Western Australian
Auditor General's Report

An Analysis of the Department of Health's Data Relating to State-Managed Adult Mental Health Services from 2013 to 2017

Report 9: 2019-20
9 October 2019

Office of the Auditor General
Western Australia

Audit team:
Jason Beeley
Alan Charlton
Kimberly Payne

National Relay Service TTY: 13 36 77
(to assist people with hearing and voice impairment)

We can deliver this report in an alternative format for
those with visual impairment.

ISSN: 2200-1913 (print)
ISSN: 2200-1921 (online)

The Office of the Auditor General acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures, and to Elders both past and present.

WESTERN AUSTRALIAN AUDITOR GENERAL'S REPORT

An Analysis of the Department of Health's Data Relating to State-Managed Adult Mental Health Services from 2013 to 2017

Report 9: 2019-20
October 2019

THE PRESIDENT
LEGISLATIVE COUNCIL

THE SPEAKER
LEGISLATIVE ASSEMBLY

AN ANALYSIS OF THE DEPARTMENT OF HEALTH'S DATA RELATING TO STATE-MANAGED ADULT MENTAL HEALTH SERVICES FROM 2013 TO 2017

This report has been prepared for submission to Parliament under the provisions of section 25 of the *Auditor General Act 200*6.

This report presents additional selected results from our analysis of data provided by the Department of Health in relation to the delivery of State-managed adult mental health services from 2013 to 2017.

It provides further detail about the analysis that was used in our Report 4 of 2019-20 *Access to State-Managed Adult Mental Health Services* and includes some analysis that was not included.

I wish to acknowledge the entities' staff for their cooperation with this report.

CAROLINE SPENCER
AUDITOR GENERAL
9 October 2019

Contents

Auditor General's overview

Good mental health and well-being is not the absence of a mental health condition. It is the ability for each and every West Australian to participate in society. To provide people with the opportunity to participate and contribute fruitfully, mental health services need to be aligned to individual needs. In part, this means that services should support people staying in the lowest intensity of care unless they need to access a more intense mental health care setting.

My August 2019 audit report *Access to State-Managed Adult Mental Health Services* found that WA Health and the Mental Health Commission (MHC) had a limited understanding of how people accessed services. This was made clear when we asked 'How many people access mental health care?', and WA Health and MHC could not tell us with any certainty. Because of this we undertook a unique data exercise to answer that question. The key results from the data analysis were included in the audit report. However, there was much more that the data could tell us. The objective of this report is to share more detail on the data analysis, some of which may be of use to WA Health and the MHC.

The data analysis was initially constructed to specifically address the audit scope. However, the uniqueness and complexity of the analysis converted the model into a proof of concept for WA Health. Since our report was tabled, our data model has been shared with the Department of Health so they may develop it and broaden its usefulness.

Executive summary

Background

This report presents additional selected results from our analysis of data provided by the Department of Health (DoH) in relation to the delivery of State-managed adult mental health services from 2013 to 2017. It provides further detail about the analysis that was used in the Auditor General's *Access to State-Managed Adult Mental Health Services* report (Report 4 of 2019-20) and includes some analysis that was not included.

As part of that performance audit, we undertook an extensive data analytics exercise. As well as providing further information to Parliament, the results documented in this report may be of interest to a range of stakeholders including mental health service providers, advocacy bodies, consumers, carers, clinicians and research analysts.

The data analysis covered a 5 year period from 1 January 2013 to 31 December 2017. The DoH extracted the data from its systems and provided it to us in September 2018. The data covers mental health services delivered by public Health Service Providers (HSPs). This data includes admissions to hospitals, presentations to emergency departments (EDs) and contacts with community treatment services.

Our analysis was conducted on the specific data set at a point in time and consequently should not be seen as a complete or definitive representation of all aspects of Western Australia's (WA's) mental health services. The analysis and results were designed to answer a specific set of questions that related to the audit objective and scope. The analysis also tested the feasibility of using the DoH's mental health data to provide new insights into how people access mental health services in WA.

In conducting the audit, the audit team engaged in an extensive consultation process that included staff from the DoH, the HSPs, the Mental Health Commission (MHC) and the Office of the Chief Psychiatrist. The consultation process provided assurance that the information, analytical approach and results were appropriate and soundly based.

The analysis also involved a significant contribution from the managers of the DoH Data Collections, their analysts and the Data Linkage Branch within the DoH. Their assistance in refining the approach and their role in extracting and linking the correct data was critical, and underpinned our analysis. In addition, their continued engagement in providing clarification and explanations helped ensure the data and analysis was appropriately interpreted. A reference group of psychiatrists, analysts and administrators within the HSPs also provided explanations and information to ensure we understood and appropriately interpreted the data.

This supporting data report was produced at an estimated cost of $175,000, which is in addition to the costs reported in *Access to State-Managed Adult Mental Health Services* (Report 4 of 2019-20). The data warehouse has now been shared with the DoH.

Approach

We engaged a data analytics expert to assist us in adopting a systems engineering approach to:

- execute the data integration
- transform the data to create linked episodes of care or stays
- calculate the measures utilised to support the performance audit report.

This approach ensured the analysis was repeatable, transparent, auditable, validated and documented. It involved developing a data warehouse to which we then applied specific queries. These were designed to provide audit evidence to support our Report 4 of 2019-20, and they also produced the additional information provided in this report. Specifically, our approach involved:

- The DoH identifying people who accessed mental health care in hospital beds, EDs and through Community Mental Health Teams (CMHTs). The DoH then ensured the data was anonymous by allocating a unique, encrypted reference number or identifier to each individual, and removing any other identifying information. The identifier linked the mental health care events across the 3 services we looked at as part of this data analysis. This allowed us to use individual instances of care across different care settings to map journeys of people over the 5 year period from 1 January 2013 to 31 December 2017.
- In consultation with our stakeholders, developing tests or measures that allowed us to identify instances where the patterns or pathways did not reflect the intended models of care for the mental health services being delivered.
- Verifying the results we produced with the data analysts, psychiatrists, psychologists, mental health nurses, advocacy bodies and administrators from the MHC, the DoH and the HSPs.

Caveats and exclusions

The data provided by the DoH was sourced from 4 discrete, standalone DoH data collections plus data from the Department of Justice which allowed us to ascertain if and when there was a death. As the State does not have a single unique identifier for people across the data sources, the Data Linkage Branch at the DoH routinely links the data using probabilistic matching. The process of probabalistic matching is robust however it is not 100% accurate. When we validated the data to ensure accuracy and completeness, we identified, through feedback from the Data Linkage Branch, a very small number of instances where the unique identifier had linked events for 2 different people. This variance was not material to the overall system-level analysis.

Child and adolescent mental health services were excluded from the analysis, however the data included a small number of children and adolescents that accessed State-managed mental health services. Given the small numbers, this did not materially impact the analysis.

This data analysis exercise was limited by the inability to include data on mental health community support services provided by non-government organisations (NGOs) funded by the MHC. Data for the services comparable to that provided by the DoH on the services delivered by HSPs was not available at the time the analysis was conducted.

In addition to the data around the delivery of mental health services, CMHTs also collect data on the people referred to the service. We requested this data and it was provided by the DoH. However, multiple referrals can be generated via the system's referral and triage process. This made it difficult to correctly link the first referral within the community treatment service to the next appointment or contact. The data included duplicates that prevented us from merging the referral data into the data warehouse with any degree of confidence. As a result, the referrals data was excluded from the analysis. The DoH currently has a project underway to improve the quality of this referral data and develop performance measurements to report this data.

Our analysis did not include primary health care data (including from general practitioner consultation and treatment) because, as a Commonwealth funded service, the services and

data are outside the Auditor General for Western Australia's access powers and were outside the scope of our audit.

Figures in the audit report *Access to State-Managed Adult Mental Health Services* were rounded for ease of understanding. In this report, the exact number have been included as appropriate. As a result, the number may differ slightly to the original report.

Building patient journeys with the data

Mental illness can require long-term care with relapsing and remitting episodes. As a consequence, the ability to analyse how people access different mental health services over time is important. Such a view provides some indication of whether the service mix is appropriate to needs, and if the services can be accessed efficiently and effectively. For this reason the analysis focused on people's use of mental health services over time.

As noted in the Caveats and exclusions section above, the availability of suitable data effected which services were included in the analysis. We analysed 3 State-managed care settings that provide mental health services, these were:

- inpatient services, where people received care as an inpatient
- community treatment services, which include mental health services provided by CMHTs
- emergency department services.

Inpatient and community treatment services accounted for 90% of the MHC's total expenditure on mental health services in 2017-18. The care provided in EDs is not considered specialised mental health care, and is not funded by the MHC. However, it was included in our analysis because it is frequently an access point for many people seeking mental health care.

