The cascade of care for people living with chronic hepatitis B: access to treatment and monitoring in Australia

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Outline

1. What is a cascade of care?
2. Methods - population burden estimates
   - proportion diagnosed
   - proportion in care
   - proportion on treatment
3. Results
4. Conclusions

Cascade of care analysis

- Whole of health system response
- Key populations
- Available measurable indicators
- Visual representation of engagement
- Identifies issues and opportunities
- Trends over time


Linked population data
National data sets
Large multisite cohorts
Clinical cohorts
Models

Population representation

Strong

Less detail

Weak

Detailed

Ref: Gardner et al CID, 2011
**Disease burden estimates**

- Census based estimates 2011
- Model based estimates VIDRL 2012
- Convenience serosurvey 2005
- Antenatal seroprevalence 2008

**Plausible range of population estimates**

<table>
<thead>
<tr>
<th>Source</th>
<th>Reference</th>
<th>Year</th>
<th>Prev.</th>
<th>Lower</th>
<th>Estimates</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census</td>
<td>MacLachlan et al 2013</td>
<td>2011</td>
<td>1.01%</td>
<td>192,000</td>
<td>218,500</td>
<td>249,000</td>
</tr>
<tr>
<td>Model</td>
<td>VIDRL 2012</td>
<td>2012</td>
<td>0.97%</td>
<td></td>
<td>207,000</td>
<td></td>
</tr>
<tr>
<td>Antenatal</td>
<td>Reekie et al 2013</td>
<td>2008</td>
<td>0.75%</td>
<td>154,800</td>
<td>161,250</td>
<td>169,850</td>
</tr>
<tr>
<td>Serosurvey VIC</td>
<td>Cowie et al 2010</td>
<td>2005</td>
<td>1.10%</td>
<td></td>
<td></td>
<td>236,000</td>
</tr>
</tbody>
</table>

**Proportion diagnosed**

- Model developed by VIDRL using NNDSS data
- Calculated as proportion of those who have ever been diagnosed over those who ever having lived with CHB. (1)
- Gaps in Victorian notifications from early 1990s the most important influence on plausible range.
- 57% estimated in 2012


**Eligible for treatment**

- 15% of total population require treatment
- Range 10%-25% clinical cohorts in care as high as 50% but not representative
- Has been applied in US cascade (economic modeling studies) (2-4)
- data from clinical cohorts and also community screening.

**Indicator of care and link to care**

- HBV DNA major predictor of risk of complications liver cancer and cirrhosis (1)
- Included in all monitoring recommendations (2,3)
- Recommended all people with CHB have yearly
- Could be used as an indicator for linked to care within 3 month of diagnosis
- Measurable: Medicare rebatable with unique item number for a yearly test


**Receiving care and on treatment**

- Receiving care= treatment + annual viral load
- Treatment numbers calculated from
  1) HSD expenditure data cross referenced with PBS data from requested from Medicare excluding people receiving HIV medication.
  2) drug company sales
- Annual viral load MBS data by jurisdiction (item 69482).


**Virological suppression/Adherence**

- Systematic review from 2012 (6 studies) estimated adherence to oral HBV drugs to be high 81-99%, (1)
- Adherence important in viral suppression.;(2)
- Large pharmacy data study from US age <45 and recent initiation associated with poorer adherence.;(3)
- Need to look at local data


**Cascade of care for Hepatitis B 2012**

**National Indicators**

Antenatal seroprevalence

Proportion undiagnosed

Receiving antiviral treatment
National indicators for CHB 2014-2017

- Missed opportunity to include viral load to estimate proportion of people in care

<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Number of yearly viral load tests, 2012</th>
<th>Number of people receiving treatment 2012 (%)</th>
<th>Census-based estimates of people living with CHB, 2011</th>
<th>Proportion of people with CHB in care</th>
<th>Estimated population not in care</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>265</td>
<td>152 (4.2%)</td>
<td>3,603</td>
<td>12%</td>
<td>3,170</td>
</tr>
<tr>
<td>NSW</td>
<td>7,782</td>
<td>5844 (7.6%)</td>
<td>77,076</td>
<td>18%</td>
<td>63,202</td>
</tr>
<tr>
<td>NT</td>
<td>336</td>
<td>72 (2.5%)</td>
<td>3,566</td>
<td>11%</td>
<td>3,165</td>
</tr>
<tr>
<td>Qld</td>
<td>1,412</td>
<td>941 (2.5%)</td>
<td>37,427</td>
<td>6%</td>
<td>35,183</td>
</tr>
<tr>
<td>SA</td>
<td>141</td>
<td>419 (2.9%)</td>
<td>14,442</td>
<td>4%</td>
<td>13,864</td>
</tr>
<tr>
<td>TAS</td>
<td>47</td>
<td>31 (0.9%)</td>
<td>3,513</td>
<td>2%</td>
<td>3,442</td>
</tr>
<tr>
<td>VIC</td>
<td>8,856</td>
<td>2978 (5.2%)</td>
<td>56,836</td>
<td>17%</td>
<td>47,174</td>
</tr>
<tr>
<td>WA</td>
<td>528</td>
<td>549 (2.5%)</td>
<td>22,055</td>
<td>5%</td>
<td>20,952</td>
</tr>
<tr>
<td>Australia</td>
<td>17,367</td>
<td>10,997 (5.0%)</td>
<td>218,567</td>
<td>13%</td>
<td>190,153</td>
</tr>
</tbody>
</table>

HBV DNA tests by year 2008-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>5,168</td>
</tr>
<tr>
<td>2009</td>
<td>9,264</td>
</tr>
<tr>
<td>2010</td>
<td>11,733</td>
</tr>
<tr>
<td>2011</td>
<td>14,479</td>
</tr>
<tr>
<td>2012</td>
<td>17,367</td>
</tr>
</tbody>
</table>

New diagnoses & annual increase in testing

Limitations

- Data not linked so a snapshot of care
- Likely not the same group being tested year to year ongoing care likely to be less
- Medicare data accuracy or misclassification
- Population burden dependant on accuracy of seroprevalence estimates for a given population
Reaching targets for 2017

80% diagnosed and 15% on treatment

but we should also consider proportion diagnosed in care

LEADERSHIP and FUNDING

Community leadership and empowerment
Decrease stigma and discrimination
Increase knowledge transfer
Provide a responsive health system

Conclusion

• Pilots are not the answer.

• People, families and communities need a to scale approach with all parties led by community working to empower improve knowledge and understanding and service delivery.

Acknowledgements

• A/Prof Ben Cowie
• Jennifer MacLachlan
• Epidemiology unit VIDRL
• APA scholarship
• ASHM Junior research award

• Professor John Emery
• Dr John Furler