Viral Hepatitis in 2019: Opportunities and Challenges

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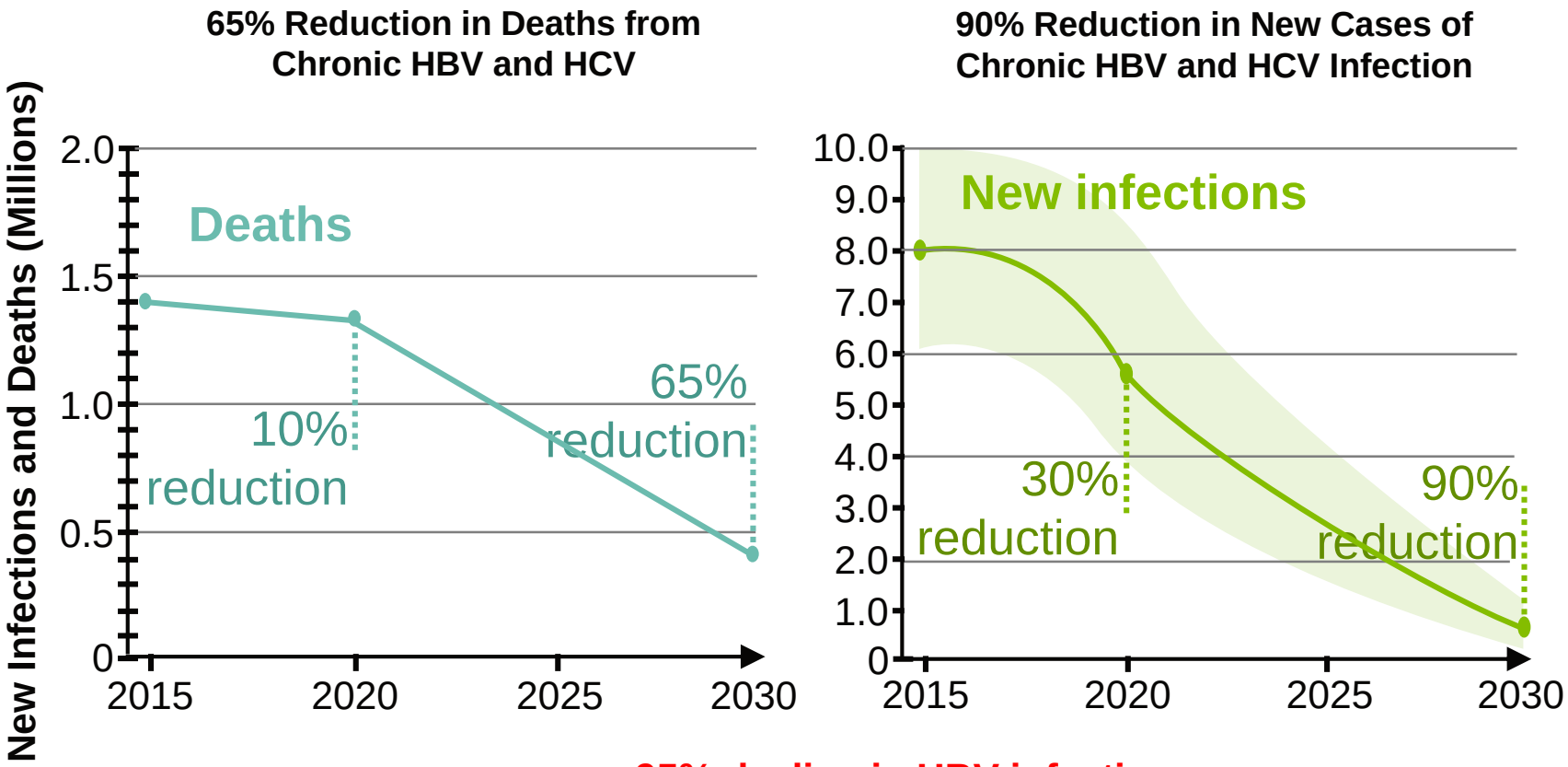
Kirby Institute

Disclosures

I have received research funding from Gilead Sciences and Abbvie Inc

WHO Viral Hepatitis Elimination Targets: 2016

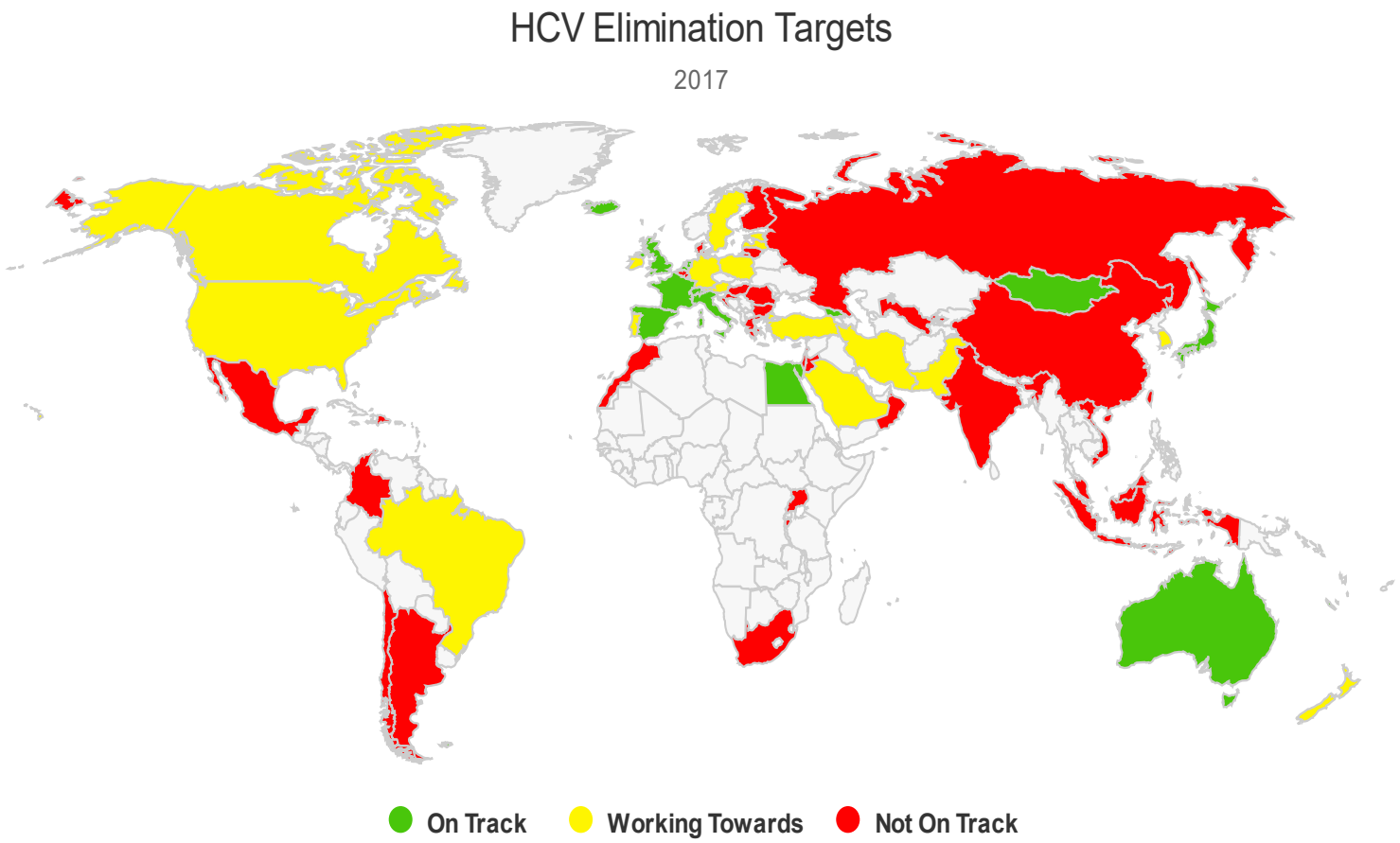


95% decline in HBV infections
80% decline in HCV infections

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

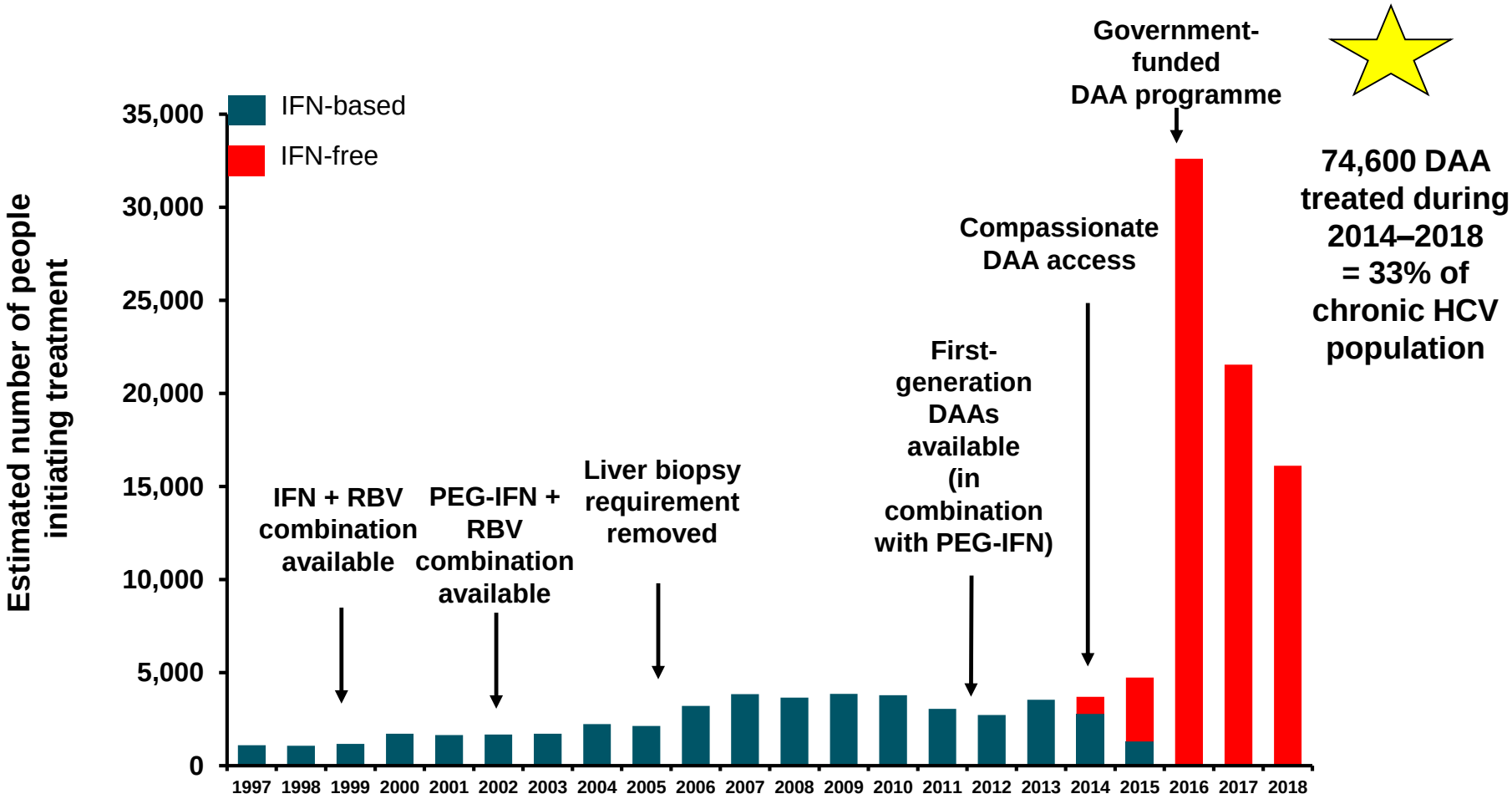
WHO global health sector strategy on viral hepatitis 2016–2021. Available at: http://www.who.int/hepatitis/strategy2016-2021/ghss-hep/en/ (accessed March 2018).

