Implementatie van aanbevelingen ivm beleid van HCV in Europese gevangenissen

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Amsterdam, The Netherlands
Disclosure belangen

Geen in betrekking tot HCV bij prisoners
Recommendations

- Prisoners should be provided with **substance abuse treatment**.
  - *Opiate agonist therapy* (methadone, buprenorphine or diacetylmorhpine) should be administered to opiate-dependent subjects with hepatitis B and C infections in order to reduce the risks of transmission and reinfection.
  - There is a need to **provide sterile injecting equipment** and other harm reduction measures to those who inject while in prison. HCV-infected persons should be counselled on how to avoid transmitting HCV to others.

- **Health education activities** (including peer education) should be carried out, in particular for inmates with no or minimal prior health education.

- Incarcerated persons with risk factors for HCV infection should be screened for viral hepatitis infections.
  - There is a need to develop approaches to increase the uptake of testing by
    - raising awareness amongst prisoners about HCV infection,
    - optimising testing pathways that support appropriate testing at appropriate times during a prisoner’s stay in prison,
    - ensuring adequate pre- and posttest discussion, and
    - developing care pathways for HCV that enable seamless continuity of care.

  - Proven nurseled intervention models could be transferred into the prison setting in order to guarantee guidance.

Arain et al, BMC Infect Dis 2014.
Recommendations

• Depression and psychosis, which are common in prison settings, occur with interferon treatment. It is essential to provide **psychiatric evaluation** of patients prior to and during treatment, in order to avoid or control the possible appearance of mental side effects.

• **Close collaboration** between prison and public (or community) health services is needed (e.g. in order to facilitate community follow-up of treatment). Ensure continued hepatitis C treatment and care when there is movement between custodial settings, and when inmates receiving treatment re-enter the community.

• **A multidisciplinary approach** through the collaboration of addiction specialists, hepatologists, infectious disease experts, clinical psychologists, nurses and prison physicians should be adopted.
  
  – If possible, a **directly observed treatment (DOT)** strategy, which ensures supervision of oral therapy administration and the injection of subcutaneous therapy by health care professionals, should be used, as occurs in anti-HIV and tuberculosis treatment in prison inmates.

Arain et al, BMC Infect Dis 2014.
Drug use and HCV in prisons

- Globally, >10 million held in prisons at any given time

- High turnover rate in the prison population
  - > 30 million people spend time in prisons each year

- Drug use is an important issue in prison populations
  - In the EU, ± 1/2 of all members of the prison population have used illicit drugs at some time in their lives
  - People who inject drugs (PWID) have high rates of imprisonment
Drug use and HCV in prisons

• Globally, >10 million held in prisons at any given time
  – 15·1% have HCV (1 546 500)
  – 4·8% have chronic HBV (491 500)
  – 3·8% have HIV (389 000 living with HIV)
  – 2·8% have active tuberculosis (286 000).

• High turnover rate in the prison population
  – > 30 million people spend time in prisons each year

Drug use and HCV in prisons

- The association between imprisonment, injection drug use, HCV infection is very close.
  - A meta-analysis of 30 studies conducted in different countries revealed a clear association between the prevalence of HCV infection among prisoners and a history of injection drug use (Vescio at al, 2008).

- Globally, the **prevalence** of HCV infection among prisoners is \( \approx 30\% \).

- HCV mean **incidence** among prisoners: **16.4** (95% CI 0.8–32.1) cases per 100 person-years (Larney et al, 2011).
Prevalence of HCV infection among prisoners is many times higher in most custodial settings than in the general population

- HCV prevalence in the general population
  - Western Europe: 0.5%
  - Southern Europe: 2.5%
  - Eastern Europe: 6%

- HCV prevalence in inmates: 30% - 40% (range: 2%–58%)
  - Not only in Europe
  - In Australian prisons
    » 1/3 of entering inmates HCV Ab+
    » 56% HCV Ab+ among entering inmates who injected drugs
    » 1/3 inmates who were HCV Ab+ were unaware of their infection
HCV (as HBV and HIV) is transmitted in prisons through the
- sharing of contaminated injecting equipment
- Unsafe sexual contact
- Unsafe skin penetration
- Improper sterilisation or reuse of medical or dental instruments

- Imprisonment is an independent risk factor for HCV infection for PWID in the community

