

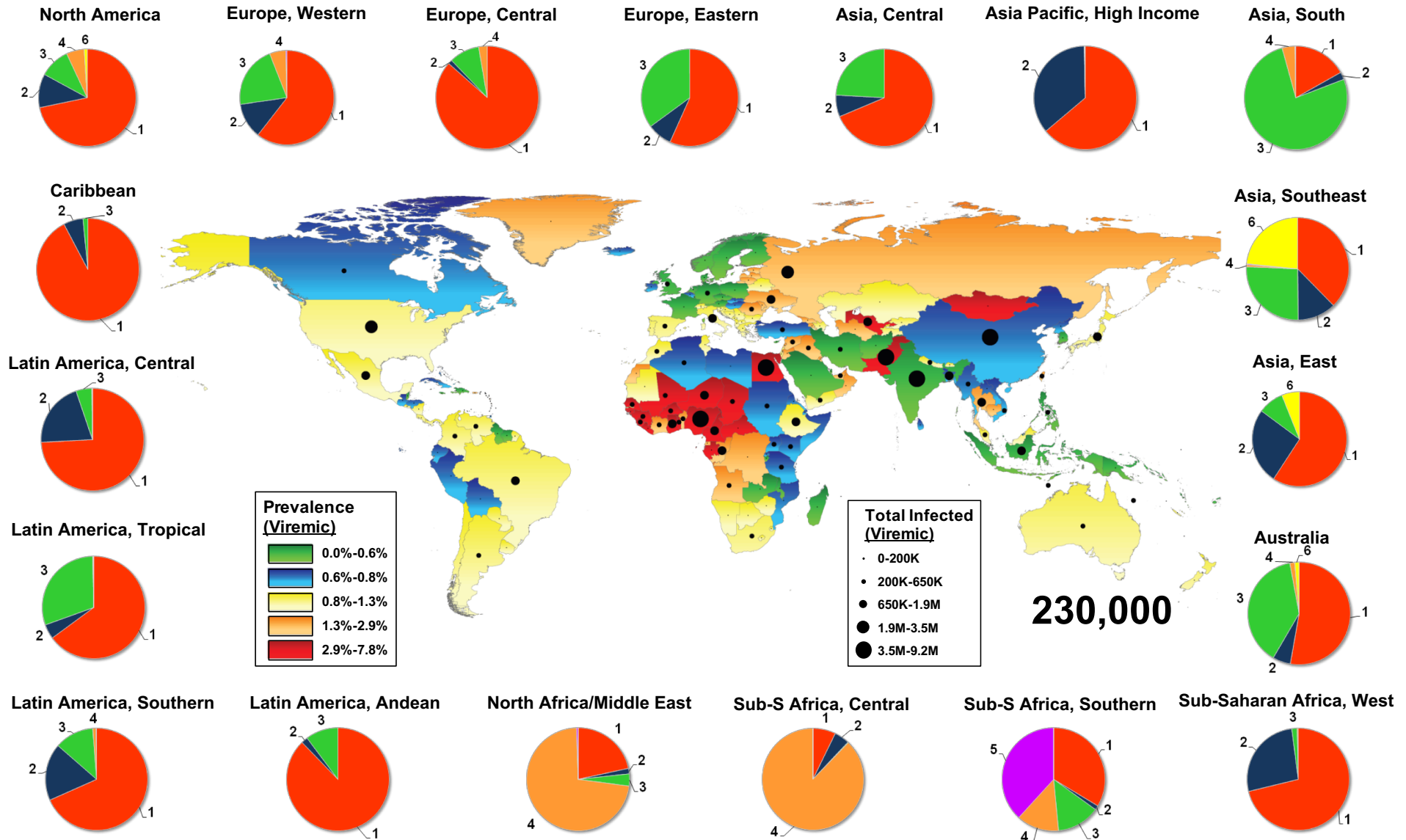
Implementing treatment scale up for Hepatitis C elimination

Mark Douglas



Part 1 – Introduction

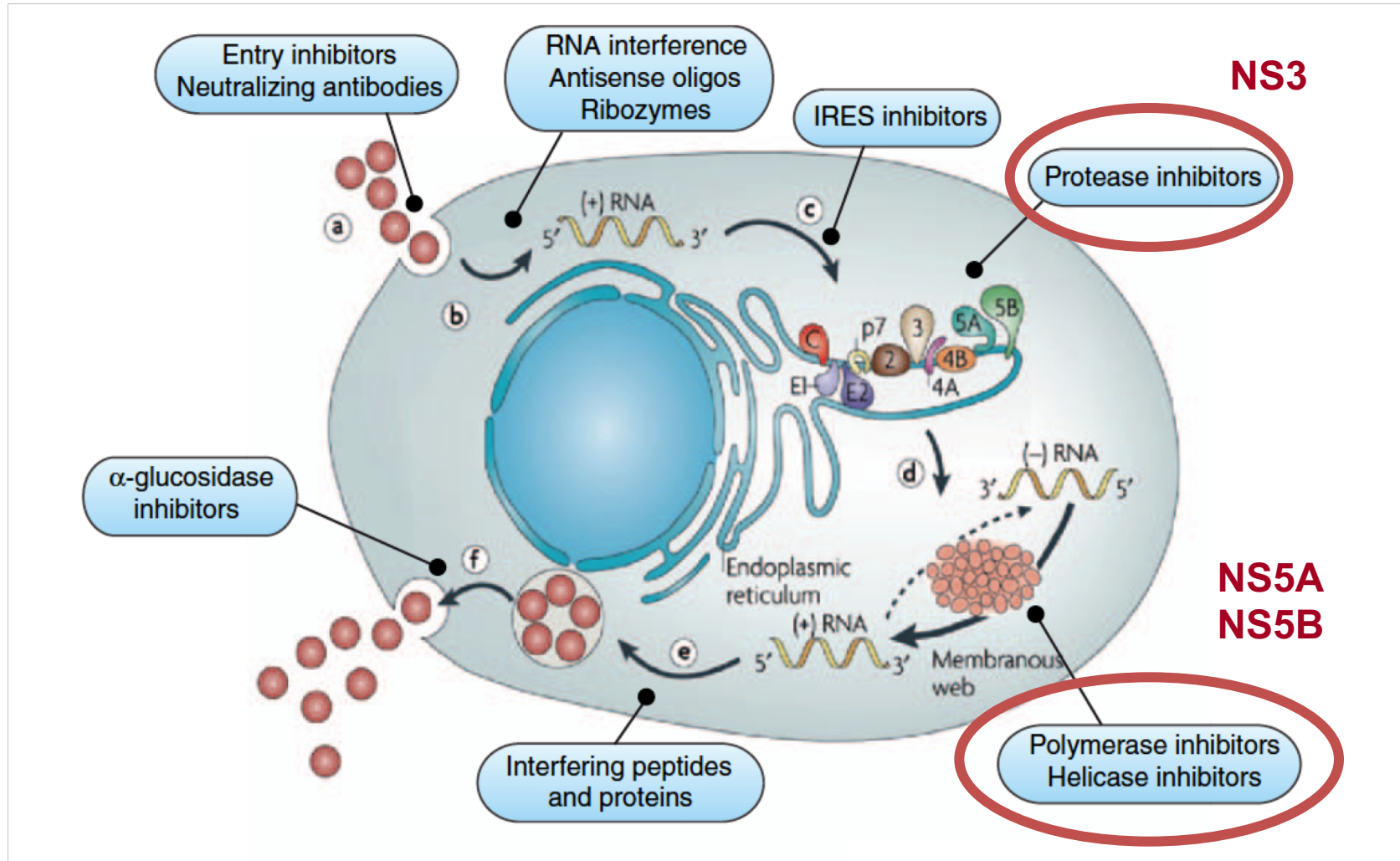
180 million people globally have chronic HCV infection, and 350,000 to 500,000 people die each year



