Linking testing to treatment: Update on hepatitis C care in Ontario

PRESENTED BY
Dr. Michelle Murti
Dr. Mina Tadrous
Dr. Jordan Feld
Dr. Chris Steingart

March 16, 2020
## Today’s Agenda

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<th>Topic</th>
<th>Presenter/Institution</th>
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<tr>
<td>Hepatitis C epidemiology in Ontario</td>
<td>Dr. Bryna Warshawsky, Public Health Ontario</td>
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<td>Hepatitis C treatment data in Ontario</td>
<td>Dr. Mina Tadrous, Ontario Drug Policy Research Network</td>
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<td>The big picture of hepatitis C care in Ontario</td>
<td>Dr. Jordan Feld, University Health Network</td>
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<td>The frontline perspective on hepatitis C care</td>
<td>Dr. Chris Steingart, Sanguen Health Centre</td>
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<td>Q&amp;A and discussion</td>
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</table>
Dr. Bryna Warshawsky is a Public Health Physician at Public Health Ontario working in communicable diseases and emergency preparedness and response. Her expertise includes vaccine-preventable diseases, outbreak management and communicable disease prevention and control. She is also an Assistant Professor in the Department of Epidemiology and Biostatistics at Western University.
The Epidemiology of HCV in Ontario, 2018

Dr. Michelle Murti
Public Health Physician
Communicable Diseases, Emergency Preparedness and Response
March 16, 2020
CATIE Webinar
Overview

• Trends over time for HCV
• Describe case definition change as of 2018
• Trends in Ontario in 2018 after the case definition change
HCV Annual Cases

New Case Definition implemented 2018

Public Health Ontario, ID Query, data as of October 16, 2019
Pre-2018

• All confirmed positive anti-HCV antibodies reported to public health
  • Entry of all cases
  • No differentiation of potential timing of acquisition
  • No differentiation of whether infectious or not
As of 2018 - New Case Definition

• All positive anti-HCV antibody results reported
• **NEW:** All detectable HCV RNA results reported
• When a new positive result is reported, a cumulative history of antibody and RNA testing (from PHO) is provided
  • Able to assess *whether there has been a change in status* (negative to positive)
  • Able to assess *RNA infectiousness* status
New Case Definition

• “Newly Acquired”
  • Seroconversion within last 24 months; OR
  • Compatible symptoms of acute hepatitis

• “Previously Acquired/Unspecified”
  • Seroconversion >24 months or no known prior negative

• Use of either antibody or detectable RNA as evidence of infection

• Able to classify cases as RNA +ve/-ve/unknown (if no RNA result)
Status of Cases in 2018

- 5,277 confirmed cases
  - 1,098 (21%) Newly Acquired
  - 3,775 (71%) Previously Acquired/Unspecified
  - 404 (8%) Not Defined

- Among cases with a defined case classification (n=4,873)
  - 22.5% were ‘Newly Acquired’

Data as of July 3, 2019, iPHIS
Status of Cases in 2018

5,277 confirmed cases

- 1,098 (21%) Newly Acquired
  - 533 (49%) RNA +ve
  - 232 (21%) RNA -ve
  - 333 (30%) RNA unspecified

- 3,775 (71%) Previously Acquired/Unspecified
  - 1,535 (41%) RNA +ve
  - 1,210 (32%) RNA -ve
  - 1,030 (27%) RNA unspecified

- 404 (8%) Not Defined

Higher proportion of ‘Newly Acquired’ who are infectious at diagnosis

Similar proportions with missing RNA status

Data as of July 3, 2019, iPHIS
Proportion of All Cases of Hepatitis C by Age and Gender

Figure 4: Percentage of Confirmed Hepatitis C Cases by Gender and Age, in Ontario, 2018

Gender (n=5254)

- Male: 59.4%
- Female: 40.6%

Age (n=5275)

- 0-14: 0.5%
- 15-19: 1.9%
- 20-24: 8.4%
- 25-29: 12.4%
- 30-39: 15.0%
- 40-49: 15.0%
- 50-59: 16.9%
- 60-69: 16.2%
- 70+: 6.0%

