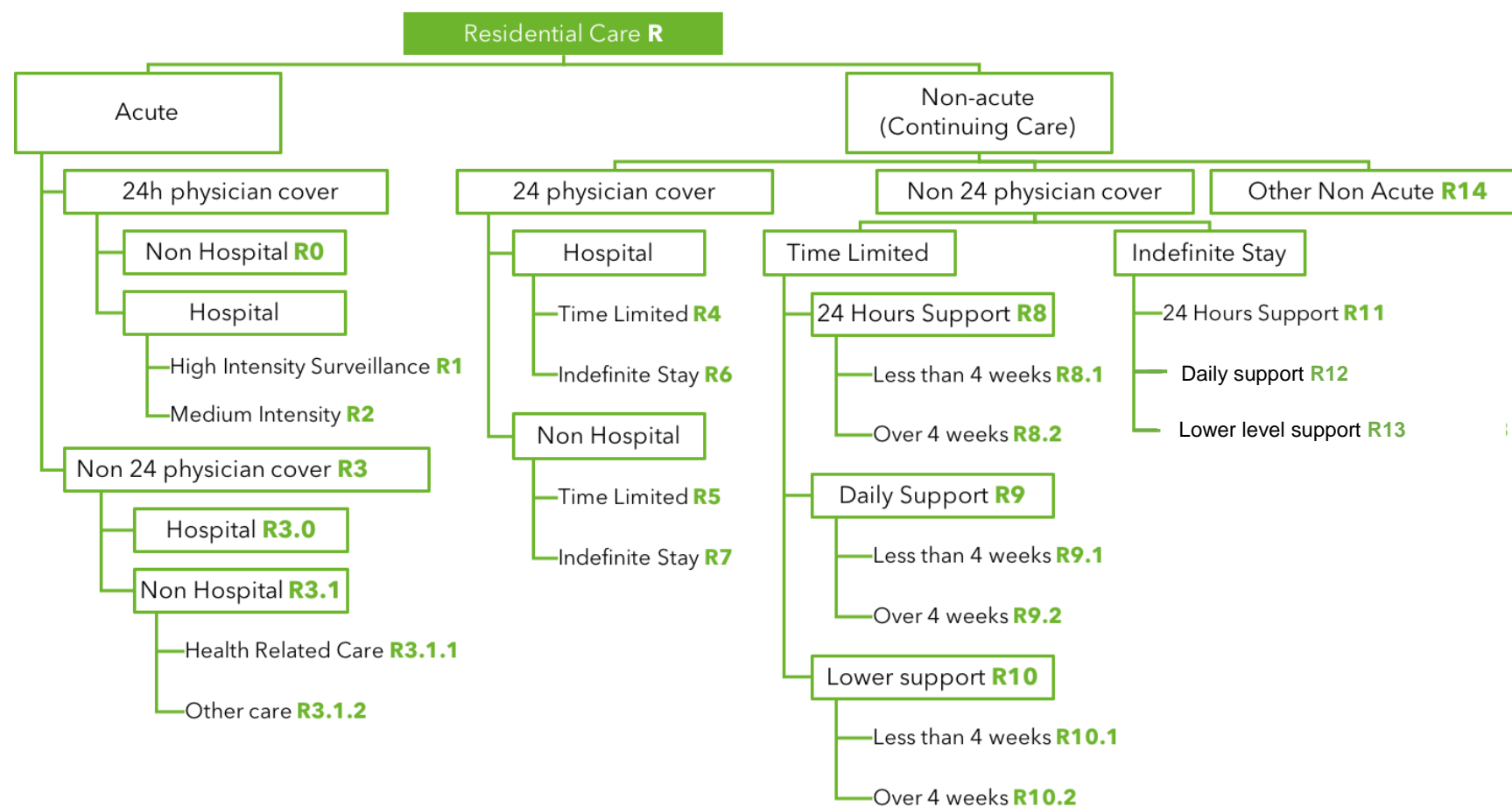


FIGURE 2 RESIDENTIAL CARE CODING BRANCH

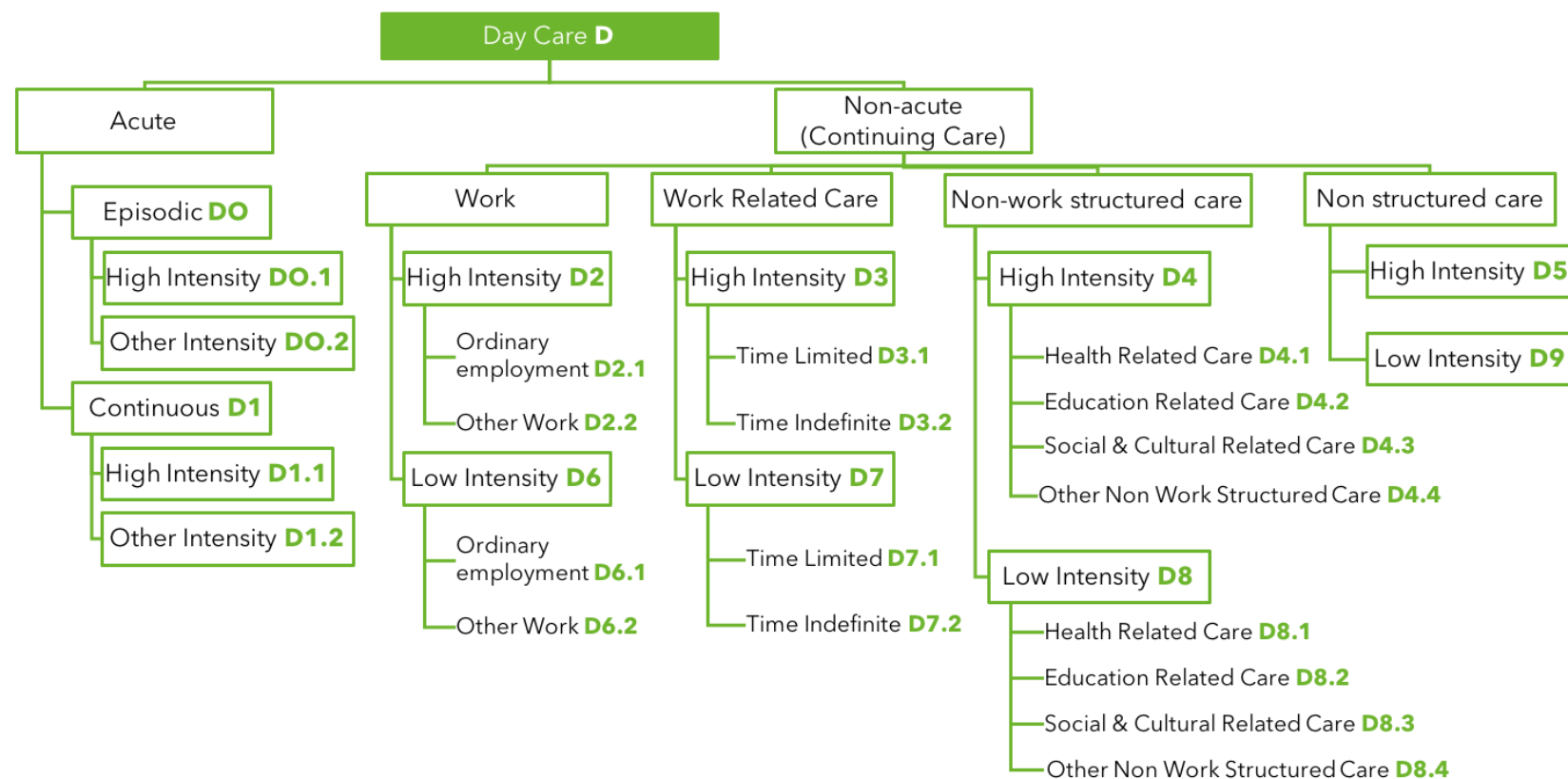


FIGURE 3 DAY CARE CODING BRANCH

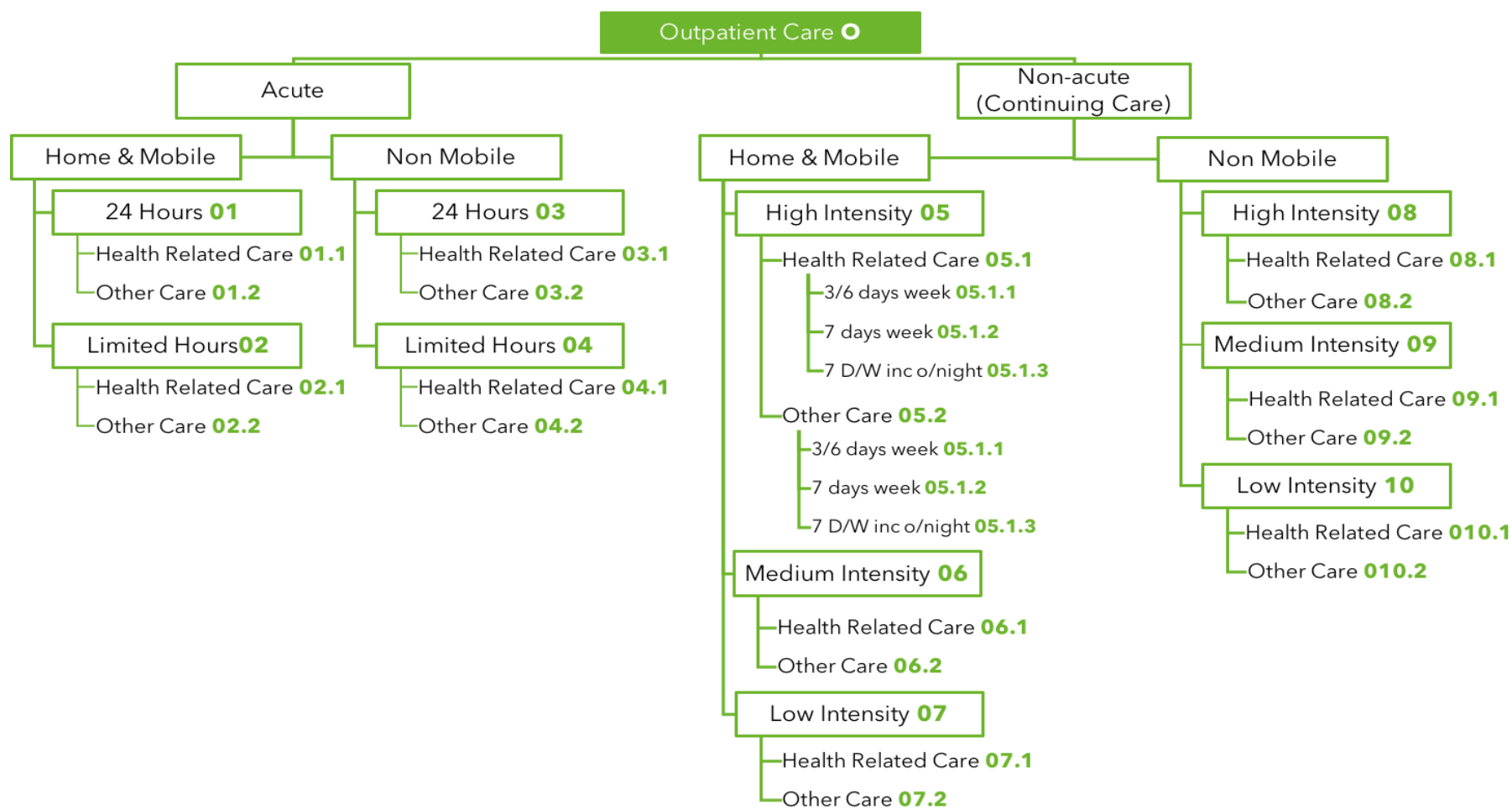


FIGURE 4 OUTPATIENT CARE CODING BRANCH

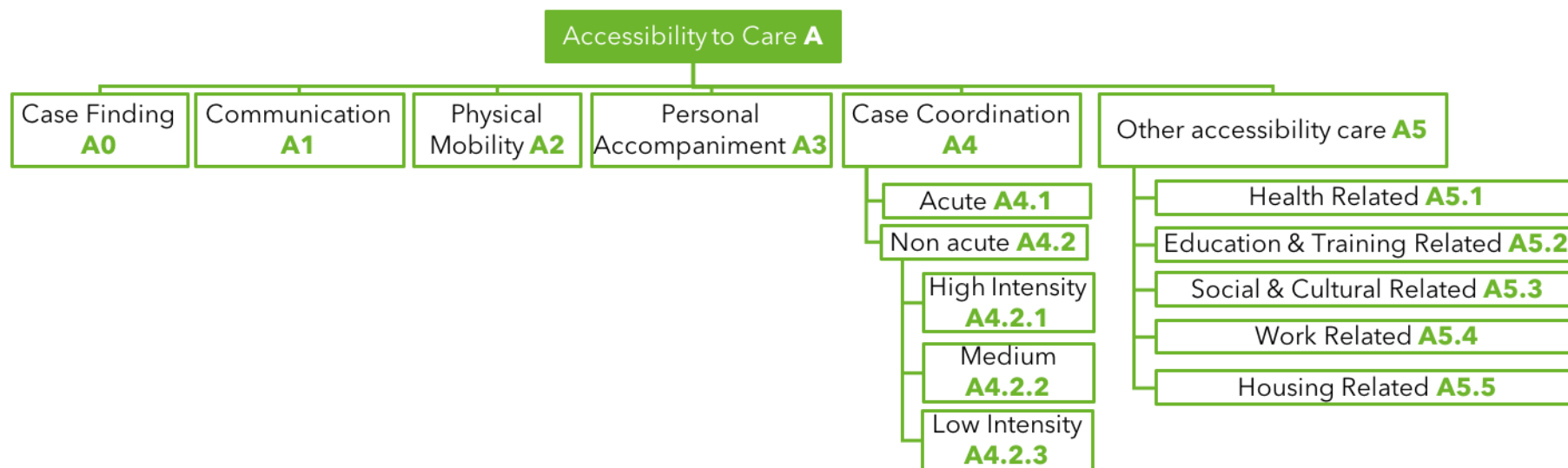


FIGURE 5 ACCESSIBILITY TO CARE CODING BRANCH

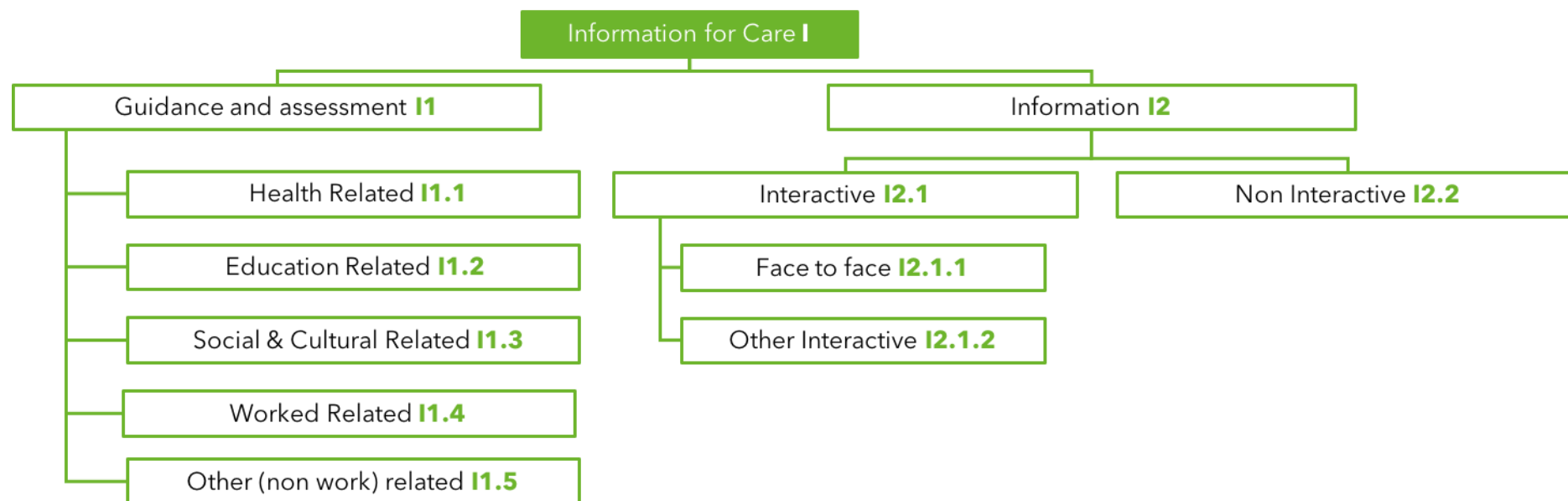


FIGURE 6 INFORMATION FOR CARE CODING BRANCH

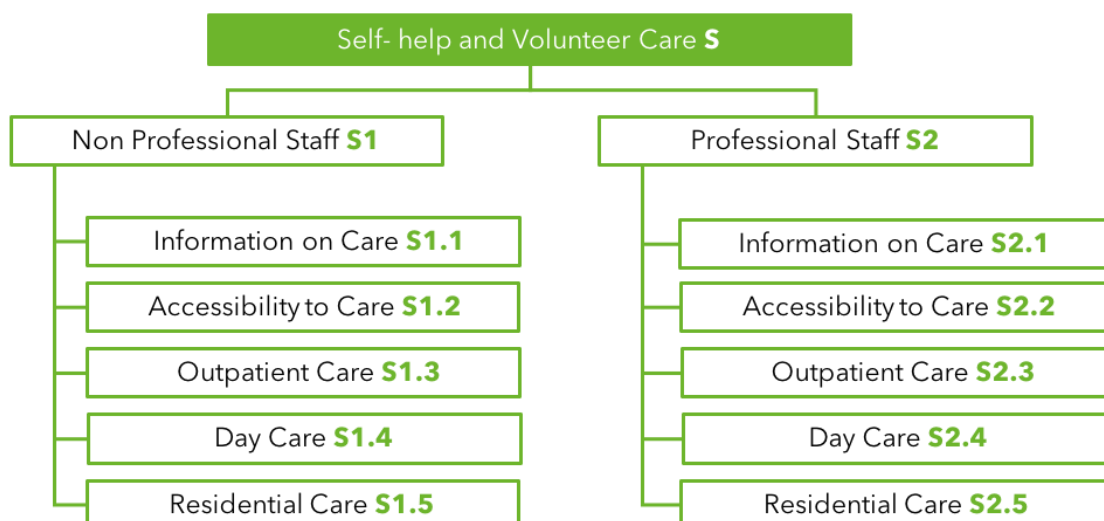


FIGURE 7 SELF-HELP AND VOLUNTEER CODING BRANCH

INCLUSION CRITERIA

The Integrated Atlas has clear inclusion criteria to ensure consistency and comparability across Atlases created using the DESDE methodology, both internationally, and across Australia.

To be included in the Atlas a service has to meet certain inclusion criteria:

The service is specialised - the service must specifically target people with a lived experience of mental ill-health. That is, the primary reason for using the service is for treatment of mental ill-health. This excludes generalist services that may lack staff with specialised mental health training and experience.

The service is universally accessible - the Atlas focuses on services that are universally accessible, regardless of whether they are publicly or privately funded. Only services that do not have a significant out-of-pocket cost are included. Despite the availability of Medicare-subsidised mental health related services, access to most private mental health services in Australia requires an individual to have private health insurance coverage, higher income or savings. The inclusion of private providers would give a misleading picture of the resources available to most people living with mental health issues and obscures the data for evidence informed planning of the public health system.

Most private services have some level of public funding, for example, Medicare provides some subsidies for private hospitals or community-based psychiatric specialist services. However, these were not within the scope of this Atlas, and have not been mapped. It is possible, and would be useful in future mapping exercises, to include an additional layer of private service mapping to inform those who can afford private health care; for planning; and to support integration between the public and private sector. However, as a baseline, the importance of establishing the nature of universal and equitably accessible health care necessitates that these maps remain distinct.

The service is 'stable' : that is, it has, or will, receive funding for more than 3 years - the inclusion of stable services guarantees that the mapping reflects the robustness of the system as a basis for evidence-informed planning. Services that are pilot projects or are provided through short term grants are excluded. However, there is an appreciation that the current environment is one where there is significant uncertainty around the continuation of funding streams at both state and federal level. As such, some flexibility has been applied to this criterion. For example, services

were included where they were considered to be on- going, or had been delivered over a long period of time, even when their on- going funding may not be secured beyond one year.

The service is within the boundaries of the Kimberley region or is considered part of the service delivery system by the regional health governance- this is essential to have a clear picture of the local availability of resources.

The service provides direct care or support to clients - services that were only concerned with the co- ordination of other services or system improvement, without any type of direct contact with people with a lived experience of mental ill- health were excluded.

