



Australia: about to eliminate hepatitis C?

Professor Gregory Dore



Disclosures

- Research grants, travel support, and honoraria: AbbVie, Gilead, Merck
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HCV Elimination in Australia

- Update on DAA treatment numbers in Australia
 - DAA uptake in high-risk populations
 - DAA treatment outcomes (REACH-C)
 - HCV screening and linkage to care initiatives
 - Mathematical modelling HCV elimination
 - Future challenges for HCV elimination
-

Australian Government DAA programme

Features

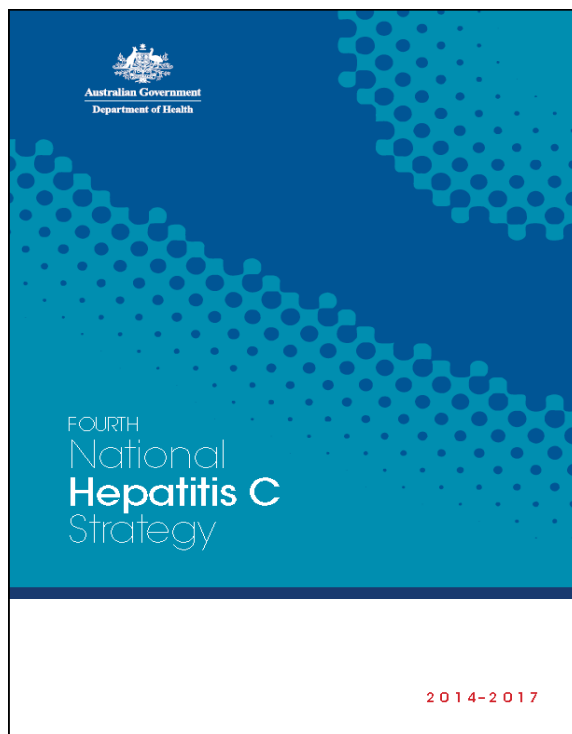
- Unrestricted DAA access; no cap on treatment numbers; cap on expenditure
- Risk-sharing arrangement with pharma (2016–2020): cost/patient €6000 (2016)
- Involvement of non-specialists in DAA prescribing
- Minimal administration for clinicians; minimal co-payment for patients (€4–25/month)

Development

- National Hepatitis C Strategies since 2000 (4th currently, 5th soon)
- Bipartisan support and political leadership
- Partnership approach: government, community, clinical, academic reps
- Funding of hepatitis C and drug user community organisations
- General practitioner and addiction medicine clinician education since early 2000s

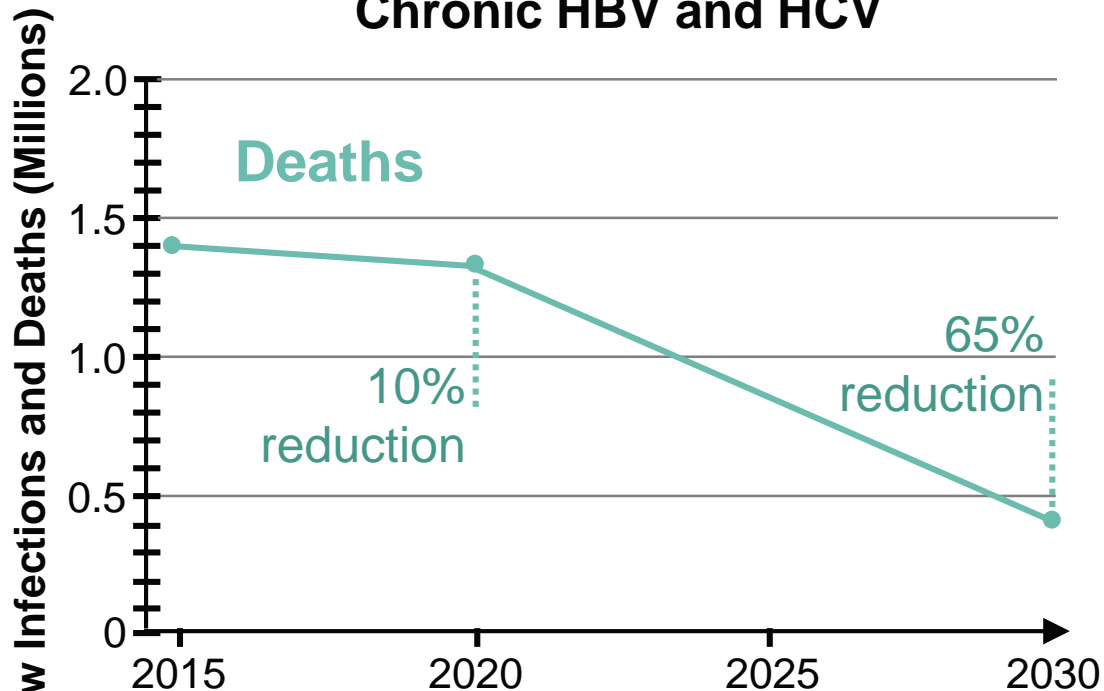
National strategies and partnership

Government, academic, clinical, Civil Society collaborations



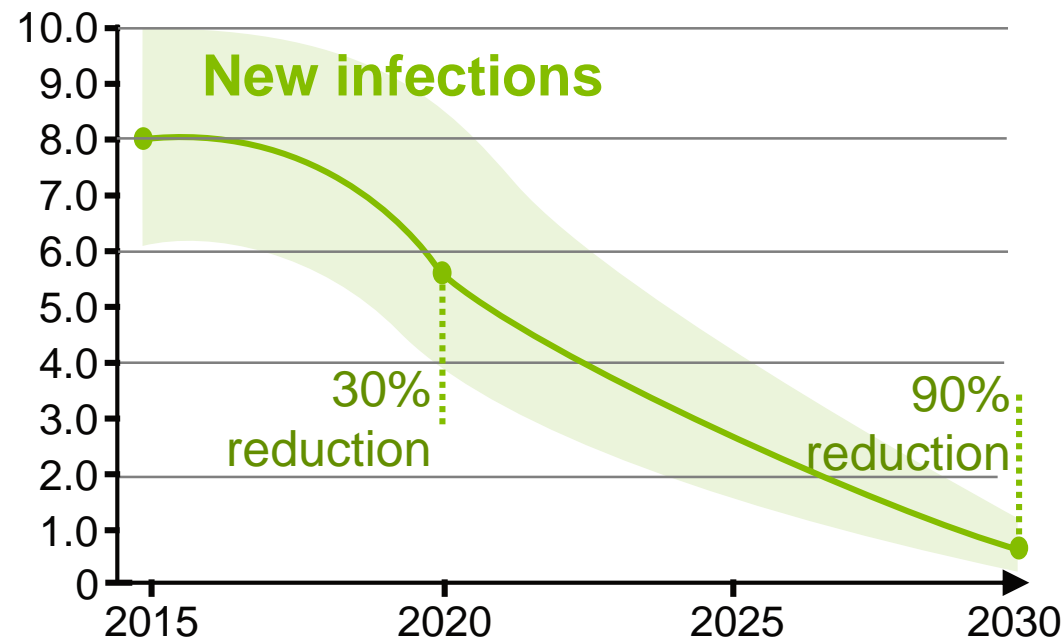
WHO Viral Hepatitis Elimination Targets: 2016

65% Reduction in Deaths from Chronic HBV and HCV



1.4 million deaths (in 2015) to under 500,000 deaths (by 2030)

90% Reduction in New Cases of Chronic HBV and HCV Infection



**6–10 million (in 2015) to 900,000 infections (by 2030)
95% decline in HBV infections
80% decline in HCV infections**

80% of eligible chronic HCV patients treated; 90% of treated patients cured

HCV (micro-) elimination: feasibility versus impact



Veterans



**Patients with
haemophilia**



**Transplant
patients**



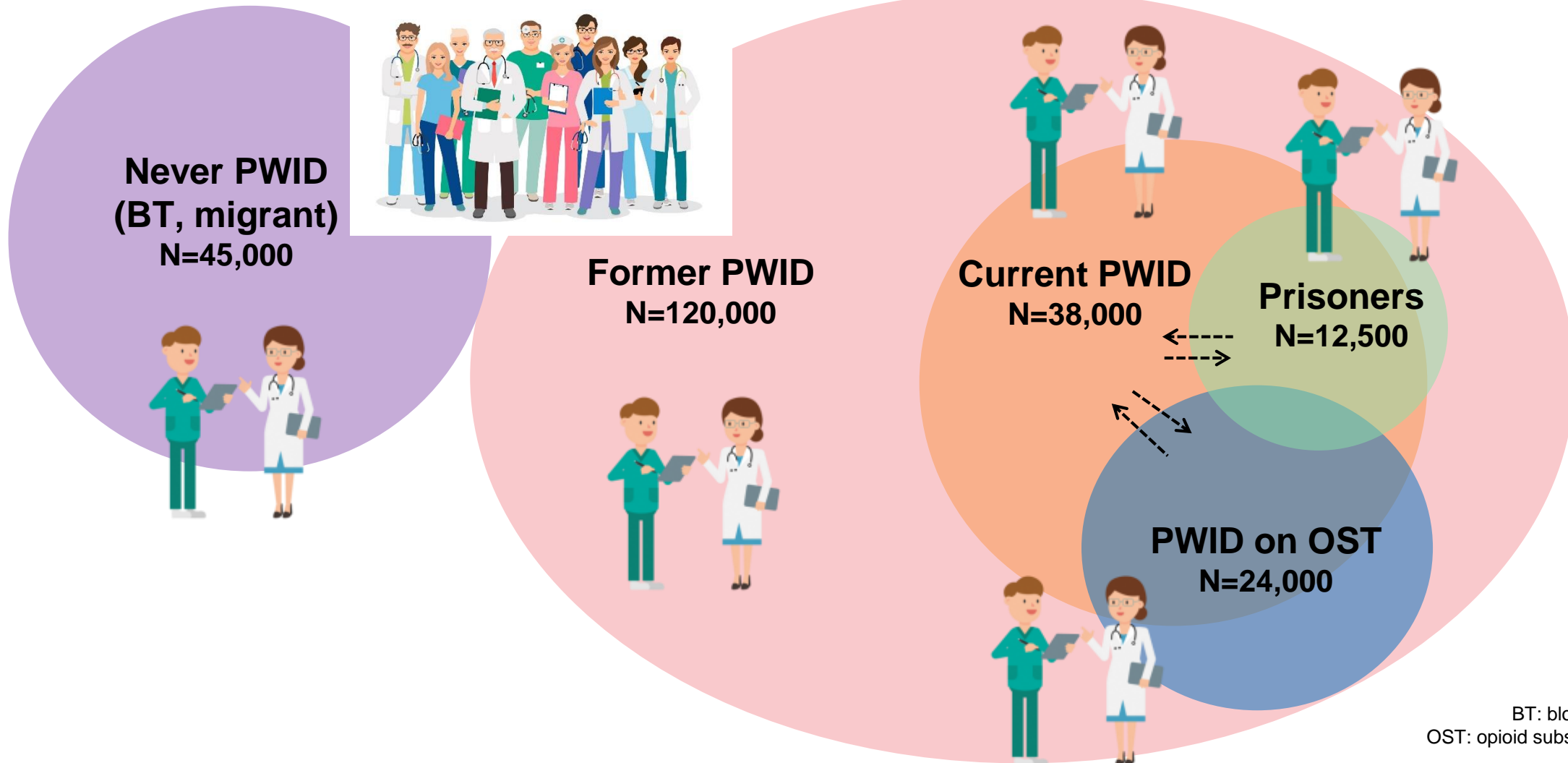
**HIV/HCV
coinfected**



**PWID,
prisoners**

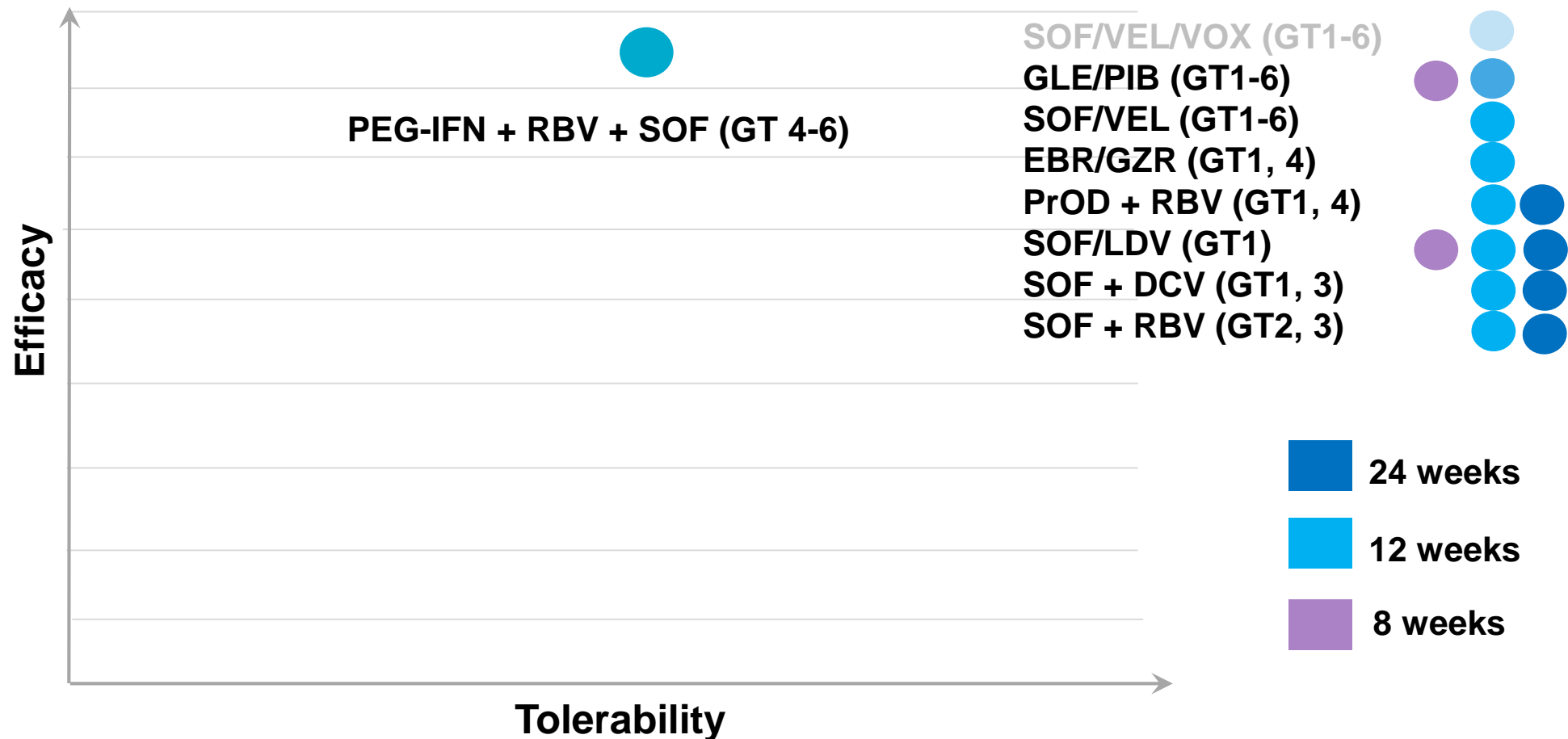
PWID: people who inject drugs

HCV populations in Australia: pre-DAA (end 2015)

