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DAA treatment outcomes and reinfection among people who use drugs

Good news and pretty good news

Scientia Professor Gregory Dore

Kirby Institute

Disclosures

- Research grants, travel support, and honoraria: AbbVie, Gilead, Merck

HCV treatment and reinfection for PWID

- DAA treatment outcomes in PWID: clinical trials and observational studies
- HCV reinfection among PWID: systematic review and meta-analysis
- DAA uptake and impact in PWID in Australia
- Strategies to enhance HCV elimination among PWID

HCV treatment for people who use drugs

The NEW ENGLAND JOURNAL of MEDICINE

SOUNDING BOARD

Is It Justifiable to Withhold Treatment for Hepatitis C from Illicit-Drug Users?

Brian R. Edlin, M.D., Karen H. Seal, M.D., M.P.H., Jennifer Lorvick, Alex H. Kral, Ph.D., Daniel H. Ciccarone, M.D., M.P.H., Lisa D. Moore, Dr.P.H., and Bernard Lo, M.D.

July 19, 2001
N Engl J Med 2001; 345:211-214

"We propose that decisions about the treatment of HCV infection in patients who use illicit drugs be based on individualized risk–benefit assessments, just as they are for other patients."

Treatment of Hepatitis C Infection in Injection Drug Users

Markus Backmund, Kirsten Meyer, Michael Von Zielonka, and Dieter Eichenlaub

Hepatology Vol. 34, No. 1, 2001

ELSEVIER

Drug and Alcohol Dependence 67 (2002) 117–123

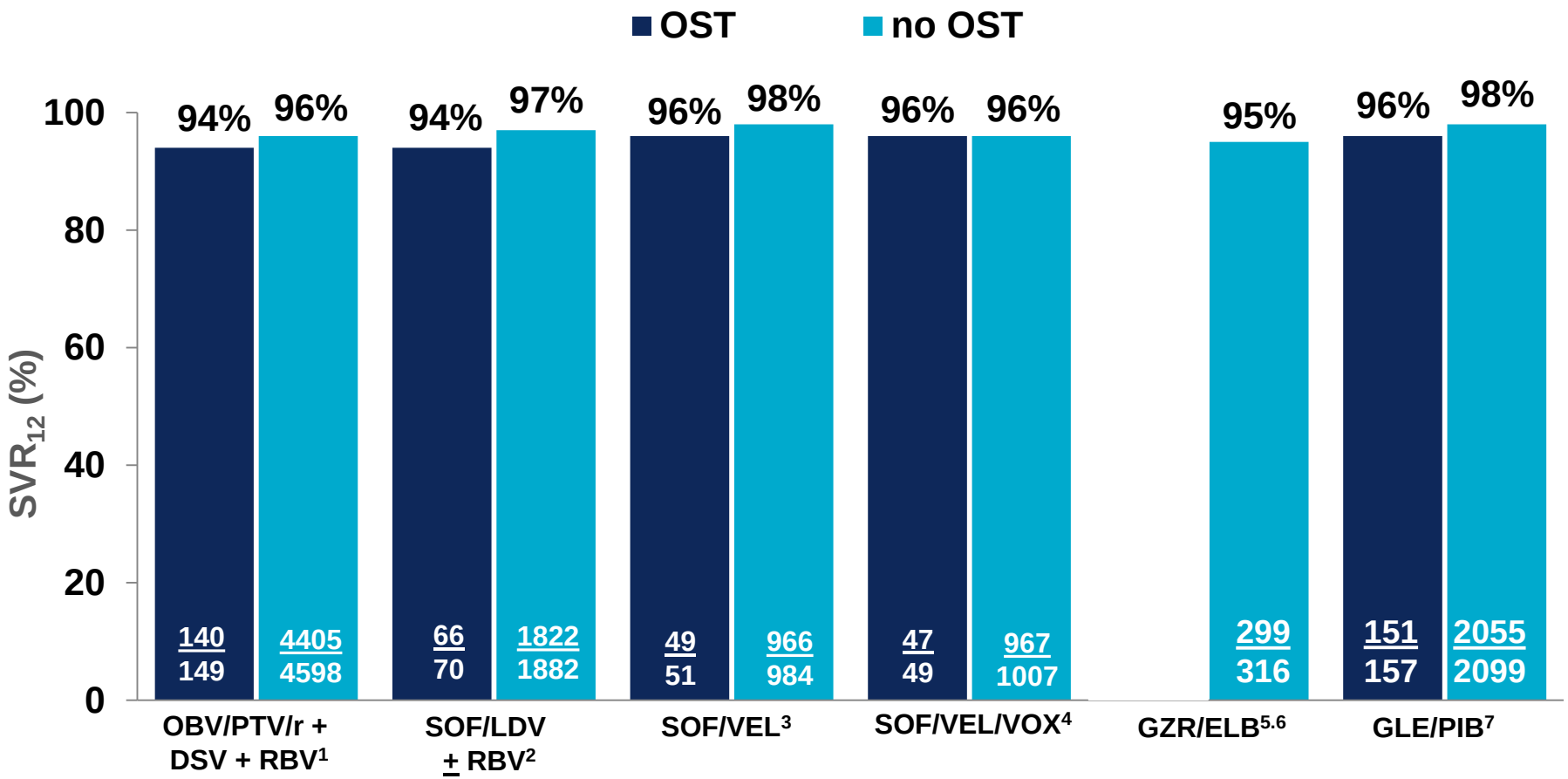
www.elsevier.com/locate/drugalcdep

Treating hepatitis C in methadone maintenance patients: an interim analysis

Diana L. Sylvestre *

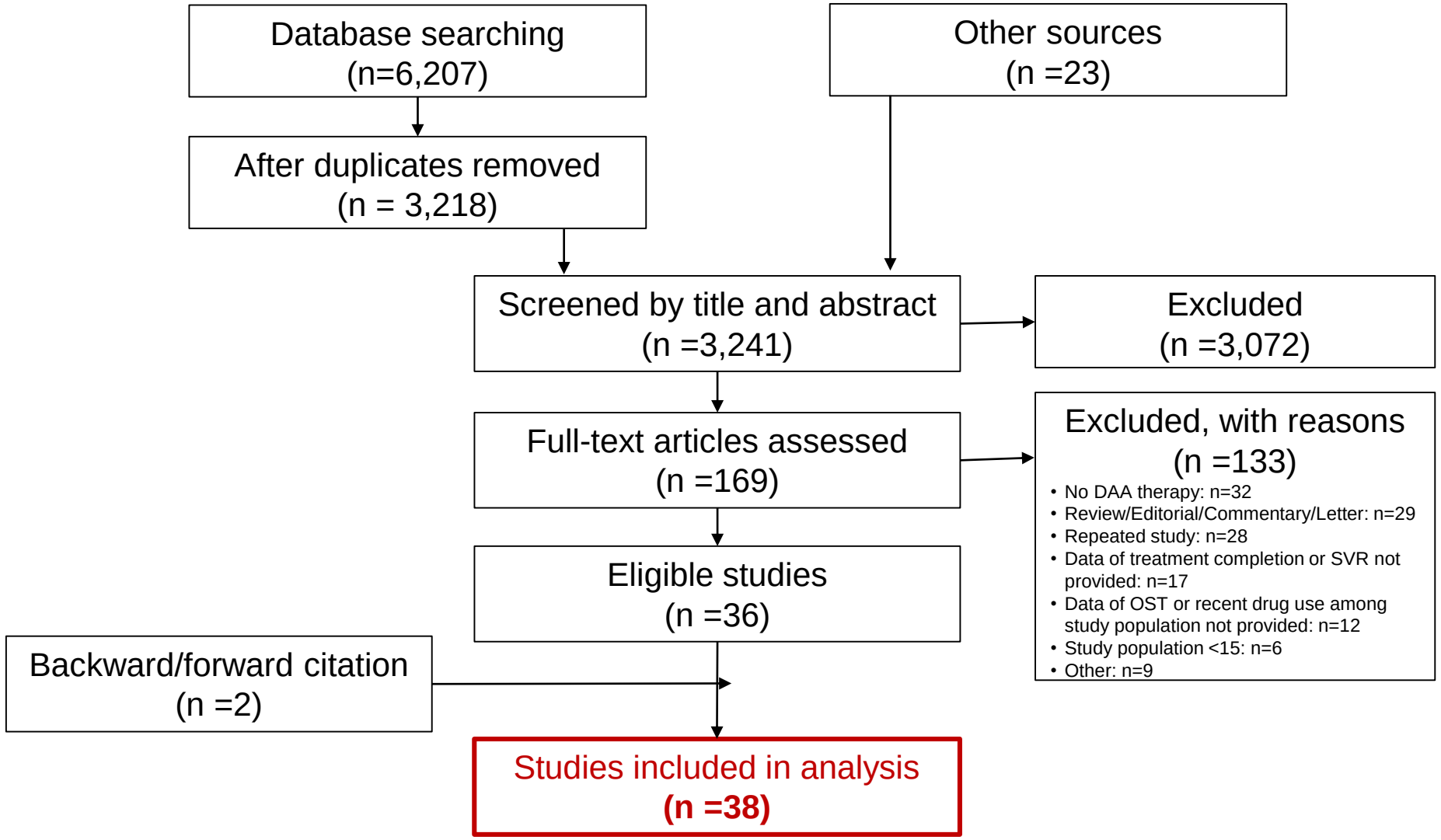
Department of Medicine, University of California, San Francisco, Organization to Achieve Solutions in Substance-Abuse (O.A.S.I.S.), 2862 Telegraph Avenue, Oakland, CA 94609, USA

DAA treatment outcomes: phase III trials



1) Grebely J, ILC 2017. 2) Grebely J, CID 2016. 3) Grebely J, CID 2016. 4) Grebely J, ILC 2017. 5) Zeuzem S, AIM 2015. 6) Dore GJ, AIM 2016. 7) Grebely J, INHSU 2017. 8) Grebely J, Lancet GH 2018

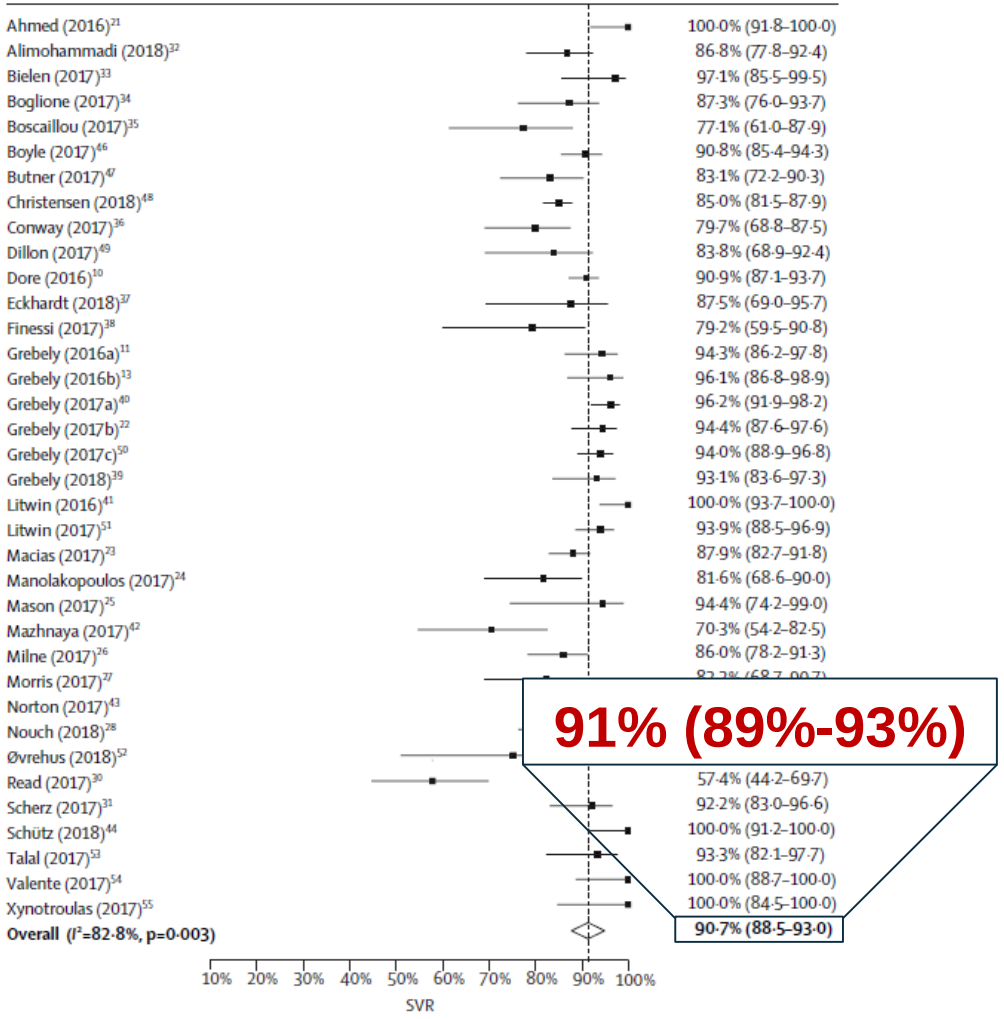
DAA treatment in PWUD: systematic review



