

Ending HBV Transmission in Prisons: Screening, Immunisation, and Treatment Strategies

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Overview

Ending HBV transmission among people in prison

- **Epidemiology**

- Global
- Australia: Prevalence (AusHep), incidence (HITS-p)

- **Testing and prevention**

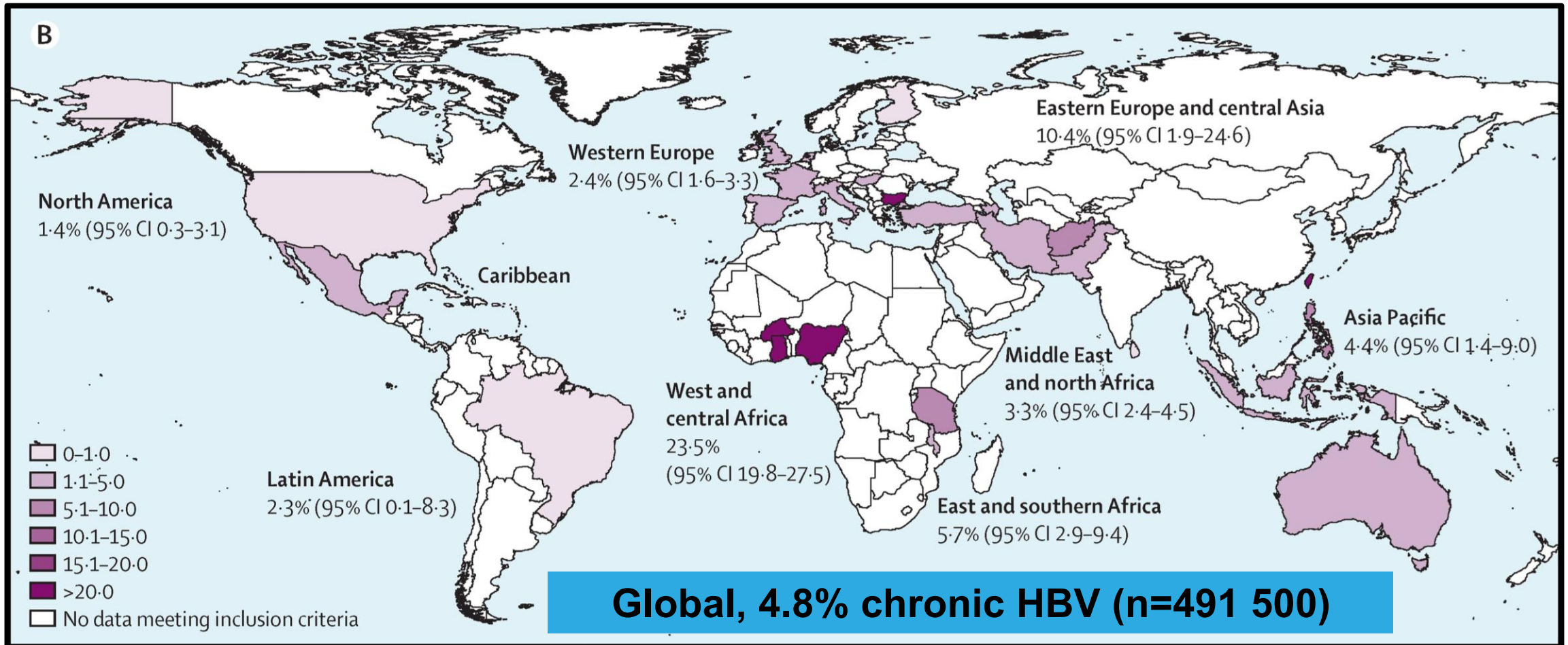
- Rapid diagnostic tests
- Vaccination: Accelerated or standard schedule?

