INHSU Conference Update 2022

Shashi Kapadia MD
Division of Infectious Diseases
Weill Cornell Medicine
Disclosures

• I have received research grants paid to my institution from Gilead Sciences Inc. The research funded by this grant is included in the current presentation

• I will discuss off-label or investigational uses of medications in reporting the conference presentation results
Learning Objectives

By the end of this presentation, participants will be able to:

• Review evidence behind new care models of HCV treatment for people who use drugs
• Review recent epidemiologic data about HCV elimination in the US and abroad
• Understand the rationale and effort to improve safer supply of drugs
INHSU Conference

- Hepatitis
- Drug User Health
- Harm Reduction
- Joining Clinical, Community, and Scientific Minds

Early or Mid Career Researcher SIG

https://www.inhsu.org/the-network/inhsu-emcr/
Part 1: HCV Clinical Care
Summary: Treat everyone as soon as you find them, wherever they are.

Hepatitis C diagnosis and treatment pathways in Tayside

Image reference:
Dr John Dillon. Real world examples of success in achieving HCV elimination among PWID: Scotland. Presented October 20 2022 at INHSU 2022, Glasgow UK.
Summary: Treat everyone as soon as you find them, wherever they are.

EPITOPE HCV treatment scale up for PWID

1. Proportions of treatments, 2. completion, 3. lost to follow-up, and 4. cure

*Percentages are proportions of the LTFU group (n=70), not treated cases.
†SVR for treatment completers who received a test (n=569).

Image reference:
Dr John Dillon. Real world examples of success in achieving HCV elimination among PWID: Scotland. Presented October 20 2022 at INHSU 2022, Glasgow UK.
In a pragmatic stepped-wedge clinical trial in Norway, HCV treatment initiation in the inpatient setting resulted in increased SVR-12 compared to referral upon discharge.
Opportunistic treatment of HCV infection (OPPORTUNI-C): A randomised controlled trial of immediate treatment initiation among hospitalized people who inject drugs

Håvard Midgard1,2, Kristian B. Malme1, Charlotte M. Pihl3,4, Rikka M. Berg-Pedersen5, Lars Tanum6,7, Ingvild Klundby8, Anne Haug9, Ida Tveter10, Ronny Bjørnestad11, Inge C. Olsen12, Ane-Kristine Finbråten3,4, and Olav Dalgard1,13

1Department of Infectious Diseases, Akershus University Hospital, Norway; 2Department of Gastroenterology, Oslo University Hospital, Norway; 3Department of Medicine, Lovisenberg Diakonal Hospital, Norway; 4Unger-Vetlesen Institute, Lovisenberg Diakonal Hospital, Norway; 5Department of Addiction Medicine, Oslo University Hospital, Norway; 6Department for Research and Development in Mental Health, Akershus University Hospital, Norway; 7Oslo Metropolitan University, Norway; 8Department of Microbiology, Oslo University Hospital, Norway; 9Department of Acute Medicine, Oslo University Hospital, Norway; 10Department of Infectious Diseases, Oslo University Hospital, Norway; 11ProlArt Nett, Sagne, Norway; 12Department of Research Support for Clinical Trials, Oslo University Hospital, Norway; 13Institute of Clinical Medicine, University of Oslo, Norway
OPPORTUNI-C: Rationale

- For patients diagnosed with HCV and in the hospital, referral to outpatient treatment often results in drop-offs in the care cascade.

- Hospitalizations may represent a “reachable moment” for HCV treatment initiation if logistical barriers can be overcome.
OPPORTUNI-C: Design

- Stepped-wedge cluster randomized design with hospital departments (wards) as the cluster and 2-month intervals
OPPORTUNI-C: Design

• **Intervention Conditions:**
  – Liver disease assessment (Transient Elastrography) and immediate treatment, follow-up scheduling

• **Control Conditions:**
  – Referral to Outpatient Treatment

• **Outcome:**
  – Treatment Completion within 6 months
OPPORTUNI-C: Pragmatic Design Features

- Recruited from routine practice
- Broad inclusion criteria (HCV RNA positive, hospitalized)
- Used existing clinical infrastructure and data sources
- “intention to treat” – no protocol violations
OPPORTUNI-C: Consort Diagram

