High prevalence and incidence of HIV and HCV among new injecting drug users with a large proportion of migrants—Is prevention failing?

Cinta Folch

on behalf of REDAN Study Group

Viral Hepatitis Prevention Board meeting
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People who inject drugs (PWID) are at high risk of acquiring HIV and hepatitis C virus.

Most HCV infections occur within the first 6 years of injection.

Young drug injectors and others newly initiated into injecting are at considerable risk of contracting the virus.

HCV prevalence can exceed 50% after 1 year of injecting.
Hepatitis C virus (HCV) prevalence in relation to time at risk (number of years since onset of drug injection), with fitted regression lines (72 studies and 293 categories of time at risk), HCV Synthesis Project, 1989–2006.

Background

- Lack of early warning signs means hepatitis C infections are often not identified until it is too late.
- Many current and former drug injectors are therefore unaware that they are infected with HCV.
- Better screening and monitoring systems are needed to ensure people infected with HCV are identified early and can receive treatment, where it is appropriate.
Figure 6. Proportion (%) of HCV positive PWID (antibody or RNA) undiagnosed.

median of 49%
(IQR 38–64%)
Background

• The increasing availability of harm reduction programs in Catalonia has contributed to reductions in the prevalence of HIV: 51% (1993) to 33.2% (2010)

• However, the prevalence of HCV remains high and exceeds 75%-80%
Changes in the prevalence of syringe sharing and number of sterile syringes distributed in Catalonia. IDU 1993-2012

- Accepted used syringes
- Passed on used syringes
- Syringes distributed in 1000's

Log trend line (Accepted used syringes)
Log trend line (Passed on syringes)
Log trend line (syringes distributed)
Objectives

• To assess potential differences in the prevalence of HIV and HCV infection as well as their associated risk factors between new and long-term injectors in Catalonia.

• To estimate incidence of HIV and HCV infection among the group of new injectors.
Methodology


- PWID, street recruitment
- PWID, Harm reduction centers
- MSM, gay venues
- MSM, gay venues SIALON I
- MSM, gay venues EMIS
- Female Sex Workers
- Youth, online

Years: 1993-2015
Methodology

• Cross-sectional survey
• Period: October 2010 to May 2011
• Recruitment in Harm Reduction Centres
• Inclusion criteria:
  • Injection in the last 6 months
  • Older than 18
  • Informed consent
Methodology

- Anonymous questionnaires
- Oral fluid samples (HIV/HCV prevalence)

“New” injectors were defined as those who had been injecting for 5 years or less.
Statistical analysis

• Poisson regression models were applied to assess factors associated with HIV/HCV infection.

• Incidence estimations:
  
  – **Assumptions:** (1) participants were HIV/HCV negative when they began injecting; (2) they became infected at the midpoint between beginning to inject and the time of oral fluid sample collection.

  – The estimated **HIV/HCV incidence rate** was the number of HIV and HCV seropositive new injectors divided by the sum of the time at risk for the HIV and HCV seropositive and the time at risk for the HIV seronegative* new injectors.

*The time at risk for HIV/HCV seronegative new injectors was the total time from first injection to the time of the interview.
Results:
Sample distribution by years of injection (n=761)

Mean years of injection: 14.8 (DE: 9.4)
## Results:

**Sociodemographic characteristics**

<table>
<thead>
<tr>
<th></th>
<th>New n=161 (%)</th>
<th>Long-term n=593 (%)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age (SD)</td>
<td><strong>31.6 (7.5)</strong></td>
<td>37.8 (7.1)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Immigrants</td>
<td><strong>59.0</strong></td>
<td>33.4</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Female</td>
<td>21.1</td>
<td>16.2</td>
<td>NS</td>
</tr>
<tr>
<td>Education level: primary or less</td>
<td>16.8</td>
<td><strong>25.2</strong></td>
<td>0.026</td>
</tr>
<tr>
<td>Homeless¹</td>
<td>22.4</td>
<td>16.9</td>
<td>NS</td>
</tr>
<tr>
<td>Living alone¹</td>
<td>31.1</td>
<td>29.8</td>
<td>NS</td>
</tr>
<tr>
<td>Receiving a pension*</td>
<td>15.5</td>
<td>34.9</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Main source of income: illegal</td>
<td>55.7</td>
<td>45.9</td>
<td>0.029</td>
</tr>
<tr>
<td>Ever in prison</td>
<td>49.7</td>
<td><strong>71.5</strong></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Currently in treatment</td>
<td>40.4</td>
<td>57.8</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

