

HCV elimination : lessons from Scotland

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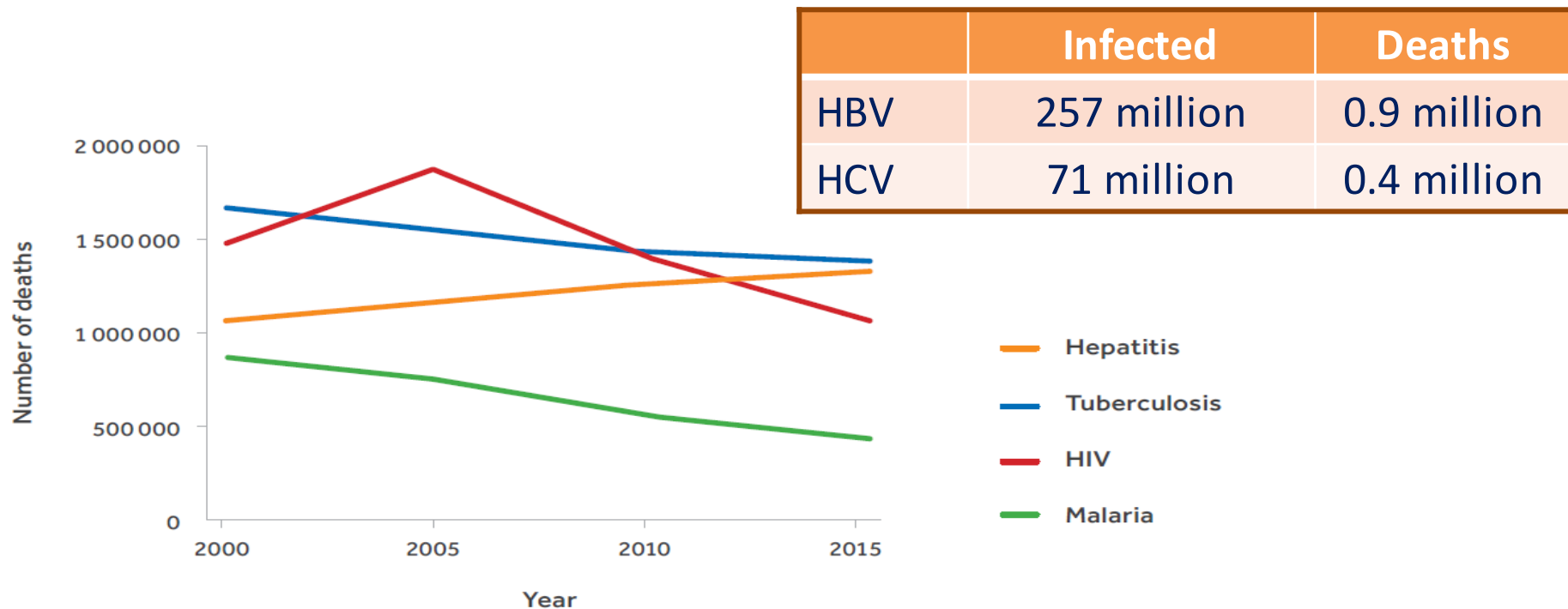
Glasgow Caledonian University / Health Protection Scotland

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Disclosures

Honoraria from Gilead for speaking at a conference

High and increasing global burden of disease associated with viral hepatitis



Source: WHO global health estimates (Global Health Estimates 2015: deaths by cause, age, sex, by country and by region, 2000–2015. Geneva: World Health Organization; 2016.)

Global Strategy (1 of 2)