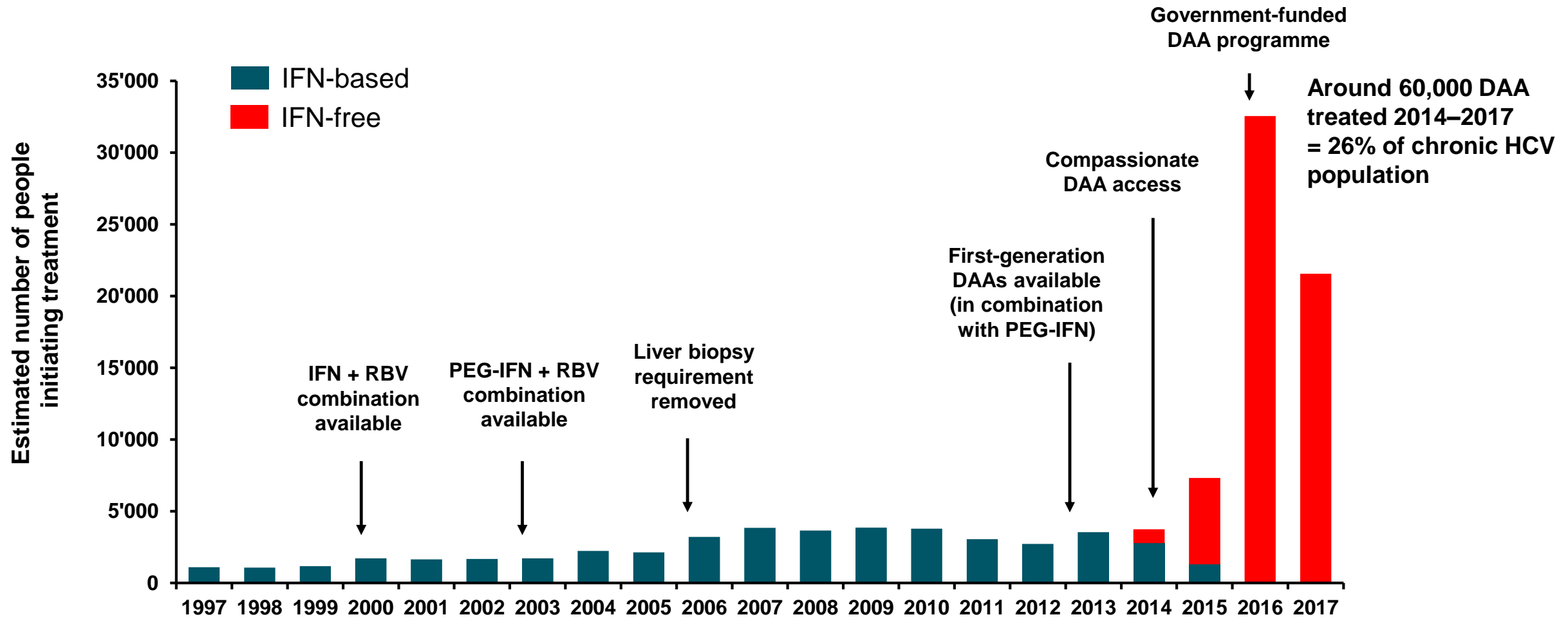


BT: blood transfusion;
OST: opioid substitution therapy

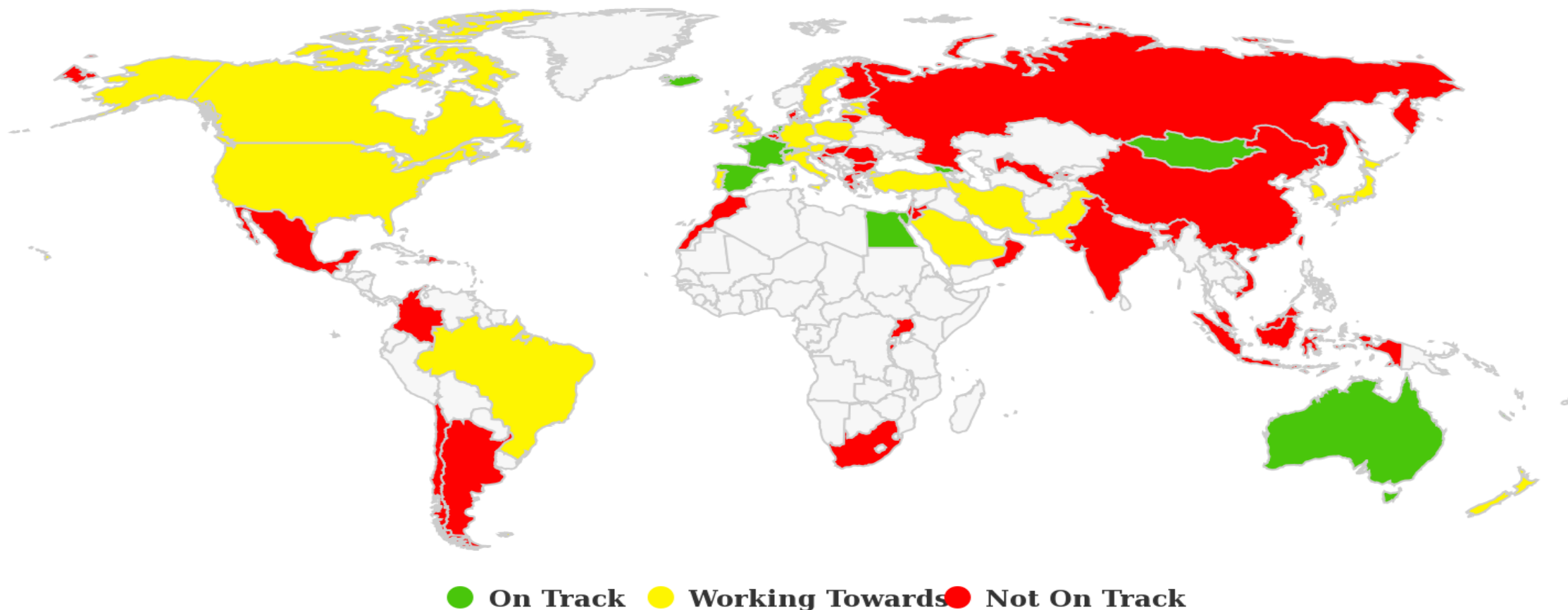
Australian Government-funded DAAs: 2016-2018



HCV treatment uptake in Australia: 1997–2017



WHO HCV Elimination Targets: 2017

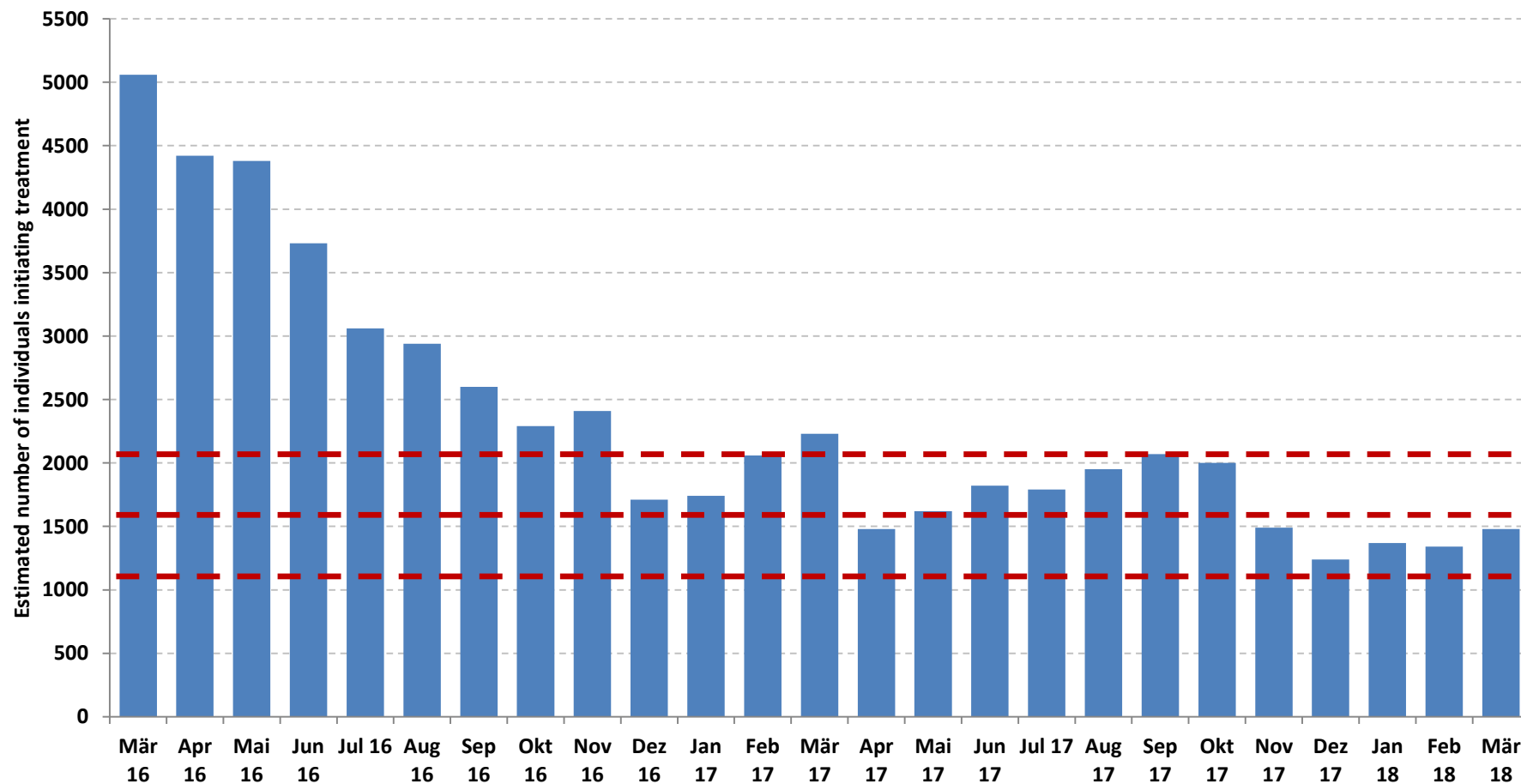


On-track (2016): Iceland, Qatar, Netherlands, Australia, France, Germany, Japan, Egypt, Georgia

On-track (2017): Iceland, Qatar, Netherlands, Australia, France, Germany, Japan, Egypt, Georgia, Spain, Switzerland, Mongolia

DAA treatment numbers have declined

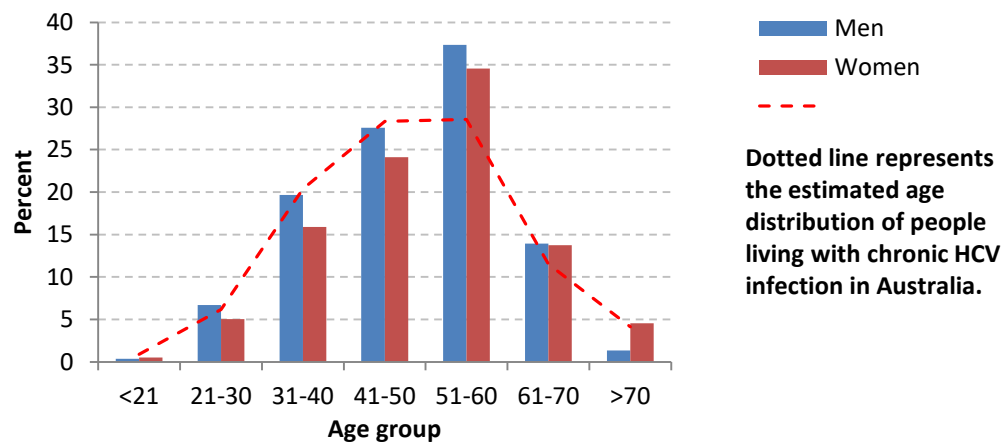
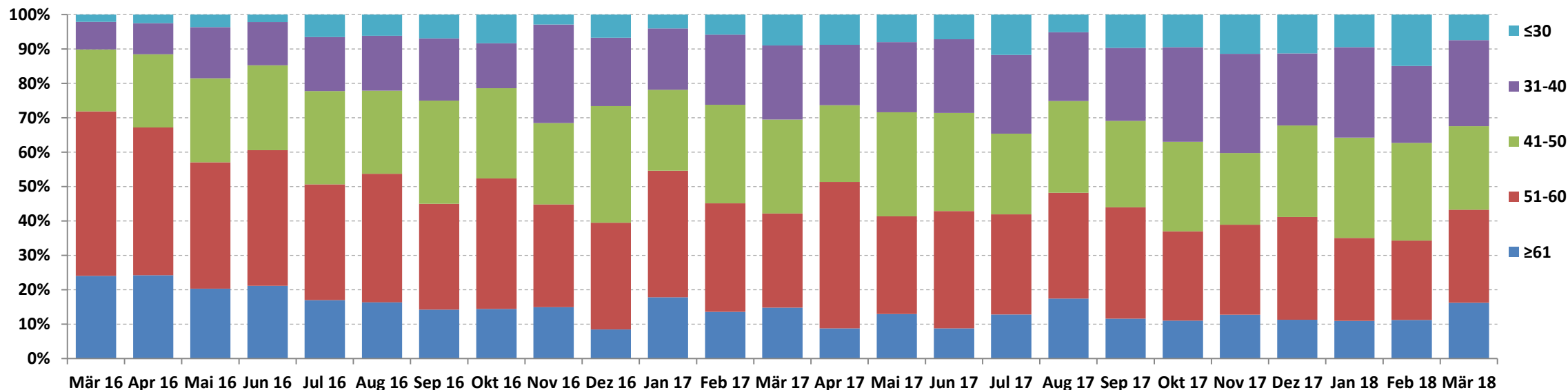
DAA initiations/month (total = 58,280)