To create a systematic view of people's pathways, we obtained data for all people who accessed State-managed mental health care. These people accessed at least 1 of the 3 care settings at least once in the 5 year period from 1 January 2013 to 31 December 2017. Care may have included a single presentation to an ED, a telephone call from a community treatment service, an extended admission to hospital for a mental health concern or a combination of activities across services.

We focused on people who accessed these services with a primary and secondary mental health diagnosis. While the data included events that were drug and alcohol related, this was not the focus of the audit.

The way the DoH collects and stores hospital or inpatient data posed some challenges for our analysis. Existing inpatient data is activity-based, structured around units of care[1] provided, and recorded when an event called a 'separation' occurs. A separation occurs when a person is discharged from a hospital or when there is a change in a person's primary reason for care while in hospital. The challenge was connecting the individual separations when they overlapped or were consecutive, to build a stay, while maintaining the detailed information about each separation. There were 4.8 million care events that took place from 2013 to 2017.

An inpatient stay involving multiple separations can occur when a person stays in the same hospital, but the primary reason for care changes. For example, a person may be admitted to hospital after a deliberate poisoning associated with a suicide attempt. The primary reason for care on admission is to stabilise the person, treating the complications resulting from the poisoning. Once medically stable, the primary reason for care becomes management of the mental health condition. This change in the primary reason for care is captured in the system by the creation of 2 separations, but for the individual is 1 episode of care.

[1] The Department of Health refers to inpatient units of care as 'episodes of care'. The terminology "episode of care" has a specific meaning within the health sector, which is different and should not be confused with the OAG's reference to episodes of care, which we use to refer to periods of consecutive care across inpatient, outpatient, and emergency settings.

A stay involving multiple separations can also occur when a person is discharged from a hospital, transferred and admitted to another hospital before being discharged and sent home. This is reported as 2 separations. There were 117,615 inpatient stays from 2013 to 2017.

Another challenge was to capture information about people who were still in hospital and not yet discharged. As a consequence, inpatient data had to be extracted from 2 different data sources. This was particularly important because without doing this we would not have been able to capture all the people who were undergoing an extended stay in hospital and had not yet been discharged.

Steps to complete the data analysis

Our approach to the analysis, which we repeated a number of times, involved the following steps. We:

1. Identified the cohort

   Using the criteria we set in consultation with the DoH, the DoH extracted data relating to any person who had 1 or more mental health related ED presentations, inpatient events or contacts with a community treatment service (we refer to these as service events) within the 5 year period from 1 January 2013 to 31 December 2017.

2. Extracted raw data

   The DoH extracted all inpatient, emergency and community treatment service events for those people identified as having at least one mental health related service event. This data was extracted from 4 sources:

   - the Hospital Morbidity Data Collection for inpatient events where patients have been discharged from public and State-funded private hospitals
   - the Mental Health Information Data Collection for mental health related inpatient events where patients were still in a psychiatric hospital or mental health inpatient ward when the data was extracted
   - the Emergency Department Data Collection for ED events
   - the Mental Health Information System for community treatment service contacts.

3. Ensured anonymity and linked data

   The DoH Data Linkage Branch created a unique, encrypted identifier for each individual and ensured obvious identifying information such as name and address was removed. This was necessary because there is no unique identifier for each person across the multiple data sources, and it was essential to ensure that we could not identify individuals.

4. The DoH provided files to the OAG

   The DoH transferred a number of password-protected data files to us by using a secure portal/electronic file transfer. The files were downloaded to and stored on a standalone SQL server with restricted access. On this standalone server we created a platform where the data from the four data sources could be merged. Having the identifier allowed us to merge events for individuals from the multiple sources.

5. Tested files

   We conducted validation tests to ensure that the files were complete and accurate. For example, the data was reviewed to ensure it covered the complete period, all the

requested data fields were included and event information was accurately reflected. Any issues identified were resolved, in some instances requiring a new data extract. As an example, in a file provided that was intended to report patients who were still in hospital, we found several people who had been discharged. This meant the DoH had to review and refine the selection criteria they used to extract the data and provide a new extract. There were 7 iterations in total, resulting from refining the selection criteria and ensuring the most current data was available for our analysis. Validation tests were re-run on receipt of new data files to ensure accuracy and completeness.

6. Prepared and 'cleaned' the data

   Each version of the data provided by the DoH was loaded onto the secure platform we created. A set of processes was run on the data to identify and correct certain integrity issues. For example, we identified events for some people that occurred after death. We excluded these events from our analysis. We also made changes to the data to recognise services provided to public patients in private hospitals where a public private partnership existed. In addition, using reference documents provided by the MHC, and through consultation with the HSPs, we defined the ward types for mental health units, being acute, subacute and hospital in the home.

7. Organised event data into episodes of care

   Discrete mental health inpatient events were merged to create stays. These stays reflected how long a person spent in inpatient care, with a break of no more than 24 hours. These stays were then brought together with ED and community treatment events to create people's episodes of care. In our analysis, episodes of care covered care delivered to a person from any of the 3 mental health care settings we looked at, where there was not more than 7 days between events. Joining these episodes of care together allows pathways of care[2] to be identified and analysed.

8. Quality control process

   A sample of patient data, that excluded obvious identifying information from the separate systems was used to manually construct an expected timeline of events. This was then compared to the automatically transformed data to verify that the process was completed as expected.

9. Analysed the episodes of care

   Once the data was organised into episodes of care we analysed it to:

   - establish how many people entered care by year
   - uncover the combinations of service types in which people accessed care
   - ascertain the amount of care people accessed in each service
   - determine the patterns by which people accessed inpatient, community treatment and ED mental health care
   - determine the number of people who accessed care each year by service type
   - recalculate the 28-day readmission rate and the 7-day follow-up with a focus on people rather than events.

[2] Appendix 2, *Access to State Managed Mental Health Services. Office of the Auditor General report number 4 2019*

Results

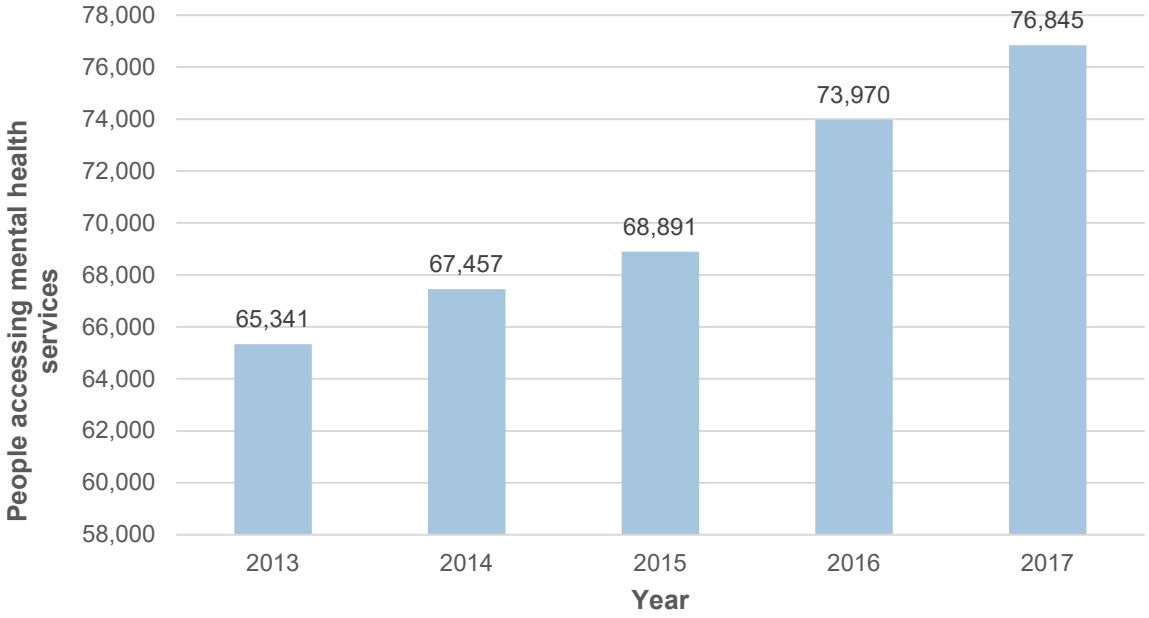
How many people accessed care from 2013 to 2017

From 2013 to 2017, our analysis showed that 212,679 people accessed State-managed mental health care in Western Australia. These people had one or more mental health related events at any time between 1 January 2013 and 31 December 2017. State-managed mental health care, for the purposes of our data analysis included care provided:

- in a public hospital as an inpatient
- in a public hospital ED
- through community treatment services delivered by community mental health teams.