- **Management**

- Australia: Nurse-led model of care, JHFMHN (REACH-B)

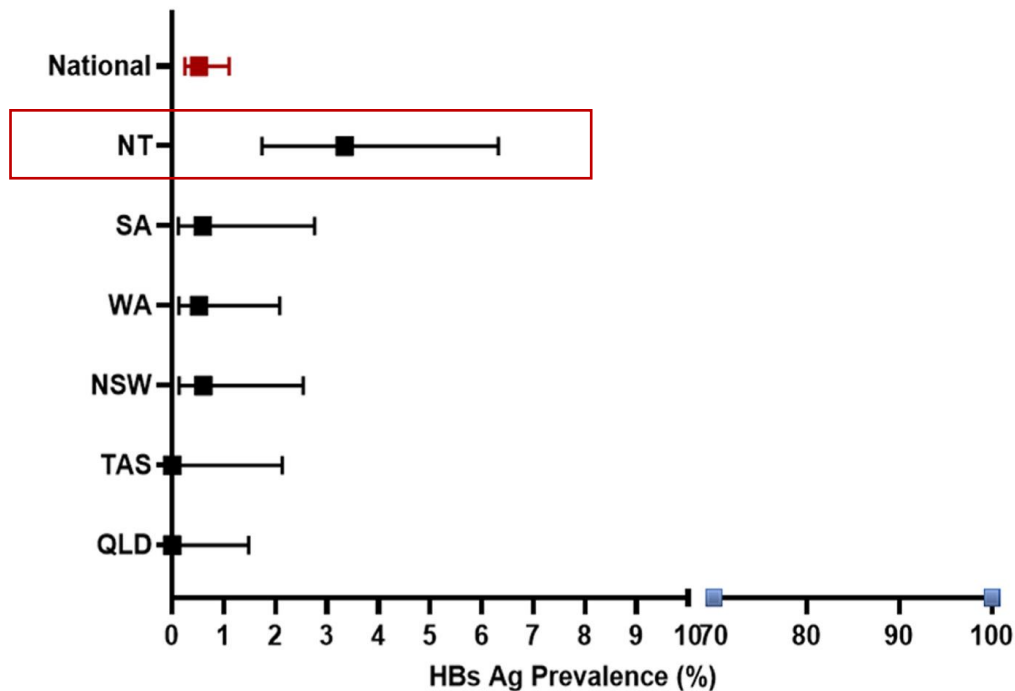
Epidemiology

Global burden of HBV among people in prison (2005-15)