Trial period:
1 Oct 2019 - 31 Dec 2021

Covid-19 lockdown: April 2020

HCV tests performed: 9241

Viraemic individuals: 341

Enrolled participants: 200
## OPPORTUNI-C: Baseline characteristics

<table>
<thead>
<tr>
<th>Variable, n (%)</th>
<th>All (n=200)</th>
<th>Intervention (n=98)</th>
<th>Control (n=102)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age, mean (SD)</strong></td>
<td>47.4 (12.7)</td>
<td>48.0 (13.0)</td>
<td>46.8 (12.5)</td>
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<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>145 (72.5)</td>
<td>69 (70.4)</td>
<td>76 (74.5)</td>
</tr>
<tr>
<td>Female</td>
<td>55 (27.5)</td>
<td>29 (29.6)</td>
<td>26 (25.5)</td>
</tr>
<tr>
<td><strong>Housing status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rented/owned accommodation</td>
<td>124 (62.0)</td>
<td>64 (65.3)</td>
<td>60 (58.8)</td>
</tr>
<tr>
<td>Drug rehabilitation institution</td>
<td>10 (5.0)</td>
<td>7 (7.1)</td>
<td>3 (2.9)</td>
</tr>
<tr>
<td>Low-threshold institution</td>
<td>28 (14.0)</td>
<td>10 (10.2)</td>
<td>18 (17.7)</td>
</tr>
<tr>
<td>Prison</td>
<td>1 (0.5)</td>
<td>0 (0)</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Homeless/on the street</td>
<td>37 (18.5)</td>
<td>17 (17.4)</td>
<td>20 (19.6)</td>
</tr>
<tr>
<td><strong>History of injecting drug use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>183 (91.5)</td>
<td>86 (87.8)</td>
<td>97 (95.1)</td>
</tr>
<tr>
<td>No</td>
<td>17 (8.5)</td>
<td>12 (12.2)</td>
<td>5 (4.9)</td>
</tr>
<tr>
<td><strong>Recent (past 3 months) injecting drug use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>121 (60.5)</td>
<td>58 (59.2)</td>
<td>63 (61.8)</td>
</tr>
<tr>
<td>No</td>
<td>79 (39.5)</td>
<td>40 (40.8)</td>
<td>39 (38.2)</td>
</tr>
<tr>
<td><strong>Current opioid agonist therapy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>90 (45.0)</td>
<td>38 (38.8)</td>
<td>52 (51.0)</td>
</tr>
<tr>
<td>No</td>
<td>110 (55.0)</td>
<td>60 (61.2)</td>
<td>50 (49.0)</td>
</tr>
<tr>
<td><strong>Stage of liver disease</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild or no liver fibrosis</td>
<td>102 (52.0)</td>
<td>51 (52.0)</td>
<td>51 (52.0)</td>
</tr>
<tr>
<td>Intermediate fibrosis</td>
<td>54 (27.6)</td>
<td>25 (25.5)</td>
<td>29 (29.6)</td>
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<tr>
<td>Compensated cirrhosis</td>
<td>21 (10.7)</td>
<td>14 (14.3)</td>
<td>7 (7.1)</td>
</tr>
<tr>
<td>Decompensated cirrhosis</td>
<td>19 (9.7)</td>
<td>8 (8.2)</td>
<td>11 (11.2)</td>
</tr>
<tr>
<td><strong>Hepatocellular carcinoma</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9 (4.5)</td>
<td>5 (5.1)</td>
<td>4 (3.9)</td>
</tr>
<tr>
<td>No or not assessed</td>
<td>191 (95.5)</td>
<td>93 (94.9)</td>
<td>98 (96.1)</td>
</tr>
</tbody>
</table>

- Age 47 years
- 73% male
- 38% unstable housing
- 92% history of injecting
- 61% recent injecting
- 45% opioid agonist therapy
- 21% liver cirrhosis
- 5% hepatocellular carcinoma
OPPORTUNI-C: Main results

- Treatment completion within 6 months:
  - 68% vs 35%

- Mixed effects logistic regression:
  - aOR 4.8 (95%CI 1.8-12.8)
**OPPORTUNI-C: Main results**