1.4 Atlas Development Process

Phase 1: There are five key steps involved in the creation of an Integrated Atlas of Mental Health. (Figure 8). ***An outline of the development of the overall Integrated Atlas of Mental Health of CWAPHN, of which the information in this Atlas forms a part, follows. Please note that for this Beta version of the Atlas produced specifically for the Kimberley region, only mental health services are included.***

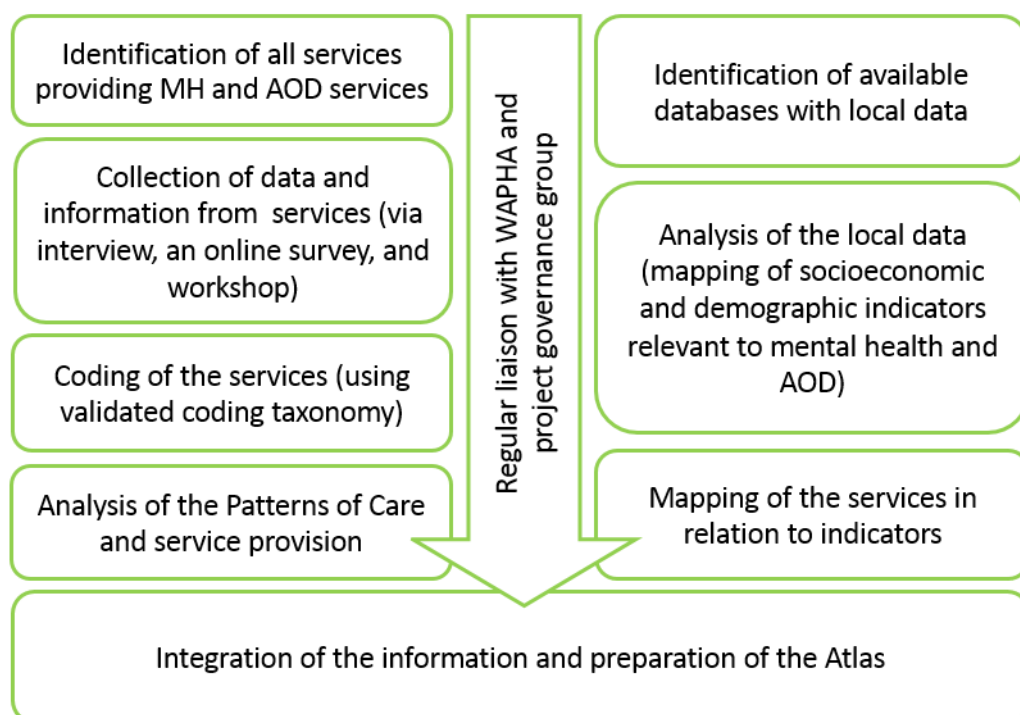


FIGURE 8 INTEGRATED MENTAL HEALTH ATLAS DEVELOPMENT PROCESS

Step 1 – Ethics and Governance Approval

The project obtained all the requisite ethics, ethics exemption and governance approvals (Site Specific Assessments). For further detail, please refer to The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia – Volume II Country WA (Hopkins et al., 2017b).

Step 2 - Data Collection

The first step in the development of the Integrated Atlas of CWAPHN was to undertake a range of meetings with the teams at WAPHA, the Commission, Department of Health, peak bodies and sector representatives to build a list of all services providing mental health care in the region.

A preliminary examination of organisations on the list was undertaken to verify and pre-qualify where possible their appropriateness for inclusion in the Atlas.

Following pre-qualification, a determination was made on how best to contact each organisation for the purposes of gathering the information necessary to create the Atlas.

The Integrated Atlas methodology provides the framework and template for the information that needed to be gathered. This included:

- basic service information (e.g. name, type of service, description of governance);
- location and geographical information about the service (e.g. service of reference, service area);
- service data (e.g. opening days and hours, staffing, management, economic information, legal system, user profile, number of clients, number of contacts or admissions, number of days in hospital or Residential accommodation, number of available beds or places, links with other services); and
- additional information (e.g. name of coder, date, number of observations and problems with data collection).

This information was gathered through a range of means, including face to face interviews, telephone interviews and through an online survey tool. Direct contact was usually required at some point during the process to seek additional information and answer questions in order to support and verify classification decisions

Step 3 – Codification

Information gathered in step one was entered into a master spreadsheet, analysed, and allocated a DESDE code (where the service delivery team meets the inclusion criteria). The work of each service delivery team was coded following the criteria defined in the DESDE-LTC, according to the MTC provided. Codes can be split into four different components and follow a standard format.

(i) Client age group: This represents the main target group for which the service is intended or currently accessed by, using capital letters.

GX All age groups

NX Non-e/undetermined

CX Child & Adolescents (e.g. 0-17)

CC Only children (e.g. 0-11)

CA Only adolescent (e.g. 12 – 17)

CY Adolescents and young adults (e.g. 12-25)

AX Adult (e.g. 18-65)

AY Young adults (e.g. 18-25)

AO Older Adults (e.g. 50- 65)

OX Older than 65

TC Transition from child to adolescent (e.g. 8-13)

TA Transition from adolescent to adult (e.g. 16-25)

TO Transition from adult to old (e.g. 55-70)

*CX and CY are DRAFT codes utilised in this Atlas based on the unique service characteristics in Western Australia.

