



## Eliminating hepatitis C in the prisons – achievable?

Professor Andrew Lloyd



### Disclosures

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  - Gilead Sciences
  - Merck Sharpe & Dohme (MSD)
  - Bristol-Myers Squibb
- No personal remuneration from pharma

## Overview

- Prisons and prisoners
- Hepatitis C (HCV) affected populations in Australia
- HCV prevalence, incidence, and prevention (HITS-p cohort)
- HCV treatment (NLMC)
- Treatment as prevention (SToP-C)
- Future directions – achievable?



## The prison environment

- Unique physical structure, commonly overcrowded
- Predominantly short stay
- Frequent movements
- Uncontrolled exposure to violence
- Lack of purposeful activity
- Separation from family networks
- Significant risk of physical & psychological harm
- A distinct micro-society with their own rules & regulations



de Viggiani N. Unhealthy prisons: exploring structural determinants of prison health. *Sociology of Health & Illness* 2007;29:115-35

## Prisoners

- 10.35 million individuals in prison at any one time (2015)
  - 144 per 100,000 worldwide
  - 208 per 100,000 in Australia
  - 698 per 100,000 in USA
  - Increasing rates of imprisonment of women (+50% since 2000)
  - Increasing rates in Oceania (driven by Australia) (+59% since 2000)
- Predominantly male
- Over-representation of ethnic minorities
- Low socioeconomic status
- Low literacy
- 1.5 million prisoners with hepatitis C

Walmsley R. World prison population list. 11<sup>th</sup> edition 2015 (<http://www.prisonstudies.org>)  
 Dolan K et al. Lancet 2016;Lancet. 2016 Sep 10;388(10049):1089-1102

## Prisons and prisoners in Australia

- ~100 adult custodial centres
- 38,845 prisoners
  - 92% male
  - 69% sentenced; 31% remand
  - 27% Indigenous (vs 2% in community)
  - Education: ~32% < Year 10
  - Mental illness: 49%
  - Short stay <6 mths (incl. remand): 62%
  - Recidivism (<2 yrs): 64%
- Largely state-based; single Federal prison
- Predominantly publically run; ~18% private contractors

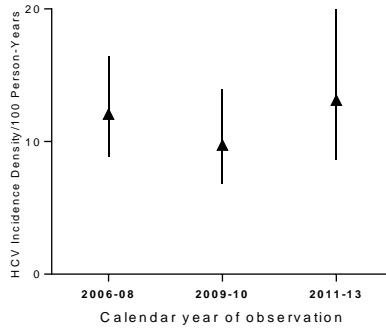
Prisoners in Australia, 2016; <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4517.0>  
 Health of Australian prisoners 2015: AIHW (<http://www.aihw.gov.au/publication-detail/?id=60129553527>)

## HCV prevalence, incidence, and prevention

- Targeted BBV screening - variable
- HCV prevalence ~31% (NPEBBVS)
- Bleach for cleansing of injecting devices - variable
- Opioid substitution treatment (OST) – variable
- Needle-syringe exchange - nil

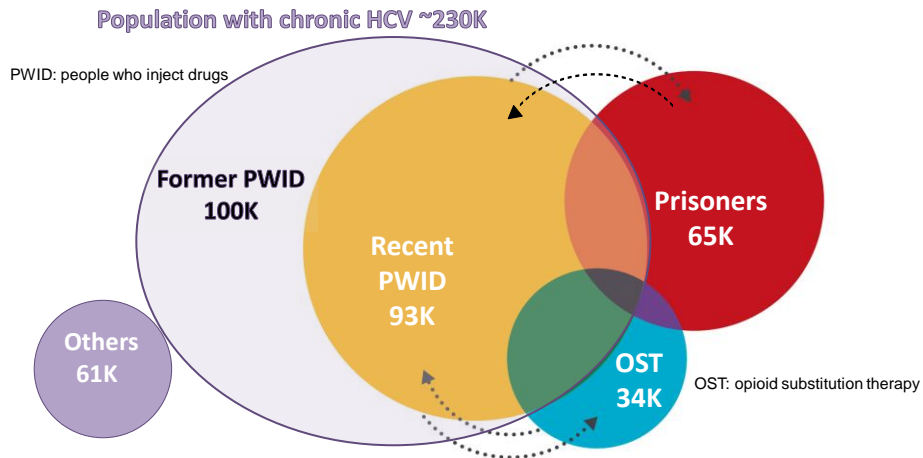
### HITS-p (n=320)