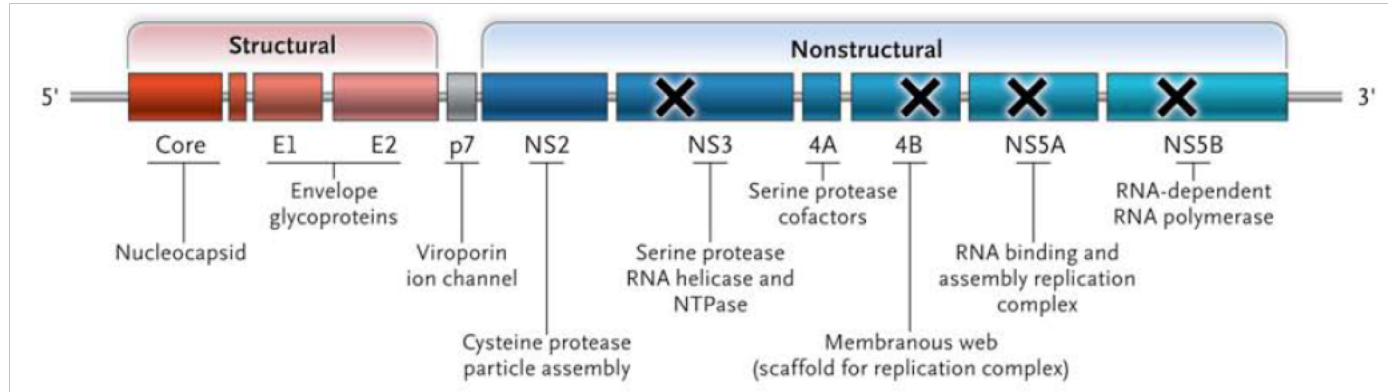
Hepatitis C virus - Progress

- 1989 HCV identified by molecular cloning (unable to grow virus in cell culture)
- Early research limited by a lack of animal models other than chimpanzees
- HCV replicon models developed around 2000
 - Study of HCV replication in vitro
- Infectious HCV cell culture model developed around 2005
 - Produced infectious virus particles, study of entire virus life cycle
- Rapid increase in HCV research, understanding of pathogenesis

Potential New Drug Targets

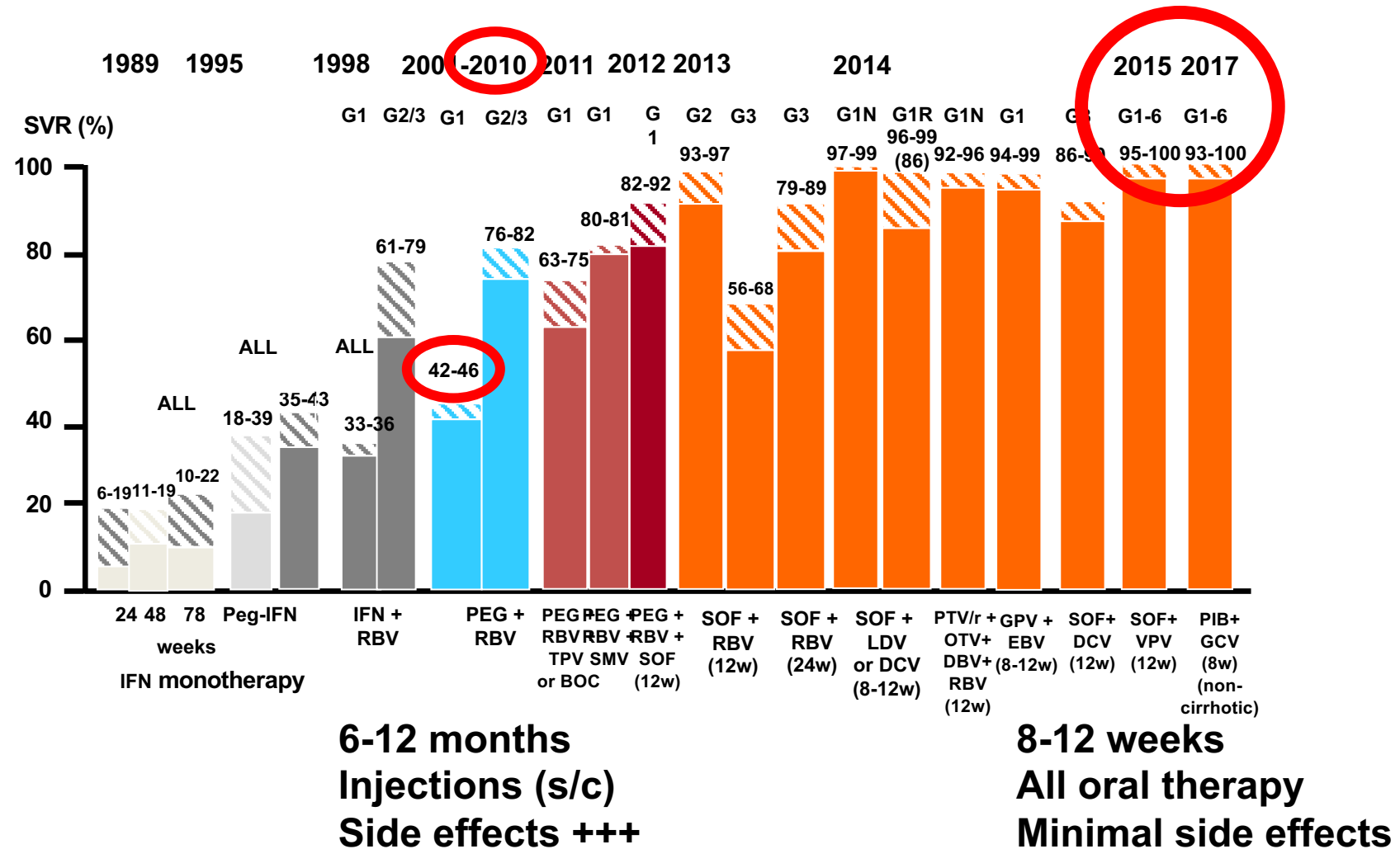


Direct Acting Antivirals (DAAs)