HCV: Australia is ‘on track’



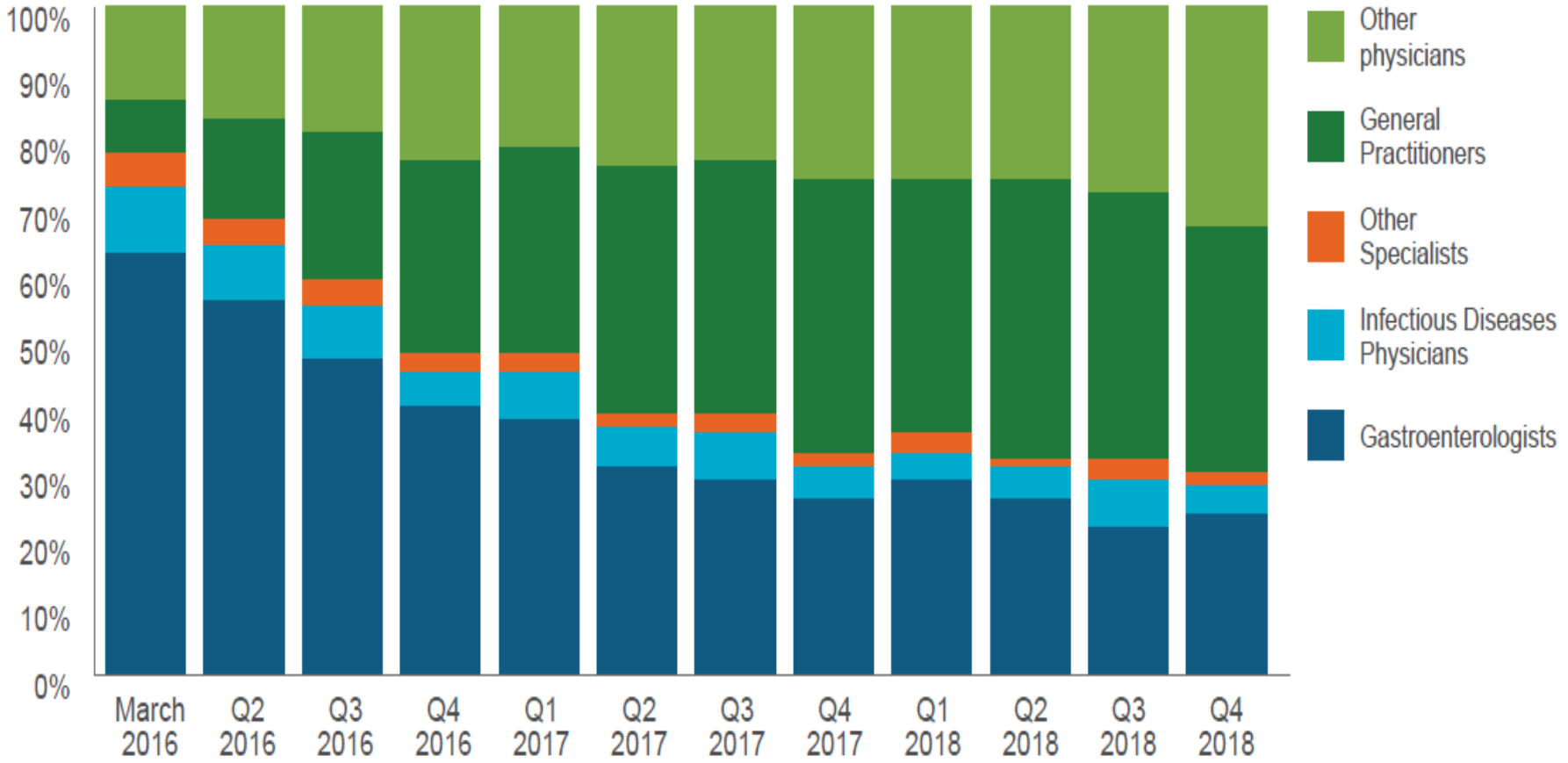
CDA 2017: Polaris Observatory (http://centerforda.com/polaris/)

HCV treatment uptake in Australia: 1997–2018



Adapted from Dore GJ, Hajarizadeh B. Infect Dis Clin N Am 2018;32:269–79

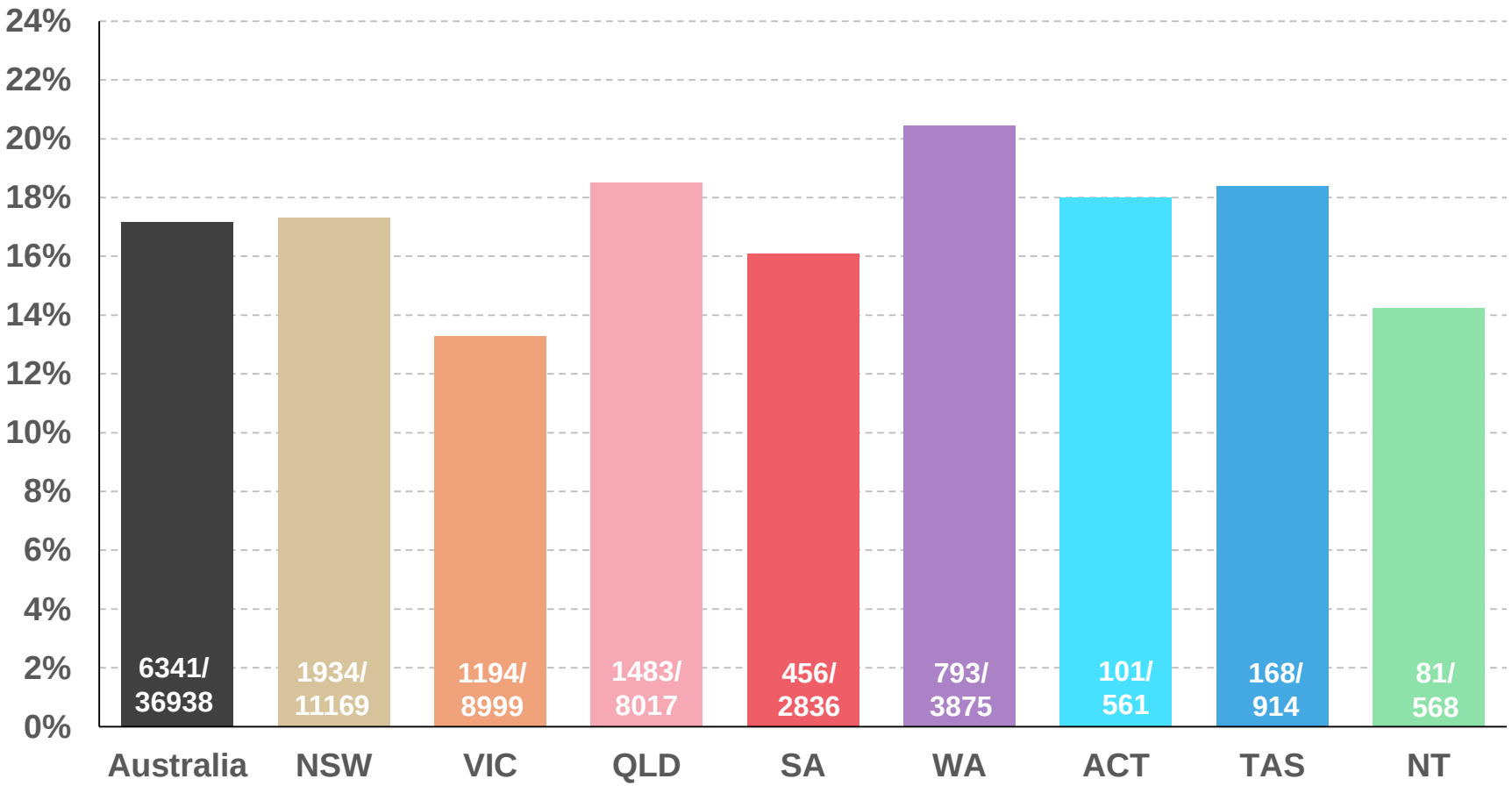
Increasing proportion of non-specialist treatment



Monitoring hepatitis C treatment uptake in Australia, Issue 10, June 2019. https://kirby.unsw.edu.au/report/monitoring-hepatitis-c-treatment-uptake-australia-issue-10-june-2019

GP DAA prescribing: March 2016 to March 2019

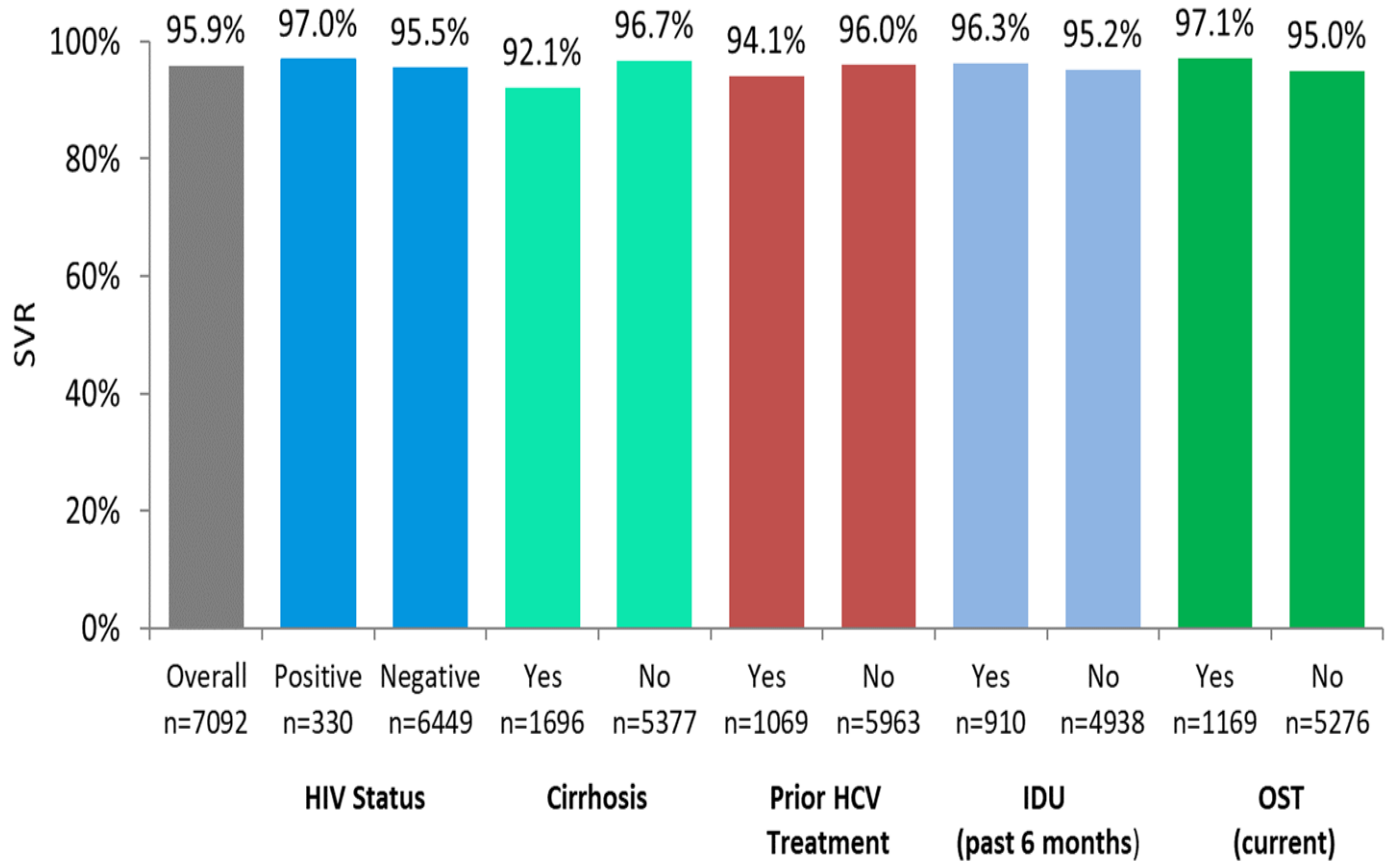
17% of GPs (13% to 20% across jurisdictions) prescribed DAA



Hajarizadeh B. Kirby 2019 (PBS 100% sample)

High DAA efficacy across all sub-populations

REACH-C study: Per protocol analysis*
(n=7,092)