- 11.4 /100 py (9.3-14.0)



Health of Australian prisoners 2015: AIHW <http://www.aihw.gov.au/publication-detail/?id=60129553527>  
 National Prison Entrants' Bloodborne Virus and Risk Behaviour Survey Report <https://kirby.unsw.edu.au/project/npebbvs>  
 The HITS-p study. Cunningham EB et al. J Viral Hepat. 2017 Mar 3. doi: 10.1111/jvh.12701.

## HCV affected populations in Australia

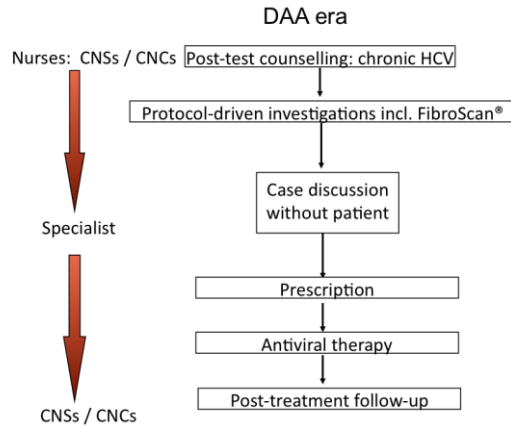


Estimates of people who inject drugs in NSW and Australia [http://www.brise.com.au/sites/default/files/documents/Prisoners in Australia, 2016](http://www.brise.com.au/sites/default/files/documents/Prisoners%20in%20Australia%202016.pdf); <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4517.0>  
 Health of Australian prisoners 2015: AIHW (<http://www.aihw.gov.au/publication-detail/?id=60129553527>)

## Nurse-led model of hepatitis care (NLMC)

- Nurse-led model of care (NLMC) – pilot; 3 centres,
- Hepatitis-skilled Clinical Nurse Consultants (CNCs)
  - Protocol-driven nurse assessment and triage
  - Specialist reviews largely indirect or via telemedicine
  - Qualitative and quantitative evaluation
- Outcomes
  - Safe, well accepted by inmates & staff
  - Reasonably efficient - 1 in 4 screened were treated

