

# Paper 5: Characteristics of people using mental health services and prescription medication, 2011

The following paper presents the Australian Bureau of Statistics initial findings of the *Mental Health Services-Census Data Integration project*. This project was sponsored by the Commission to support the Review, and linked Census data with Medicare Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) administrative information. This provided the Commission with new insights on the characteristics of people using mental health services and prescription medication, and will inform the development and evaluation of mental health programmes and support services now and into the future. This paper and data tables are available on the [Australian Bureau of Statistics website](#).



# **Characteristics of people using mental health services and prescription medication, 2011**

**4329.0**

**Released 28 October 2014**

ABS Catalogue No. 4329.0

© Commonwealth of Australia 2014

Unless otherwise noted, content on this document is licensed under a Creative Commons Attribution 2.5 Australia Licence together with any terms, conditions and exclusions as set out in the website Copyright notice. For permission to do anything beyond the scope of this licence and copyright terms contact us.

In all cases the ABS must be acknowledged as the source when reproducing or quoting any part of an ABS publication or other product.

Produced by the Australian Bureau of Statistics.

## INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### CONTENTS

Contents.....	3
Summary.....	4
People accessing MBS subsidised mental health-related services in 2011.....	6
MBS Demographics .....	6
MBS Work and Education.....	8
People accessing PBS subsidised mental health-related prescription medication in 2011.....	10
PBS Demographics .....	10
PBS Work and Education.....	13
Endnotes.....	15
Explanatory Notes.....	17
Acknowledgement.....	23
Glossary .....	24
Appendix A - MBS Items .....	27
Appendix B - PBS Items .....	29

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### SUMMARY

#### Introduction

*The Mental Health Services-Census Data Integration project* brings together for the first time the breadth of the 2011 Census data with administrative information on people accessing subsidised mental health-related Medicare Benefits Schedule (MBS) services and Pharmaceutical Benefits Scheme (PBS) prescription medication.

This project was initiated on behalf of the National Mental Health Commission (NMHC) with the aim of informing the National Review of Mental Health Services and Programmes (the Review). The focus of the Review is to 'assess the efficiency and effectiveness of programmes and services in supporting individuals experiencing mental ill health and their families and other support people to lead a contributing life and to engage productively in the community' (Endnote 1).

Integrating a selected subset of data items from the Medical Benefits Schedule (MBS), Pharmaceutical Benefits Scheme (PBS) and the 2011 Census of Population and Housing (Census) has greatly increased the power of the data to support analysis of the circumstances and characteristics of people experiencing mental ill-health as they interact with the health care system. *The Mental Health Services-Census Integrated Dataset* includes people who responded to the 2011 Census and those who accessed subsidised mental health-related items listed on the MBS or PBS in 2011. For more information on these datasets, see Explanatory notes.

This project will contribute significantly to the pool of mental health-related data available in Australia to assist in the development and evaluation of mental health programs and support services now and into the future. Questions can be answered about people accessing subsidised mental health-related services and medications with evidence that up until now has not been available. For example, analysis of the integrated data will answer questions about the relationship between mental health-related services, medication use, and key socio-economic information such as education, employment and housing.

The confidentiality of these data are protected by the *Census and Statistics Act (1905)* and the *Privacy Act (1988)*. MBS and PBS information provided by the Department of Health and the Department of Human Services to the ABS is treated in the strictest confidence as is required by the *National Health Act (1953)*, and the *Health Insurance Act (1973)*.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

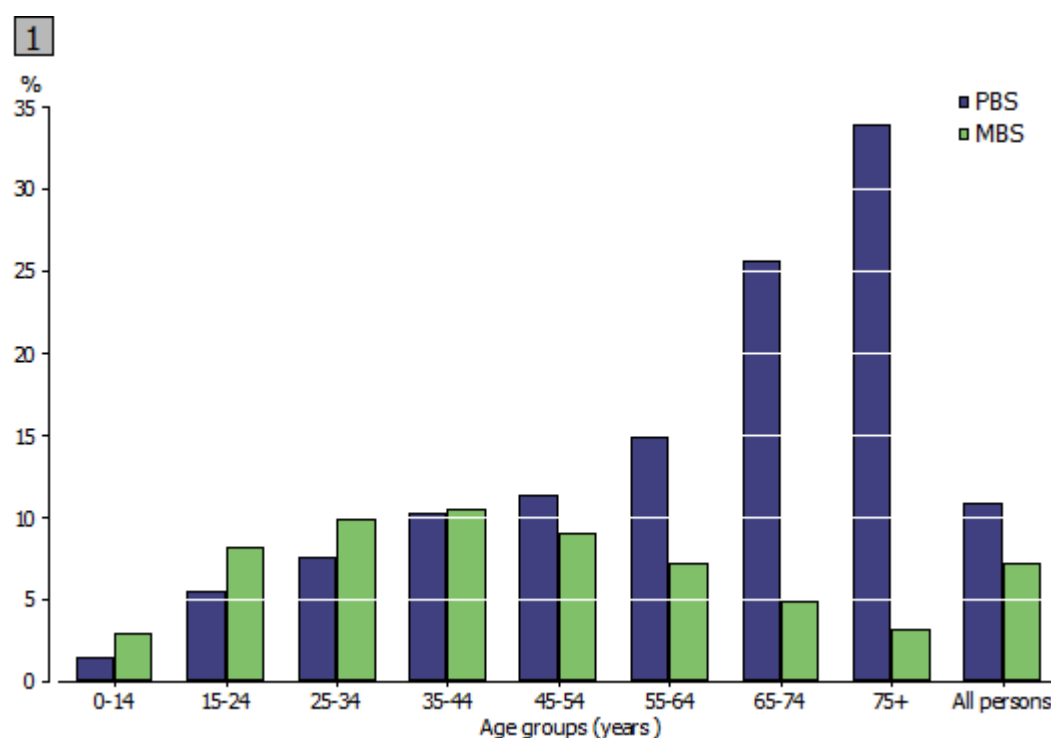
### Overview

Good mental health is a crucial aspect of good general health, and underpins a productive and inclusive society. Mental health and illness result from the complex interplay of biological, social, psychological, environmental and economic factors at all levels (Endnote 2).

The information in this publication relates to people who actually accessed either an MBS mental health-related service or a PBS subsidised medication in 2011. (For more information, please refer to the Explanatory Notes). As the following graph shows, the age structure of these two groups was quite different.

Graph 1 shows the proportion of the population in each age group that accessed a subsidised mental health-related service or medication in 2011.

Graph 1: Proportion of Australian population who accessed subsidised mental health-related MBS services and PBS medication -- 2011, by Age



The proportion of the population accessing PBS subsidised mental health-related prescription medications increased with age, with over one-third (34%) of all people aged 75 years and over accessing one or more of these drugs in 2011. By comparison, a higher proportion of people aged 15-64 years accessed MBS subsidised mental health-related services compared with people younger or older than this age group.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### PEOPLE ACCESSING MBS SUBSIDISED MENTAL HEALTH-RELATED SERVICES IN 2011

In 2011, there were over 1.5 million people who accessed MBS subsidised mental health-related services provided by psychiatrists, general practitioners (GPs), psychologists and other allied health professionals such as mental health nurses, occupational therapists, social workers and Aboriginal health workers.