On an annual basis, the number of people accessing any combination of the 3 State-managed mental health services we looked at grew steadily over the 5 years from 65,341 in 2013 to 76,845 in 2017 (Figure 1). These numbers are different from the number quoted in *Access to State-Managed Adult Mental Health Services* report. The reason being, that these numbers include the number of people who accessed mental health care in an ED during that time. The number quoted in the audit report excludes ED because it is not taken into consideration by MHC when determining the State's requirement for mental health care.

The biggest increase was in 2016 when 5,079 more people accessed care compared to the previous year, representing a 7.4% increase on 2015. The number of people accessing care each year is the number of people who had at least one public mental health event in that year.



Source: OAG analysis of DoH data

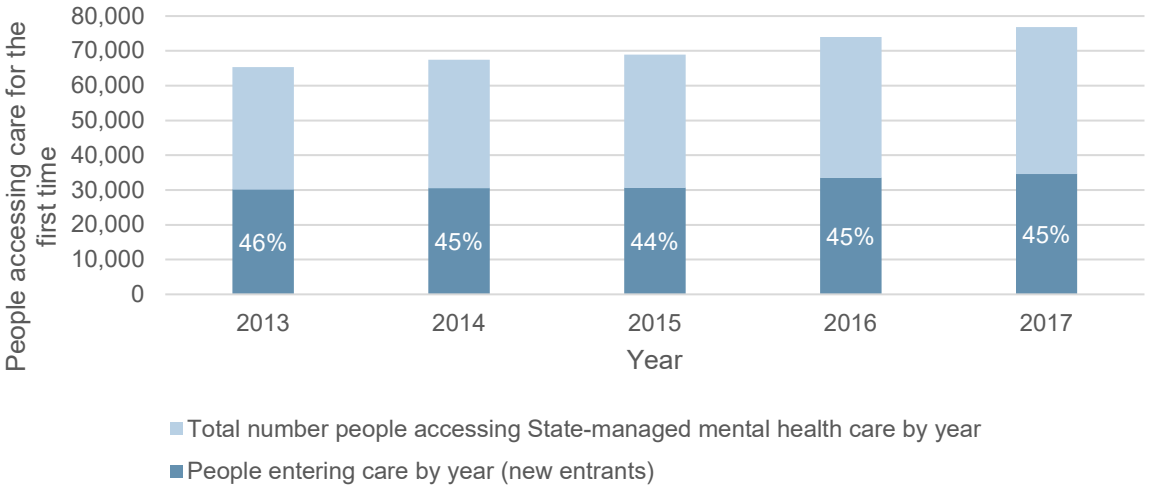
Figure 1: Number of people accessing at least one of the three services each year

A single event, such as a stay in hospital, can start in one year and finish in another year. That person is counted in each year that the episode of care occurs. For example, a person who was hospitalised from December to January the following year would be counted in both years. Annual totals are not cumulative and when added exceed the total number of people

who accessed care over the 5 year period by 139,825. This is because many people accessed mental health services across multiple years.

Number of people who accessed care for the first time from 2013 to 2017

Seventy-five percent of the 212,679 people, who accessed care during the 5 years, accessed State-managed adult mental health care for the first time in those 5 years (we refer to these people as 'new entrants'). Annually, around 45% of people accessing care were new entrants (Figure 2).

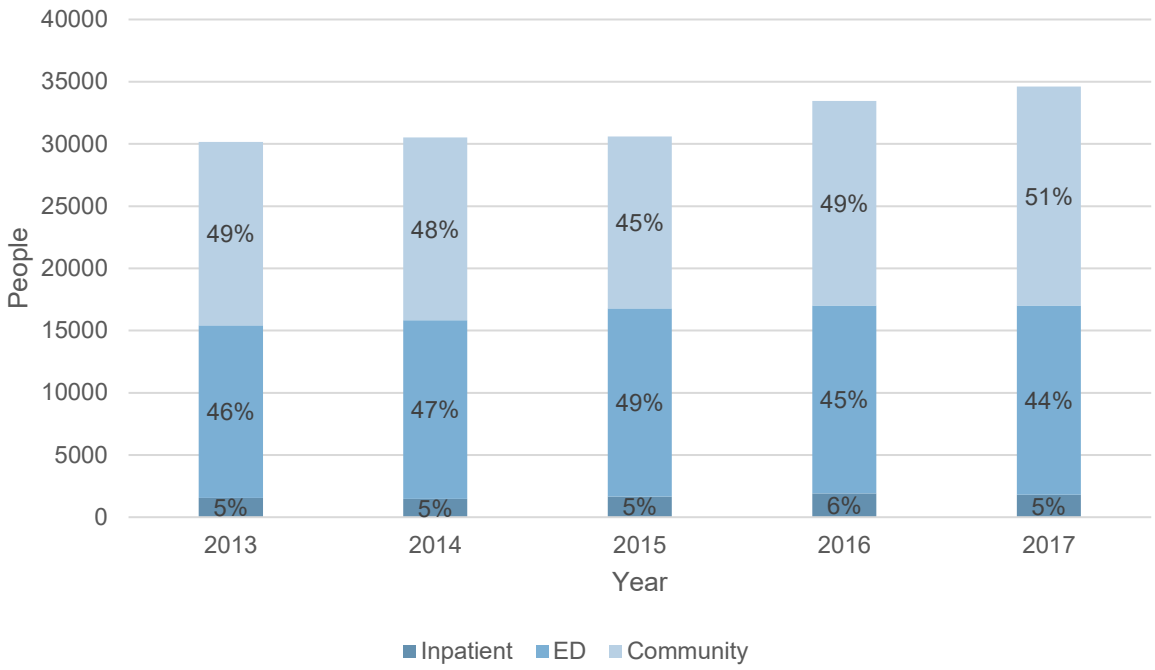


Source: OAG analysis of DoH data

Figure 2: Number and percentage of new entrants accessing care for the first time in each year 2013-2017

We looked at whether people first accessed care through an ED, as an inpatient in a hospital or contact with a community treatment service (Figure 3).

New entrants were more likely to have their first contact with State-managed adult mental health care through a community treatment service or an ED. Over the 5 years, 49% of people first accessed care through community treatment services, and 46% first accessed care through an ED. Only 5% of people made their first contact with State-managed mental health services as an inpatient, either in a mental health or a general health ward.



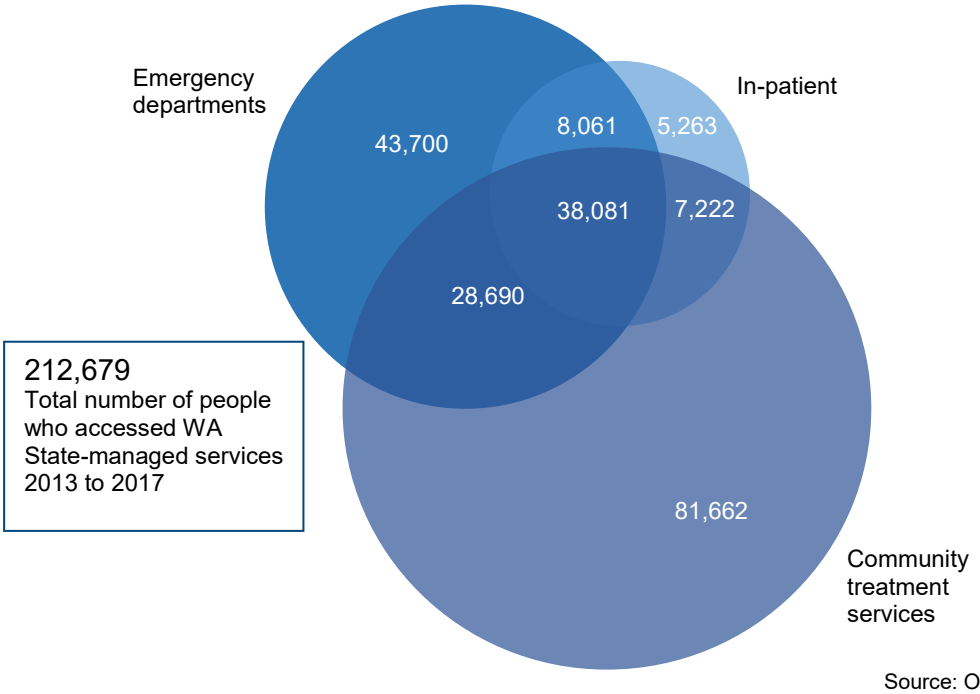
Source: OAG analysis of DoH data

Figure 3: The number of new entrants to State-managed adult mental health care who accessed care through inpatient, ED or community services