**Primary outcome:** Treatment completion

*Treatment completion within 6 months*
68.4% vs. 35.3% (absolute increase 33.1%)

*Mixed effects logistic regression adjusted for secular trends and cluster effects: aOR 4.8 (95% CI 1.8-12.8)*

- Treatment completion
- Delayed treatment
- Non-attendance
- Short life expectancy or death
- Discontinuation
- Discontinuation
- Other reasons
OPPORTUNI-C: Main Results

**Time to treatment initiation**
Cox regression adjusted for secular trends and cluster effects:
\( \text{aHR 3.5 (95\% CI 2.3-5.3)} \)
OPPORTUNI-C: Conclusions and Limitations

- Initiating HCV treatment in the hospital resulted in higher rates of treatment initiation and SVR12 within a short time.

- Decreasing time to treatment was a major benefit – control group often received delayed treatment.

- In US setting, medication availability in hospital settings would serve as a major barrier to implementing.
• Integrating HCV treatment into OAT and community clinics in Bergen Norway improved rates of treatment start and SVR12 compared to referral to hospital-based treatment.
Effect of integrated treatment of hepatitis C virus infection among people who inject drugs: results from a multicenter randomized controlled trial in Norway

Lars T. Fadnes
Haukeland University hospital (research group leader of BAR) and University of Bergen (professor)
INTRO HCV

• Recruited 298 participants at 10 sites in Bergen, Norway

• Integrated treatment model:
  – Multidisciplinary teams at OAT clinics or community care centers
  – On-site HCV testing, transient-elastography, treatment, follow-up
  – “minimal monitoring” approach – no on-treatment blood testing

• Standard treatment model:
  – Referred to hospital outpatient clinics
INTRO HCV

|                      | Standard treatment | Integrated treatment | Frequency of follow up (days/week) |  |  |
|----------------------|--------------------|----------------------|-----------------------------------|  |  |
| **n (%)**            | 150 (50%)          | 148 (50%)            | 5 (3–6)                           |  |  |
| **Age**              | 42 (34–50)         | 44 (36–52)           |                                   |  |  |
| **Education < 10 years** | 82 (57%)          | 77 (52%)            | Substance use last 30 days         |  |  |
|                      |                    |                      | - Illicit opioids                 |  |  |
|                      |                    |                      | - Amphetamines or cocaine         |  |  |
|                      |                    |                      | - Benzodiazepines                 |  |  |
|                      |                    |                      | - Cannabinoids                    |  |  |
|                      |                    |                      | - Tobacco                         |  |  |
|                      |                    |                      | - Alcohol                         |  |  |
|                      |                    |                      | Body mass index (kg/m²)           |  |  |
| **Male**             | 121 (81%)          | 108 (73%)            | 24 (22–28)                        |  |  |
| **Homelessness**     | 19 (13%)           | 22 (15%)             | **Genotype**                      |  |  |
|                      |                    |                      | - Genotype 1                       |  |  |
|                      |                    |                      | - Genotype 2                       |  |  |
|                      |                    |                      | - Genotype 3                       |  |  |
|                      |                    |                      | - Other genotypes                  |  |  |
|                      |                    |                      | **Probable fibrosis** (not cirrhosis) |  |  |
|                      |                    |                      | **Probable cirrhosis**            |  |  |
| **Social security benefits as income** | 13 (9%)           | 146 (99%)            | 14 (11%)                          |  |  |
| **Formal work as income** | 13 (9%)           | 3 (2%)               |                                   |  |  |
| **Opioid agonist therapy** | 69 (46%)         | 72 (49%)            |                                   |  |  |
| - Buprenorphine based |                    |                      |                                   |  |  |
| - Methadone          | 50 (37%)           | 57 (39%)            | **Probable cirrhosis**            |  |  |
| - Non-OAT (receiving CCC) | 23 (15%)         | 18 (12%)            |                                   |  |  |
| **Injecting drug use (ever)** | 133 (100)        | 147 (100)           | 28 (21%)                          |  |  |
| **Injecting drug use (last 6 months)** | 84 (63)           | 84 (57)             | 34 (25%)                          |  |  |
| **Injecting drug use (last 30 days)** | 62 (47)           | 62 (42)             | 14 (11%)                          |  |  |