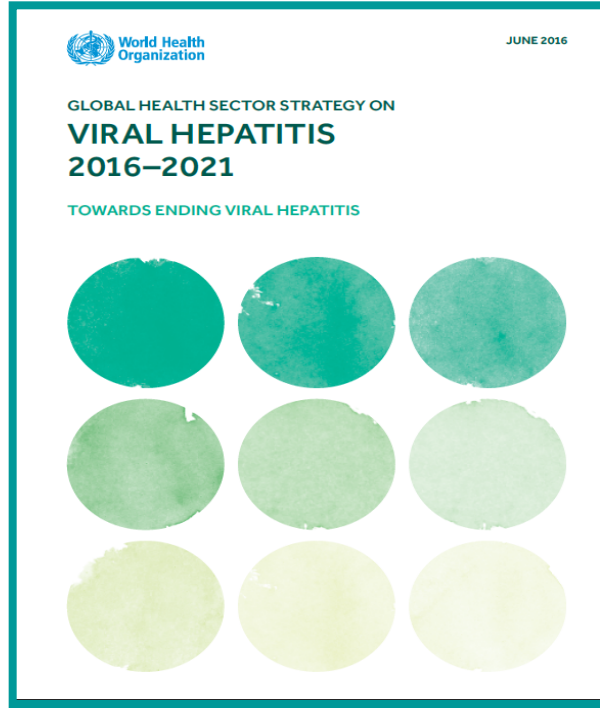
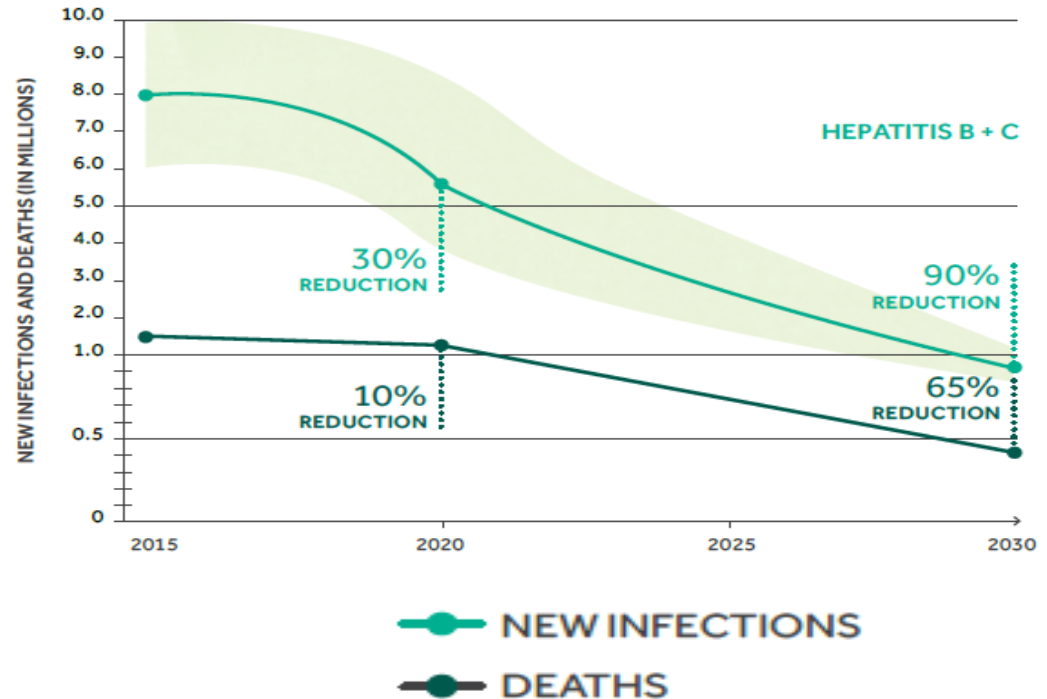
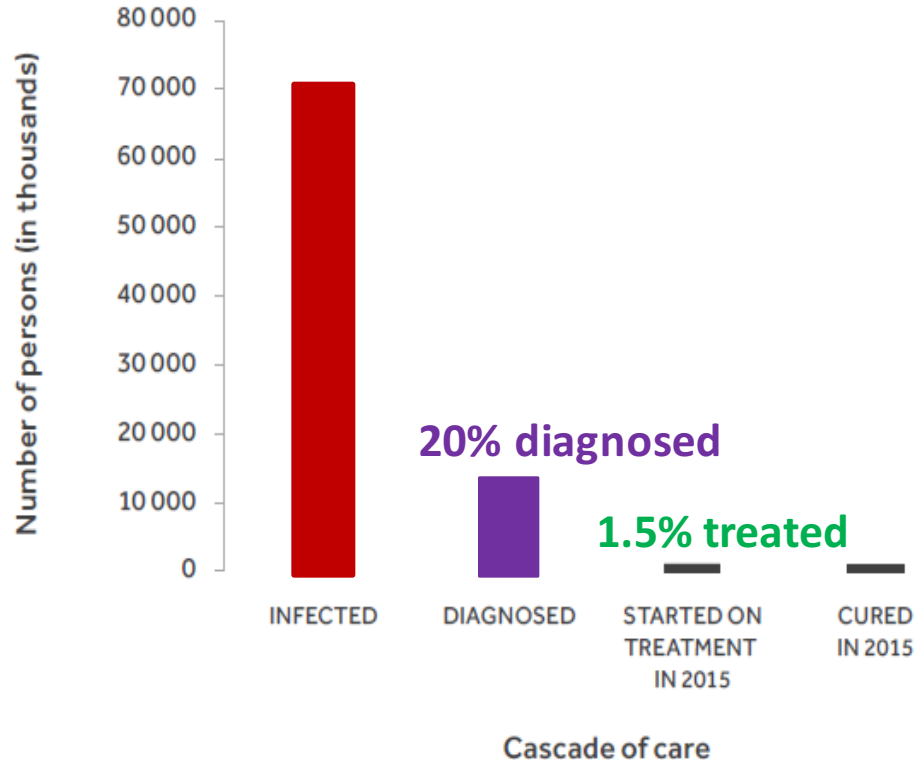


Figure 6. Targets for reducing new cases of and deaths from chronic viral hepatitis B and C infection



Global Strategy (2 of 2)