** In Western Australia services frequently support multiple age ranges. For example, there is a large number of services that describe their target age groups as '8 years plus', or '12 years plus'. In these cases, the services have been coded as General, unless it was apparent they did not include adults. Services described as '14 years plus' were classified based on the information provided. Where it is evident these services mainly deal with adults, they were classified as AX.

An additional letter is added to the age code where a service is gender specific; for example, AXF is used to indicate a service is specifically targeted at females 18-64 years of age.

In the analysis section of this report, for simplification, the age codes are grouped as follows:

- Children and Adolescents (including young adults) – CC, CA, CX, CY and TA
- Adults (Including services with no age specification) – AX and GX
- Older Adults – TO and OX

(ii) ICD-10 Code: ICD-10 codes appear in brackets after the age group code but before DESDE-LTC code in order to describe the main diagnostic group covered by the service. For generalist mental health services, the code [F00-F99] is used, which means that the service includes all types of mental disorders rather than a specific disorder. If the service is not targeting mental ill-health, but psychosocial problems (for instance with some child and adolescent services) codes between Z56- Z65 are used. Homelessness services use the code [Z59] and AOD services use [F10-F19]. If the client of the service is a child, but the professional is working with the family, the code [e310] (immediate family or carers) from the International Classification of Functioning is used.

The key diagnostic codes used in this Atlas are:

F0-F99 All types of mental disorders

F10-F19	Alcohol and Other Drug disorders
e310	Services for immediate family or carers
Z63.4	Disappearance and death of family member (with T14.91 it denotes bereavement by suicide)
T14.91	Suicide attempt

(ii) DESDE-LTC code: The third component of the code is the core DESDE-LTC code which signifies the MTC. The services are classified according to their main type of care. The six main types of care are:

R	Residential Care
D	Day Care
O	Outpatient Care
A	Accessibility to Care
I	Information for Care
S	Self-Help and Voluntary Care

(iv) Qualifiers: In some cases, a 4th component may be incorporated to facilitate a quick appraisal of those characteristics of the services which may be relevant to local policy. Not all available qualifiers have been relevant for use in this Atlas. The qualifiers used in this Atlas of the Kimberley Region are:

- c Closed care** - denotes secluded MTC with a high level of security (e.g. locked doors);
- e eCare** - includes all care services relying on telephone, modern information and communication technologies (ICTs) (e.g. tele-care/tele-medicine, tele-consultation, tele-radiology, tele-monitoring);
- g Group** - this qualifier is applied to Outpatient services that provide predominantly group activities and do not meet the criteria for a Day Care service (Typically 80% of their activity is through the provision of groups);
- h Hospital (Care provided in a hospital setting)** - describes Non-Residential MTC ("O" or "D") provided within the hospital setting;
- k Carer-** this qualifier describes facilities which main aim is to provide care by peers, family members or other 'Non-professional' carers who are paid for their work and where typically most (over 90%) of the staff is Non-professional. Codings are specified in the target group section. This qualifier can also be used to differentiate in the "S1" branch peer led services from those services covered by other Non-professional staff;
- l Liaison care** - describes liaison BSIC regarding specific consultation for a subgroup of clients from another area within the facility, e.g. mental health care to a cancer ward of a hospital;
- u Unitary** - describes an MTC that consists of only one team member.

Example:

A Non-Acute forensic unit in a hospital for adults with lived experience of mental illness will receive the following code: AX[F00-F99] - R4j (Figure 9).

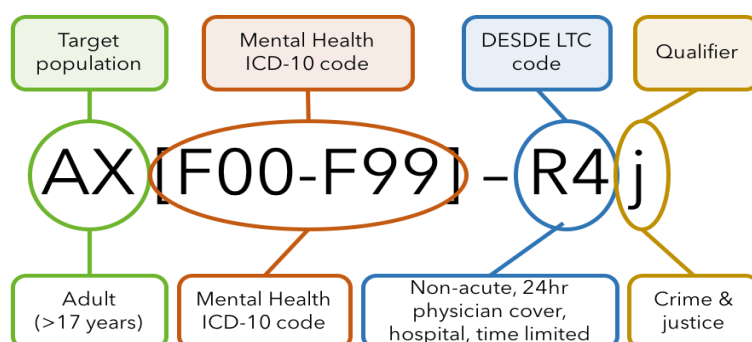


FIGURE 9 CODE COMPONENTS EXAMPLE

Step 4 - Mapping the BSIC

The next step in the construction of the Atlas was to map the supply of mental health services in relation to indicators of potential demand within the Country Western Australia area. To achieve this step, the BSIC data was exported into a Geographic Information System (GIS) for visualisation. **Please note that this step was carried out for Country WA as a whole, and these maps can be located in the primary document for Country WA.**

Step 5 - Description of the Pattern of Care - Service Availability and Capacity

The availability of services was analysed according to their MTC, as well as their capacity.

Availability - defined as the presence, location and readiness for use of service delivery teams in a catchment area at a given time. A service is available when it is operable or usable upon demand to perform its designated or required function. The availability rate for the MTC is calculated per 100,000 of the target population. For example, for services for children and adolescents the estimated Residential population of children and adolescents is used.

Placement Capacity – this is the maximum number of beds in Residential care, and places in Day Care, in a care delivery organisation, or a catchment area at a given time. Rates are also calculated per 100,000 of the target population (2011 population figures).

Spider Diagrams – to understand the balance between the different types of care offered in an area a radar chart tool, also referred to as a spider diagram, is used. The spider diagram is essentially a tool to visually depict the pattern of care in an area. Each of the 21 points on the radius of the diagram represents the number of MTC for a particular type of care per 100,000 population (2011 population figures).

This analysis allows for comparisons of the availability and capacity rates with other areas, and to estimate whether the provision of services is adequate with regard to the population's needs. The spider diagrams of the Kimberley region show a comparison to CWA as a whole.

Following the coding of the services and development of a draft Atlas (Phase 1, or Alpha version), the Atlas is presented to planners in order for them to review and adjust the data and codes presented where necessary (Phase 2, or Beta Version). A Version For Comments is then prepared by the research team for release to stakeholders. Time is allowed for stakeholders to review the service data and coding and provide any further comment. After further revision based on the received feedback, a Final Version is released to the planners. In the case of the Kimberley region, this Atlas represents the results of Phase 2 of the process (Beta Version): that is, the revision of the Alpha version by the planners, and subsequent adjustment to data and codes carried out by the team from Australian National University (ANU) (Figure 10, below).

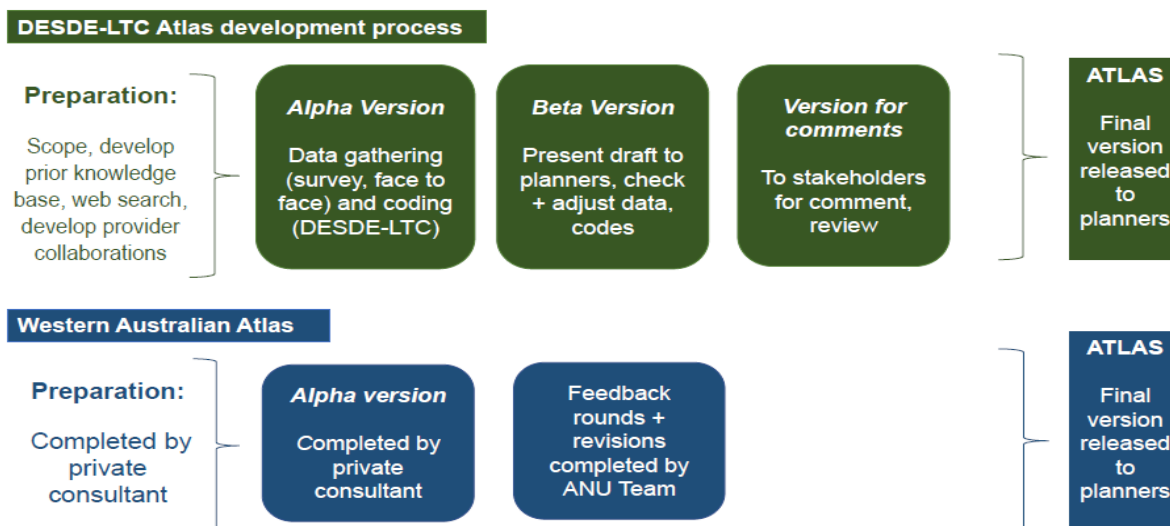


FIGURE 10 DEVELOPMENT OF THE KIMBERLEY DESDE-LTC ATLAS: (ALPHA VERSION COMPLETED BY CONNETICA)

2. Population Health and Socio-Demographic Indicators

The most recent publicly available data sources have been examined in relation to social, economic and demographic indicators for the Kimberley region. The primary data sources for this information were:

- 2011 Census of Population and Housing (Australian Bureau of Statistics (ABS), 2011);
- Social Health Atlases of Australia (Public Health Information Development Unit (PHIDU), 2016); and
- Small Area Labour Market Data (Commonwealth Department of Employment (CDE, 2016).

Where data permitted, indicators have been reported at the level of LGA with comparison to the state and national averages.

Key demographic, socio-economic factors and health outcomes data relevant to mental health are included, to better understand the population needs across the region.

2.1 Demographic Factors

For the purposes of this Atlas, a selection of indicators are provided to examine key at risk groups, and create a demographic profile for the region (Table 2). In addition, throughout the Atlas the population is divided into discrete age groups to report rates of services per 100,000 target population.

TABLE 2 DEMOGRAPHIC FACTORS EXAMINED

Indicator	Description	Calculation
Dependency Ratio	Portion of dependants (people who are too young or too old to work) in a population	Population aged 0-14 and >64 years / Population 15-64 years per 100 persons
Ageing Index	Indicator of age structure of population - elder-child ratio	Population >64 years / Population 0-14 years per 100 persons
Indigenous Status	People who identify as being of Aboriginal or Torres Strait Islander origin	Aboriginal population as per cent of total population (ERP - Non-ABS)
Overseas Born	Proportion of the Australian population born overseas	Total people who stated an overseas country of birth as per cent of total population (ERP)

2.2 Social Determinants

The concept of social determinants of health acknowledges the importance of employment, housing, education and other social resources (such as isolation and community connectedness) to wellbeing. Social determinants are increasingly recognised as playing a major role in a raft of health related behaviours and health disparities, including mental illness, suicide, excessive alcohol use and substance use (WHO & Calouste Gulbenkian Foundation 2014; Lund et al., 2011). Risk factors that have been shown to influence mental health and/or contribute to an increased risk of suicide and self-harm have been presented in this Atlas (Table 3).

Australians living in situations of socio- economic and/or socio-demographic disadvantage have higher rates of almost all disease risk factors, use preventative health services less, and have poorer access to primary care health services, than those living in more advantaged conditions. One of the key measures of disadvantage is the Socio Economic Indexes for Areas (SEIFA), which compares the relative socio- economic advantage and disadvantage across geographic areas. Based on the Census data it incorporates four measures – income, education, occupation and economic resources. The Index of Relative Socio-economic Disadvantage (IRSD) score is a measure of the relative disadvantage in a given geographic area. The IRSD scores are based on standardised distribution across all areas and are an important measure for health service planning. The average IRSD score across Australia is

1,000 : nationally, two thirds of all areas lie between an index score of 900 and 1,100. For this Atlas, areas are shown in deciles, with the lower the score, the greater the level of relative disadvantage (e.g. 1 represents the most disadvantaged areas).

TABLE 3 SOCIOECONOMIC FACTORS EXAMINED

Indicator	Description	Calculation
Single Parent Families	Proportion of single parent families with children aged less than 15 years	Single parent families with children under 15 years / Total families with children under 15 years per 100
Needing Assistance	Proportion of the population with a profound or severe disability – defined as people needing help or assistance in one or more of the three core activity areas of self-care, mobility and communication, because of a disability, long term health condition (lasting six months or more) or old age	Number of people who need assistance with core activity / Total population per 100
Early School Leavers	The data comprise people who left school at Year 10 or below, or did not go to school, expressed as an indirectly standardised rate per 100 people aged 15 years and over (Usual Resident Population), based on the Australian standard	People who left school at Year 10 or below, or did not go to school, ASR per 100 persons
Unemployment	The level of unemployment as a proportion of the labour force	Number of unemployed people / Population >15 years per 100
Low income	Proportion of individuals in a population earning less than \$400 per week, including those on negative incomes	Number of Individuals with income <\$400 week / Total number of individuals per 100
IRSD (Index of Relative Social Disadvantage)	One of four SEIFA indexes, IRSD identifies the geographic distribution of potential disadvantage based on factors including employment, education, income and social resources	Please refer to the following technical paper: http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/22CEDA8038AF7A0DCA257B3B00116E34/\$File/2033.0.55.001%20seifa%202011%20technical%20paper.pdf

2.3 Health and Mortality

As health usually deteriorates with age, and the majority of deaths occur at older ages, it is reasonable to expect areas with older populations to show lower self- assessed health and higher mortality rates. Therefore, to allow fair comparisons of rates amongst LGAs with different age profiles, the age standardised rate (ASR) is used for the three selected health outcome indicators related to mental health and suicide and self-harm, as well as for the comparison indicator of Road Toll (Table 4).

