An intervention to improve HCV testing, linkage to care, and treatment among people who use drugs in Tehran, Iran: the ENHANCE study

Maryam Alavi
Hossein Poustchi, Shahin Merat, Soudeh Kaveh-ei, Afarin Rahimi-Movaghar, Behrang Shadloo, Behzad Hajarizadeh, Jason Grebely, Gregory J. Dore, Reza Malekzadeh
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Iran is in the Golden Crescent region of South Asia

annual market value of ~$20 billion

Drug use and harm reduction in Iran

- In 2015, ~5.6 million people had recently used drugs\(^1\)
- ~340,000 individuals had a history of injecting drug use\(^1\)
- Opium, heroin, and crystal methamphetamine were among the most commonly used drugs\(^1\)
- OST and NSP are available in more than 5,000 clinics and nearly 500 centres, respectively\(^2\)

1. Hamid Sharifi, personal communication, Sep 2019
Hepatitis C is a public health issue

- ~186,000 people are living with HCV infection\(^1\)
- 35% are diagnosed and <5% received interferon-based treatment/year\(^1\)
- HCV diagnosis and treatment slightly increased in the DAA era

What would be the impact of an intervention including simplified and adapted HCV management, on testing, linkage to care, and treatment uptake among people who use drugs?

Enhancing Hepatitis C Linkage to Care (ENHANCE)*

- Collaborative study between Kirby Institute and Digestive Diseases Research Institute
- Recruitment commenced: April 2018-ongoing
- Inclusion criteria: ≥18 years and history of drug use

**ENHANCE methods: HCV diagnosis and treatment**

- **Rapid HCV antibody testing among all enrolled participants**

- **HCV RNA testing**

- **Referral for FibroScan® in liver clinic**
  - Rx initiation at liver clinic
  - 24 weeks of Rx with monthly monitoring at liver clinic
  - 12 weeks of Rx with monthly monitoring at study sites

- **DICs & homeless reception centre**
  - APRI; Arranged transport for FibroScan® if required
  - Rx initiation at liver clinic
  - 12 or 24 weeks of flexible directly observed Rx at study sites
## ENHANCE results: demographic characteristics

<table>
<thead>
<tr>
<th>Characteristics, n(%)</th>
<th>Total n=865</th>
<th>OST clinics n=318</th>
<th>Community-based drop-in centres n=388</th>
<th>Homeless reception centre n=159</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, median (IQR)</td>
<td>45 (38, 55)</td>
<td>43 (34, 53)</td>
<td>46 (38, 54)</td>
<td>49 (40, 61)</td>
</tr>
<tr>
<td>Homelessness</td>
<td>432 (50)</td>
<td>2 (1)</td>
<td>272 (70)</td>
<td>159 (100)</td>
</tr>
<tr>
<td>Imprisoned, ever</td>
<td>432 (50)</td>
<td>95 (30)</td>
<td>261 (67)</td>
<td>76 (48)</td>
</tr>
<tr>
<td>Drug use, past year</td>
<td>492 (59)</td>
<td>119 (40)</td>
<td>239 (62)</td>
<td>134 (84)</td>
</tr>
<tr>
<td>most frequently used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>heroin</td>
<td>184 (37)</td>
<td>43 (36)</td>
<td>109 (46)</td>
<td>53 (40)</td>
</tr>
<tr>
<td>opium</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injecting drug use, ever</td>
<td>265 (31)</td>
<td>80 (25)</td>
<td>159 (41)</td>
<td>26 (17)</td>
</tr>
<tr>
<td>Heavy alcohol use, current</td>
<td>67 (70)</td>
<td>20 (74)</td>
<td>40 (68)</td>
<td>7 (70)</td>
</tr>
</tbody>
</table>
ENHANCE results: HCV testing

Ab positive among PWUD, 28%

among non-PWID, 14%

among PWID, 60%

- OST clinics: 318 Enrolled, 318 Ab tested, 65 Ab positive (20%)
- Drop-in centres: 388 Enrolled, 388 Ab tested, 122 Ab positive (31%)
- Homeless reception centre: 159 Enrolled, 159 Ab tested, 52 Ab positive (33%)
ENHANCE results: HCV treatment uptake

Treatment uptake, 84%

Treatment uptake among recent PWID (n=13) 100%
ENHANCE results: HCV treatment response by July 31

- 21/117 treated for 24 weeks. SVR 12: (20/21) 95%
- SVR 12 among recent PWID (n=9): 69%

<table>
<thead>
<tr>
<th>Setting</th>
<th>LTFU, n=5</th>
<th>Virological failure, n=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>OST clinics</td>
<td>SVR 12 40/46 87%</td>
<td>SVR 12 31/48 65%</td>
</tr>
<tr>
<td>Homeless reception centre</td>
<td>ETR 23/23 100%</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

- Integration of HCV care within drug treatment and harm reduction services increased HCV diagnosis and treatment uptake among marginalised PWUD.
- In the context of social marginalization and ongoing drug use, a community-based, supportive model of HCV care promoted high levels of adherence to treatment and virological cure.
- Supportive strategies are needed to improve post-treatment engagement with HCV care.
- Scaling up treatment models for different PWUD populations and optimising treatment outcomes are crucial for battling the HCV epidemic in Iran and elsewhere.
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