- One of the most important risk factors for HCV infection is intravenous drug use while in prison
Figure 1. Phylogenetic trees composed of 129 sequences from 79 participants infected with hepatitis C virus genotypes (gt) 1a, 1b, or 3a, New South Wales, Australia, 2005–2012. Names on the tips of the tree represent participant identification numbers and are followed by the sample collection date. Each phylogenetic tree was generated separately from a maximum-likelihood model by using an HKY substitution model with gamma distribution. Bootstrap values are >80% for all branches of identified transmission clusters. Bootstrap values between branches representing sequences from the same host were lower than those between host branches. Identified transmission clusters are labeled with symbols. Scale bars indicate nucleotide substitutions per site.
Figure 4. Reconstruction of the likely hepatitis C virus transmission dynamics among prisoners in New South Wales, Australia, 2005–2012. Geographic representation of the transmission dynamics among 3 participants identified in cluster A over a 12-month period and co-location dynamics of these participants during October 2007–October 2008 between the prisons in New South Wales are shown. Participants moved between 4 prisons and between prisons and the outside community (arbitrarily located in the center of the map of New South Wales). A) Time 0 (earliest record of location of the cluster members before co-location events occurred between any of the pairs within the cluster); B) 2 months after time 0; C) 4 months after time 0; D) 8 months after time 0; E) 10 months after time 0; F) 12 months after time 0. Prisons are de-identified, indicated with a 2-letter code and random locations. Arrows represent the movement of participants between 2 prisons. Filled ovals indicate viremic participants; empty ovals indicate nonviremic patients; gray indicates previous location (past movements) of each participant.
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  - There is a need to **provide sterile injecting equipment** and other harm reduction measures to those who inject while in prison. HCV-infected persons should be counselled on how to avoid transmitting HCV to others.
- **Health education activities** (including peer education) should be carried out, in particular for inmates with no or minimal prior health education.
- Incarcerated persons with risk factors for HCV infection should be screened for viral hepatitis infections.
  - There is a need to develop approaches to increase the uptake of testing by raising awareness amongst prisoners about HCV infection, optimising testing pathways that support appropriate testing at appropriate times during a prisoner’s stay in prison, ensuring adequate pre- and posttest discussion, and developing care pathways for HCV that enable seamless continuity of care. Proven nurse-led intervention models could be transferred into the prison setting in order to guarantee guidance.

Arain et al, BMC Infect Dis 2014
Figure 6: Incarceration in EECA countries and availability of opioid agonist therapies and needle and syringe programmes

EECA = Eastern Europe and Central Asia. OAT = opioid agonist therapy. NSP = needle and syringe programme.

Altice et al, Lancet 2016
Recent situation in Europe


- A survey conducted between 2012 and 2013 among the 29 European countries
  - 27 countries responded
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Health care for prison inmates

• Effective and efficient prevention models that are applied in the community are **very rarely implemented** in custodial settings.

• **HCV prevention** limited to verbal advice, leaflets and other measures directed toward cognitive behavioural change.
<table>
<thead>
<tr>
<th>Table 1</th>
<th>Scoring method for computing adherence to international recommendations in prisons (PRIDE Europe)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>International Recommendations</strong></td>
<td><strong>Score</strong></td>
</tr>
</tbody>
</table>
| Information Education Communication | - Availability of information/education at entry or during prison stay 0.5  
- Peer education programs available 0.5  
- AND availability of clean injecting equipment + condoms (0 if not) 1 |
| Testing - Counseling | - Testing for HIV, HBV, HCV systematically proposed at entry (RC) and during prison stay (all prisons)  
- AND availability of clean injecting equipment + condoms (0 if not) 1 |
| Condoms - Lubricants | - Condoms available in various locations 1  
- Water-based lubricants available 0.5  
- Male condoms and lubricants accessible and female condoms accessible for prisons with female prisoners 0.5 |
| Opioid Substitution Therapy | - Induction at entry (RC) + induction during prison stay + continuity of OST at entry (all prisons) 1  
- No ceiling dosage 0.5  
- No buprenorphine crushing or dilution 0.5 |
| Bleach | - At least 2 locations/access for bleach inside prison (penitentiary distribution, purchasable inside prison, available in medical unit)  
- AND Intelligible information for HR purposes accessible for all prisoners 1  
- Systematic HBV vaccination proposal for all seronegative prisoners 1 |
| HBV Vaccination | - All prisoners informed of PEP availability inside prison 1  
- NIP are available 1 |
| Needle Exchange Programs | - ARV are accessible 0.5  
- Prescriptions follow national guidelines 0.5 |
| ARV treatment | - Existing initiatives aiming at reducing the sharing and reuse of equipment used for tattooing, piercing and other forms of skin penetration 1 |
| Total | 12 |

*Condition defined in the 2007 WHO recommendations for IEC and Testing/counseling: “prisoners must be provided with the prevention measures that enable them to act upon the information they receive, such as condoms and clean injecting equipment”.  
*These interventions were not included in the international scoring calculation in the 2009 French ANRS-PRIDE survey  
Bold numbers are the total value for each subscore.
Michel et al, BMC Public Health 2015
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Arain et al, BMC Infect Dis 2014
Recent situation in Europe