Global estimates of numbers HCV infected, diagnosed and treated in 2015



Global HCV Targets on diagnosis and treatment

	2015 Baseline	2030 Target
% HCV-infected diagnosed	20%	90%
% HCV-diagnosed started on treatment	7%	80%

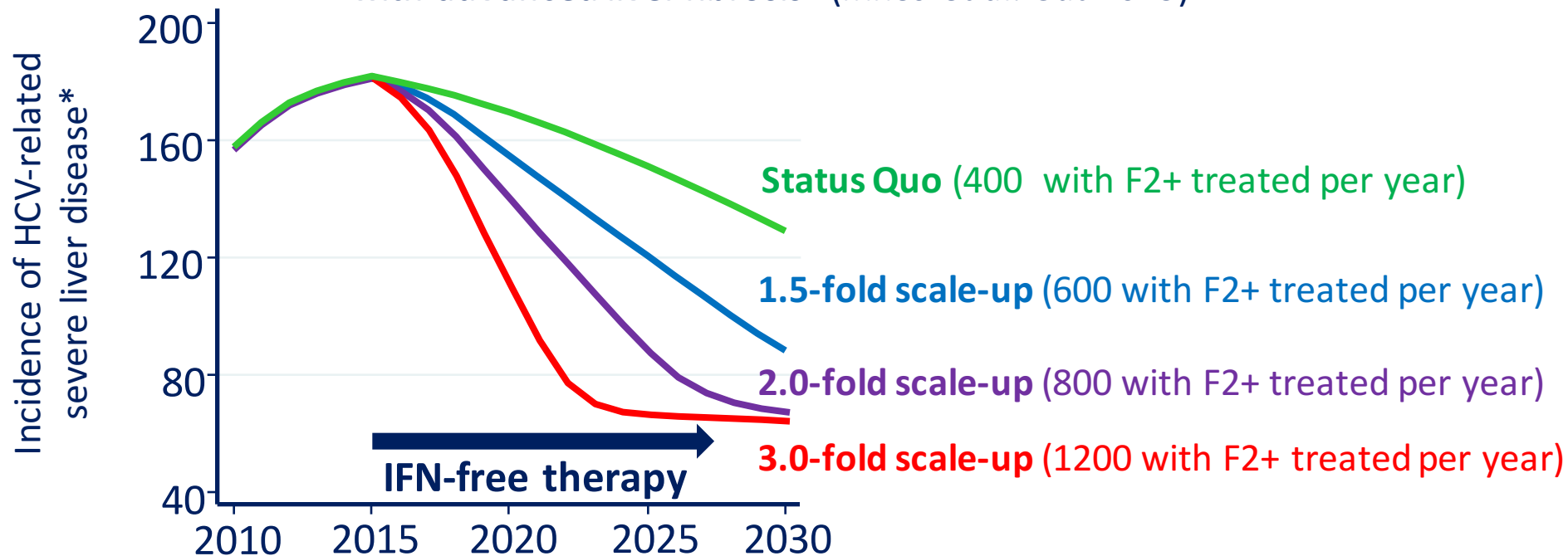
Hepatitis C and Scotland



General population	5.3 million
Chronic HCV population	34,500 (0.7% of popln)
% chronic HCV related to injecting drug use	>85%
% chronic HCV diagnosed	55-60%
Genotype distribution	49% G1, 46% G3, and 5% other
Treatment uptake (pre-DAA)	1,000 per year (3% of chronic popln)
Government Policy	Hepatitis C Action Plan (£100+ million 2008-15)
First licensing of IFN-free DAA	June 2014

Informing Scotland's Strategy on DAAs

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** :
 - I. **75% reduction in HCV-related decompensated cirrhosis between 2015 and 2020**
 - II. **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)

**Hospital/deaths
databases** (involving all
persons admitted/died)

Outcomes

**Numbers initiated on
HCV therapy, and
SVR rates**

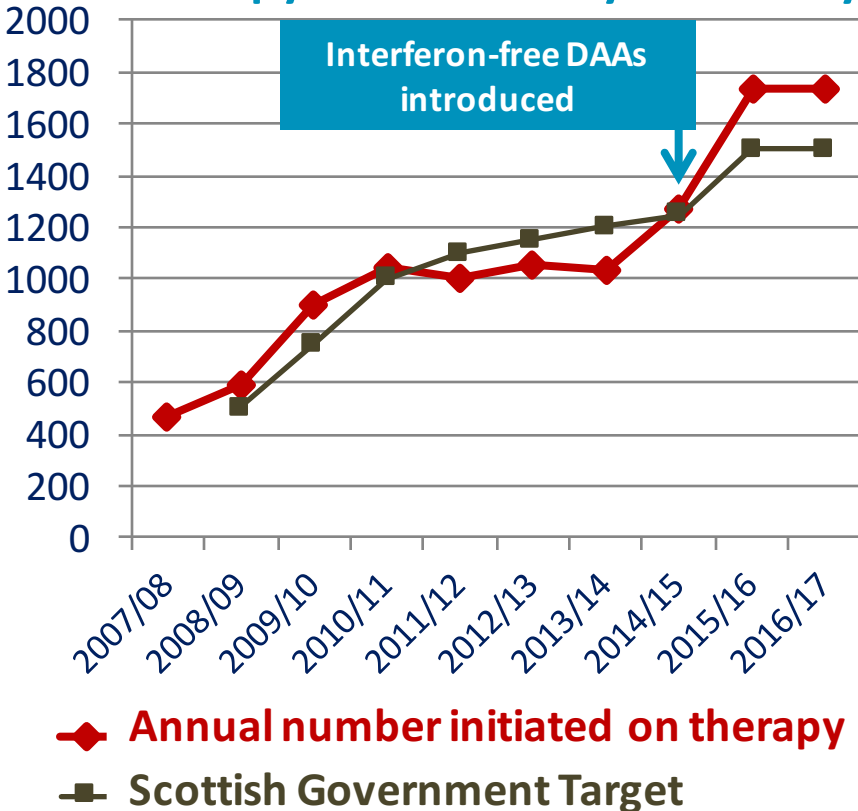
**Record-linkage of HCV
and hospital/deaths
databases***

**Numbers of persons
diagnosed with HCV
and admitted to
hospital / died with
severe liver disease**

* Record-linkage of databases approved by Public Benefit and Privacy Panel (PBPP) for Health and Social Care, NHS Scotland.

Impact of the Scottish Strategy on scale-up of HCV therapy

Annual number of patients initiated on HCV therapy in Scotland by financial year



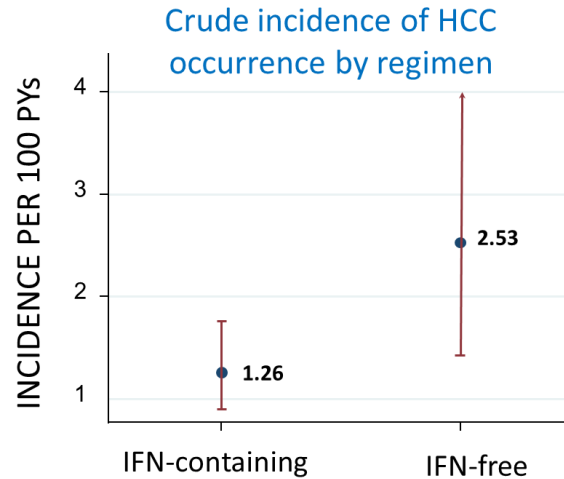
1.6-fold scale-up overall,
involving **2.8-fold scale-up among those with compensated cirrhosis**