Patterns of access to mental health care

The combinations of types of mental health care that people accessed

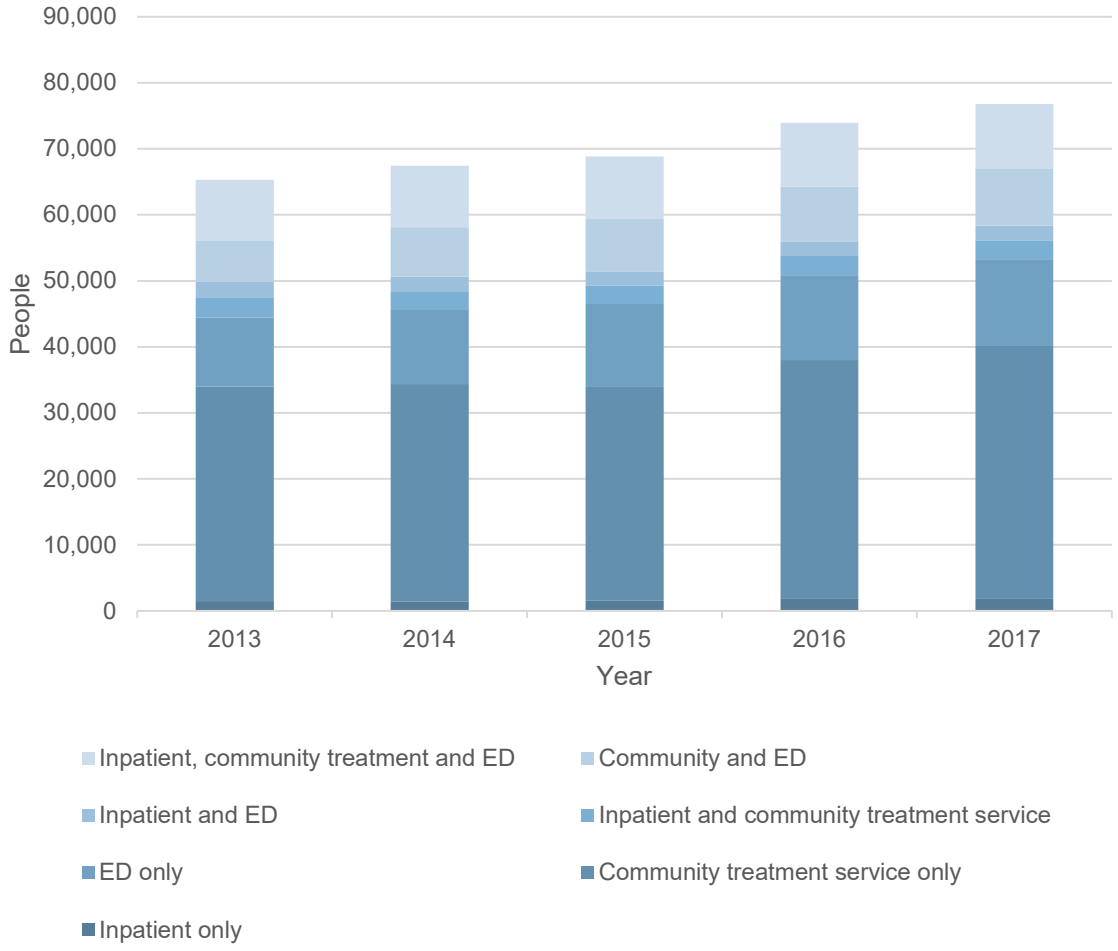
The data analysis covered 3 mental health service types: inpatient, ED and community treatment services. People accessed the community treatment services, inpatient and ED care in various combinations over the 5 year period (Figure 4).



Source: OAG analysis of DoH data

Figure 4: Combinations of mental health service access 2013-2017 by number of people

Figures 5 and 6 show how people accessed the various combinations of service type each year, by number and by proportion. Figure 5 shows that the total annual numbers increased each year from 65,341 in 2013 to 76,845 in 2017 and that there was very little change in the combinations of how people accessed each of the 3 mental health services.



Source: OAG analysis of DoH data

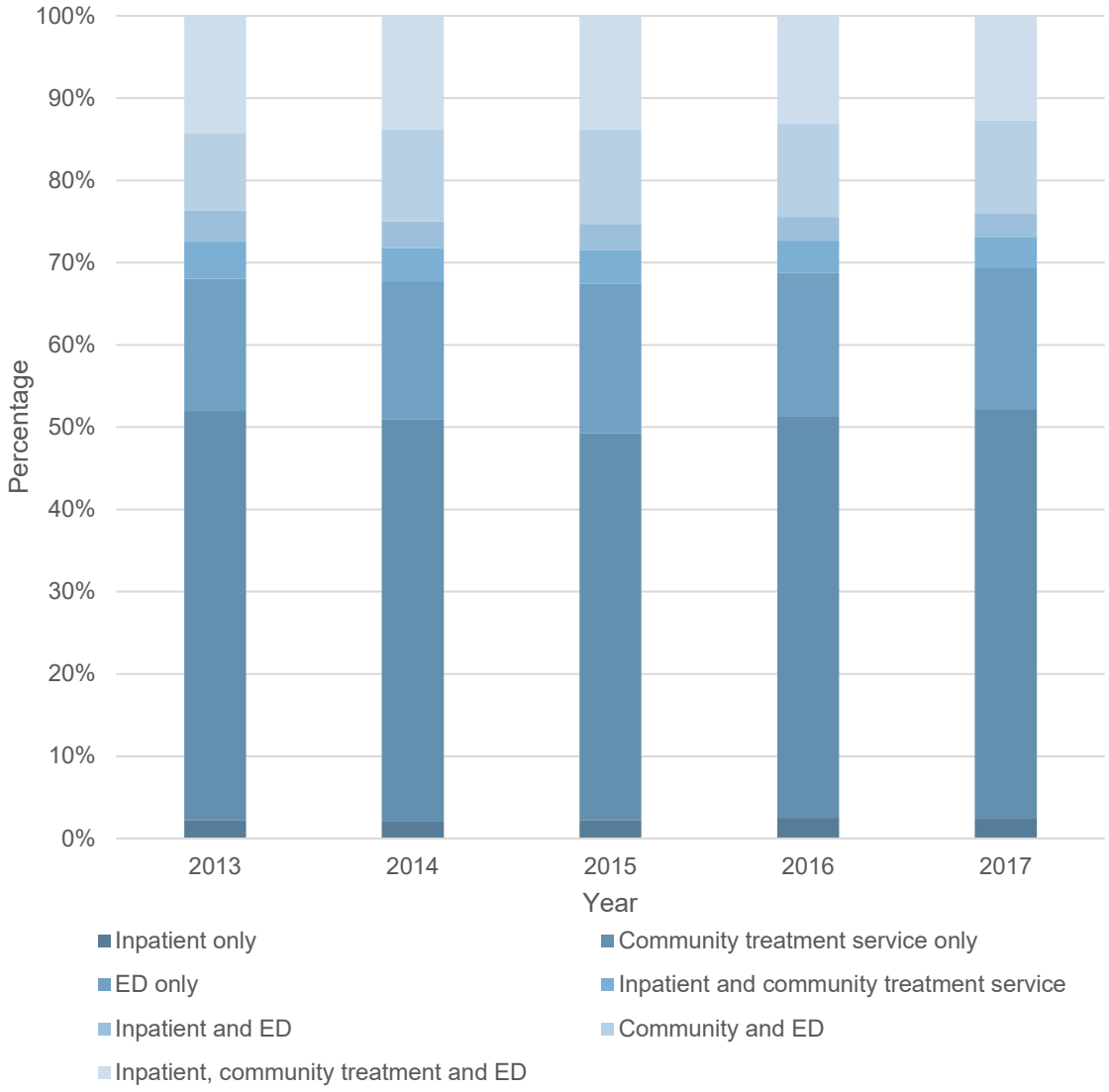
Figure 5: Combinations of State-managed adult mental health services access in 2013 to 2017 by number of people

Figure 6 shows the percentage of the different combinations of access, and that there was only minimal change over the 5 years we analysed. People accessing community treatment services only are the largest group, which accounted for 50% of all people accessing care in both 2013 and 2017. This increased from 32,492 people in 2013 to 38,270 people in 2017.

The biggest percentage change was in Community and ED combination which increased by 41%, from 6,140 people in 2013 to 8,684 people in 2017. This was followed by people who only accessed hospital care which increased by 26% from 1,466 in 2013 to 1,848 in 2017. The number of people who accessed ED only increased by 25% from 10,500 in 2013 to 13,141 in 2017.