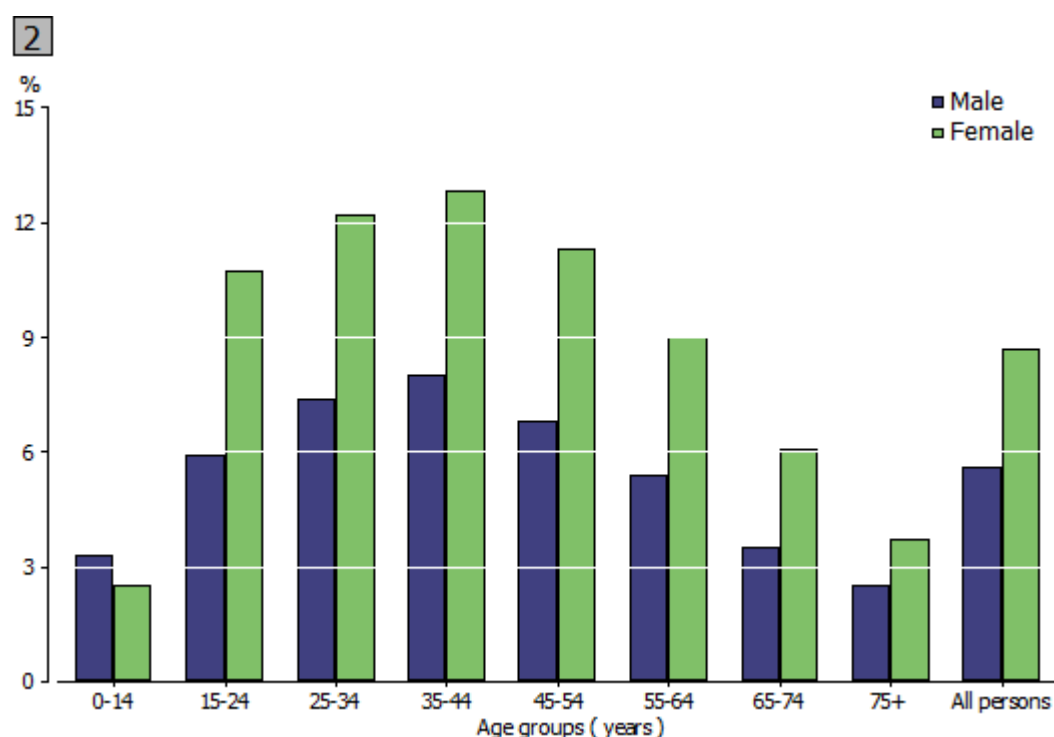
#### MBS Demographics

##### Age and Sex

Graph 2 shows the proportion of each age group of males and females in Australia who accessed MBS subsidised mental health-related services in 2011.

Females were more likely to access MBS subsidised mental health-related services than males with around 9% of all Australian females accessing services in 2011 compared with 6% of all males. Overall, a higher proportion of people aged 15-64 years accessed these subsidised mental health-related services compared with people younger or older than this age group.

Graph 2: Proportion of Australian population accessing MBS subsidised mental health-related services -- 2011, by Age and Sex

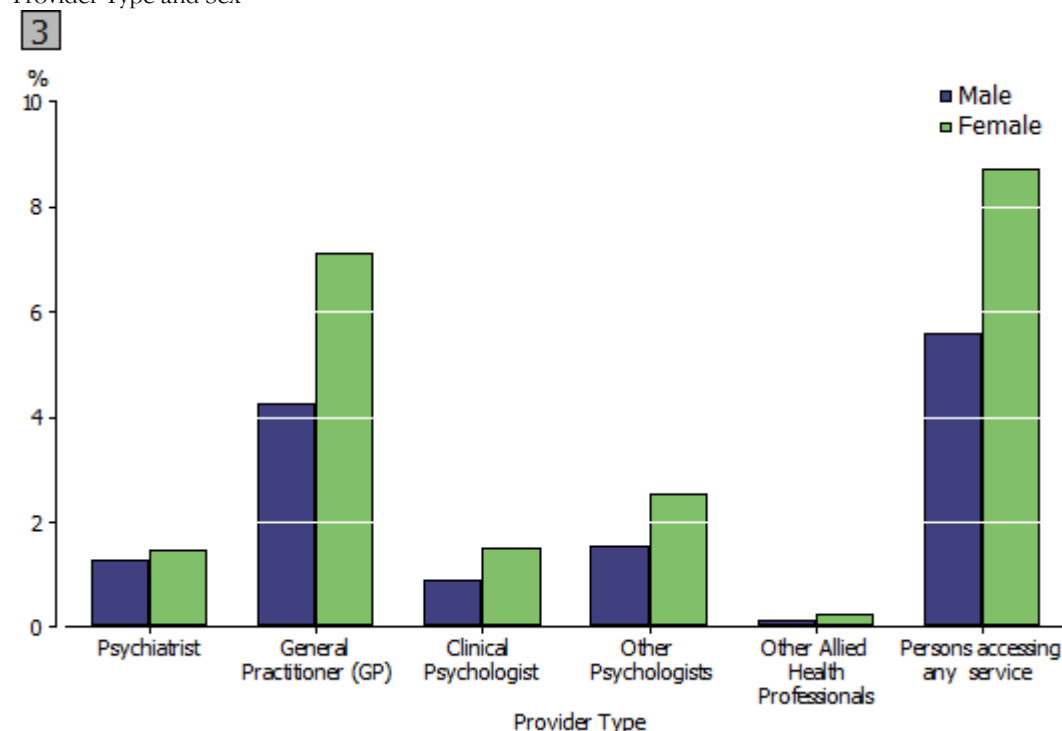


## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### Provider type

As Graph 3 shows, for both females and males, General Practitioners (GPs) were the most common service provider with over 1.2 million Australians attending a GP in 2011 for a subsidised mental health-related service. Around 7% of all females and 4% of all males attended the GP. Psychologists were the next most common service provider for both females and males (4% of all females and 2.4% of all males).

Graph 3: Proportion of Australian population accessing MBS subsidised mental health-related services -- 2011, by Provider Type and Sex



### State and Regional Differences

In 2011, Victoria, NSW, South Australia and Queensland had similar rates of subsidised mental health-related services (around 7 to 8% of all people in each State). People in Major Cities and Inner Regional areas were more likely to access one of these services than people living outside of these areas. As with the national pattern, GPs were the most common service provider across all of the remoteness areas.

### Socioeconomic Circumstances

The Index of Relative Socio-economic Disadvantage (IRSD) is a general socio-economic index that summarises a range of information about the economic and social conditions of people and households within an area. By using the IRSD from the Census and combining it with the MBS data it is possible to determine the socio-economic patterns amongst those who accessed subsidised mental health-related services.

In 2011, of all people living in the most disadvantaged areas, 6.2% accessed a subsidised mental health-related service from a GP, followed by 2.9% accessing a psychologist and 1.3% accessing a psychiatrist. Of all people living in areas of least disadvantage, 5.2% accessed a subsidised mental health-related service provided by a GP, followed by 3.6% accessing a psychologist and 1.7% accessing a psychiatrist.



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

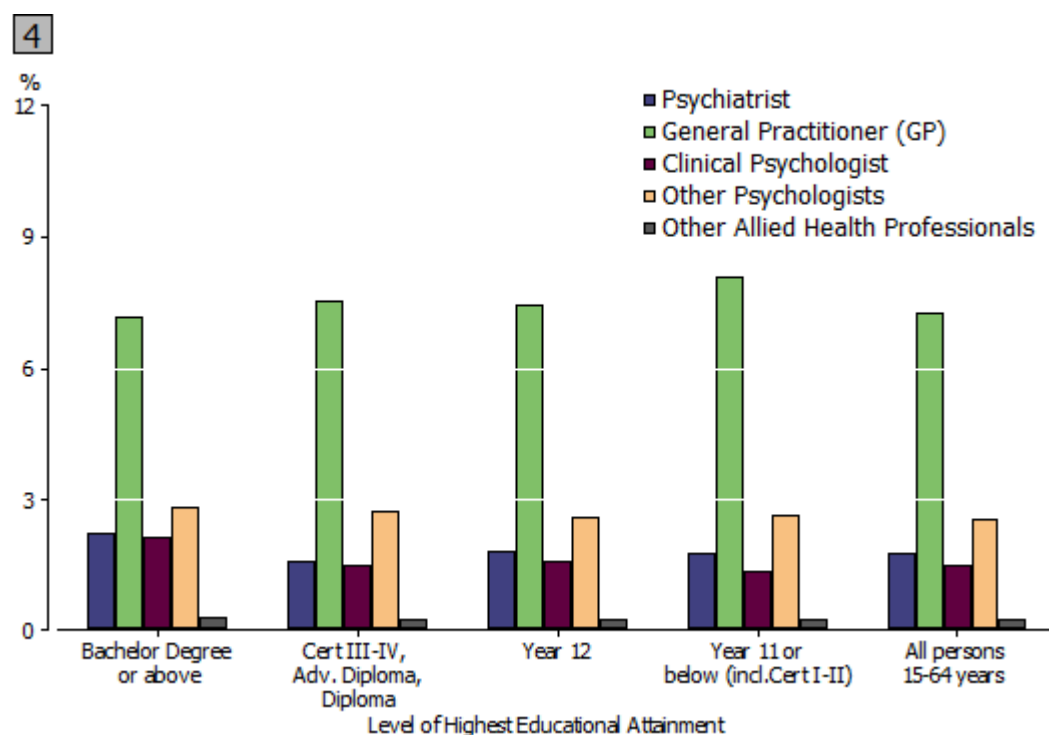
### MBS Work and Education

#### Education

Education and training are important means by which individuals can realise their full potential and make positive choices about their wellbeing. Education and training are often essential to gaining paid employment, and can provide the pathway to a rewarding career (Endnote 3).