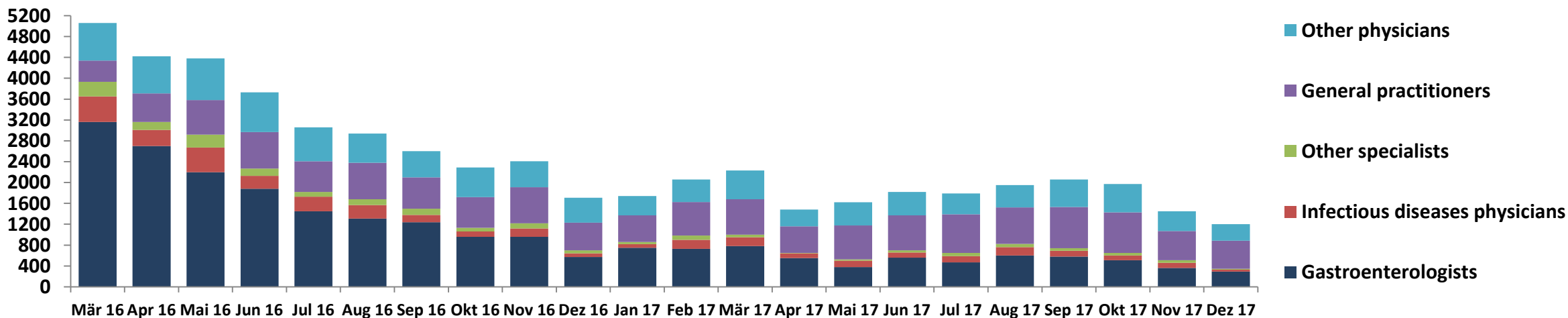
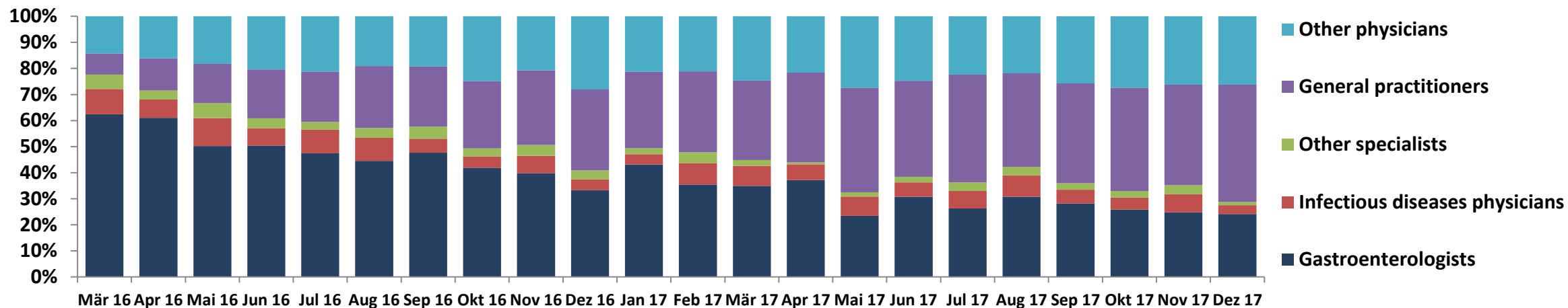
= 21,000/year

= 16,000/year

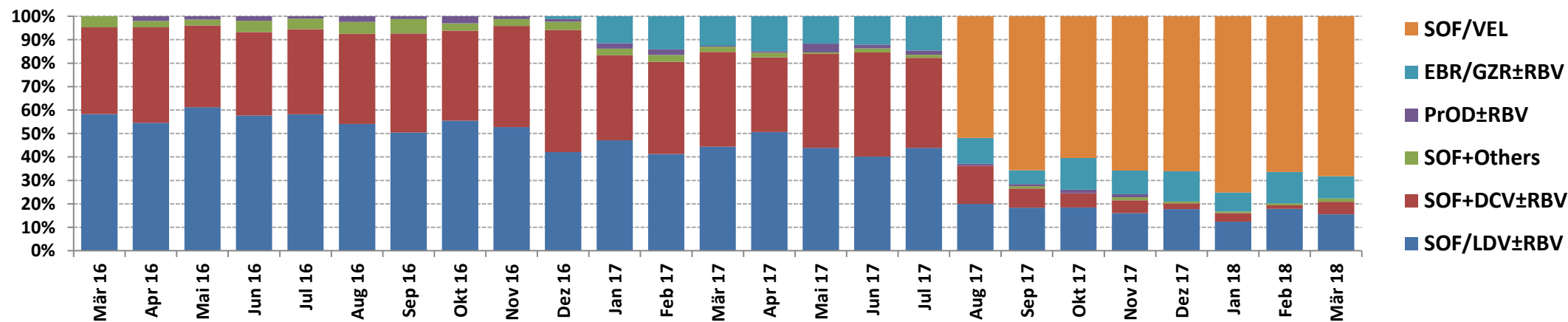
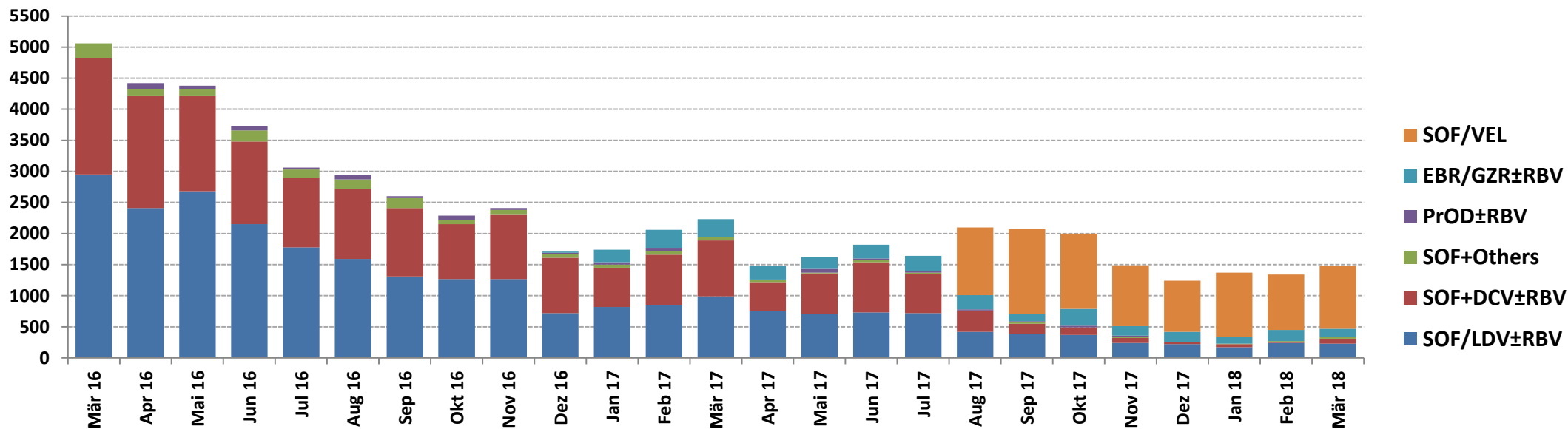
Increasing treatment of younger age groups



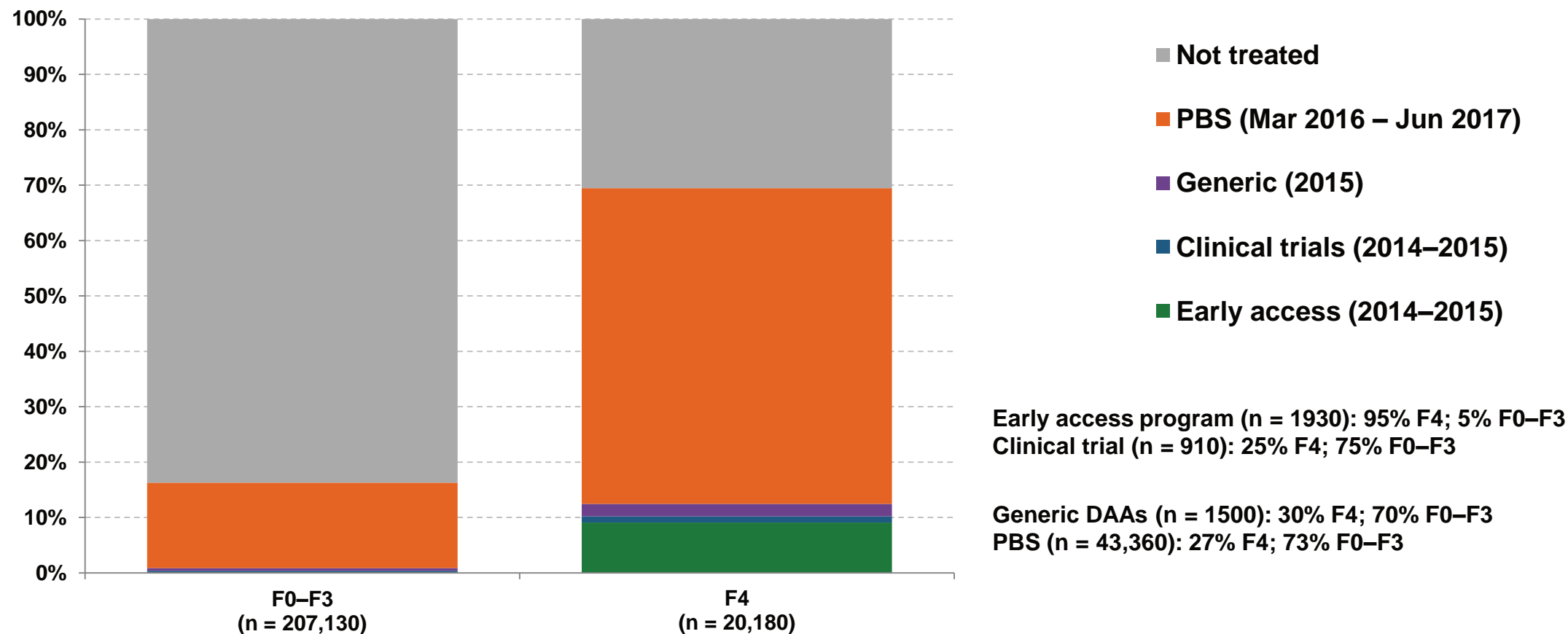
Increasing involvement of non-specialists



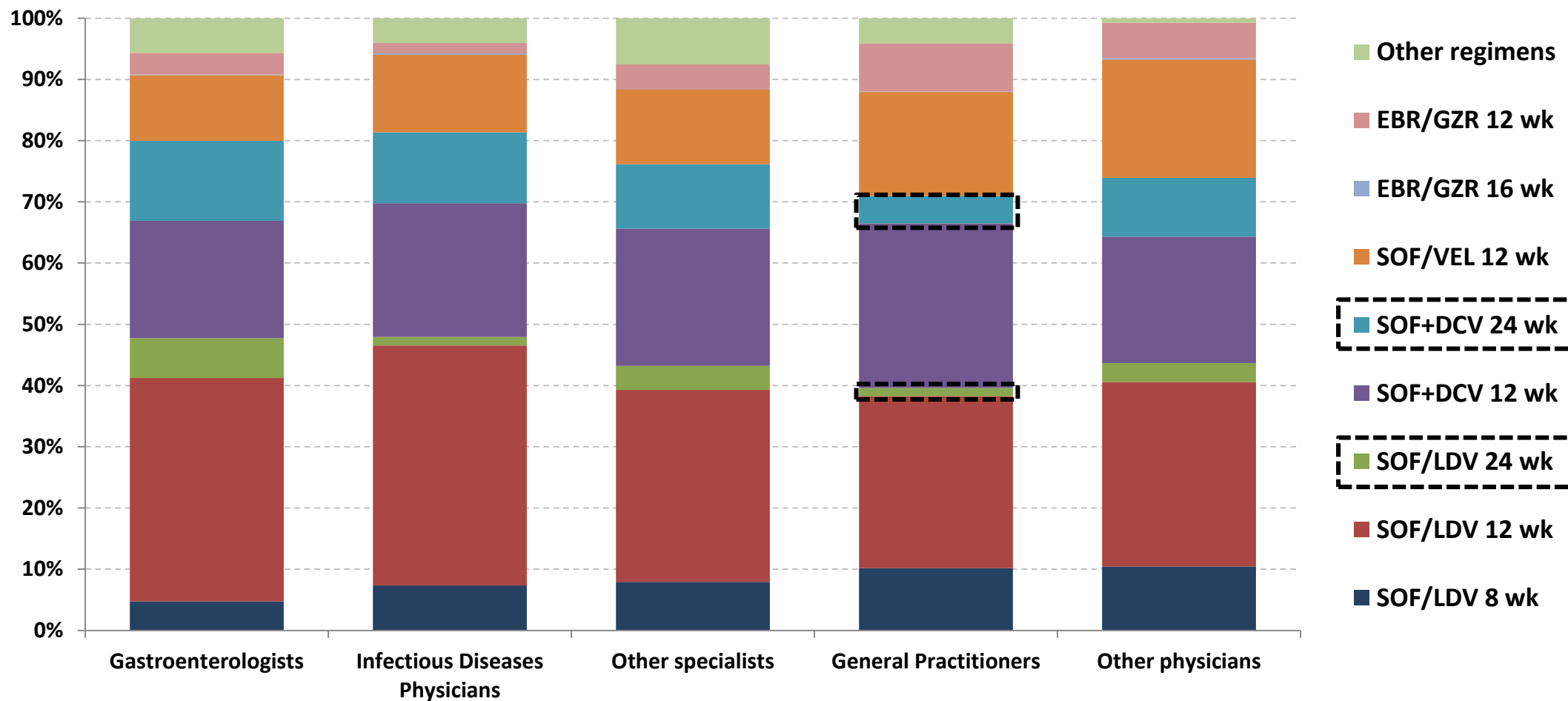
The emergence of pan-genotypic DAA therapy