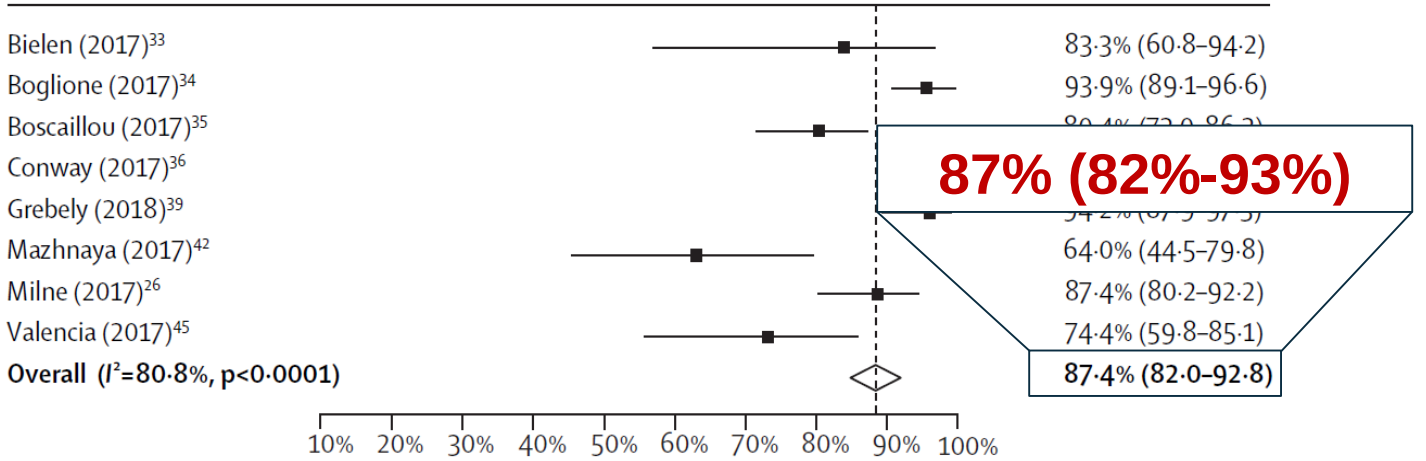
Hajarizadeh B, et al. Lancet Gastro Hepatol 2018

DAA treatment in PWUD: systematic review

OAT (methadone/buprenorphine)



Recent injecting drug use



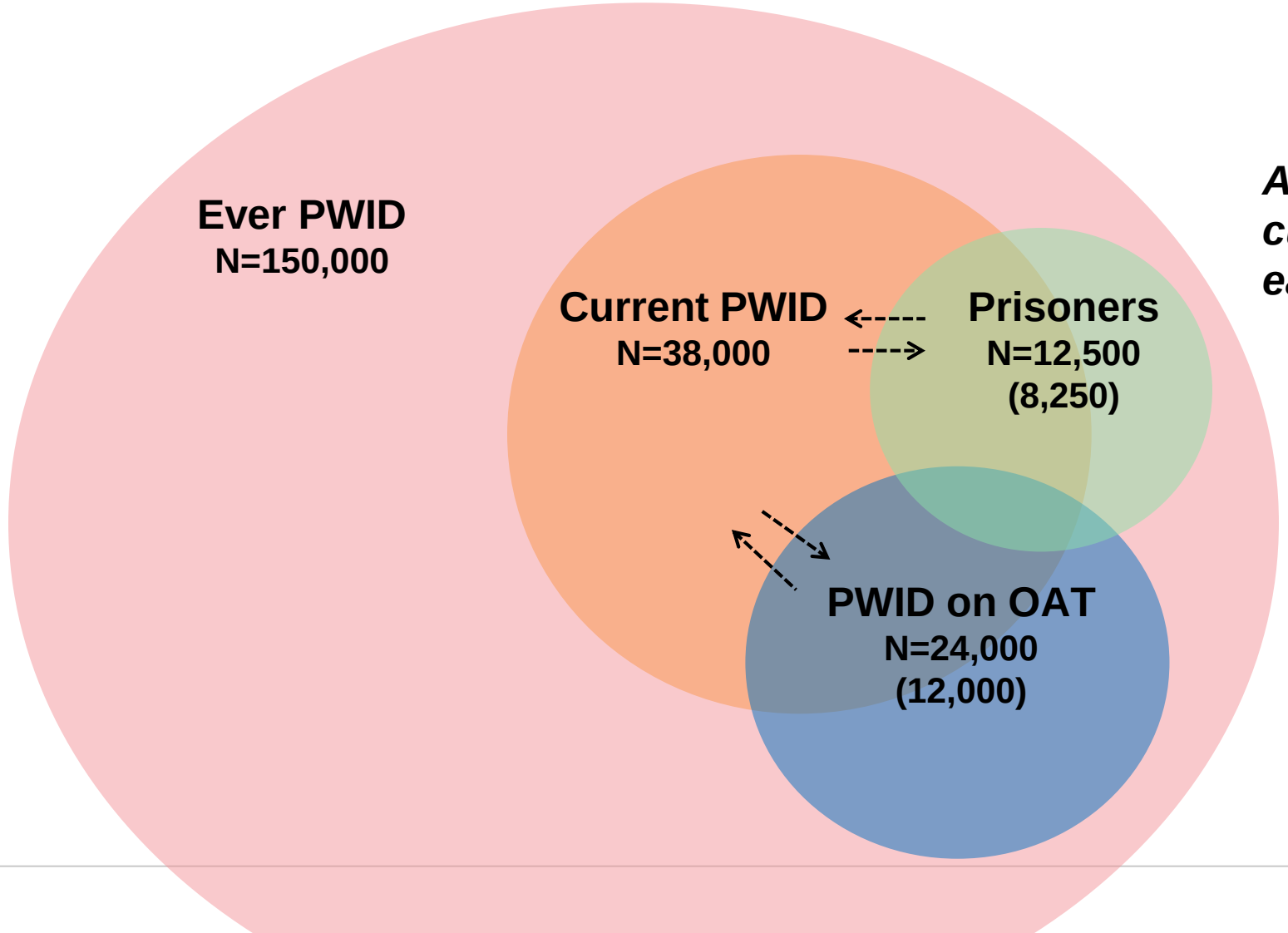
Hajarizadeh B, et al. Lancet Gastro Hepatol 2018

DAA treatment in PWUD: associated with SVR

	Unadjusted models OR (95% CI)	P
Proportion of participants with recent drug use	0.95 (0.89-1.02)	0.171
Proportion of participants receiving OST	1.08 (0.99-1.19)	0.066
Proportion of men	0.78 (0.59-1.03)	0.084
Median/mean age	**1.06 (1.01, 1.12)**	**0.013**
Proportion of participants with cirrhosis	1.00 (0.87-1.14)	0.997
Proportion of treatment experienced participants	1.10 (0.90-1.35)	0.324
Proportion of participants with HIV co-infection	**0.87 (0.77-0.98)**	**0.021**
Study design		
Observational	**1.00**	
Clinical Trial	**2.09 (1.23-3.57)**	**0.008**
Study population		
Recent IDU, with or without OST	1.00	
OST, with or without recent IDU/non-IDU	1.47 (0.76-2.84)	0.250
Other	0.96 (0.44-2.09)	0.924