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Prisons (n = 43), No. (%)</th>
<th>Jails (n = 23), No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do the facilities under your jurisdiction provide any HCV testing to persons in custody?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All facilities</td>
<td>40 (93.0)</td>
<td>18 (78.3)</td>
</tr>
<tr>
<td>Some facilities</td>
<td>2 (4.7)</td>
<td>2 (8.7)</td>
</tr>
<tr>
<td>No</td>
<td>0 (0.0)</td>
<td>3 (13.0)</td>
</tr>
<tr>
<td>Don’t know</td>
<td>1 (2.3)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>What approaches are used to determine when HCV testing is provided to persons in custody? (approaches not mutually exclusive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine testing</td>
<td>11 (25.6)</td>
<td>1 (4.3)</td>
</tr>
<tr>
<td>Inmate request</td>
<td>32 (74.4)</td>
<td>13 (56.5)</td>
</tr>
<tr>
<td>Physician order</td>
<td>41 (95.3)</td>
<td>19 (82.6)</td>
</tr>
<tr>
<td>Court or facility order</td>
<td>25 (58.1)</td>
<td>7 (30.4)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (4.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Not applicable</td>
<td>1 (2.3)</td>
<td>3 (13.0)</td>
</tr>
<tr>
<td>Is the routine HCV program in effect in all facilities or some facilities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All facilities</td>
<td>9 (20.9)</td>
<td>1 (4.3)</td>
</tr>
<tr>
<td>Some facilities</td>
<td>2 (4.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Not applicable</td>
<td>32 (74.4)</td>
<td>22 (95.7)</td>
</tr>
<tr>
<td>On what basis is the routine HCV testing offered in facilities under your jurisdiction?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opt-in</td>
<td>3 (7.0)</td>
<td>1 (4.3)</td>
</tr>
<tr>
<td>Opt-out</td>
<td>3 (7.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Mandatory</td>
<td>5 (11.6)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Not applicable</td>
<td>32 (74.4)</td>
<td>22 (95.7)</td>
</tr>
<tr>
<td>When is routine HCV testing provided to inmates? (approaches not mutually exclusive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upon entrance</td>
<td>11 (25.6)</td>
<td>1 (4.3)</td>
</tr>
<tr>
<td>Upon exit</td>
<td>2 (4.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Not applicable</td>
<td>32 (74.4)</td>
<td>22 (95.7)</td>
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</table>
HCV screening in prisons

- **Screening strategies** are different in countries
  - No
  - Standardized, systematic approach
  - Voluntary

- Uptake for screening is low
HCV screening in prisons

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  - No
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- More efforts needed to increase testing
  - Introduction of **dried blood spot testing** compared to venipuncture for HCV case-finding was likely to be cost-effective in prisoners in the United Kingdom and the United States if a minimum level of continuity of care in treatment or referral between prison and the community could be ensured
• DBST as a stand-alone intervention was insufficient to increase HCV diagnosis within the UK prison setting.

• Factors such as
  – staff training and
  – allocation of staff time for regular clinics

• are key to improving service delivery.

Recommendations

• Depression and psychosis, which are common in prison settings, occur with interferon treatment. It is essential to provide psychiatric evaluation of patients prior to and during treatment, in order to avoid or control the possible appearance of mental side effects.

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Arain et al, BMC Infect Dis 2014
Outcome of HCV treatment for prisoners

- HCV treatment (peg-interferon and ribavirin) outcomes for prisoners are comparable to those observed in non-incarcerated patients.

- Acceptable results: sustained viral response (SVR) rates ranging between 36% and 66%.

- Correctional institutions are an important setting for health interventions:
  - Possible to monitor patients more closely
  - Opportunity to engage with a difficult-to-reach population
  - Lifestyle stability
Universal opt-out screening of inmates for HCV is highly cost-effective for at least 10 years and would reduce ongoing HCV transmission.

The majority of the benefits of interventions in prisons would accrue in the community, as a larger proportion of releasees to the community would have been cured of the disease

Implementing risk-based and opt-out screening could
diagnose 41 900–122 700 new HCV cases in the next 30 years in prisons.
prevent 5500–12 700 new HCV infections caused by releasees, where about 90% of averted infections would have occurred outside of prisons.
prevent 4200–11 700 liver-related deaths.

Prisons would require an additional 12.4% of their current healthcare budget to implement such interventions.

Figure 1  Summary of the cost per each outcome type by population. 3 data-points removed as extreme outliers >£600 000 per outcome gained (one study from pregnant population and another from the other population) or reported total cost. *Studies could be captured more than once in figure, if more than one comparator was reported.