DAA uptake very high in patients with cirrhosis

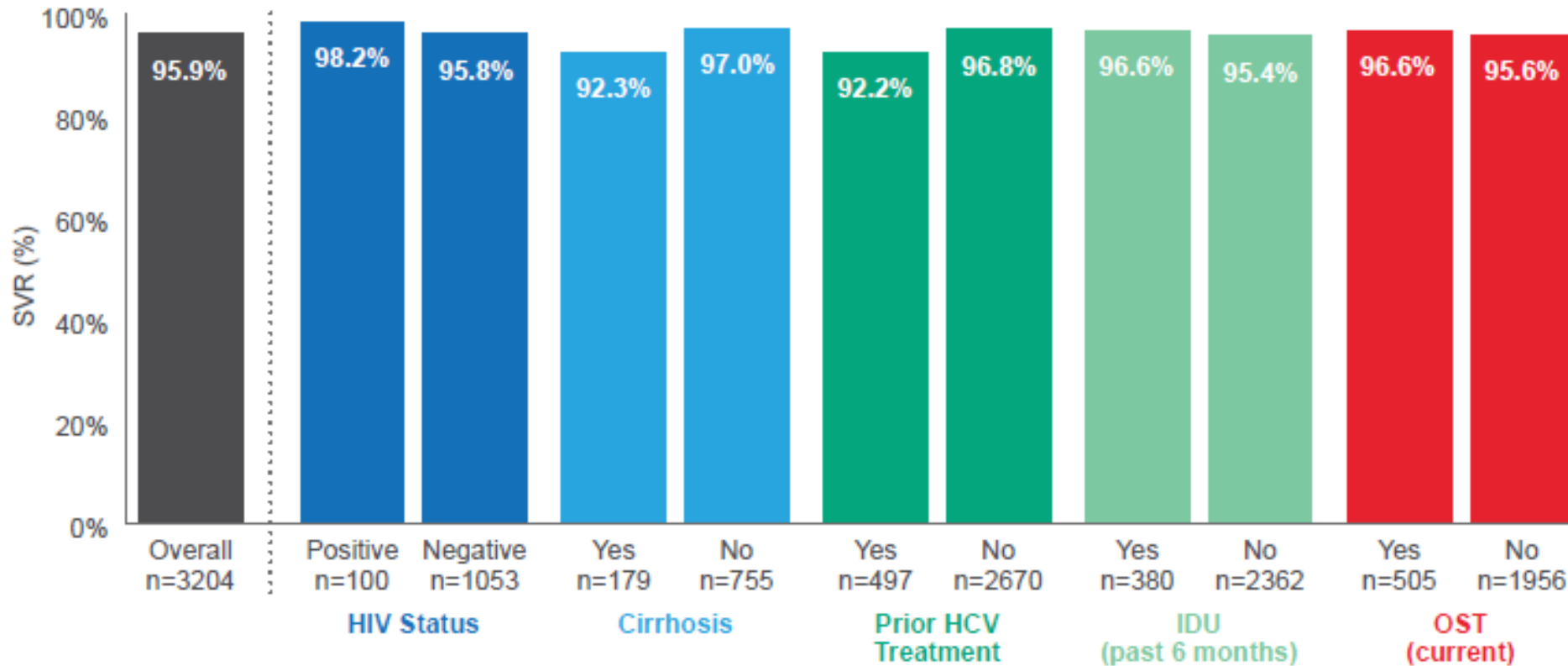


GPs treating small proportion with cirrhosis



High DAA efficacy across all sub-populations

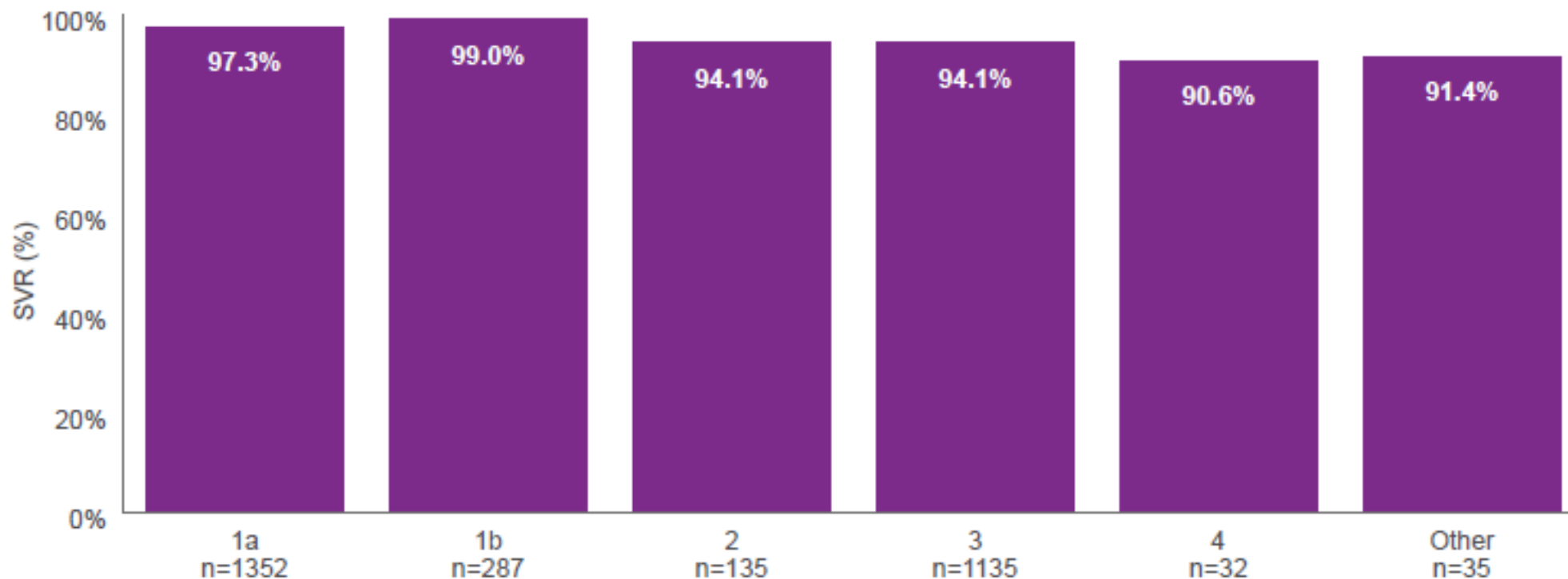
REACH-C study: Per protocol analysis* (n=3,204)



*(n=576 with unknown SVR; 16%)

High DAA efficacy across all HCV genotypes

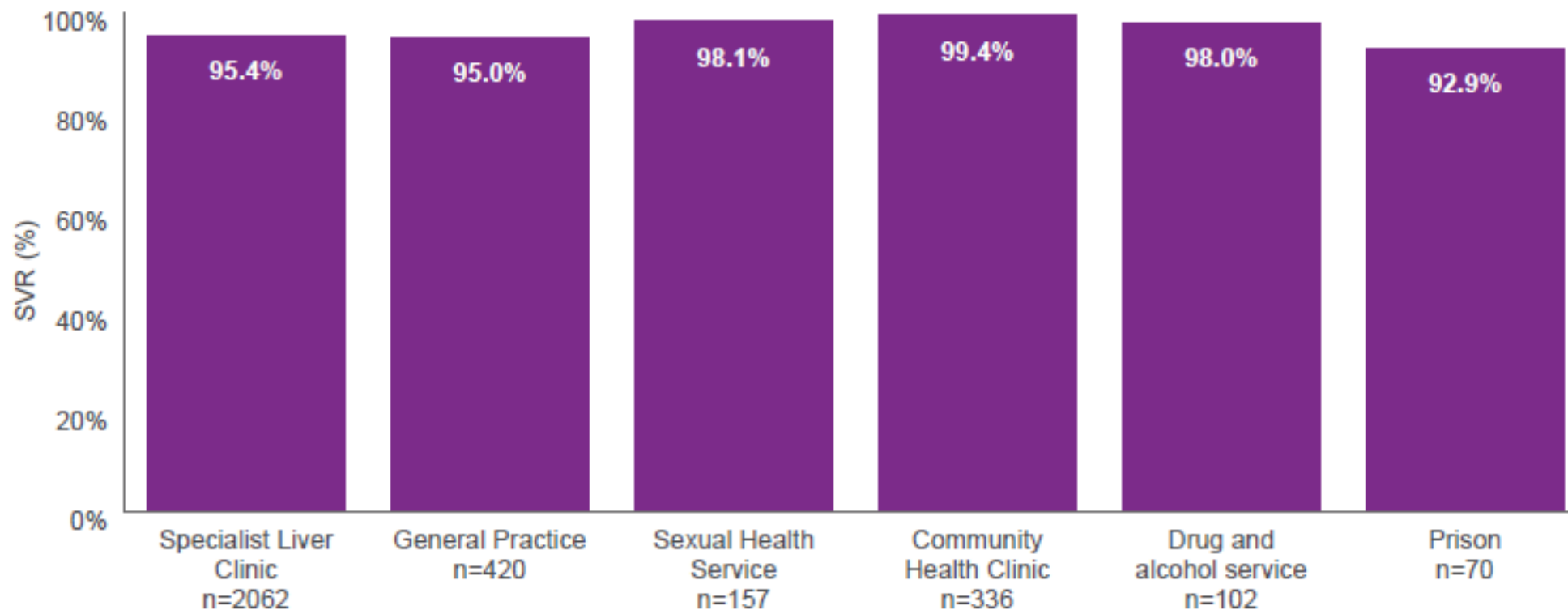
REACH-C study: Per protocol analysis* (n=3,204)



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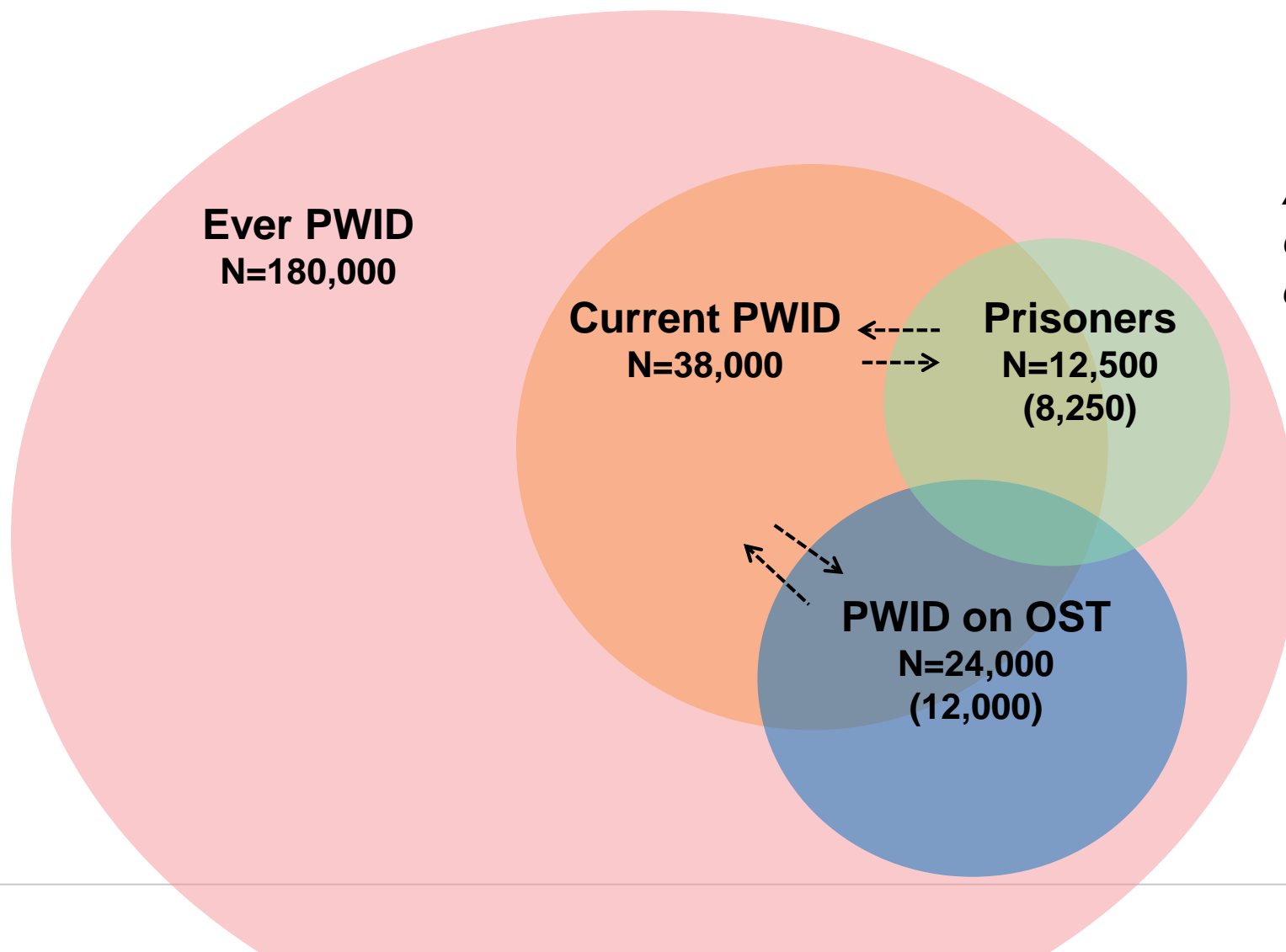
High DAA efficacy across all service models

REACH-C study: Per protocol analysis* (n=3,204)



*(n=576 with unknown SVR; 16%)

PWID populations with HCV in Australia: 2016



An estimated 20-25% of current PWID are incarcerated each year

An estimated 30% of current PWID are on OST

Models of HCV care

Community-based models for PWID and marginalized



Kirketon Road Centre, Sydney
Community health clinic:
PWID hepatitis C clinic

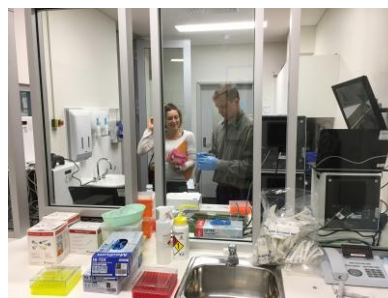
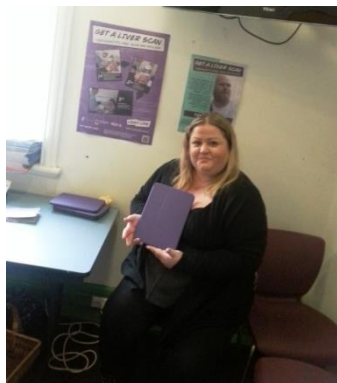