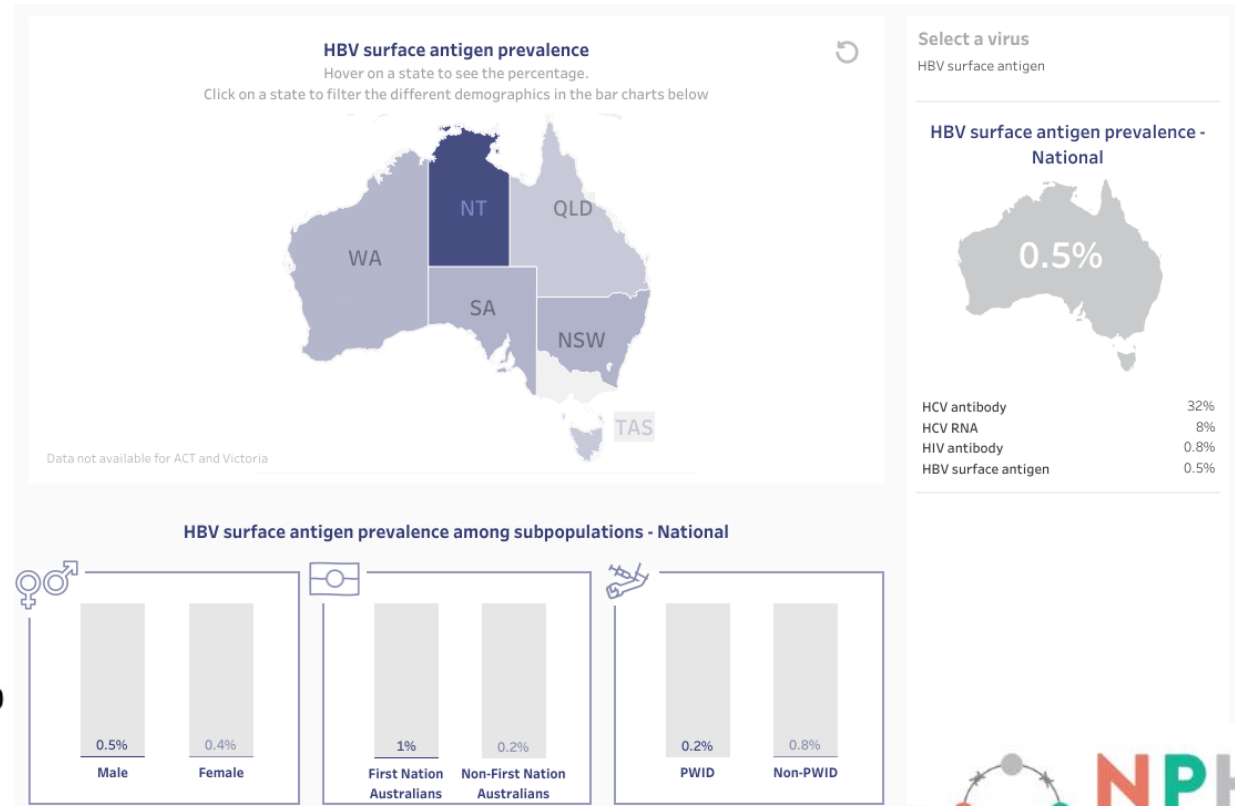


Epidemiology

Burden of HBV among people in prison – Australia



AusHep



Epidemiology

HBV incidence among people in prison in NSW

HITS-P (2005-2014)

- Prospective cohort of people in prison in NSW susceptible to HBV (n=140)
- **Incident HBV, n=7 (5%)**
 - Incidence, 1.7 per 100 py
 - Time to diagnosis of infection: 56 months (range 12 – 107)
- Immunised, n=48 individuals (34%)
 - Incidence, 11.8 per 100 py
- Remained susceptible at end of follow up, n=86 (61%)
- Injecting \geq daily associated with incident HBV

Natural history

<1% chronic HBV

Diagnosis

Point of care HBV testing

- HBsAg rapid tests
 - WHO prequalification
 - Determine HBsAg 2 (Alere Medical)
 - VIKIA HBsAg (bioMérieux SA)
 - SD Bioline HBsAg (Abbott Diagnostics)
 - Good sensitivity (>97%)*, excellent specificity (>99%)
- HBsAb rapid tests
 - No WHO prequalification; commercially available
 - Poor sensitivity (20%-70%)