Overall, there was little difference in the proportion of the population accessing a subsidised mental health-related service in 2011 by highest level of educational attainment. Of the 3 million Australians aged 15-64 years whose highest level of education was a Bachelor degree or higher, 9.5% accessed a subsidised mental health-related service in 2011, with a similar rate (9.8%) for those with Year 11 or below. However, people with a Bachelor degree or higher were more likely to see a clinical psychologist (2.1%) and psychiatrist (2.2%) than people with Year 11 or below (1.3% and 1.7% respectively).

Graph 4: Proportion of Australian population aged 15-64 years accessing MBS subsidised mental health-related services – 2011, by Level of Highest Educational Attainment and Provider Type



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### Employment

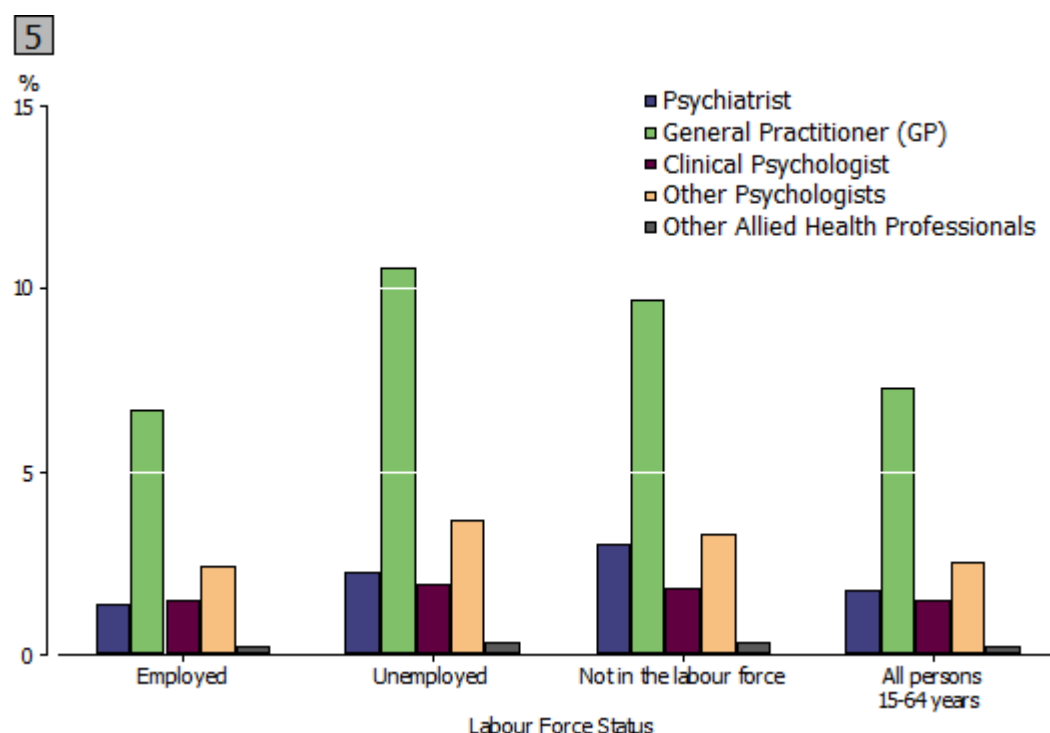
Paid employment is a major source of economic resources and security for most individuals. It allows people to contribute to their community and it can enhance their skills, social networks and identity (Endnote 3).

Generally, participation in the labour force tends to be lower in the teenage years, before rising in the twenties as people complete their educational qualifications and begin a career. The rate for men tends to stay quite high until they reach their late fifties and into their sixties, when many men retire. For women, the labour force participation rate tends to dip during the peak child-bearing years (between 25 and 44 years) (Endnote 4).

In 2011, of all employed Australians aged 15-64 years, 8.2% accessed subsidised mental health-related services, compared with 12.6% of all people who were unemployed and 12.4% of all people who were not in the labour force.

Unemployed people aged 15-64 years were more likely to see a psychiatrist (2.3%) than were employed people (1.4%) within this age group.

Graph 5: Proportion of Australian population aged 15-64 years accessing MBS subsidised mental health-related services -- 2011, by Labour Force Status and Provider Type



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### PEOPLE ACCESSING PBS SUBSIDISED MENTAL HEALTH-RELATED PRESCRIPTION MEDICATION IN 2011

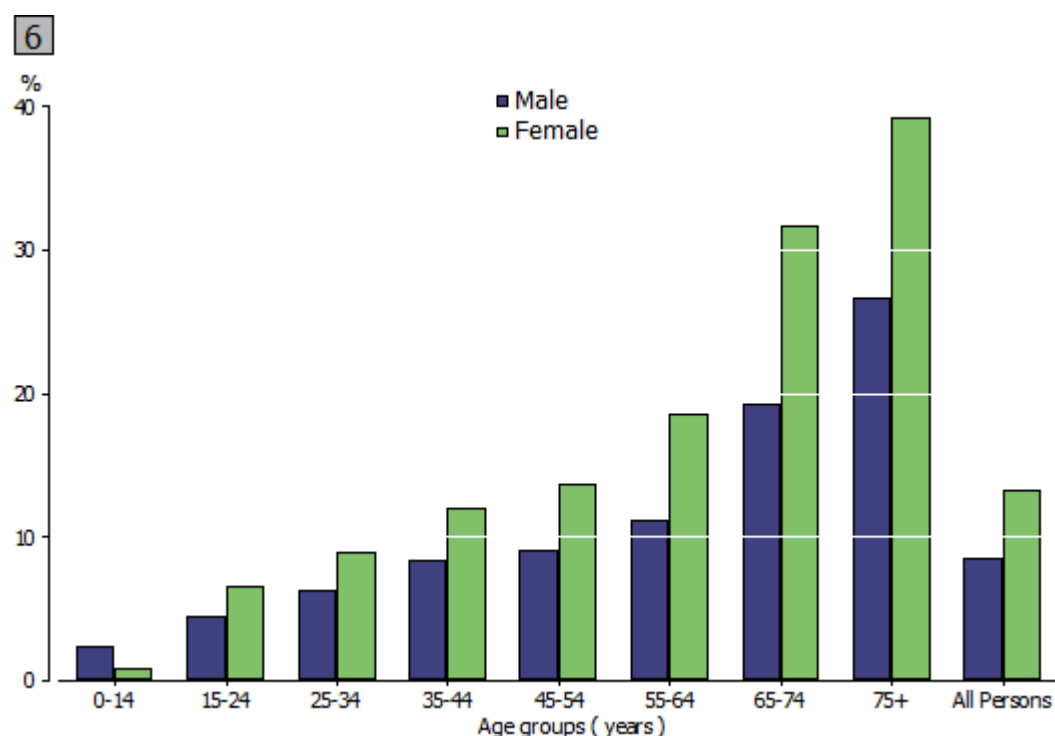
In 2011, there were over 2.3 million people who accessed PBS subsidised mental health-related medications which included: Antipsychotics, Anxiolytics, Hypnotics and Sedatives, Antidepressants and Psychostimulants and Nootropics (please see Explanatory Notes for more details).

#### PBS Demographics

##### Age and Sex

In 2011, females were more likely to access PBS subsidised mental health-related medications than males with 13.3% of all Australian females accessing these drugs compared with 8.5% of all males. The proportion of the population accessing these medications increased with increasing age, with over one-third (34%) of all people aged 75 years and over accessing one or more of these drugs in 2011.