Kombi Clinic, Brisbane
Community PWID and homeless
hepatitis C clinic

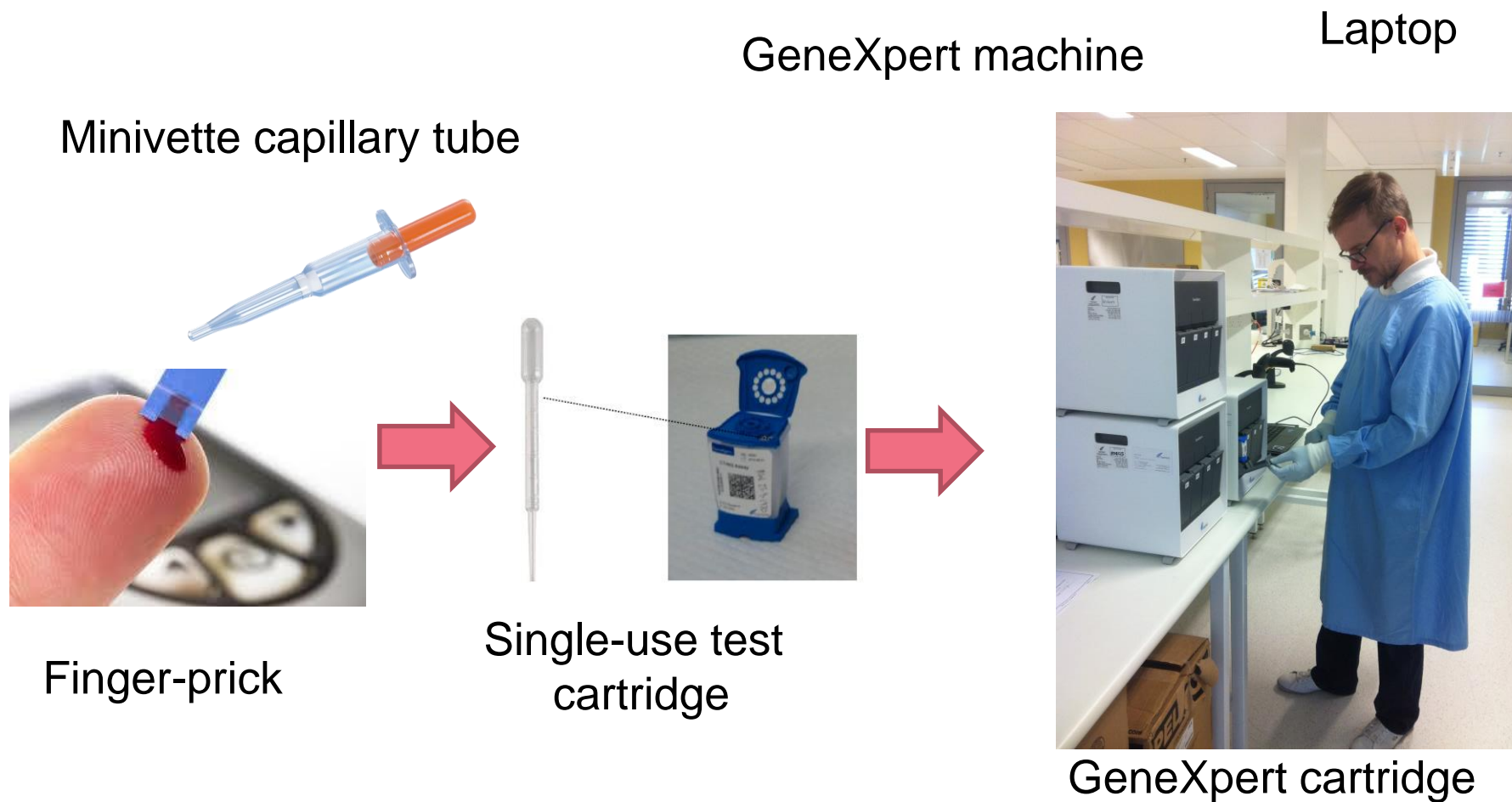


**Queensland Injectors Health
Network: Community-based
PWID hepatitis C services**

LiveRLife Campaign

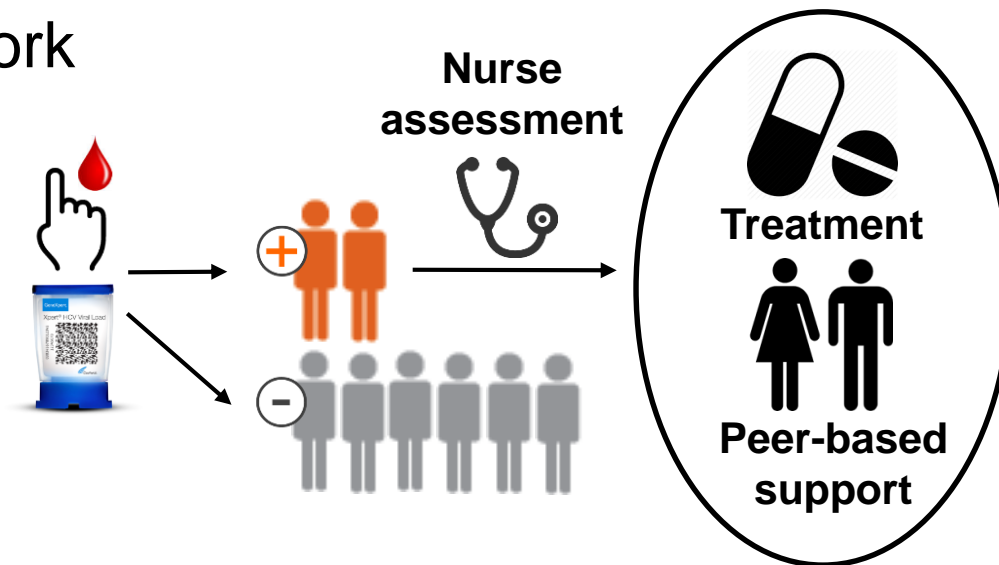


Point of Care HCV: GeneXpert®



TEMPO: HCV test and treat in a single-visit

- Three needle and syringe programmes in Sydney (NUAA, ACON, Liverpool)
- No safety bloodwork



Single-visit

**Point-of-care finger-stick
HCV RNA testing (n=300)**

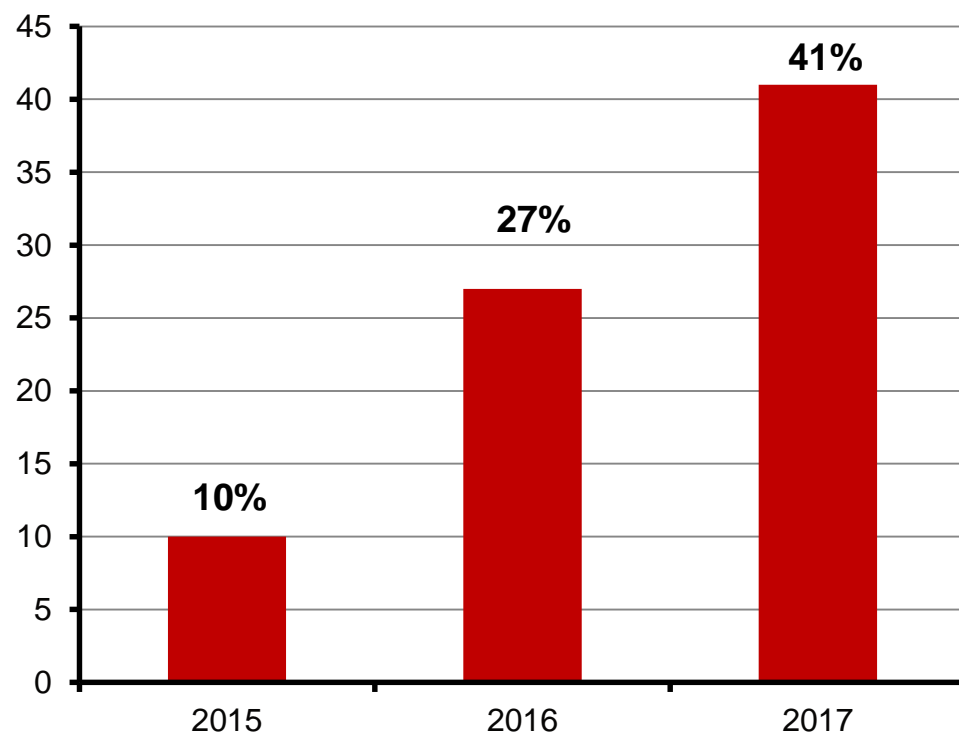
HCV RNA+
25% (n=75)

DAA therapy
~50% (n=35)

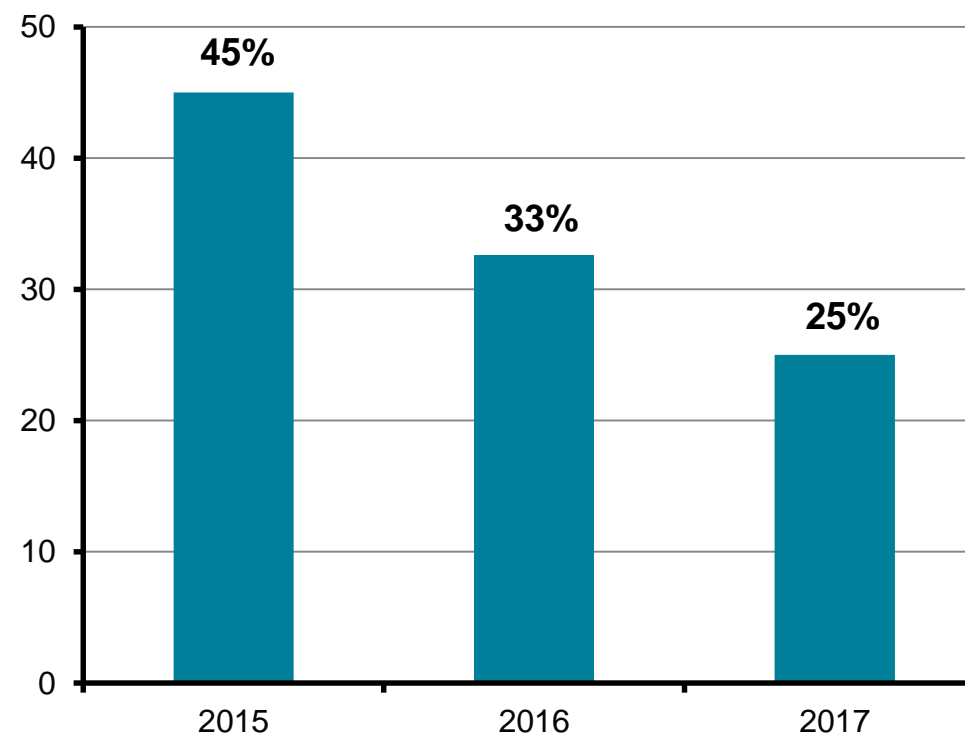
DAA uptake high in current PWID

Annual Needle Syringe Program Survey (n = 2,000-2,500)

Ever HCV Treatment
among Chronic HCV (%)



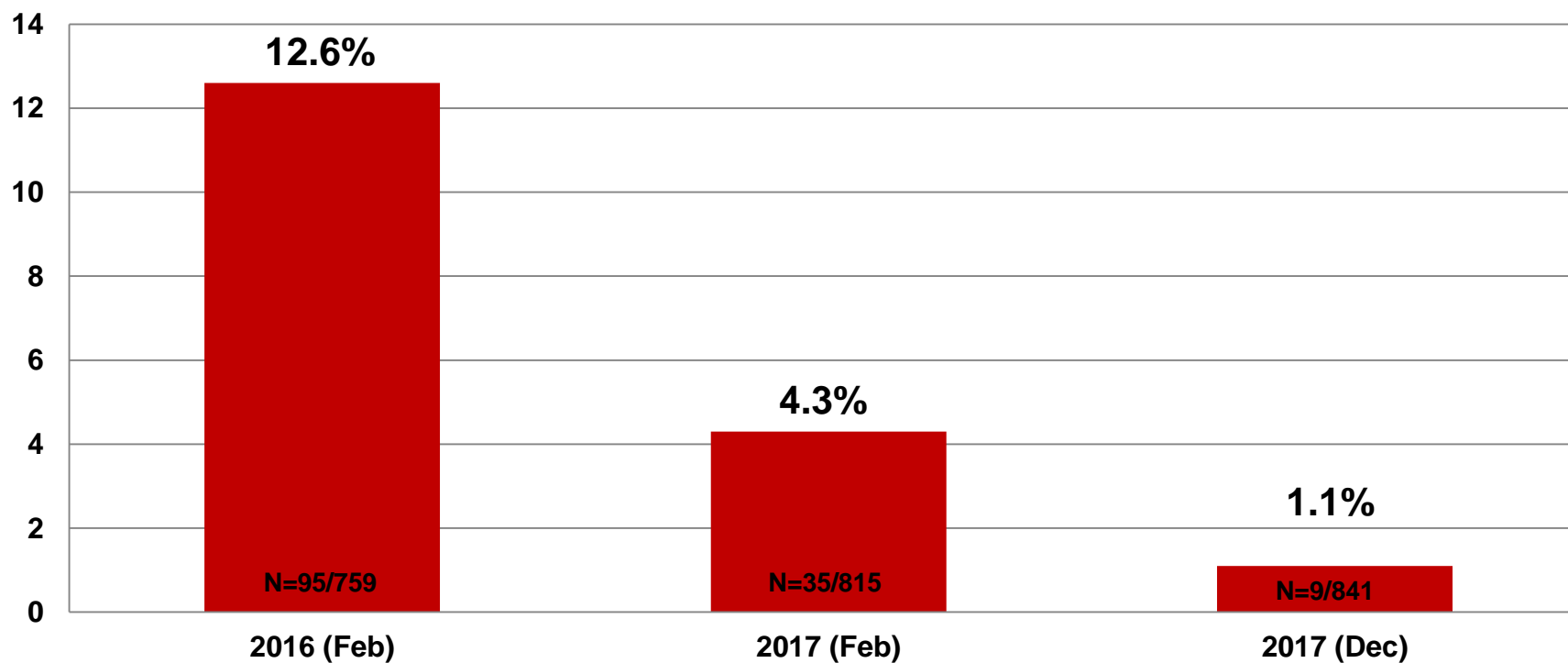
HCV RNA+ (%) = untreated + treated (VF)
+ treated (reinfection)



HCV elimination (near) in QLD prison: Lotus Glen

HCV burden within prison (800-850 inmates)

% HCV RNA+

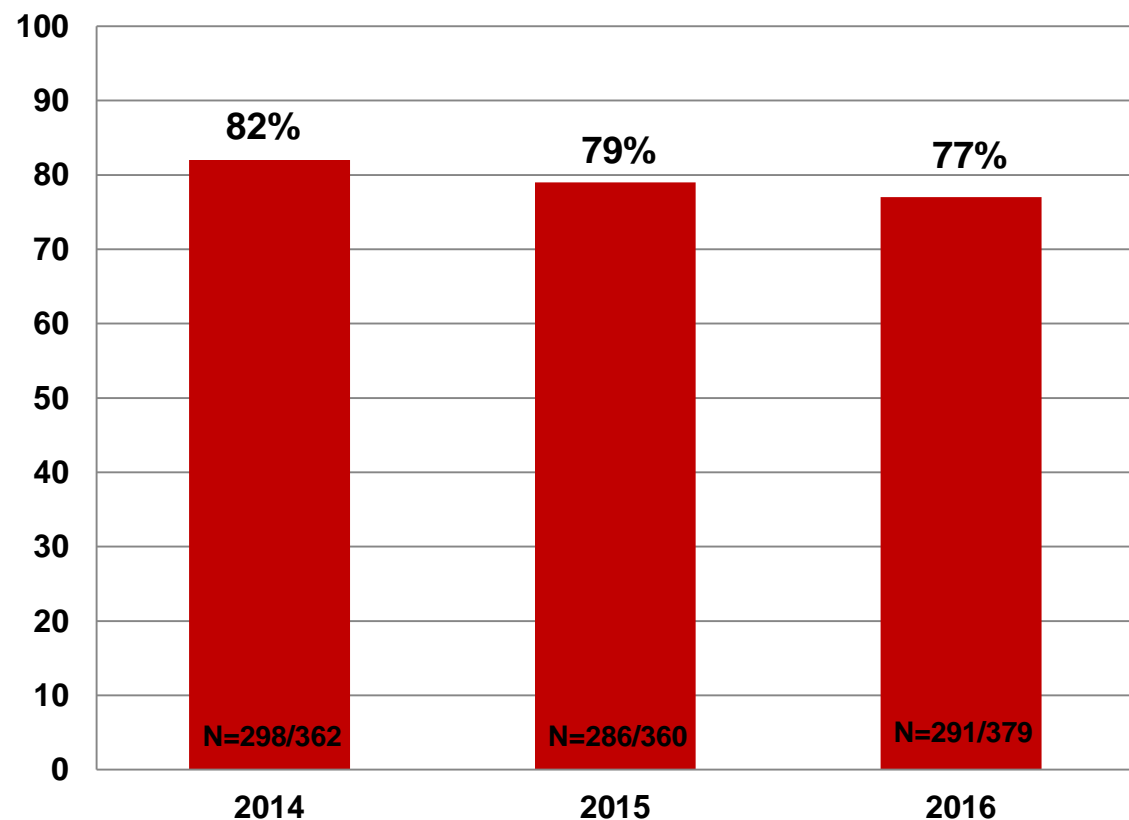


HCV elimination in HIV population



HCV RNA prevalence among HIV/HCV cohort (antibody +ve)

