Hepatitis B treatment uptake in WA



Uptake of antiviral treatment for chronic hepatitis B, 2015 to 2019

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Every endeavour has been made to ensure that the information provided in this document was accurate at the time of writing. However, infectious disease testing and notifications data are continuously updated and subject to change. As no formal statistical testing has been conducted, some caution should be taken in interpreting differences and trends in this report.

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# Key points

* This report describes the number of WA residents who were dispensed treatment for chronic hepatitis B virus (HBV) from 2015 to 2019.
* The overall HBV treatment dispensing rate in WA increased significantly from 2015 to 2019.
* The dispensing rate was higher among males and those aged 50 to 59 years.
* High HBV treatment dispensing rates were associated with the regions that had historically high HBV notification rates.
* In most health regions, high HBV treatment dispensing rates were associated with historically high HBV notification rates.
* Tenofovir and entecavir were the two most commonly dispensed treatments.
* There was a significant increase in the proportion of WA residents who were dispensed treatment under the PBS S100 HSD Community Access program and from community pharmacies.
* There was a 49% increase in the number of unique prescribers for chronic HBV treatment in WA, and an increase in the proportion of these prescribers who were GPs.
* The majority of prescribers treated only one patient, but a higher proportion of specialists compared to GPs, treated ten or more patients.

# Executive summary

The aim of this report is to describe the number of people in Western Australia (WA) who were dispensed antiviral treatment for chronic hepatitis B virus (HBV) from 2015 to 2019 by patient demographics, regimen, dispensing and prescriber characteristics.

In 2015, a total of 942 WA residents were dispensed treatment, representing an estimated 3.9% of residents living with chronic HBV. In 2019, a total of 1,547 residents were dispensed treatment representing an estimated 6.8% of residents living with chronic HBV. In both years, the highest dispensing rate was among males and those aged 50 to 59 years, and the majority were categorised by the Pharmaceutical Benefits Scheme (PBS) as general beneficiary patients. The highest dispensing rates were among residents in the Kimberley region and rates in the East Metropolitan and North Metropolitan regions were significantly higher than the rate for the state as a whole. The dispensing rates in the Metropolitan regions and for WA as a whole, increased significantly from 2015 to 2019. In most regions, high HBV treatment dispensing rates were associated with historically high HBV notification rates.

Tenofovir and entecavir were the two most commonly dispensed treatments for chronic HBV in WA. The proportion of WA residents who were dispensed treatment for chronic HBV under the PBS Section 100 (S100) Highly Specialised Drugs (HSD) Community Access program and from community pharmacies, increased significantly from 2015 to 2019. In 2015, of the residents who were dispensed treatment, the majority in the Goldfields and Great Southern region received it under the PBS S100 HSD Public Program, and only small proportion of residents in the Metropolitan regions, the South West and Wheatbelt regions received it under the PBS S100 HSD Private Program. In 2019, of the residents who were dispensed treatment, all of them received it under the PBS S100 HSD Community Access program.

Approximately equal proportions of WA residents were prescribed treatment for chronic HBV by a GP or a specialist. The proportion of residents who were prescribed treatment by a GP increased in most regions from 2015 to 2019. A notable exception was the residents in the South West region who were predominately prescribed treatment by a specialist. From 2015 to 2019, there was a 49% increase in the number of prescribers for chronic HBV treatment in WA, and the proportion of GP and specialist prescribers remained stable. While prescribers most frequently treated only one patient, a higher proportion of specialists compared to GPs, treated ten or more patients. In 2015 and 2019, the highest proportionate patient caseload among prescribing GPs was reported in the Metropolitan regions and among prescribing specialists was reported in the South West region.