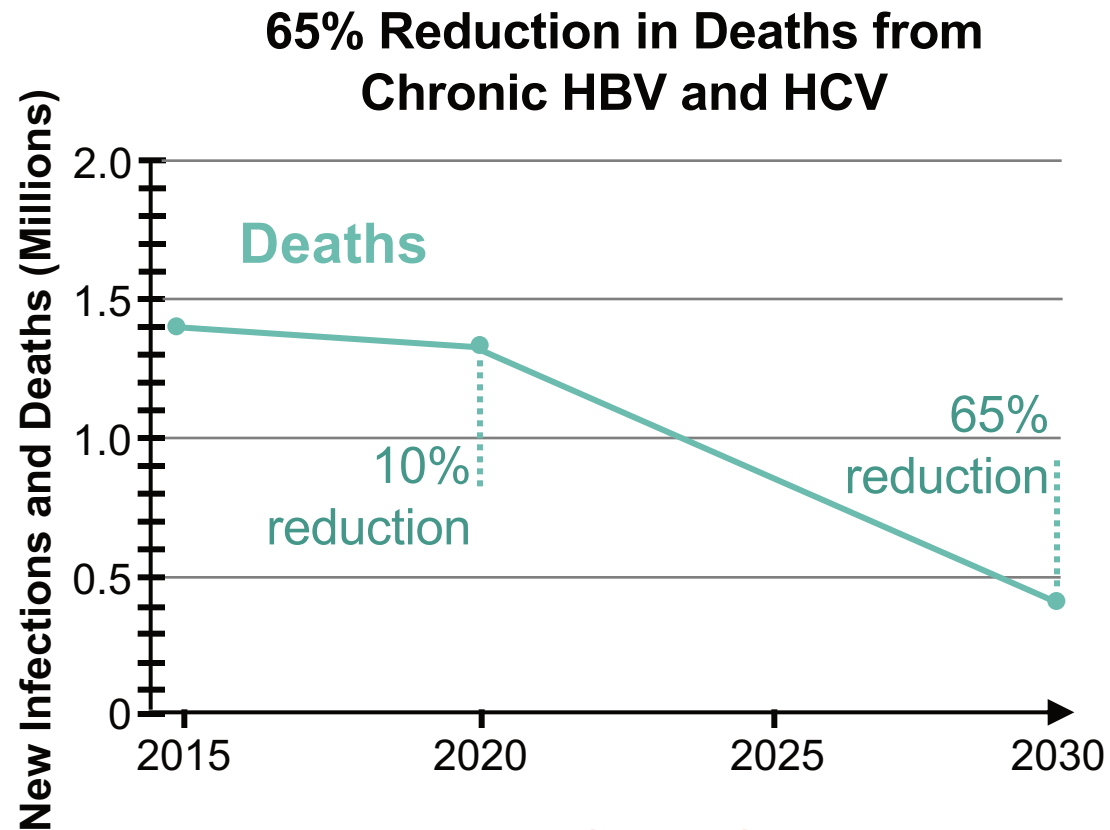


- NS3/4A protease inhibitors
 - telaprevir, boceprevir, simeprevir, grazoprevir, glecaprevir, voxilaprevir
- NS5B polymerase inhibitors
 - Nucleos(t)ide analogues (sofosbuvir)
 - Non-nucleoside analogues (dasabuvir)
- NS5A inhibitors
 - daclatasvir, ledipasvir, ombitasvir, elbasvir, velpatasvir, pibrentasvir

Evolution of HCV Cure Rates

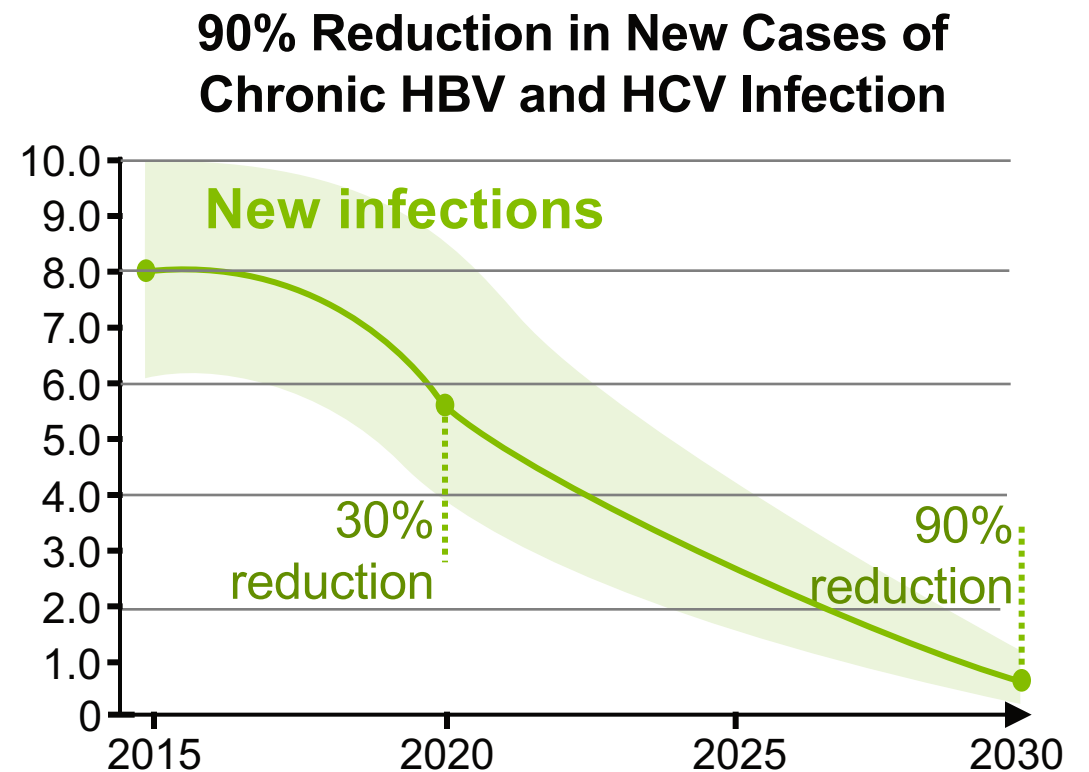


WHO Viral Hepatitis Elimination Targets: 2016



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

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



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

Hepatitis C Virus Elimination in Australia

- Is HCV elimination possible in Australia?
- How do we meet our WHO Elimination Targets?
- How do we achieve treatment scale-up?
- Are current models of care adequate?
- What are the barriers to achieving elimination?
- How can we overcome them?

Part 2 – Implementing Scale Up for HCV Elimination

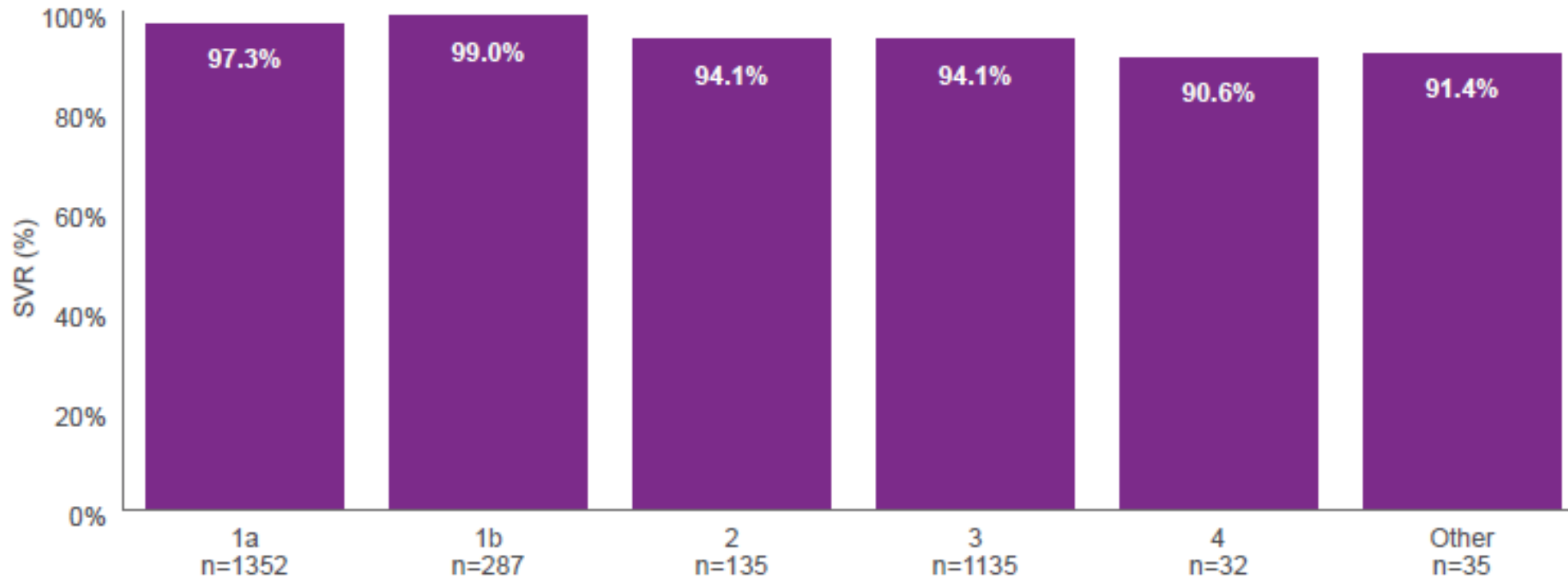
Implementing models of care for HCV

- What is the evidence base to choose HCV elimination as a disease to scale up Rx
- What policy framework do we have in Australia to make this a reality
- How do we make HCV elimination a reality
 - Modelling the key underpinnings to achieve elimination
 - Knowledge of patient factors that might represent barriers to care
 - Increasing awareness across the care cascade (patients, GPs, specialists, HCW, consumer groups)
 - Identifying barriers to care
 - Implementing solutions
 - Reporting on solutions