Hajarizadeh B, et al. Lancet Gastro Hepatol 2018

PWID populations with HCV in Australia: 2016

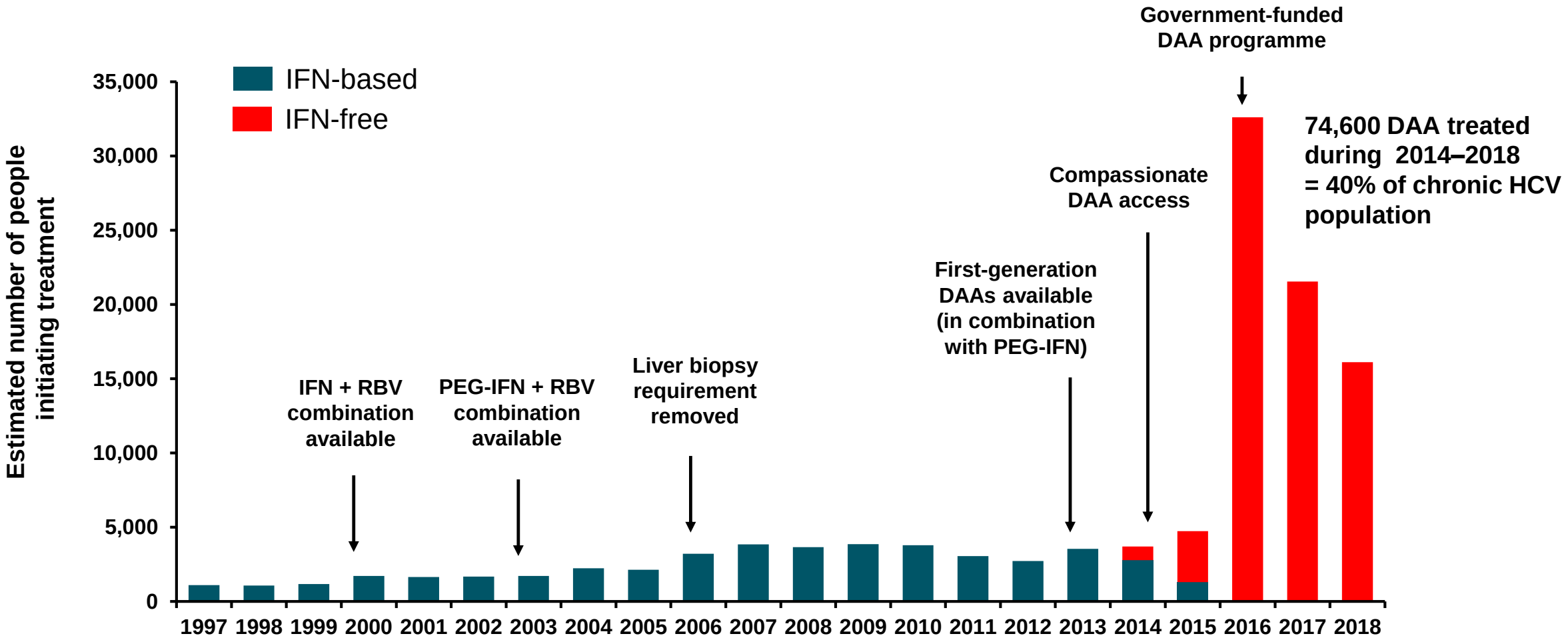


An estimated 20-25% of current PWID are incarcerated each year

An estimated 30% of current PWID are on OST

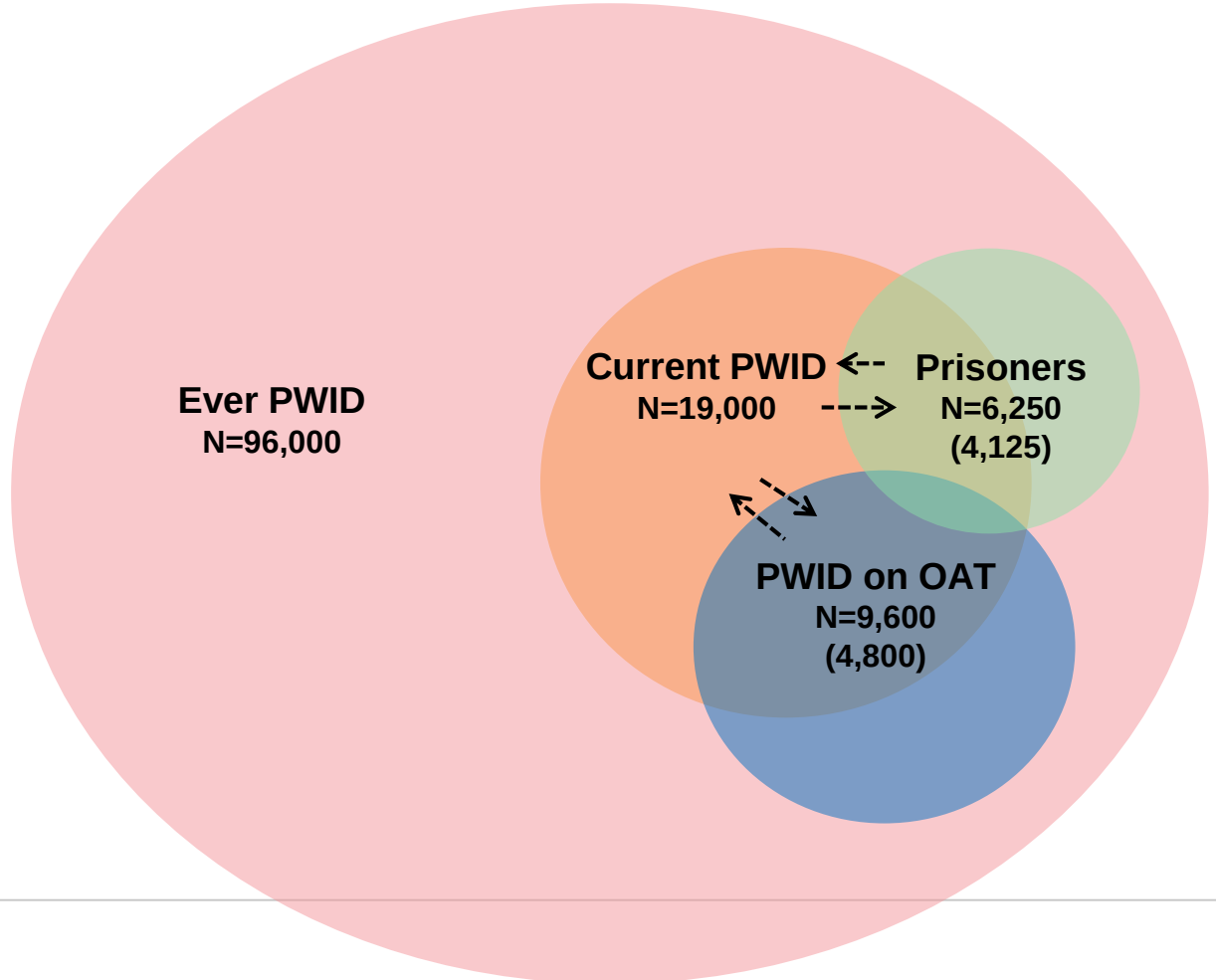
Larney S, *IJDP* 2017; Kirby Institute 2019