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# Abbreviations

|  |  |
| --- | --- |
| ABS | Australian Bureau of Statistics |
| ASR | Age-standardised rate expressed per 100,000 population |
| DoH | Western Australian Department of Health |
| DVA | Department of Veterans’ Affairs |
| ERP | Estimated residential population |
| GP | General practitioner |
| HBV | Hepatitis B virus |
| HSD | Highly Specialised Drugs |
| PBS | Pharmaceutical Benefits Scheme |
| r | Correlation coefficient |
| S100 | Section 100 |
| SA2 | Statistical Area Level 2 |
| WA | Western Australia |

# Introduction and aims

The aim of this report is to describe the number of people in Western Australia (WA) who were dispensed antiviral treatment for chronic hepatitis B (HBV) from 2015 to 2019 by demographics, treatment regimen, dispensing and prescriber characteristics.

## Methods

#### Pharmaceutical Benefits Scheme (PBS) data

The Commonwealth Department of Health provided a de-identified extract of PBS data to the Western Australian Department of Health (DoH) on the number of prescriptions for HBV treatment dispensed to WA residents from 2015 to 2019. The data were extracted by selected drugs for treating HBV or by selected PBS item codes or indications, where necessary. The indication was identified from the Authority Code or Streamlined Authority Code where available. WA residents were identified from the patient postcode recorded on the Medicare Enrolment file at the date of supply. The patient postcode to state mapping was updated based on Australia Post’s ranges for each state and territory.

The data were analysed using the following PBS variables: patient identification number confidentialised, patient date of birth, patient sex, patient postcode, patient category, pharmacy type, prescriber ID confidentialised, prescriber derived major speciality, date of prescribing, date of supply, PBS item code, drug name, program code, streamlined authority code and authority code. Data on the patient’s Aboriginality were not made available from the Commonwealth Department of Health.

#### Regional boundaries and population estimates

WA is divided into ten health administrative regions: three in the Perth metropolitan area (East, North and South), four in the Northern and Remote area (Goldfields, Kimberley, Midwest and Pilbara) and three in the Southern area (Great Southern, South West and Wheatbelt).

Population estimates used as denominators in the analyses were based on the mid-year population provided by the Australian Bureau of Statistics (ABS). The ABS calculate estimated residential populations (ERPs) at the Statistical Area Level 2 (SA2). Based on these population estimates, the Epidemiology Branch of the DoH derived postcode level population estimates. These postcodes are then grouped to defined health region boundaries. The population of each health region are then based on the sum of each postcode within that health region1.

#### Interpreting the results

This report describes the number, proportion and rate of WA residents who initiated antiviral treatment for chronic HBV. Age standardisation was utilised to control for differences in the size and age structure of various populations. Age-standardised rates (ASRs) are calculated to take account of differences in age composition when rates for different populations are compared. Age-specific rates were based on the specified age groups and calculated by dividing the number of initiations by the population of the same sex and age group. As no reliable estimates of the number of WA residents living with chronic HBV infection in each health region were available, initiation rates were based on the total population and are therefore likely to be an underestimate. Initiation rates were annualised to allow for comparison over time. ASRs and age-specific rates are expressed per 100,000 population. The 2001 Australian standard population from the ABS was used as the reference population for standardisation. Error bars were used to display the 95% confidence intervals around the rates for each region. If the error bars for the two regions to be compared do not overlap, there is a statistically significant difference in ASRs for those two regions. If the error bars for the two regions do overlap, there is no statistically significant difference in ASRs for the two regions. The ASRs for 2015 to 2019 can be compared in the similar manner as regional comparisons.

# Results

## Treatment uptake by patient demographics

The estimated number of WA residents living with chronic HBV infection decreased from 24,183 in 2016 to 22,709 in 20182. The approximate proportion of residents living with chronic HBV in WA that were dispensed treatment increased from 3.9% in 2015 (n=942) to 6.8% in 2019 (n=1,547) (Figure 1).

Figure 1 Number and proportion of WA residents dispensed treatment for chronic HBV, 2015 and 2019



Based on the total population rather than the population living with chronic HBV, dispensing rates were significantly higher among males compared to females, and the overall dispensing rate increased significantly from 2015 to 2019 (Table 1 and Figure 2).

