Will hepatitis C transmission be eliminated by 2025 among HIV-positive men who have sex with men in Australia?

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Disclosures

- Gilead travel grant
HCV among men who have sex with men (MSM) in Australia

The rise

Direct-acting antivirals (DAA) for everyone since 2016

Control and Elimination within Australia of Hepatitis C from people living with HIV (CEASE)

- “CEASE is a major national collaborative venture with the ultimate aim of controlling and eliminating HCV infection from the Australian HIV positive population”.
- “…unrestricted access will allow rapid scale-up of treatment. … prevent further infections ….”.

HCV among MSM in Australia

<table>
<thead>
<tr>
<th>The questions</th>
<th>The tools</th>
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<tbody>
<tr>
<td>➢ Can Australia meet the 80% WHO reduction target by 2025*?</td>
<td>➢ Mathematical model of HCV transmission</td>
</tr>
<tr>
<td>➢ Under which circumstances?</td>
<td>➢ Reproduces observations and produces projections given scenarios</td>
</tr>
</tbody>
</table>

*With 2016 modelled incidence as reference
Two drivers of transmission
Intravenous drug use and sexual practices
Population dynamics & HCV incidence
The future of behaviour and treatment
The future of behaviour and treatment

<table>
<thead>
<tr>
<th>Treatment scenario*</th>
<th>Rate in 2025 (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low rate</td>
<td>20%</td>
</tr>
<tr>
<td>Stable rate</td>
<td>65%</td>
</tr>
<tr>
<td>High rate</td>
<td>100%</td>
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</table>

*Continued decrease/increase until 2025
Along the behavioural spectrum - 2025
Along the behavioural spectrum - 2025

![Graph showing incidence and HCV prevalence across different treatment rates and fractions with high-risk sex and IDU.](image-url)
Along the behavioural spectrum - 2025
Declining incidence regardless of behaviour?

Without changes in behaviour
Large increases in risk behaviour

CEASE: 65%/year
WHO 80% reduction target by 2025

Exposure to transmission - Risk behaviour

<table>
<thead>
<tr>
<th>Treatment rate</th>
<th>Impact of treatment in PWID - reduction in incidence by 2025</th>
<th>ratio High-risk sex CLAI with ocassional partners</th>
<th>WHO goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low**</td>
<td>10% 50% 90%^</td>
<td>65% 65% 50% 65% 80%</td>
<td>***</td>
</tr>
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</tr>
</tbody>
</table>

*Unchanged: IDU :=18.9, High-risk sex = 32.7%; **Rate by 2025: low :=0.2, stable := 0.65, high :=1.0; 95% confidence interval overlaps with lower reductions; ^main analyses

Projected to be met
Projected not to be met
Conclusions

- The model suggests that HCV transmission among Australia’s HIV-positive men who have sex with men will continue
- but continue to decline with DAA treatment upscale, even in the context of increased risk behaviour
- If treatment remains high or continues to increase, by 2025 Australia could meet the 80% reduction goal formulated by the WHO

Outlook

- Monitoring of «real-life» outcomes of CEASE versus model projections
Acknowledgments

All patients and workers affiliated with:

- Australian HIV Observational Database
- The Control and Elimination within Australia of Hepatitis C from people living with HIV study (CEASE)
- The Australian HIV Annual Surveillance Report
- The Australian Collaboration for Coordinated Enhanced Sentinel Surveillance
- The Australian Gay Periodic Survey
- The Australian Needle and Syringe Survey
- The Flux study.

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