HCV elimination: lessons from Scotland

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Disclosures

Honoraria from Gilead for speaking at a conference
High and increasing global burden of disease associated with viral hepatitis

<table>
<thead>
<tr>
<th></th>
<th>Infected</th>
<th>Deaths</th>
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<tbody>
<tr>
<td>HBV</td>
<td>257 million</td>
<td>0.9 million</td>
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<tr>
<td>HCV</td>
<td>71 million</td>
<td>0.4 million</td>
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Figure 6. Targets for reducing new cases of and deaths from chronic viral hepatitis B and C infection
Global estimates of numbers HCV infected, diagnosed and treated in 2015

Global HCV Targets on diagnosis and treatment

<table>
<thead>
<tr>
<th>Target</th>
<th>2015 Baseline</th>
<th>2030 Target</th>
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<tr>
<td>% HCV-infected diagnosed</td>
<td>20%</td>
<td>90%</td>
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<tr>
<td>% HCV-diagnosed started on treatment</td>
<td>7%</td>
<td>80%</td>
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<td><strong>General population</strong></td>
<td>5.3 million</td>
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<tr>
<td><strong>Chronic HCV population</strong></td>
<td>34,500 (0.7% of popln)</td>
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<td>% chronic HCV related to injecting drug use</td>
<td>&gt;85%</td>
<td></td>
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<td>% chronic HCV diagnosed</td>
<td>55-60%</td>
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<td><strong>Genotype distribution</strong></td>
<td>49% G1, 46% G3, and 5% other</td>
<td></td>
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<tr>
<td><strong>Treatment uptake (pre-DAAs)</strong></td>
<td>1,000 per year (3% of chronic popln)</td>
<td></td>
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<tr>
<td><strong>Government Policy</strong></td>
<td>Hepatitis C Action Plan (£100+ million 2008-15)</td>
<td></td>
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<tr>
<td><strong>First licensing of IFN-free DAA</strong></td>
<td>June 2014</td>
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Modelled annual number of new presentations with HCV-related severe liver disease* in Scotland during 2015-30, according to different scale-up of interferon-free therapy to those with advanced liver fibrosis (Innes et al. Gut 2015)

* Decompensated cirrhosis and/or hepatocellular carcinoma
Scotland’s Strategy

- **Government commitment** to eliminating HCV as a serious public health concern, consistent with WHO strategy
- **Short-term goal**: reduce serious HCV-related morbidity and mortality
- **Government targets**:
  1. 75% reduction in HCV-related decompensated cirrhosis between 2015 and 2020
  2. Increase the number of people initiated onto HCV therapy:
     - 1500 in 2015/16 and 16/17;
     - 1800 in 2017/18, 2000 in 2018/19,
     - 2500 in 2019/20, 3000 in 2020/21 and subsequent years

- **Priority**, in terms of timing, given to patients with advanced liver fibrosis (F2-F4) and those with HIV-coinfection* (prioritisation lifted in April 2018)

* Scottish Government HCV Treatment & Therapies Group Report, Revised December 2015.
Monitoring impact of DAAs in Scotland

**Source of data**
- Specialist HCV Treatment Centres (N=17)
- Specialist HCV Testing Laboratories (N=4)
- Hospitals & Deaths

**National Surveillance**
- HCV Clinical database (involving all persons attending HCV specialist centres)
- HCV Diagnosis database (involving all persons diagnosed with HCV)

**Outcomes**
- Numbers initiated on HCV therapy, and SVR rates
- Numbers of persons diagnosed with HCV and admitted to hospital / died with severe liver disease

**Record-linkage of databases**
- Record-linkage of HCV and hospital/deaths databases*

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* Record-linkage of databases approved by Public Benefit and Privacy Panel (PBPP) for Health and Social Care, NHS Scotland.
During last 3 financial years (since DAAs introduced), approx. **4,800 people initiated on therapy**:
- 54% genotype 1, 38% genotype 3
- 56% F2+ (including 27% compensated cirrhosis)
- 83% involved DAAs
The crude incidence of HCC for IFN-free patients is twice as high as for IFN containing patients... But IFN-free patients are more likely to be thrombocytopenic, treatment experienced, decompensated, & older. Once these differences are accounted for, the association between IFN-free therapy and HCC disappears.
Excess risk of a liver-related hospital episode post-therapy in HCV patients, compared to general population

- **SVR** associated with a 5-fold reduction in risk of liver-related morbidity
- Excess risk remains in SVR patients despite clearance of infection. Cannot ignore the importance of addressing lifestyle factors.