Graph 6: Proportion of Australian population accessing PBS subsidised mental health-related prescription medication - 2011, by Age and Sex

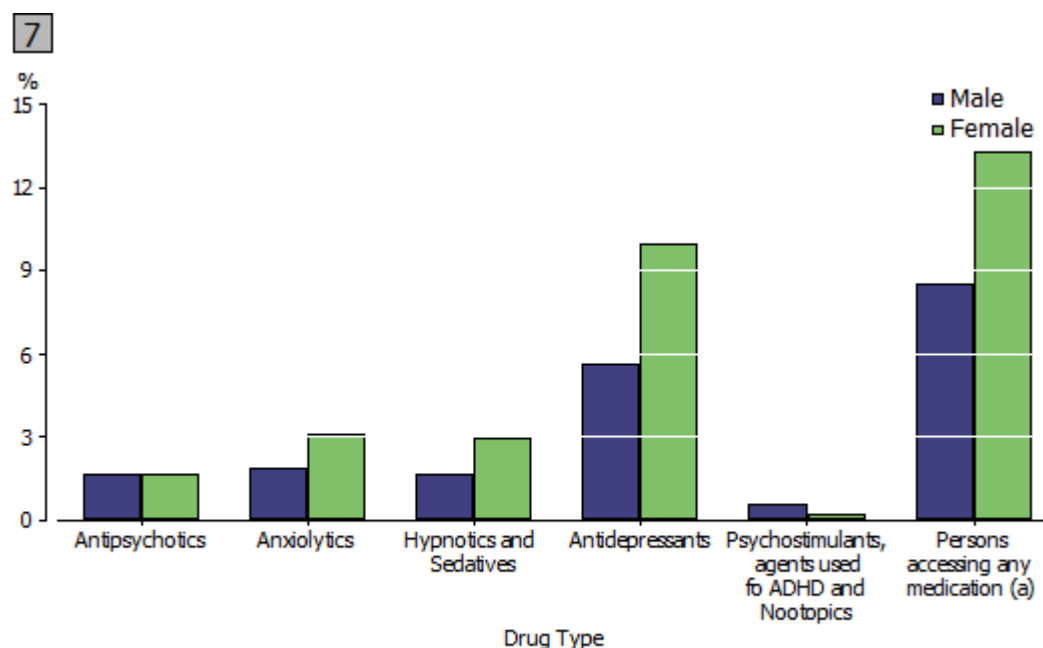


## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### Prescription Medication Type

For females, Antidepressants were the most common drug type (around 10% of all females), followed by Anxiolytics (3.1%) and Hypnotics and Sedatives (2.9%). For males, Antidepressants were also the most common type of drug prescribed although the rate was lower than for females (5.6%).

Graph 7: Proportion of Australian population accessing PBS subsidised mental health-related prescription medication - 2011, by Drug Type and Sex



(a) Proportion of Australian population accessing any PBS subsidised mental health-related medication

### State and Regional Differences

Care must be taken when analysing the differences among states and regions as any differences may reflect the underlying age structure within the geographical area. In general, the populations outside Major Cities such as Inner Regional and Outer Regional areas have older age structures than the Major Cities and Remote/Very Remote areas. Also, the PBS data does not have complete coverage with some groups under-represented, particularly people in the Aboriginal Health Services program. Data for Remote, Very Remote and the Northern Territory are particularly affected (see Explanatory notes for further detail).

In 2011, Tasmania (14.5%) had the highest proportion of the population accessing a PBS subsidised mental health-related prescription medication, reflecting in part the underlying older age structure of the State. Similarly, people living in Inner and Outer regional areas also tend to be older and again these regions had higher proportions of people accessing mental health-related prescription medication (13.5% and 12% respectively) than Major Cities (10.3%) which have a younger age profile.

## **4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011**

---

### **Socioeconomic Circumstances**

The Index of Relative Socio-economic Disadvantage (IRSD) is a general socio-economic index that summarises a range of information about the economic and social conditions of people and households within an area. By using the IRSD from the Census and combining it with the PBS data it is possible to determine the socio-economic patterns amongst those who use subsidised mental health-related prescription medication.

In 2011, of all people living in the most disadvantaged areas, 15.4% accessed a PBS subsidised mental health-related medication, most commonly Antidepressants (10.8% of all people living in these areas). Of all people living in the least disadvantaged areas, 7.2% accessed a PBS subsidised mental health-related medication, again most commonly Antidepressants (5.2% of all people living in these areas).

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### PBS Work and Education

#### Education

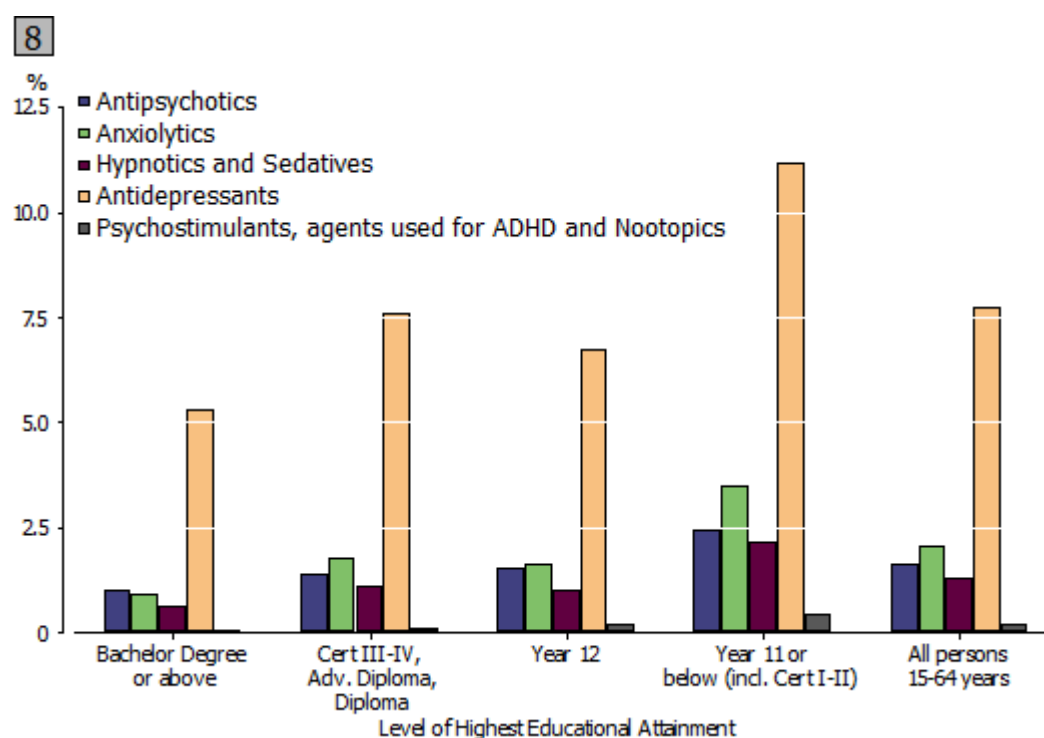
Education and training are important means by which individuals can realise their full potential and make positive choices about their wellbeing. Education and training are often essential to gaining paid employment, and can provide the pathway to a rewarding career (Endnote 3).

Of the 3 million Australians aged 15-64 years whose highest level of education was a Bachelor degree or higher, 6.4% accessed a PBS subsidised mental health-related medication in 2011.

Of the 3.7 million Australians aged 15-64 years whose highest level of education was Year 11 or below, 14.5% accessed a PBS subsidised mental health-related medication in 2011.

Antidepressants were the most commonly used medication across all levels of educational attainment.