Self- assessed health status is a commonly used measure of overall health. It captures a person's perception of their own health and has been found to be a good predictor of morbidity and mortality. Psychological distress is an indicator of the mental health of a community and is the best population wide measure currently available. This indicator is used as an indicative measure of the mental health needs of a population, rather than measuring rates of mental illness.

Premature mortality data between 2010 and 2014 for both suicide and self-harm, as well as road traffic injuries, are the key mortality indicators in this Atlas. This suicide and self-harm measure is the only one currently available at a lower geographical region than state level data, so is utilised for the purpose of the Atlas as the best available data. Deaths from road traffic injuries are included for comparative purposes as, along with deaths from suicide and self-harm, falls and poisoning, they dominate the national injury burden or burden of disease in Australia (AIHW, 2016).

TABLE 4 HEALTH AND MORTALITY INDICATORS EXAMINED

Indicator	Description	Calculation
Fair/Poor Health	Modelled estimate based on self-reported and assessed health on a scale from 'poor' to 'excellent' – this measure is the sum of responses categorised as 'poor' or 'fair'.	Estimated population, aged 15 years and over, with fair or poor self-assessed health, ASR per 100
Psychological distress	The proportion of adults with very high levels of psychological distress as measured by the Kessler Psychological Distress Scale—10 items (K10). (The K10 is a scale of Non-specific psychological distress based on 10 questions about negative emotional states in the 4 weeks before being interviewed).	Estimated population, aged 18 years and over, with high or very high psychological distress based on the Kessler-10 Scale (K10), ASR per 100
Suicide	Data compiled from deaths data based on Cause of Death Unit Record Files - ICD-10 codes: X60-X84, Y87.0	Deaths from suicide and self-inflicted injuries, persons aged 0 to 74 years, ASR per 100,000
Road Toll	Data compiled from deaths data based on Cause of Death Unit Record Files - ICD-10 codes: V00-V06.[1], V09.2, V09.3, V10-V18.[4,5,9], V19.[4,5,6,9], V20-V28.[4,5,9], V29.[4,5,6,9], V30-V38.[5,6,7,9], V39.[4,5,6,9], V40-V48.[5,6,7,9], V49.[4,5,6,9], V50-V48.[5,6,7,9], V59.[4,5,6,9], V60-V68.[5,6,7,9], V69.[4,5,6,9], V70-V78.[5,6,7,9], V79.[4,5,6,9], V81.1, V82.1, V82.9, V83-V86.[0,1,2,3], V87, V89.2, V89.3	Deaths from road traffic injuries, 0 to 74 years, ASR per 100,000

3. Kimberley Region

The Kimberley region is the northern most region of Country WA, surrounded by the Northern Territory to the east and the Great Sandy Desert to the South. It comprises 16.9% of the Western Australian land mass, and is characterised by diverse geographical features, from deserts to rainforests, beaches to river gorges. Mining, agriculture, pearling and tourism are important economic contributors to the area (Western Australian Mental Health Commission, 2015).

3.1 Population Demographics

Key population demographics relevant to this Atlas include the Estimated Residential Population (ERP), as well as indicators of the age structure of the population using measures such as the dependency ratios and ageing index. The diversity of the population is examined utilising the indicators of Indigenous status and proportion of those born overseas. Table 5 below presents key population demographics for the Kimberley region, disaggregated by LGA.

The Kimberley region has the highest Indigenous Status for WA, significantly higher than the national average. It is also the region with the second lowest ageing index, ranging from 22.4 in Broome through to 28.4 in Halls Creek (Country WA average is 64). With a total population of 38,801 people, it is the least populated region within Country WA.

TABLE 5 DEMOGRAPHIC FACTORS FOR THE KIMBERLEY REGION BY LGA

LGA	Area* (sq. km)	Total Population†	Density Ratio	Dependency Ratio	Ageing Index	Indigenous Status (%)§	Overseas Born (%)¶
Broome	54631.8	17,308	0.3	0.41	22.4	5,921 (33.8)	12.8
Derby-West Kimberley	119841.9	8,903	0.1	0.38	25.2	5,119 (59.0)	21.7
Halls Creek	133061.4	3,930	0.0	0.42	28.4	3,182 (79.9)	3.8
Wyndham-East Kimberley	112022.8	8,660	0.1	0.41	25.3	3,664 (41.5)	12.1
Country WA	2.5 million	546,206	0.22	0.50	64.0	57,126 (10.3)	15.6
WA	2.64 million	2.59 million	0.98	0.48	68.4	95,707 (3.6)	33.0
Australia	7.7 million	23.49 million	3.1	0.54	78.1	729,048 (3.1)	24.6

Sourced from: * ASGS (ABS, 2011a); †ERP 2015 (PHIDU, 2016); §ERP (Non- ABS) 2015 (PHIDU, 2016); ¶ABS, 2011b

3.2 Social Determinants of Health

Social determinants of health can be found in Table 6 below. The highest proportion of single parent families reside in Halls Creek (42.6%), whilst the lowest reside in Broome (28.3%). Halls Creek is a clear area of disadvantage marked by its high proportion of early school leavers (63.2 %), high unemployment rate (36.1%), proportion of people earning less than \$400 per week (62.8%), and very low score on the social disadvantage scale (598, or the tenth lowest decile). The Derby-West Kimberley region also has high unemployment.

TABLE 6 SOCIOECONOMIC FACTORS FOR THE KIMBERLEY REGION BY LGA

LGA	Single parent families (%) [*]	Needing Assistance (%) [*]	Early school leavers [*] (ASR per 100)	Un employment (%) [‡]	Income <\$400 / wk (%) [†]	IRSD score [§]
Broome	28.3 [↑]	2.6 [↓]	36.7 [↑]	8.9 [↑]	31.2 [↓]	3 (947) [↓]
Derby-West Kimberley	37.3 [↑]	4.0 [↓]	42.8 [↑]	28.8 [↑]	49.6 [↑]	1 (746) [↓]
Halls Creek	42.6 [↑]	5.0 [↑]	63.2 [↑]	36.1 [↑]	62.8 [↑]	1 (598) [↓]
Wyndham-East Kimberley	31.7 [↑]	2.0 [↓]	43.6 [↑]	9.7 [↑]	30.6 [↓]	3 (890) [↓]
Country WA	21.8	3.8	40.2	5.6	35.8	983
WA	19.9	4.3	32.8	5.6	35.5	1022
Australia	21.3	4.9	34.3	5.9	38.9	1000

Sourced from: ^{*} 2011(PHIDU, 2016); [†] ABS, 2011b; [‡] June quarter 2016 (CDE, 2016); [§] IRSD 2011 (ABS, 2011c)

3.3 Health and Mortality

A number of indicators of health status have been examined, including a self-reported health status, a population based indicator of psychological distress, and two key mortality measures (Table 7).

The age standardised suicide rates across the Kimberley are all much higher than the national average (11.2 per 100,000 persons) and the Country WA average (18 per 100,00); ranging from 36.7 per 100,000 persons in Broome to 81.5 per 100,000 persons in Halls Creek LGA.

TABLE 7 HEALTH AND MORTALITY FOR THE KIMBERLEY REGION BY LGA

LGA	Fair/poor Health (ASR per 100) [*]	Psychological Distress (ASR per 100) [*]	Suicide (n) [†]	Suicide (ASR per 100,000) [†]	Road Toll (n) [†]	Road Toll (ASR per 100,000) [†]
Broome	14.4 [↑]	9.7 [↓]	29	36.7 [↑]	9	11.6 [↑]
Derby-West Kimberley	n/a	n/a	24	54.3 [↑]	12	26.3 [↑]
Halls Creek	n/a	n/a	14	81.5 [↑]	8	43.4 [↑]
Wyndham-East Kimberley	n/a	n/a	16	39.4 [↑]	8	19.8 [↑]
Country WA	15.1	10.6	447	18.0	335	13.7
WA	13.7	10.5	1,581	13.7	769	6.7
Australia	14.6	10.8	11,874	11.2	5,441	5.1

Sourced from: ^{*} 2011-12 (PHIDU, 2016); [†] 2010-14 (PHIDU, 2016)

4. Kimberley Mental Health Services

There was a total of 47 mental health BSIC across the Kimberley region delivering 57 main types of care (MTC) across 12 different DESDE classifications. Fourteen of these MTC are for children and adolescents (25%), 38 for adults (66%) and five for older adults (9%).

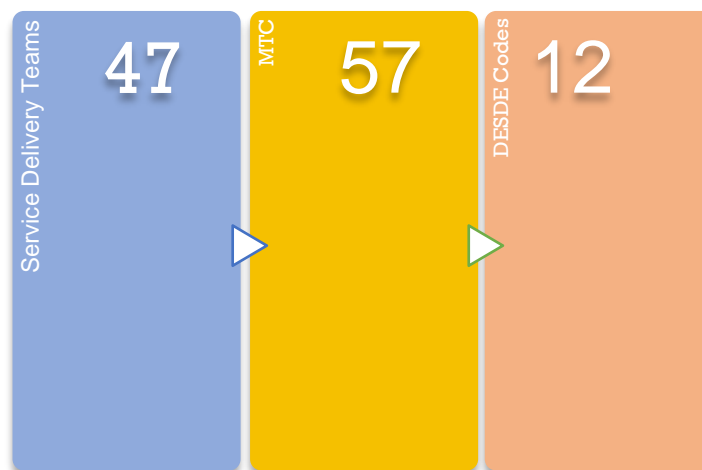


FIGURE 11 SUMMARY OF MENTAL HEALTH SERVICES IN THE KIMBERLEY REGION OF COUNTRY WA

A breakdown of these services is provided in Table 8 below. Outpatient services account for 55 of the 57 MTC (96%). The public health sector provides 57% of care across the region, with NGOs providing the remaining 43%.

TABLE 8 NUMBER OF MENTAL HEALTH SERVICE TYPES IN KIMBERLEY REGION

Age Group	Provider Type	R	D	O	A	I	S	Total
Child & Adolescent	Health	0	0	9	0	0	0	9
	NGO/Other	0	0	5	0	0	0	5
	Sub-total	0	0	14	0	0	0	14
Adult	Health	2	0	28	0	0	0	30
	NGO/Other	0	0	8	0	0	0	8
	Sub-total	2	0	36	0	0	0	38
Older Adult	Health	0	0	5	0	0	0	5
	NGO/Other	0	0	0	0	0	0	0

Sub-total	0	0	5	0	0	0	5
Total	2	0	55	0	0	0	57

R - Residential; D – Day care; O – Outpatient; A – Accessibility; I – Information and Guidance; S – Self-Help and voluntary

4.1 Residential Care – Mental Health

Acute Residential Services

There were no specific bed-based services identified for children, adolescents or older adults across the Kimberley region. This was a gap noted in some of the stakeholder interviews, particularly given the significant travel distance from Perth.

For adults, WACHS Kimberley region provides Acute Residential services via the Kimberley Mental Health and Drug Service (Table 10). These include an adult low dependency unit with 11 beds, and an adult high dependency unit with two beds.

Beyond Acute Residential services, no other providers were identified in either Non-Acute care or other Residential care service categories.

4.2 Day Care – Mental Health

No Day programs or other types of Day Care mental health services were identified within the Kimberley region.

4.3 Outpatient Care – Mental Health

Acute Mobile Outpatient Care

There were no specific Acute Mobile Outpatient services identified for children, adolescents or older adults across the Kimberley region.

The WACHS Kimberley Mental Health and Drug Service has five locations across the region each providing both Acute Mobile (O2.1) and Non-Acute Mobile Outpatient Care (O6.1), with teams for both Aboriginal and other adult populations. These are in Broome, Derby, Fitzroy Crossing, Halls Creek and Kununurra. Each serves different geographical locales, radiating from their location into surrounding communities.

The Aboriginal mental health services are provided within mainstream WACHS services and supplemented by local initiatives such as Aboriginal community health clinics and the employment of specific health professionals, e.g. Aboriginal health workers and Aboriginal Liaison Officers (WACHS, 2017). These teams provide telephone consultation in addition to their face to face work as a matter of necessity.

Acute Non-Mobile Outpatient Care

There were no child and adolescent or older adult specific services identified in this category.

Once again, the WACHS Kimberley Mental Health and Drug Service caters for the Kimberley region in this category (Table 10), with mental health liaison and triage services based in Broome, Derby, Fitzroy Crossing, Halls Creek and Kununurra (O4.1e).

Anglicare WA offers the standby service in Broome and Kununurra; a suicide bereavement response service that provides immediate support to people and communities who have been affected by suicide.

StandBy is one of the few suicide specific services identified in the region despite the high levels of suicide that occur in the Kimberley.