* Probable cirrhosis: elastography > 12.5 kPa, ** fibrosis (not cirrhosis): 7.0-12.5 kPa
SVR 12 Among those randomized:
- 93% in integrated arm
- 73% in standard arm

HR 5.0 (95%CI 2.3-11)
• Integrated HCV treatment is now the standard of care in Norway

• Why not here?
In New York City, co-located HCV treatment at a syringe service program was associated with higher SVR12 at one year compared to facilitated referral to local providers.

Self-Promotion Alert: I am an author of this work
Disclosure: This work is NIH-funded
Accessible Care

Accessible Hepatitis C Care for People Who Inject Drugs:
A Randomized Clinical Trial

Eckhardt BJ, Mateu-Gelabert P, Aponte-Melendez Y, Fong C, Kapadia SN, Pai M; Edlin BR; Marks KM
Accessible Care

• **Population:** Adults with HCV PCR+, injected within 30 days, and not engaged in HCV care

• **Intervention:**
  – Co-located HCV treatment at syringe service program
  – Clinical care coordinator

• **Control:**
  – Facilitated patient navigation to treatment provider via Check Hep C

• **Outcome:** SVR12 within 12 months
Accessible Care

Assessed for eligibility (n=572)

Randomly assigned (n=167)

Excluded (n=405)
- Refused participation (n=3)
- Pending criteria, RNA (n=167)
- Eligible, not enrolled (n=15)
- Not eligible (n=220)
  - HCV Ab negative (n=15)
  - HCV RNA negative (n=84)
  - In HCV treatment (n=21)
  - No injection in last 90 days (n=100)

Accessible Care (n=84)

Excluded post-randomization
- advanced liver disease (n=1)
- enrolled in error, no *PCR in 90 days (n=1)

Accessible Care Eligible (n=82)

Referred to Accessible Care, on-site treatment, and included in intention-to-treat analysis (n=82)

Usual Care (n=83)

Referred to Usual Care, on-site care coordination, and included in intention-to-treat analysis (n=83)
## Table 1. Baseline Characteristics of Study Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. (%)</th>
<th>Overall (n = 165)</th>
<th>Accessible care (n = 82)</th>
<th>Usual care (n = 83)</th>
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<tbody>
<tr>
<td>Age, mean (SD), y</td>
<td></td>
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<tr>
<td>18-29</td>
<td>21 (12.7)</td>
<td>11 (13.4)</td>
<td>10 (12.0)</td>
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<tr>
<td>30-44</td>
<td>77 (46.7)</td>
<td>34 (41.5)</td>
<td>43 (51.8)</td>
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<tr>
<td>45+</td>
<td>67 (40.6)</td>
<td>37 (45.1)</td>
<td>30 (36.1)</td>
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</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>128 (77.6)</td>
<td>62 (75.6)</td>
<td>66 (79.5)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>37 (22.4)</td>
<td>19 (22.2)</td>
<td>17 (20.5)</td>
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<tr>
<td>Transgender</td>
<td></td>
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</tr>
<tr>
<td>1 (0.6)</td>
<td>1 (1.2)</td>
<td>0</td>
<td></td>
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<tr>
<td>Race and ethnicity</td>
<td></td>
<td></td>
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<tr>
<td>Hispanic</td>
<td>97 (58.8)</td>
<td>45 (54.9)</td>
<td>52 (62.7)</td>
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</tr>
<tr>
<td>Non-Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>53 (32.2)</td>
<td>26 (31.7)</td>
<td>27 (32.5)</td>
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<tr>
<td>Black</td>
<td>8 (4.8)</td>
<td>7 (8.5)</td>
<td>1 (1.2)</td>
<td></td>
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<tr>
<td>Other</td>
<td>7 (4.2)</td>
<td>4 (4.9)</td>
<td>3 (3.6)</td>
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<tr>
<td>Homeless (past 3 mo)</td>
<td>94 (57.3)</td>
<td>48 (58.5)</td>
<td>46 (56.1)</td>
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<td>Health insurance</td>
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<td></td>
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<tr>
<td>Public</td>
<td>155 (93.9)</td>
<td>76 (92.7)</td>
<td>79 (95.2)</td>
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<tr>
<td>Other</td>
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<td>1 (1.2)</td>
<td>4 (4.8)</td>
<td></td>
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<tr>
<td>None</td>
<td>5 (3.0)</td>
<td>5 (6.1)</td>
<td>0</td>
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<td>Borough of residence</td>
<td></td>
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<td></td>
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<tr>
<td>Manhattan</td>
<td>96 (58.2)</td>
<td>34 (41.5)</td>
<td>29 (34.9)</td>
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</tr>
<tr>
<td>Staten Island</td>
<td>3 (1.8)</td>
<td>1 (1.2)</td>
<td>2 (2.4)</td>
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<tr>
<td>Brooklyn</td>
<td>32 (19.4)</td>
<td>18 (22.0)</td>
<td>14 (16.9)</td>
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<tr>
<td>Bronx</td>
<td>48 (27.9)</td>
<td>20 (24.4)</td>
<td>26 (31.3)</td>
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<tr>
<td>Queens</td>
<td>17 (10.3)</td>
<td>8 (9.8)</td>
<td>9 (10.8)</td>
<td></td>
</tr>
</tbody>
</table>