During last 3 financial years (since DAAs introduced), approx. **4,800 people initiated on therapy** :

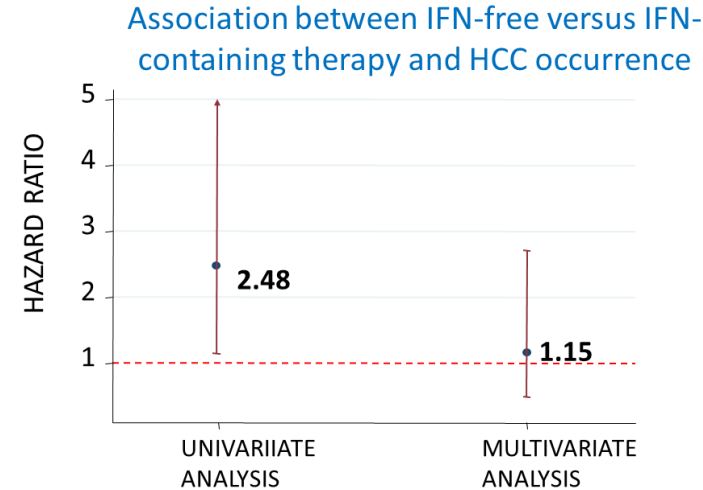
- 54% genotype 1, 38% genotype 3
- 56% F2+ (including 27% compensated cirrhosis)
- 83% involved DAAs

Risk of HCC in cirrhotic patients attaining SVR in Scotland, comparing IFN-free to IFN-containing regimens

Innes et al. J Hepatol (2017)



CHARACTERISTIC	IFN-CONTAINING PATIENTS	IFN-FREE PATIENTS
MEAN AGE	48.1 YEARS	52.1 YEARS
% DECOMPENSATED	9.5	30.4
% TREATMENT EXPERIENCED	27.6	52.2
% THROMBOCYTOPENIC	22.1	39.3



The crude incidence of HCC for IFN-free patients is twice as high as for IFN containing patients



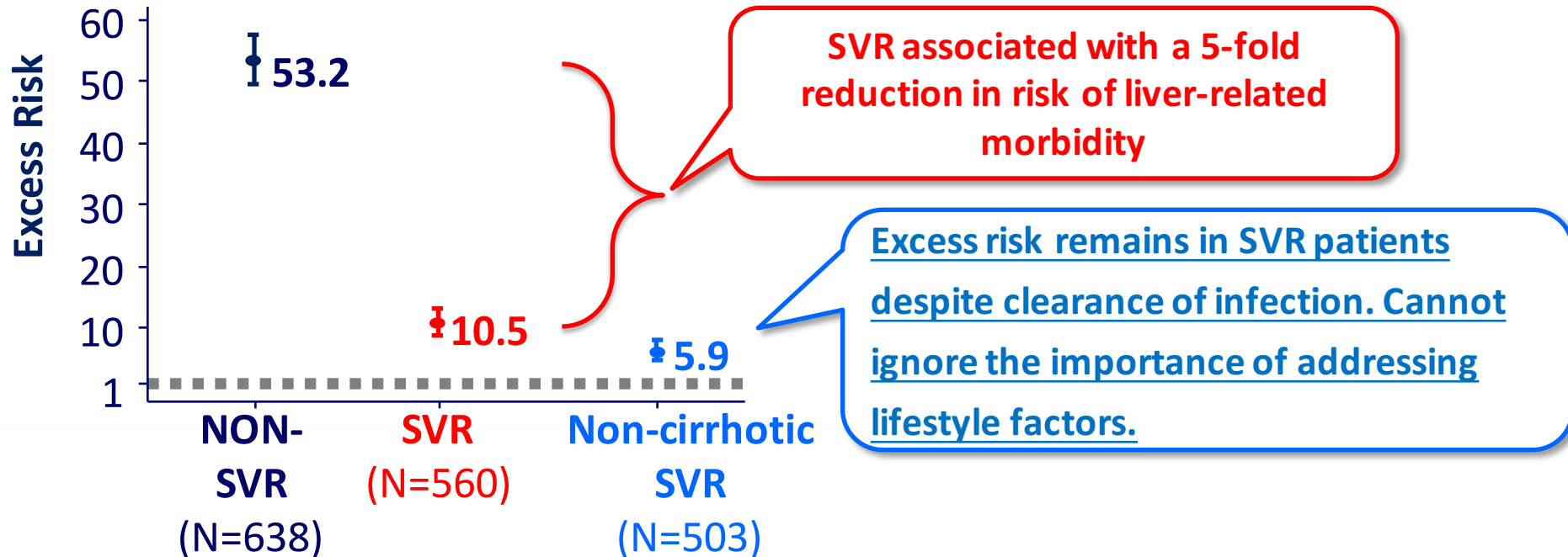
... But IFN-free patients are more likely to be thrombocytopenic, treatment experienced, decompensated, & older



Once these differences are accounted for, the association between IFN-free therapy and HCC disappears