Non-Acute Mobile Outpatient Care

Children and adolescents (Table 9) receive services from the WACHS Kimberley Mental Health and Drug Service through Child and Adolescent Mental Health Services (CAMHS) teams in the Broome, Derby, Fitzroy Crossing, Halls Creek and Kununurra locales (O5.1e). In addition, WACHS provides a Community Education liaison position working from Broome. An additional position is provided in Kununurra in partnership with Department of Education. WACHS also runs youth counselling (O5.1) from its sites in Broome and Derby.

WACHS Kimberley Mental Health and Drug Service provides Individual Community Living Strategy (ICLS) services for adults in Broome and Derby (Table 10).

The Ngnowar Aerwah Aboriginal Corporation provides Men's Outreach services in the Wyndham area (approx. 1 FTE). This is a Social and Emotional Wellbeing counselling service that also provides educational programs within the schools.

Life Without Barriers provides ICLS and Helping Minds provides Carer Support, both from Broome.

WACHS Kimberley Mental Health and Drug Service provides Older Adult Mental Health Service in Broome and Kununurra, and Older Adult Community Mental Health Service in Derby, Fitzroy Crossing and Halls Creek (Table 11).

Non-Acute Non-Mobile Outpatient Care and Other Non-Acute Outpatient Care

Non-Acute Non-Mobile services across the Kimberley region vary across age and type of service.

Children and adolescents can access several services in this region (Table 9). The Broome Headspace is provided through the Kimberley Aboriginal Medical Services. Anglicare provides Kutjungka in Kununurra. The Kutjungka Youth Social and Emotional Wellbeing Service (SEWB) provides counselling, psychosocial education and other community activities to enhance the wellbeing of young people. Services are provided to Balgo, Mulan and Billiluna communities on a fortnightly basis.

Alive and Kicking Goals is a youth suicide prevention project for Aboriginal young people which includes peer education workshops, one-on-one mentoring, and counselling. It is provided by the Men's Outreach Service in Broome.

Helping Minds provides Family Mental Health Services Support (FMHSS) in both Broome and Kununurra. FMHSS provide early intervention support to assist vulnerable families with children and young people up to age 18 years who are at risk of, or affected by, mental illness.

For the adult population, WACHS Kimberley Mental Health and Drug Service provides a Community Recovery Centre in Broome. The Ngnowar Aerwah Aboriginal Corporation provides the Building Solid Families Program from Wyndham. There is a Personal Helpers and Mentors (PHaMs)/Social Emotional Wellbeing Unit run by the Yura Yungi Aboriginal Medical Centre in Halls Creek.

The Waringarri Aboriginal Corporation provides CAPS, the Community Action Plan – Suicide Prevention program. It works alongside communities and individuals to heal the impact of trauma, and strengthen community capacity to prevent suicide. The CAPS service offers training and Aboriginal Mental Health First Aid workshops in partnership with Ord Valley Aboriginal Health Services and Kimberley Aboriginal Medical and Health Services.

Finally, Helping Minds provides a Mental Health Carer Support program from Broome.

There were no specific services of this type identified for older adults across the Kimberley region.

4.4 Information and Guidance, Accessibility and Self-Help/Voluntary Services

No services with a primary role within these categories were identified in the Kimberley region. It is pertinent to note, however, that many services that provide Outpatient or outreach support provide Information and Accessibility support as an integral part of their service, and most have information resources available for clients visiting their premises.

TABLE 9 CHILD AND ADOLESCENT MENTAL HEALTH SERVICES IN KIMBERLEY REGION-AVAILABILITY AND WORKFORCE CAPACITY

Classification	Provider	Name	DESDE – 1	Suburb	FTE	Catchment
Non-Acute, Mobile Outpatient care	Western Australia Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Child and Adolescent Mental Health Service (CAMHS)	CX[F0-F99] - O5.1e	Broome	N/A	Fitzroy Crossing and surrounding communities. Includes all Fitzroy Valley communities. Main communities include Wangkatjungka, Yiramalay.
		Child and Adolescent Mental Health Service (CAMHS)	CX[F0-F99] - O5.1eh	Derby	N/A	Derby surrounds including Pandanus Park, Looma, Mowanjum
		Child and Adolescent Mental Health Service (CAMHS)	CX[F0-F99] - O5.1e	Fitzroy Crossing	N/A	Fitzroy Crossing, surrounding communities including Fitzroy Valley, Yiramalay, Wangkatjungka
		Child and Adolescent Mental Health Service (CAMHS)	CX[F0-F99] - O5.1e	Halls Creek	N/A	Halls Creek
		Child and Adolescent Mental Health Service (CAMHS)	CX[F0-F99] - O5.1 eh	Kununurra	N/A	Kununurra and Halls Creek and surrounding communities. Also includes Wyndham, Kalumburu, Warmun, Yiyili, Kutjungka
		Community Education Liaison	CY[F0-F99] - O5. 2	Broome	N/A	Broome
	Western Australia Country Health Service (WACHS) and DET	Community Education Liaison (CELT)	CY[F0-F99] - O5. 2	Kununurra	N/A	Kununurra
	Western Australia	Youth Counselling	CY[F0-F99] - O5. 1	Broome	N/A	Broome

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	Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Youth Counselling	CY[F0-F99] - O5. 1h	Derby	N/A	Derby, Mowanjum, Imintji, Kupungarri
Non-Acute, Non-Mobile Outpatient care	Anglicare WA	Kutjungka	CXIN[F0-F99] - O9.2u	Kununurra	1.0	Broome & The Dampier Peninsula communities of Beagle Bay, Lombadina, Djarindjin and One Arm Point
	Kimberley Aboriginal Medical Services Ltd	Headspace Broome	CY[F0-F99] - O9.1	Broome	N/A	Derby, Mowanjum, Imintji, Kupungarri
	Helping Minds	FamilyMental HealthSupport Service - Kimberley, Broome	CX[F0-F99] - O9.2	Broome	N/A	Kutjunga Region
		FamilyMental HealthSupport Service - Kimberley, Kununurra	CX[F0-F99] - O9.2	Kununurra	4.8	Kimberley
	Men's Outreach Service	Alive and Kicking Goals	CYIN[T14.91] [F0-F99] - O10.2k	Broome	4.0	

TABLE 10 ADULT MENTAL HEALTH SERVICES IN KIMBERLEY REGION- AVAILABILITY AND CAPACITY

Classification	Provider	Name	DESDE - 1 (beds)	FTE	Suburb	Catchment
Acute Residential care	Western Australia	Adult Authorised Inpatient - Low Dependency Unit	AX[F0-F99] - R2 (11)	N/A	Broome	Kimberley, Pilbara

ATLAS OF MENTAL HEALTH CARE OF THE KIMBERLEY REGION (WESTERN AUSTRALIA)

Acute, Mobile Outpatient care	Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Adult Authorised Inpatient High Dependency Unit	AX[F0-F99] - R2c (2)	N/A	Broome	Kimberley, Pilbara
	Western Australia Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Aboriginal Mental Health Services	AXIN[F0-F99] - O2.1e AXIN[F0-F99] - O6.1e	N/A	Broome	Broome and surrounding communities. Also includes Dampier Peninsular (Beagle Bay, Lombadina, Djarradjin, Ardyaloon), Bidyadanga
		Aboriginal Mental Health Services	AXIN[F0-F99] - O2.1euh AX[F0-F99] - O6.1eh	N/A	Derby	Derby and surrounding communities. Pandanus Park, Looma, Mowanjum, Gibb River
		Aboriginal Mental Health Services	AXIN[F0-F99] - O2.1e AXIN[F0-F99] - O6.1e	N/A	Fitzroy Crossing	Fitzroy Crossing, surrounding communities, including Fitzroy Valley, Noonkanbah, Wangkatjungka
		Aboriginal Mental Health Services	GXIN[F0-F99] - O2.1e GXIN[F0-F99] - O6.1e	N/A	Halls Creek	Halls Creek and surrounds, including Warmun, Yiyili, Kutjungka
		Aboriginal Mental Health Services	GXIN[F0-F99] - O2.1eh GXIN[F0-F99] - O6.1eh	N/A	Kununurra	Kununurra and surrounding communities. Also includes Wyndham, Kalumburu
		Adult Community Mental Health Services	AX[F0-F99] - O2.1e AX[F0-F99] - O6.1e	N/A	Broome	Broome and surrounding communities. Also includes Dampier Peninsular (Beagle Bay, Lombadina, Djarradjin, Ardyaloon), Bidyadanga

ATLAS OF MENTAL HEALTH CARE OF THE KIMBERLEY REGION (WESTERN AUSTRALIA)

		Adult Community Mental Health Services	AX[F0-F99] - O2.1e AX F0-F99] - O6.1e	N/A	Halls Creek	Halls Creek and surrounds, including Warmun, Yiyili, Kutjungka
		Adult Community Mental Health Services	AX[F0-F99] - O2.1e AX[F0-F99] - O6.1e	N/A	Fitzroy Crossing	Fitzroy Crossing, surrounding communities, including Fitzroy Valley, Noonkanbah, Wangkatjungka
		Adult Community Mental Health Services	AX[F0-F99] - O2.1eh AX[F0-F99] - O6.1eh	N/A	Kununurra	Kununurra, surrounds, including Wyndham, Kalumburu
		Adult Community Mental Health Services	AX[F0-F99] - O2.1eh AX[F0-F99] - O6.1eh	N/A	Derby	Derby and surrounding communities. Also includes Pandanus Park, Looma, Mowanjum, Gibb River
Acute, Non-Mobile Outpatient care	Western Australia Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Mental Health Liaison Services/Triage for Adult, Older Adult, CAMHS and Alcohol and Drug Services	AX[F0-F99] - O4.1le	N/A	Broome	Broome M-F Kimberley/ Pilbara weekends
		Mental Health Liaison Services/Triage for Adult, Older Adult, CAMHS and Alcohol and Drug Services	AX[F0-F99] - O4.1	N/A	Kununurra	Kununurra and surrounding communities. Also includes Wyndham, Kalumburu
		Mental Health Liaison Services/Triage for Adult, Older Adult, CAMHS and Alcohol and Drug Services	AX[F0-F99] - O4.1	N/A	Halls Creek	Halls Creek and surrounding communities. Also includes Yiyili, Warmun, Kutjungka
		Mental Health Liaison Services/Triage for Adult, Older Adult, CAMHS and Alcohol and Drug Services	AX[F0-F99] - O4.1	N/A	Fitzroy Crossing	Fitzroy Valley communities

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		Mental Health Liaison Services/Triage for Adult, Older Adult, CAMHS and Alcohol and Drug Services	AX[F0-F99] - O4.1h	N/A	Derby	Derby and surrounding communities M-F. Includes Pandanus Park, Looma, Mowanjum, Gibb River
	Anglicare WA	Standby - Broome	GX [T14.91][Z63.4] [F0-F99] - O4.2u	1.0	Broome	Broome
		Standby - Kununurra	GX [T14.91][Z63.4] [F0-F99] - O4.2u	1.0	Kununurra	Kununurra
Non-Acute, Mobile Outpatient care	Western Australia Country Health Service	Individualised Community Living Strategy (ICLS) - Supported Accommodation	AX[F0-F99] - O6.1ae	N/A	Broome	Broome
	(WACHS) Kimberley Mental Health and Drug Service	Individualised Community Living Strategy (ICLS)	AX[F0-F99] - O6.1aeh	N/A	Derby	Derby
	Life Without Barriers	Individualised Community Living Strategy(ICLS)	AX[F0-F99] - O6.2	2.15	Broome	N/A
	Ngnowar Aerwah Aboriginal Corporation	Men's Outreach	AXMIN [F0-F99] O6.2u	1.0	Wyndham	Wyndham
Non-Acute, Non-Mobile Outpatient care	Helping Minds	Mental Health Carer Support -Broome	GX[e310][F0-F99] - O9.2uk	0.8	Broome	Broome township
	Ngnowar Aerwah Aboriginal Corporation	The Building Solid Families Program	AXMIN[F0-F99] - O9.2	N/A	Wyndham	Wyndham
	Western Australia Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Broome Community Recovery Centre	AX[F0-F99][F10-F19] -O10.2	N/A	Broome	Broome
	Warringarri Aboriginal Corporation	CAPS (Community Action Plan-Suicide Prevention)	GXIN[F0-F99] - O10.2g	1.0	Kununurra	Kununurra

	Yura Yungi Aboriginal Medical Service	Personal Helpers and Mentors (PHaMs)/Social and Emotional Wellbeing (SEWB) UNIT	AXIN[F0-F99] - O9.2	N/A	Halls Creek	within the whole of the Shire of Halls Creek
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TABLE 11 OLDER ADULT MENTAL HEALTH SERVICES IN KIMBERLEY REGION- AVAILABILITY

Classification	Provider	Name	DESDE - 1	Suburb	Catchment
Non-Acute, Mobile Outpatient care	Western Australia Country Health Service (WACHS) Kimberley Mental Health and Drug Service	Older Adult MHS	OX[F0- F99][F10-F19] - O5.1ae	Broome	Broome, surrounds, including Dampier Peninsular, Bidyadanga
		Older Adult Community MHS	OX[F0- F99][F10-F19] - O5.1aeh	Derby	Derby & Surrounds, including Pandanus Park, Looma, Mowanjum, Gibb River
		Older Adult Community MHS	OX[F0- F99][F10-F19] - O5.1a	Fitzroy Crossing	Fitzroy Crossing, surrounding communities, including Fitzroy Valley, Noonkanbah, Wangkatjungka
		Older Adult Community MHS	OX[F0- F99][F10-F19] - O5.1ae	Halls Creek	Halls Creek & Surrounds including Warmun, Yiyili, Kutjunka
		Older Adult MHS	OX[F0- F99][F10-F19] - O5.1aeh	Kununurra	Kununurra & Surrounds including Wyndham, Kalumburu

5. Patterns of Mental Health Care – Kimberleys

5.1 Pattern of Mental Health Care

Figure 12 displays the pattern of care of mental health services across the Kimberley region. The Kimberley region has comparatively the largest number of teams per 100,000 adults across all CWAPHN regions. This is most evident across the Outpatient service categories. The balance of Outpatient care is clearly skewed towards health related care, particularly Acute and Non- Acute Mobile services, with a much lower proportion of social Outpatient services available. Residential care is available only in the Acute hospital environment. There are no services in the categories of Day or Accessibility care.