Graph 8: Proportion of Australian population aged 15-64 years accessing PBS subsidised mental health-related prescription medication -- 2011, by Level of Highest Educational Attainment and Drug Type



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### Employment

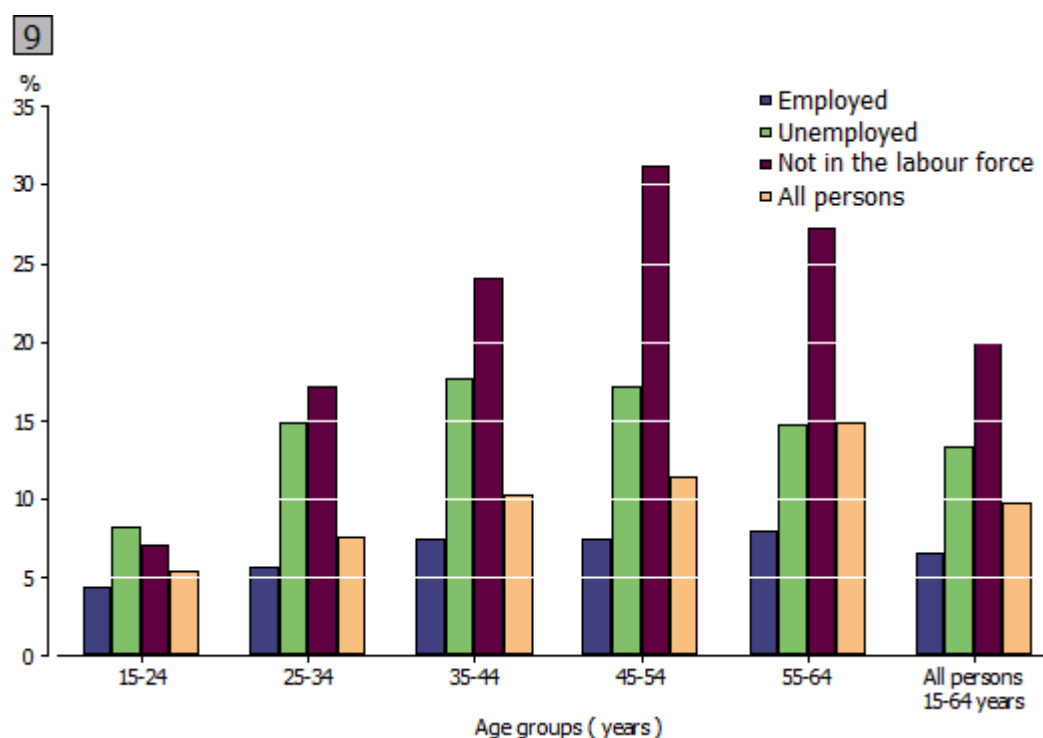
Paid employment is a major source of economic resources and security for most individuals. It allows people to contribute to their community and it can enhance their skills, social networks and identity (Endnote 3).

Generally, participation in the labour force tends to be lower in the teenage years, before rising in the twenties as people complete their educational qualifications and begin a career. The rate for men tends to stay quite high until they reach their late fifties and into their sixties, when many men retire. For women, the labour force participation rate tends to dip during the peak child-bearing years between ages 25 and 44 years (Endnote 4).

In 2011, of all employed Australians aged 15-64 years, 6.6% accessed subsidised mental health-related medications, compared with 13.3% of all people who were unemployed and 20% of all people who were not in the labour force.

In particular, people aged 35 years and over who were not in the labour force were more likely to access a subsidised PBS mental health-related medication than people who were employed or unemployed.

Graph 9: Proportion of Australian population aged 15-64 years accessing PBS subsidised mental health-related prescription medication - 2011, by Age and Labour Force Status



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### ENDNOTES

1. National Mental Health Commission, 2014, 'Review of Mental Health Services Programmes', viewed 3 October 2014, <<http://www.mentalhealthcommission.gov.au/our-work/review-of-mental-health-services-and-programmes.aspx>>
2. Australian Health Ministers, 2009, 'Fourth National Mental Health Plan – an agenda for collaborative government action in mental health 2009-2014', viewed 22 October 2014, <<http://www.health.gov.au/internet/publications/publishing.nsf/Content/mental-pubs-f-plan09-toc>>
3. Australian Bureau of Statistics, 2001, Measuring Wellbeing: Frameworks for Australian Social Statistics, (ABS cat. no. 4160.0). viewed 8 September 2014, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/17B2622B96E0C1C9CA2571B90011998B?opendocume>>
4. Australian Bureau of Statistics, 2008, Australian Social Trends, 2008, (ABS cat no. 4102.0) viewed 22 October 2014, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Chapter7002008>>
5. Australian Bureau of Statistics, 2006-2011, Outcomes from Vocational Education and Training in Schools, experimental estimates, Australia, (ABS cat. no. 4260.0, 2011) viewed 22 October 2014, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4260.0Explanatory%20Notes312006-2011?OpenDocument>>
6. Department of Human Services, 2014, Medicare Item Reports, viewed 22 October 2014, <[https://www.medicareaustralia.gov.au/statistics/mbs\\_item.shtml](https://www.medicareaustralia.gov.au/statistics/mbs_item.shtml)>
7. Australian Institute of Health and Welfare, 2012, 'Medicare-subsidised mental health-related services', viewed 13 August 2014, < <https://mhsa.aihw.gov.au/services/medicare/>>
8. Australian Institute of Health and Welfare, 2014, 'Medicare-subsidised mental health-related prescriptions', viewed 13 August 2014, < <https://mhsa.aihw.gov.au/services/medicare/>>
9. Department of Veterans' Affairs, 2014 'Repatriation Pharmaceutical Benefits Scheme', viewed 13 August 2014, <[http://www.dva.gov.au/service\\_providers/doctors/Pages/rpbs.aspx](http://www.dva.gov.au/service_providers/doctors/Pages/rpbs.aspx)>
10. Productivity Commission, 2014, 'Data quality information — Mental health management, chapter 12', Report on Government Services 2014, <[http://www.pc.gov.au/\\_\\_data/assets/pdf\\_file/0018/132345/rogs-2014-volume-chapter12.pdf](http://www.pc.gov.au/__data/assets/pdf_file/0018/132345/rogs-2014-volume-chapter12.pdf)>
11. Australian Institute of Health and Welfare, 2005, 'Rural, regional and remote health Information framework and indicators' viewed 8 September 2014, <<http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=6442459707>>
12. Australian Institute of Health and Welfare, Jun 2014, Australia's health 2014, Chapter 5 'Health behaviours and other risks to health: Health in regional and remote areas' viewed 3 August 2014, < <http://www.aihw.gov.au/publication-detail?id=60129547205>>
13. Australian Bureau of Statistics, 2012, 'Estimates of Undercount' Census of Population and Housing - Details of Undercount, 2011 (cat. no. 2940.0). viewed 3 August 2014, <<http://www.abs.gov.au/ausstats/abs@.nsf/Products/2940.0~2011~Main+Features~Estimates+of+net+undercount?OpenDocument>>



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### ABOUT THIS RELEASE

*The Mental Health Services-Census Data Integration project* used statistical techniques to link person-records from a selected subset of data items from the Medical Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS) to the 2011 Census of Population and Housing to create the Mental Health Services-Census Dataset, 2011. This publication provides a cross-section of key results from the linked dataset. It provides an overview of selected social and economic characteristics of people using subsidised mental health-related services and subsidised prescription medication including the type of services or medication these people are accessing.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### EXPLANATORY NOTES

#### INTRODUCTION

*The Mental Health Services-Census Data Integration project* combined data from 2011 Census of Population and Housing with a subset of data from the Medical Benefits Schedule (MBS) and Pharmaceutical Benefits Scheme (PBS). De-identified transaction information from the MBS and PBS was transformed to person-level information. Probabilistic linkage techniques were used to combine this information with person-records from the Census to create the new dataset.

*The Mental Health Services-Census Integrated Dataset, 2011* comprises persons who accessed subsidised mental health-related MBS services or subsidised PBS prescription medications and responded to the Census in 2011.

