HBV and HCV Elimination Targets: Which are feasible?

Professor Gregory Dore

HBV and HCV Elimination in Australia

- WHO Viral Hepatitis Strategy 2016-2021
- WHO HBV and HCV Elimination Targets for 2020 and 2030
- Current Australian situation in relation to WHO targets
- HCV treatment uptake and modelling-based elimination scenarios
- Key issues for HBV and HCV elimination in Australia

Global Burden of Infectious Diseases

WHO Viral Hepatitis Strategy: 2016-2021

Elimination of viral hepatitis as a major public health threat by 2030


WHO Viral Hepatitis Elimination Targets: 2016

65% Reduction in Deaths from Chronic HBV and HCV

- 1.4 million deaths (in 2015) to under 500,000 deaths (by 2030)

90% Reduction in New Cases of Chronic HBV and HCV Infection

- 6–10 million (in 2015) to 900,000 infections (by 2030)
- 95% decline in HBV infections
- 80% decline in HCV infections

80% of eligible chronic HCV patients treated; 90% of treated patients cured

WHO Viral Hepatitis Strategy: 2016-2021

<table>
<thead>
<tr>
<th>Service coverage targets</th>
<th>Baseline 2015</th>
<th>2020 Targets</th>
<th>2030 Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B vaccine coverage (children's and newborn coverage)</td>
<td>92%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Prevention of perinatal transmission of hepatitis B virus</td>
<td>20%</td>
<td>50%</td>
<td>90%</td>
</tr>
<tr>
<td>Blood safety</td>
<td>90%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Safe injections: percentage of injections administered with safety-engineered devices in and out of health facilities</td>
<td>90%</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Home reductions: number of deaths or sequelae (number of eligible people who are treated for hepatitis C)</td>
<td>20</td>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>Viral hepatitis C and C treatment</td>
<td>1% of chronic hepatitis C infections diagnosed</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Viral hepatitis B and C treatment</td>
<td>90% of eligible persons with chronic hepatitis B virus infection treated</td>
<td>80%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Australia in 2017

- 90-95%
- 85-90%
- 100%
- 99%
- 400
- 61% HBV; 81% HCV
- 50% HBV; 30% HCV


Only 1% of PWID live in countries with high coverage of both NSP and OST

WHO HCV Elimination Targets: Progress

70 million infected
13 million diagnosed (19%)
1.5 million treated in 2016 (2%)

WHO 2018: Progress report on access to hepatitis C treatment (WHO/CDS/HIV/18.4)
WHO HCV Elimination Targets: 2017

On-track (2016): Iceland, Qatar, Netherlands, Australia, France, Germany, Japan, Egypt, Georgia
On-track (2017): Iceland, Qatar, Netherlands, Australia, France, Germany, Japan, Egypt, Georgia, Spain, Switzerland, Mongolia

CDA 2018: Polaris Observatory (http://centerforida.com/polaris/)

DAA treatment numbers have declined

DAA initiations/month (total = 58,280)

Estimated number of individuals initiating treatment:
- = 21,000/year
- = 15,000/year

Kirby Institute 2018
DAA uptake very high in patients with cirrhosis


PWID populations with HCV in Australia: 2016

Larney S, IJDP 2017; Kirby Institute 2017
DAA uptake high in current PWID

Annual Needle Syringe Program Survey (n = 2,000-2,500)

Ever HCV Treatment among Chronic HCV (%)

HCV RNA+ (%)

HCV elimination in HIV population

HCV RNA prevalence among HIV/HCV cohort (antibody +ve)

% HCV RNA+


Martinello M, et al. AVHC 2018
HCV elimination in HIV population

Modelling HCV incidence in Australian HIV population

Salazar Viccaya L, et al. IAS 2018

Without changes in behaviour

Large increases in risk behaviour

Future treatment rate Low Stable High 20%, 65%, 100%/year

Treatment scenarios to achieve HCV elimination

Kwon, A et al. Kirby Institute 2018

<table>
<thead>
<tr>
<th>Treatment roll-out</th>
<th>2015 (IFN + DAA)</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Post- 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pessimistic</td>
<td>7,296</td>
<td>32,600</td>
<td>21,370</td>
<td>12,822 (40%)</td>
<td>7,693 (40%)</td>
</tr>
<tr>
<td>Intermediate</td>
<td>7,296</td>
<td>32,600</td>
<td>21,370</td>
<td>17,096 (20%)</td>
<td>13,677 (20%)</td>
</tr>
<tr>
<td>Optimistic</td>
<td>7,296</td>
<td>32,600</td>
<td>21,370</td>
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</tr>
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</table>

Kwon, A et al. Kirby Institute 2018

Treatment coverage

People living with chronic HCV

Kwon, A et al. Kirby Institute 2018
Treatment scenarios to achieve HCV elimination

Kwon, A et al. Kirby Institute 2018

HCV incidence (all)

2010 2015 2020 2025 2030

Years

Number of people

Interferon-based
DAA pessimistic
DAA intermediate
DAA optimistic

Kwon, A et al. Kirby Institute 2018

Treatment scenarios to achieve HCV elimination

Liver-related deaths (viraemic and cured)

2017 deaths = 2010 deaths

Years

Number of people

Interferon-based
DAA pessimistic
DAA intermediate
DAA optimistic

Kwon, A et al. Kirby Institute 2018
NSW HBV/HCV data linkage: mortality to 2017

HCV notifications in Australia: 15 – 24 years
HBV and HCV Elimination in Australia

Summary

- Several “service coverage” 2030 targets already achieved: HBV vaccination, blood safety, NSP coverage
- On-track for HCV elimination impact targets (declines: 80% incidence; 65% mortality)
- Initial HCV mortality decline (in NSW) consistent with modelling prediction
- Declining HCV treatment initiations of concern, particularly for mortality target
- HBV mortality reduction will require enhanced HBV diagnosis and linkage to care/treatment
- Feasibility of overall global HBV and HCV impact 2030 targets, very low

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