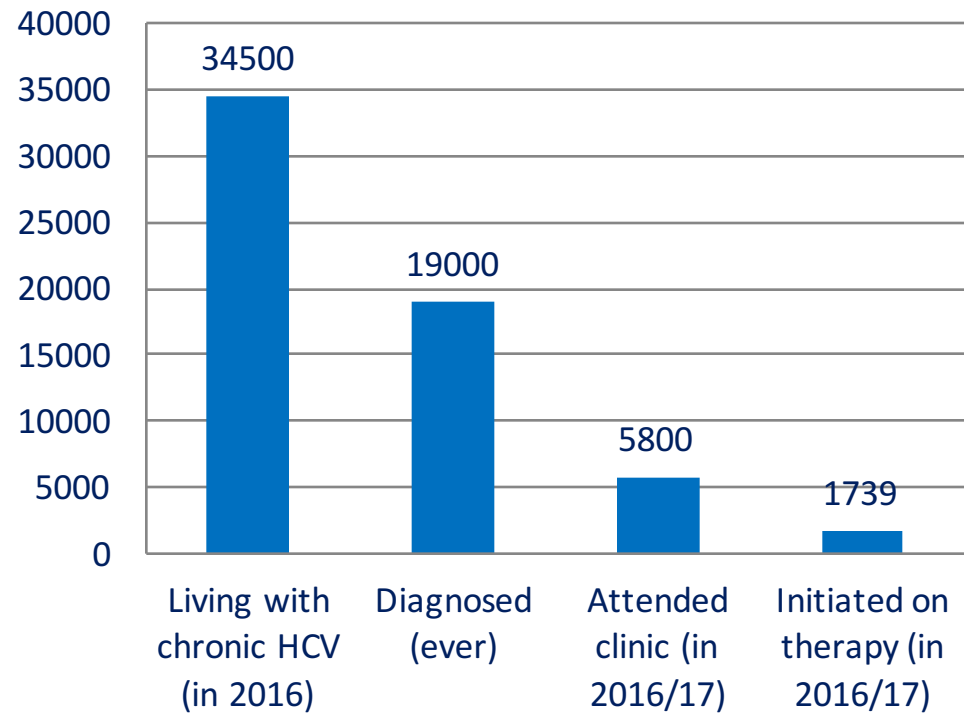
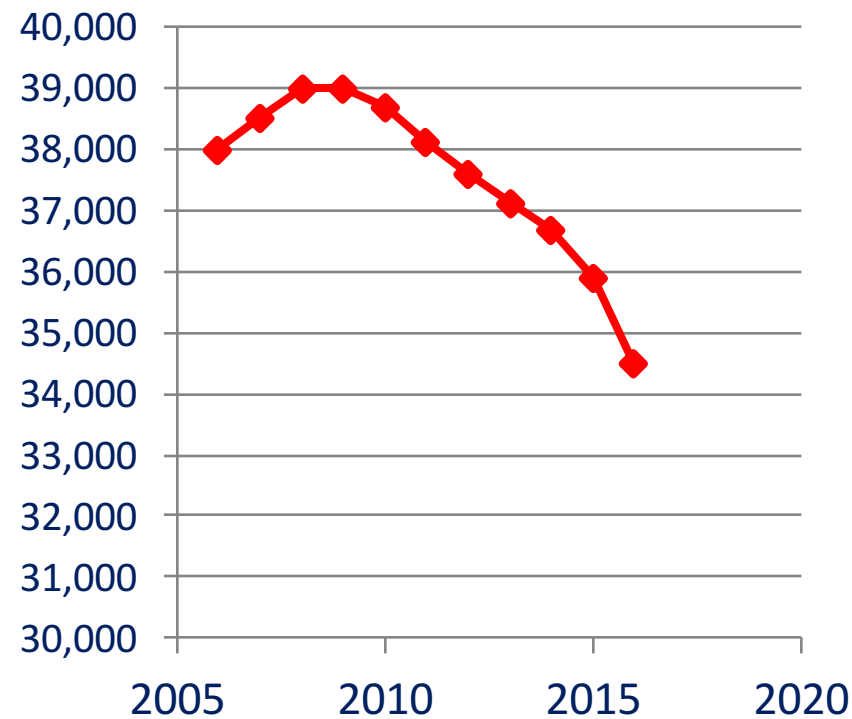
Impact of HCV therapy on liver-related morbidity in Scotland (Innes et al. Hepatology 2011)

Excess risk of a liver-related hospital episode post-therapy in HCV patients, compared to general population