Data as of July 3, 2019, iPHIS
Hepatitis C by Age and Timing of Infection

Figure 5: Confirmed Cases and Rates of Hepatitis C in Ontario by Timing of Infection and Age Group, 2018 (n=4,871)

Data as of July 3, 2019, iPHIS
Rates of Confirmed Cases of Hepatitis C by Health Unit in Ontario, 2018
# Top 3 Increases in Health Unit Rates 2014 to 2018

<table>
<thead>
<tr>
<th>Public Health Unit</th>
<th>Rate per 100,000 population in 2014</th>
<th>Rate per 100,000 population in 2018</th>
<th>Percent increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porcupine Health Unit</td>
<td>32.4</td>
<td>70.4</td>
<td>117.3%</td>
</tr>
<tr>
<td>Renfrew County and District Health Unit</td>
<td>17.9</td>
<td>38.0</td>
<td>112.3%</td>
</tr>
<tr>
<td>Northwestern Health Unit</td>
<td>120.4</td>
<td>235.7</td>
<td>95.8%</td>
</tr>
<tr>
<td><strong>ONTARIO</strong></td>
<td><strong>31.4</strong></td>
<td><strong>36.5</strong></td>
<td><strong>16.2%</strong></td>
</tr>
</tbody>
</table>

Data as of July 3, 2019, iPHIS
Reported Risk Factors in 2018

- Blood products/organ transplant: 8.9% (8.9%) - 6.8% (6.8%)
- Born in an endemic country: 18.4% (4.6%) - 13.7% (5.5%)
- Correctional facility: 23.9% (7.9%) - 10.7% (8.8%)
- High risk sexual activity: 21.0% (5.5%) - 10.7% (13.7%)
- Homeless/underhoused: 36.7% (8.8%) - 34.3% (7.9%)
- IDU: 55.7% (18.4%) - 43.7% (13.7%)
- Medical or dental procedure: 16.4% (5.5%) - 13.7% (4.6%)
- Mother to child: 0.0% (0.0%) - 0.9% (0.9%)
- Men who have sex with men (MSM): 2.1% (1.9%) - 1.9% (1.9%)
- Non-injection drug use: 27.4% (8.8%) - 43.7% (10.7%)
- Other: 48.8% (23.9%) - 44.9% (21.0%)
- Personal service settings: 33.2% (10.7%) - 29.2% (7.9%)
- Unknown: 34.3% (18.4%) - 29.0% (8.8%)

- Green represents Previously acquired/unspecified.
- Blue represents Newly acquired.
Hepatitis C Testing Cascade in 2018

- Using iPHIS data, this report describes how Ontarians with Hepatitis C are moving through the testing cascade.
Hepatitis C Testing Cascade in 2018

- Antibody positive: 5,277 (76.4%)
- RNA tested: 4,030 (61.4%)
- RNA+: 2,475 (70.6%)
- Genotype results recorded: 1,748
Hepatitis C Cases with Concurrent or Prior Infections in 2018

- **HBV (n=53)**
  - Co-infection: 28
  - 31 days-5 years: 15
  - 6-10 years: 5
  - 10+ years: 5

- **HIV/AIDS (n=47)**
  - Co-infection: 13
  - 31 days-5 years: 9
  - 6-10 years: 1
  - 10+ years: 1

- **iGAS (n=37)**
  - Co-infection: 18
  - 31 days-5 years: 13
  - 6-10 years: 1
  - 10+ years: 5

Co-infection (within +/- 30 days of HCV infection)
Acknowledgements

• Jennifer Burbidge
• Karin Hohenadel
• Sandya Menon
• Jennifer Pritchard
• Christina Renda
• Michael Whelan
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Public Health Ontario keeps Ontarians safe and healthy. Find out more at PublicHealthOntario.ca
Dr. Mina Tadrous is a researcher with the Women’s College Hospital, Ontario Drug Policy Research Network and IC/ES. He is also an assistant professor at the Leslie Dan Faculty of Pharmacy at the University of Toronto. His research interests lie in developing real-world evidence to inform provincial and national drug policy and the post-marketing surveillance of medications.
Dr. Jordan Feld is a Clinician-Scientist at the Toronto Centre for Liver Disease at the Toronto General Hospital and the Sandra Rotman Centre for Global Health at the University of Toronto. He is a leader in clinical hepatitis C management and research, and serves with various international and national initiatives related to hepatitis C elimination.
Some reflections with the Blueprint in mind
Why the data are important

• Super helpful information!