HCV treatment uptake in Australia: 1997–2018



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

PWID populations with HCV in Australia: 2019

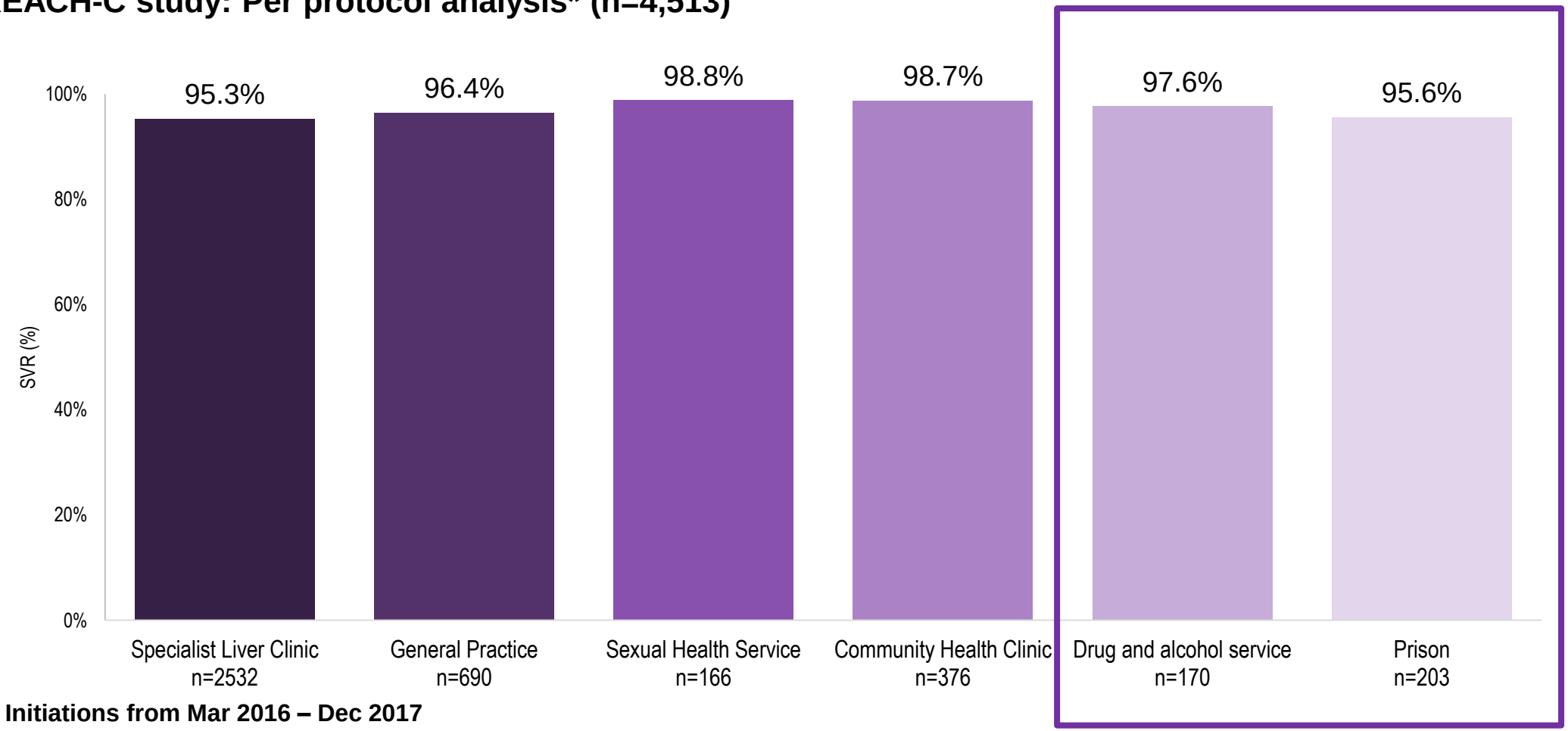


Estimated reductions:

- ***Ever PWID 36%***
- ***Prisoners 40%***
- ***Current PWID 50%***
- ***PWID on OAT 60%***

High DAA efficacy across all service models

REACH-C study: Per protocol analysis* (n=4,513)