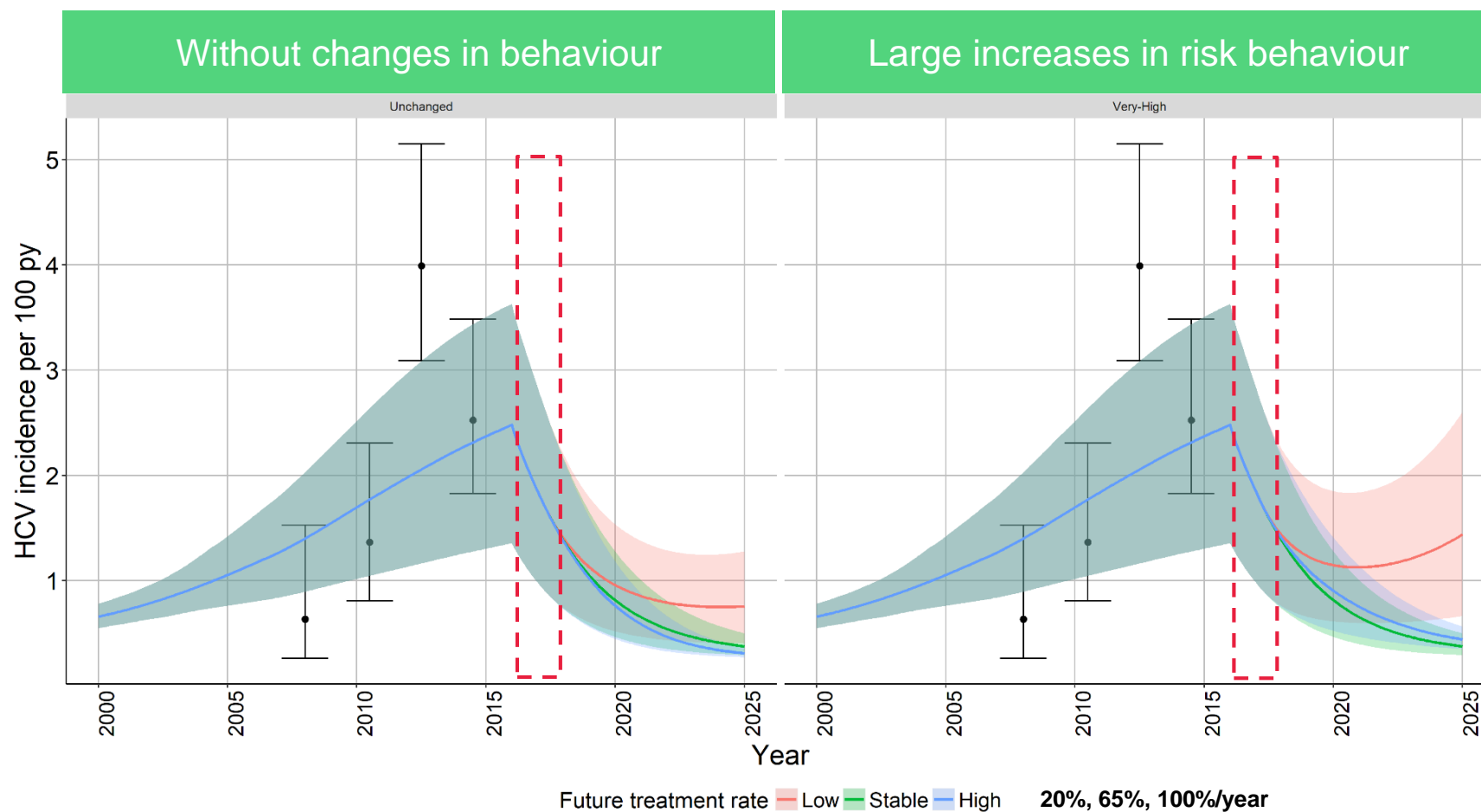
% HCV RNA+



HCV elimination in HIV population



Modelling HCV incidence in Australian HIV population

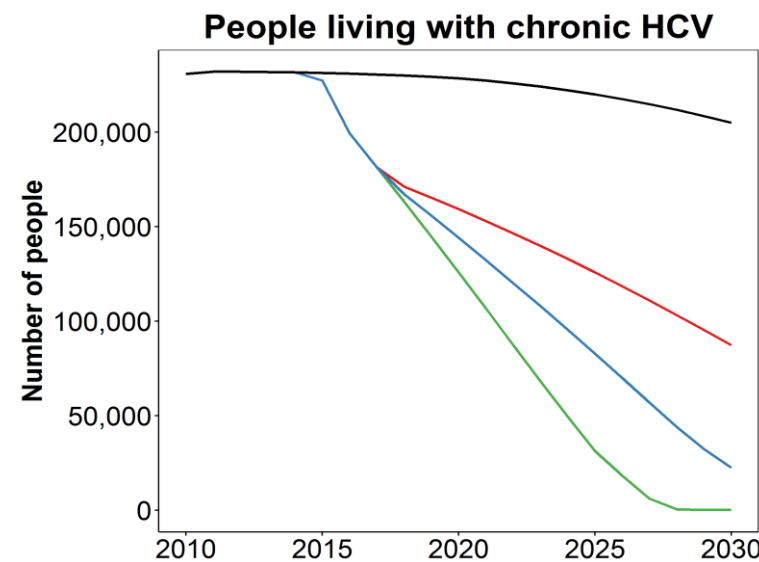
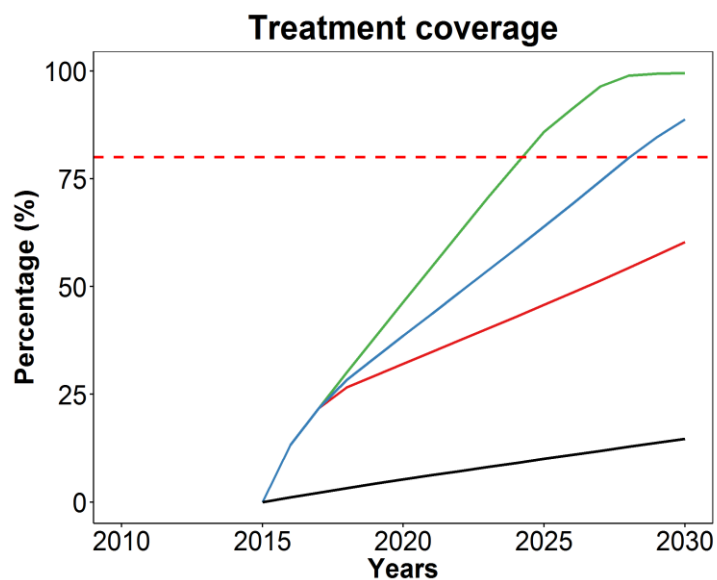


Key challenges to keep Australia “on-track”

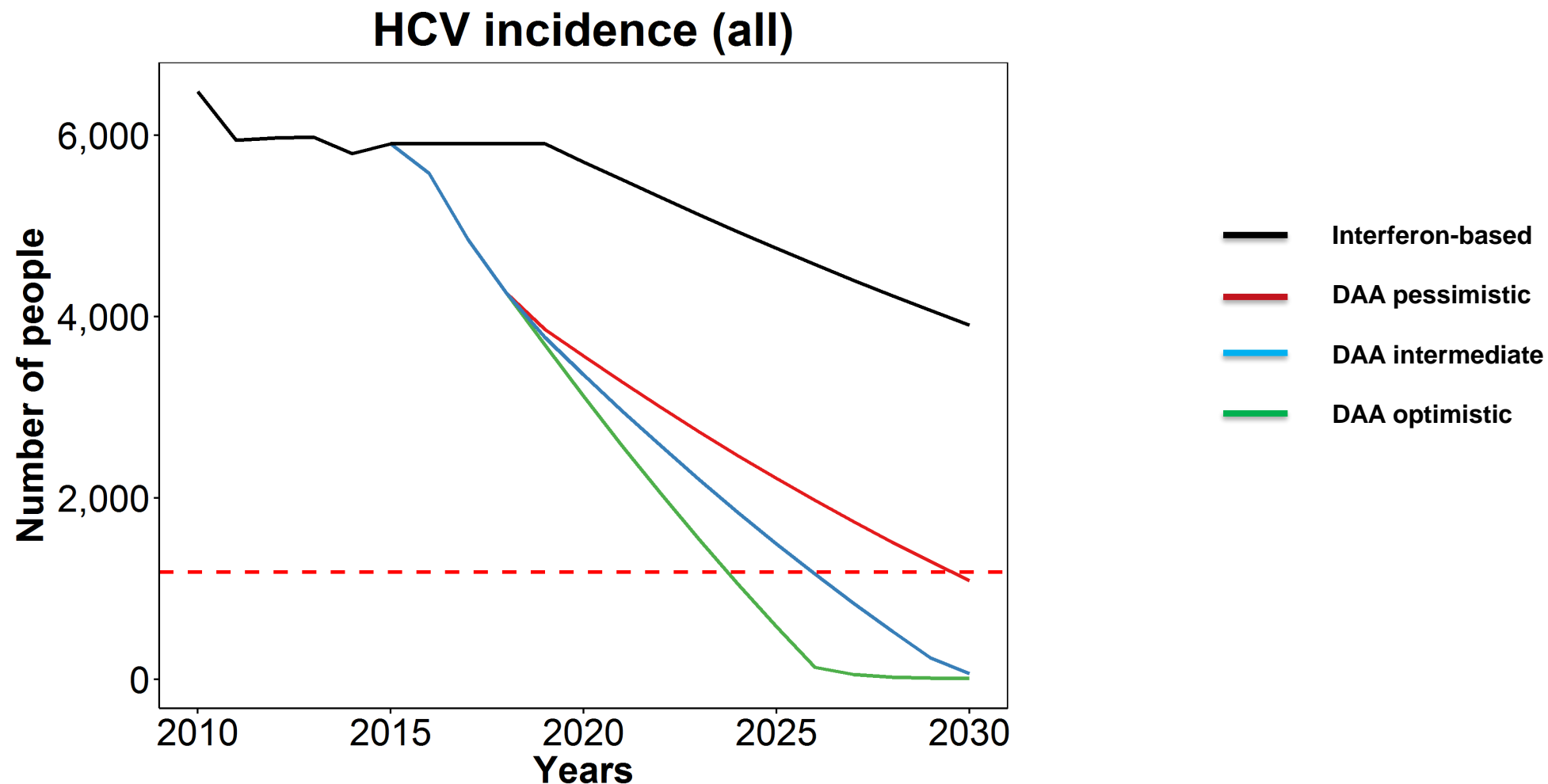
- Continued improvement in health systems to provide DAA access
 - Enhanced HCV screening (HCV RNA) and linkage to care (role for POC HCV RNA)
 - Integration of HCV screening within homelessness and mental health services
 - Increased DAA treatment in prison and community PWID populations (e.g. NSPs)
 - Non-specialist involvement encouraging, but larger number of prescribers required
 - Community awareness campaigns required to enhance diagnosis and linkage to care
 - Need for ongoing monitoring and evaluation
-

HCV elimination in Australia: treatment scenarios

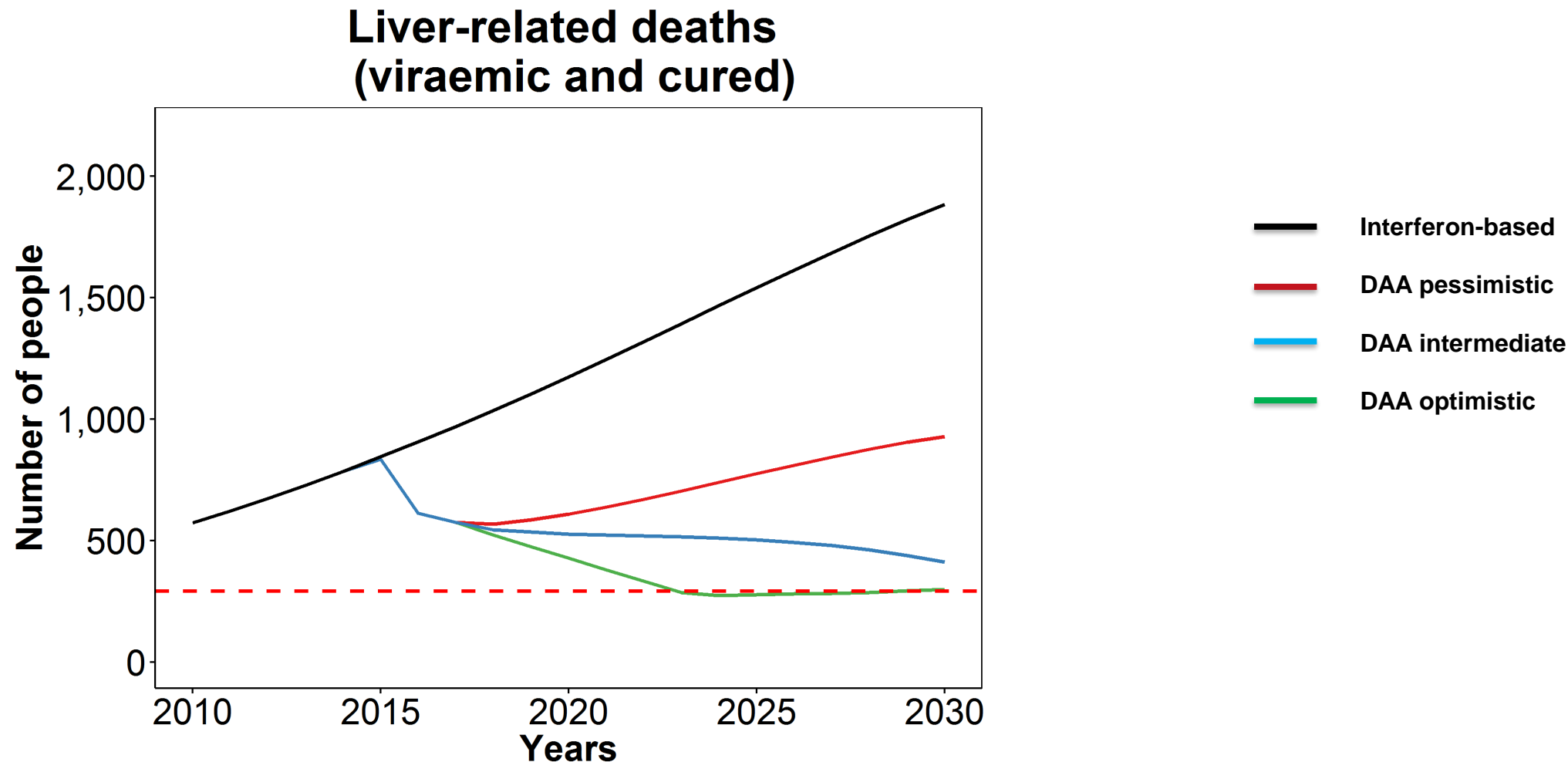
Treatment roll-out	2015 (IFN + DAA)	2016	2017	2018	Post- 2019
Pessimistic	7,296	32,600	21,370	12,822 (40%↓)	7,693 (40%↓)
Intermediate	7,296	32,600	21,370	17,096 (20%↓)	13,677 (20%↓)
Optimistic	7,296	32,600	21,370	21,370	21,370