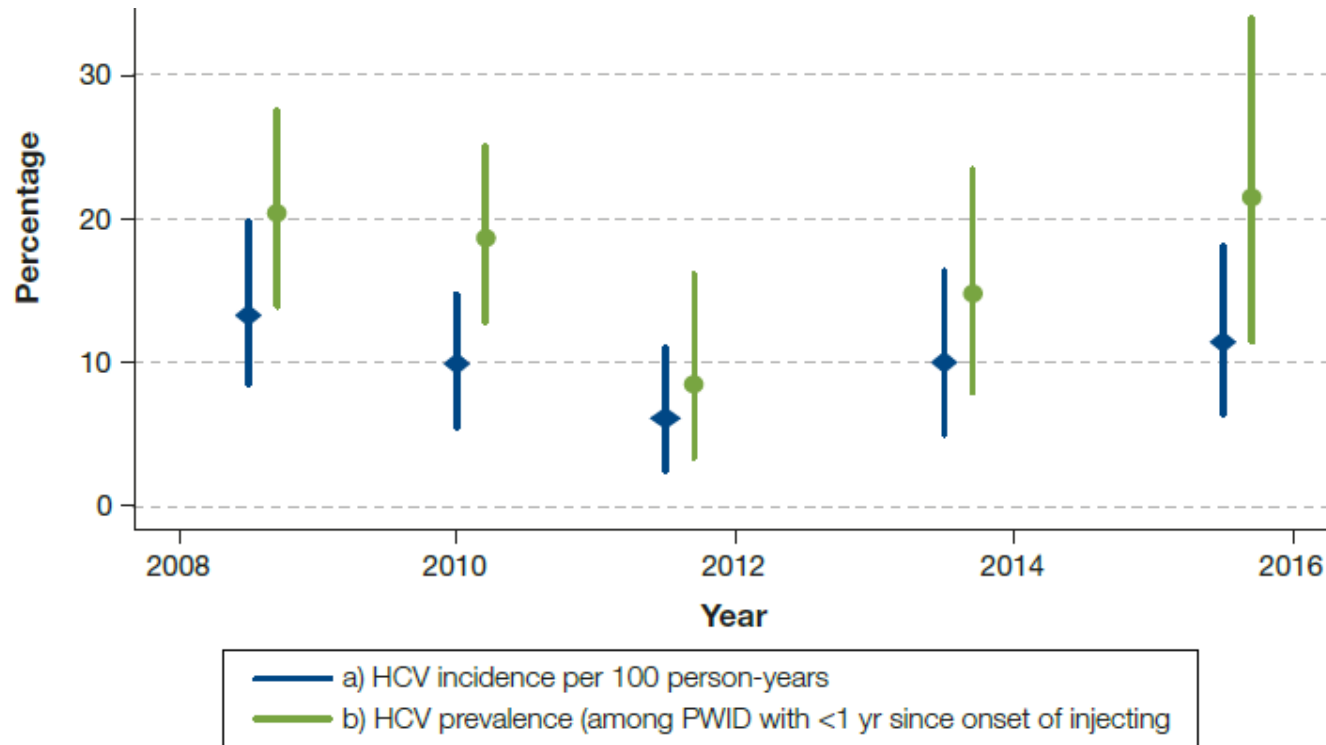
Estimated number with chronic HCV in Scotland: 2006-16

HCV Landscape in Scotland : estimates for 2016



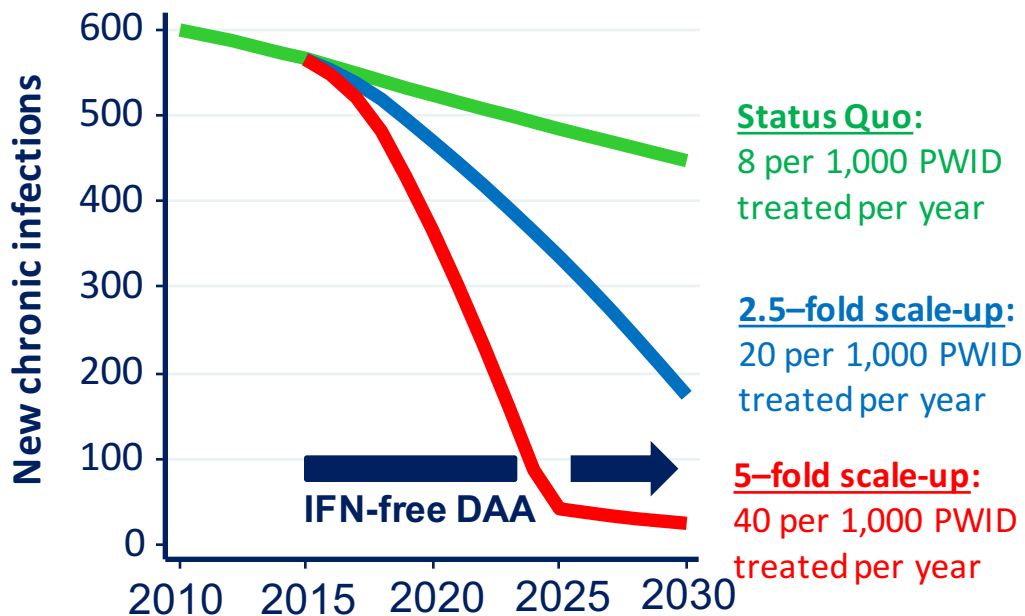
Challenges : control transmission

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*

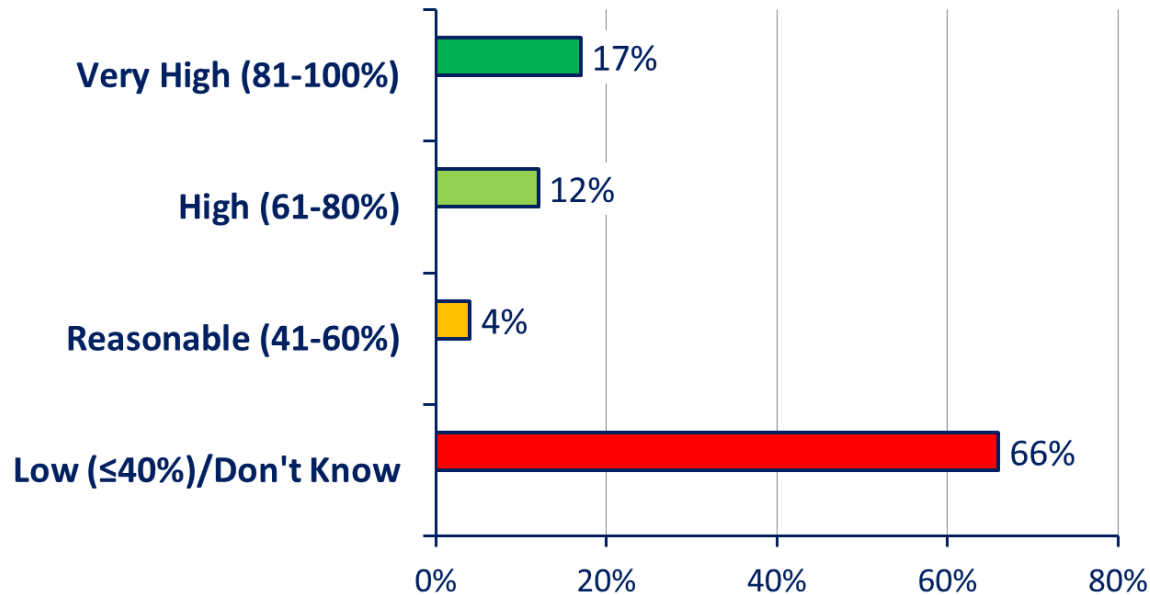


- ❖ IFN-free DAA therapies could potentially increase uptake among PWID.
- ❖ Modest levels of treatment could potentially reduce HCV transmission among PWID.