The only combinations that experienced a decline were for those people who accessed hospital and ED care (2,482 people in 2013 to 2,247 in 2017) and hospital and community care (2,953 in 2013 to 2,864 people in 2017).

The percentage of people who accessed each of the 3 types of care at least once was relatively consistent, being 14% in 2013 and 13% in 2017.



Source: OAG analysis of DoH data

Figure 6: Combinations of State-managed adult mental health services accessed in 2013 to 2017 by percentage

How much care people accessed, and how often

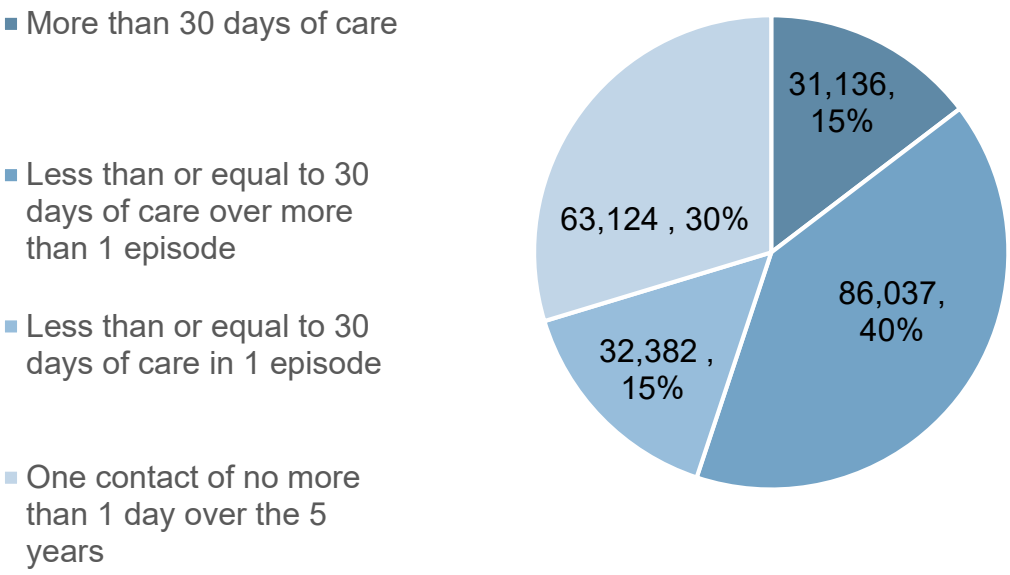
We also tested if it was possible to analyse how much care (by time) people accessed, and how often they accessed it. This type of analysis could provide insights into how people use the mental health system, and the degree to which services are meeting needs. After consultation with clinicians and DoH analysts we developed 4 access categories for our analysis across the 5 years. These types of categories could potentially prove useful in understanding the interplay between the intensity, severity and acuity of illness, need and service provision.

This type of analysis may also provide the DoH and the MHC with information about whether services are reaching people with severe mental health issues which is the cohort that, under the national planning framework, State funded services are intended to provide care for. This should not be taken as a prescriptive set of categories, but they allowed us to explore some patterns in people using care.

The categories were:

- people who had accessed more than 30 days of care
- people who had accessed less than or equal to 30 days of care over more than one episode
- people who had accessed less than or equal to 30 days of care in one episode
- people who had no more than one day of care over the 5 years.

The analysis showed that of the 212,679 people who accessed State-managed care in the 5 years, 45% had a single State-managed mental health episode lasting between less than one day (30%) and no more than 30 days (15%) (Figure 7). These people may have accessed care elsewhere, such as via their general practitioner, NGO or private psychologist, but we did not have access to the data for those services.



Source: OAG analysis of DoH data

Figure 7: Access to State-managed adult mental health care by time

10% of the people that accessed State-managed mental health care from 2013 to 2017 accessed a significant amount of all three services

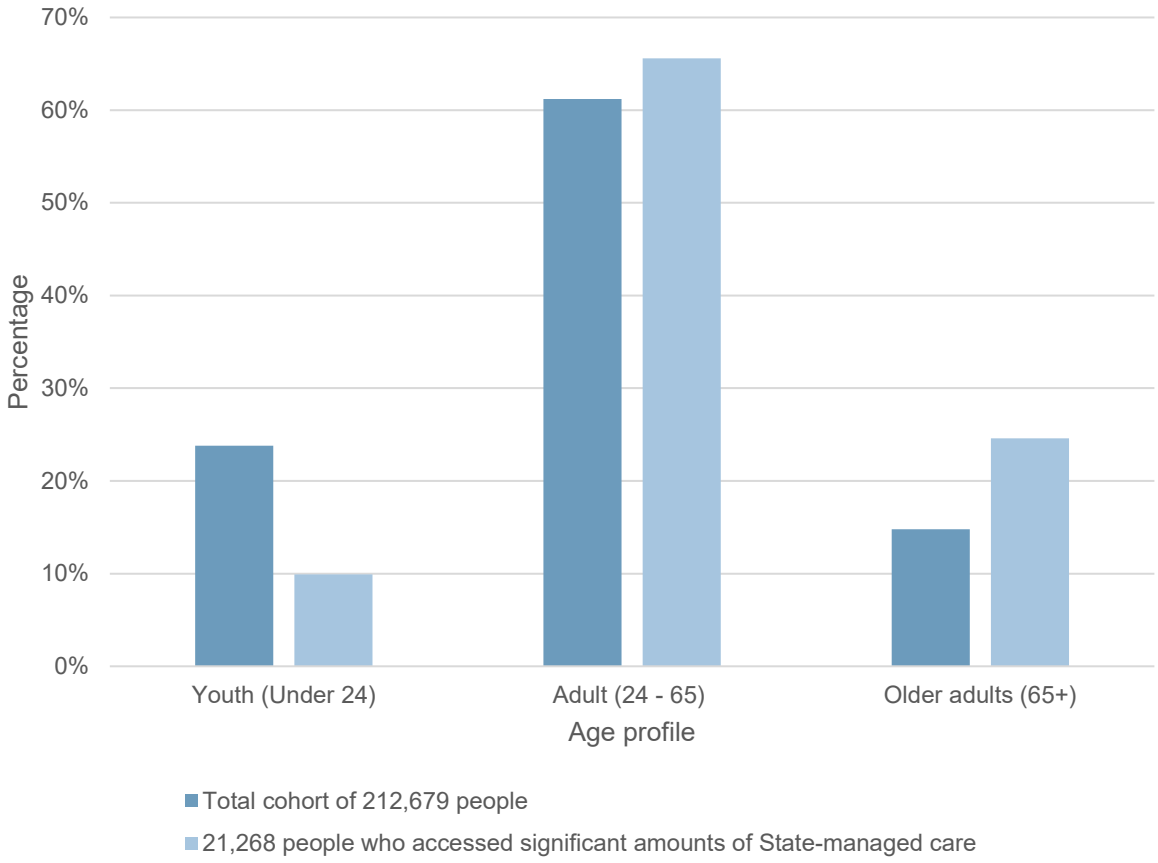
In the 5 year period, 90% of the inpatient days were used by 10% (21,268[3]) of the people who accessed care. A total of 1,595,182 inpatient days were accessed within the period. Inpatient days were days in hospital where people were admitted for mental health care.

[3] This number differs from the 21,000 referred to on *Access to State-Managed Adult Mental Health Services* report page 30, the variance is a result of rounding.

The 21,268 people used 1,434,704 days of this care across 70,573 stays in hospital, which accounted for 60% of all hospital stays.

The same 21,268 people also used 49% of the hours of mental health care provided in EDs, and 47% of the hours provided by community treatment services.

Older adults (people over 65 years of age) were over-represented in the 21,268 people compared to all people who accessed services (Figure 8). Even though they made up only 15% of the total number of people who accessed care, they made up 25% of the 21,268 people who accessed significant amounts of the 3 services we analysed.