HCV elimination in Australia: treatment scenarios



HCV elimination in Australia: treatment scenarios

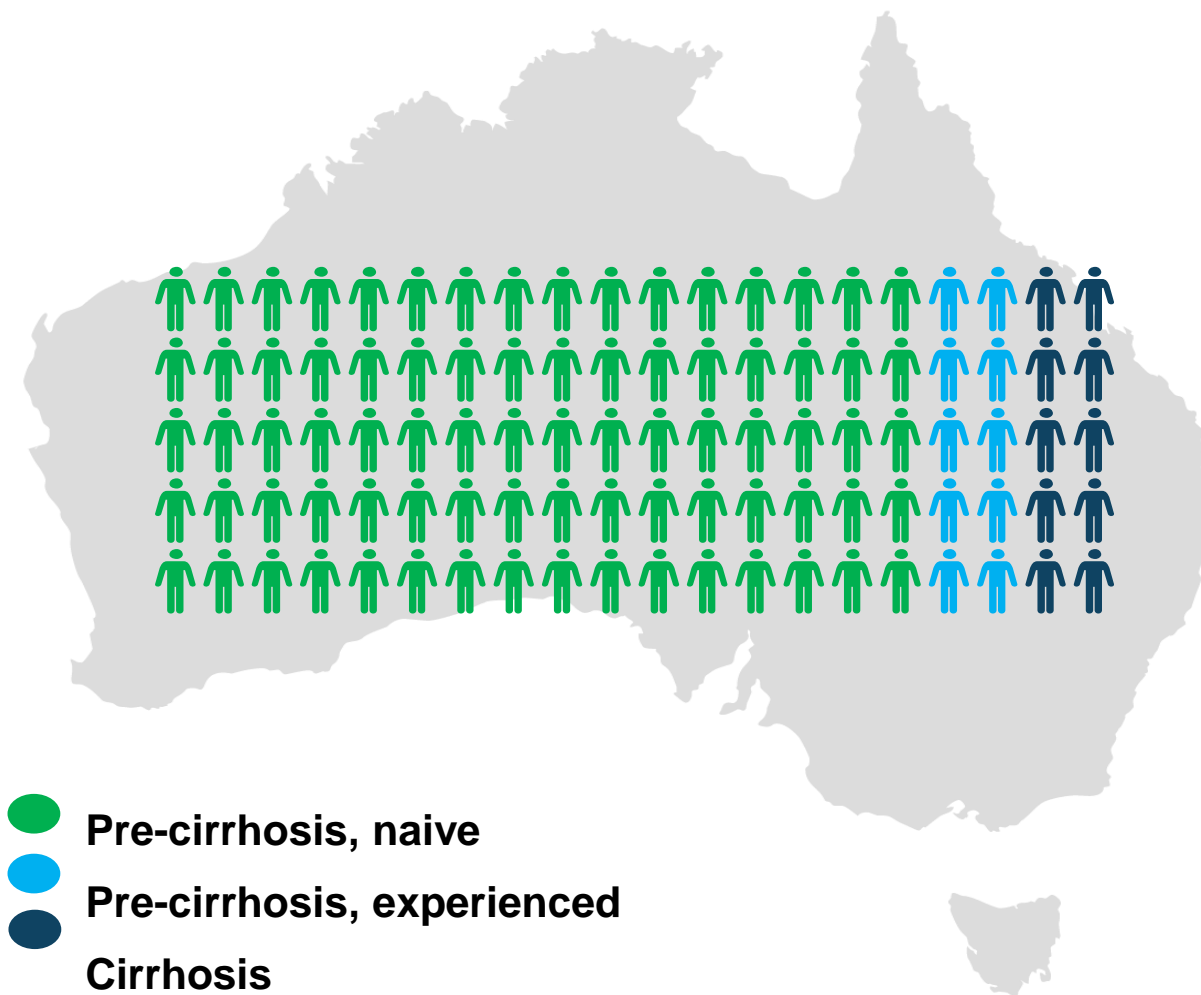


Chronic HCV prevalence in Australia: 2015

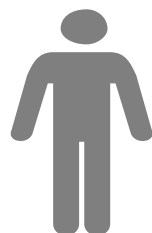


227,000

Australians live with
chronic HCV infection

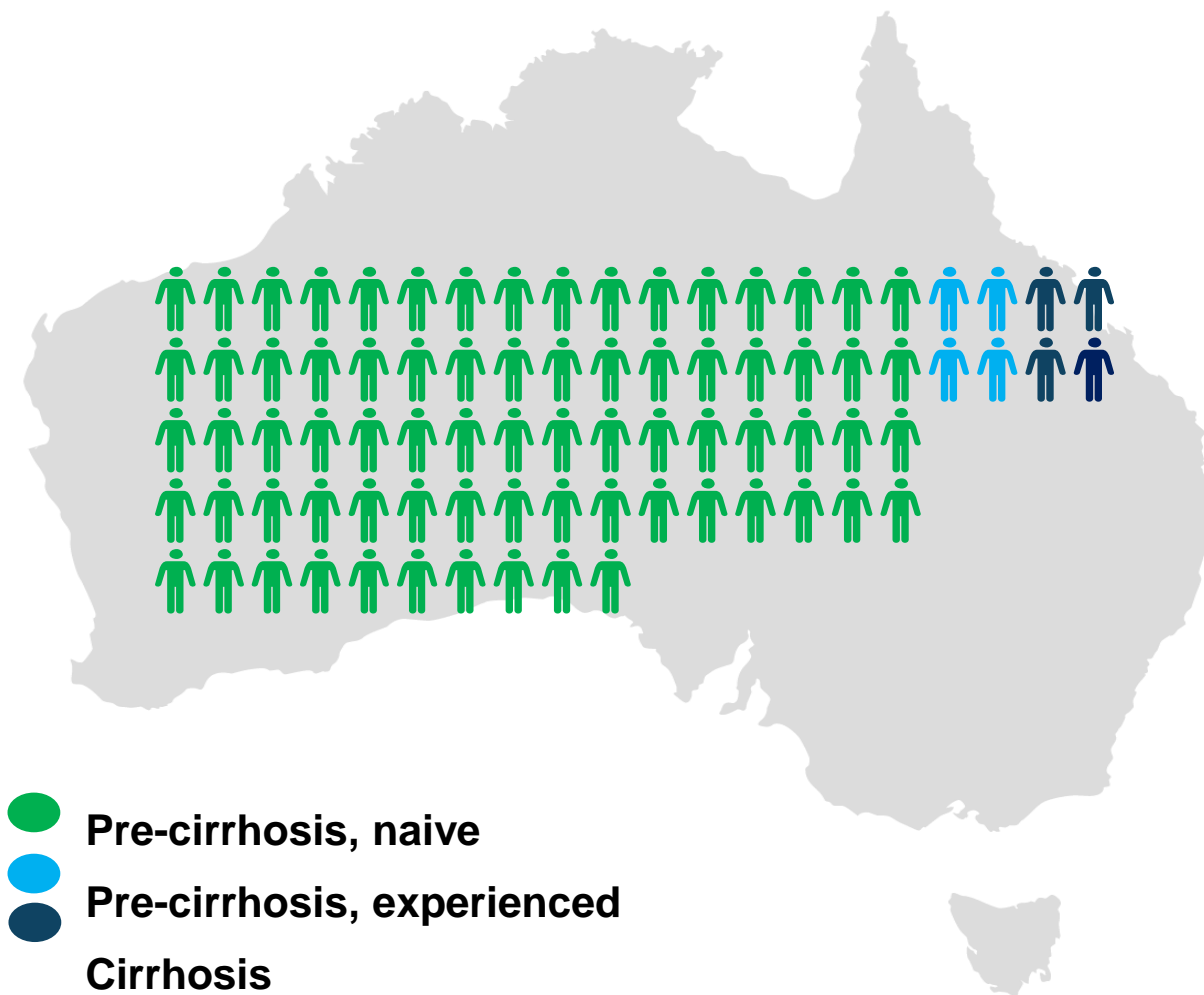


Chronic HCV prevalence in Australia: 2016

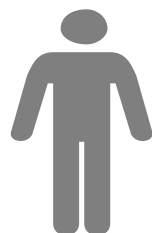


199,000

Australians live with chronic HCV infection

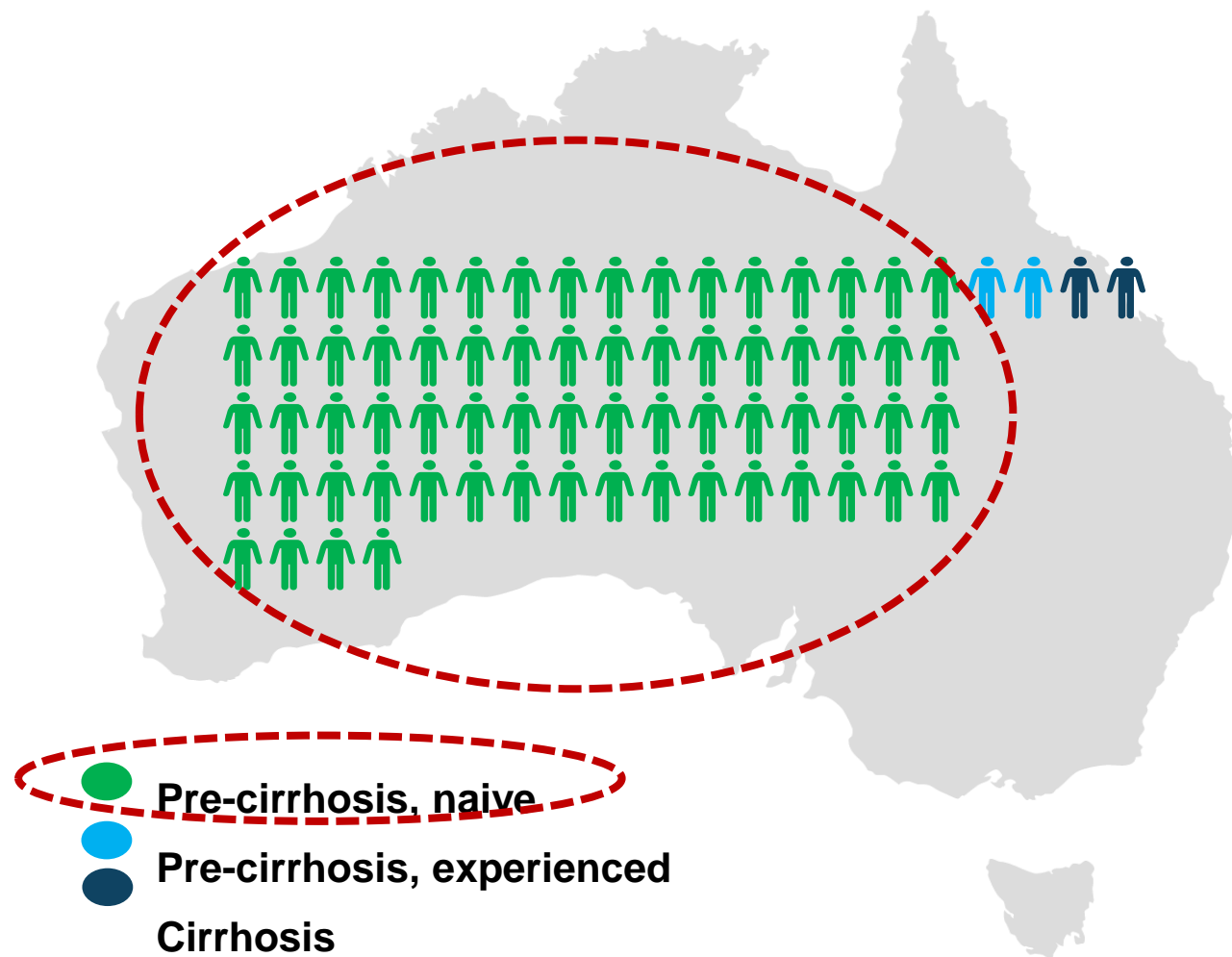


Chronic HCV prevalence in Australia: 2017



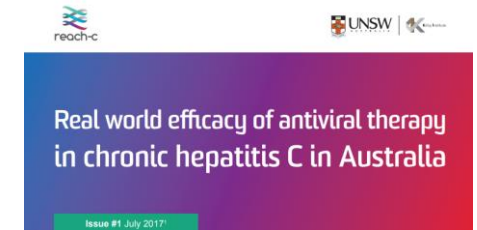
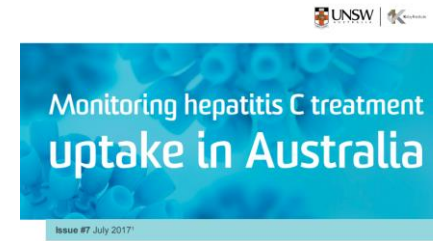
182,000

Australians live with chronic HCV infection

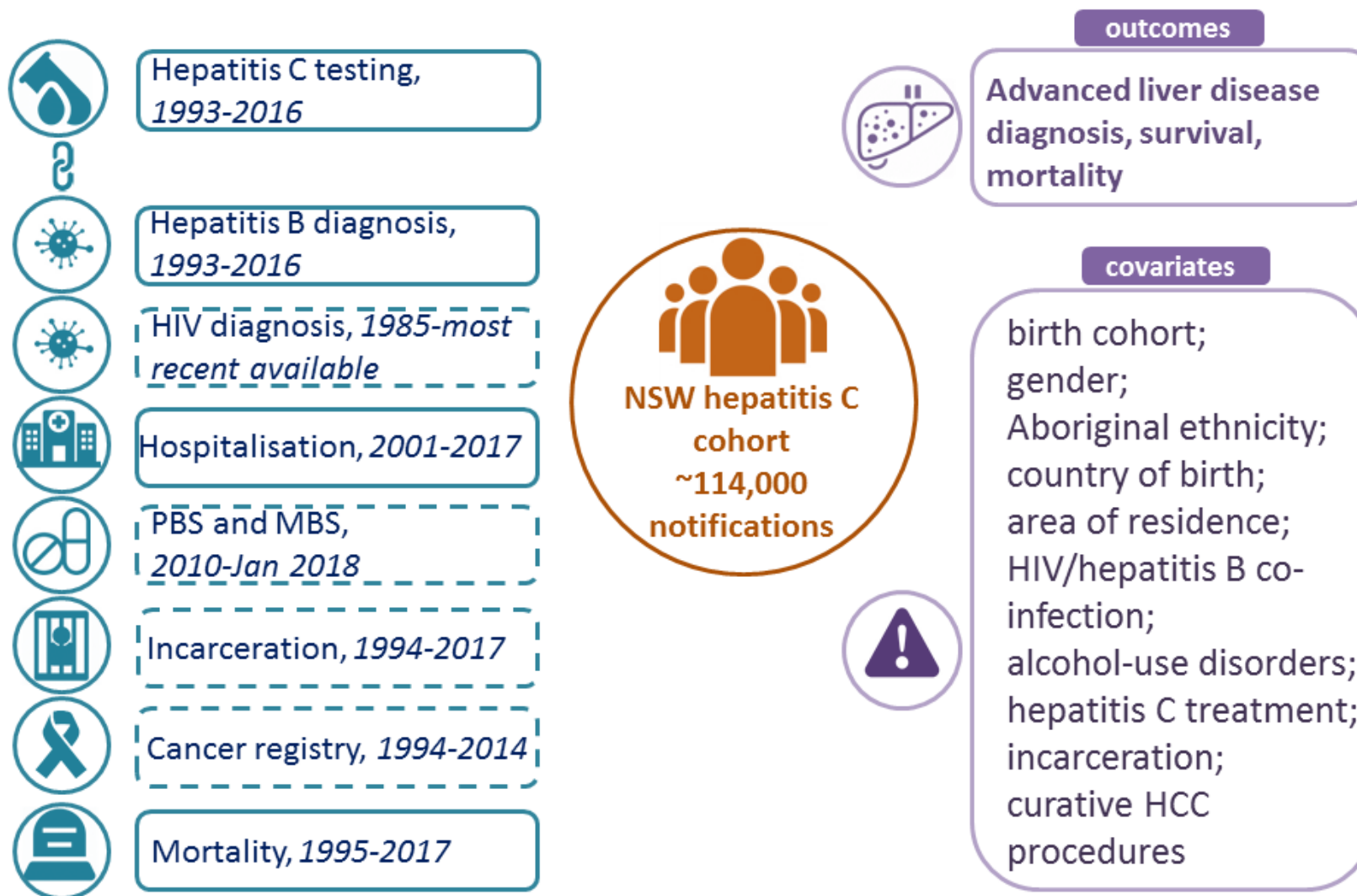


Evaluation of Australian HCV elimination

- **DAA uptake:** Monitoring of DAA treatment patterns, including regimen, prescriber, demography
- **Real-world DAA treatment outcomes:** REACH-C study, covering range of clinics (n>3,000 patients)
- **Liver Disease burden:** HCV notifications linked to hospitalizations, cancer registry, and death registry
- **Chronic HCV prevalence in high-risk populations:** NSP survey for current PWID; CEASE/co-EC for HIV
- **HCV incidence (and reinfection):** ACCESS database; HCV notifications (acute, younger age); Cohort studies