### Referral source

- **LESHRC SSP (research site)**: 41 (24.8) | 25 (30.5) | 16 (19.3) |
- **Outside SSP**: 36 (21.8) | 17 (20.7) | 10 (22.9) |
- **Participant, peer, or recruiter**: 51 (30.9) | 24 (29.3) | 27 (32.5) |
- **Other (outside research study, media, other)**: 37 (22.4) | 16 (19.5) | 21 (25.3) |

### Incarceration history

- **Ever incarcerated**: 138 (83.6) | 70 (85.4) | 68 (81.9) |
- **Recent incarceration (during last 90 d)**: 12 (7.3) | 2 (2.4) | 10 (12.0) |
- **HIV positive**: 12 (7.3) | 6 (7.3) | 6 (7.2) |
- **Prior HCV treatment**: 18 (10.9) | 10 (12.2) | 8 (9.6) |
- **Current medication for opioid use disorder**: 106 (64.2) | 52 (63.4) | 54 (65.1) |
- **Buprenorphine**: 10 (6.1) | 6 (7.3) | 4 (4.8) |
- **No medication for opioid use disorder**: 50 (30.3) | 24 (29.3) | 26 (31.3) |

### Injection frequency during past 30 d

- **Daily**: 65 (39.4) | 33 (40.2) | 32 (38.6) |
- **Less than daily**: 100 (60.6) | 49 (59.8) | 51 (61.4) |

### Drugs used regularly (last 90 d)

- **Heroin**: 79 (47.9) | 36 (42.9) | 42 (51.8) |
- **Cocaine**: 46 (27.9) | 24 (29.3) | 22 (26.5) |
- **Speedball**: 41 (24.8) | 20 (24.4) | 21 (25.3) |
- **Other**: 39 (23.6) | 19 (22.3) | 20 (24.1) |

### Attended SSP during past 90 d

- 133 (80.6) | 69 (84.1) | 64 (77.1) |
**SVR 12 (Intention-to-treat):**
Intervention Arm: 55/82 (67%) vs Control Arm: 19/83 (23%) (p<0.001)

**SVR 12 among those who started treatment:**
Intervention arm: 55/64 (86%) vs Control Arm: 19/22 (86%) 

Re-infection rate of 6.9 per 100 person-years (n=4, 95% CI, 2.7-17.8).
• In New York City, rapid (same day) provision of DAA treatment at a syringe service program improved treatment initiation rates and SVR12 compared to the usual practice of facilitated referral.
Rapid Hepatitis C Treatment Initiation in Young People Who Inject Drugs: Final Results from the HCV-SEEK, TEST & RAPID TREATMENT (ST&RT) Randomized Pilot Clinical Trial