• Data collection is not sexy, *but it is vital to elimination efforts!*
  • Reporting is time-consuming but incredibly valuable
  • Linking data across data-sets
    • Testing, treatment, other healthcare services and outcomes – not simple but important

• Good data inform everything else
  • Testing strategy – whom to prioritize
  • Treatment numbers – price negotiations, budget impact etc
  • Healthcare burden
  • All starts with identifying people infected…
Global burden...importance of good data

Polaris Observatory – excellent resource – global, regional and country-level data

Major drop in estimate
• Better analysis
• Viremia not Ab +
• Correct age distribution
• ?Better data
Progress toward elimination

- Things did not look so good last year
- Lots of work to do…
What do we need to do to change this?

<table>
<thead>
<tr>
<th>Treatment scenarios</th>
<th>Treatment per year</th>
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<tr>
<td>WHO optimistic</td>
<td>10,200</td>
</tr>
<tr>
<td>Gradual decline</td>
<td>12,000→8,500</td>
</tr>
<tr>
<td>Rapid decline</td>
<td>12,000→4,500</td>
</tr>
<tr>
<td>Aggressive</td>
<td>14,000→10,000</td>
</tr>
<tr>
<td>Very aggressive</td>
<td>14,200</td>
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Not as bad as we feared….

<table>
<thead>
<tr>
<th>Year of achievement</th>
<th>End of 2017</th>
<th>WHO optimistic</th>
<th>Aggressive</th>
<th>Gradual decline</th>
<th>Rapid decline</th>
<th>Very aggressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>90% diagnosed&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2022</td>
<td>2022</td>
<td>2022</td>
<td>2022</td>
<td>2022</td>
<td>2022</td>
</tr>
<tr>
<td>80% treated</td>
<td>2030</td>
<td>2028</td>
<td>2030</td>
<td>2034</td>
<td>2027</td>
<td></td>
</tr>
<tr>
<td>80% ↓ HCV incidence&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2025</td>
<td>2025</td>
<td>2025</td>
<td>2025</td>
<td>2025</td>
<td></td>
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<tr>
<td>65% ↓ liver-related death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viremic cases only</td>
<td>2030</td>
<td>2028</td>
<td>2030</td>
<td>2034</td>
<td>2026</td>
<td></td>
</tr>
<tr>
<td>Viremic + cured cases</td>
<td>2034</td>
<td>2033</td>
<td>2034</td>
<td>2040</td>
<td>2030</td>
<td></td>
</tr>
<tr>
<td>All targets met</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viremic cases only</td>
<td>2030</td>
<td>2028</td>
<td>2030</td>
<td>2034</td>
<td>2027</td>
<td></td>
</tr>
<tr>
<td>Viremic + cured cases</td>
<td>2034</td>
<td>2033</td>
<td>2034</td>
<td>2040</td>
<td>2030</td>
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Binka *In Press* JAMA Network
Better than many countries...

