Chronic Viral hepatitis and liver disease in Luxembourg

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1) Fibrosis at first diagnosis

2) Estimates of mortality rate

3) Modelisation of HCV Burden
   HCV Prevalence, Viremic rate
   Model Outputs
   • Base scenario
   • Increase SVR (JVH)
   • Increase SVR and treatment (JVH)
   • WHO Recommendations

PWID Transmission
HCV disease burden

- Liver related deaths: 14 per year
- HCC: 16 per year
- Decompensated cirrhosis: 26 per year

PWIDS HCV-UD since 2015
Fibroscan: 338 results
- 68% F0-1
- 15% F2
- 10% F3
- 7% F4

Database of CHL since 2013
Fibroscan: 426 results
- 76% F0-1
- 16% F2
- 3% F3
- 5% F4
Mortality rate estimated using LNS data only:
- 526 deaths for 26849 person years of observation
- ~2% per year among HCV positive cases
- 40% higher death rate among men than women (p<0.001)
- Mortality hazard increases substantially with age

Mortality rate similar to IVDU populations in Europe
- 2.3% (Mathers et al., WHO Bulletin, 2012 )

Mortality rate at the CHL since 1996 (2439 patients, 68% male, 32 % female, 6% co-infected with HIV)
- 14% in men
- 12% in women

Mortality in 2015 linked to liver cancer and cirrhosis: 53 / 3939 deaths (1.3%)
HCV prevalence was first estimated through an analysis of screening data, merged registries and expert communication in 2013.

- A viremic rate of 92.9% (CHL registry) was used when adjusting registry cases, and a viremic rate of 77% was further used for other model parameters (Deltenre 2010).

<table>
<thead>
<tr>
<th>2013</th>
<th>Viremic Prevalence</th>
<th>Viremic Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDL</td>
<td>1.0% (0.9%-1.3%)</td>
<td>5,470 (4,620 – 6,320)</td>
</tr>
</tbody>
</table>
Screening 31,168 persons at an average rate of 1.5 tests per person identified ~130 new anti-HCV (100 viremic, 77% viremic rate) cases in GDL in 2013

Prevalence and diagnosis rates were calculated continuously, using the available data

Source: Social Security Inspection.
Previously diagnosed patients in GDL

- CHL: 2,556 pts
- LNS: 2,205 pts
- LR: 1,038 pts
- Unique: 3,898 pts
- Alive, Viremic: 2,922 pts

Source: CDA model was used to account for annual mortality and cure; CHL database suggested a 92.85% historical viremic rate among diagnosed cases.
Estimated HCV prevalence

Estimated prevalence in this population = 1.03% (0.87%-1.19%)

http://polarisobservatory.com/polaris/hepC.htm
100 patients per year continue to be treated with Peg IFN/RBV and/or triple therapy

Treatment is restricted to \( \geq F2 \) patients between the ages of 15 and 69 years

Diagnosis remains constant

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
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<th>2015</th>
<th>2016</th>
<th>2018</th>
<th>2025</th>
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<tbody>
<tr>
<td>Treated</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Newly Diagnosed</td>
<td>100</td>
<td>100</td>
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<tr>
<td>Fibrosis Stage</td>
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<tr>
<td>Treated Age</td>
<td>15-69</td>
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<tr>
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Although total HCV infections will decrease 5% by 2030, HCC, LRD, decomp cirrhosis will increase 55%-90% as the population ages.
Beginning in 2015, the number of treated patients was modeled to double and then remain constant at 240 patients treated annually.

No change in diagnosis was necessary under this scenario.

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<tbody>
<tr>
<td><strong>Treated</strong></td>
<td>100</td>
<td>120</td>
<td>240</td>
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<td>≥F2</td>
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Total viremic infections were reduced by 45%, while HCC, liver related deaths and decompensated cirrhosis were reduced by 50% by 2030.
WHO recommendations include a 90% reduction in new infections, 90% diagnosis rate by 2030 and a 65% reduction in mortality

In order to achieve this goal, treated patients ramp up beginning in 2016

Annual number of newly diagnosed patients increases gradually beginning in 2016 to accommodate treatment

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<tr>
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<td>230</td>
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</tr>
<tr>
<td>New Infections</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>130</td>
<td>100</td>
<td>60</td>
</tr>
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</table>
In addition to a >65% reduction in LRD, and >90% reduction in new infections, total viremic infections were reduced 88% by 2030.
PWID account for 16% of the HCV infected population in GDL

All PWID
- % PWID in harm-reduction: 37%
- % of OST who are PWID: 27%

HCV Infected PWID
- HCV-RNA Infected PWID (870): 46% of total

HCV+ in Total Population
- 5,480 individuals are HCV+ in GDL, 16% are HCV+ PWID
Modeling HCV+ PWID population in GDL

- The majority of HCV positive PWID are not involved in a harm-reduction program (top graph)
- The highest annual number of new infections occurs in the general population (bottom graph)
- The number of new infections among harm-reduction participants is low (bottom graph)
How to reduce HCV transmission in PWID?

- High level of treatment to reduce viral load from the community and further re-infection rates (public health perspective)

- Screening and treatment strategy combined with harm reduction programs (NSP to improve, change of drug consumption)

- Retained in care, high risk behaviour due to changes in drug consumption

- Cost-effectiveness and prioritization of measures for the individual level (Dr Vic Arendt)
Acknowledgments

Dr Vic Arendt, Service National des Maladies infectieuses, Centre Hospitalier de Luxembourg
Dr Joel Mossong, Laboratoire National de Santé
Dr Alain Origer, National drug coordinator, Ministry of Health
HIV Berodung: Natacha da Silva, Laurence Mortier, Sandy Kubaj
Abrigado: Patrick Klein, Jugend- an drogenhéllef: Günter Biwersi
CHL: Dr Jean-Hugues François, Henry Goedertz
LIH: Laurence Guillorit, Aurélie Fischer, Christine Lambert, Cécile Masquelier, Valérie Etienne, Jean-Yves Servais, Gilles Iserentant
Fondation Recherche sur le SIDA, Dr Robert Hemmer

HIV Berodung
jugend- an drogenhéllef
Fondation