Coward S et al, BMJ Open 2016
• Increased HCV testing in UK prisons (such as through opt-out testing) is **borderline cost-effective** compared to status quo voluntary risk-based testing under a £20,000 willingness to pay with current treatments but

• **likely to be cost-effective** if short-course IFN-free DAAs are used and could be

• **highly cost-effective** if PWID treatment rates were increased.
### TABLE 1. HCVAb-Positive Inmates’ Characteristics and Reasons for Treatment Deferral in F3/Patients With Cirrhosis

<table>
<thead>
<tr>
<th>Milano-Opera/Milano-San Vittore/Milano-Bollate Correctional Houses</th>
<th>N Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inmates, N</td>
<td>3354</td>
</tr>
<tr>
<td>HCVAb+, N (%)</td>
<td>314 (10)</td>
</tr>
<tr>
<td>Age, years, median (range)</td>
<td>45 (19-71)</td>
</tr>
<tr>
<td>History of drug addiction, N (%)*</td>
<td>213 (70)</td>
</tr>
<tr>
<td>CHC patients, N (%)</td>
<td>191 (60)</td>
</tr>
<tr>
<td>HCV genotype, N (%)*</td>
<td></td>
</tr>
<tr>
<td>1a + 1b</td>
<td>93 (48)</td>
</tr>
<tr>
<td>2</td>
<td>7 (4)</td>
</tr>
<tr>
<td>3</td>
<td>50 (26)</td>
</tr>
<tr>
<td>4</td>
<td>19 (10)</td>
</tr>
<tr>
<td>Ongoing or not available, N (%)</td>
<td>23 (12)</td>
</tr>
<tr>
<td>F3/F4 fibrosis patients, N (%)</td>
<td>50 (30)</td>
</tr>
<tr>
<td>F3/F4 fibrosis treated patients, N (%)</td>
<td>29 (60)*</td>
</tr>
<tr>
<td>F4/F4 fibrosis not treated patients, N (%)</td>
<td>21 (40)</td>
</tr>
</tbody>
</table>

**Reasons for treatment deferral**

- Dropout before starting treatment (transfer to other prison or release in community)
  - 7 (33)
- Lack of compliance
  - 4 (20)
- End of sentence <3 months
  - 3 (14)
- Under evaluation for treatment
  - 7 (33)
• HIV: Upon release only approximately two-third of the prisoners were followed up by infectious disease specialists.
  – The loss to follow up of one-third of patients highly stresses the need to integrate HIV prevention and treatment services both outside and within correctional institutions.

• The integration of care should include
  – access to medical discharge planning
  – referral to community based HIV care providers
    • both being of utmost importance to guarantee continuity of care when inmates are released back into the community [58–64].

Monarca et al, BMC Infectious Diseases 2015.
Programmes to improve HCV care in prisons

- **Project ECHO**

- To improve access to quality health care for New Mexicans with hepatitis C

- Use of *teleconferencing, videoconferencing, and e-mail communication* to connect specialists with primary care providers in prisons and rural areas

- Through Project ECHO, 226 patients received interferon and ribavirin treatment for hepatitis C

- Treatment response rates similar to university clinic site
  - Lack of specialist clinicians in settings such as prisons can be overcome by telemedicine

Programmes to improve HCV care in prisons

- The **Hepatitis C Continuity Program** developed in **New York**
  - To provide continuity of HCV treatment to prisoners
  - A referral process was developed, staff were mobilized, and health-care facilities in the community were recruited to accept referrals
  - This programme included 70 prisons and 21 health care facilities

- Outcome:
  - It was possible for HCV treatment to be initiated during incarceration without regard to the expected incarceration time remaining
  - Inmates who initiated HCV treatment prior to release received timely referral to appropriate clinics for continuation of treatment or for integrated HCV-HIV/AIDS care

Programmes to improve HCV care in prisons

- **Nurse-led model** of care in NSW, Australia
  - To increase the number of people in custody with chronic hepatitis C being assessed and receiving anti-viral therapy
  - Clinical nurse consultants as the key providers and decentralised care via telemedicine
  - To provide evidence for safety, effectiveness, and increased capacity of the nurse-led model of care
  - Outcome:
    - Model of hepatitis C care, enhanced treatment uptake and reduced the burden of the disease
    - In the 2-year study, 108 patients were treated
    - Antiviral treatment delivery was safe and effective
Conclusions

• HCV prevalence is very high in prisons
• Intravenous drug use is one of the most important risk factors
• Harm reduction strategies to prevent transmission of HCV in prisons lags far behind compared to outside of prisons
• Screening for HCV infection and treatment uptake are low
• HCV screening and treatment for HCV in prison should be routinely available and offered under standard guidelines and protocols equivalent to those applied in the community
Thank you for your attention