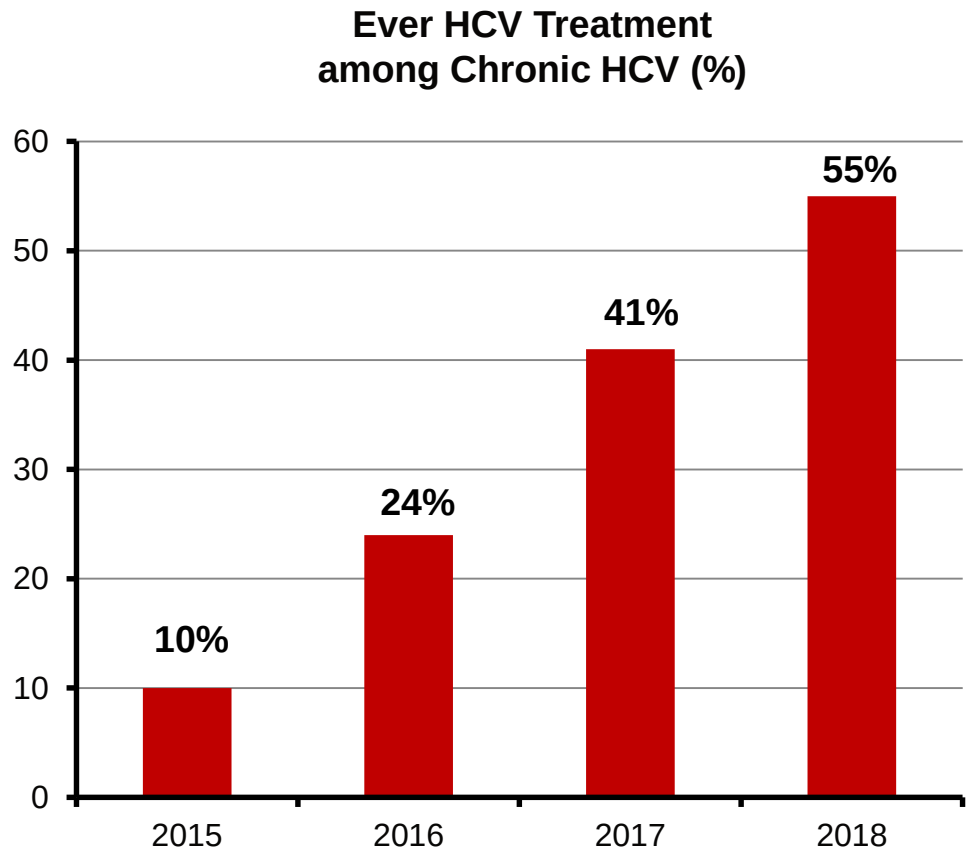


Initiations from Mar 2016 – Dec 2017

***(n=903 with unknown SVR; 17%)**

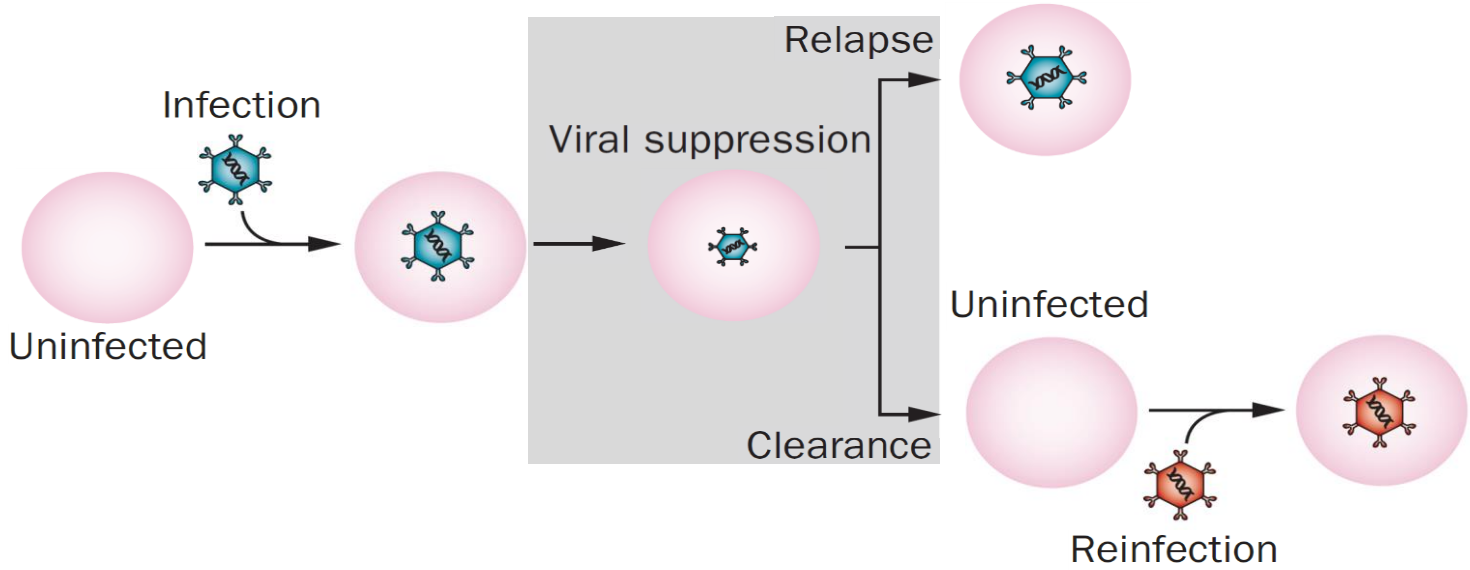
DAA uptake high in current PWID

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



Iversen J, et al. Kirby 2019

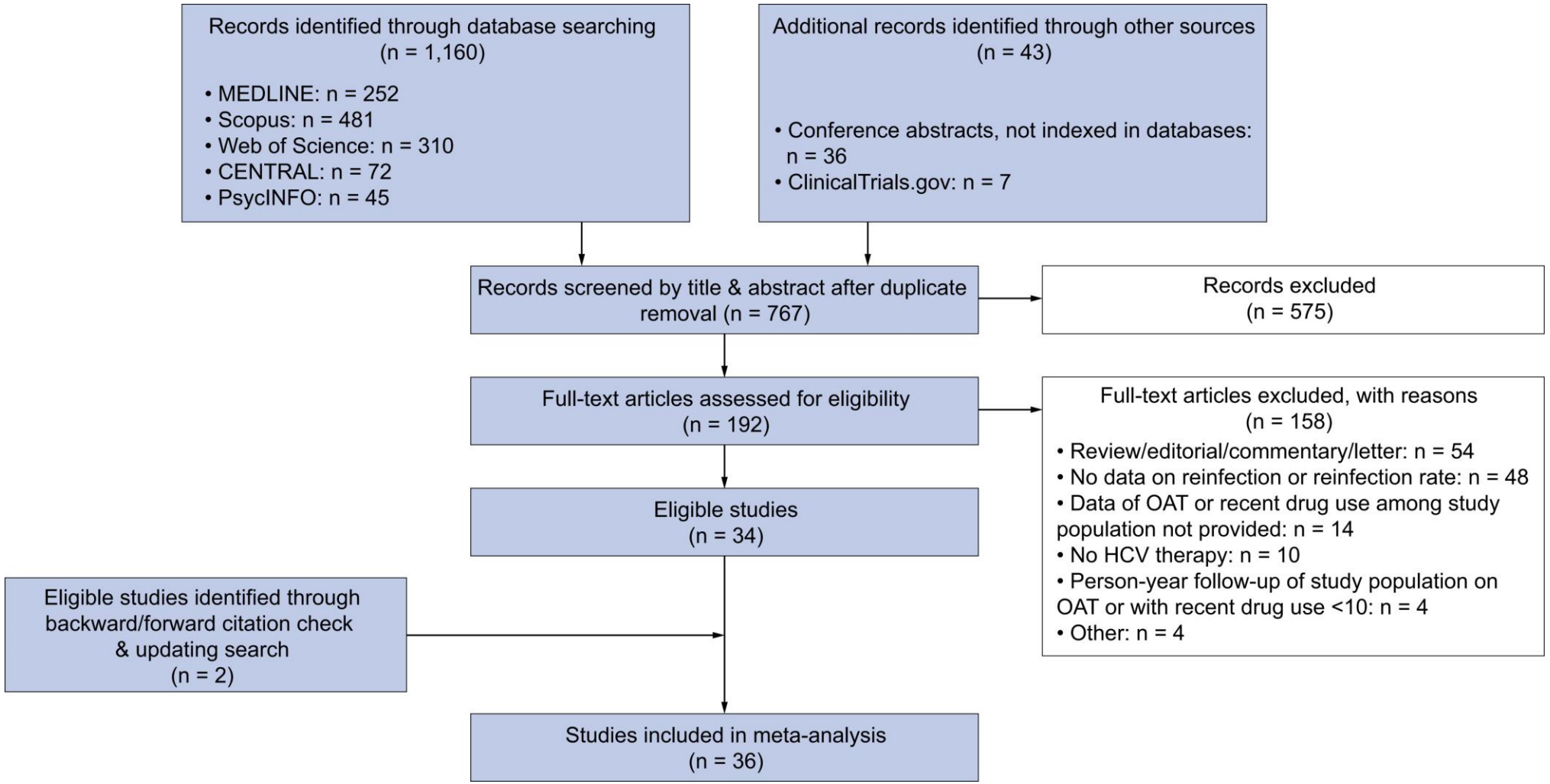
HCV reinfection: detection methods



- **HCV RNA testing**
  - HCV RNA+ following undetectable HCV RNA at SVR12 = reinfection
- **HCV genotyping**
  - Genotype (e.g. 1a to 3a) or subtype (e.g. 1a to 1b) switch = reinfection
- **HCV sequencing (Sanger or Next Generation Sequencing)**
  - Nucleotide divergence/phylogenetic analysis