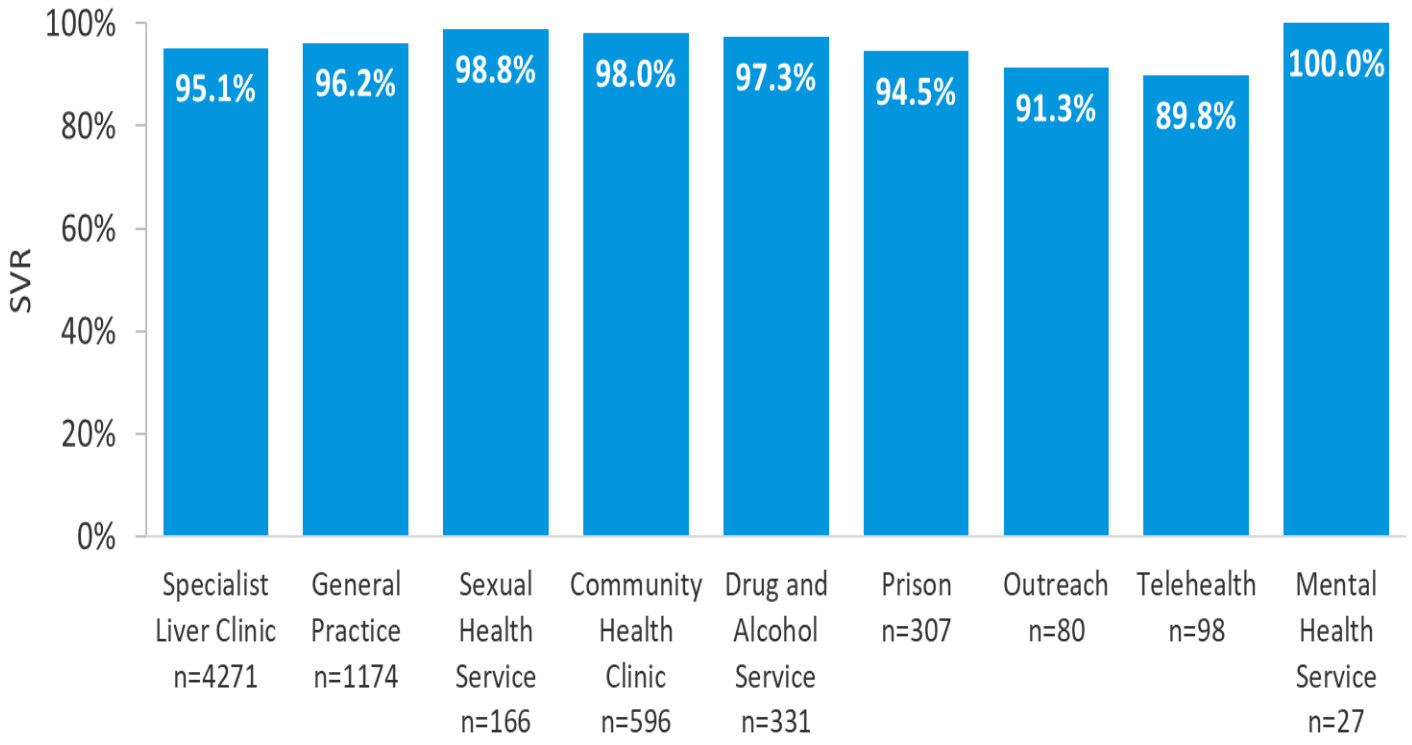
***n=1,746 with unknown SVR; 20%**

Initiations from Mar 2016 – Dec 2018

Yee et al, AVEHC 2019

High DAA efficacy across all service models

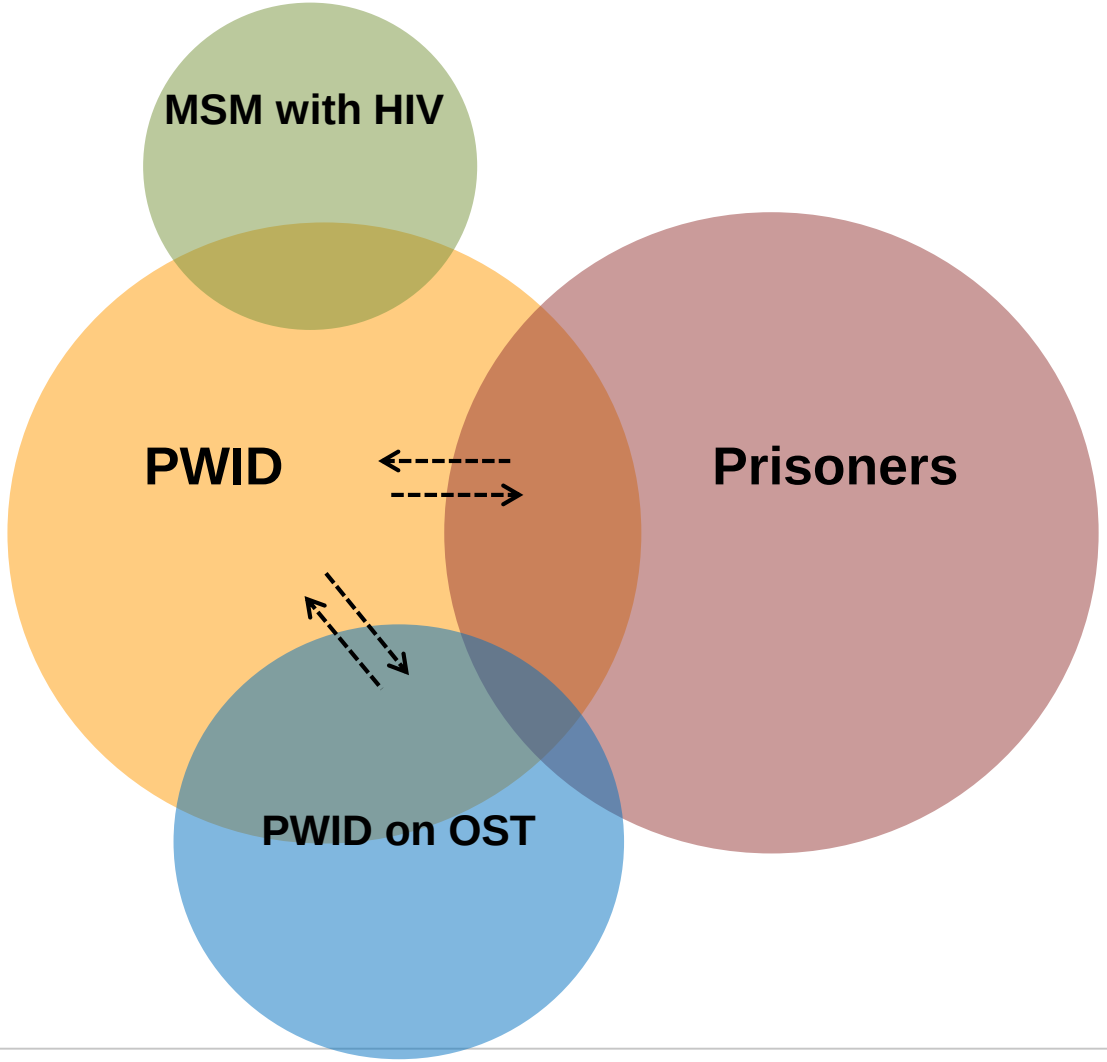
**REACH-C study: Per protocol analysis*
(n=7,092)**



***n=1,746 with unknown SVR; 20%**

Initiations from Mar 2016 – Dec 2018

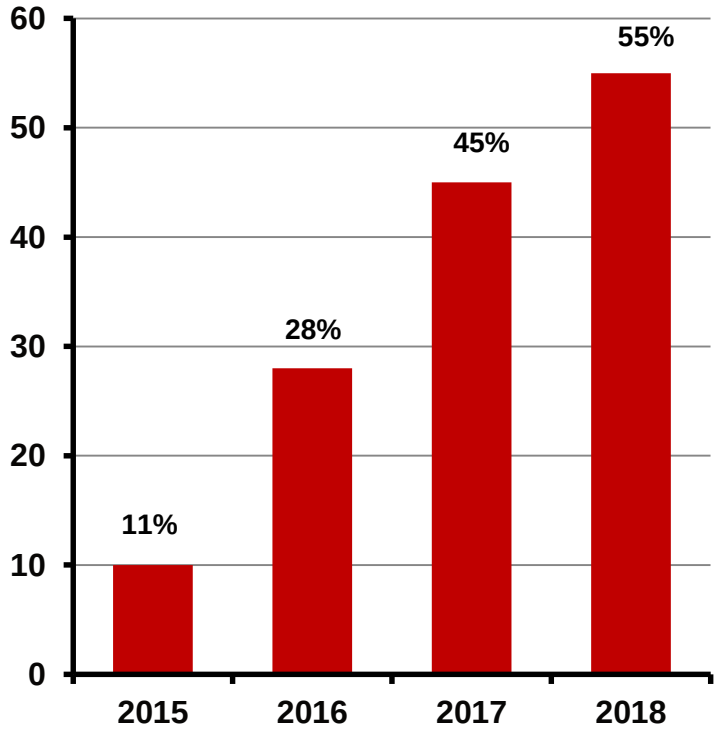
High risk transmission populations for HCV



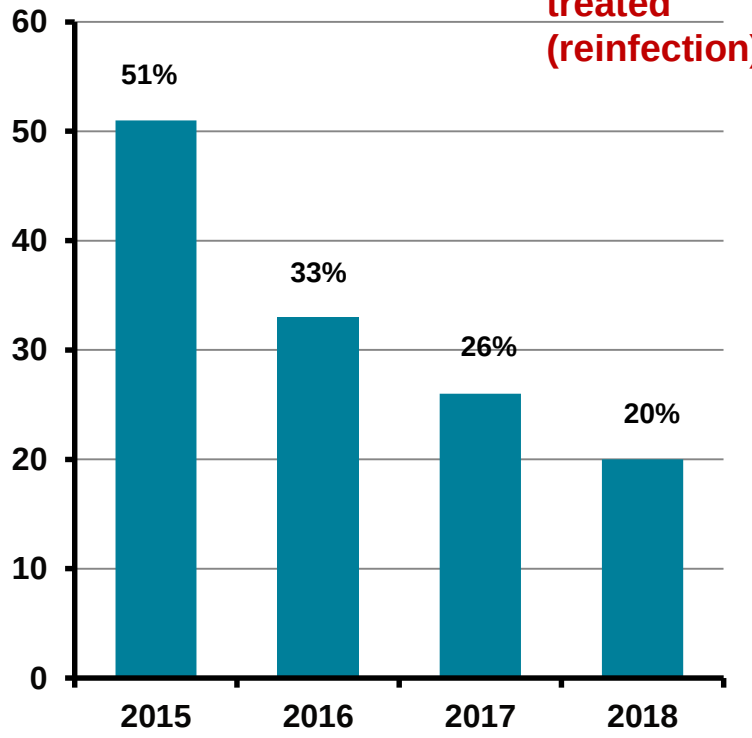
DAA uptake high in current PWID

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

Ever HCV Treatment among Chronic HCV (%)



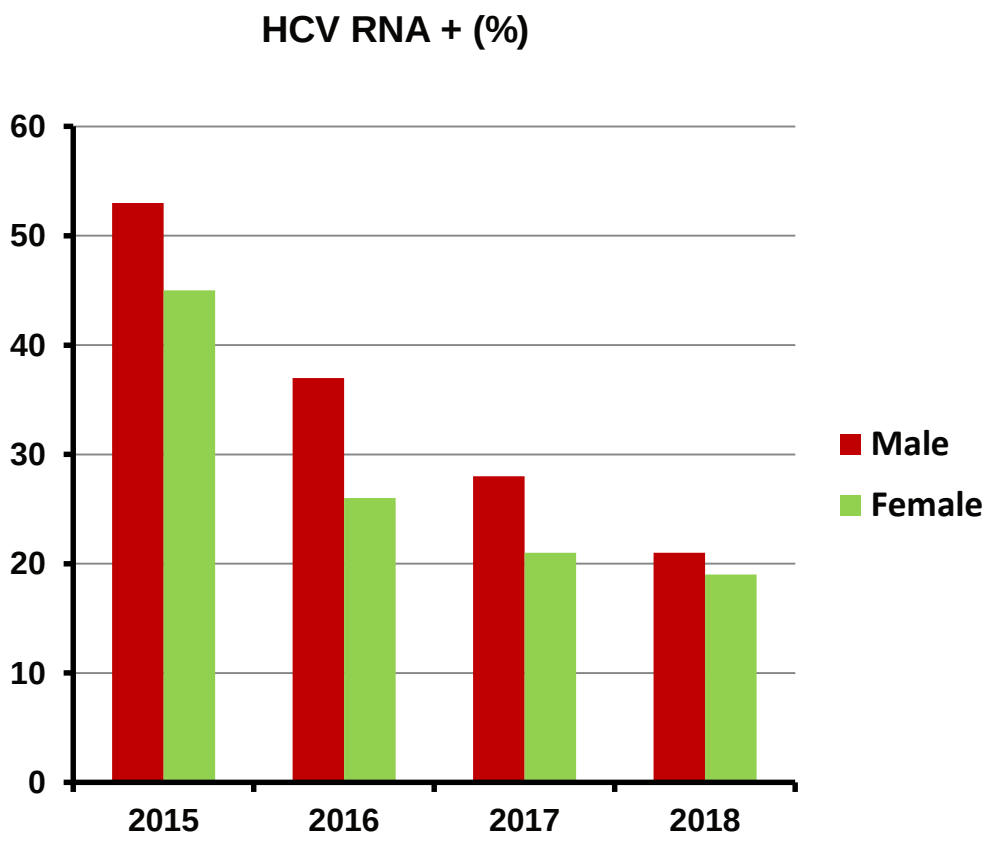
HCV RNA+ (%) **= untreated + treated (VF) + treated (reinfection)**



Annual NSP Survey National Data Report 2014 – 2018, Kirby Institute 2019

HCV RNA prevalence by gender in PWID

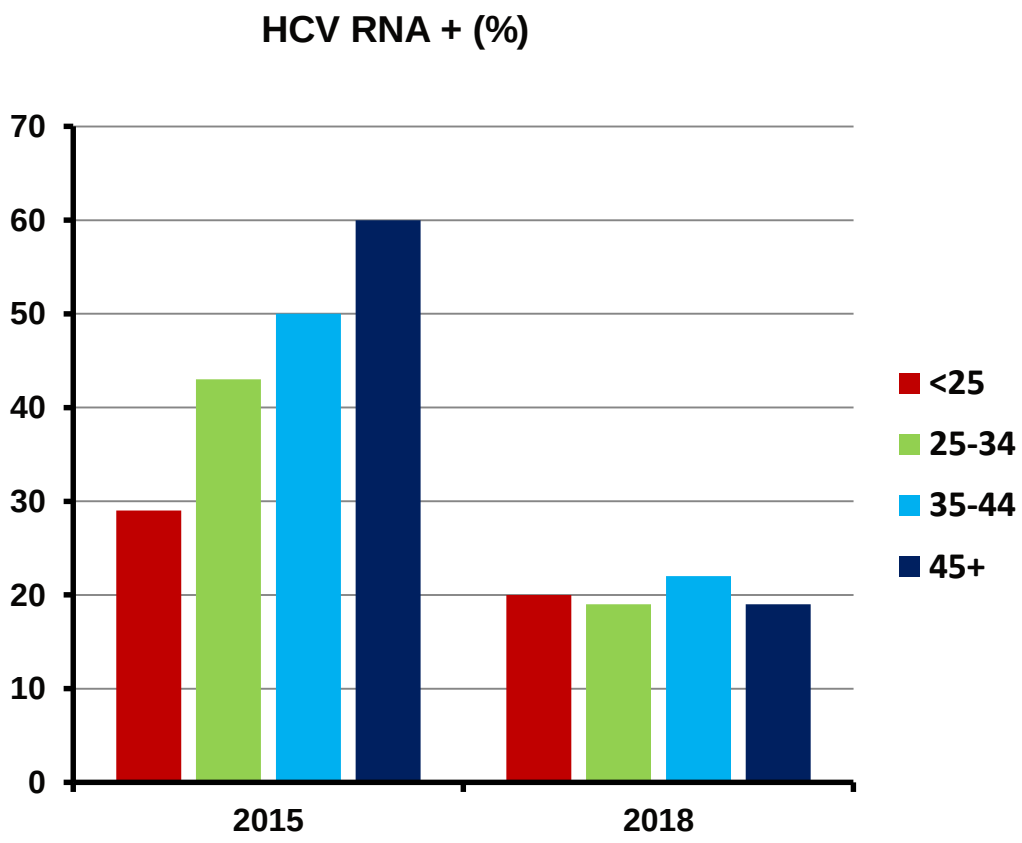
Annual Needle Syringe Program Survey (n = 2,000-2,500)