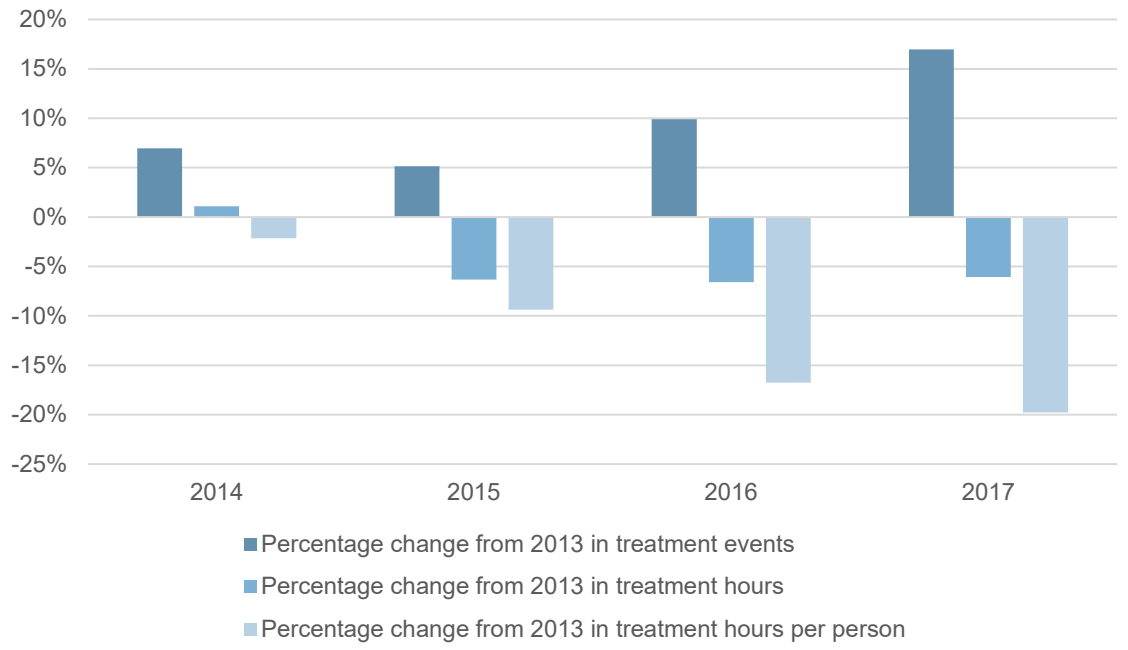
Source: OAG analysis of DoH data

Figure 8: Age profile of total cohort compared to that of the 21,268 people who accessed significant amounts of State-managed adult mental health care

Patterns of people accessing care by service

Community treatment services

From 2013 to 2017, a total of 155,655 people accessed care from community treatment services. The number of people accessing community treatment services annually grew by 17% from 50,872 in 2013 to 59,567 in 2017. The number of community treatment service events also grew by 17% from 825,127 in 2013 to 965,043 in 2017. Over the same period, the total hours of care provided annually by community treatment services provided fell from 586,335 to 550,829 (6.1%). From 2013 to 2017 the average amount of care provided by community treatment services per person annually decreased by 20% from 11½ hours to 9¼ hours (Figure 9).



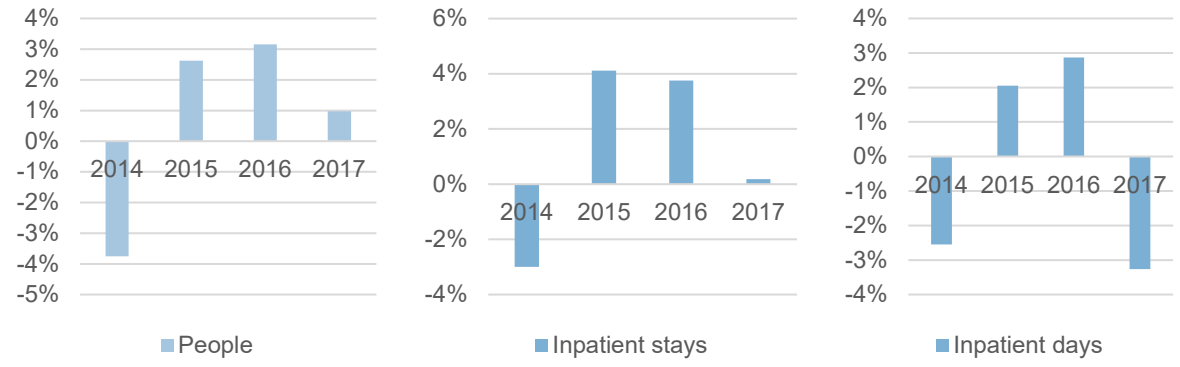
Source: OAG analysis of DoH data

Figure 9: Percentage change in community treatment services from 2013

Inpatient care

From 2013 to 2017, a total of 58,620 people spent 1,595,182 days in hospital beds across 117,615 stays, where the primary reason for care was mental health related. A stay in hospital can start in one year and finish in another year. Where a stay overlaps more than one year, the person is counted once in each year that the stay overlaps. For example, a person who was hospitalised from December in a year to January the following year would be counted once in both years. As a result, the annual totals cannot be added to give a total number of people who accessed hospital care over the entire period. The same logic applies to stays, in that the number of stays in each year can not be added to obtain the total number of stays for the 5 years.

The pattern shown in the graphs below (Figure 10) is the percentage change from 2013 in people, number of stays and inpatient days per year.



Source: OAG analysis of DOH data

Figure 10: People staying in hospital – percentage change from 2013

We analysed the data to see how many people had long inpatient stays. The MHC has a target that the average length of stay in an acute mental health bed should be less than 15

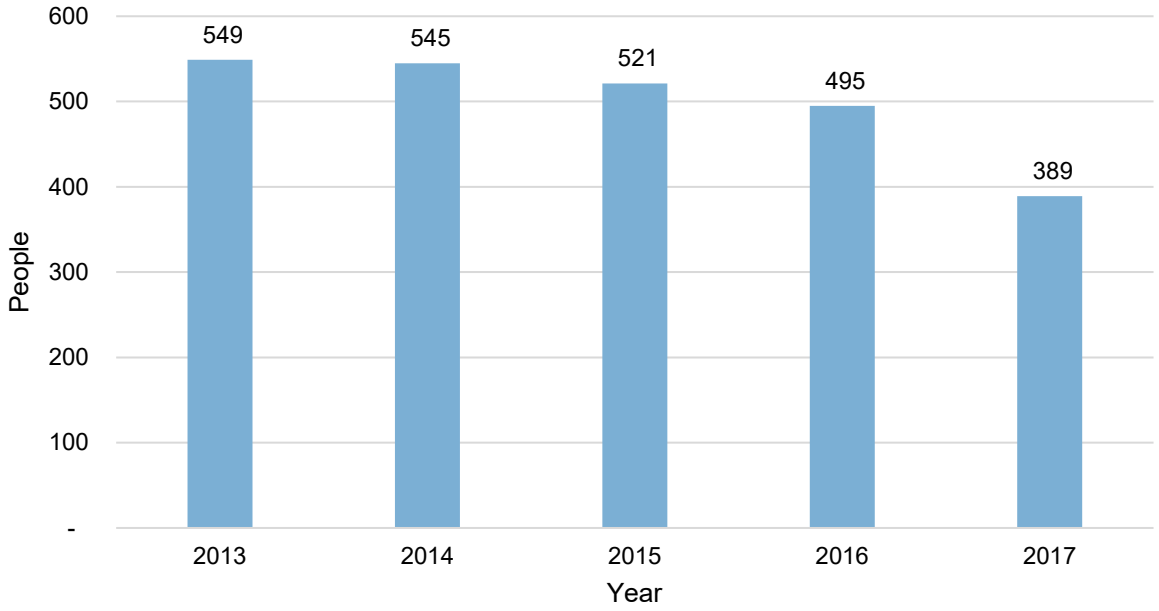
days.[4] We recognise that not every case will fit the target stay so we looked for stays that lasted 100 days or more to identify significant outlier events that may reveal systemic impacts or drivers of care delivery.

Over the 5 years we analysed, a total of 1,480 people had at least one stay in hospital that lasted 100 or more days. The number of people who stayed in hospital more than 100 days declined from 549 in 2013 to 495 in 2016 (Figure 11).

In 2017, the number of people who had a long stay in hospital was 389 (Figure 11). However, this figure is not comparable to the values reported in the previous years. Calculating long stays requires data that extends for at least 100 days beyond the end of each year, into the following year. Since the dataset ends as at 31 December 2017, the long stay statistics for 2017 cannot be compared with previous years. The figure reported for 2017 is an under-estimate of the actual number of people who had a long stay.

The number of people reported in any year indicates that during that year those people had either begun or continued a stay that lasted 100 days or more. Using this representation, people whose stay stretched across multiple years, are counted in each of those years and as a result the yearly totals cannot be added to give a cumulative total across five years.

Only around a quarter of the total inpatient days resulting from long stays were at Graylands Hospital which includes long-stay wards.



Source: OAG analysis of DoH data

Figure 11: People staying in hospital more than 100 days

From 2013 to 2017, 126 people had a stay in an acute mental health hospital bed that lasted 365 or more consecutive days. These people consumed 82,874 inpatient days and cost the State an estimated $115 million.[5] In total 284 people spent an accumulated 365 days or more over the 5 years in acute mental health hospital care.