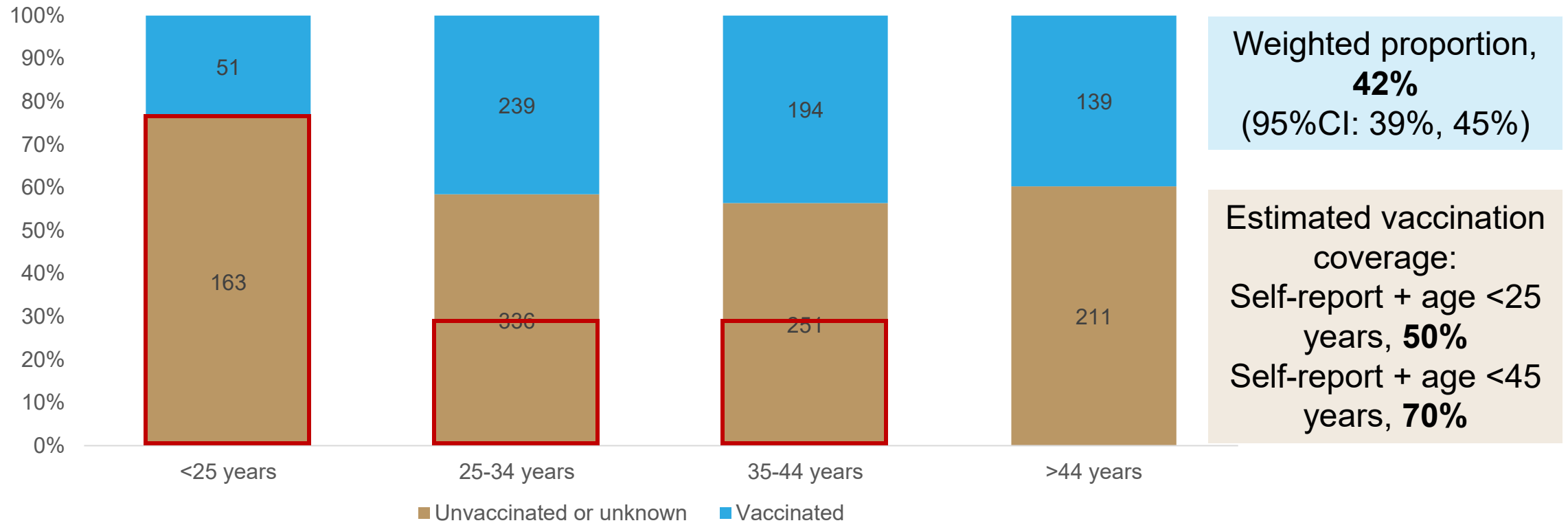
Multiplex rapid POC tests

HBV sAg
HIV Ag/Ab
HCV Ab
(Syphilis Ab)

Prevention

HBV vaccination

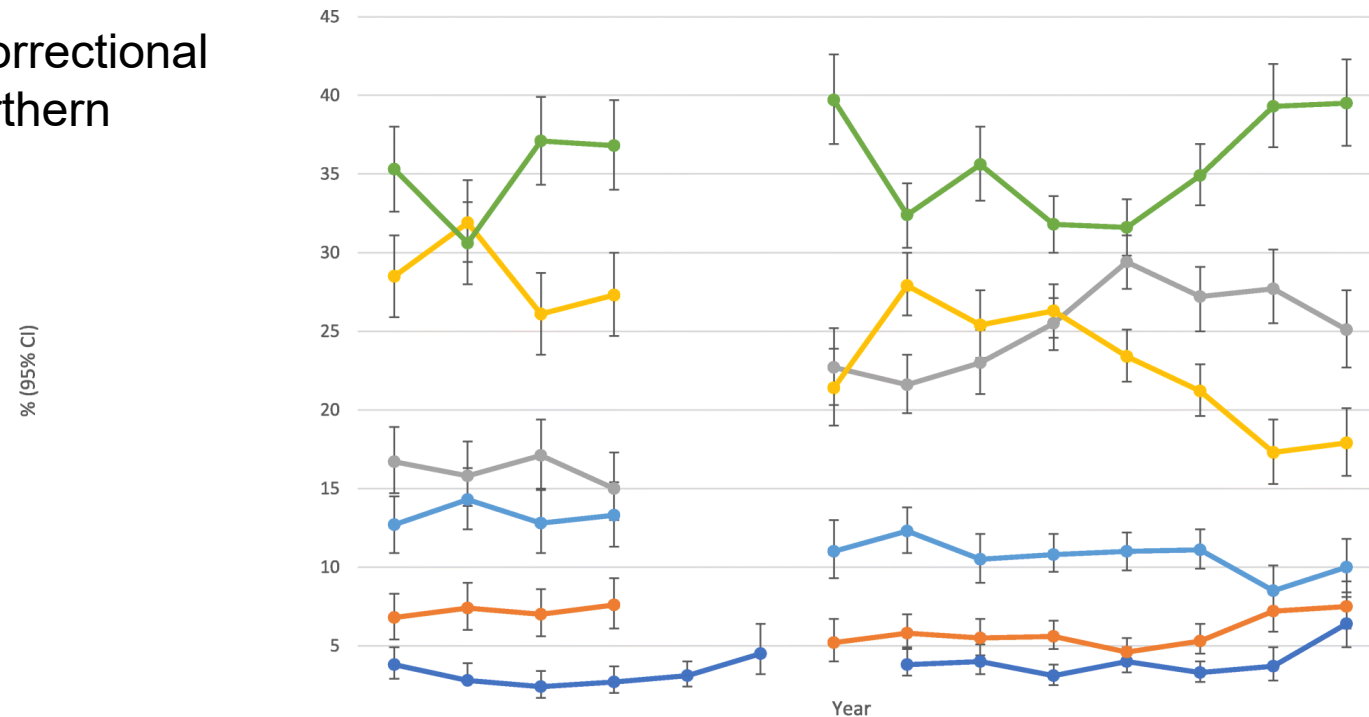
HBV vaccination status (self-report) among people in prison in Australia (AusHep, 2022-2023)