Evidence base for elimination strategy

High DAA efficacy across all HCV genotypes

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

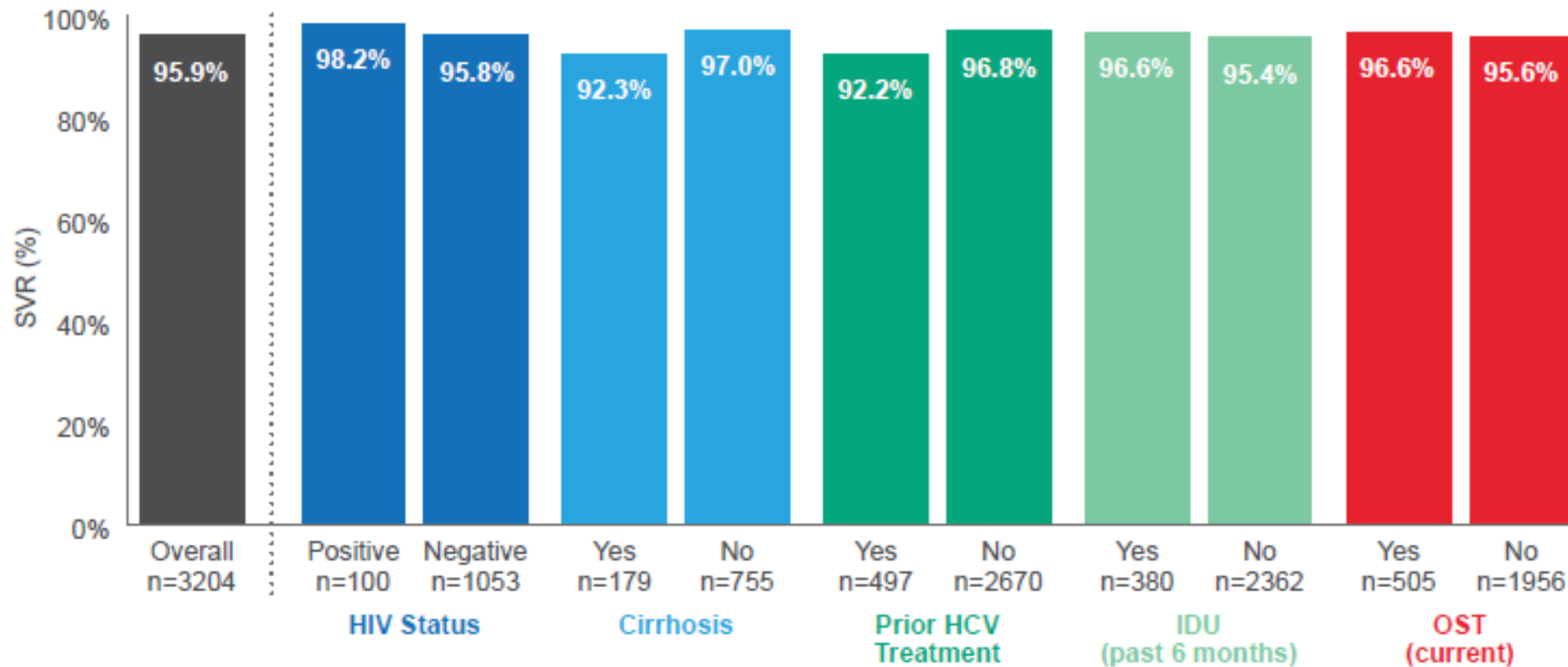


*(n=576 with unknown SVR; 16%)

Evidence base for elimination strategy

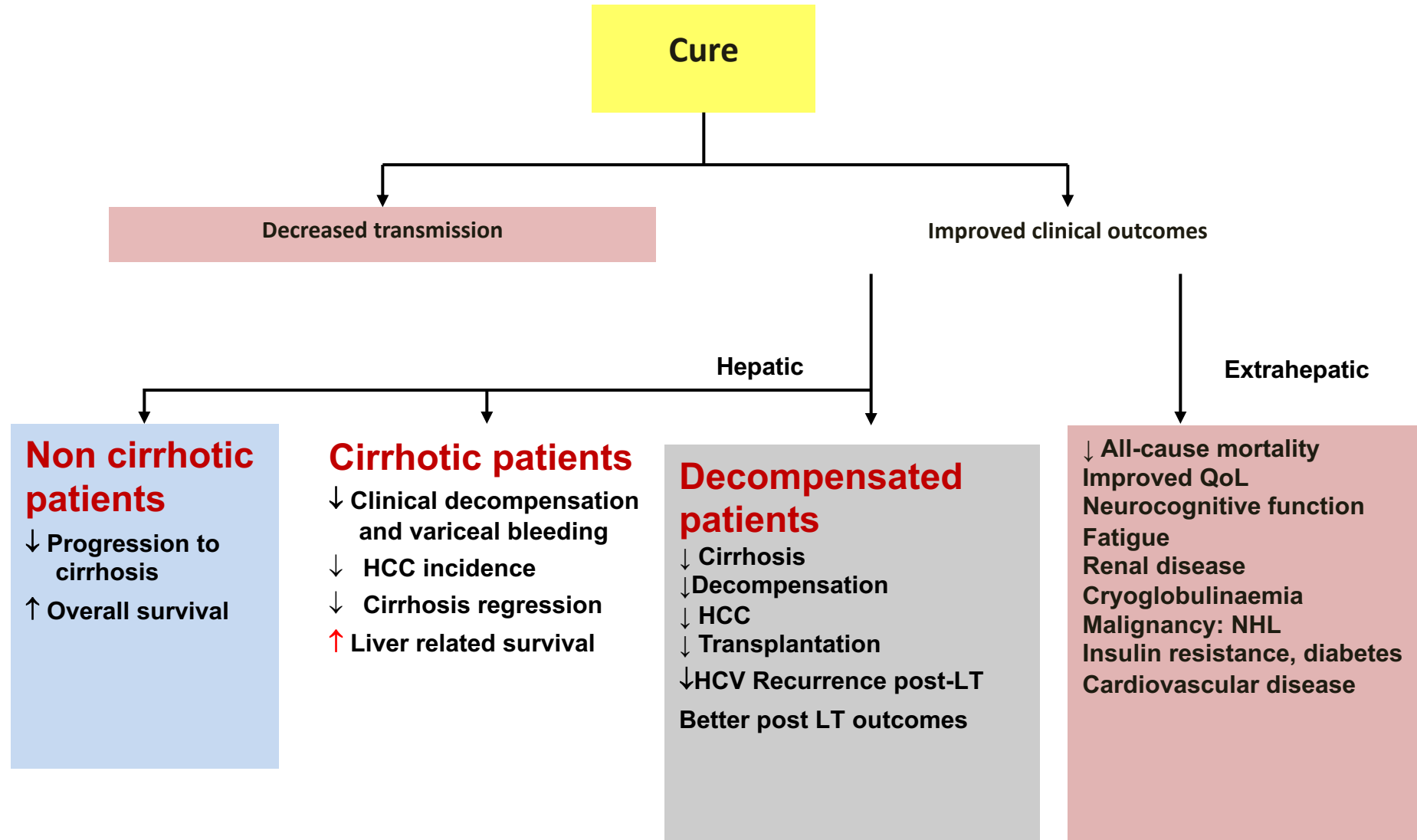
High DAA efficacy across all sub-populations