Lloyd A et al, *Clin Infect Dis* 2013, 56:1078–1084

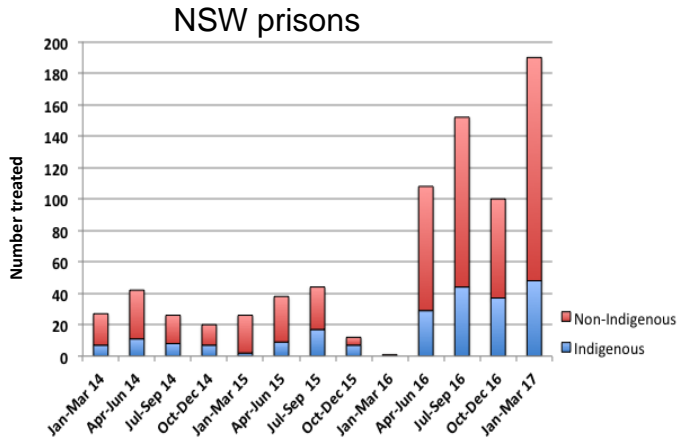


## Simplified NLMC for scale-up of DAA therapy in prisons

- Modified protocols & proformas developed, implemented
- Barriers to scale up identified & resolved:
  - pharmacy tech
  - cash flow for drug purchase (before reimbursement)
  - directly observed therapy vs. self-administration
  - triage for face-to-face assessment in the DAA era
  - streamlining of authorisation processes
- Efficiencies - mean time per patient treated (estimates)
  - CNS / CNC time per patient: 75 mins. (vs. 180 mins. in IFN era)
  - Specialist time per patient: 4 mins. (vs. 35 mins. in IFN era)
  - Assessment to treatment initiation: 12 wks (vs. 22 wks in IFN era)
- Efficiencies across the care cascade
  - % treated / assessed: 95% (vs. 29% in IFN era)
  - currently 100 treated per month (vs. 15 per month in IFN era)



## Progress in DAA roll-out in Australian prisons



- Of 38,470 treated Mar'16-'17 nationally ~1,500 treated in prison (4%)



## S T O P C



### Surveillance & Treatment of Prisoners with hepatitis C (SToP-C)

Overall goals:

- To evaluate the impact of rapid scale-up of DAA treatment on incidence and prevalence of HCV infection in the prison setting
- To develop a translational framework for subsequent establishment of treatment-as-prevention programs in the prison sector

#### Maximum-security prisons

Goulburn Correctional Centre, Goulburn



Lithgow Correctional Centre, Lithgow



#### Medium-security prisons

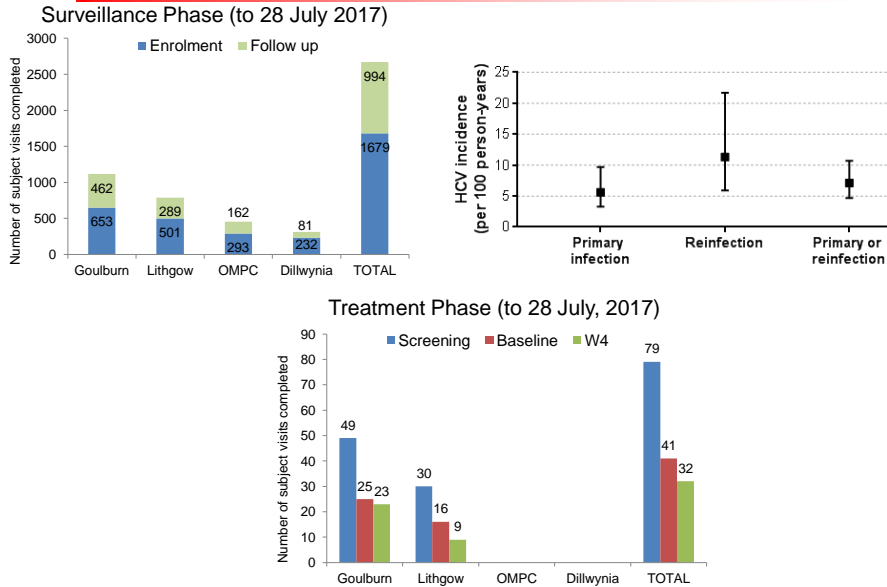
Outer Metropolitan Multipurpose Correctional Centre (OMMPCC), Sydney



Dillwynia Correctional Centre (Women), Sydney



## Progress



## Future directions – achievable?

### Prisons – a key element of Australian HCV elimination strategy

- National prisons hepatitis network
  - Surveillance of testing and treatment
  - Scale-up of DAA treatment in the prison sector
    - Key infrastructure, simplified protocols, personnel
    - Simple, pan-genotypic agents
  - Research
    - point of care testing – one-stop-shop
    - modeling and cost-effectiveness
- Elimination from the prison sector
  - Treatment-as-prevention (SToP-C)
- Integrated prevention – TasP, OST, NSP, vaccine



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- James Wood

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- STOP-C nurses

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- Justice Health & Forensic Mental Health Network
- Corrective Services, NSW
- NSW Health
- Hepatitis NSW
- NUAA
- Community Respiratory Centre

## Funding

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- Bristol-Myers Squibb