Annual NSP Survey National Data Report 2014 – 2018, Kirby Institute 2019

HCV RNA prevalence by age in PWID

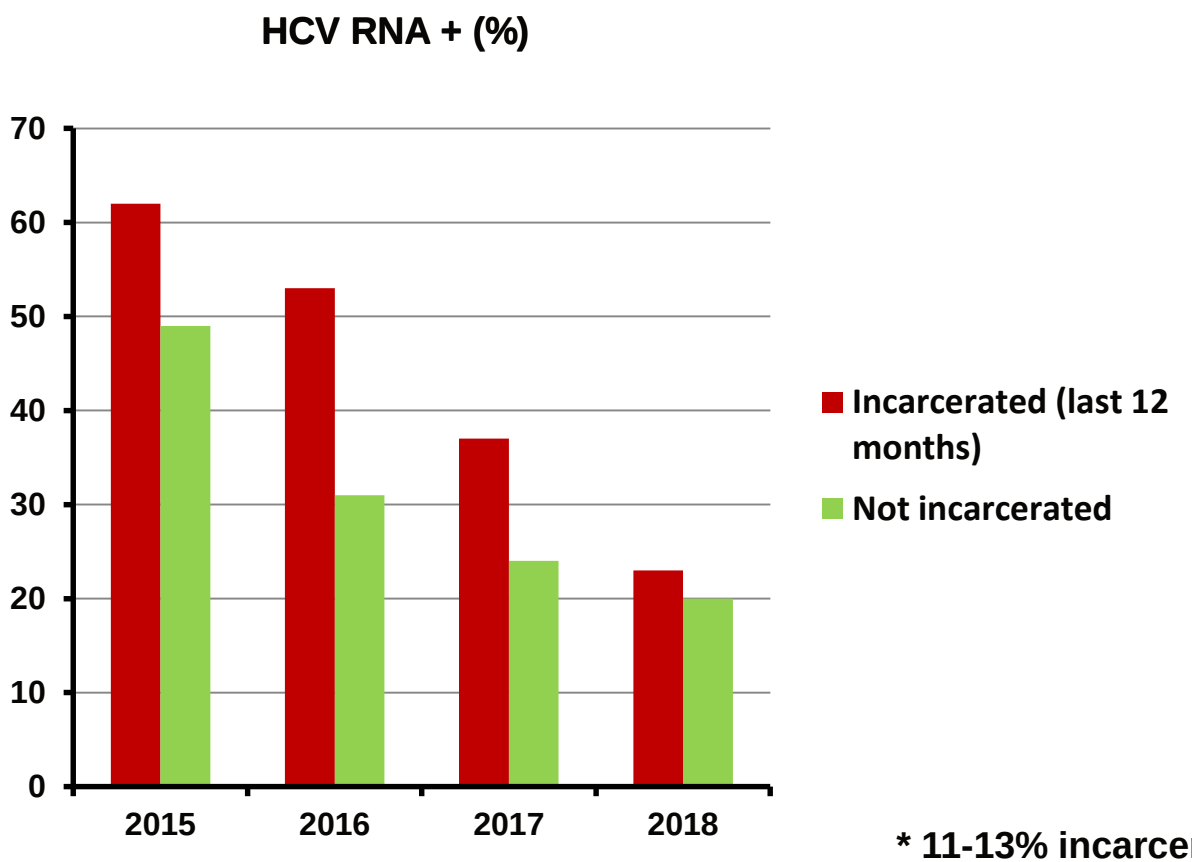
Annual Needle Syringe Program Survey (n = 2,000-2,500)



Annual NSP Survey National Data Report 2014 – 2018, Kirby Institute 2019

HCV RNA prevalence by incarceration* in PWID

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

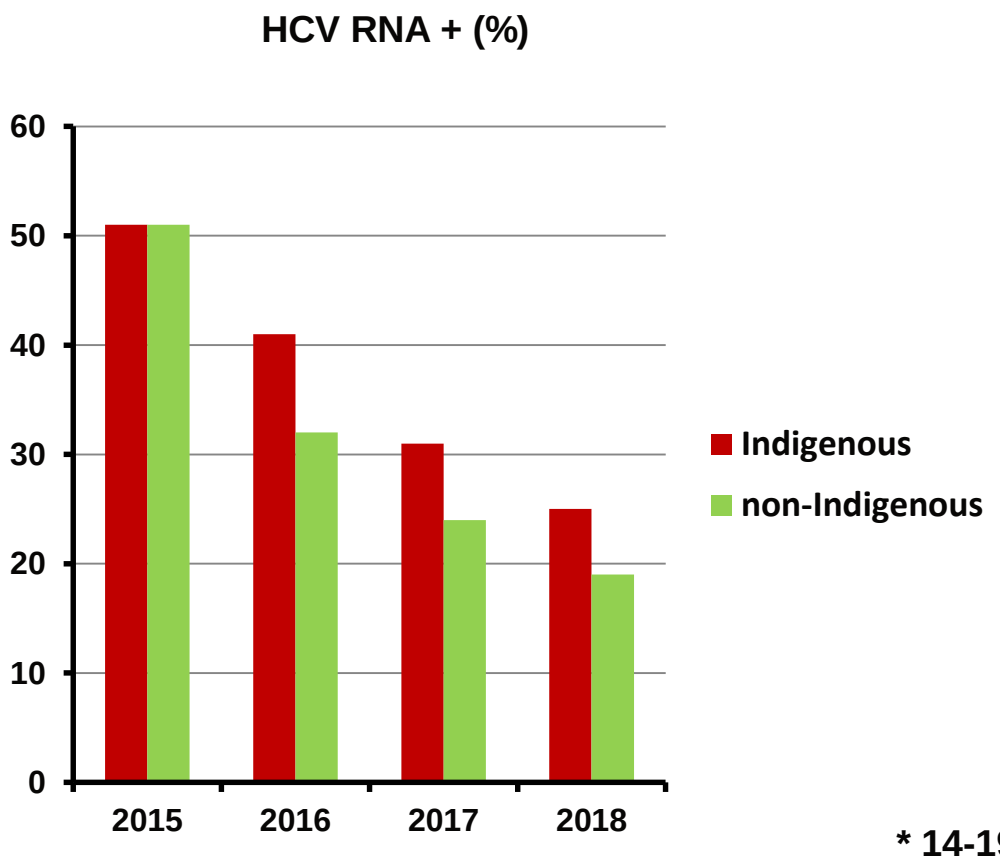


* 11-13% incarcerated in last 12 months

Annual NSP Survey National Data Report 2014 – 2018, Kirby Institute 2019

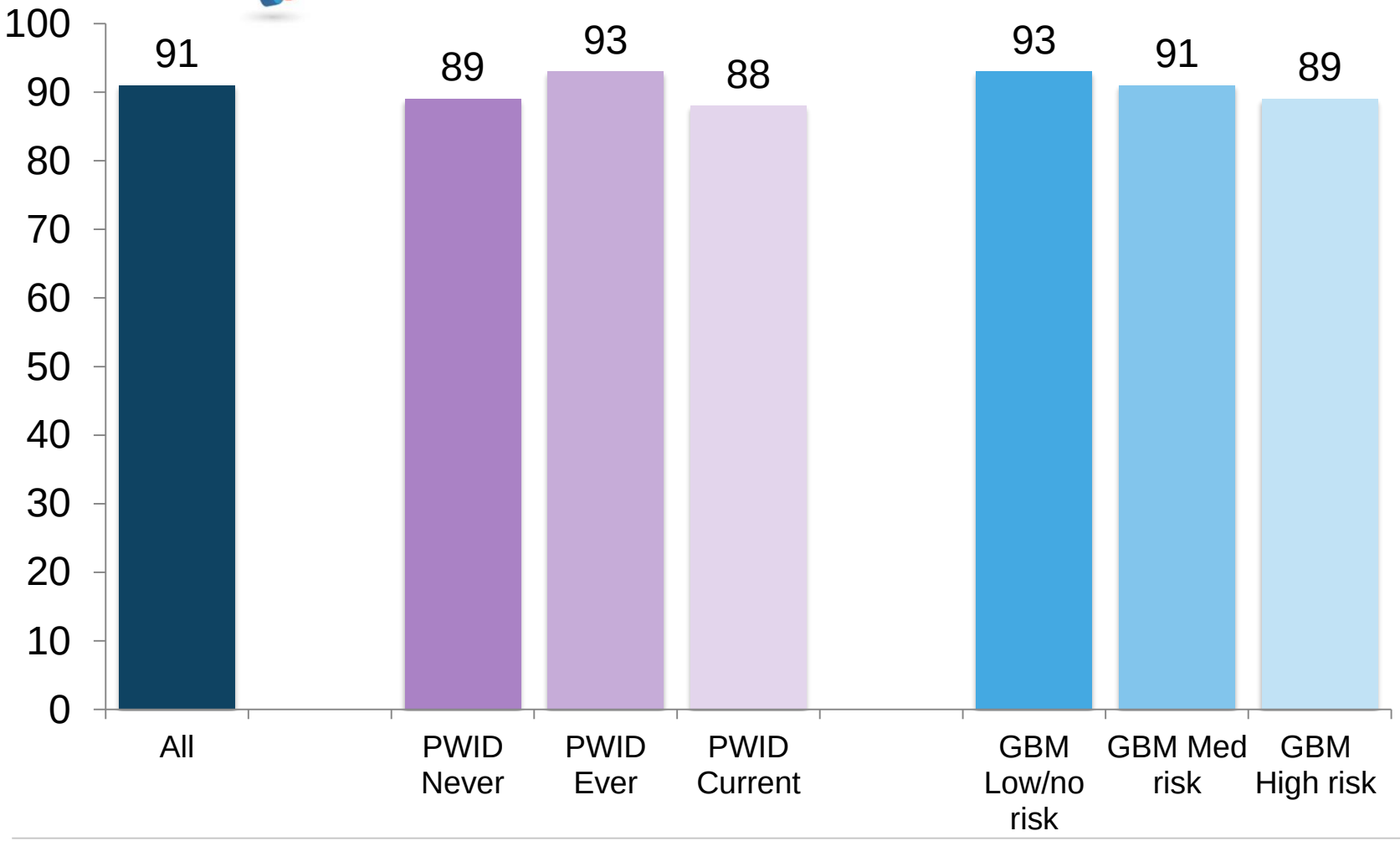
HCV RNA prevalence by Indigenous* in PWID

