Kirby Institute

Progress towards elimination: Rapid uptake of HCV treatment among people who inject drugs following broad access to DAA therapies

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September 2017

Background

HCV seroprevalence is high at >50% among people who inject drugs in most developed countries, including Australia[1]

HCV treatment uptake among people who inject drugs historically low

- 1-2% in the few countries where documented, including Australia[2]

Optimism re DAA therapy → WHO HCV elimination targets by 2030[3]

- 80% of eligible population treated
  Dependent on 'eligibility criteria'
- 65% reduction in liver-related mortality
- 80% reduction in HCV incidence
  Unlikely to be met unless people who inject drugs are eligible for treatment and provided with unrestricted access

Sources: 1. Memedovic et al, The Kirby Institute, 2017; 2. Iversen et al, JVH 2013; 3. WHO, 2016

Background

In Australia, DAA therapies first listed on the national Pharmaceutical Benefits Scheme (PBS) in March 2016:

- Subsidized access for all Australian adults (aged ≥18 years)
- No restrictions on:
  - Disease stage
  - Ongoing substance use
  - Provider type
- Range of DAAs currently available on the PBS
- Dispensing fee payable per prescription
  - Co-payment of $38.80 or $6.30 for concessional card holders (seniors, veterans and those in receipt of government benefits)
  - Pharmacists may discount the co-payment (by up to $1.00)

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Aims

1) Investigate recent (last 12 months) uptake of HCV treatment among a large national sample of people who inject drugs in Australia in October 2016 (7 months after DAA PBS listing)
2) Examine factors associated with recent uptake of HCV treatment
3) Estimate prevalence of active infection and compare to baseline estimates collected in October 2015 (5 months before PBS DAA listing)

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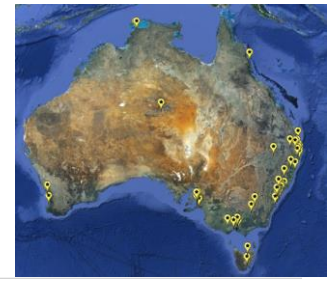
Methods: ANSPS

Australian Needle Syringe Program Survey

- Bio-behavioural sentinel surveillance system conducted annually since 1995
- Self-administered questionnaire: including demographic characteristics, drug use, HCV testing and treatment behaviours
- Provision of dried blood spot
- Conducted at ~50 NSPs nationally
- Predominantly metropolitan NSPs
  - ~20 regional/remote NSPs
  - Contribute ~25% of respondents
- Representative of NSP attendees at sentinel sites[1]

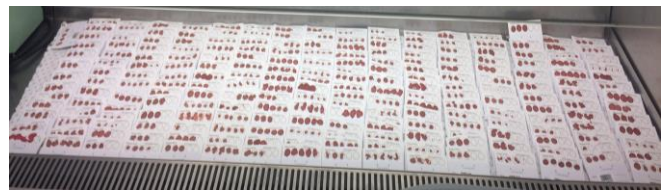


Source: 1. Topp et al, JAIDS, 2011

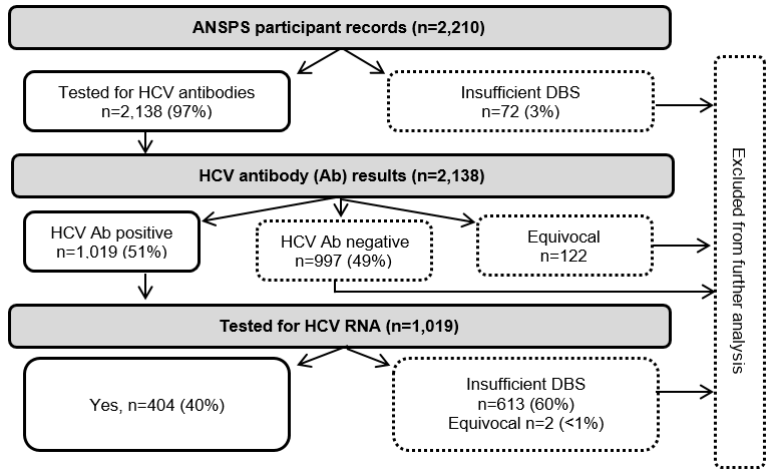
Methods: Serological testing

Dried blood spots (DBS) tested for:

- HCV antibody: Monolisa Plus anti-HCV EIA version 3 (Bio-Rad, France)
- HCV RNA: Aptima HCV Quant Dx assay (Hologic, USA)
- HIV antibody: Murex 1.2.0 HIV 1/2 ELISA (DiaSorin, Italy), Western blot (Bio-Rad, France)



Results: Sample



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Results: Sample characteristics

Overall sample characteristics (n=2,016):

- Two thirds (66%) men
- Median age 41 years, median 21 years since first injection
- One in six (18%) identified as Indigenous Australian

Respondents with anti-HCV (n=1,019):

- More likely to be men (68%)
- Older (median age 42 years), longer median time since first injection (23 years)

RNA tested sample (n=404 anti-HCV positive respondents):

- Less likely to be men (65%)
- More likely to have initiated recent (last 12 months) HCV treatment
- Post stratification weighting applied to adjust for sample bias

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Results: RNA testing

HCV RNA serology & self-reported HCV treatment among anti-HCV positive group (n=404)		
	Unweighted	Weighted [a]
Active infection (HCV RNA detected):		
No treatment history	223	232
Recent treatment history	20	17
Prior treatment history	11	12
Cleared infection (HCV RNA undetected):		
No treatment history	81	86
Recent treatment history	60	48
Prior treatment history	9	9

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Prior treatment history Prior treatment induced clearance (2% adjusted)	9	9

* Remaining respondents n=314 (76% adjusted) assessed as eligible for treatment in 12 months to Oct 2016

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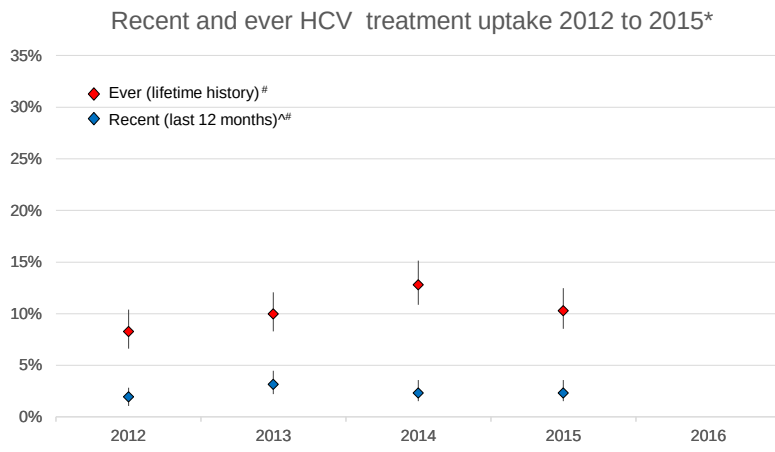
Results: Treatment uptake



* Among HCV antibody positive respondents after adjusting for 20% spontaneous clearance
^ Recent treatment uptake adjusted for prior treatment induced clearance at 55% in interferon era
# 2012-2015 p-trend=0.073 (ever) and p-trend=0.813 (recent)