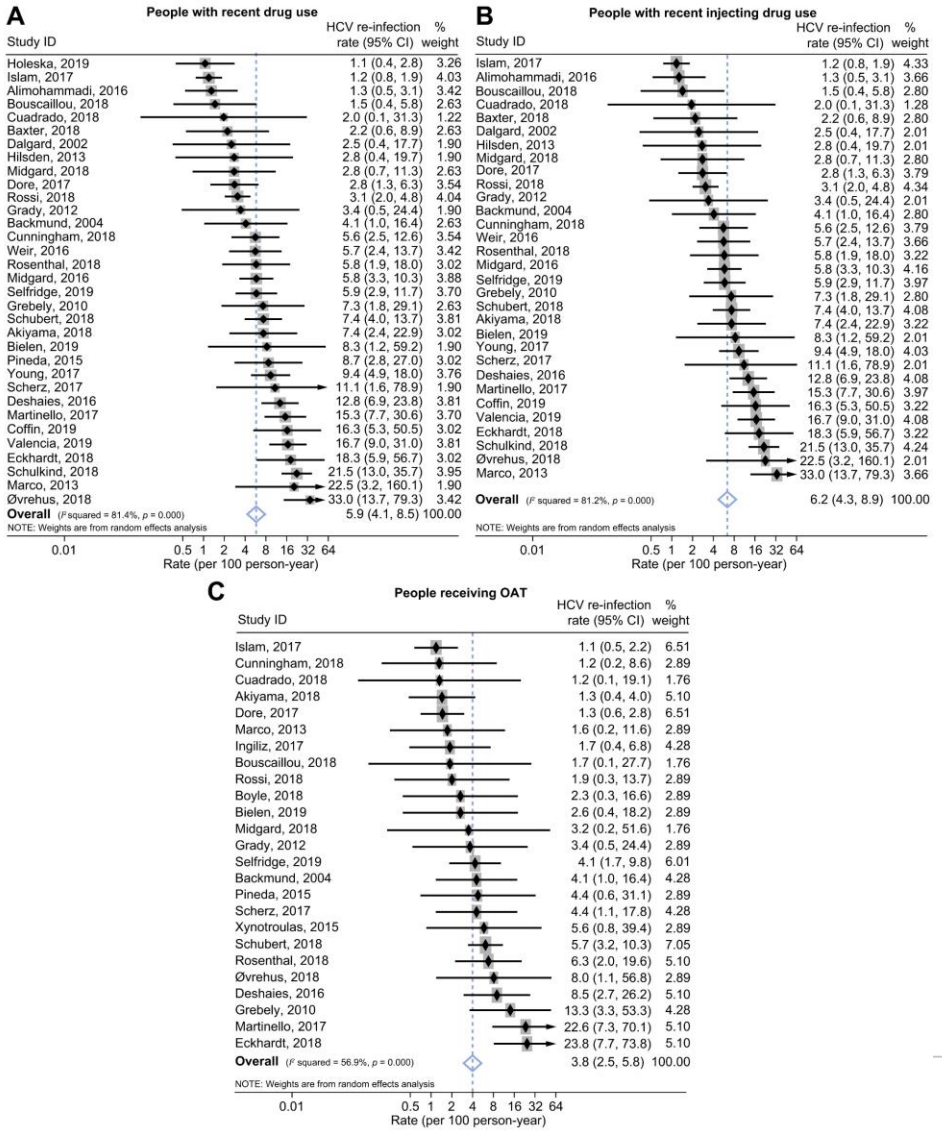
Cunningham EB, et al. Nature Reviews Gastro Hepatol 2015

Post-treatment HCV reinfection: systematic review



Hajarizadeh B, et al. J Hepatology 2020

Post-treatment HCV reinfection: systematic review

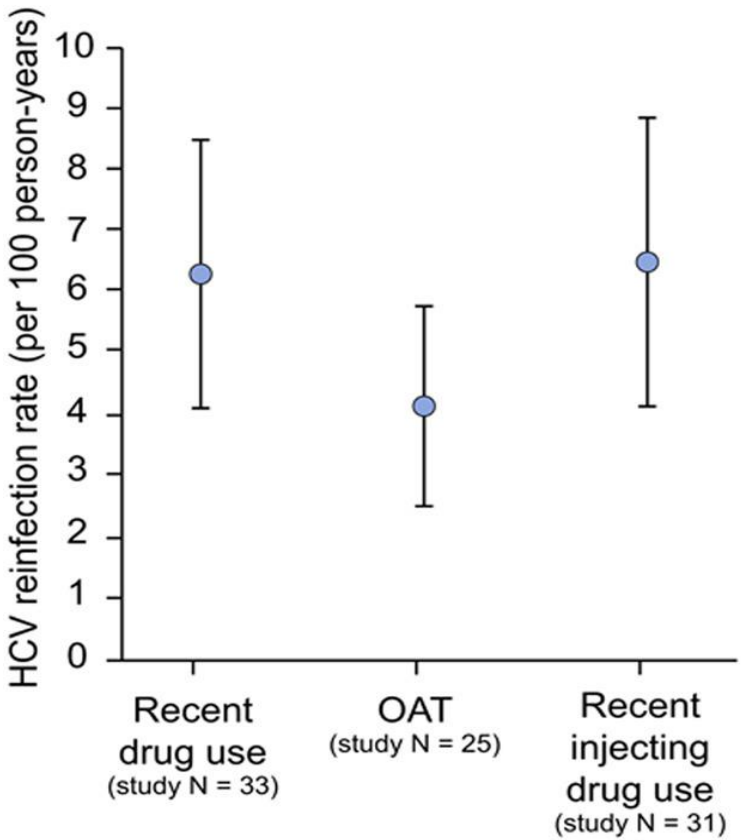


IFN studies = 5.4/100 py

DAA studies = 4.6/100 py

Hajarizadeh B, et al. J Hepatology 2020

Post-treatment HCV reinfection: systematic review



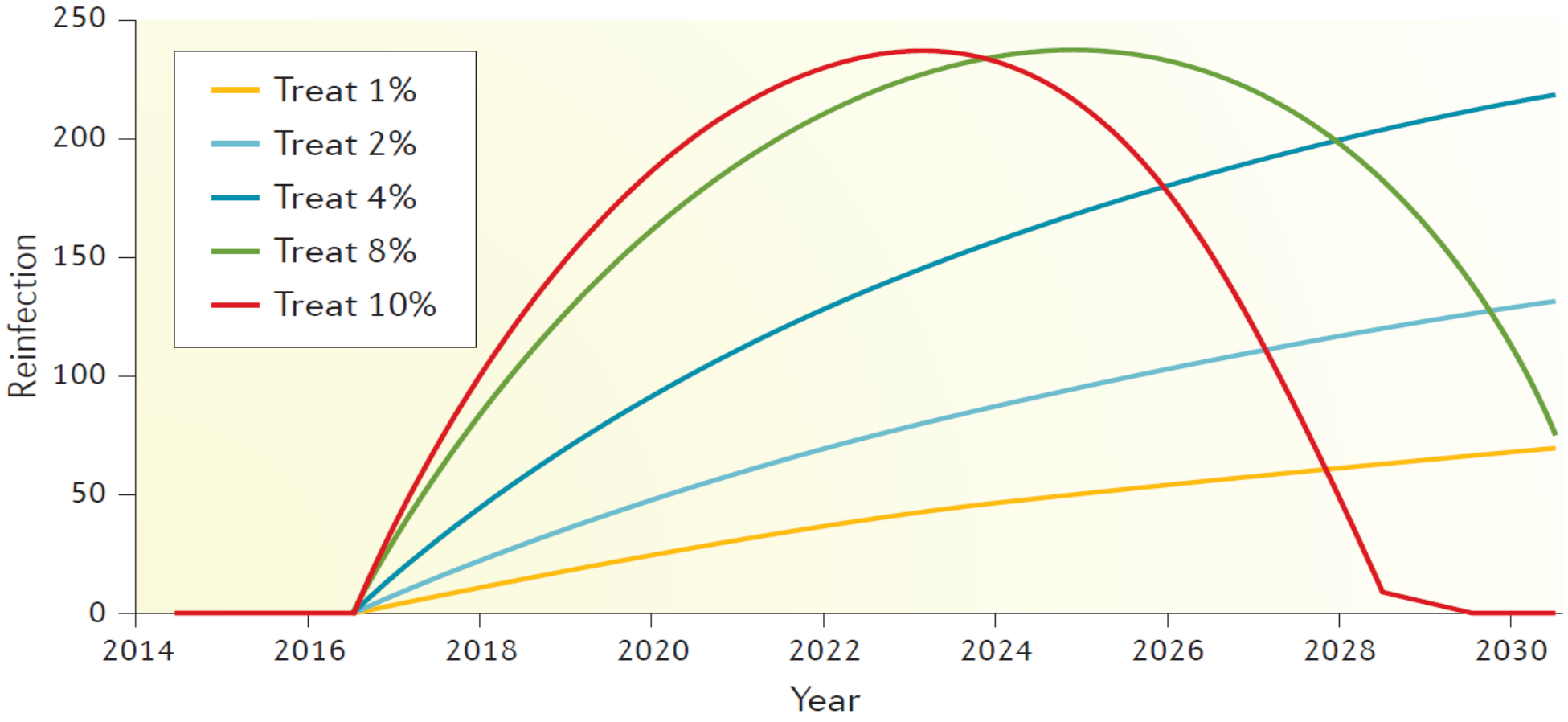
HCV infection rate in various study populations, based on recent drug use & OAT status

