Prevention and control of hepatitis C in PWID

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outline

- What is the size of the problem?
- What needs to be done?
- Where do we stand now?
- Conclusion
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Size of PWID population

- No data
- Improved application of HIV/AIDS BM method to estimate ever-injectors in 2010
  - Benchmark: HIV/AIDS register
  - Multiplier: sero-behavioral study 2004-5 among 1005 drug users in treatment and 117 incarcerated drug users (15–40 years) enrolled at 65 different drug treatment facilities and 15 different prisons geographically dispersed over Belgium
- No significant time trends were observed for the period 2000–2010.

Bullaerts et al. Archives of Public Health 2013

Subject to methodological
Size of PWID population

Estimation of ever injecting drug use and current injecting drug use in 2010

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<th>Prevalence/1000 aged 15-64 (95% CI)</th>
<th>Number</th>
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<tbody>
<tr>
<td>Ever injecting drug use</td>
<td>3.5 (2.5-4.0)</td>
<td>24664</td>
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<tr>
<td>Current injecting drug use</td>
<td>1.4 (1.02-1.97)</td>
<td>10110</td>
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Prevalence of HCV in PWID

- National sero-behavioral study conducted in 2005
- N= 1122 PWUD

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<tr>
<th>Population</th>
<th>Prevalence %</th>
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<tr>
<td>PWUD</td>
<td>30%</td>
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<tr>
<td>Ever IDU</td>
<td>50%</td>
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<tr>
<td>PWID reporting sharing</td>
<td>61%</td>
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<tr>
<td>PWID in prison</td>
<td>76%</td>
</tr>
<tr>
<td>PWID in prison reporting sharing</td>
<td>86%</td>
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Plasschaert et al. Study on HCV, HBV and HIV seroprevalence in a sample of drug users in contact with treatment centres or in prisons in Belgium, 2004-2005
Wit respect to the serology again some important differences were found. In the total population of drug users, the prevalence of HCV was respectively 46 % in Limburg and 71 % in Antwerp. When only IDU are considered these differences become even more pronounced.

As I already said in the second part of the analysis we investigated how characteristics and behaviour related to positive HCV serology. I will only discuss the results of the multivariate analysis which we did for the whole population of drug users and for IDU separately.

Some of the identified independent predictors for positive HCV serology are similar to those frequently reported in previous studies more specifically IDU, sharing and duration of IDU. Within the group of IDU also poly-drug use came out as an independent predictor for HCV infection. Also frequently reported as independent predictor is the presence of anti-HbC, reflecting diseases are subject to similar dynamics.

In studies concerning the prevalence of HCV in IDU often a number of sexual risk factors are crudely associated with HCV prevalence, but these associations tended to disappear in multivariate analysis. In this study having worked as a commercial sex-worker was retained as a independent predictor for HCV seroconversion. However this relation disappeared when only injectors were considered. It seems that the importance of sexual transmission in the population of injectors is limited since HCV is far more effectively transmitted by parenteral route. On the other hand in non-injectors sexual transmission could be a major transmission route responsible for the higher prevalence rates of HCV when compared to the general population.

A significant finding in this study included the relation between socio-economic factors and positive HCV serology. In univariate analysis unemployment, low level of education loose social network and marginalization were found to be related with hepatitis C infection. In multivariate analysis only marginalization when considering all DU and unemployment when considering only IDU were retained as independent predictors.

Finally, having a Northern African or a Middle Eastern nationality revealed to be strong predictors for HCV infection, while this relation was not apparent in univariate analysis. We have thought of 2 possible explanations for this finding. First of all it could be that IDU is more taboo within these ethnic groups and that are less likely to admit these practises. Another hypothesis coniders higher background prevalences within people originating from Northern Africa or the Middle east resulting in higher prevalence rates before starting drug use.
Mitigating the burden of hepatitis C virus among people who inject drugs in Belgium

Catharina Mallet, Stefan Bourgeois, Sarah Black, Christian Bitko, Jean-Pierre Mullay, Horia Razavi, Crest Robayo

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Fig. 1. Size of the OST, NSP and PWID populations, 2015

outline

- What is the size of the problem?
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The WHO goal of elimination...

