

Scale-up of hepatitis C treatment in prisons is key to national elimination

Prison-based antiviral treatment for chronic hepatitis C is a critical element of the national elimination goal

In 2016, it was estimated 227 000 Australians had chronic hepatitis C virus (HCV) infection, with the majority infected through unsafe injecting drug use.¹ The advent of direct-acting antiviral (DAA) therapies for HCV infection, and their subsequent listing on the Pharmaceutical Benefits Scheme in March 2016, means that all Australians with chronic HCV, including prisoners, can access well tolerated, short course, highly curative treatments, regardless of how they acquire their infection or their disease stage. This universal access approach is supported by modelling that shows that increasing treatment uptake among people who inject drugs is an effective public health measure to reduce community prevalence due to the interruption of HCV transmissions.² These elements underpin Australia's efforts to meet the World Health Organization goal to eliminate HCV as a public health threat by 2030, including key targets of a 90% decline in new infections, a reduction in HCV-related mortality by 65%, and HCV treatment provision for 80% of those infected.³

It is estimated that 32 550 individuals received DAA treatment in 2016. This fell to 21 370 in 2017, reflecting a substantial decline in the number of prescriptions initiated by specialist physicians in tertiary health care settings where the numbers of patients being referred for management of chronic HCV are now low, and relatively slow growth in the number of prescriptions by general practitioners.⁴ The decline highlights the need for development and implementation of comprehensive models of care in settings outside tertiary hospitals, to ensure HCV testing and DAA treatment uptake are sustained at higher levels so that elimination targets are met.⁵

As there is a close relationship between imprisonment, injecting drug use and HCV infection, prisoners potentially represent a key population for scale-up of testing and treatment.⁶ Among Australian prisoners, the overall prevalence of chronic HCV is greater than 20% (Box), and the ongoing transmission rate is also high (10–15% per annum among those who inject drugs).^{7,8} Around 70 000 people cycled through the 111 Australian prisons in 2016, including at least 20 000 with chronic HCV.^{9,10} In order to meet Australia's elimination goals, it is crucial to scale up HCV treatment in custodial settings. However, delivery of health services in prison contexts is challenging, as prisons feature complex bureaucratic structures with security prioritised above health, as well as overcrowding, frequent movements, high rates of mental illness, and continued exposure to violence and illicit drugs.¹¹

Against this backdrop, the inaugural National Prisons Hepatitis Network meeting was held in October 2017 with the aims of describing HCV testing and

treatment rates in custodial settings in all Australian jurisdictions and identifying barriers and successes in achieving HCV treatment uptake, in order to plan initiatives to facilitate treatment scale-up in the prison sector nationally. Stakeholders included clinicians, policy makers, academics and advocates. The meeting provided an opportunity for key stakeholders to evaluate current hepatitis health care in each jurisdiction with a view to improving access to HCV testing, DAA treatment and prevention measures for prisoners.

The first outcome of the Network meeting included the development of a national dashboard using the most recent data at that time (2016), to report on the hepatitis services offered in each state or territory and the numbers of patients diagnosed with HCV infection and initiated on DAA treatment (Box). The overall dataset revealed that in the first year of DAA access, over 2 000 patients with chronic HCV were initiated on treatment in the prison sector. This represented about 6% of the 32 550 people treated nationally in 2016,⁴ which was a significant contribution from such a challenging environment. However, those treated also represented only 6% of the chronically infected prisoner population who could potentially be treated in prison (ranging from 2% to 40% across the jurisdictions; Box). Although promising, this proportion falls well short of the World Health Organization target for DAA treatment of 80% of people with chronic HCV.

All jurisdictions were planning to expand hepatitis services in the second year of DAA access (2017–18), with a key performance indicator of a target number of individuals initiated on treatment being designated for the services in New South Wales and Victoria. The Network recommended that similar indicators for annual numbers tested and treated be developed in each jurisdiction and reported annually. In addition, reporting on the service characteristics, as outlined in the Box, was recommended.