Eckhardt B; Kapadia S; Mateu-Gelabert P; Pai M; Fong C; Aponte-Melendez Y; Marks

1 New York University School of Medicine, 2 Weill Cornell Medicine, 3 CUNY School of Public Health
**HCV ST&RT**

- **Population:** People age 18-29 with current (past 30d) injection drug use and HCV antibody positive

- **Intervention:** Rapid-start HCV DAA treatment at syringe service program with care coordination and “minimal monitoring”

- **Control:** Facilitated referral via NYC Check Hep C program

- **Outcome:** SVR12 within 12 months
HCV ST&RT

Clinical Follow up visits (Intervention group)
Day 7 to pick up medications (intervention group only)
Day 28 for labs / check-in
SVR 12

Research Follow up Visits (both groups)
Every 12 weeks for 1 year
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Rapid Treatment (RNA+) (n=14)</th>
<th>Usual Care (RNA+) (n=11)</th>
<th>RNA neg (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in y (SD)</td>
<td>26.07 (3.54)</td>
<td>25.36 (2.66)</td>
<td>26.92 (2.87)</td>
</tr>
<tr>
<td>Female Gender</td>
<td>3 (21.4%)</td>
<td>3 (27.3%)</td>
<td>4 (30.8%)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>6 (42.9%)</td>
<td>6 (54.5%)</td>
<td>9 (30.8%)</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>1 (7.1%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6 (42.9%)</td>
<td>3 (27.3%)</td>
<td>4 (30.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (7.1%)</td>
<td>2 (18.2%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Homeless, ever in last 90 days</td>
<td>2 (14.3%)</td>
<td>4 (36.4%)</td>
<td>7 (53.8%)</td>
</tr>
<tr>
<td>Public Insurance, medicaid or medicare</td>
<td>12 (85.7%)</td>
<td>11 (100.0%)</td>
<td>11 (84.6%)</td>
</tr>
<tr>
<td>Recent incarceration, in last 90 days</td>
<td>3 (21.4%)</td>
<td>2 (18.2%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Injection days in last 30, mean (SD)</td>
<td>18.21 (11.64)</td>
<td>15.91 (13.48)</td>
<td>17.08 (11.91)</td>
</tr>
<tr>
<td>Methadone, any in last 90 days</td>
<td>6 (42.9%)</td>
<td>6 (54.5%)</td>
<td>8 (61.5%)</td>
</tr>
<tr>
<td>Buprenorphine, any in last 90 days</td>
<td>1 (7.1%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Previous HCV diagnosis</td>
<td>8 (57.1%)</td>
<td>6 (54.5%)</td>
<td>5 (38.5%)</td>
</tr>
<tr>
<td>Previously sought HCV care</td>
<td>4 (28.6%)</td>
<td>3 (27.3%)</td>
<td>2 (15.4%)</td>
</tr>
</tbody>
</table>
SVR 12 by 12 months

Rapid treatment: 9/14 (64%)
• 2 had on treatment completion but missed SVR12
• 1 did not start treatment
• 2 had continued viremia

Usual Care: 1/11 (9%)
• 10 had continued viremia

Median time to Treatment Initiation (Rapid Treatment group):
5 days from enrollment
1 day from RNA test result
NYC Screening and Nav from Sexual Health Clinics for HCV

The New York City Health Department collaborates to improve hepatitis C screening and navigation services to underserved population in New York City

1New York City Department of Health and Mental Hygiene

Referral Process

NYC Sexual Health Clinics (SHC)

- Patient received HCV screening
- Patient accepted VHP’s navigation services
- SHC provider referred patient to VHP for navigation services

Viral Hepatitis Program (VHP)

- VHP patient navigator outreach to patient
- Navigator connected patient to hepatitis care and supportive services
- Patient initiated HCV treatment and cured for HCV

Number of people who were referred to VHP

<table>
<thead>
<tr>
<th>Service</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received patient navigation services</td>
<td>55%</td>
</tr>
<tr>
<td>Connected to a provider for HCV care</td>
<td>73%</td>
</tr>
<tr>
<td>Subsequent negative RNA result</td>
<td>75%</td>
</tr>
</tbody>
</table>
Mortality after HCV Cure in Scotland, England, and British Columbia