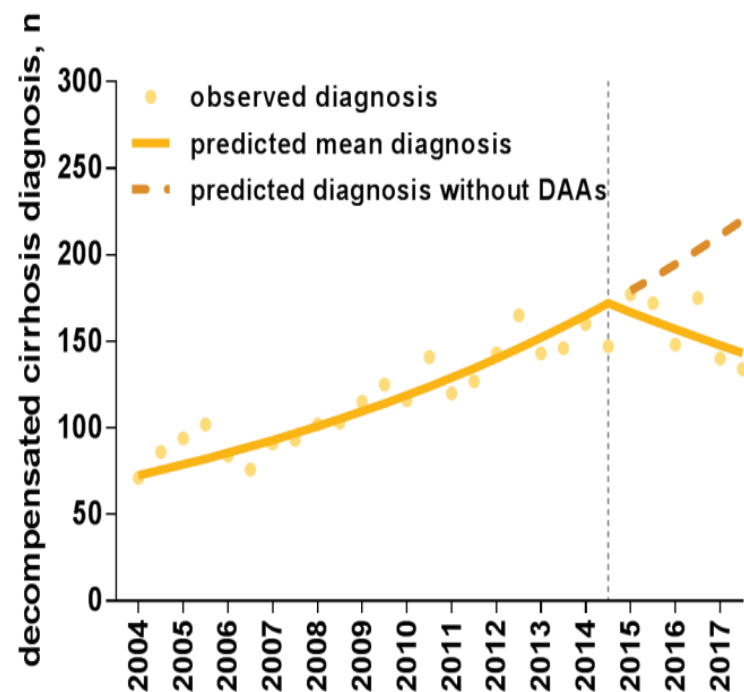


NSW data linkage 2018



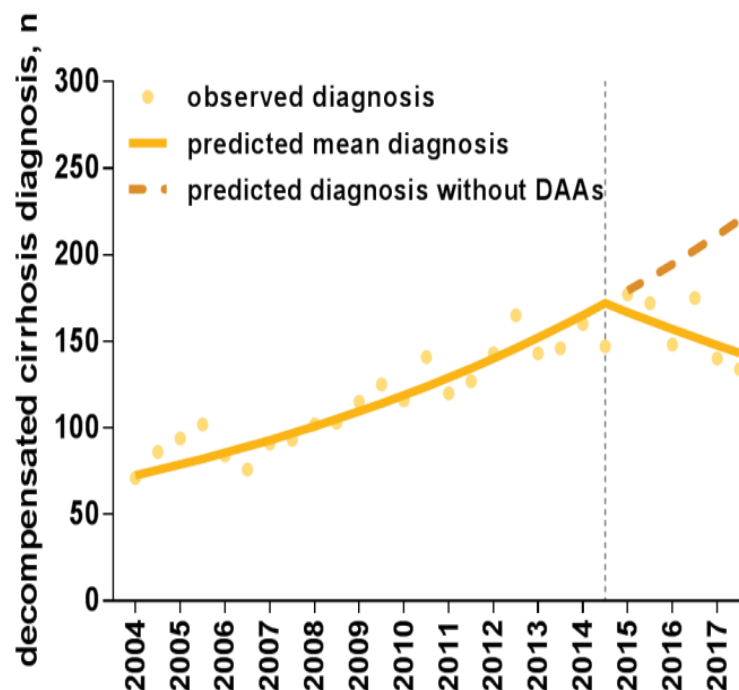
ESLD and liver-related deaths: NSW data linkage

Decompensated cirrhosis

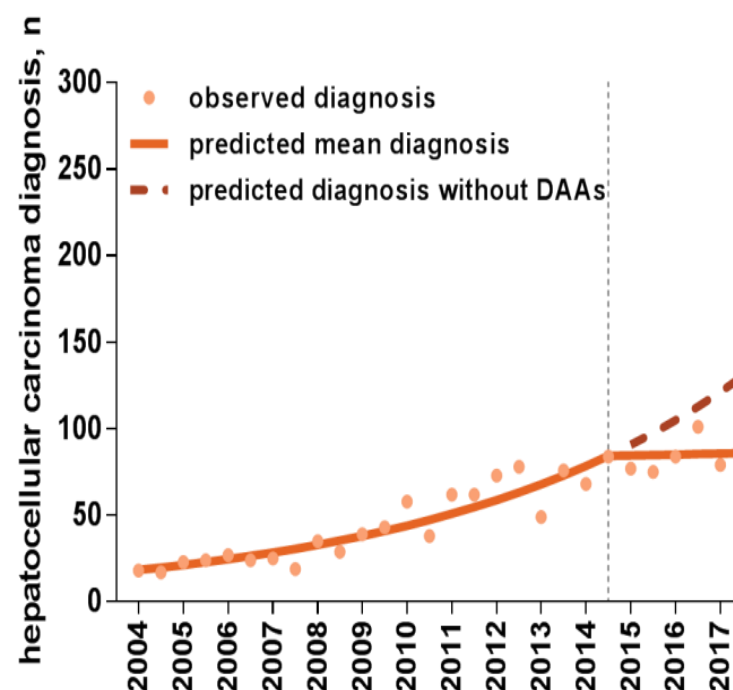


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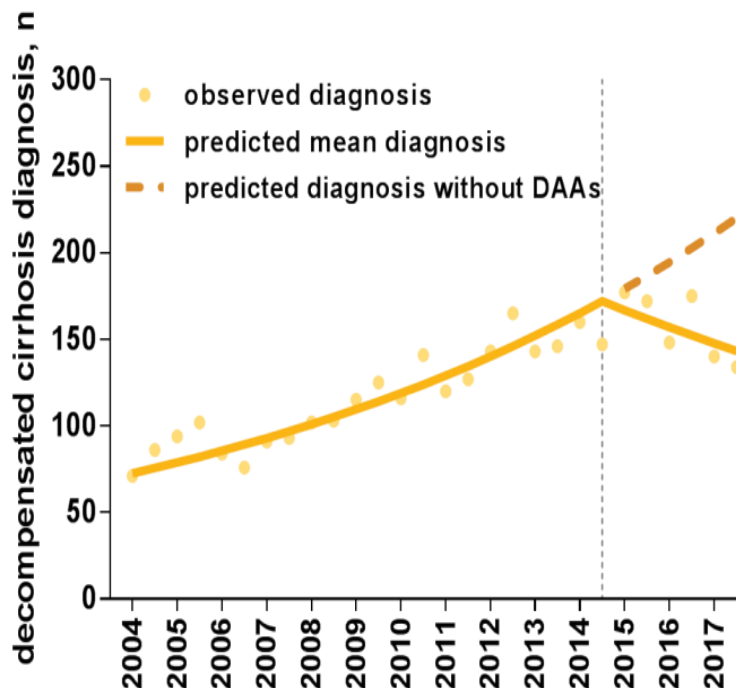


Hepatocellular carcinoma

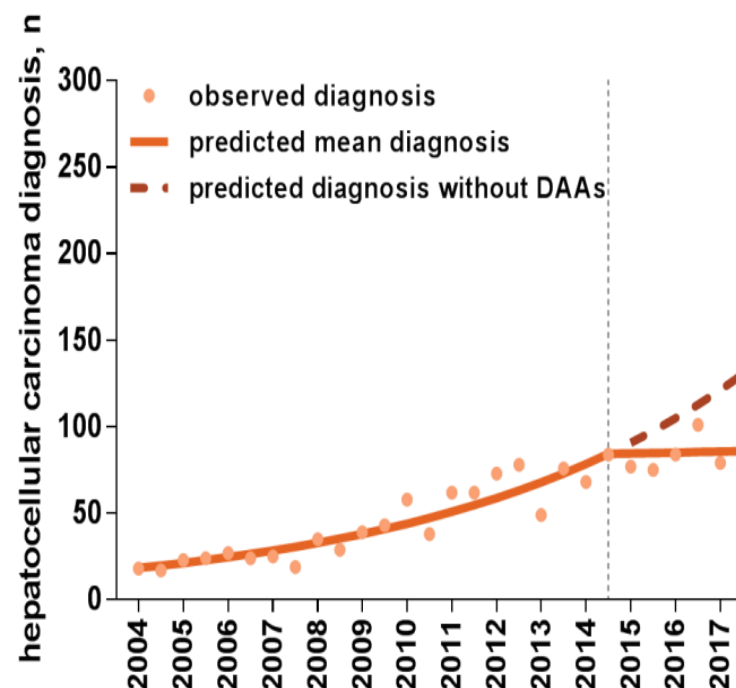


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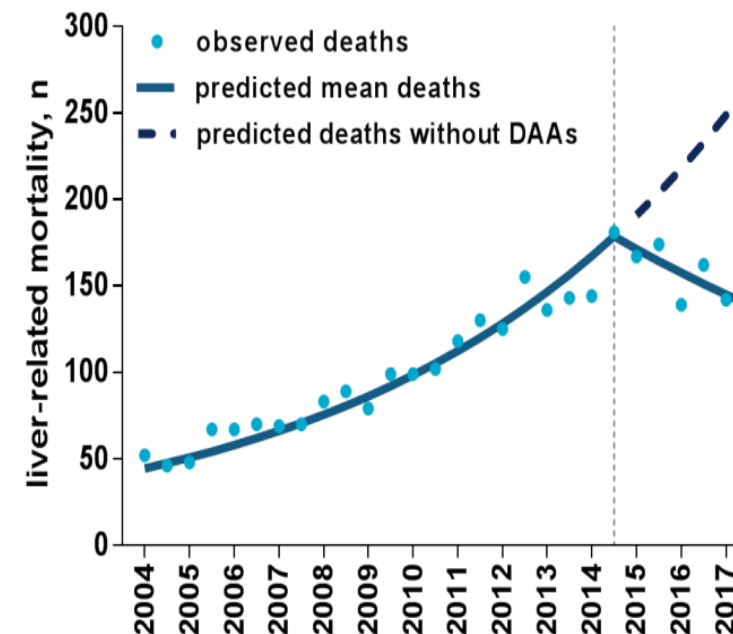
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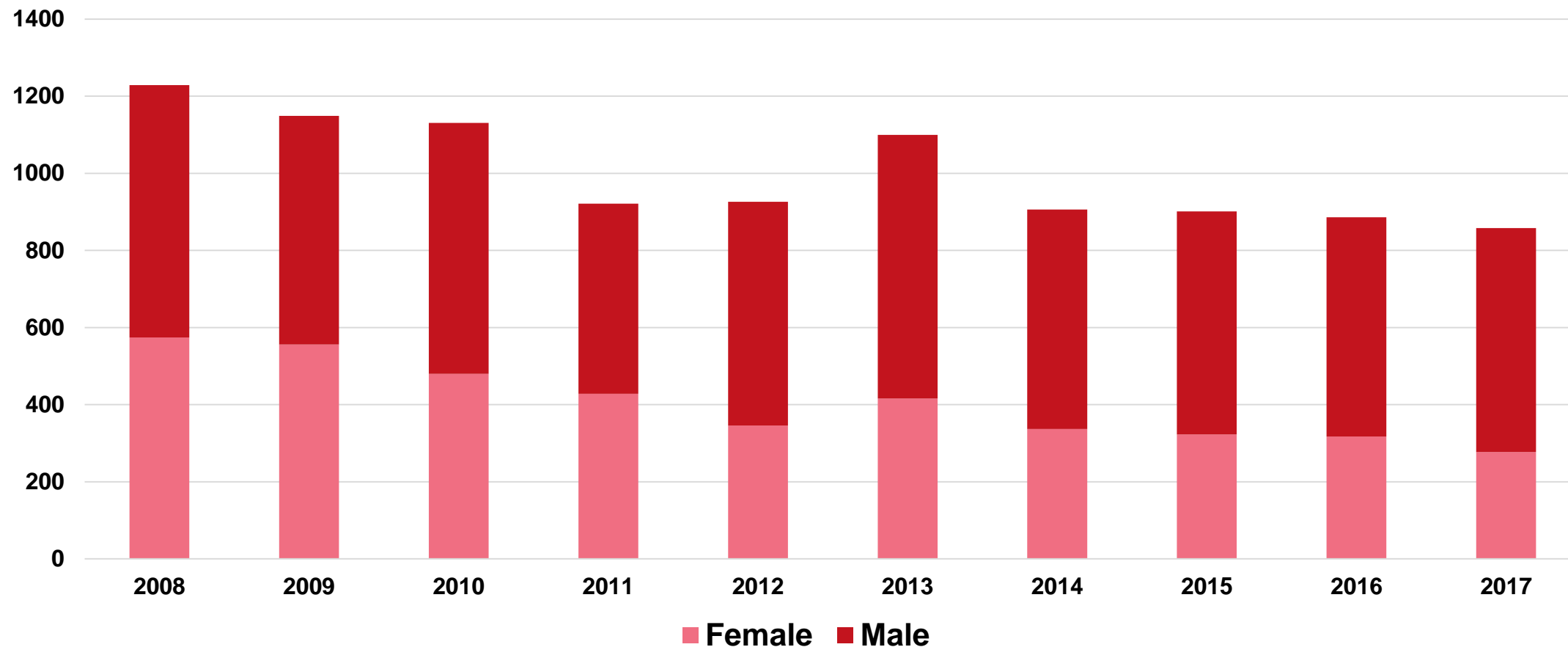
Hepatocellular carcinoma



Liver-related deaths



HCV notifications in Australia: 15 – 24 years



Acknowledgements



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