- World Health Organisation's (WHO) Global Health Sector Strategy (GHSS) on Viral Hepatitis, 2016-2021*
  - Working towards eliminating hepatitis C as a major public health threat by 2030
    - Drive down HCV-related morbidity & mortality
    - Reduce the number of new HCV infections

PWID transmission model

- Objectives:
  - Develop a simple model to estimate the number of new HCV infections using available data on key risk groups.
  - Examine the impact of intervention strategies (prevention & treatment) on new infections and total infections.
- Focus on PWID who are currently injecting as this is the population at risk of transmitting HCV or becoming infected
PWID in OST and/or NSP in 2015

- Total PWID: 9,080
  - OST: 17,359
  - NSP: 1,480
- PWID in OST: 3,230
- PWID in OST & NSP: 810
- HCV+ PWID: ~5,000

All PWID:
- % PWID in harm-reduction: 45%
- % of OST who are PWID: 23%
- HCV Infected PWID:
  - HLV infected PWID: (~3,000), 32% of total

3/14/16
PWID were modeled to move across segments in a limited number of directions. Behavior changes resulting in injecting or in a discontinuation of injecting could occur, or PWID could move into or out of NSP and OST. Additionally, PWID who share needles and were previously not infected with HCV could become infected. And finally, PWID who were HCV infected (regardless of sharing behaviors) could be cured of their HCV through treatment with antivirals. PWID exited the model due to mortality (annual rate of 2% assumed for Belgium based on analog data from Luxembourg and expert consensus) or cessation of injection drug use.
The model was run
Treat at low level, will see small increases in secondary infections as PWID are re-exposed to HCV in their injecting networks.
In the absence of behavioral changes, the number of secondary infections will increase with a low level of treatment of 4%

- Treatment of 1% of the PWID population, or approximately 120 PWID annually, would reduce total infections by 25%.
- New infections would increase 1.0%, with a maximum of 70 secondary infections per year, by 2030.

If the viral pool is depleted (HCV prevalence near zero), the number of new infections will decline (10% treated)

- Treatment of 10% of the PWID population, or approximately 295 PWID annually, would reduce total infections by 85%.
- New infections would increase 45% by 2022, with a maximum of 119 secondary infections per year.
- By 2030, new infections would be the same as in a strategy with no treatment.

Aggressive initial treatment of 370 PWID annually resulting in rapid depletion of the viral pool would actually move forward the tipping point for secondary infections.
outline

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The case of Free Clinic

• > 15 years HCV management
• Development of a hepatitis C care pathway involving a multidisciplinary team
  – Hepatologist
  – MSOC
  – NSEP
  – Hepatitis C nurse
  – Hepatitis C buddies since 2015
The case Free Clinic

Hepatitis C continuum of care

Diagnosis  Linkage to care  Treatment  Prevention of reinfection
Hepatitis C 2000-2015

% population

* p < 0.05
Treatment uptake in the DAA era

- Shift towards more chaotic/problematic PWID
  - Unstable living conditions
  - Poor physical and/or mental health
  - Alcohol abuse
  - No health insurance
  - ...

- Annual treatment uptake currently >10%
Challenges

- In many drug treatment centers HCV management limited to screening/diagnosis
- TDI-IMA databank
  PWID entering treatment between 2011-2014 (N=3352)

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<th>Testing/diagnosis 2008-15</th>
<th>PCR</th>
<th>Genotyping</th>
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<td>85%</td>
<td>34%</td>
<td>50%</td>
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Challenges

- Poor referral rates and treatment uptake
  - 40-50 patients treated annually
  - annual treatment uptake: < 0.05%
  - Cumulative treatment uptake: < 0.2%
Challenges

- Quid PWID not in treatment?

 ➤ Need for expansion of harm reduction measures
Conclusion

- Achievement of WHO goals among PWID in Belgium will require sufficient commitment of all stakeholders and mobilization of resources