Prevention

Susceptibility to HBV among people in prison in NT

Viral hepatitis in correctional facilities in the Northern Territory
2003–2017



	2003-4	2004-5	2005-6	2006-7	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
● Hepatitis C serology positive	3.8	2.8	2.4	2.7	3.1	4.5		3.8	4	3.1	4	3.3	3.7	6.4
● Hepatitis B infection (HBsAg positive)	6.8	7.4	7	7.6			5.2	5.8	5.5	5.6	4.6	5.3	7.2	7.5
● Hepatitis B immune by vaccination	16.7	15.8	17.1	15			22.7	21.6	23	25.5	29.4	27.2	27.7	25.1
● Hepatitis B immune by exposure	28.5	31.9	26.1	27.3			21.4	27.9	25.4	26.3	23.4	21.2	17.3	17.9
● Isolated HBcAb positive	12.7	14.3	12.8	13.3			11	12.3	10.5	10.8	11	11.1	8.5	10
● Hepatitis B not immune	35.3	30.6	37.1	36.8			39.7	32.4	35.6	31.8	31.6	34.9	39.3	39.5

Prevention

Dosing strategy



- Standard schedule

- **ADULT – 3 doses**

- 1st dose: day 0
 - 2nd dose: 1 month after 1st dose
(window: 1-2 months after 1st dose)
 - 3rd dose: 6 months after 1st dose
(window: from 4 months after 1st dose)

- Accelerated schedule

- **ADULT – 4 doses**

- 1st dose: day 0
 - 2nd dose: 1 month after 1st dose
 - 3rd dose: 2 months after 1st dose
 - 4th dose: 12 months after 1st dose

or

- 1st dose: day 0
 - 2nd dose: 7 days after 1st dose
 - 3rd dose: 21 days after 1st dose
 - 4th dose: 12 months after 1st dose

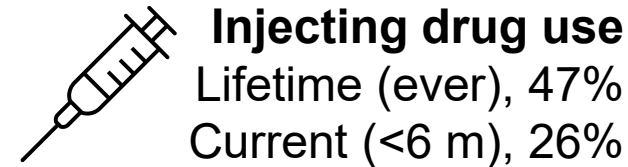
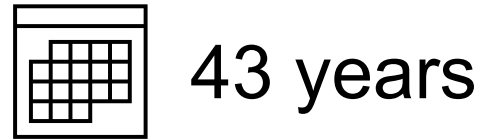
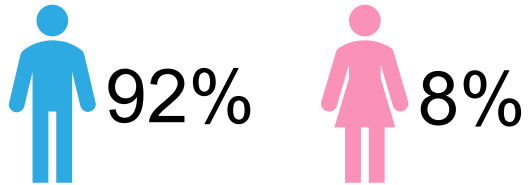
Chronic hepatitis B among people in prison in NSW

**Characteristics and management
2022-2025**



Management

REACH-B: Participant characteristics (n=213)



Mode of transmission
Injection drug use, 38%
Vertical or horizontal, 35%
Sexual, 6%