#### DATA

The data were produced using the following data sources:

a) 2011 Census of Population and Housing

The 2011 Census measured the number and key characteristics of people who were in Australia on Census night 9 August 2011. For information about the 2011 Census please refer to Census 2011 Reference and Information and Census Data Quality on the ABS website.

b) Medicare Benefits Schedule Data

The Department of Human Services collects data on the activity of all persons making claims through the Medicare Benefits Scheme and provides this information to the Department of Health. Information collected includes the type of service provided (MBS item number) and the benefit paid by Medicare for the service. The item numbers and benefits paid by Medicare are based on the Medicare Benefits Schedule (MBS) which is a listing of the Medicare services subsidised by the Australian Government. The *Mental Health Services-Census Integrated Dataset* includes MBS mental health-related services as defined in Appendix A,

c) Pharmaceutical Benefits Scheme Data

The Department of Human Services provides data on prescriptions funded through the Pharmaceutical Benefits Scheme (PBS) to the Department of Health. The PBS lists all of the medicines available to be dispensed to patients at a Government-subsidised price. The Government is advised by the Pharmaceutical Benefits Advisory Committee (PBAC) regarding which drugs should be listed on the PBS Scheme. The *Mental Health Services-Census Integrated Dataset* includes those PBS mental health-related medications as defined in Appendix B.

#### SCOPE

The scope of the data is restricted to persons who responded to the 2011 Census of Population and Housing AND accessed subsidised mental health-related items listed on the MBS or PBS datasets in 2011 (see Appendix A and B).

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

The data excludes:

- Persons whose Census record indicated that they were an overseas visitor;
- Persons who were out of the country on Census night; and
- Persons who did not return a Census form.

In addition the data excludes:

- Persons who received services provided by hospital doctors to public patients in public hospitals, or services that qualify for a benefit under the Department of Veterans' Affairs National Treatment Account;
- The Repatriation Pharmaceutical Benefits Scheme which is subsidised by the Department of Veterans' Affairs;
- Persons who were supplied medications or accessed services only through programs that do not use the Medicare processing system, for example Aboriginal and Torres Strait Islander Health Programmes;
- Persons accessing private prescription drugs, over the counter drugs, drugs that cost less than the co-payment.

These exclusions are discussed further in the Data Quality section.

### LINKAGE RESULTS

At the completion of the linkage process:

- 1,072,284 person-records (69.6%) of the 1,540,836 person-records on the MBS dataset were linked to the 2011 Census; and
- 1,669,278 person-records (70.9%) of the 2,354,118 person-records on the PBS dataset were linked to the 2011 Census.

### METHODOLOGY

#### DATA INTEGRATION: OVERVIEW

Statistical data integration involves combining information from different administrative and/or statistical sources to provide new datasets for statistical and research purposes (Endnote 5).

Data linking is a key part of statistical data integration and involves the technical process of combining records from different source datasets using variables that are shared between the sources. Data linkage is typically performed on records that represent individual persons, rather than aggregates. Two common methods used to link records are deterministic and probabilistic linkage. Deterministic linkage links person-records on exact matches using a unique identifier (such as a social security number or a created unique identifier such as a linkage key). Probabilistic linkage links person-records on close matches based on the relative likelihood that two records refer to the same person, using a number of linking variables (such as date of birth, sex, geographic area).

For further information on data integration see Glossary and the National Statistical Service website – Data Integration.

#### DATA INTEGRATION METHOD

The Department of Health provided the ABS with de-identified MBS and de-identified PBS data extracts, while the Department of Human Services extracted and provided the associated de-identified demographic data extract on behalf of the Department of Health. This data was de-identified in that it did not include name, address, Medicare Number or Pharmaceutical Benefits number. ABS then transformed this administrative data from transaction-level to person-level.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

Data from the 2011 Census, and the transformed MBS and PBS data, were brought together using probabilistic linkage. The variables used to link the MBS and PBS data to the Census were Date of Birth, Sex and Mesh Block. The method involved linking without the use of name and address; this information was destroyed at the end of the 2011 Census processing cycle.

The process also placed importance on accuracy and uniqueness. Only records that matched exactly on the linkage variables and were unique matches were retained. In this linkage project, a unique match was defined as instances where a record on the MBS or PBS file had only one matching record on the Census, and that same Census record does not match to any other record on the MBS or PBS file.

Before records between datasets are compared, the contents of the linking variables of each dataset need to be as consistent as possible to facilitate comparison. This process is known as standardisation. The standardisation procedure for the Mental Health Services-Census Data Integration project included coding imputed and invalid values on the data to a common missing value. These variables included Date of birth, Age, Sex, Mesh Block, Statistical Area Level 1 (SA1) and Postcode.

Table 1 lists the variables used to link in each pass. Each record pair required exact matching of all variables used in the pass in order for a link to be created.

Table 1 Linking variables used for each pass

	PASS 1	PASS 2	PASS 3	PASS 4
Sex	Y	Y	Y	Y
Date of Birth	Y	Y	Y	
Age				Y
Mesh Block	Y			Y
SA1		Y		
Postcode			Y	

### REPRESENTATIVENESS

The linkage rates that were achieved for the MBS and PBS datasets were in line with expected results, and were relatively consistent across most sub-populations -- the exceptions were Northern Territory, Remote, Very Remote, and younger adults, which had lower linkage rates.

### LINKAGE ACCURACY

False links can occur during the linkage process because, even when a record pair matches on all linking fields, the records may not actually belong to the same individual. While the methodology is designed to ensure that the majority of links are true some false links will be present within the dataset.

## **4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011**

---

### **UNLINKED RECORDS**

There are three main reasons why records from the MBS and PBS datasets were not linked to a 2011 Census record:

1. Records belonging to the same individual were present in the MBS or PBS dataset and the 2011 Census but these records failed to be linked because they contained missing or inconsistent information in one or more of the datasets.
2. There was no 2011 Census record corresponding to an MBS or PBS record because the person was not counted in the Census.
3. There were more than one Census records that agreed on the same linkage variables – only unique matches were retained.

### **WEIGHTING**

Some groups of records were more likely to link, or conversely less likely to link, than other groups of records. This resulted in over representation of some groups and under representation of others. Records are more difficult to link when a person has poorly reported, poorly coded, missing or non-applicable values for linking variables. The non-random distribution of links has the potential to cause bias.

To compensate for differences in propensity to link, the data were weighted to represent the original MBS or PBS dataset.

Weighting is the process of adjusting a sample to infer results for the relevant population. To do this, a 'weight' is allocated to each sample unit - in this case, persons. The weight can be considered an indication of how many people in the relevant population are represented by each person in the sample.

For this project, estimates were created by weighting the linked records to represent the original MBS or PBS dataset, using: Age group, Sex, State/Territory, Remoteness Area, SEIFA, broad groups for services and medication. For a relatively small number of records some of these variables were imputed for weighting purposes.

### **DATA QUALITY**

All data collections are subject to sampling and non-sampling error. Non-sampling error may occur in any data collection. Possible sources of non-sampling error include errors in reporting or recording of information, occasional errors in coding and processing data, and errors introduced by the linkage process (discussed above).

A small number of geographies (State and Remoteness Area) were imputed, and a very small number of unusual records were removed prior to linkage.

### **MBS DATA**

The Department of Human Services collects data on the activity of all persons making claims through the Medicare Benefits Scheme and provides this information to the Department of Health. Information collected includes the type of service provided (MBS item number) and the benefit paid by Medicare for the service. The item numbers and benefits paid by Medicare are based on the Medicare Benefits Schedule (MBS) which is a listing of the Medicare services subsidised by the Australian Government.

## **4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011**

---

MBS data includes Medicare-subsidised mental health-related services provided by psychiatrists, general practitioners (GPs), psychologists and other allied health professionals—including mental health nurses, occupational therapists, some social workers, and Aboriginal health workers. These services are defined in the Medicare Benefits Schedule (MBS) (See Appendix A).

Medicare data covers services that are provided out-of-hospital (e.g. in doctors' consulting rooms) as well as in-hospital services provided to private patients whether they are treated in a private or public hospital. The figures do not include services provided to public patients in public hospitals or services that qualify for a benefit under the Department of Veterans Affairs National Treatment Account. The States and Territories are the custodians of public hospital data (Endnote 6).

For further information (Endnote 7).

### **PBS DATA**

The Department of Human Services provides data on prescriptions funded through the Pharmaceutical Benefits Scheme (PBS) to the Department of Health. The PBS lists all of the medicines available to be dispensed to patients at a Government-subsidised price. The Government is advised by the Pharmaceutical Benefits Advisory Committee (PBAC) regarding which drugs should be listed on the PBS Scheme.

PBS data include subsidised prescription medication from the following groups: Antipsychotics, Anxiolytics, Hypnotics and Sedatives, Antidepressants, Psychostimulants, agents used for ADHD and Nootropics (See Appendix B).