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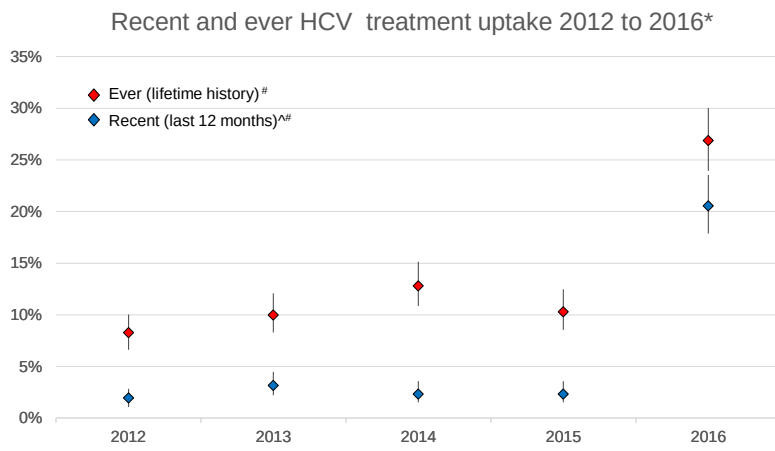
Results: Treatment uptake



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^ Adjusted for prior treatment induced clearance at 55% in interferon era
# 2012-2016 p-trend<0.001

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Results: Treatment access

Factors associated with recent initiation of HCV treatment in 2016

	Total^ (N=314)	HCV treatment (N=80, 25%)	No treatment (N=234, 75%)	Unadjusted OR[#]	Adjusted OR
Age, quartiles					
≤37 years (reference*)	89 (28)	16 (18)	73 (82)	--	--
38-42 years	77 (25)	23 (30)	54 (70)	1.94 (0.94-2.03)	1.89 (0.89-4.01)
43-49 years	79 (25)	13 (16)	66 (84)	0.89 (0.40-2.01)	0.76 (0.33-1.75)
≥50 years	69 (22)	28 (41)	41 (59)	**3.12 (1.51-6.42)**	**2.84 (1.34-6.01)**
Frequency of injection (last month):					
Daily or more (reference)	162 (52)	33 (20)	129 (80)	--	--
Less than daily	142 (45)	45 (32)	97 (68)	**1.81 (1.08-3.05)**	**1.99 (1.14-3.45)**
Receptively shared syringes (last month):	56 (18)	4 (7)	52 (93)	--	--
Yes (reference)	255 (81)	75 (29)	180 (71)	**5.42 (1.89-15.51)**	**4.91 (1.68-14.36)**
No					

^ Among respondents assessed as eligible for treatment (excluding those with spontaneous or prior treatment induced clearance)
No associations p<0.10: gender, Indigenous status, born overseas, drug last injected, current engagement in OST or geographic location (state or regional/metro)

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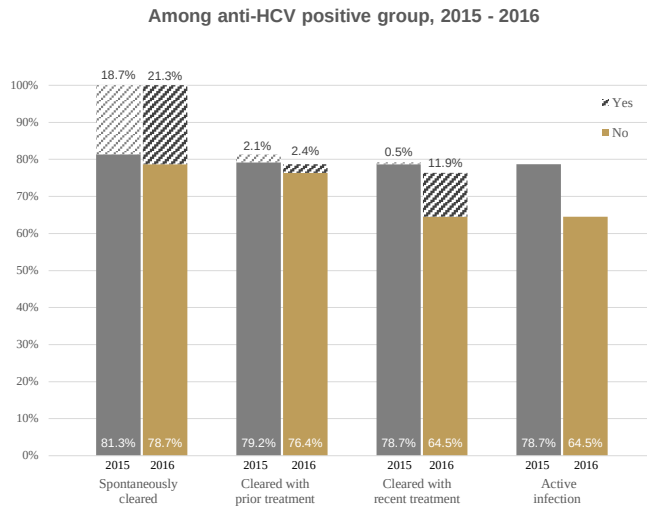
Results: Viraemic prevalence & treatment