The second challenge identified by clinicians in all states and territories was the difficulty accessing accurate and timely screening data, with no jurisdiction able to provide accurate information regarding either the proportion of all inmates who reported risk factors for HCV infection (eg, injecting drug use, tattooing, previous imprisonment) who should be targeted for screening, or the actual numbers tested and found to be chronically infected. Accordingly, the latter numbers were estimated from published surveillance datasets. The Network therefore resolved to develop a national surveillance system to capture annual HCV testing and treatment rates to inform the testing and treatment targets.

Timothy Papaluca¹

Margaret E Hellard²

Alexander J V Thompson¹

Andrew R Lloyd³ 

¹ St Vincent's Hospital, Melbourne, VIC.

² Centre for Population Health, Burnet Institute, Melbourne, VIC.

³ Kirby Institute, UNSW, Sydney, NSW.

a.lloyd@unsw.edu.au

doi: 10.5694/mja2.50140

2016 snapshot of prisoners, hepatitis C, prison hepatitis services and treatment uptake

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Total
No. of prisons	34	14	14	9	17	2	2	1	94
No. of inmates ⁹	12 657	6476	7752	2966	6193	545	1687	409	38 685
Annual no. HCV antibody-positive*	10,126	8,807	12,403	1,898	4583	839	3,374	393	42 423
Annual no. with chronic HCV infection [†]	7594	6605	9302	1424	3437	629	76	294	29 361
Hepatitis service	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
HCV screening	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Hepatitis-specific nurses	Yes	Yes	No	No	No	Yes	No	Yes	
Model: nurse-, GP-, or specialist-led	Nurse	Nurse	Specialist	Nurse	Specialist	GP	Specialist	GP	
Service: prison-based or in-reach	Prison	In-reach	In-reach	In-reach	In-reach	Prison	In-reach	Prison	
Portable FibroScan	Yes	Yes	No	No	No	No	No	Yes	
Harm minimisation	OST, B	OST, B	OST	OST	OST	OST	OST	OST, B	
No. of DAA treatments [‡]	698	580	~200	143	204	92	18	117	2052
Chronic HCV infections treated [§]	9%	9%	2%	10%	6%	15%	24%	40%	6%
2018 DAA treatment target no.	1000	Y [¶]	N	N	N	N	N	N	

B = bleach or disinfectant; DAA = direct-acting antiviral; GP = general practitioner; HCV = hepatitis C virus; OST = opioid substitution treatment. * Assuming average incarceration period of 6 months; hence cumulative annual prevalent population is about double the prevalent population number. Data sources: Butler and Simpson;⁷ https://www.justicehealth.nsw.gov.au/publications/2015_NHPS_FINALREPORT.pdf (viewed Mar 2019); <http://stats.health.act.gov.au/sites/default/files/Number%2055%20-%202010%20ACT%20Inmate%20Health%20Survey%20-%20Summary%20results%20July%20202011.pdf> (viewed Mar 2019). † Assuming 75% of those with HCV antibodies are also viraemic. ‡ Treatments delivered in first 12 months between 1 March 2016 and 28 February 2017. § No. treated/No. with chronic HCV. ¶ Victorian treatment target is considered commercial in confidence (Department of Justice and Community Safety, Victoria). ◆

Other major challenges identified by some jurisdictions in providing hepatitis services in the prison sector included difficulties in accessing prisoners for assessment, reflecting the high priority given to security in managing prisoner movements; and limitations in health service delivery including disparities between the very large numbers of those at risk of HCV infection in prison receiving testing and those chronically infected, and the actual numbers receiving DAA treatment. These disparities were thought to reflect both limited workforce capacity and variable attitudes of custodial staff and health care personnel to the importance of HCV testing and treatment for prisoners. The Network resolved that development of “prison suitable” HCV education programs to raise awareness among prisoners, custodial officers and health care staff should be undertaken as a key step towards resolving these barriers.

In addition, lack of infrastructure was flagged in a number of jurisdictions, including inadequate resourcing for hepatic fibrosis assessment, which is commonly undertaken via portable fibro-elastography; lack of electronic medical and pathology records; and lack of telemedicine facilities for rural and remote prisons. Despite these challenges, the Network acknowledged that significant investment in prison

treatment programs had occurred in a number of jurisdictions, notably in NSW, Victoria and the Australian Capital Territory, where innovative nurse- or general practitioner-led models of care incorporating telemedicine for remote sites had been developed to address these challenges (Box).