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



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

Benefits of curing Hepatitis C



Australian government policy framework: DAA programme

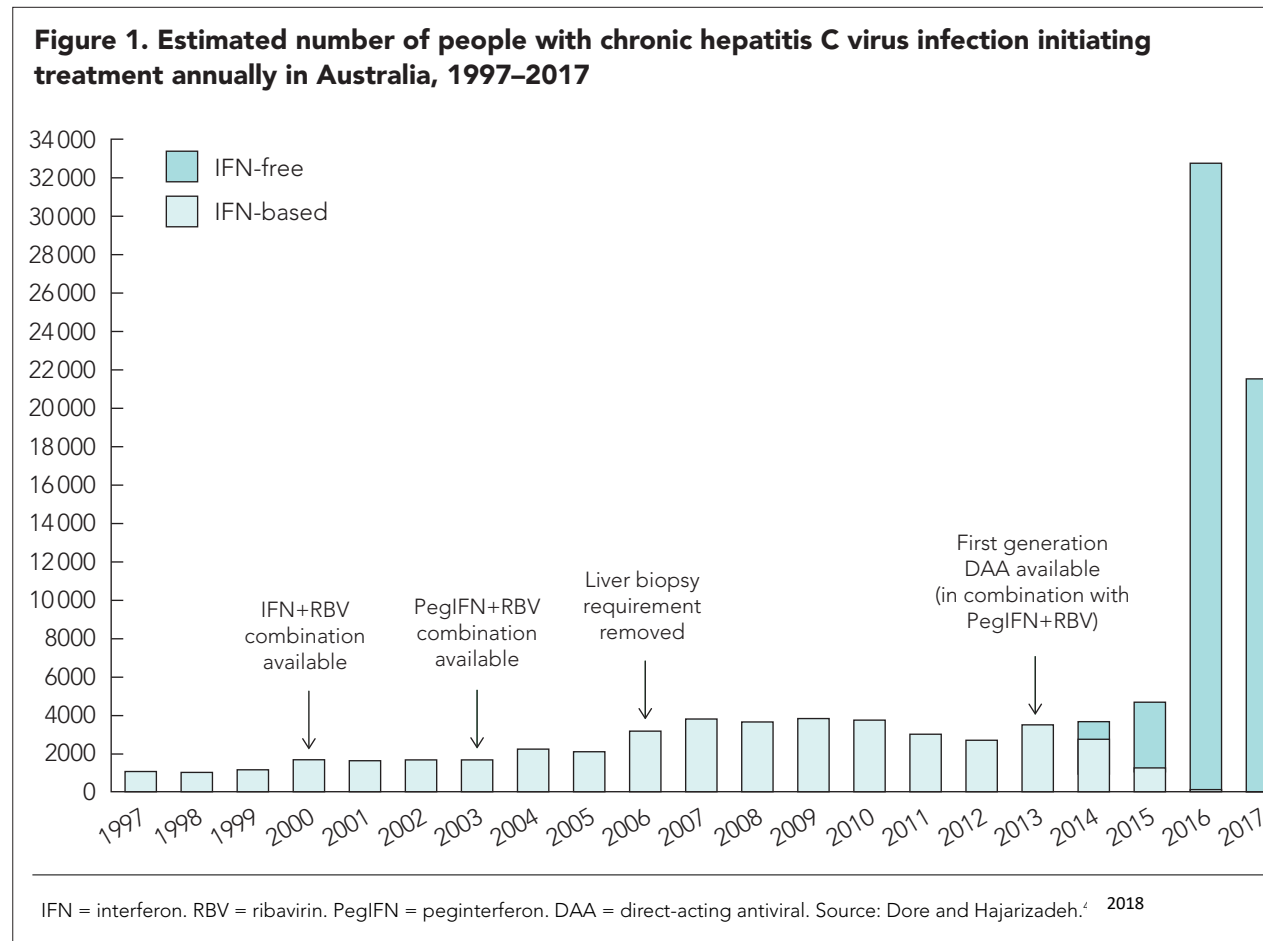
Features

- Unrestricted DAA access; no cap on treatment numbers; cap on expenditure
- Risk-sharing arrangement with pharma (2016–2020): cost/patient \$10,000 (2016)
- Involvement of non-specialists in DAA prescribing
- Minimal administration for clinicians; minimal co-payment for patients (\$7–37/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
- SHP integration of service models and knowledge

Impact of DAAs on Treatment Uptake



**Can we
sustain
this???**

24% of all people with chronic hepatitis C treated by the end of 2017

PWID populations with HCV in Australia: 2016

Ever PWID
N=180,000

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

Current PWID
N=38,000

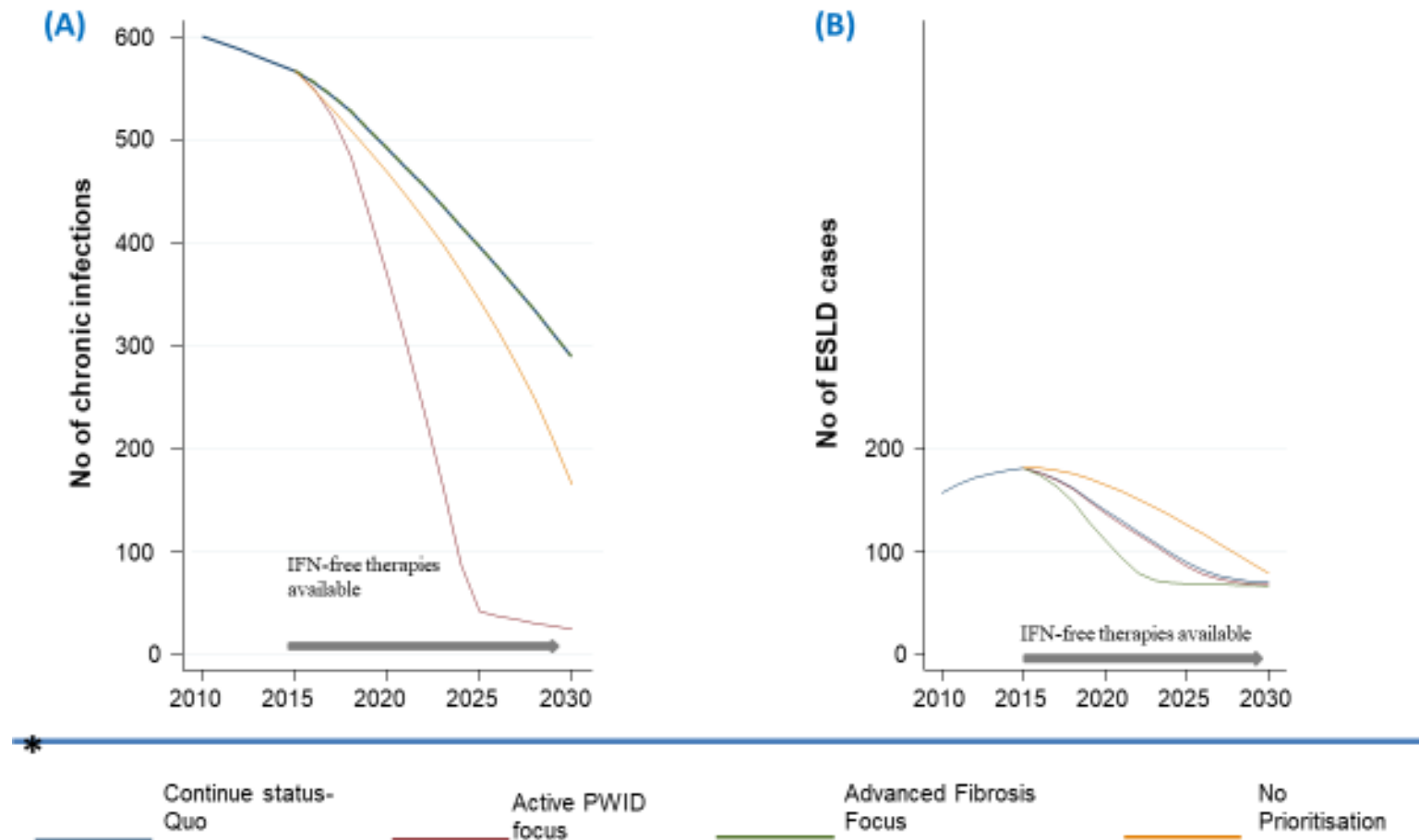
Prisoners
N=12,500
(8,250)