Source 2015 data: Iversen et al, IJDP 2017

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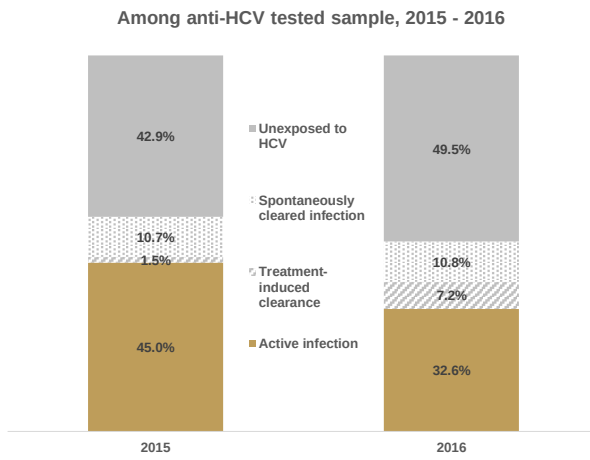

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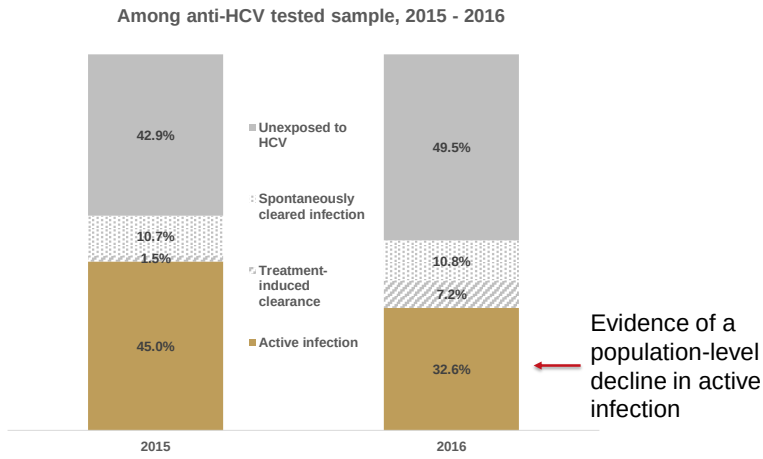

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Strengths and limitations

Strengths

- Well established surveillance mechanism provides a national sample
- Capacity to continue to monitor HCV treatment uptake, including among potentially marginalized subpopulations to monitor equity of access
- Continue to monitor viraemic prevalence
- DBS simple and easy to administer, good sensitivity and high specificity for HCV antibody and RNA testing

Limitations

- First 7 months likely captured those highly motivated to initiate treatment
- Although ANSPS samples are representative of NSP attendees[1], generalisability of results is uncertain
- <50% of anti-HCV positive respondents had sufficient DBS for RNA testing, requires 1 whole spot
- RNA testing is expensive and not included in routine surveillance

Conclusions

- Demonstrated rapid and significant increase in HCV treatment uptake among people who inject drugs following broad access to DAA therapies
- Treatment uptake (Mar-Oct) comparable or higher among people who inject drugs (20%) than in the general population living with HCV (14%) [1]
- Australia has implemented specific initiatives prioritising access to HCV treatment, including at peer-based services (NUAA, QuIHN, WASUA)
- Declines in viraemic prevalence are feasible in settings with high coverage harm reduction programs
- Need to continue to monitor equity of access to guide progress towards WHO elimination goals, particularly 80% reduction in HCV incidence

1. **Kirby Institute 2016 (http://kirby.unsw.edu.au/research-programs/vhcrp-newsletters)**

Acknowledgements

- ANSPS respondents, NSP staff and managers
- ANSPS National Advisory group
- JI, GD, JG & LM are supported by National Health and Medical Research Council (NHMRC) Fellowships
- The Kirby Institute is affiliated with the Faculty of Medicine, University of New South Wales

Disclosures

- GD is an advisory board member and receives honorarium from Roche, Merck, Janssen, Gilead, Bristol-Myers Squibb, Abbvie, has received research grant funding from Roche, Merck, Janssen, Gilead, Bristol-Myers Squibb, Vertex, Boeringher Ingelheim, Abbvie, and travel sponsorship from Roche, Merck, Janssen, Gilead, and Bristol-Myers Squibb.
- JG is a consultant/advisor and has received research grants from Abbvie, Bristol Myers Squibb, Cepheid, Gilead, Janssen, and Merck.