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



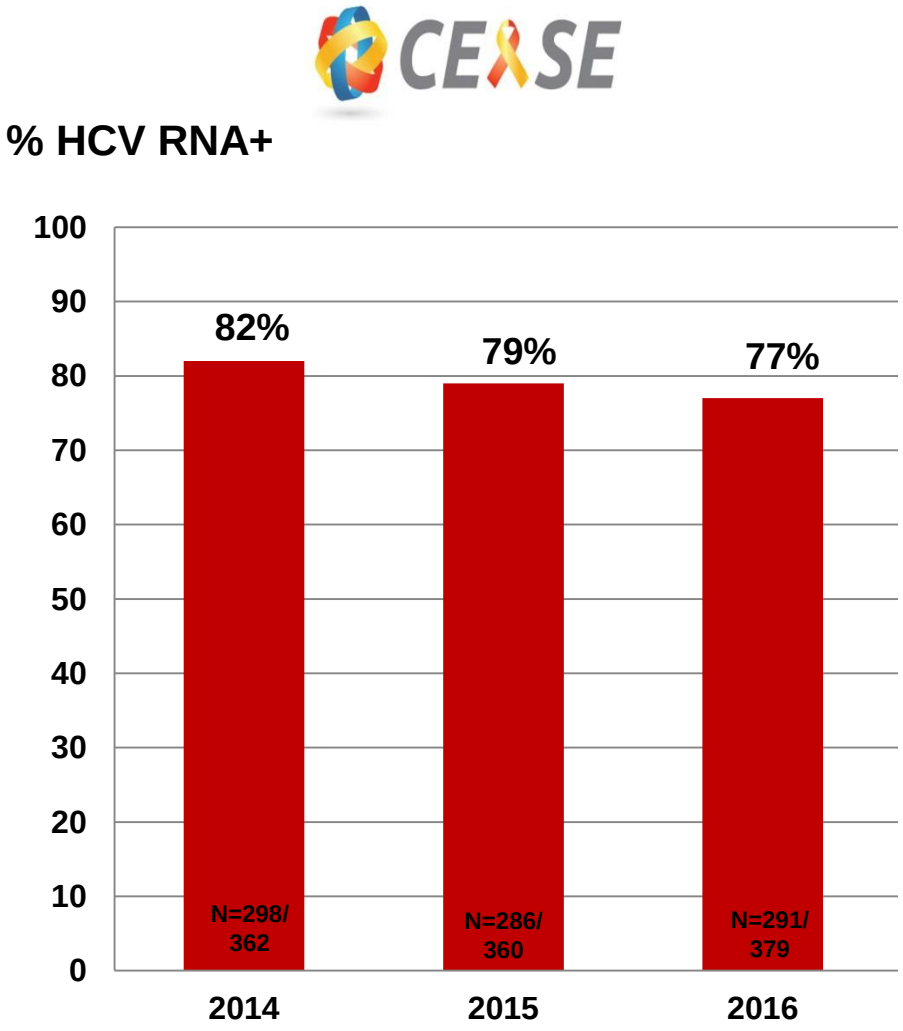
* 14-19% report Indigenous status

HIV/HCV: treatment uptake to 2018



Martinello et al CID (submitted) 2019

HCV elimination in HIV population

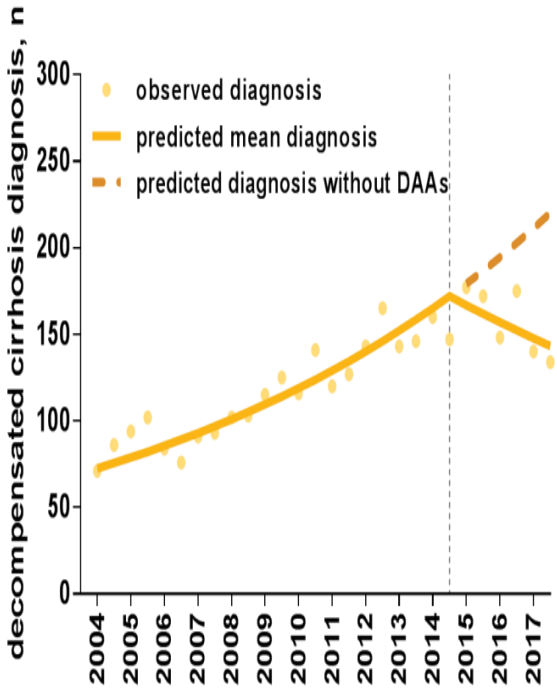


Reinfection incidence 0.81 per 100 py, 5 cases (mostly sexual transmission)

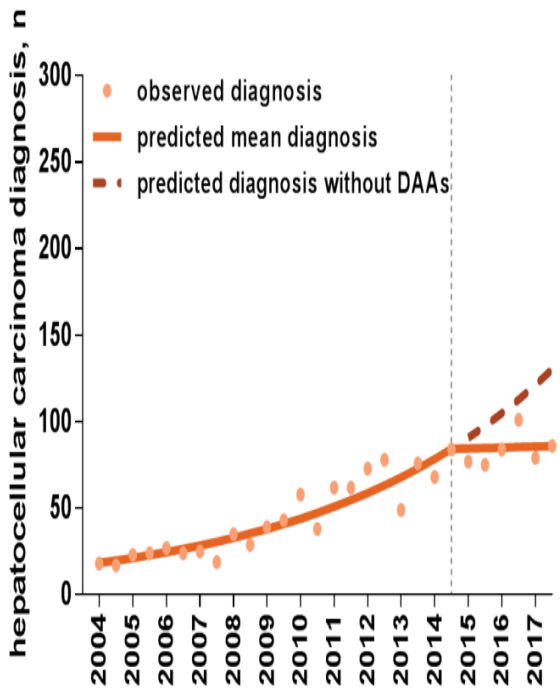
Martinello et al CID (submitted) 2019

ESLD and liver-related deaths: NSW data linkage

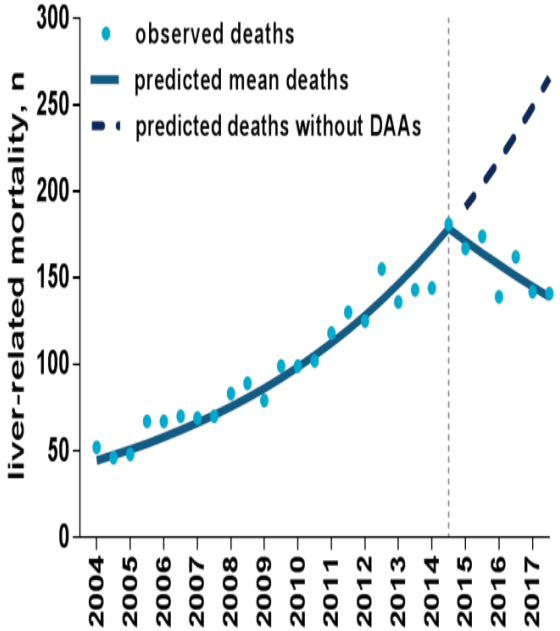
Decompensated cirrhosis



Hepatocellular carcinoma



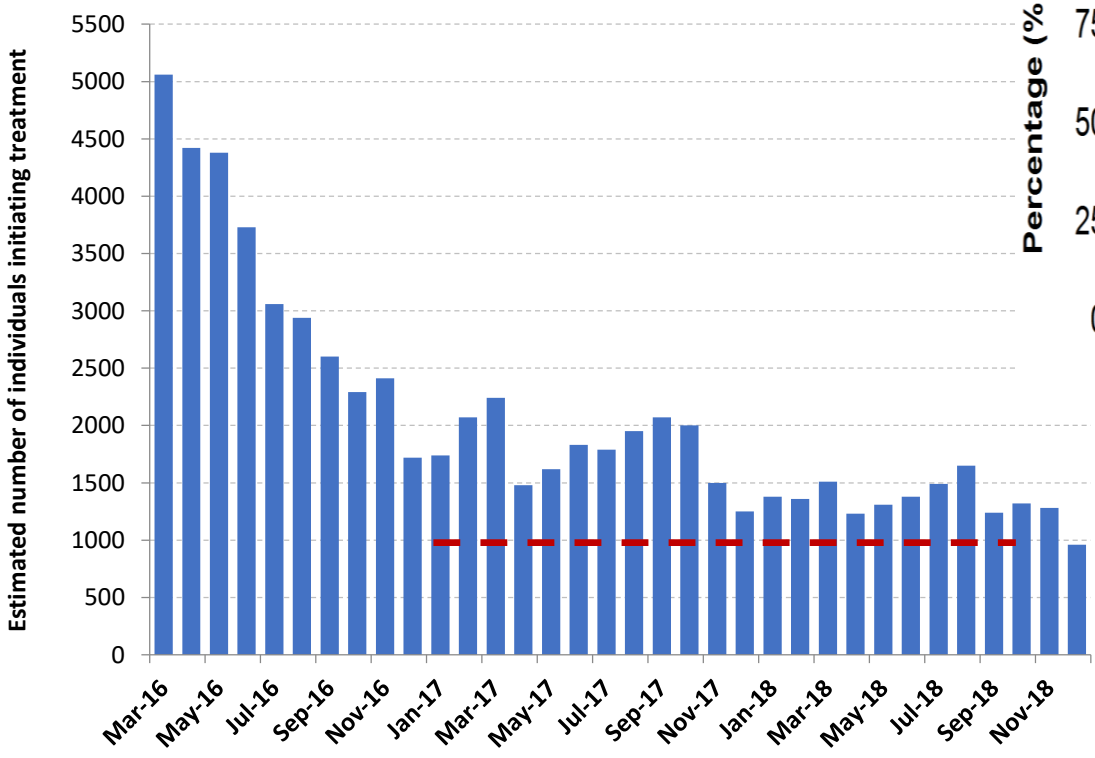
Liver-related deaths



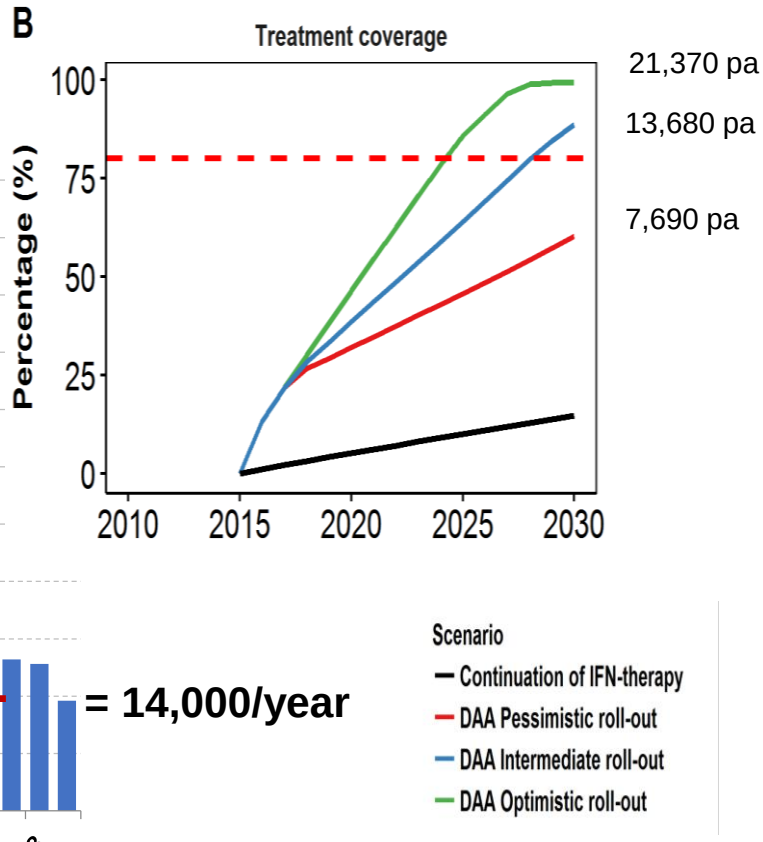
Alavi M, et al. J Hepatology 2019

The challenges

DAA initiations/month



= 14,000/year

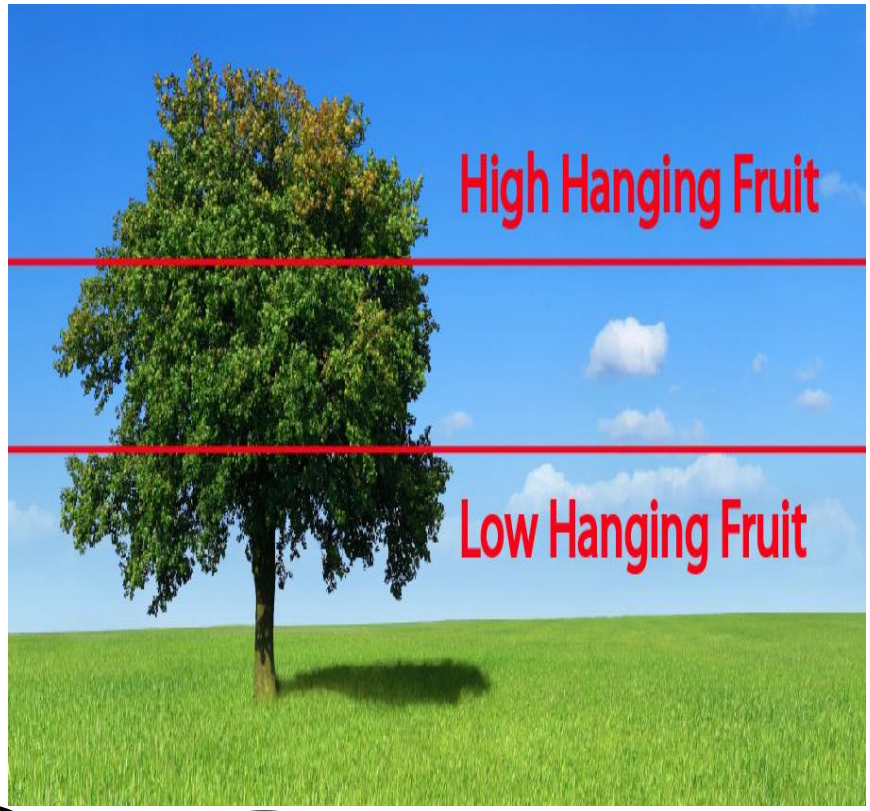


Kwon, et al. Journal of Viral Hepatitis 2019

Indigenous

Disengaged PWID

Mental health



HIV +

Cirrhosis

OST

Prisoners

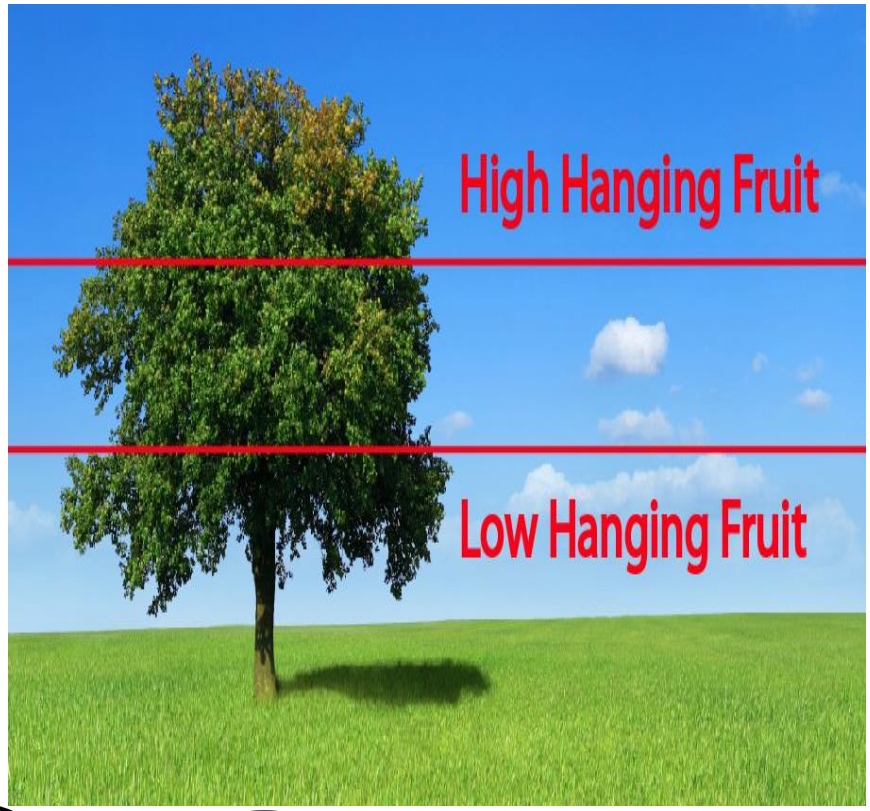
MOC projects underway in Australia

And many other MOC underway……http://www.avhec2019.com.au/

Indigenous

Disengaged PWID

Mental health



The 'others'