EXCESS MORTALITY RISK AMONG HEPATITIS C PATIENTS AFTER BEING “CURED” IN THE INTERFERON-FREE ERA: RESULTS FROM THREE POPULATION-BASED COHORTS

Authors:
Mortality after HCV Cure in Scotland, England, and British Columbia

- Retrospective analysis of 20,031 patients who were cured in DAA era using population cohorts in Scotland, England, BC
- Calculated standardized mortality ratio in patients after SVR compared to general population
- Stratified by cirrhosis status and described deaths attributable to various causes
Mortality after HCV Cure in Scotland, England, and British Columbia
Part 2: HCV Elimination
• WHO Goals by 2030 compared to 2015
  – 80% reduction in incidence
  – 65% reduction in mortality
  – HCV incidence <5/100000 and <2/100 PWID
  – HCV mortality <2/100000
A far way to go in most countries

Only 5 countries (2% of the global PWID population) provide high coverage of both OAT and NSP

Degenhardt et al. INHSU 2022
A far way to go in most countries

% PWID who ever received HCV Ab testing

Image reference:
Dr Natasha Martin. HCV Elimination among people who inject drugs: Where are we now and where to from here? Presented October 20 2022 at INHSU 2022, Glasgow UK.
HCV treatment & retreatment in Australia: 2016-2021

HCV treatment rates as a % of those with chronic HCV dropped from 11% (2019) to 9% (2020) and 8% (2021)

Image reference:
Dr Natasha Martin. HCV Elimination among people who inject drugs: Where are we now and where to from here? Presented October 20 2022 at INHSU 2022, Glasgow UK.
Success Stories: Scotland

UPDATE on population-level data on reduction in prevalence of HCV among PWID associated with scale-up of DAAs in community drug-services (data to 2019-20)

*data has been imputed for missing laboratory DBS results for 2013-14 to 2017-18

**Image reference:**
Dr Natasha Martin. HCV Elimination among people who inject drugs: Where are we now and where to from here? Presented October 20 2022 at INHSU 2022, Glasgow UK.
Success Stories: Iceland

PREVALENCE OF HCV VIREMIA AMONG PWID AT VOGUR ADDICTION HOSPITAL 2010 - 2021

Image reference:
Dr Sigurdur Olafsson. Real-world successes and challenges in achieving HCV elimination among people who inject drugs: Iceland. Presented October 20 2022 at INHSU 2022, Glasgow UK.
Success Stories: Georgia

Chronic Hepatitis C Infection rates by Risk Factors (2015 vs 2021)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>2015</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfusion</td>
<td>13.1%</td>
<td>3.8%</td>
</tr>
<tr>
<td>IDU</td>
<td>51.1%</td>
<td>65%</td>
</tr>
<tr>
<td>Prison</td>
<td>17.8%</td>
<td>32.2%</td>
</tr>
<tr>
<td>Surgery</td>
<td>14.6%</td>
<td>5.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2%</td>
</tr>
</tbody>
</table>

After 6 years of the elimination program implementation active HCV active infection rate has decreased by 67% in general adult population. During the same period active HCV active infection rate was decreased by 65% in PWID also.

Considerable Decrease (below 15%) in HCV RNA rates was confirmed by BSS and BSS Lite studies conducted in 2021 and 2022 among PWID in 7 cities of Georgia

Image reference:
Dr Ketevan Stvilia. Real-world examples of success in achieving HCV elimination among people who inject drugs - Georgia. Presented October 20 2022 at INHSU 2022, Glasgow UK.
Mathematical model of HCV testing and treatment among young people who inject drugs in SF, calibrated to epidemiologic data

Estimated changes in elimination trajectory due to COVID-related disruptions
Global Successes and Challenges

• **Successes:**
  – Several countries have achieved high rates of testing and treatment
  – Integrated care models and community-based treatment models
  – High rates of treatment uptake and success

• **Challenges:**
  – A few shining stars, but not a great global outlook
  – Recovering from COVID disruptions
  – Ensuring access to treatment of recurrent infection
  – Ensuring continued prioritization of HCV surveillance programs even in after decreasing burden and changing economic outlooks
  – Post-treatment mortality, and prevention interventions

• **Opportunities:**
  – Build on HCV successes for other aspects of health and civil rights for PWID
Part 3: Safer Supply
What is the idea behind safer supply?