It was also evident that there was varied access to harm-reduction programs to prevent HCV infection and re-infection following treatment, including bleach (or equivalent) for cleansing injecting devices and opiate substitution treatment (Box). As opiate substitution treatment is recognised to be the most effective strategy for prevention of HCV transmissions,¹² the Network agreed to continue to report these service elements in the national dashboard with a view to providing nationwide comprehensive harm reduction measures.

The Network recognised the importance of scaling up HCV treatment in the context of Australia’s elimination targets, particularly in improving treatment access to highly marginalised and vulnerable populations, notably people who inject drugs. This potential is highlighted by the fact that only 42% of prison entrants who injected drugs reported having accessed a needle syringe program while in the community before imprisonment.⁷ In addition, in 2016 it was estimated that Indigenous Australians comprised 27% of the

prison population and were 14 times more likely than non-Indigenous Australians to be imprisoned.⁹ The prevalence of HCV infection in Indigenous Australians is also high compared with non-Indigenous Australians.⁷ The Network therefore recommended that the proposed surveillance system include data on annual HCV testing and treatment rates among Indigenous individuals in custody.

At the second annual meeting of the Network in 2018, it was noted that further development of prison hepatitis services had been achieved across the country, with several smaller individual prisons approaching local elimination.^{13,14} More generalised scale-up of treatment across all correctional centres was reported in each state or territory. For instance, in South Australia, the Prison Health Service reported to be using prison-based nurses in close collaboration with tertiary hospital-based skilled hepatitis nurses, standardised assessment protocols and pro formas, and telemedicine to implement the South Australian Prisoner Blood Borne Virus Prevention Action Plan 2017–2020 across seven correctional centres.¹⁵

At the 2018 Network meeting, development of a national prisons education program for clinicians in the sector, as well as correctional officers and prisoners, was also reported to be in progress. This project is using innovative educational strategies to develop, implement and evaluate the efficacy of a national prison-focused HCV education program to resolve attitudinal and awareness barriers in each target population in all states and territories, and is being led by a steering committee under the auspices of the Network. It is being delivered via a collaborative partnership primarily between the Kirby Institute and the Australasian Society for HIV, Viral Hepatitis and

Sexual Health Medicine, along with other relevant stakeholder organisations.

Consistent with the recommendations of the Network, the development of a national surveillance program for the prison sector has recently been highlighted as a key area for action in the Fifth National Hepatitis C Strategy 2018–2022, which recommends the identification and trialling of opportunities to improve access to prevention, testing and treatment in custodial settings.¹⁶

The ideal return on the investment in the Pharmaceutical Benefits Scheme listing of DAAs will be elimination of HCV as a public health threat.¹ Given the Australian prison sector is a key element of the delivery on that promise, it is crucial that the progress made to date continues, and that remaining challenges are addressed.

Acknowledgements: The manuscript of this article was prepared on behalf of the National Prisons Hepatitis Network and has been approved by the Network members. Margaret Hellard and Alexander Thompson are supported by National Health and Medical Research Council (NHMRC) Research Fellowships. Andrew Lloyd is supported by an NHMRC Practitioner Fellowship.

Competing interests: Timothy Papaluca has received speaker fees from MSD. Margaret Hellard has received investigator-initiated support for hepatitis-related research from Gilead Sciences, AbbVie and GSK. Alexander Thompson has received investigator-initiated support for hepatitis-related research from Gilead Sciences, AbbVie and Merck. He is a member of advisory boards for Gilead Sciences, AbbVie, MSD, Bristol-Myers Squibb and Eisai, and has received speaker fees from Gilead Sciences, AbbVie, MSD and Bristol-Myers Squibb. Andrew Lloyd has received investigator-initiated support for prisons hepatitis-related research from Gilead Sciences and MSD.

Provenance: Not commissioned; externally peer reviewed. ■

© 2019 AMPCo Pty Ltd

References are available online.