As part of our analysis, we identified 41 people who had been in hospital for at least 5 years where the primary reason for hospitalisation was mental health related. These people had

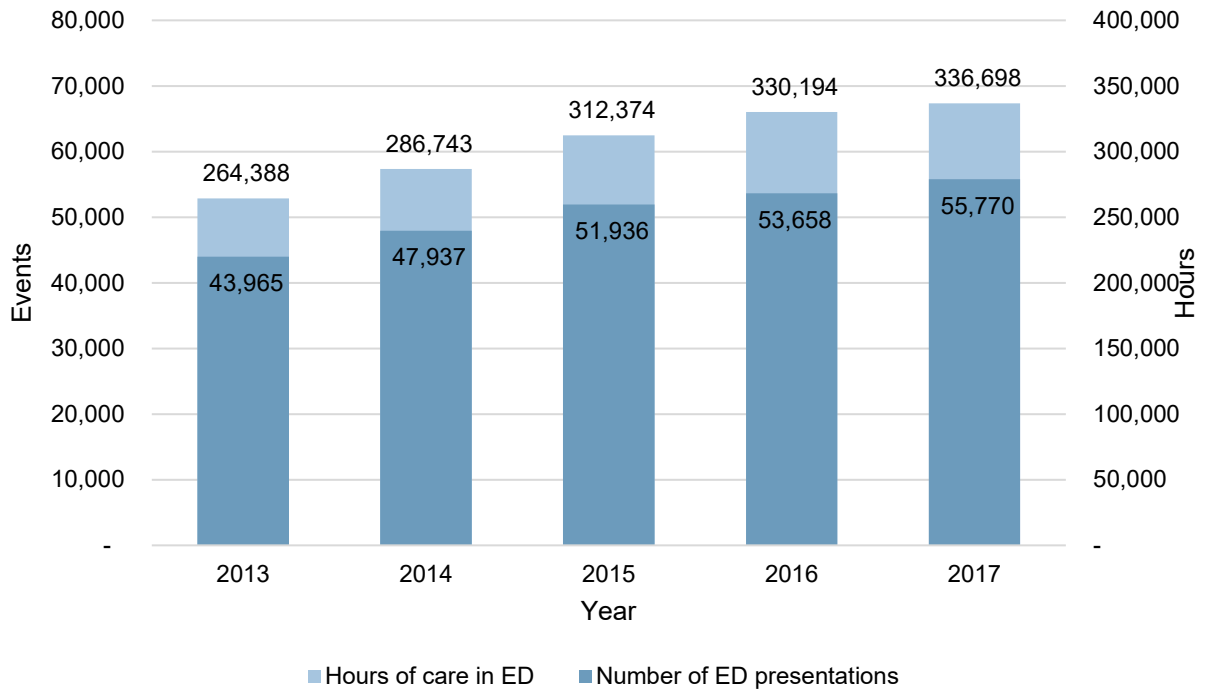
[4] Auditor General's Report 4 of 2019 Access to State-Managed Adult Mental Health Services page 25

[5] Auditor General's Report 4 of 2019 Access to State-Managed Adult Mental Health Services page 25

either been in hospital for the entire 5 years we reviewed and were still in hospital on 31 December 2017, or had been in hospital for at least 5 years prior to being discharged during the report period.

Emergency departments

A total of 118,532 people accessed mental health care in a public hospital ED from 2013 to 2017. These people presented to ED 253,308 times during the period. Over the 5 years, the number of mental health ED events per year increased by 27%, from 43,965 in 2013 to 55,770 in 2017. The total hours of mental health care provided in EDs per year also increased by 27%, from 264,388 hours in 2013 to 336,698 hours in 2017 (Figure 12).



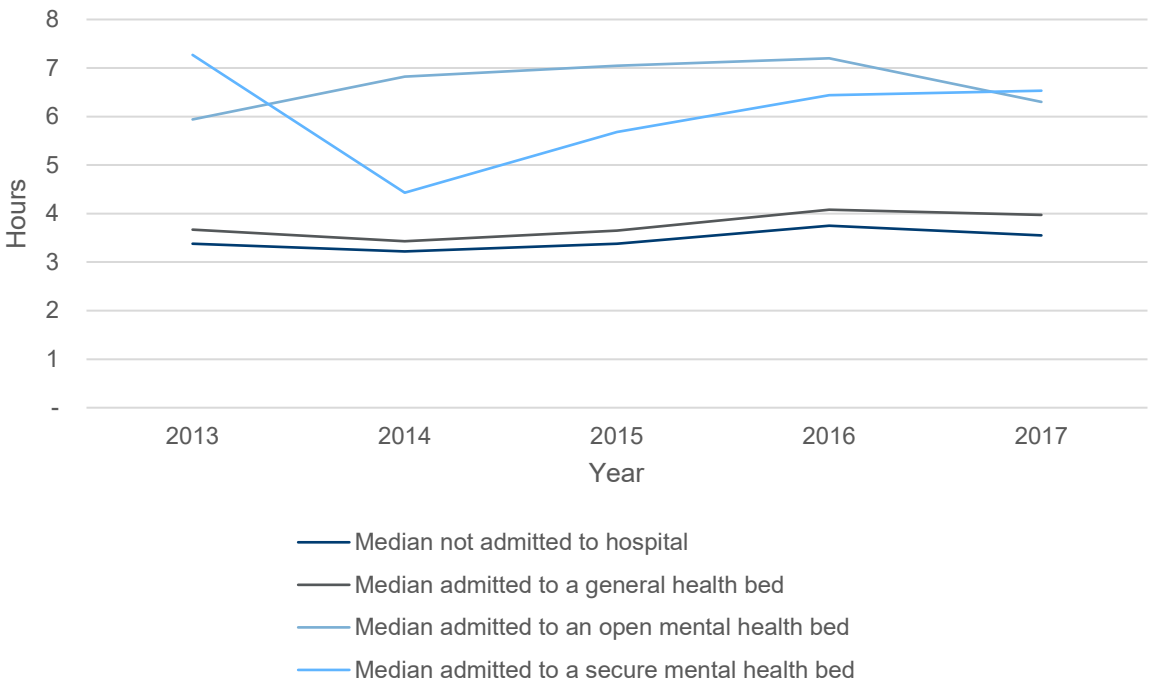
Source: OAG analysis of DoH data

Figure 12: Number of mental health ED presentations and hours of care 2013-2017

We compared the time people spent in ED for a mental health presentation to the outcome of the ED event (Figure 13). To do this we categorised outcomes in 4 ways:

- not being admitted into hospital
- being admitted into a general hospital bed (because in some instances, people requiring mental health care are admitted to general hospital beds)
- being admitted into an open mental health bed
- being admitted into a secure mental health bed.

The analysis showed that the time spent in ED was very similar for people who were either not admitted into hospital or were admitted into a non-mental health bed (general hospital bed). People who were admitted from ED into either an open or secure mental health bed spent longer in ED. As Figure 13 shows, time spent in ED for the 4 categories of outcomes varied over the period, but the time spent by people in ED before admission to a mental health bed was longer than those not admitted or those admitted to a general hospital bed in each year.



Source: OAG analysis of DoH data

Figure 13: Time spent in ED by outcome of ED event

Post discharge re-admission and follow-up rates

Re-admission to hospital within 28 days of discharge from acute specialised mental health units

The rate of re-admission to hospital within 28 days of discharge is a Key Performance Indicator (KPI) for mental health services. This indicator only includes instances where a person is discharged from and re-admitted to the same or another dedicated mental health unit. This is a nationally reported indicator and is intended to measure the appropriateness and quality of care provided by mental health services. It is based on the premise that a person returning to hospital within 28 days is representative of incomplete care.[6]

The DoH's hospital data is stored as separations, also refered to as discharges. When separations are used as a basis for calculations, a transfer from one hospital to another could be counted as a discharge in calculating this indicator. This is because transfers and discharges are both coded as separations in the hospital data.

As part of our analysis we re-calculated the indicator using our definition of a 'stay[7]', to avoid those types of effects from data input issues. Our calculation showed that, from 2013 to 2017, 28-day re-admission rates increased from 14 percent of stays to 17 percent of stays.