The data refer only to prescriptions scripted by registered medical practitioners who are approved to work within the PBS and to paid services processed from claims presented by approved pharmacists who comply with certain conditions. They exclude adjustments made against pharmacists' claims, any manually paid claims or any benefits paid as a result of retrospective entitlement or refund of patient contributions (Endnote 8).

The PBS data exclude non-subsidised medications, such as private and over-the-counter medications. Under co-payment prescriptions (where the patient co-payment covers the total costs of the prescribed medication) data are available from mid-2012; and therefore not available for 2011 (Endnote 8).

Data does not include the Repatriation Pharmaceutical Benefits Scheme (RPBS) which is subsidised by the Department of Veterans' Affairs (Endnote 9).

For further information (Endnote 8).

### **CENSUS**

The 2011 Census measured the number and key characteristics of people who were in Australia on Census night 9 August 2011. For information about the 2011 Census please refer to Census 2011 Reference and Information and Census Data Quality on the ABS website.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### GEOGRAPHY

The mesh block information used in the linkage process may not be aligned between the MBS and PBS files, and the Census, for a range of reasons, including:

- Differences arising because MBS and PBS mesh block are based on postal address whereas the Census mesh block was based on the usual residential address;
- Persons may have changed their address but not updated their Medicare records.

Medicare claims data used in this dataset are based on the mesh block of the enrolment address of the patient. As clients may receive services in locations other than where they live, these data do not necessarily reflect the location in which services were received (Endnote 10). The data therefore reflects geographic information about the patient, rather than where they received each service – for example, the data does not show GP services by state, but rather the GP services provided to patients in each state.

### REMOTE AREAS

People living in Remote and Very Remote areas of Australia are underrepresented in the data. This may be for a number of reasons including:

- GPs are less likely to charge Medicare in Remote areas (Endnote 11).
- Non-metropolitan hospitals are more likely to admit patients, and people in Remote areas are more likely to attend hospital accident and emergency (A&E) departments for primary care medical consultations than people from Major Cities (Endnote 11). People accessing these hospital services may be public inpatients and therefore not in scope. States and Territories are the custodians for this data and it is not included in the dataset.
- In 2010-11, despite there being more GPs in Remote areas, there were about half the GP services provided per person in Very Remote areas as in Major Cities (Endnote 12).
- The Aboriginal Health Services Program is funded by the PBS however person-level data is not in the PBS processing system. Data from Remote and Very Remote areas, and the data from the Northern Territory are most affected (Endnote 8).

The Census also undercounts the number of people living in some areas of Australia more than others. In 2011, the Northern Territory recorded the highest net undercount rate of all states and territories (6.9%) and showed the largest difference in the net undercount rate between its greater capital city and rest of state region (3.7% and 10.9% respectively) (Endnote 13).

## **4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011**

---

### **ACKNOWLEDGEMENT**

The ABS acknowledges the continuing support provided by the National Mental Health Commission and the Department of Health for this project. The provision of data by the Department of Health and the Department of Human Services, as well as the funding from the National Mental Health Commission was essential to enable this important work to be undertaken. The enhancement of mental health statistics through data linkage by the ABS would not be possible without their cooperation and support. The ABS also acknowledges the importance of the information provided freely by individuals in the course of the 2011 Census. Census information provided by individuals to the ABS is treated in the strictest confidence as is required by the Census and Statistics Act (1905). MBS and PBS information provided by the Department of Health and the Department of Human Services to the ABS is treated in the strictest confidence as is required by the National Health Act (1953), and the Health Insurance Act (1973).



## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### GLOSSARY

Apart from the concepts relating to variables originating from the MBS and PBS and data integration, all other terms and definitions relate to Census variables. Explanations have been provided below, however, the Census Dictionary can be referred to if more detail is required. For more information on MBS and PBS definitions see [www.health.gov.au/mbsonline](http://www.health.gov.au/mbsonline) and <http://www.pbs.gov.au/pbs/home> and <http://www.medicareaustralia.gov.au/about/stats/>.

#### Administrative data

Information that is collected for purposes other than that of a statistical nature. This type of information is often obtained from records or transactional data from government agencies, businesses or non-profit organisations which use the information for the administration of programs, policies or services.

#### ATC Code

The code allocated by the WHO Collaborating Centre for Drug Statistics Methodology. In the Anatomical Therapeutic Chemical (ATC) classification system, the drugs are divided into different groups according to the organ or system on which they act and their chemical, pharmacological and therapeutic properties. For more information see ([www.whocc.no/atcddd/](http://www.whocc.no/atcddd/)).

#### Data Integration

Statistical data integration involves combining information from different administrative and/or statistical sources to provide new datasets for statistical and research purposes. Further information on data integration is available on the National Statistical Service website – Data Integration.

#### Data Linkage

Data linking is a key part of statistical data integration and involves the technical process of combining records from different source datasets using variables that are shared between the sources. Data linkage is typically performed on records that represent individual persons, rather than aggregates. Two common methods used to link records are deterministic and probabilistic linkage. Deterministic linkage links person-records on exact matches using a unique identifier (such as a social security number or a created unique identifier such as a linkage key). Probabilistic linkage links person-records on close matches based on the relative likelihood that two records refer to the same person, using a number of linking variables (such as date of birth, sex, geographic area).

#### Date of service

The date on which the provider performed the service.

#### Date of supply

This is the date on which the PBS item was supplied.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

---

### De-identified data/records

Data that have had any identifiers removed. May also be referred to as unidentified data. The Census, MBS and PBS records used by the ABS for this project were de-identified and did not include person name, address or Medicare number.

### Item Category

The Medicare Benefits Schedule (MBS) comprises a hierarchical structure of Categories, Groups, Subgroups and Items numbers, to group similar professional services together.

### Medicare Benefits Schedule (MBS)

The Department of Human Services collects data on the activity of all persons making claims through the Medicare Benefits Scheme and provides this information to the Department of Health. Information collected includes the type of service provided (MBS item number) and the benefit paid by Medicare for the service. The item numbers and benefits paid by Medicare are based on the Medicare Benefits Schedule (MBS) which is a listing of the Medicare services subsidised by the Australian Government.

### Medicare Item Number

A number that identifies the service provided by the provider as per the Medicare Benefits Schedule.

### Mental health-related medications

Mental health-related medications included in this publication were from 5 selected medication groups as classified in the Anatomical Therapeutic Chemical (ATC) Classification System (WHO 2011), namely antipsychotics (code N05A), anxiolytics (code N05B), hypnotics and sedatives (code N05C), antidepressants (code N06A), and psychostimulants and nootropics (code N06B)—prescribed by all medical practitioners (that is, general practitioners (GPs), non-psychiatrist specialists and psychiatrists) (See Appendix B).

### Mental health-related services

Mental health-related services include services provided by psychiatrists, general practitioners (GPs), psychologists and other allied health professionals—mental health nurses, occupational therapists, social workers and Aboriginal health workers. These services are defined in the Medicare Benefits Schedule (MBS) and are provided in a range of settings, for example in hospital, consulting rooms, home visits, and over the phone (See Appendix A).

### Mesh block

Mesh Blocks are the smallest geographic region in the Australian Statistical Geography Standard (ASGS) and form the basis for the larger regions of the ASGS. There are approximately 347,000 Mesh Blocks covering the whole of Australia without gaps or overlaps. They broadly identify land use such as residential, commercial, agricultural and parks etc.

Mesh Blocks are the building blocks for all the larger regions of the ASGS. As Mesh Blocks are very small they can be combined together to accurately approximate a large range of other statistical regions.

## **4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011**

---

### Pharmaceutical Benefits Scheme (PBS)

The Department of Human Services provides data on prescriptions funded through the Pharmaceutical Benefits Scheme (PBS) to the Department of Health. The PBS lists all of the medicines available to be dispensed to patients at a Government-subsidised price. The Government is advised by the Pharmaceutical Benefits Advisory Committee (PBAC) regarding which drugs should be listed on the PBS Scheme.

#### PBS Item Code

Number which indicates item prescribed as per Schedule of Pharmaceutical Benefits.