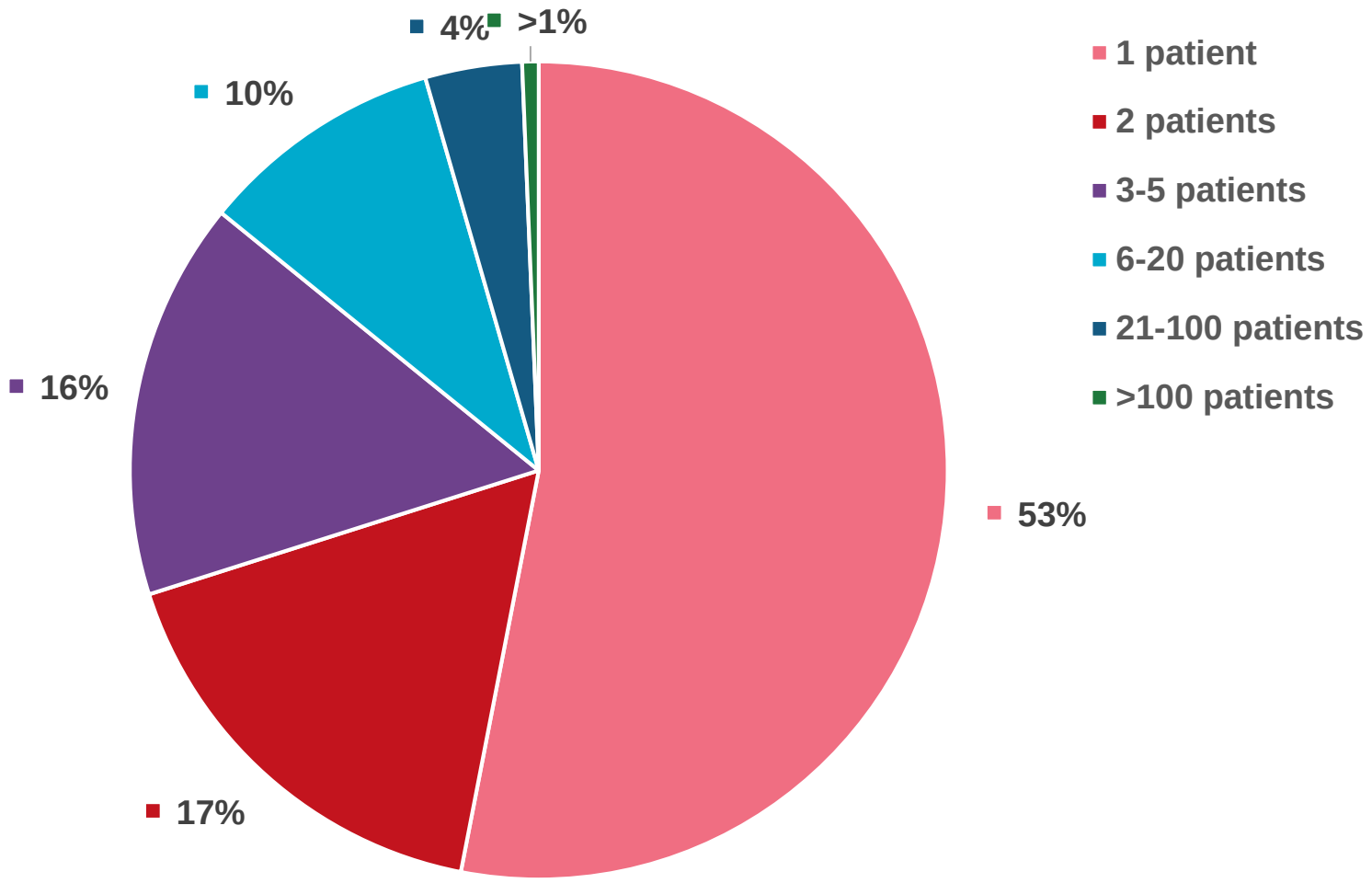
HIV +

Cirrhosis

OST

Prisoners

GP DAA prescribing: March 2016 to March 2019



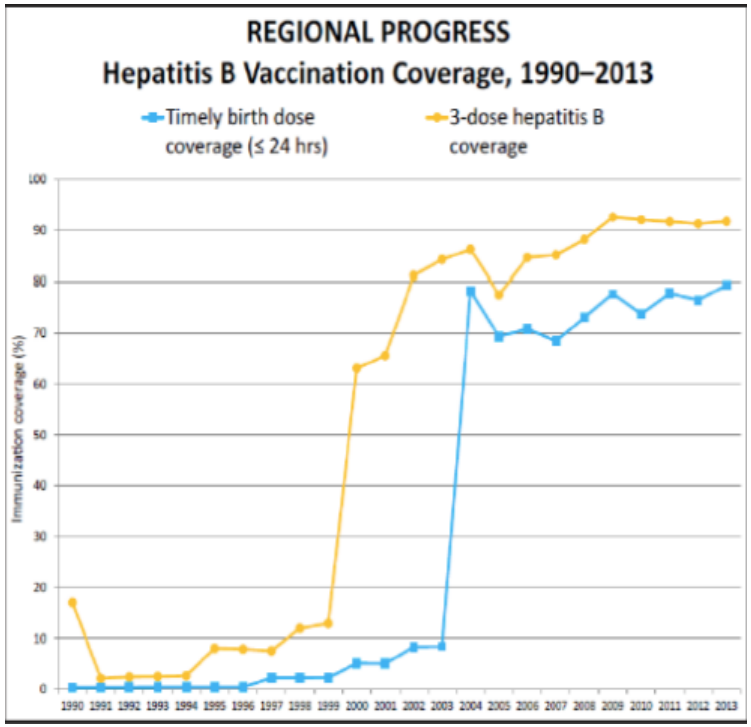
Hajarizadeh B. Kirby 2019 (PBS 100% sample)

Reaching ‘the others’

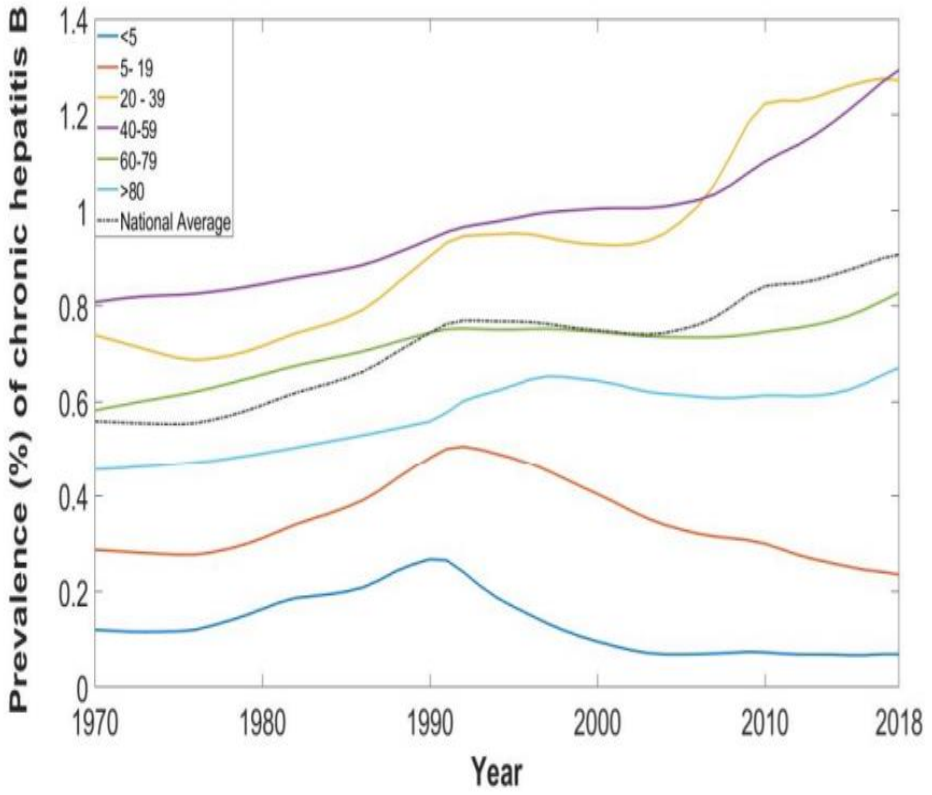
- Universal testing?
- Look back campaigns?
- GP awareness campaigns?
- Community awareness campaigns?

HBV: a different challenge?

Cheap effective prevention exists for HBV

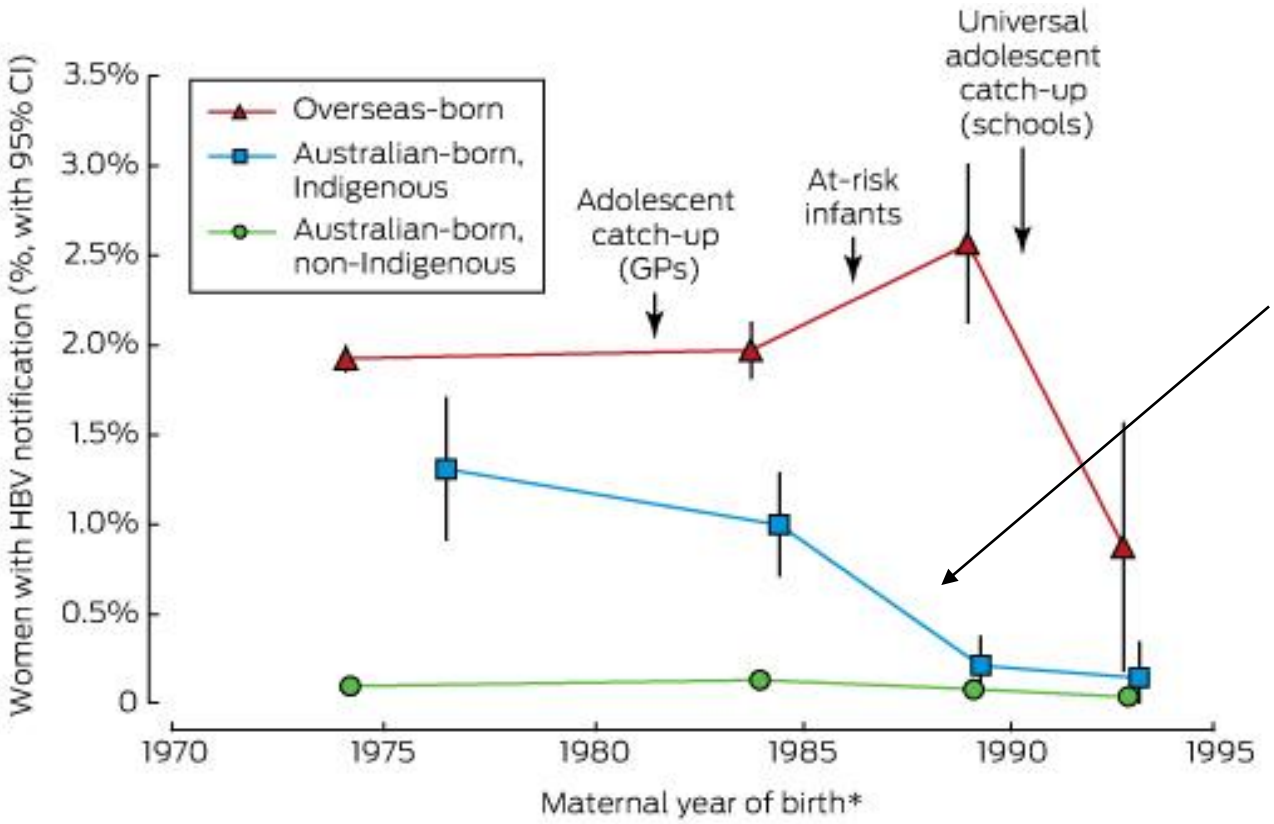


Estimated prevalence of CHB in Australia by age, 1970-2018



WHO/UNICEF Joint Reporting Forum for Immunisation, National Surveillance for HBV indicators, Doherty Institute