PWID on OST
N=24,000
(12,000)

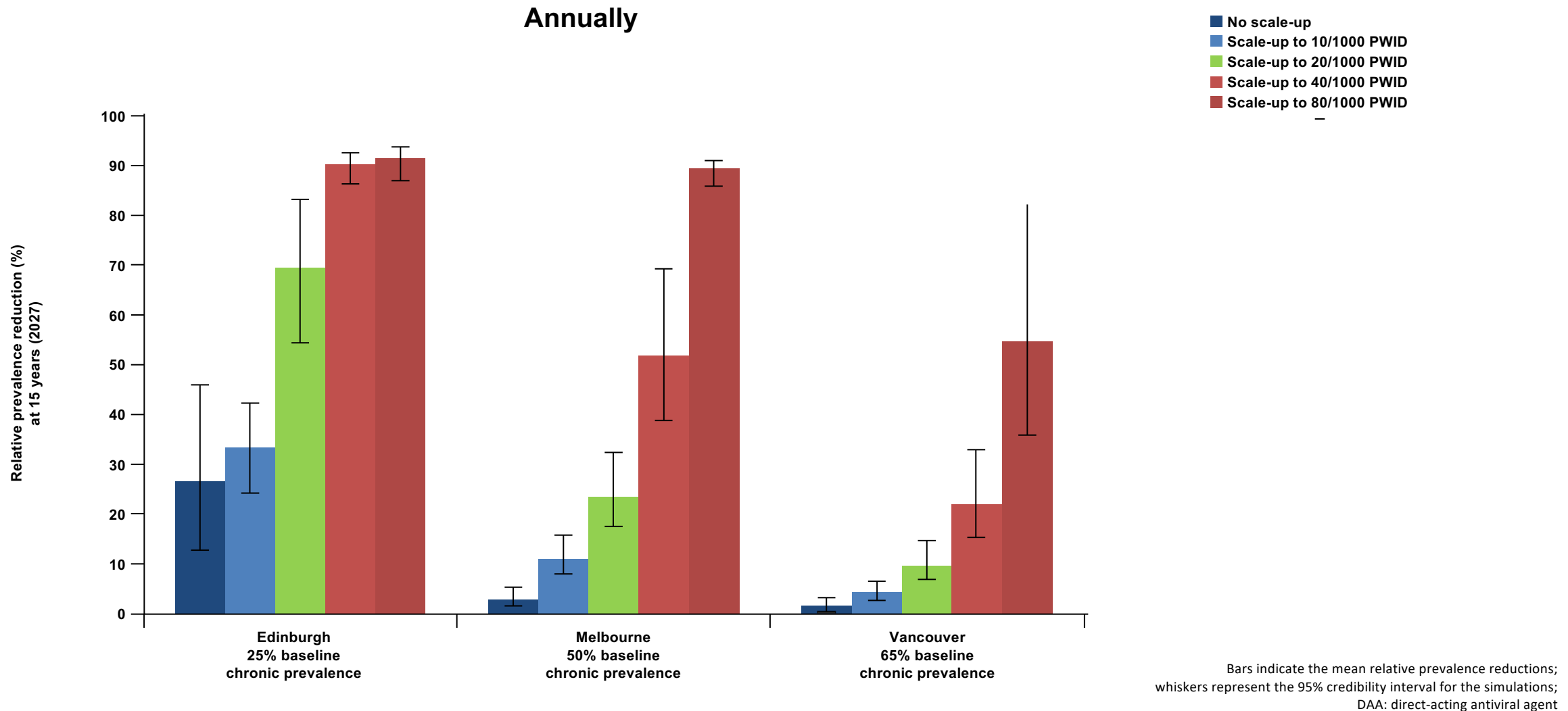
*An estimated 30% of current
PWID are on OST*

Modelling to define key underpinnings to achieve elimination

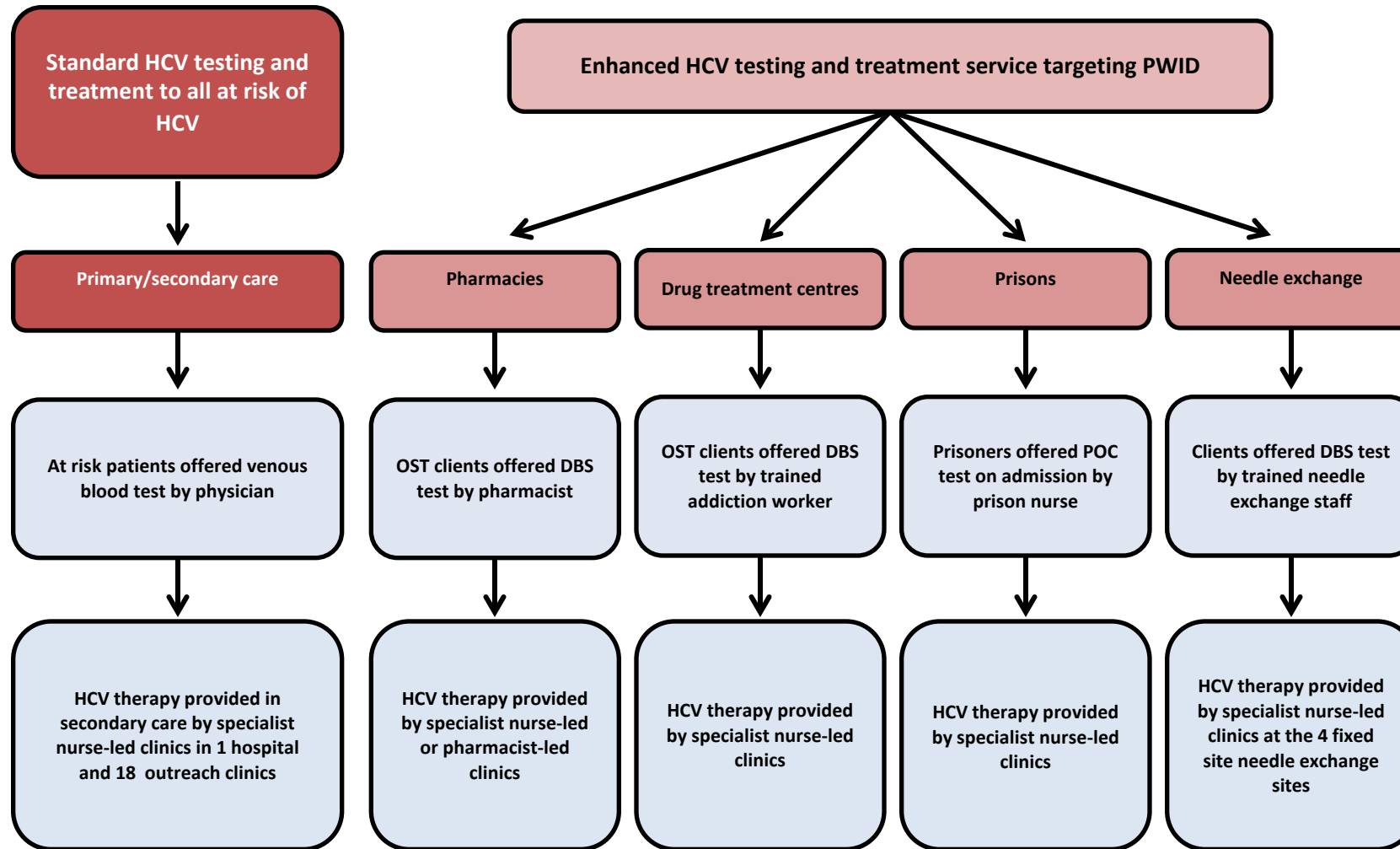
Modelled impact on: (A) incident chronic infections, juxtaposed against (B) incident ESLD cases, when treating 2,000 patients per year, according to treatment strategy*