*retirement pension/incapacity benefit/social fund; (1) Last 6 months
Results:
Injecting risk behaviors

- Sharing other injecting equipment (last 6m)
- Front/backloading (last 6m)
- Passing on used syringes (last 6m)
- Accepted used syringes (last 6m)
- Ever sharing syringes

Long-term injectors
New injectors

p<0.05
Results:
HIV and HCV prevalence by duration of injection

- HIV prevalence: 33.2% (95%CI, 29.8–36.5)
- HCV prevalence: 72.0% (95%CI, 68.8–75.2)

On the overall:
- HIV prevalence: 33.2% (95%CI, 29.8–36.5)
- HCV prevalence: 72.0% (95%CI, 68.8–75.2)
Results:
Estimated HIV and HCV Incidence

Estimate of HIV incidence among “new injectors”

8.71/100 person years (PY) at risk

Estimate of HCV Incidence among “new injectors”

25.06/100 person years (PY) at risk
Results:
Unknown HIV/HCV infections by origin

Figure 2. Unknown HIV and HCV infections among new and long-term injectors by country of origin

<table>
<thead>
<tr>
<th>Country</th>
<th>New injectors</th>
<th>Long-term injectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spaniards</td>
<td>31.6</td>
<td>43.2</td>
</tr>
<tr>
<td>Migrants</td>
<td>14.3</td>
<td>15.3</td>
</tr>
</tbody>
</table>

CI: Confidence Interval
# Results:

## Risk factors for HIV/HCV infections

<table>
<thead>
<tr>
<th>NEW INJECTORS</th>
<th>HIV infection</th>
<th>PR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Homeless³</td>
<td>3.10</td>
<td>1.80-5.33</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Unprotected sex (steady partner)³</td>
<td>0.42</td>
<td>0.21-0.82</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>Sexually transmitted infections (ever)</td>
<td>1.79</td>
<td>1.10-2.90</td>
<td>0.018</td>
</tr>
<tr>
<td></td>
<td>HCV infection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Front-backloading³</td>
<td>1.33</td>
<td>1.01-1.76</td>
<td>0.043</td>
</tr>
<tr>
<td></td>
<td>Daily injection³</td>
<td>1.35</td>
<td>1.20-1.79</td>
<td>0.036</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LONG-TERM INJECTORS</th>
<th>HIV infection</th>
<th>PR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Injection of cocaine³</td>
<td>1.38</td>
<td>1.09-1.76</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>Having shared syringes (ever)</td>
<td>1.85</td>
<td>1.43-2.40</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Frontbackloading³</td>
<td>1.30</td>
<td>1.06-1.60</td>
<td>0.012</td>
</tr>
<tr>
<td></td>
<td>In prison (ever)</td>
<td>2.03</td>
<td>1.45-2.85</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Unprotected sex (steady partner)³</td>
<td>0.83</td>
<td>0.49-0.82</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>Unprotected sex (casual partner)³</td>
<td>0.62</td>
<td>0.40-0.94</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>HCV infection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Homeless³</td>
<td>0.84</td>
<td>0.72-0.97</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

(1) Last 6 months; *After adjusting for age, country of origin, gender and years of injection

PR, prevalence ratio; CI: Confidence Interval
Limitations

• Findings may not be generalizable to PWID in other settings.

• Information bias: underestimation of self-reported behaviours

• Estimated HIV/HCV incidence: the actual date of infection was unknown.

• The study collected HCV antibodies, so current infection cannot be determined

• Cross-sectional study: limits to infer causality.
Conclusions

• A large proportion of PWID in Catalonia are new injectors.
• A subgroup with a high level of both sexual and parenteral exposure to HIV/HCV infections.
• The estimated HCV incidence among this group confirms that most new infections occurred very soon after initiation of injection.
Conclusions

• Immigrants represent a high proportion of the new IDU population in Catalonia.

• Approximately half of the sample of new injectors who were HIV- and/or HCV-positive did not know they were infected.

• Undiagnosed infections were extremely high among the group of migrant new injectors.
Recommendations

- Early intervention initiatives to reduce the number of at-risk individuals and to provide education early in injecting careers would be needed.
- Such interventions should be specifically focused on migrant, adapting prevention messages to their social and cultural background.
- Identifying and addressing risk factors for homelessness among new injectors should be a priority.
- Improving access to HIV/HCV testing among new injectors, including outreach services to reach those who may be not in touch with traditional healthcare services.
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THANK YOU!

email: cfolch@iconcologia.net

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