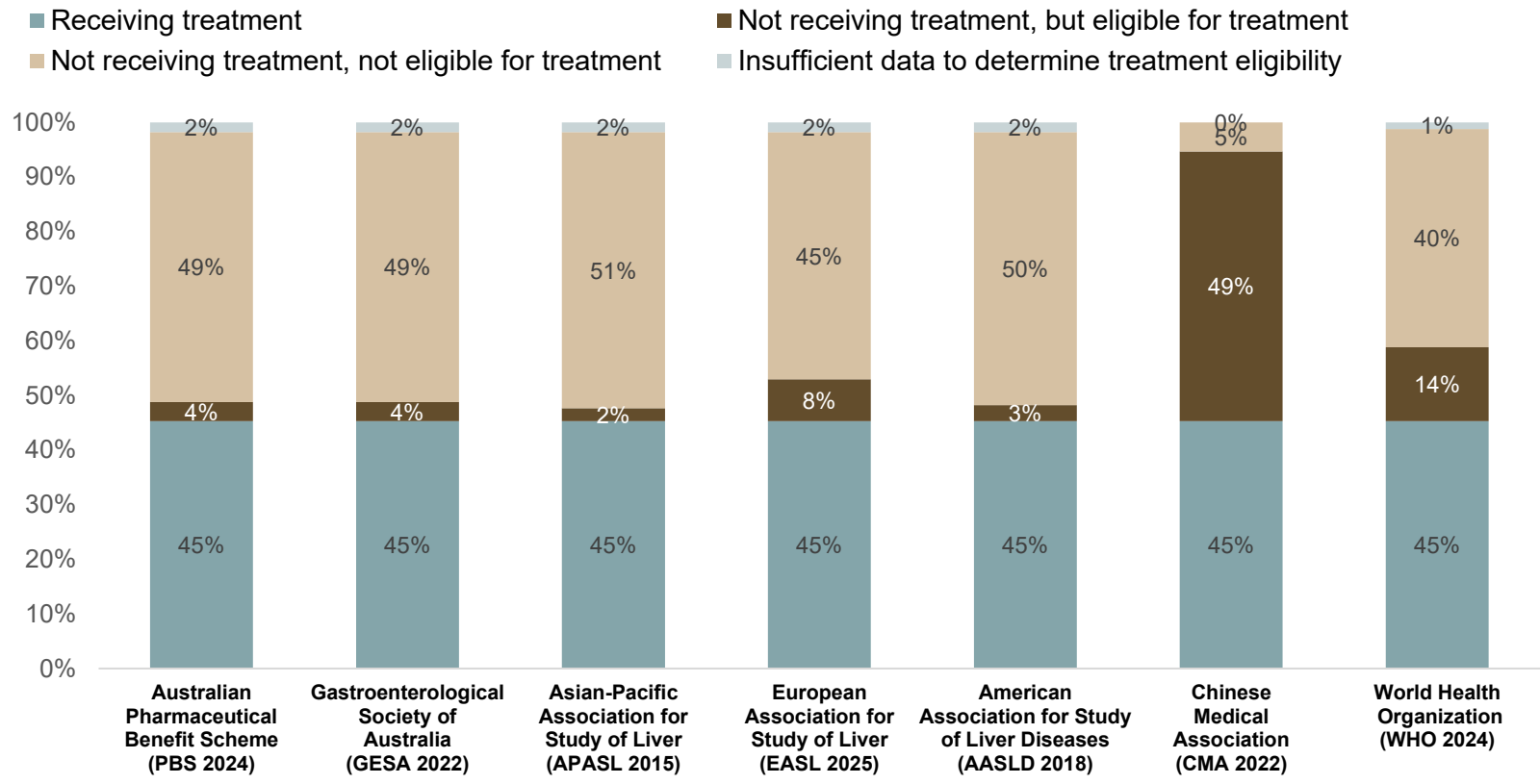
Co-infection
HIV, 1%
Current HCV, 9%
Current HDV, 8%

Liver disease stage
Cirrhosis, 8%
eAg positive, 14%
HBV DNA >2000, 20%

Management

REACH-B: Treatment eligibility

Receipt and eligibility for HBV treatment among people in prison in NSW indicated by national and international hepatitis B guidelines



N=170
Exclude initial assessment

Strategies for ending HBV transmission...

among people in prison

- Prevention

- **High vaccine uptake**

- Ensure all **infants** and adults at risk receive hepatitis B vaccine

- Safe injection

- Sterile needle and injecting equipment provision

- Safe sex

- Condom provision

- Early detection and treatment

- Testing – awareness of status

- Identify those with chronic HBV – treat and/or monitor (reduce transmission, liver-related complications [cirrhosis, HCC])

Key actions



Acknowledgements

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- Principal Investigators, Site Coordinators and Data Managers involved in the included studies.
- Study participants for their contribution to research.