Impact of better linking of care to cure of PWID with DAAs: improved treatment and response can reduce transmission



HCV testing and treatment pathways for the PWID and OST populations



Implementing models of care in SHP

- Patient factors that might represent barriers to care
 - High rates of social disadvantage (unemployment, chaotic social life, drug use, health literacy, mental illness)
- Increasing awareness across the care cascade (patients, GPs, specialists, HCW, consumer groups)
 - GP awareness workshops (large group, small practices)
 - Road shows at community events, drug health services, methadone clinics, NSPs, AMS, youth, homeless etc
 - Easy referral pathways (including development of a website)
- Identifying barriers to care
 - Patients don't tend to come back when you want them
 - Social, physical, psychological and economic factors
- Implementing solutions
 - Peer support workers
 - Single visit for treatment initiation (DBS)
 - Mobile van
 - Psychology support services and linkage to social work and community services
- Reporting on solutions

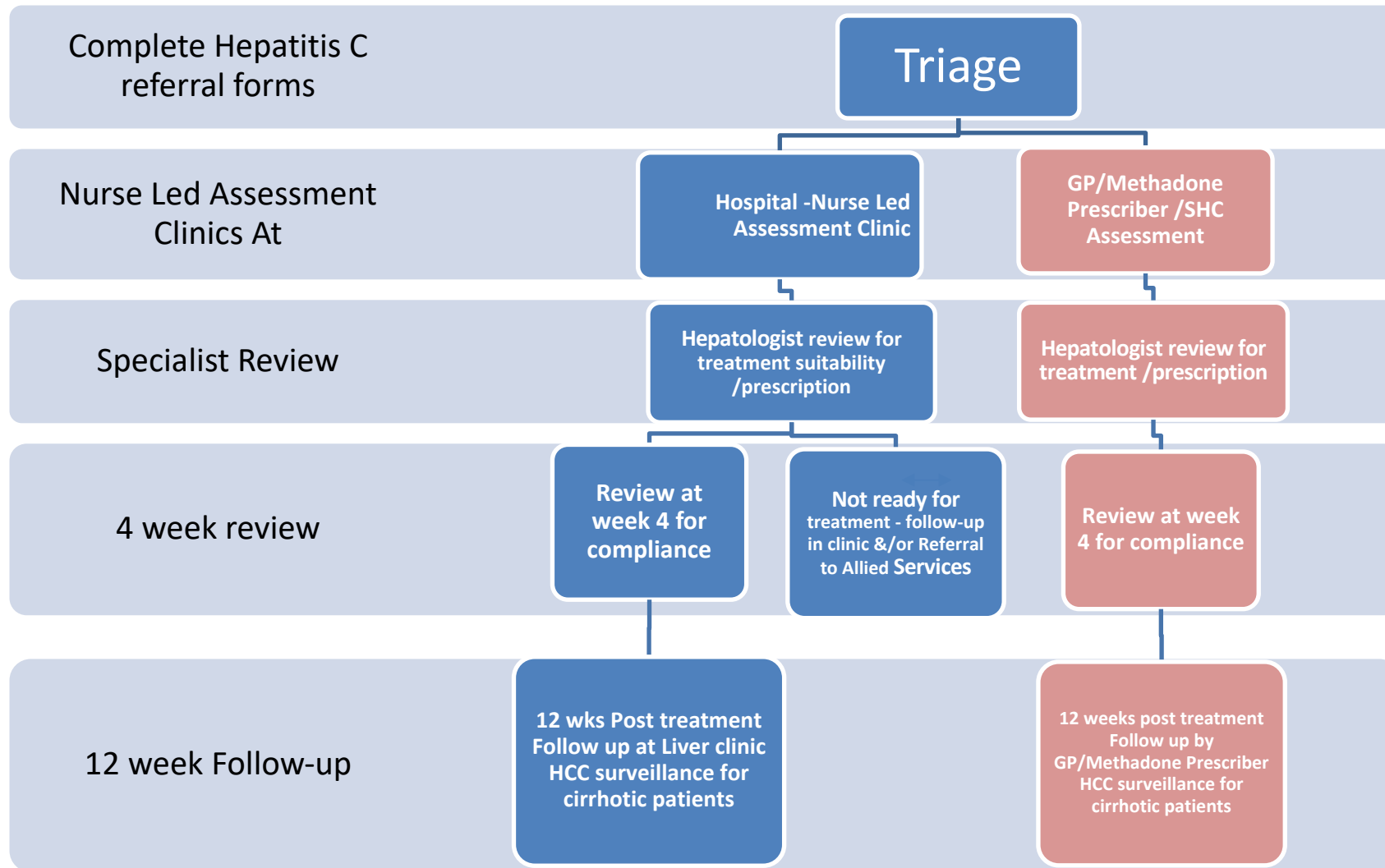
SHP HCV elimination models



SHP Elimination models

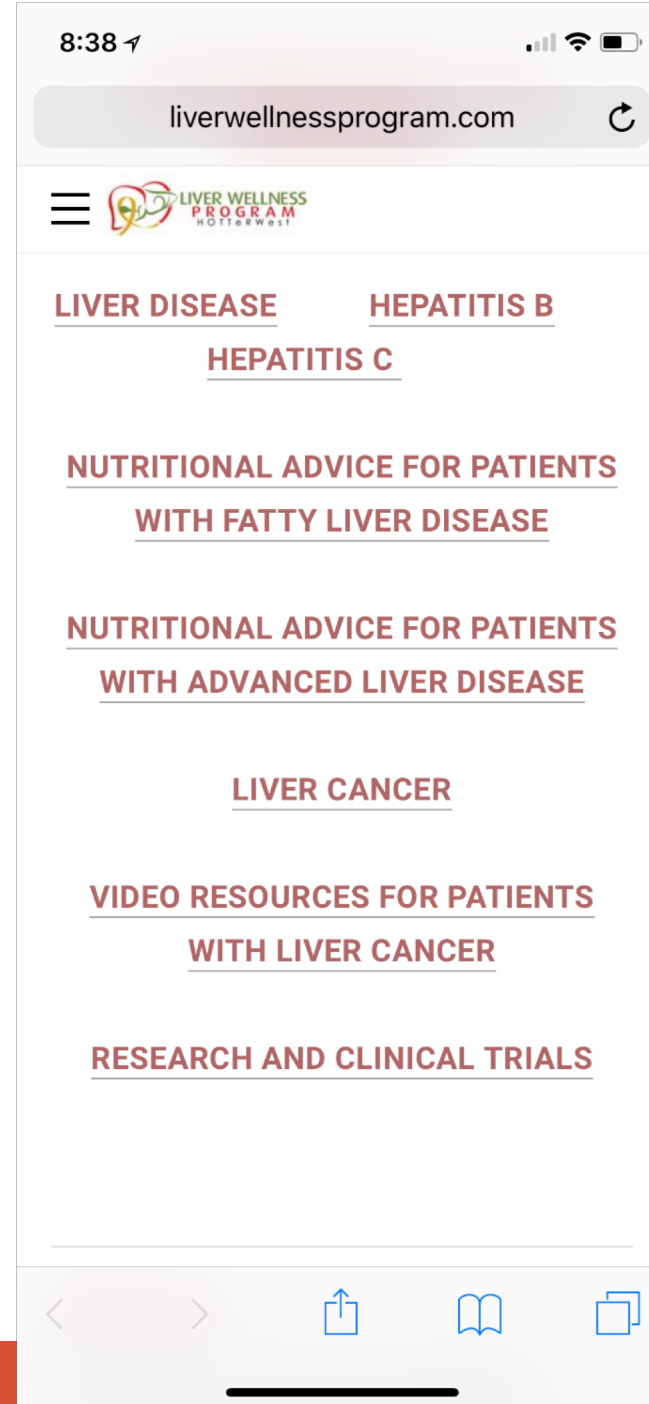
- Tertiary and hospital based clinics
- Drug health services
- Private methadone clinics
- High case load GPs
- HCV screening
 - Community mental health, long stay mental health
 - Needle and syringe programs
 - Homeless services
 - Youth services
 - WSLHD: Purchase of mobile van – Women's refuge, housing commission, aboriginal health services
- **GP involvement: education, linkage, upskill to treat**