Table 1 Number, proportion and rate of WA residents dispensed treatment for chronic HBV by sex, 2015 and 2019



Note: Rate = Annualised age-specific rate per 100,000 population. The rates for the Totals are annualised crude rates. 95% CI = lower and upper confidence limits

Figure 2 Number and rate of WA residents dispensed treatment for chronic HBV by sex, 2015 and 2019



Note: Rate = Annualised age-standardised rate per 100,000 population. The rates for the Totals are annualised crude rates.

Dispensing rates were highest among people aged 50 to 59 years (Table 2). Although there was an increase in the dispensing rate among those aged 30 years or older, the age distribution remained relatively stable and the majority were categorised by the PBS as general beneficiary patients (Table 2, Figure 3 and Table 3).

Table 2 Number, proportion and rate of WA residents dispensed treatment for chronic HBV by age group, 2015 and 2019



Note: Rate = Annualised age-specific rate per 100,000 population. The rates for the Totals are annualised crude rates. Counts less than 5 have been suppressed to protect privacy and data confidentiality.

Figure 3 Proportion of WA residents dispensed treatment for chronic HBV by age group, 2015 and 2019



Table 3 Number of WA residents dispensed treatment for chronic HBV by beneficiary status and age group, 2015 and 2019



Note: The level of subsidy under the PBS depends on the patient’s beneficiary status. Concessional status is for people who are eligible to receive government entitlements, including pensioners and low-income earners. Eligible veterans and their dependents holding a Department of Veteran’s Affairs (DVA) health card are also entitled to medicines and additional pharmaceutical items at concessional rates under the Repatriation PBS. All other individuals are considered general beneficiaries and have a higher co-payment threshold. There were two residents in 2015 and four residents in 2019 who were Repatriation PBS patients, and these have been excluded from these tables. The age groups <20 years and 20-29 years were merged due to small numbers.

The highest dispensing rates were among residents in the Kimberley region and rates in the East Metropolitan and North Metropolitan regions were significantly higher than the rate for the state as a whole (Figure 4 and Figure 5).

Figure 4 Number and rate of WA residents dispensed treatment for chronic HBV by health region of residence, 2015



Note: Rate = Annualised age-standardised rate per 100,000 population. Rate could not be calculated for the Goldfields, Midwest, Pilbara, Great Southern, South West or Wheatbelt regions due to low numbers.

Figure 5 Number and rate of WA residents dispensed treatment for chronic HBV by health region of residence, 2019



Note: Rate = Annualised age-standardised rate per 100,000 population. Rate could not be calculated for the Goldfields, Midwest, Pilbara, Great Southern or Wheatbelt regions due to low numbers.

The dispensing rates in the metropolitan regions and for WA as a whole, increased significantly from 2015 to 2019 (Figure 6).

Figure 6 Rate of WA residents dispensed treatment for chronic HBV by health region of residence, 2015 to 2019



Note: Rate = Annualised age-standardised rate per 100,000 population. Rate could not be calculated for the Goldfields, Midwest, Pilbara, Great Southern, South West or Wheatbelt regions due to low numbers.

In most regions, high HBV treatment dispensing rates were associated with historically high HBV notification rates (unable to be calculated for 2015; 2019: r=0.93, n=5, p<0.05) (Figure 7).

Figure 7 Rate of WA residents dispensed treatment for chronic HBV by rate of HBV notifications and health region of residence, 2019



Note: Rate = Annualised ag- standardised rate per 100,000 population. Notification rate = Average age-standardised notification rate per 100,000 population from 2016 to 2019. The correlation coefficient was unable to be calculated for 2015.

## Treatment uptake by regimen and dispensing characteristics

Tenofovir and entecavir were the two most commonly dispensed treatments for chronic HBV in WA (Figure 8 and Figure 9).

Figure 8 Number and proportion of WA residents dispensed treatment for chronic HBV by regimen, 2015



Figure 9 Number and proportion of WA residents dispensed treatment for chronic HBV by regimen, 2019



Treatments for chronic HBV were available through the PBS Section 100 (S100) Highly Specialised Drugs (HSD) Program. The S100 HSD Community Access program was introduced in July 2015 to enable authorised community-based practitioners to prescribe these treatments without the need to be affiliated with a hospital, and for dispensing through community pharmacies as well as public hospital and private hospital pharmacies. As a result, the proportion of WA residents who were dispensed treatment for chronic HBV under the PBS S100 HSD Community Access program and from community pharmacies, increased significantly from 2015 to 2019 (Table 4 and Table 5).