* 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?



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%)

Undiagnosed

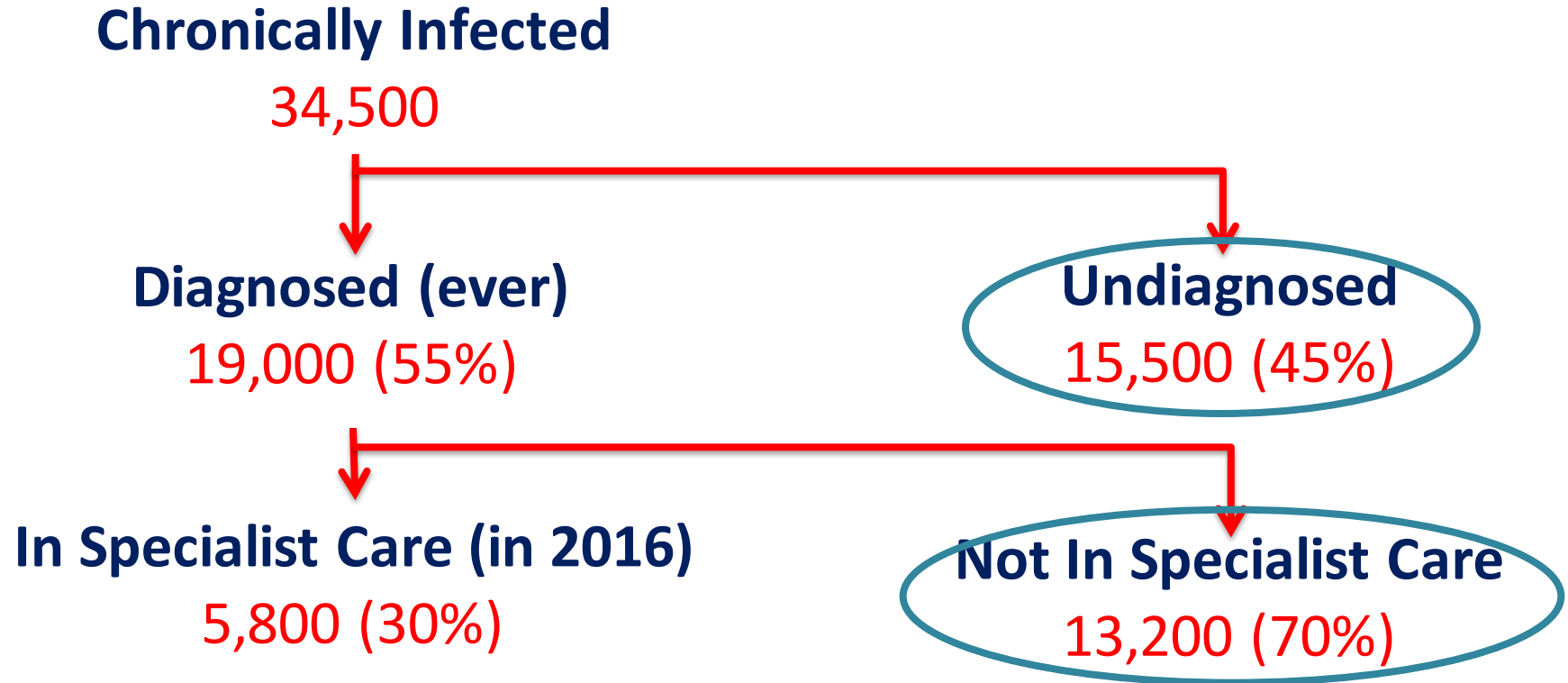
15,500 (45%)

In Specialist Care (in 2016)