Hepatitis C Treatment Path Ways



liverwellnessprogram.com

WSLHD-HeptologyService@health.nsw.gov.au




Case record forms



BINDING MARGIN - NO WRITING

Created 06/06/16
Review 06/07/19

 Health Western Sydney Local Health District	FAMILY NAME		MRN
	GIVEN NAME		<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE
	D.O.B. ____/____/____		M.O.
	ADDRESS		
	LOCATION / WARD		
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE			

HEPATITIS C TREATMENT SUMMARY			
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Please tick ☒

Priority: ☐ Urgent ☐ Non urgent

Date ____/____/____ Compiled by _____ (print name) _____

Genotype: ☐ 1a ☐ 1b ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 Other: _____

Viral Load: ____/____/____ Result _____ IU/mL Ht _____ cm Wt: _____ kg BMI _____

Fibroscan / Biopsy Date ____/____/____ Result _____

Date of test ____/____/____ Albumin _____ Bili _____ ALT _____ AST _____ Platelets _____

Renal function: Creat _____ eGFR _____ EtOH current gms/D _____

Other significant _____

Previous Treatment; ☐ Naive ☐ IFN ☐ IFN+RBV ☐ BOC ☐ TVR
☐ SMV ☐ OBV ☐ PTV/r Other: _____

Compliance ☐ Yes ☐ No Perhaps (needs further Assessment)

Other Meds: (including puffer) _____

Drug interaction ☐ Yes ☐ No _____

Reviewed (please attached printout) <http://www.hep-druginteractions.org>

To be completed by prescribing Consultant

Cirrhosis: ☐ No ☐ Yes ☐ Decompensated

Treatment Regime: ☐ SOF+LDV ☐ SOF+DCV ☐ SOF+RBV ☐ SOF+RBV+DCV
☐ SOF+PEG-IFN+RBV ☐ VIEKIRA PAK ☐ VIEKIRA-RBV PAK
If RBV added enter dose here: _____

Planned Duration: ☐ 8 weeks ☐ 12 weeks ☐ 24 weeks

Type of Prescription ☐ Section 100 ☐ Section 85

Reviewed by: ☐ George ☐ Van der Poorten ☐ Ahlenstiel ☐ Liddle ☐ Lin ☐ Ong
☐ Phung ☐ Samarasinghe ☐ Vongsuwanh ☐ Douglas ☐ Lam ☐ Other _____

Treatment Centre: _____ **Consultant's signature** _____ Date: ____/____/____

Date Commenced: ____/____/____ Date Completed: ____/____/____

Week 4 follow up: Date ____/____/____ Seen by _____

Comments: _____

Complications: _____

Week 4 PCR Date ____/____/____ Result: ☐ NOT_DET ☐ DET

SVR 12: Date ____/____/____ Result: ☐ NOT_DET ☐ DET

Name (print): _____ Signature: _____

Designation: _____ Date: ____/____/____

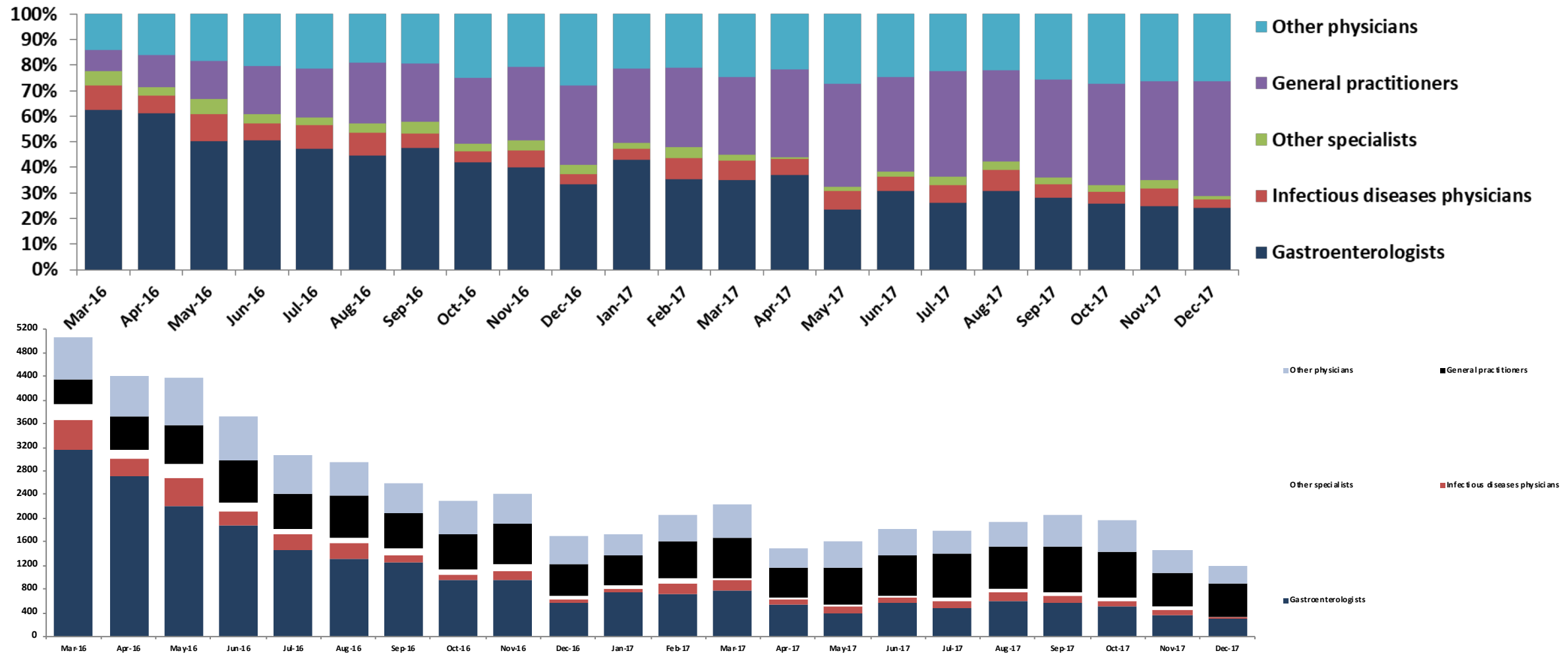
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HEPATITIS C TREATMENT SUMMARY

WSHR-0768

Increasing involvement of non-specialists



Updated data to March 2017-June 2018

	WSLHD	SLHD
Initiations	1708	2032
% of target	51%	38%
GP initiations	35%	45%

Implementing models of care for HCV

- What is the evidence base to choose HCV elimination as a disease to scale up Rx
 - Good evidence
- What policy framework do we have in Australia to make this a reality
 - Excellent
- How do we make HCV elimination a reality
 - Modelling the key underpinnings to achieve elimination: Done
 - Knowledge of patient factors that might represent barriers to care Done
 - Increasing awareness across the care cascade (patients, GPs, specialists, HCW, consumer groups) Ongoing
 - Identifying barriers to care Ongoing and learning on the job
 - Implementing solutions Ongoing and learning on the job
- Reporting on solutions: We are on track

The text 'Thank you!' is rendered in a bold, 3D, sans-serif font. The letters are a vibrant yellow with a gradient that transitions to a darker orange at the base, giving it a three-dimensional appearance as if it's floating or standing on a surface. The text is slightly tilted upwards to the right.

Acknowledgements

Jacob George, Storr Liver Centre, WIMR and University of Sydney

Greg Dore, Kirby Institute, University of NSW