Including from highest prevalence populations

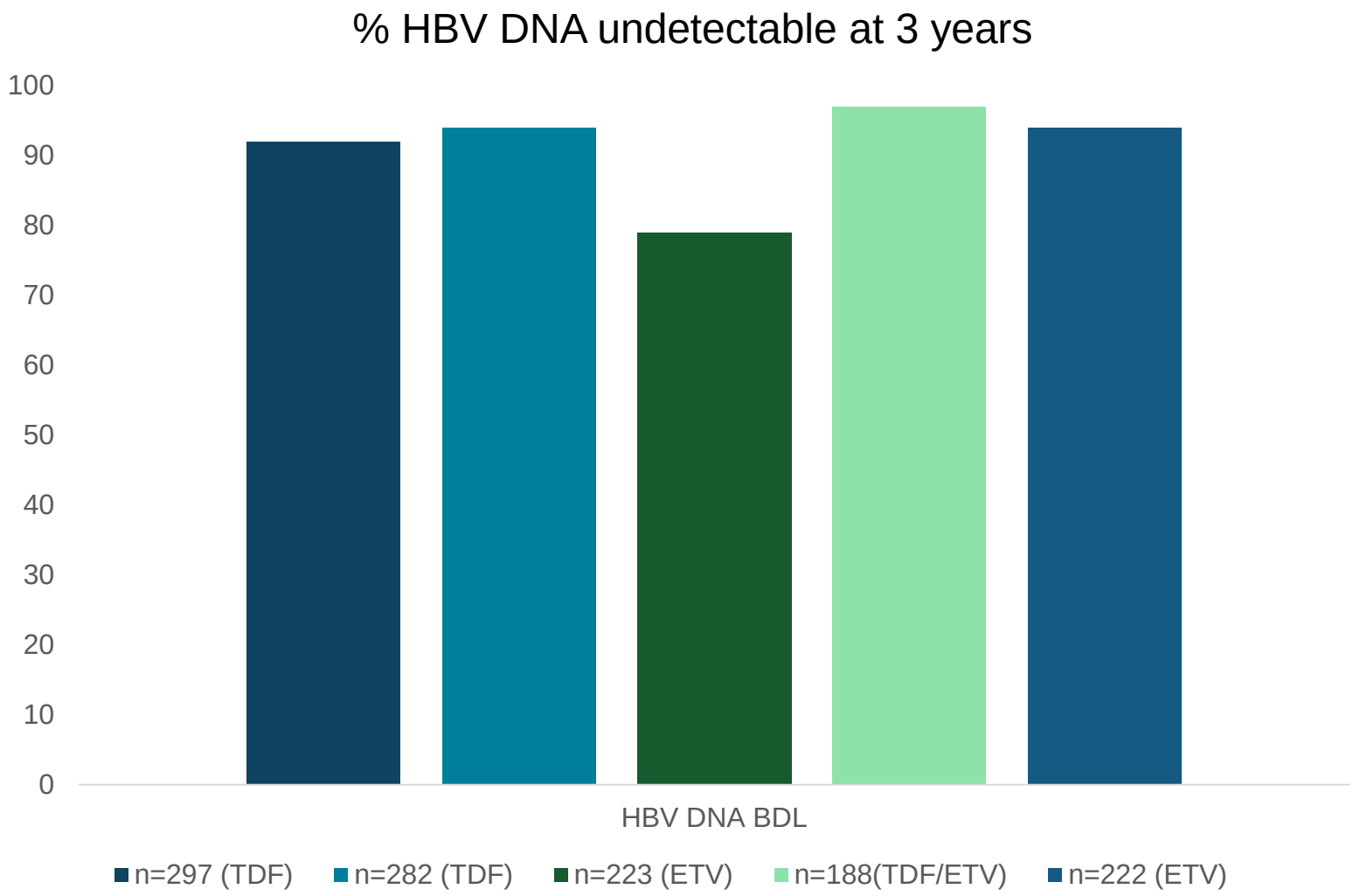


An 80% reduction in HBV notifications in Indigenous women after targeted vaccination

Hepatitis B notifications for primiparous women giving birth, by maternal birth year, New South Wales, 2000–2012

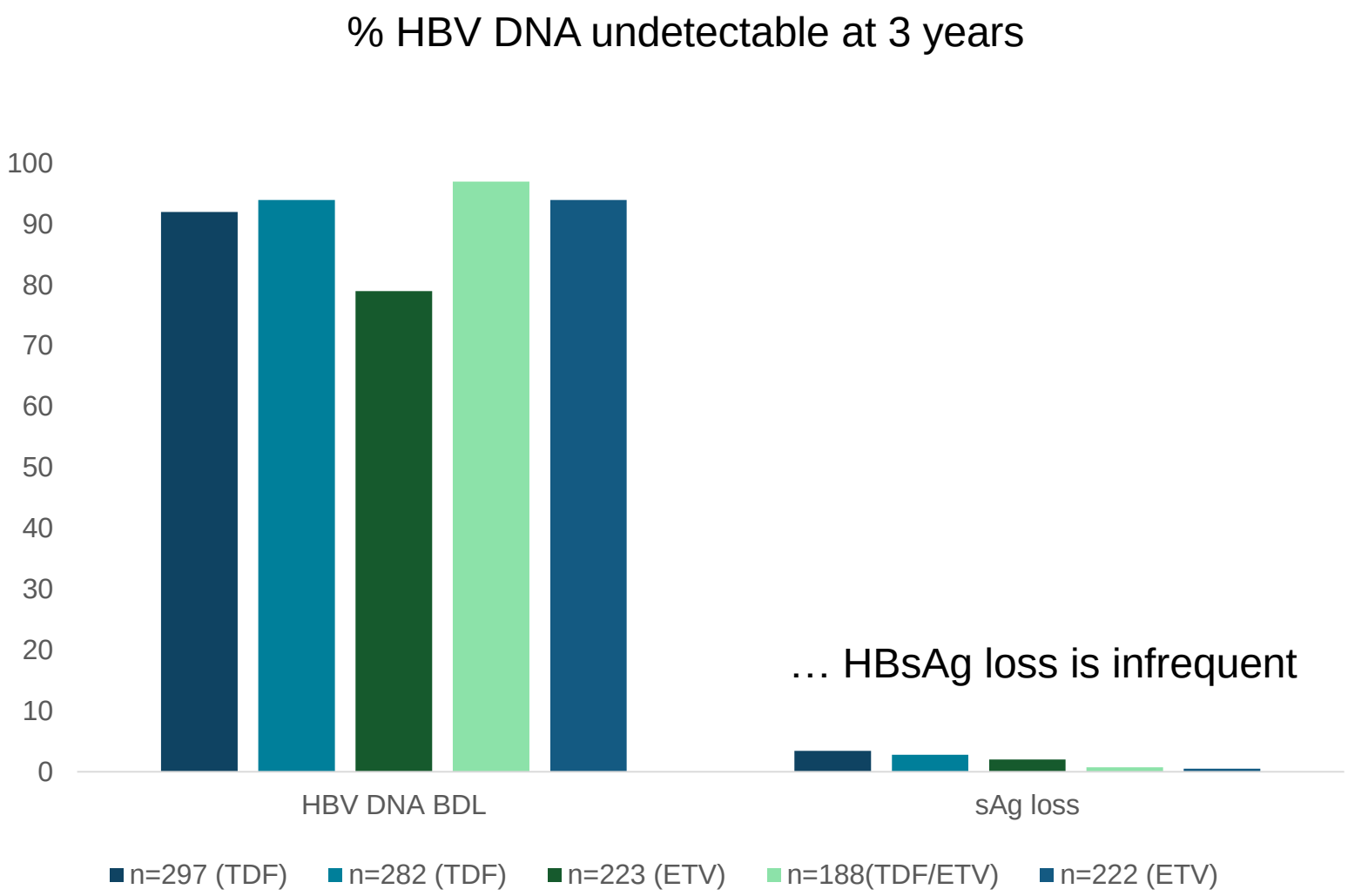
Deng et al MJA 2017

Cheap effective therapy for HBV also exists



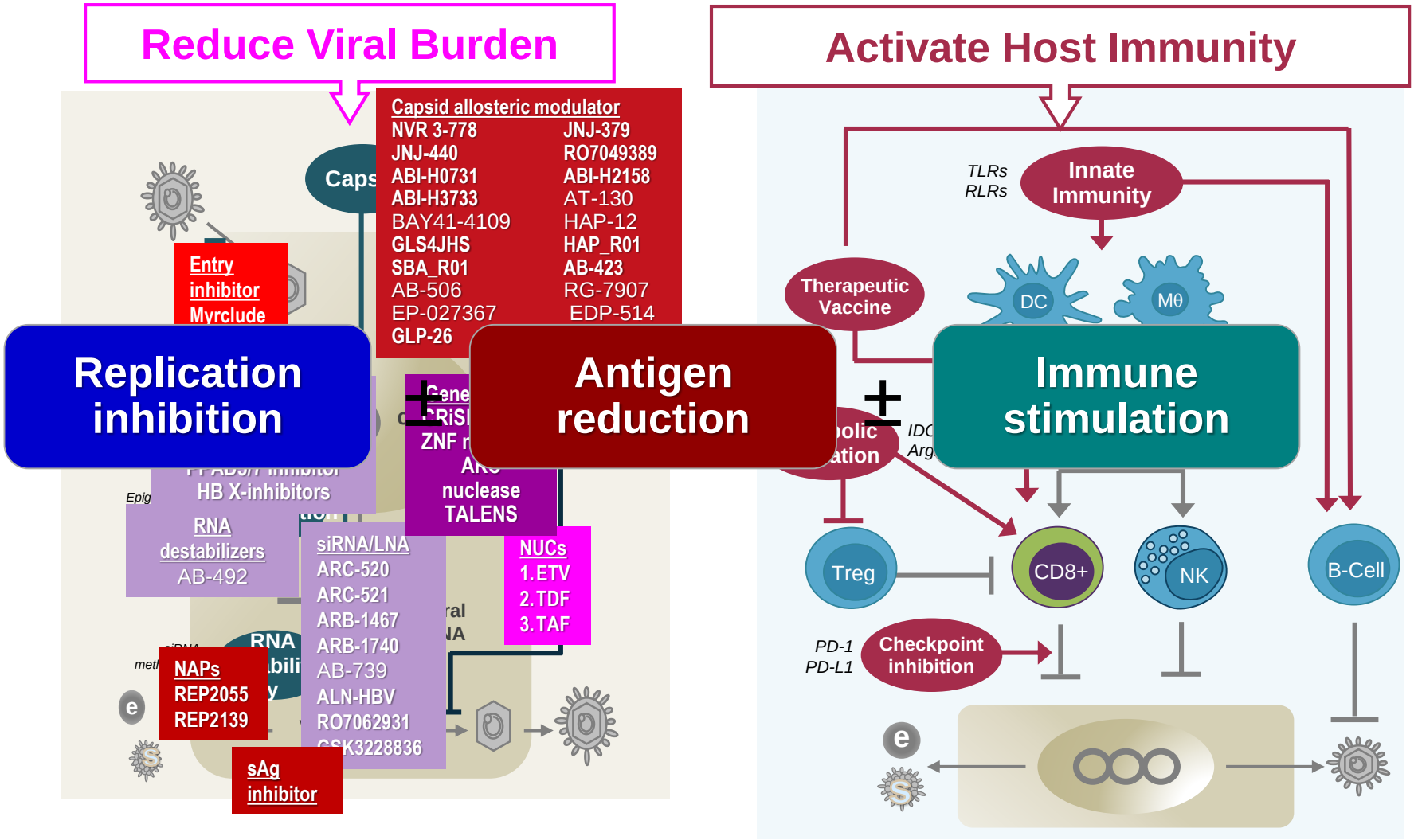
Buti et al, Liver International 2018

Current therapies may not be optimal



Buti et al, Liver International 2018

New therapeutic options are coming: HBV cure



And new ways of measuring ‘cure’

