Hepatitis B treatment in Australia – What’s the magical number?

Nicole Romero, Karen McCulloch, Nicole Allard, Jennifer Maclachlan, Benjamin Cowie

14/08/2018

No conflict of interest to declare
Factors influencing hepatitis B disease progression

- Age
- Sex
- Region of birth (HBV genotype)
- Presence of HBV mutant variants
- Family history
- Other health determinants (HIV, HCV or HDV coinfection, diabetes, smoking, alcohol use, obesity)
2017 Australian Target:
15% of all people living with chronic hepatitis B receiving antiviral treatment

2030 WHO target:
80% of eligible persons with chronic hepatitis B virus infection treated
Aim

To use mathematical modelling to:

- ascertain the natural history and CHB phases of Australians living with CHB

- estimate the proportion who are eligible for antiviral treatment under current guidelines

Methodology: mathematical model diagram

*Decompensated Cirrhosis (DC), Hepatocellular Carcinoma (HCC). Compartments with 'T' represent treatment eligible states. Black arrows represent hepatitis B related deaths.
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 Treatment eligibility by disease phase

No advanced liver damage

- Immune Clearance Non-Cirrhotic
- Immune Escape Non-Cirrhotic

Advanced liver damage

- Immune Clearance Cirrhotic
- Immune Control Cirrhotic
- Immune Escape Cirrhotic
- DC
- HCC
Chronic hepatitis B disease phase distribution in Australia, 2017

- Immune Tolerance
- Immune Clearance
- Immune Control
- Immune Escape
- DC/HCC

Proportion of people living with CHB (%)

Chronic hepatitis B treatment in Australia

- 67,943 people eligible for treatment
- 37,322 people needed treatment to reach 2017 target
- 18,851 people treated for CHB
Number on HBV treatment and eligible by age in Australia, 2017

Treatment uptake and eligibility by age in Australia, 2017
Number on HBV treatment and eligible by jurisdiction in Australia, 2017

- ACT
- NSW
- NT
- QLD
- SA
- TAS
- VIC
- WA

Number of people living with CHB

Number on treatment

Number eligible for treatment

Impact of treatment on CHB attributable deaths in Australia

Dotted lines show estimated deaths per year if there was no treatment.
Progress towards Targets

National Hepatitis B Strategy 2017 Treatment Target: 15% of all people living with CHB treated

Australia needed to treat an additional 18,429 people living with CHB to reach 2017 target

WHO Global Health Sector Strategy, 2030 Treatment Target: 80% of eligible people living CHB treated

Progress towards Targets

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2030</th>
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<tbody>
<tr>
<td>Number of people living with CHB</td>
<td>248,811</td>
<td>322,842</td>
</tr>
<tr>
<td>Number of people eligible for HBV treatment</td>
<td>67,943</td>
<td>90,690</td>
</tr>
<tr>
<td>80% of those eligible for treatment</td>
<td>54,354</td>
<td>72,552</td>
</tr>
<tr>
<td>Number of people on HBV treatment</td>
<td>18,851</td>
<td>?</td>
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WHO Collaborating Centre for Viral Hepatitis
VIDRL
Summary

• Modelled estimates show that 27% of people living with chronic hepatitis B are eligible for treatment, under the current guidelines.

• Treatment eligibility differs according to population groups (age, region)
  - Modelled estimates can be used to look at treatment uptake disparities

Future steps

• Modelling results are estimates - further Australian research is underway to validate results.

• Future work will look at modelling projections into 2030

Acknowledgements

WHO Collaborating Centre for Viral Hepatitis
VIDRL, Doherty Institute – Epidemiology Unit
Nicole Allard, Chelsea Brown, Benjamin Cowie, Jennifer MacLachlan, Karen McCulloch, Ashleigh Qama, Nicole Romero, Laura Thomas

Research & Programmatic Funding
Department of Health and Ageing, Australian Government
Department of Health and Human Services, Victoria
Melbourne Health Office for Research & RMH Foundation
Cooperative Research Centre for Spatial Information
Peter Doherty Institute for Infection and Immunity