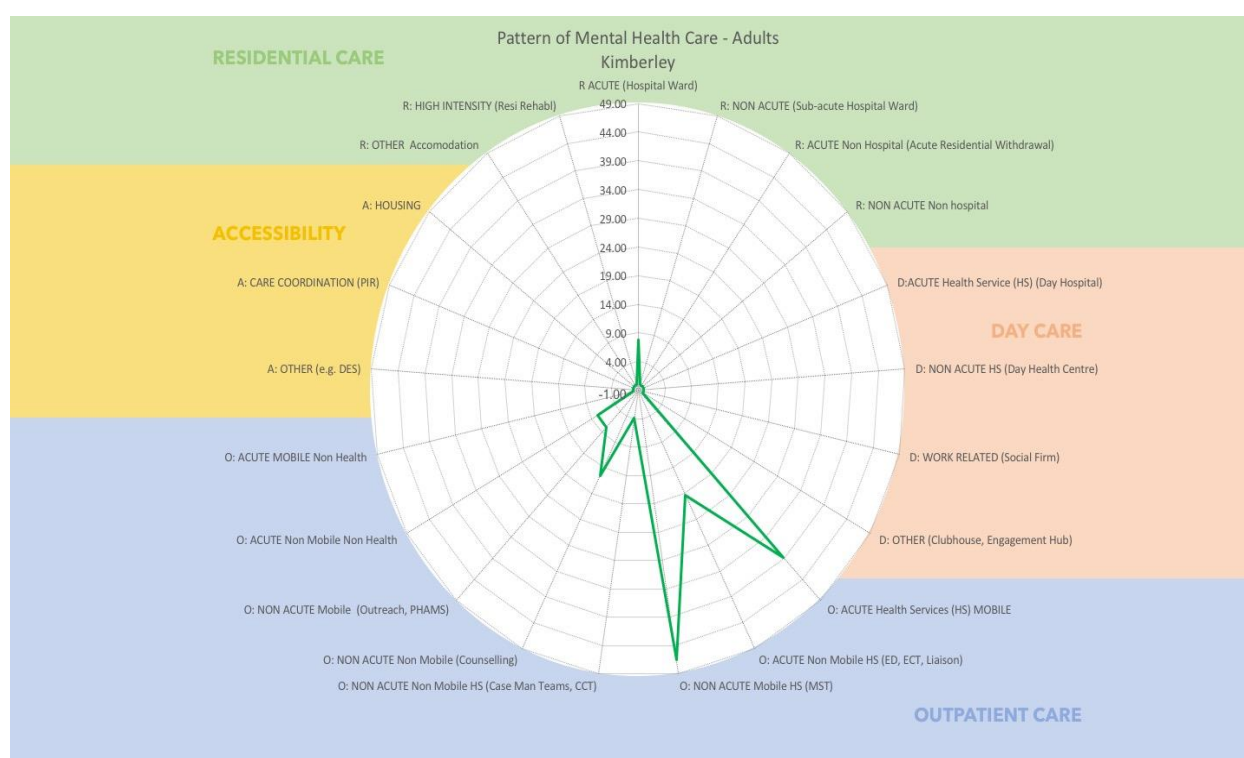


FIGURE 12 PATTERN OF MENTAL HEALTH CARE-KIMBERLEY REGION

In comparison to other areas in CWA, the Kimberley region has a higher rate of Acute hospital Residential care, Acute and Non- Acute Mobile health related Outpatient care, Acute Non- Mobile health related care, and Acute Non- Mobile Non-health related care. It has a lower rate of Non- Acute Mobile Non- health services than the Midwest region and the other regions of the CWA PHN as a whole. All CWA regions, including the Kimberley have a lack of Day care, and of alternatives to hospitalisation and community Residential care (Figure 13).

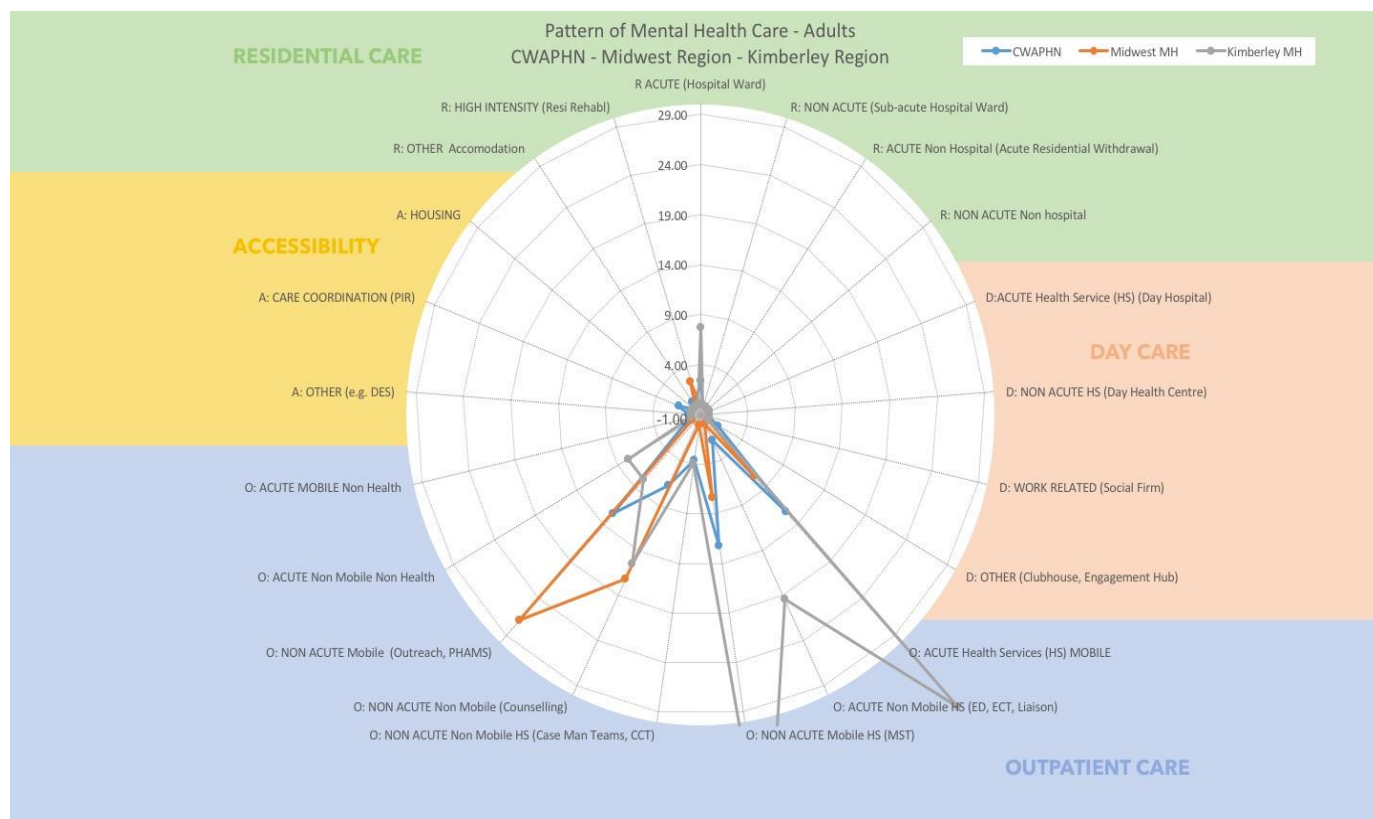


FIGURE 13 PATTERNS OF CARE FOR MENTAL HEALTH - CWAPHN, MIDWEST REGION AND KIMBERLEY REGION

ATLAS OF MENTAL HEALTH CARE OF THE KIMBERLEY REGION (WESTERN AUSTRALIA)

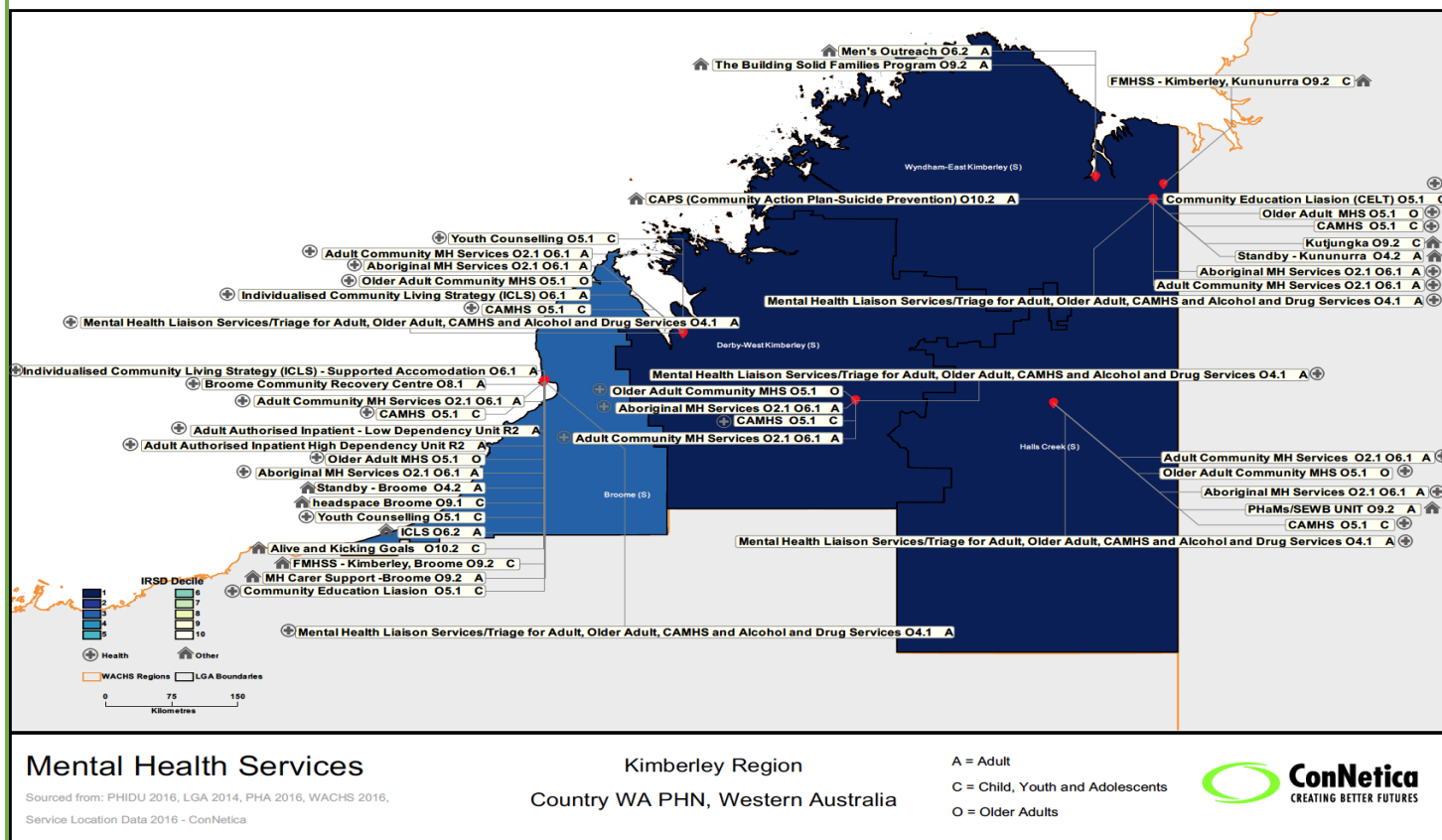


FIGURE 14 PLACEMENT OF MENTAL HEALTH SERVICES-KIMBERLEY REGION

5.2 Placement of Mental Health Services

Compared with other regions, services are generally spread across the Kimberley area with most services found in highly populated Broome, along with a number in Kununurra (Figure 14).