Table 4 Number and proportion of WA residents dispensed treatment for chronic HBV by program code, 2015 and 2019



Note: Counts less than 5 have been suppressed to protect privacy and data confidentiality.

Table 5 Number and proportion of WA residents dispensed treatment for chronic HBV by pharmacy type, 2015 and 2019



Note: Others include private hospitals and friendly societies. Counts less than 5 have been suppressed to protect privacy and data confidentiality.

In 2015, of the residents who were dispensed treatment, the majority in the Goldfields and Great Southern regions received it under the PBS S100 HSD Public Program, and only a small proportion of residents in the Metropolitan regions, the South West and Wheatbelt regions received it under the PBS S100 HSD Private Program. In 2019, of the residents who were dispensed treatment, all of them received it under the PBS S100 HSD Community Access program (Figure 10).

Figure 10 Proportion of WA residents dispensed treatment for chronic HBV by health region of residence and program code, 2015 and 2019



## Treatment uptake by prescriber characteristics

Approximately equal proportions of WA residents were prescribed treatment for chronic HBV by a GP or a specialist in 2015 and 2019 (Table 6).

Table 6 Number and proportion of WA residents dispensed treatment for chronic HBV by prescriber type, 2015 and 2019



Note: The prescriber type is based on the prescriber's registered specialties and Medicare services. The prescriber type was recorded as unknown for two residents in 2015 and 19 residents in 2019, and these have been excluded from this table.

The proportion of residents who were prescribed treatment by a GP increased in most regions from 2015 to 2019. A notable exception was the residents in the South West region who were predominately prescribed treatment by a specialist (Figure 11).

Figure 11 Proportion of WA residents dispensed treatment for chronic HBV by health region of residence and prescriber type, 2015 and 2019



Note: The health region of the patient residence was used as provider type address was unknown at the time of reporting. The prescriber type is based on the prescriber's registered specialties and Medicare services. The prescriber type was recorded as unknown for two residents in 2015 and 19 residents in 2019, and these have been excluded from this table.

There was a 49% increase in the number of prescribers for chronic HBV treatment in WA from 2015 to 2019. Over this time period, the proportion of GP and specialist prescribers remained stable (Table 7).

Table 7 Number and proportion of prescribers of treatment for chronic HBV by prescriber type, 2015 and 2019



Note: The prescriber type is based on the prescriber's registered specialties and Medicare services. As a result, a prescriber can appear in more than one category over time. The speciality was unknown for 145 prescribers in 2019.

From 2015 to 2019, the majority of specialists were gastroenterologists, hepatologists or general medicine specialists (Figure 12 and Figure 13).

Figure 12 Number and proportion of prescribers of treatment for chronic HBV by prescriber speciality, 2015



Figure 21 Number and proportion of prescribers of treatment for chronic HBV by prescriber speciality, 2019



While prescribers most frequently treated only one patient, a higher proportion of specialists compared to GPs, treated ten or more patients (Table 8).

Table 8 Case load of prescribers of treatment for chronic HBV by prescriber type, 2015 and 2019



Note: The prescriber type is based on the prescriber's registered specialties and Medicare services. As a result, a prescriber can appear in more than one category over time.

The highest proportionate patient caseload among prescribing GPs was reported in the Metropolitan regions in 2015 and 2019 (Figure 14).

Figure 14 Proportion of GPs treating 1, 2 to 9 and 10 or more WA residents with treatment for chronic HBV by health region of residence, 2015 and 2019



The highest proportionate caseload among prescribing specialists was reported in the South West region in 2015 and 2019 (Figure 15).

Figure 15 Proportion of Specialists treating 1, 2 to 9 and 10 or more WA residents with treatment for chronic HBV by health region of residence, 2015 and 2019



# References

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