**Excess Risk**

- NON-SVR (N=638) 53.2
- SVR (N=560) 10.5
- Non-cirrhotic SVR (N=503) 5.9

(Innes et al. Hepatology 2011)
Estimated number with chronic HCV in Scotland: 2006-16

HCV Landscape in Scotland: estimates for 2016

Living with chronic HCV (in 2016) 34500
Diagnosed (ever) 19000
Attended clinic (in 2016/17) 5800
Initiated on therapy (in 2016/17) 1739
Challenges: control transmission

Indicators of recently acquired HCV infection among people who inject drugs (PWID) in Scotland, 2008-16 (Source: NESI)
HCV Treatment as Prevention

Modelled incidence of new chronic HCV infection with different scale-up of HCV treatment to PWID in Scotland*

- **Status Quo:** 8 per 1,000 PWID treated per year
- **2.5-fold scale-up:** 20 per 1,000 PWID treated per year
- **5-fold scale-up:** 40 per 1,000 PWID treated per year

- IFN-free DAA therapies could potentially increase uptake among PWID.
- Modest levels of treatment could potentially reduce HCV transmission among PWID.

* A country with already relatively high coverage of harm reduction services (e.g. OST & NSP).
Awareness of highly effective HCV therapy among PWID in Scotland (NESI, 2015-16)

What are the chances of hepatitis C being cured with current treatment?

- Very High (81-100%): 17%
- High (61-80%): 12%
- Reasonable (41-60%): 4%
- Low (≤40%)/Don't Know: 66%

Proportion of 2,600 PWID surveyed in Scotland during 2015-16
Challenges: diagnosis and re-diagnosis

Hepatitis C Landscape in Scotland, 2016

Chronically Infected

34,500

Diagnosed (ever)

19,000 (55%)

In Specialist Care (in 2016)

5,800 (30%)

Undiagnosed

15,500 (45%)

Not In Specialist Care

13,200 (70%)
Annual number of persons newly diagnosed with anti-HCV in Scotland, by year and setting

- DBS Testing in Drug Treatment introduced
- HCV Action Plan launched
Age distribution of people newly diagnosed with HCV (Ab+) in Scotland during 2009-2012, by referral setting

Drug Service & Prison
- 51% <15 yrs
- 46% 15-34 yrs
- 3% 35-49 yrs
- 3% 50-64 yrs
- 3% 65+ yrs

General Practice
- 35% <15 yrs
- 47% 15-34 yrs
- 15% 35-49 yrs
- 3% 50-64 yrs
- 3% 65+ yrs

GPs have an important role to play in testing and diagnosis, particularly among those older in age.
Scottish Experience: Lessons

**Prevention**

- High levels of harm reduction intervention can reduce, but not control, HCV transmission among PWID
- INF-free DAAs could enable increased HCV treatment uptake among PWID
- Treatment to prevent onward transmission among active PWID is a concept which, if translated into practice, could be rewarding in an interferon free (particularly lower cost) antiviral era
**Diagnosis**

- DBS testing in **drug treatment settings** is highly acceptable and effective.

- Risk-based testing has been effective up to a point; but a combination of approaches (risk-based and targeted population-based screening) will likely be needed if the **great majority** of infected people (**particularly older former PWID**) are to be identified.
Treatment

- DAAs provides an opportunity to dramatically reduce HCV-related liver morbidity and mortality in the short term.
- SVR prevents liver disease but the impact of therapy can be compromised by post-SVR co-morbidities.
- To fully address the high morbidity and mortality in HCV infected populations, a multi-faceted response will be required - involving scaling-up of HCV therapy but also increased effort to address other health risk behaviours.