- 1 Dore GJ, Hajarizadeh B. Elimination of hepatitis C virus in Australia: laying the foundation. *Infect Dis Clin North Am* 2018; 32: 269–279.
- 2 Scott N, McBryde ES, Thompson A, et al. Treatment scale-up to achieve global HCV incidence and mortality elimination targets: a cost-effectiveness model. *Gut* 2017; 66: 1507–1515.
- 3 World Health Organization. Global hepatitis report, 2017. Geneva: WHO, 2017. <https://www.who.int/hepatitis/publications/global-hepatitis-report2017/en/> (viewed March 2019).
- 4 Kirby Institute. Monitoring hepatitis C treatment uptake in Australia. Issue 9, July 2018. Sydney: Kirby Institute, 2018. https://kirby.unsw.edu.au/sites/default/files/kirby/report/Monitoring-hep-C-treatment-uptake-in-Australia_Iss9-JUL18.pdf (viewed March 2019).
- 5 Scott N, Doyle JS, Wilson DP, et al. Reaching hepatitis C virus elimination targets requires health system interventions to enhance the care cascade. *Int J Drug Policy* 2017; 47: 107–116.
- 6 Post JJ, Arain A, Lloyd AR. Enhancing assessment and treatment of hepatitis C in the custodial setting. *Clin Infect Dis* 2013; 57(Suppl 2): S70–S74.
- 7 Butler T, Simpson M. National prison entrants' blood-borne virus survey report 2004, 2007, 2010, 2013, and 2016. Sydney: Kirby Institute, 2017. https://kirby.unsw.edu.au/sites/default/files/kirby/report/JHP_National-Prison-Entrants-Report-2004-2007-2010-2013-2016.pdf (viewed March 2019).
- 8 Cunningham EB, Hajarizadeh B, Bretana NA, et al. Ongoing incident hepatitis C virus infection among people with a history of injecting drug use in an Australian prison setting, 2005–2014: the HITS-p study. *J Viral Hepat* 2017; 24: 733–741.
- 9 Australian Bureau of Statistics. 4517.0 Prisoners in Australia, 2016. Canberra: ABS, 2016 <http://www.abs.gov.au/ausstats/abs@nsf/mf/45170> (viewed March 2019).
- 10 Martire K, Larney S. Inadequate data collection prevents health planning for released prisoners. *Med J Aust* 2009; 191: 408–409. <https://www.mja.com.au/journal/2009/191/7/inadequate-data-collection-prevents-health-planning-released-prisoners>
- 11 de Viggiani N. Unhealthy prisons: exploring structural determinants of prison health. *Social Health Illn* 2007; 29: 115–135.
- 12 Platt L, Minozzi S, Reed J, et al. Needle syringe programmes and opioid substitution therapy for preventing hepatitis C transmission in people who inject drugs. *Cochrane Database Syst Rev* 2017; (9): CD012021.
- 13 Bartlett SR, Fox P, Cabatingan H, Jaros A, Gorton C, Lewis R, et al. Demonstration of near-elimination of hepatitis C virus among a prison population: the Lotus Glen Correctional Centre Hepatitis C Treatment Project. *Clin Infect Dis* 2018; 67: 460–463.
- 14 Blogg J, Wood J, McGrath C, Lobo C. Eradicating hepatitis C from the New South Wales prison system. *Med J Aust* 2018; 208: 276. <https://www.mja.com.au/journal/2018/208/6/eradicating-hepatitis-c-new-south-wales-prison-system>
- 15 O'Neill SJ, Pengelly C, Hutchinson S. Hepatitis C work-up and treatment: innovation in correctional nursing practice. Proceedings of the 11th Australasian Viral Hepatitis Conference. No one left behind: key findings report; 2018 Aug 13–15. https://ashmdev-my.sharepoint.com/:b/g/personal/samantha_williamson_ashm_org_au/EfmlGaT5oajGticDm3abmUIBa8SssKOiWF7ZrEfNqdOjCw?e=om8UAr (viewed Jan 2019).
- 16 Australian Government Department of Health. Fifth National Hepatitis C Strategy 2018–2022. Canberra: Commonwealth of Australia, 2018. [http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-bbvs-1/\\$File/Hep-C-Fifth-Nat-Strategy-2018-22.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-bbvs-1/$File/Hep-C-Fifth-Nat-Strategy-2018-22.pdf) (viewed Jan 2019). ■