Hajarizadeh B, et al. J Hepatology 2020

HCV reinfection: strategies to address

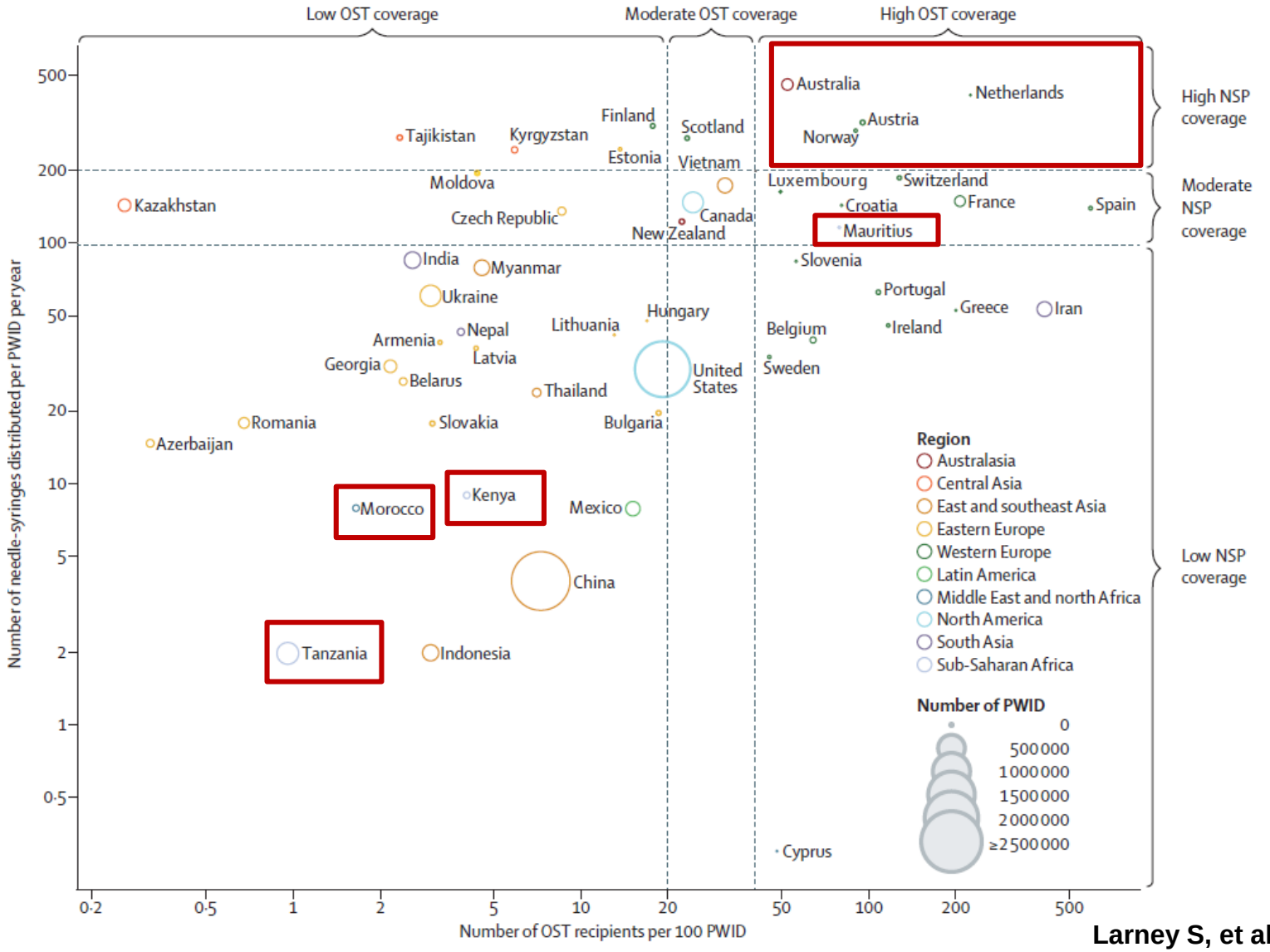
- **Acknowledgement:** there will be cases of HCV reinfection; if there are no cases, it is not a current PWID population
- **Harm reduction optimisation:** HCV reinfection incidence will reflect HCV primary infection incidence in the setting
- **Individual-level strategies:** treatment of injecting partners and networks should be considered
- **Rapid scale-up:** a slow scale-up will create HCV ‘susceptible’ PWID without reduction in viraemic pool
- **Access to re-treatment:** without stigma and discrimination

HCV reinfection: strategies to address



Grebely J, Hajarizadeh B, Dore GJ. Nature Reviews Gastro Hepatol 2017

Global OST and NSP Coverage among PWID



Only 1% of PWID live in countries with high coverage of both NSP and OST

Larney S, et al. Lancet Global Health 2017

World Hepatitis Day Seminar

DRUG USE AND HUMAN RIGHTS:
THE MISSING PIECE OF THE HEP C ELIMINATION PUZZLE?

Kirby Institute

public interest ADVOCACY CENTRE

PLEASE JOIN US

6:00pm–8:00pm, Monday 29 July
Kirby Institute, UNSW Sydney

RSVP ESSENTIAL BY 12 JULY

Hosted by:

Scientia Professor Gregory Dore Kirby Institute, UNSW Sydney

Mr Jonathon Hunyor Public Interest Advocacy Centre

Presentations:

The Hon Michael Kirby AC CMG Patron, Kirby Institute, UNSW Sydney

Professor Andrea Durbach UNSW Law & Australian Human Rights Institute, UNSW Sydney

Dr Janani Shanthosh The George Institute & Australian Human Rights Institute, UNSW Sydney

Associate Professor Kate Seear Faculty of Law, Monash University; Academic Director, Springvale Monash Legal Service

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@GregDore2 for “All things Hep C”