HBV surface antigen prevalence

Hover on a state to see the percentage.

Click on a state to filter the different demographics in the bar charts below



Data not available for ACT and Victoria



Select a virus

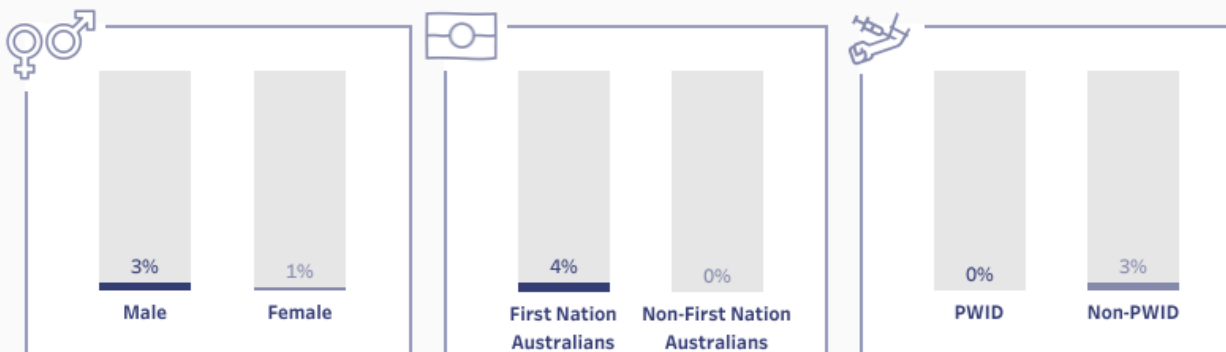
HBV surface antigen

HBV surface antigen prevalence - National



HCV antibody	32%
HCV RNA	8%
HIV antibody	0.8%
HBV surface antigen	0.5%

HBV surface antigen prevalence among subpopulations - NT

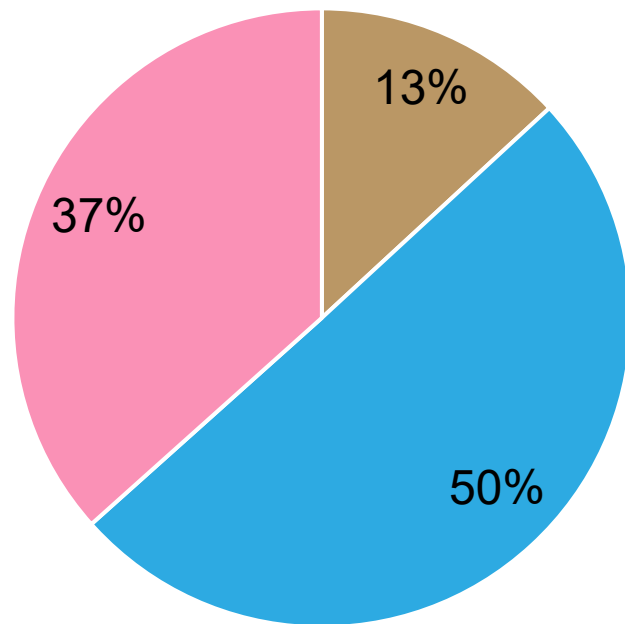


Management

REACH-B: Treatment

Management

■ Initial assessment ■ Monitoring ■ Treatment



On treatment

■ Entecavir ■ Tenofovir disoproxil fumarate (TDF) ■ Tenofovir alafenamide (TAF)