### Remoteness Area (RA)

Within the Australian Statistical Geography Standard (ASGS), the Remoteness structure comprises six categories, each of which identifies a non-contiguous region in Australia, being a grouping of Statistical Areas Level 1 (SA1s) sharing a particular degree of remoteness. The degrees of remoteness range from 'Major Cities' (highly accessible) to 'Very Remote'.

The degree of remoteness of each SA1 was determined using the Accessibility/Remoteness Index of Australia (ARIA). SA1s have then been grouped into the appropriate category of Remoteness to form non-contiguous areas within each state.

### Socio-Economic Indexes for Areas (SEIFA)

Socio-Economic Indexes for Areas (SEIFA) is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The indexes are based on information from the five-yearly Census. SEIFA 2011 is based on Census 2011 data, and consists of four indexes, each focussing on a different aspect of socio-economic advantage and disadvantage and being a summary of a different subset of Census variables. The Index used in this publication is the Index of Relative Socio-Economic Disadvantage (IRSD).

### Statistical Area Level 1 (SA1)

The Statistical Area Level 1 (SA1) is the second smallest geographic area defined in the Australian Statistical Geography Standard (ASGS), the smallest being the Mesh Block. The SA1 has been designed for use in the Census of Population and Housing as the smallest unit for the processing and release of Census data.

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### APPENDIX A – MBS ITEMS

MBS subsidised mental health-related services			
Provider	Item group	MBS Group & Subgroup	MBS item numbers
Psychiatrists	Initial consultation new patient(a)	Group A8	296, 297, 299
	Patient attendances—consulting room	Group A8	291(a), 293(a), 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 319
	Patient attendances—hospital	Group A8	320, 322, 324, 326, 328
	Patient attendances—other locations	Group A8	330, 332, 334, 336, 338
	Group psychotherapy	Group A8	342, 344, 346
	Interview with non-patient	Group A8	348, 350, 352
	Telepsychiatry	Group A8	353, 355, 356, 357, 358, 359(b), 361(b), 364, 366, 367, 369, 370
	Case conferencing		855, 857, 858, 861, 864, 866
	Electroconvulsive therapy(c)	Group T1, Subgroup 13	14224
	Referred consultation for assessment, diagnosis and development of a treatment and management plan for autism or any other pervasive developmental disorder (PDD)(d)	Group A8	289
General practitioners	GP Mental Health Treatment Plan—accredited	Group A20, Subgroup 1	2710(a)(f), 2715(g), 2717(g)
	GP Mental Health Treatment Plan—non-accredited(a)	Group A20, Subgroup 1	2700(g), 2701(g), 2702(g)
	GP Mental Health Treatment Plan—other	Group A20, Subgroup 1	2712(a), 2713(a), 2719(g)(h)
	Focussed Psychological Strategies	Group A20, Subgroup 2	2721, 2723, 2725, 2727
	Family Group Therapy	Group A6	170, 171, 172
	Electroconvulsive therapy(i)	Group T10	20104
	3 Step Mental Health Process—GP(j)	Group A18, Subgroup 4	2574, 2575, 2577, 2578
	3 Step Mental Health Process—other	Group A19, Subgroup 4	2704, 2705, 2707, 2708

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

	medical professional(j)		
Clinical psychologists	Psychological Therapy Services(a)	Group M6	80000, 80005, 80010, 80015, 80020
Other psychologists	Enhanced Primary Care	Group M3	10968
	Focussed Psychological Strategies (Allied Mental Health)(a)	Group M7	80100, 80105, 80110, 80115, 80120
	Assessment and treatment of PDD(c)	Group A10	82000, 82015
	Follow-up allied health service for Indigenous Australians(k)	Group M11	81355
Other allied health providers	Enhanced Primary Care—mental health worker	Group M3	10956
	Focussed Psychological Strategies (Allied Mental Health)—occupational therapist(a)	Group M7	80125, 80130, 80135, 80140, 80145
	Focussed Psychological Strategies (Allied Mental Health)—social worker(a)	Group M	80150, 80155, 80160, 80165, 80170
	Follow-up allied health services for Indigenous Australians—mental health worker(k)	Group M11	81325

(a) Item introduced 1 November 2006.

(b) Item introduced 1 November 2007.

(c) Item may include services provided by medical practitioners other than psychiatrists.

(d) Item introduced 1 July 2008.

(e) Item introduced 1 January 2010.

(f) Item discontinued after 31 October 2011.

(g) Item introduced 1 November 2011.

(h) Item discontinued after 30 April 2012.

(i) Item is for the initiation of anaesthesia for electroconvulsive therapy and includes services provided by medical practitioners other than GPs.

(j) Item discontinued after 30 April 2007.

(k) Item introduced 1 November 2008.

Source: Australian Institute of Health and Welfare, 2014, 'Data Source', Medicare-subsidised mental health-related services, viewed 13 August 2014, < <https://mhsa.aihw.gov.au/services/medicare/data-source/>>

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### APPENDIX B – PBS ITEMS

PBS subsidised mental health-related prescription medication			
Code	Medication groups	Code	Medication subgroup
N05	Psycholeptics		
N05A	Antipsychotics	N05AA	Phenothiazines with aliphatic side-chain
		N05AB	Phenothiazines with piperazine structure
		N05AC	Phenothiazines with piperidine structure
		N05AD	Butyrophenone derivatives
		N05AE	Indole derivatives
		N05AF	Thioxanthene derivatives
		N05AH	Diazepines, oxazepines, thiazepines and oxepines
		N05AL	Benzamides
		N05AX	Other antipsychotics
N05B	Anxiolytics	N05BA	Benzodiazepine derivatives
N05C	Hypnotics and Sedatives	N05CD	Benzodiazepine derivatives
N06	Psychoanaleptics		
N06A	Antidepressants	N06AA	Non-selective monoamine reuptake inhibitors
		N06AB	Selective serotonin reuptake inhibitors
		N06AF	Monoamine oxidase inhibitors, non-selective
		N06AG	Monoamine oxidase A inhibitors
		N06AX	Other antidepressants
N06B	Psychostimulants, agents used for ADHD and Nootropics	N06BA	Centrally acting sympathomimetics

## 4329.0 - CHARACTERISTICS OF PEOPLE USING MENTAL HEALTH SERVICES AND PRESCRIPTION MEDICATION, 2011

### Descriptions of Medications

<b>N05 Psycholeptics</b>	A group of drugs that tranquillises (central nervous system depressants)
Antipsychotics (N05A)	Drugs used to treat symptoms of psychosis (a severe mental disorder characterised by loss of contact with reality, delusions and hallucinations), common in conditions such as schizophrenia, mania and delusional disorder.
Anxiolytics (N05B)	Drugs prescribed to treat symptoms of anxiety.
Hypnotics and sedatives (N05C)	Hypnotic drugs are used to induce sleep and treat severe insomnia. Sedative drugs are prescribed to reduce excitability or anxiety.
<b>N06 Psychoanaleptics</b>	A group of drugs that stimulates the mood (central nervous system stimulants)
Antidepressants (N06A)	Drugs used to treat the symptoms of clinical depression.
Psychostimulants and nootropics (N06B)	Agents used for attention-deficit hyperactivity disorder and to improve impaired cognitive abilities (nootropics).

Source: Australian Institute of Health and Welfare, 2014, 'Medicare-subsidised mental health-related prescriptions', viewed 13 August 2014, < <https://mhsa.aihw.gov.au/services/medicare/> >

## FOR MORE INFORMATION . . .

**www.abs.gov.au** the ABS website is the best place for data from our publications and information about the ABS.

### INFORMATION AND REFERRAL SERVICE

Our consultants can help you access the full range of information published by the ABS that is available free of charge from our website. Information tailored to your needs can also be requested as a 'user pays' service. Specialists are on hand to help you with analytical or methodological advice.

POST Client Services, ABS, GPO Box 796, Sydney NSW 2001

FAX 1300 135 211

EMAIL [client.services@abs.gov.au](mailto:client.services@abs.gov.au)

PHONE 1300 135 070

## FREE ACCESS TO STATISTICS

All ABS statistics can be downloaded free of charge from the ABS web site.

**WEB ADDRESS** [www.abs.gov.au](http://www.abs.gov.au)