6. Discussion

The mental health care system in Australia, and more especially within WA, is at the precipice of a significant shift in its structure. This could be described as a 'perfect storm' of change. Changes occurring at both state and federal level include:

- The restructure of the Metropolitan Health Districts to add East Metropolitan Health Service to the North and South Metropolitan Health Services;
- The transitioning of some mental health services previously funded at the federal level to be instead commissioned by PHNs;
- The rolling out of the NDIS; and
- Fifth National Mental Health and Suicide Prevention Plan

The magnitude of change, and disparities between and within regions puts mental health systems, and those working within them, under intense pressure. The planning challenges facing the Kimberley region can be better understood within this context.

This Atlas has been created to provide a deeper understanding of the range, types and locations of mental health services across the Kimberley region. It overlays this data with socio-economic factors to provide insight into gaps and identify possible areas of over or under supply.

The Atlas of Mental Health is a technical document. Atlases are not service directories or gazettes. Atlases should be considered an important component (but not the only component) of a suite of decision support tools, such as local needs analysis. Utilised in this way, they help to identify gaps, duplications, and potential barriers to care, and can facilitate direct comparisons with other mapped regions within Australia, and overseas. The scale of the task, and the disparities between and within regions present some interesting challenges when mapping and classifying services. Additionally, interpretation of data in rural areas in Australia is hampered by the absence of a valid framework of rural mental health care (Salvador-Carulla et al., 2018).

Classification necessarily involves having to make informed judgements about the 'best' or 'most appropriate' fit (in terms of the DESDE code) for a team. In order to classify a team three key characteristics about their work need to be understood:

- Acuity: Is their work Acute?;
- Mobility: Are they Mobile? That is, do they drive to visit the people they are working with in their own homes or, do those people come to them at a fixed location, such as a clinic, instead?; and
- Intensity: How much time do they spend with people? For example, medium intensity work involves seeing a client between once a fortnight and three times a week.

One challenge faced when doing this was incomplete or inconclusive information. Where information was lacking about a team, prior experience and feedback from the stakeholders and project reference group have been drawn upon to reach classification decisions. Experience from Atlas projects in other areas around the world informs the process of stakeholder engagement, and has shown that data collection improves as stakeholders see the Atlas, and gain knowledge and confidence in the results of the process. The transition underway in mental health care delivery in Australia has implications for services in current stability and future planning, and has meant greater challenges for services in their ability to provide definitive information. DESDE-LTC is not designed to map systems in transition; hence, although not utilised in this Atlas, an additional qualifier has been added to the DESDE coding system ("v") to denote services which lack the funding stability otherwise required to be included in the Atlas. Many of these services have historical stability and may expect funding to continue, but current instability within the entire system has reduced their capacity to plan in the longer term.

Services provided by the health sector (e.g. through WACHS) are highly integrated and flexible in nature. Indeed, so is the work of many of the NGO teams. Many teams cover both mental health and AOD, although they will generally have staff with specialised qualifications in one or the other. They must at times be the 'jack of all trades'. As such, describing their work as 'Acute' or 'Non-Acute' and ascribing a level of intensity to their service can be subjective.

Intensity of care also varies across the spectrum of low to high intensity, but for the purposes of this exercise, 'medium' intensity is used where stakeholders indicated a range of intensity was normal for their locations.

In terms of workforce characteristics, team sizes can have significant impact on service availability and potentially quality. Smaller teams are particularly vulnerable to staff absences or vacancies. They may also be under considerable demand pressure.

Utilisation analysis would also assist in gaining a deeper understanding of the patient flows and capacity of the NGO sector.

Key findings of this Atlas include:

- The Kimberley region has comparatively the largest number of teams per 100,000 adults across all CWAPHN regions
- This is particularly evident in Outpatient care, particularly Acute and Non- Acute Mobile Health related teams when compared to other regions in CWAPHN, with duplication of some services
- Low diversity of care types with many specialised teams, with implications for flexibility of care
- A gap in Day services, similar to the rest of the CWAPHN region and to all similarly mapped areas in Australia
- No Accessibility, Self help or Information services

The following discussion includes comparisons with other country WA regions using information from the primary document (The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia – Volume II Country WA).

The Kimberley region has a high proportion of public sector to NGO services, with 35 public sector health services, and only 13 services provided by NGOs. While the Pilbara, South West and Wheat belt regions also have more public health than NGO services, the difference between the two sectors is less marked in these areas than in the Kimberley region, with 15 health teams to eight NGO teams (Pilbara); 29 health to 19 NGO (South West); and 23 health to 15 NGO (Wheatbelt). This can be compared to the Goldfields region with 15 services provided by each sector, and the Midwest with nine public health services to 27 provided by NGOs. The Kimberley region also has the highest rate of Acute public hospital Residential care of all regions. An urgent need to boost community based services and to provide a holistic approach incorporating other sectors has been highlighted in the Western Australian Mental Health, Alcohol and Other Drug Services Plan (Western Australian Mental Health Commission, 2105). While the balance strongly towards the public health sector in the Kimberley region could indicate greater stability of service provision, it also reflects the higher rate of duplication of services in this region, particularly in Outpatient services. The higher rate of service duplication is also evident in the relatively low diversity of care types in the Kimberley region, compared to, for example, the Goldfields, Midwest, Great Southern, South West and Wheatbelt regions. The number of different types of care provided in the Kimberley region when considered in relation to the total number of services provided is lower in the Kimberley than in these other regions.

Around 40% of the population in the Kimberley region is Aboriginal, and the Kimberley region is home to more than 20% of the total Aboriginal population of Western Australia (Western Australian Mental Health Commission, 2105). The age standardised suicide rates across the Kimberley are all much higher than the national average and the Country WA average. Eleven of the 47 mental health teams in

the Kimberley are provided specifically for the indigenous population, two of which are focussed on suicide prevention or bereavement.

The age distribution of the Kimberley population is younger than the state average, with more than 30 per cent under 15 years. Fourteen, or 29.8% of services are for children and adolescents, however there are no Acute Residential services for this population.

Team sizes can have significant impact on service availability and potentially quality. Smaller teams are particularly vulnerable to staff absences or vacancies. They may also be under considerable demand pressure. Across the regions, the largest teams were found in the Kimberley and the Wheatbelt. A deeper analysis of the rural and remote workforce including staff qualifications, staff turnover, vacancy rates and client volumes would be recommended to gain a deeper understanding in order to better support capacity building for Country services.

6.1 Residential Care

The Kimberley region has the highest rate of Acute inpatient care of all CWA regions, with 13 beds representing a rate of 33 beds per 100,000 residents. This rate can be compared to the Goldfields region with only six beds, or a rate of 25 per 100,000 residents, or the Midwest, which has no Acute beds within its geographical boundaries, but is allocated five beds at a distance in the Perth metropolitan areas at Graylands Hospital. The Great Southern region has the next highest rate of Acute beds, with 16 beds, or 25 per 100,000 residents. However, as noted above, this does not include any beds for children and adolescents, despite the Kimberley having the youngest age profile of the regions. Flexibility with regard to age based admission criteria for Acute Residential care has been recommended in the Western Australian Mental Health, Alcohol And Other Drug Services Plan 2015–2025, “Better Choices, Better Lives” (WAMHC, 2015), due to the low number of beds overall. It is important to note that there is an ongoing debate in the Australian literature on the need to invest in community beds at the expense of hospital beds (Allison, Bstaiampillai T & Goldney, 2014).

The Kimberley region, in common with the Goldfields, Wheatbelt and Pilbara regions, has no other Residential services apart from Acute hospital care available. Availability of Acute care is an important component of an integrated system. However, alternatives to Acute hospitalisation, and alternative forms of long-stay community Residential care, are also components of the balanced care model. Currently in Australia, the system is still skewed towards hospital care, a “downstream” focus on care for people once they have reached crisis point, with expenditure on psychiatric wards the only area of a significant increase in funding (AIHW, 2016). Community Residential care is limited in those areas of country WA where it is available: in the Great Southern area and the Midwest, one high intensity (24 hour support, indefinite stay) is available in each region, with 11 beds and four beds respectively, while in the South West region, 26 beds provide lower support, shorter stay care. While there is no evidence for the best model of care, supported housing may provide greater cost effectiveness than other models. Studies in Canada on “Housing First”, a rehabilitative model which provides supported housing to people with a lived experience of mental illness who are homeless, suggest that the immediate provision of short to medium term- one to three years- housing, along with appropriate, and if needed, intensive, clinical and social support, assists in promoting recovery, and housing stability (Aubry et al., 2016).

In country WA, where there are no mental health units in an area, or where there are limited beds, there will be admissions made to the general hospital wards for mental health treatment. WACHS mental health teams will sometimes provide inreach to these hospitals. We understand that patients are frequently transported from regional areas for treatment elsewhere. In some cases patients are transferred to Perth instead of the nearest regional hospital with a mental health unit. This is because transportation between remote areas can be difficult. Whilst the Royal Flying Doctor service might fly an Acutely unwell patient to a regional hospital, when it comes to returning home, it can be a long an arduous journey as many regions are not connected by direct flights.

It is important to consider this when viewing the patterns of care, as the beds utilised out of region are not able to be reflected in these diagrams. Care transfer rates can provide more detail on the extent of this movement and a deeper analysis of the patient flows, utilisation and care transfer rates would enhance the analysis presented in this Atlas. This is especially important, as we understand care transfer rates for mental health related issues far exceed those of other conditions such as chronic diseases, and there is apparently a strong variation in these rates between regions.

Utilisation analysis would also assist in gaining a deeper understanding of the patient flows and capacity of the NGO sector, including the Aboriginal Controlled Community Organisations and the Aboriginal Medical Services. Differences in availability of Residential care types and placement capacity indicate variability across jurisdictions, rather than differences in quality of care. In order to derive organisational learning, it is necessary to complement this information with data on service utilisation, and quality indicators.

6.2 Day Care

The absence of Day services in the Kimberley region is similar to findings in other mapped areas of Australia. In CWA as a whole, only two Day services were identified. Day care for people with a lived experience of mental illness has been considered a key component of psychiatric reform since the early 60s (Salvador-Carulla et al., 2013). Acute Day care (ADC) provided by qualified mental health professionals (e.g. psychiatrists, nurses and psychologists) is a less restrictive alternative to inpatient admission for people who are experiencing Acute and severe mental illness, while social and work related Day services can provide social and cultural activities and opportunities to remain in or return to meaningful employment. The disappearance of Day services in Australia in recent decades is attributable to the redirection of mental health funding from the health sector to NGOs, reducing health related Day services, and the shift to individualisation of care and tailored programs of daily activities, changes which will be amplified under the NDIS.

6.3 Outpatient Care

There is a high proportion of Outpatient care, reflected in the availability of 139.63 Outpatient MTC per 100,000 residents. The Wheatbelt region is the nearest in proportion to this, with a significantly lower rate of 62.63 MTC per 100,000 residents. However, the high rate reflects duplication rather than diversity of care. In particular, the Kimberley has significantly more Acute and Non-Acute Mobile health care than other regions, although this can partly be attributed to the presence of some community mental health care for the Aboriginal population being separate services “nested” within general adult Mobile community services. There are 40 health related Outpatient MTCs compared to 15 Non-health related MTCs. The imbalance of health to other types of care related teams does not align with the vision of a multisectoral approach, including other sectors such as housing, employment outlined in the Western Australian Mental Health, Alcohol And Other Drug Services Plan (the Plan). Most Non-health Outpatient care is Non-Acute Non-Mobile care, and most of these teams have specific target populations. Four services are suicide related: two for suicide prevention and two suicide bereavement, reflecting the high suicide rate in the region.

Other areas cited in the aaaaaPlan as priorities include more support for carers, and the importance of early intervention. Two services providing support for carers were identified. However, no Acute child and adolescent teams were identified: five CAMHS teams provide high intensity Non-Acute health care, and in the community based NGO sector, FMHSS and Headspace provide Non-Acute Non-Mobile care.

The relative efficiency of the different models of balance of care (e.g. Mobile versus Non-Mobile teams, Acute versus Non-Acute) has not been tested, and a proper analysis will require the incorporation of utilisation data. This is even more so the case for rural and remote areas such as this.

6.4 Accessibility

There were no Accessibility services identified. In other parts of CWA, PIR provide this type of care, as well as in some cases, direct support; however no PIR teams were identified in the Kimberley. As noted above, many services that provide Outpatient or outreach support provide information and Accessibility support as an integral part of their service and most have information resources available for clients visiting their premises.

7. Study Limitations

There are several limitations that should be acknowledged.

Services may be missing because they were not able to be reached. Some organisations did not respond to the survey. Additionally, it is possible that others were overlooked in the creation of the initial stakeholder lists. It should be noted that services may have been excluded from the final data not because they were missed, but rather because they do not meet Atlas criteria.

Some services are not included because they are not specialist mental health services. These generalist services may still treat people with mental health ill- health, however they are not included as they do not specifically target these issues. DESDE-LTC must be applied with rigour and consistency to ensure the accuracy of comparative data. The ability to make cross- comparisons with other areas both nationally and internationally is one of the key strengths of the tool. This necessarily means some more generalist services are excluded from analysis.