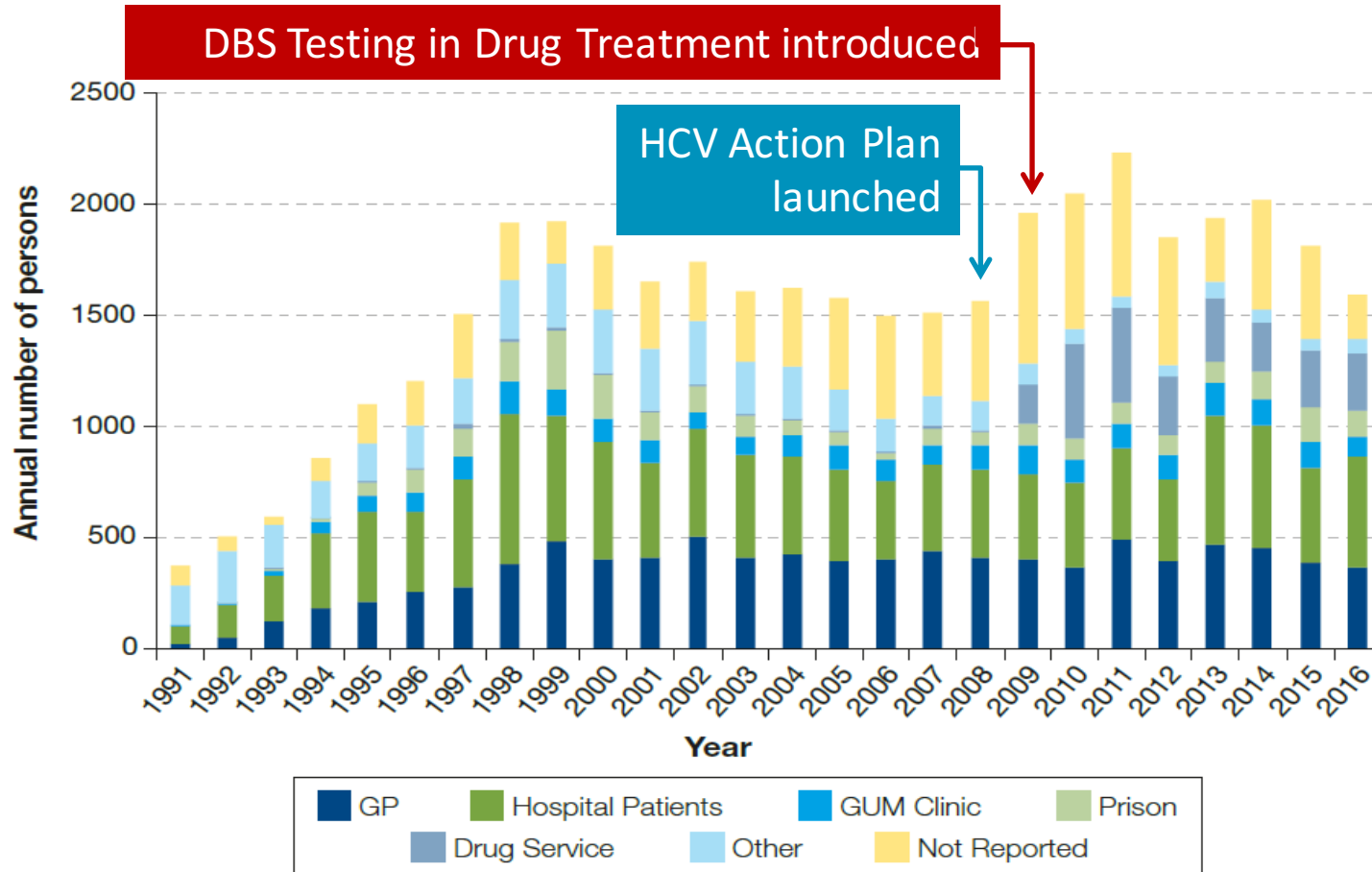
5,800 (30%)

Not In Specialist Care

13,200 (70%)

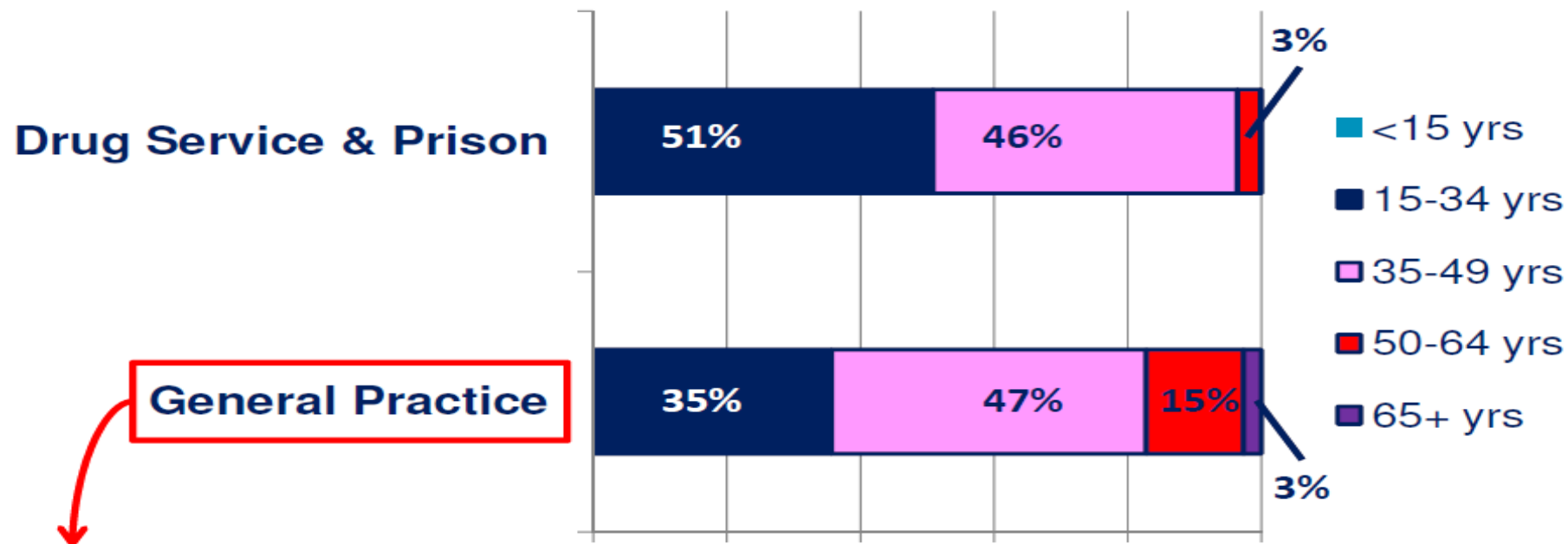


Annual number of persons newly diagnosed with anti-HCV in Scotland, by year and setting



Diagnosis: Future targeting of testing

Age distribution of people newly diagnosed with HCV (Ab+) in Scotland during 2009-2012, by referral setting



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

Scottish Experience: Lessons

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.

Scottish Experience: Lessons

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