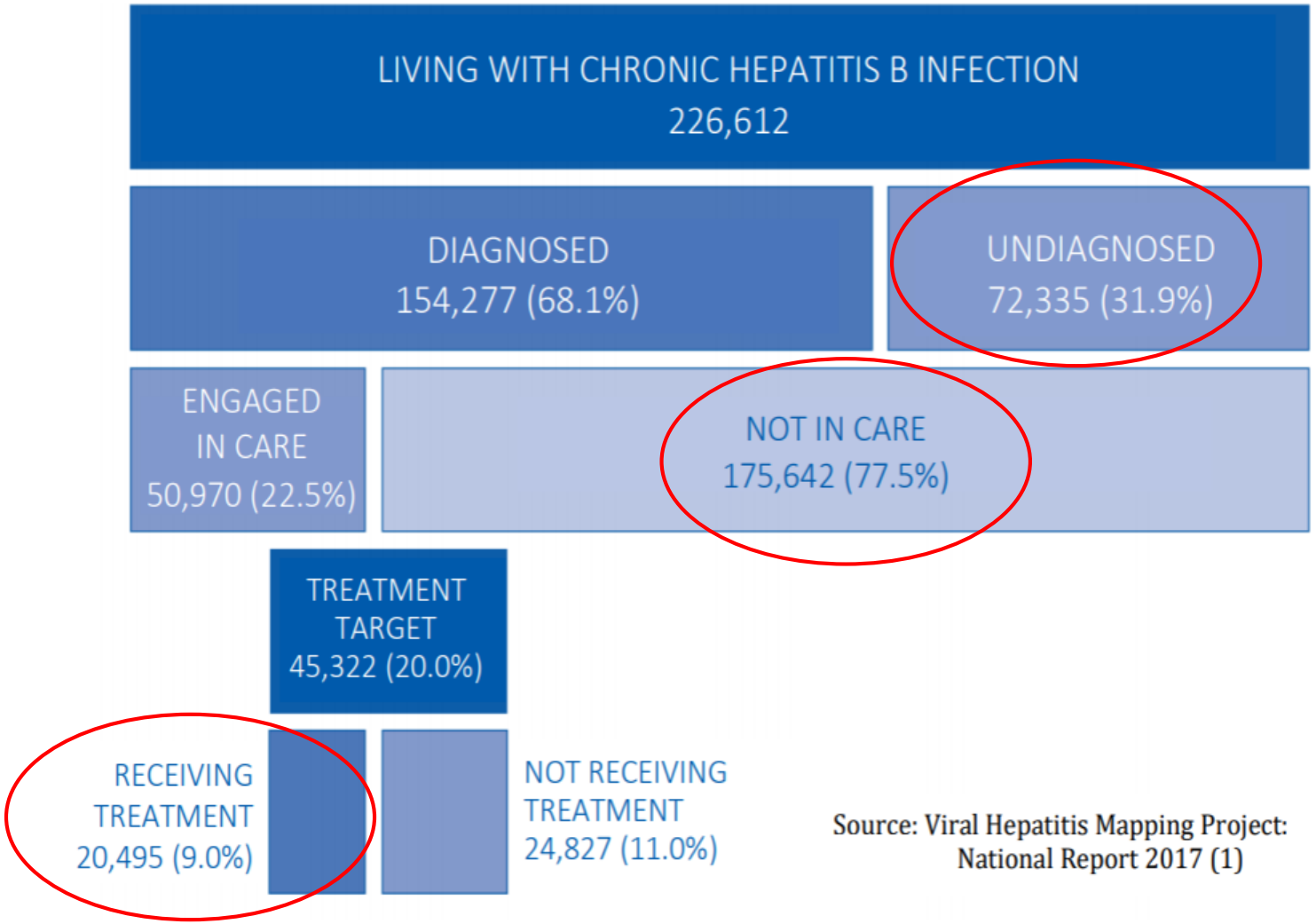
Current
HBV DNA suppression
ALT normalisation
HBeAg seroconversion

Future?
HBV RNA suppression
HBcrAg levels
quantitative HBsAg decline
cccDNA measures

Loss of HBsAg = functional cure
Loss of cccDNA = absolute cure
Loss of integrated HBV DNA = sterilising cure

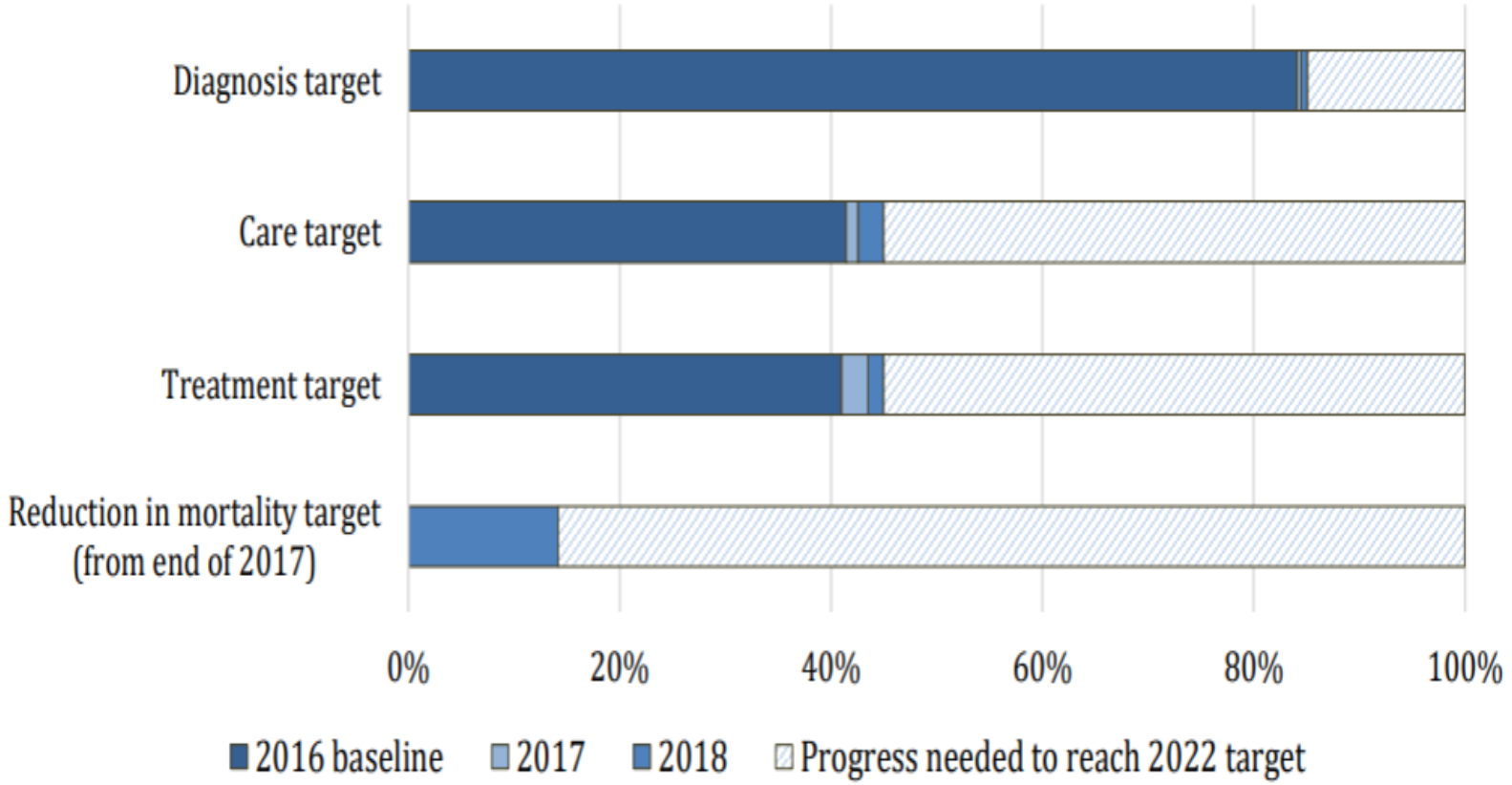
What do patients want?

HBV care cascade in Australia :2016



Source: Viral Hepatitis Mapping Project: National Report 2017 (1)

Progress towards goals: 2022 target



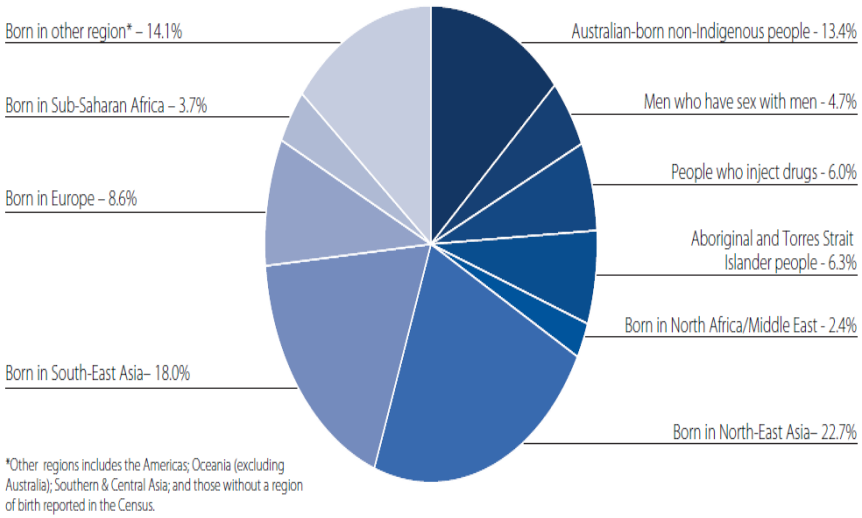
National surveillance for Hepatitis B indicators , WHO Collaborating Centre, 2019

Inequities in access to care

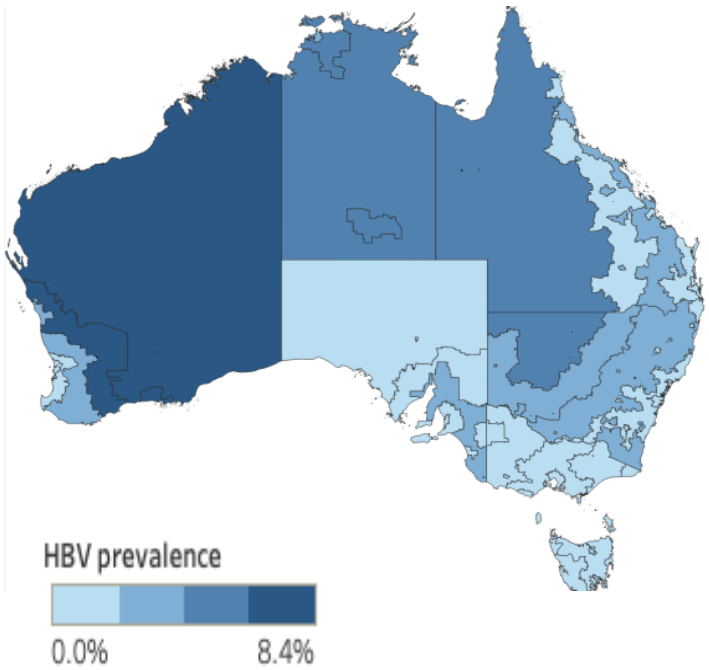
Primary Health Network	PREVALENCE Proportion of the population living with CHB	CARE Proportion of people with CHB who received treatment or monitoring	TREATMENT Proportion of people with CHB who received treatment
NATIONAL AVERAGE	**0.95%**	**20.2%**	**8.3%**
Northern Territory	1.90%	20.5%	5.2%
Central and Eastern Sydney	1.45%	24.2%	11.5%
South Western Sydney	1.42%	36.6%	17.0%
Western Sydney	1.37%	33.8%	14.0%
North Western Melbourne	1.28%	26.4%	9.9%
Northern Sydney	1.22%	28.0%	11.6%
Eastern Melbourne	1.17%	25.8%	9.6%
Brisbane South	1.10%	23.1%	8.4%
Western Queensland	1.09%	2.9%	1.4%
Country WA	1.07%	4.1%	1.7%
South Eastern Melbourne	0.98%	24.0%	9.4%
Australian Capital Territory	0.95%	16.7%	7.5%
Perth South	0.94%	10.2%	5.3%
Perth North	0.94%	11.6%	6.6%
Adelaide	0.93%	17.9%	6.4%
Northern Queensland	0.87%	10.8%	2.8%
Gold Coast (QLD)	0.77%	9.0%	4.4%
Brisbane North	0.75%	9.7%	4.3%
Western NSW	0.69%	8.1%	2.4%
Darling Downs and West Moreton (QLD)	0.64%	11.1%	4.2%
Nepean Blue Mountains (NSW)	0.62%	13.4%	5.4%
Murrumbidgee (NSW)	0.60%	6.2%	2.6%
South Eastern NSW	0.60%	9.2%	4.1%
Hunter New England and Central Coast (NSW)	0.55%	9.2%	3.9%
North Coast (NSW)	0.54%	9.5%	3.9%
Central Queensland, Wide Bay, Sunshine Coast	0.54%	6.2%	3.0%
Tasmania	0.53%	9.1%	3.1%
Murray (VIC)	0.52%	11.8%	4.5%
Country SA	0.52%	7.6%	2.4%
Western Victoria	0.51%	9.0%	3.0%
Gippsland (VIC)	0.49%	9.1%	3.3%

https://ashm.org.au/products/product/Viral-Hepatitis-Mapping-Project-2017

Different barriers exist for people living with HBV



People living with CHB in Australia, by priority population, 2017



Diversity in estimated CHB prevalence in Aboriginal and Torres Strait Islander people

Viral Hepatitis Mapping Report, MacLachlan at al AVEHC 2019

Many questions remain unanswered

- Should we be treating ALL patients with HBV?
- If so when should treatment be started?
- How long will treatment duration need to be?
- How will we measure cure?
- What is the effect on HCC reduction?
- What is the ‘cost effectiveness’ of cure?

These are both challenges and opportunities

Opportunities and challenges

Therapeutics
Point of care tests
Innovative biomarkers
Models of care

HCV: Reaching the 'missing millions'

HBV: Understanding cure

…….and then delivering it

Acknowledgements

Greg Dore
Behzad Hajarizadeh
Marianne Martinello
Ed Gane
Ben Cowie
Jennifer MacLachlan