- A harm reduction intervention that seeks to replace street drugs with regulated alternatives (e.g. prescription opioids)
  - Heroin assisted therapy
  - Medical safe supply of drugs
  - Compassion clubs (community-led)

- Necessary because of increased replacement and unpredictability of drug supply: fentanyl, other analogues, benzodiazepines, xylazine, etc
What is the idea behind safer supply?

- The Safer Supply concept is challenged by the highly synthetic opioid-laden drug supply (fentanyl)
  - Note: the difference between “contaminated” supply or “tainted” supply and the phenomenon we are seeing replacement

  - Note also: what we call “fentanyl” when referring to street drugs, can refer to any large number of fentanyl analogues with variable potencies that are not predictable by patients who use those drugs

  - The introduction of fentanyl and analogues leads to markedly higher opioid tolerances, which is a problem for both OST and “Safer Supply”
Example implementation in London Ontario

- People receive prescription from short acting hydromorphone
- As well as a long-acting backbone (e.g. methadone, long acting morphine) to “keep up” with opioid tolerance
- Program enrolled 112 clients starting April 2020, expanded to 248 by 2021 and had 94% retention rate
Example implementation in London Ontario

**Use of unregulated opioids (fentanyl or opioids not prescribed to them)**

- Clients starting SOS: 91%, 91%
- Current SOS clients: 85%
- Clients starting SOS who report using fentanyl: 60%, 75%
- Current SOS clients who report using fentanyl: 32%, 57%
Example implementation in London Ontario

About 50% reduction in injection of street drugs and specifically fentanyl
Even though this was NOT a treatment program, 35% of participants stopped injecting drugs

Also see reductions in ER utilization; hospitalization; healthcare cost that are not seen in controls
Improved self-reported physical and mental health
And decreased criminal activity (86% -> 35%) and transactional sex (50% -> 20%)

Andrea Sereda. Deployment of safer supply in Canada. Presented 10/20/2022, INHSU 2022
Implementation in Montreal via OAT clinics
Implementation in Montreal via OAT clinics

A First Survey on Safer Supply in Quebec
In collaboration with the Community of Practice in Addiction Medicine and the Montreal regional public health department

**Benefits and issues of safer supply**
Safer supply's main benefits:
- Reduction in use of illegal market
- Appeal to new customers not otherwise attracted to this kind of treatment
- Improved treatment retention
- Social acceptability
- Reduction in overdoses

**Potential issues raised in the practice of safer supply:**
- Potential diversion
- Patients that sell their safer supply to obtain their substance of choice
- Escalation of doses
- The lack of a framework for practice
- The consequences of IV pills/tablets utilization

**Treatment retention**
83.3% (30/36) of respondents believe that treatment retention is equivalent or better to an opioid agonist treatment.

**Withdrawal from the illegal market**
44.4% (16/36) of respondents estimated that safer supply permitted the withdrawal of between 0 to 15% of their clients from the illegal market, and 55.6% (20/36) of respondents estimated this for 16% or more of their clients.

Marie Eve Goyer.
Presented
10/20/2022, INHSU
2022
SAFER SUPPLY ENABLES LIFE

“Opened a whole new outlook and positive way of thinking.”

“Life is so much better!”

“My life has improved drastically.”

“It saved my life.”

“Got my life back.”

“There’s a lot less edge on my day.”

“100% more stable than I have ever been.”

“Program enabled me to move forward in my life and not be at a standstill.”

Assessment of the Implementation of Safer Supply Pilot Projects - Full Report
Dale McMurphy Consulting, 2022
Clinical resources are needed, but emerging

But a regulatory framework is lacking in anywhere but Canada
Summary

• HCV treatment everywhere, to everyone who has HCV, by everyone who can prescribe

• HCV elimination will happen in places that have done this, but too many places (including us) have not succeeded or are not measuring our successes

• Interventions to reduce the harms of a contaminated and evolving drug supply are sorely needed, and policies that prevent these interventions need to be urgently reconsidered
Acknowledgments

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• Jack Buyske (MD student, Columbia U)