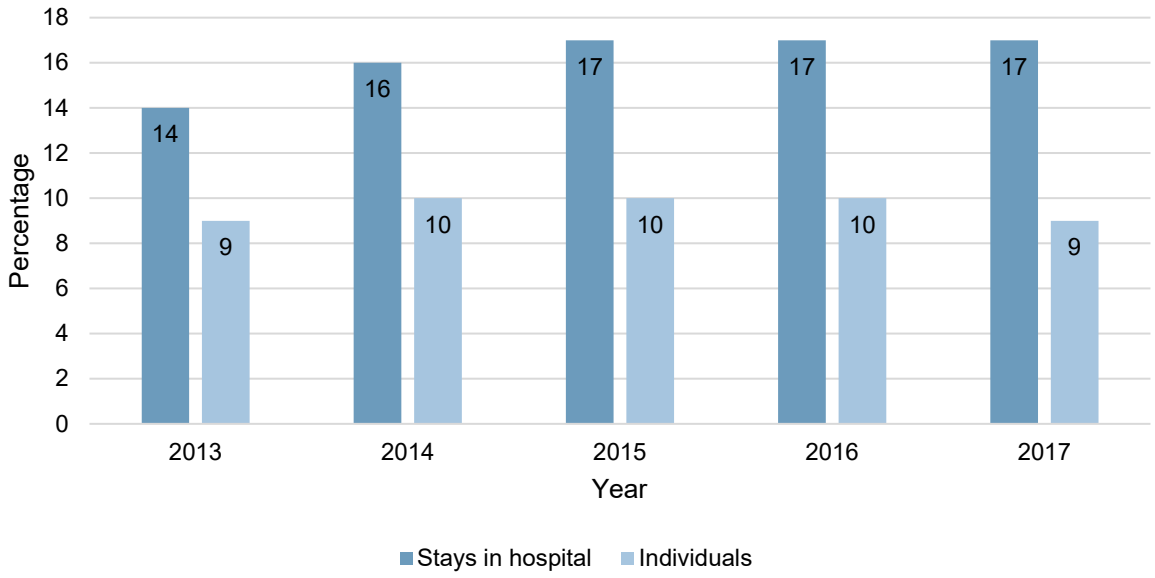
We also looked at the percentage of people who were readmitted within 28 days of discharge. This stayed relatively constant at 9 or 10 per cent of people each year (Figure 14).

The overall rate of re-admission is higher than the percentage of people who are re-admitted in any year, indicating that some people are re-admitted to hospital more than once within the report year. We did not assess how many people were in this group, or how often people

[6] KPIs for Australian Public Mental Health Services: PI 02J – 28 day readmission rate, 2017 (https://meteor.aihw.gov.au/content/index.phtml/itemId/663806)

[7] Refer to glossary on page 24

were re-admitted, but it could be a useful subject for further analysis to better understand patient journeys through the mental health system.



Source: OAG analysis of DoH data

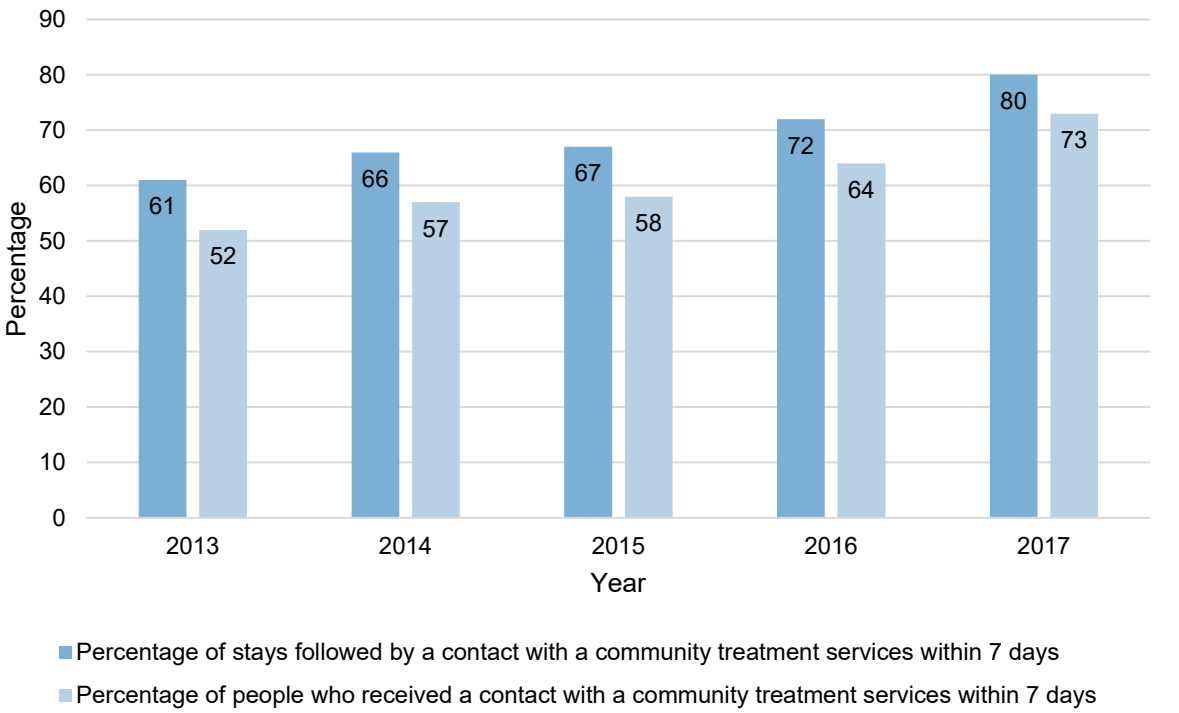
Figure 14: Re-admission rate - OAG calculation based on stays and individuals

Percentage of contacts with community treatment services within 7 days post discharge from a dedicated mental health unit

The MHC and the DoH report the percentage of separations from dedicated mental health units that are followed up by a contact with a community treatment service within 7 days of discharge. This is often referred to as the 7-day follow-up KPI. Similar to the 28-day readmission KPI, the MHC and the DoH calculate this indicator using separations. We calculated this indicator based on 'stays', using only stays where the patient was discharged from a dedicated mental health unit.

Figure 15 shows that the percentage of stays that are followed by a contact within 7 days has increased over the 5 years. Stays refers to the time a person spends in hospital from admission to discharge.

We also calculated the percentage of people who were discharged from a dedicated mental health unit at least once and received contact with a community treatment service within 7 days. The percentage of people with a follow-up within 7 days is lower than the percentage of stays receiving follow-up contact. It was not clear from our analysis what this meant, but it does highlight an opportunity for the DoH to extend the analysis we undertook.



Source: OAG analysis of DoH data

Figure 15: 7-day follow-up rate

Progress since we tabled Report 4 of 2019-20 *Access to State-Managed Adult Mental Health Services*

Since the report was tabled the data and the data warehouse has been shared with the DoH. WA Health and the Mental Health Commission have expressed a keen desire to continue to develop the analysis and use it to inform their decision making around people-centred mental health service development.

Glossary

Episodes of care (OAG)	For OAG purposes this is where care was delivered to a person from any of the 3 mental health care settings we looked at, where there was not more than 7 days between events. Any reference to episodes of care in the report refers to the OAG's definition of episodes of care.
Episodes of care (DoH)	Inpatient unit of count referring to a phase of treatment and is designed to reflect the overall nature of a clinical service and / or primary clinical intent and purpose of care. What the OAG has referred to as an event.
Event	A point in time where mental health care is provided to someone.
Separation	Occurs when a person is discharged from a hospital or when there is a change in a person's primary reason for care while in hospital.
Stay	Discrete mental health inpatient events were merged to create a stay. A stay reflects how long a person spent in inpatient care, with a break of no more than 24 hours. An inpatient stay involving multiple separations can occur when a person stays in the same hospital, but the primary reason for care changes. A stay involving multiple separations can also occur when a person is discharged from one hospital, transferred and admitted to another hospital before being discharged and sent home. Stays were linked together with ED and community treatment events to create people's episodes of care.
WA Health	Refers to the Department of Health, North Metropolitan Health Service, South Metropolitan Health Service, East Metropolitan Health Service and WA Country Health Service collectively.

Auditor General's reports

Report number	2019-20 reports	Date tabled
8	Opinions on Ministerial Notifications	8 October 2019
7	Opinion on Ministerial Notification	26 September 2019
6	Opinions on Ministerial Notifications	18 September 2019
5	Fraud Prevention in Local Government	15 August 2019
4	Access to State-Managed Adult Mental Health Services	14 August 2019
3	Delivering Western Australia's Ambulance Services – Follow-up Audit	31 July 2019
2	Opinion on Ministerial Notification	26 July 2019
1	Opinions on Ministerial Notifications	19 July 2019

Office of the Auditor General
Serving the Public Interest

Office of the Auditor General
Western Australia

7th Floor Albert Facey House
469 Wellington Street, Perth

Perth BC, PO Box 8489
PERTH WA 6849

T: 08 6557 7500
F: 08 6557 7600
E: info@audit.wa.gov.au
W: www.audit.wa.gov.au

@OAG_WA

Office of the Auditor General for
Western Australia