Private providers are generally not included in an Atlas, as it is focused on services with a minimum level of universal Accessibility (that is services must be free or without significant out- of- pocket costs). As such private providers are generally only included where they are providing free services. The inclusion of private providers in the mapping of publicly available services is considered to increase noise and possibly distort the interpretation of results. It might also misrepresent the universality of access to services.

The assessment of services was made through a process of face to face interviews, emails and telephone interviews. Some information may not have been provided, some information may have been misinterpreted or may contain inaccuracies, and some assumptions may have been required to finalise a code or classification. Three drafts of the “Alpha” version of this Atlas were created prior to this “Beta” version, and feedback was actively encouraged to ensure the data contained here is as accurate as it can be.

It is noted that the data collection period for this Atlas took place during a time of substantial change within the mental health sector in WA, including changes to the structure of metropolitan service provision in 2016, the roll out of the NDIS, and the commencement of recommissioning of some services through the PHNs. These factors added additional pressures and complexity to the services that were being mapped.

The Atlas focuses only on services provided from a base within Western Australia. It is acknowledged that there are services that residents of the Kimberley region will use that may be outside of this catchment.

The Atlas compares the rates of beds, places and the numbers of teams per 100,000 population across the area of focus. These rates can then be compared with other areas across Australia and internationally. However, when comparing the rates of teams, it is important to understand the size of these teams to get the most accurate assessment of the capacity of the services in a particular area. Therefore, additional effort has been applied to exploring the size of teams with additional commentary provided to add further depth to the analysis. Data on FTE was however often not available or lacked specificity. The analysis provided should be viewed with this in mind.

8. Future Steps

This Atlas comprehensively maps the stable services providing care for people with lived experience of mental illness and uses publicly available socio-demographic information.

Whilst the Atlas provides a comprehensive assessment and analysis of the services provided within the region, it would be further enhanced and complimented by additional analysis, some of which is detailed below.

The development of a framework for analysis of rural and remote mental health services.

Rates of utilisation of the services, by MTC, using the information provided in the administrative databases. The analysis of service utilisation will detect hot and cold spots and areas of improvement. The information collected in the local Atlas of Mental Health Care can be combined with utilisation and outcome data to produce decision support tools that may help decision for the analysis of benchmarking and relative efficiency, as well as to redesign and improve available services.

Mapping modalities of care. In creating the Atlas it was evident that many service delivery teams operate in a highly flexible, integrated way, often undertaking a variety of program activities that it would be beneficial to understand in a deeper way. This could be achieved by mapping the modalities of care using the International Classification of Mental Health Care.

Rates of other chronic diseases relevant to people with mental ill-health issues. Cardio-vascular disease, Type 2 Diabetes, obesity and muscular-skeletal conditions could be added to future maps.

In-depth workforce analysis would support this and future Atlas work. This would facilitate a more comprehensive understanding and categorisation to most effectively articulate the profile, qualifications and experience of the workforce.

More information on service utilisation would add further depth to current data set and analysis. What else could be added to future mapping exercises? Waiting lists, volumes?

Further exploration of financing mechanisms and financing flows could be conducted. This would allow important areas such as the Better Access Program, Community Mental Health services provided by NGOs to be examined. The nature, consistency and stability of funding flows can substantially impact the stability and quality of the services provided.

The level of integration of the services providing Mental Health Care services and the philosophy of care of the services. A network analysis would allow for visualisation of the strength of relationships between organisations to better understand the level of connectivity and integration between services and the strength of these connections.

Pathways to care. Understanding how people navigate a system is a key area of knowledge that would add depth to service planning, design, utility and efficiency.

9. Conclusion

Integrated Atlases are a key tool for evidence informed service planning and policy development. They are not a service directory or gazette of services. This Atlas included comprehensive mapping of services identified as stable and specifically tailored for the treatment of mental illness.

This Integrated Atlas of Mental Health for the Kimberley Region is a snapshot of this pivotal point in time and a jumping off point for further discussion across the region. It provides a great opportunity to harness this local evidence to innovate and improve existing service systems for the benefit of the local community.

Used in conjunction with the Regional Needs Analysis, it is an invaluable tool to identify and visualise service gaps to contribute to evidence informed service planning and policy development.

It can support the WAPHA to play a key role in the implementation of significant reform to the Mental Health system and deliver substantial improvements in the way residents access and utilise Mental Health Care across the region.

It can support the development of the 'right care at the right time in the right place' for those experiencing mental ill-health

10. REFERENCES

- Allison S, Bstaiampillai T, Goldney R. Acute versus Non-Acute beds: should Australia invest in community beds at the expense of hospital beds. *Australian & New Zealand Journal of Psychiatry*. 2014;48(10).
- Aslanyan, G., Benoit, F., Bourgeault, I. L., Edwards, N., Hancock, T., King, A., & Timmings, C. (2010). The inevitable health system (s) reform: an opportune time to reflect on systems thinking in public health in Canada. *Can J Public Health*, 101(6), 499.
- Aubry, T. Goering, P., Veldhuizen, S., Adair, C.E., Bourque, J., Distasio, J., . . Tsemberis, S. (2016). A Multiple-City RCT of Housing First With Assertive Community Treatment for Homeless Canadians With Serious Mental Illness. *Psychiatric Services*, 67(3), 275-281. doi: 10.1176/appi.ps.201400587
- Australian Bureau of Statistics. (2011a). Australian Statistical Geography Standard (ASGS), digital boundaries
- Australian Bureau of Statistics. (2011b). Census of Population and Housing.
- Australian Bureau of Statistics. (2011c). Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2011. Retrieved from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2011~Main%20Features~IRSD~10005>
- Australian Government Department of Health. (2015). Australian government response to contributing lives, thriving communities - Review of mental health programmes and services. Retrieved 21 April, 2016, from <http://www.health.gov.au/internet/main/publishing.nsf/Content/mental-review-response>
- Australian Government Department of Health (2017). Fifth National Mental Health and Suicide Prevention Plan: Department of Health. Australian Government
- Australian Institute of Health and Welfare. (2015). Mental health services - in brief 2015 (Vol. Cat. no. HSE 141.). Canberra: the Author.
- Australian Institute of Health and Welfare. (2016). Australian Burden of Disease Study Canberra: AIHW <https://www.aihw.gov.au/reports/burden-of-disease/illness-death-australians-summary/contents/summary>
- Bell R, Donkin A & Marmot, M. (2013). *Tackling structural and social issues to reduce inequities in children's outcomes in low- to middle-income countries*, Office of Research Discussion Paper No.2013-02, UNICEF Office of Research, Florence.
- Commonwealth Department of Employment (2016). Historical data of the Department of Employment's Leading Indicator of Employment. Retrieved from <https://www.employment.gov.au/historical-data-department-employment-s-leading-indicator-employment>
- ConNetica (2015). *Resilient Minds for Life: Facilitator Training. Theory and evidence paper*. Caloundra (unpublished).
- De Savigny, D., & Adam, T. (2009). *Systems thinking for health systems strengthening*. World Health Organization.
- Goodwin, N. (2013). Understanding integrated care: a complex process, a fundamental principle. *International Journal of Integrated Care [serial online]*, 22, 13.

Health Foundation. (2014). *Perspectives on Context. A selection of essays considering the role of context in successful quality improvement*. London: Health Foundation.

Hopkins J, Wood L, Bell T, Mendoza J, Salvador-Carulla L, Karklins L, Bryne A, Hackett M & Stretton A, 2017(a). The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia - Volume I Metropolitan Perth. ConNetica and Mental Health Policy Unit, Brain and Mind Centre, University of Sydney. ConNetica. Caloundra, Qld. ISBN: 978-0-6480044-1-7

Hopkins J, Wood L, Bell T, Mendoza J, Salvador-Carulla L, Karklins L, Bryne A, Hackett M & Stretton A, 2017(b). The Integrated Mental Health and Alcohol and Other Drugs Atlas of Western Australia - Volume II Country WA. ConNetica and Mental Health Policy Unit, Brain and Mind Centre, University of Sydney. ConNetica. Caloundra, Qld. ISBN: 978-0-6480044-2-4

Jorm, A. F., Patten, S. B., Brugha, T. S., & Mojtabai, R. (2017). Has increased provision of treatment reduced the prevalence of common mental disorders? Review of the evidence from four countries. *World Psychiatry*, 16(1), 90-99.

Ibrahim, N., Michail, M., & Callaghan, P. (2014). The strengths based approach as a service delivery model for severe mental illness: a meta-analysis of clinical trials. *BMC psychiatry*, 14(1), 243.

Light, E., Kerridge, I., Ryan, C., & Robertson, M. (2012). Community treatment orders in Australia: rates and patterns of use. *Australasian Psychiatry*, 1039856212466159.

Lund C, De Silva M, Plagerson S, Cooper S, Chisholm D, Das J, et al. (2011). *Poverty and mental disorders: breaking the cycle in low-income and middle-income countries*. The Lancet; 378: 1505-14

Marmot M & Allen J. (2014) Social Determinants of Health Equity. *American Journal of Public Health*, 104(S4), S517-S519. doi: 10.2105/AJPH.2014.302200

Mendoza, J., Bresnan, A., Rosenberg, S., Elson, A., Gilbert, Y., Long, P., Wilson, K., & Hopkins, J. (2013). *Obsessive Hope Disorder: Reflections on 30 years of mental health reform in Australia and visions for the future. Technical Report*. Caloundra, QLD.

National Mental Health Commission. (2014). *The National Review of Mental Health Programmes and Services*. Sydney: NMHC.

New South Wales (NSW) Health. (2014). Integrated Care. Retrieved from <http://www.health.nsw.gov.au/>

Oliver, K., Innvar, S., Lorenc, T., Woodman, J. & Thomas, J. (2014). A systematic review of barriers to and facilitators of the use of evidence by policymakers. *BMC Health Services Research*, 14, 2.

Oxman, A. D., Lewin, S., Lavis, J. N., & Fretheim, A. (2009). SUPPORT Tools for evidence-informed health Policymaking (STP) 15: Engaging the public in evidence-informed policymaking. *Health research policy and systems*, 7(1), S15.

Public Health Information Development Unit (PHIDU) (2016). Social Health Atlas of Australia: Primary Health Networks (online). At: <http://www.phidu.torrens.edu.au/social-health-atlases/data> (accessed 24 August 2016).

Salom, C., Williams, G.M., Najman, J.M., Alati, R. (2014). Does early socio-economic disadvantage predict comorbid alcohol and mental health disorders? *Drug and Alcohol Dependence*, 142, 146–153.

Semantic mapping between the Australian NMHSPF and the DESDE-LTC. Applications in Western Australia (2018). Salvador-Carulla, L., Fjeldsoe, K., Leitch, E., Reynolds, J., Gossip, K., Furst, M., Woody, C., Rock, D., Wright, E., Harvey Whiteford, H. Canberra, Australia, 2018

Salvador-Carulla, L., Alvarez-Galvez, J., Romero, C., Gutiérrez-Colosía, M. R., Weber, G., McDaid, D., ... & Salinas-Perez, J. A. (2013). Evaluation of an integrated system for classification, assessment

and comparison of services for long-term care in Europe: the eDESDE-LTC study. *BMC health services research*, 13(1), 1.

Salvador-Carulla, L., Romero, C., Weber, G., & Dimitrov, H. (2011). Classification, assessment and comparison of European LTC services. *Ageing and long-term care*, 17(2-3), 27.

Salvador-Carulla, L., Fernandez, A., Feng, X., Astell-Burt, T., & Maas, C. (2015a). *The Integrated Mental Health Atlas of South Western Sydney*. Available at <http://rsph.anu.edu.au/research/projects/atlas-mental-health-care>

Thornicroft, G., & Tansella, M. (2013). The balanced care model for global mental health. *Psychological Medicine*, 43(4), 849–863.

Vázquez-Bourgon, J., Salvador-Carulla, L., & Vázquez-Barquero, J. L. (2012). Community alternatives to Acute inpatient care for severe psychiatric patients. *Actas Españolas de Psiquiatría* 40(5), 323-332.

Western Australian Mental Health Commission (2015). *Better Choices. Better Lives. Western Australian Mental Health, Alcohol and Other Drug Services Plan 2015–2025*. Perth, Western Australian Mental Health Commission.

Western Australian Primary Health Alliance (2015) Position statement: Mental Health Available at http://www.wapha.org.au/wp-content/uploads/2015/12/151209_PositionStatement_MentalHealth.pdf

World Health Organization. (2008). mhGAP: Mental Health Gap Action Programme: scaling up care for mental, neurological and substance use disorders.

World Health Organization and Calouste Gulbenkian Foundation (2014). *Social determinants of mental health*. Geneva, World Health Organization/

Zhang, J., Harvey, C., & Andrew, C. (2011). Factors associated with length of stay and the risk of readmission in an Acute psychiatric Inpatient facility: a retrospective study. *Australian and New Zealand Journal of Psychiatry*, 45(7), 578-585.