Timing of the WHO's 2030 HCV elimination targets in high-income countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year WHO’s 2030 target will be met</th>
<th>Annual treatments necessary</th>
<th>Restrictions on treatment by fibrosis score, 2019</th>
<th>Year of elimination</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Incidence</td>
<td>Mortality</td>
<td>Diagnosis</td>
<td>Treatment</td>
</tr>
<tr>
<td>Australia</td>
<td>2028</td>
<td>2027</td>
<td>2016</td>
<td>2023</td>
</tr>
<tr>
<td>Canada</td>
<td><strong>2030</strong></td>
<td><strong>2029</strong></td>
<td><strong>2022</strong></td>
<td><strong>2028</strong></td>
</tr>
<tr>
<td>France</td>
<td>2025</td>
<td>2024</td>
<td>2016</td>
<td>2021</td>
</tr>
<tr>
<td>Germany</td>
<td>2026</td>
<td>2030</td>
<td>2028</td>
<td>2029</td>
</tr>
<tr>
<td>Spain</td>
<td>2021</td>
<td>2020</td>
<td>2021</td>
<td>2020</td>
</tr>
<tr>
<td>Sweden</td>
<td>2024</td>
<td>2022</td>
<td>2016</td>
<td>2020</td>
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<tr>
<td>United Kingdom</td>
<td>2030</td>
<td>2030</td>
<td>2025</td>
<td>2024</td>
</tr>
<tr>
<td>United States</td>
<td>–</td>
<td>2023</td>
<td>2025</td>
<td>2027</td>
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Razavi 2020
Why the rapid change?

• The *Blueprint* of course!

• Some action…but mostly **better data**…

• Looks good but is this realistic? ~10,000 treatments/year is no small task…and even the drop-off scenarios may be optimistic

• Sustaining high treatment rates means:
  • Increasing diagnosis
  • Increasing linkage to care
  • And…must expand prevention efforts to keep moving forward
  • *Difficult on many levels*…
Some reflections on the data

• Acute HCV is VERY hard to track
  • Reported data are critical to keep track of incidence – one of our major endpoints
  • Ideally can link this with the lab data

• Treatment
  • Rates are falling off…we won’t make targets if we don’t treat people
  • We need more new treaters
    • Easier to treat (not cure) were happy to see hepatologists in hospitals…not everyone is
    • Need more primary care, more ID and hopefully we can teach the GI/Hep people to think about more than the liver!
Upcoming plans

• Data
  • Ontario Public Health Lab data to Dec 31 2018 - for HCV and HBV just moved to ICES - now available!

• Changers in practice
  • Discussions about moving to reflex HCV RNA testing (for all Ab+)
  • Discussions about revising requirement for 2 HCV RNA results for treatment access
  • Hopefully some good news soon…
National Efforts - Positive signals

- PHAC-sponsored ‘Knowledge Exchange Forum on STBBI Testing and Linkage to Care: Reaching the Undiagnosed’
  - Ottawa Feb 4 & 5 2020

- National representation by key stakeholders
  - Government & Public Health
  - Lab/Clinical/Researchers
  - People with lived experience & community partners

- Great knowledge exchange – HCV well represented
- Sharing good practices from around the country
Next steps

- *Blueprint Regional Elimination Meetings 2020*
  - BC
  - Prairies (AB, SK, MN)
  - Ontario
  - Quebec
  - Maritimes (NS, PEI, NB, NFLD)
  - The North (NWT, YT, NU)

- Identify barriers/challenges → *find solutions!*

- *Develop regional/provincial plans* (some well on their way)
National Progress

• National Blueprint Elimination Summit 2021

  • Track progress across the country
  • Report to WHO (and ourselves)
  • Share good practices

• Continue with alternating regional and national summits to keep us on track…
Long road ahead…
Dr. Chris Steingart is the founder and Executive Director at Sanguen Health Centre. As a physician, he leads specialized care, including hepatitis C treatment, to meet the complex needs of his clients. The centre’s dedicated team provide compassionate and comprehensive education, outreach and medical services for at-risk clients in their communities.
From a community or “on the ground” perspective, our primary concern with our hepatitis C response and the key to elimination at a local level, is the ability to screen in high-risk populations and engage them in care. For many of our clients, competing priorities such as homelessness, overdose risk, mental health and many other co-existing issues can create an environment that makes talking about hepatitis C risks, testing and treatment very difficult.

At Sanguen Health Centre, we are trying to overcome this by growing our outreach programming, and “embedding” hepatitis C efforts into other services, including harm reduction, as part of a wholistic, wrap-around model of care. This includes integrating hepatitis C into our Community Health Vans, Primary Care Bus, Consumption & Treatment Services, Safe Supply services and addiction treatment. We feel that outreach to our highest risk populations requires these kinds of efforts to try to overcome inherent barriers in delivering hepatitis C care.”
Questions and discussion