Kirby Institute

Incidence of HCV infection in two maximum-security prisons in NSW, Australia: The SToP-C study

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Background

- HCV prevalence in the prison setting is high.
  - Global (HCV Ab+): 26%
  - Australia (HCV Ab+): 31%
- HCV transmission in the prison setting is also high due to lack or sub-optimal coverage of HCV prevention strategies, including needle syringe programs (NSP), and opioid substitution treatment (OST).
  - HCV incidence, global: 16/100 py
  - HCV incidence, Australia: 6/100 py
    (among those with life-time history of injecting drug use)
- In NSW prisons, OST and bleach-like-cleansing of injecting equipment is available, but not NSP.
- OST and bleach-like-cleansing of injecting equipment in NSW prisons had no significant impact on reducing HCV incidence.

Larney, Hepatology 2013; Butler 2015; Cunningham, JVH 2017

S T o P C

The Surveillance and Treatment of Prisoners with hepatitis C

- A partnership project to investigate the feasibility of HCV treatment as prevention in the prison setting
- Overall aims:
  - To evaluate the impact of rapid scale-up of DAA treatment on HCV incidence and prevalence 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

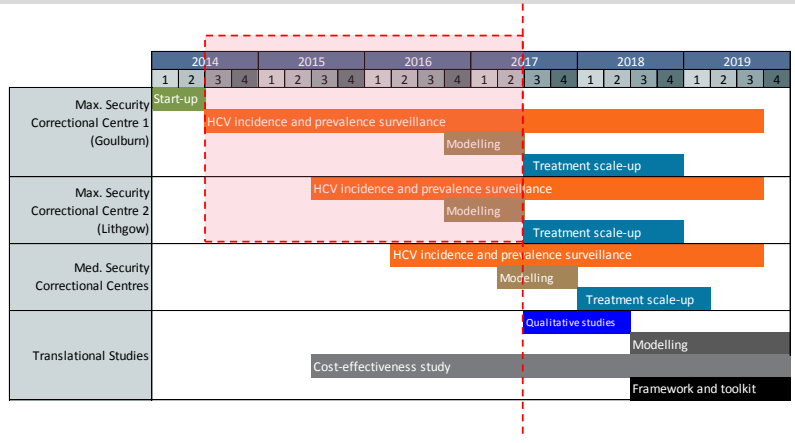
Medium-security prisons

Outer Metropolitan Multipurpose Correctional Centre (OMMPCC), Sydney

Dillwynia Correctional Centre (Women), Sydney

S T o P C

STOP-C: Study Schedule



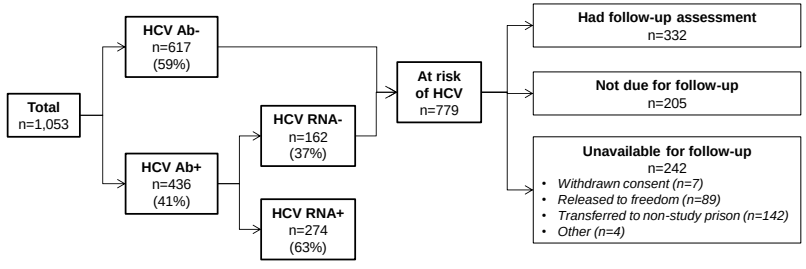
Objectives

This analysis assessed HCV incidence in two SToP-C maximum-security prisons before treatment scale-up.

Methodology

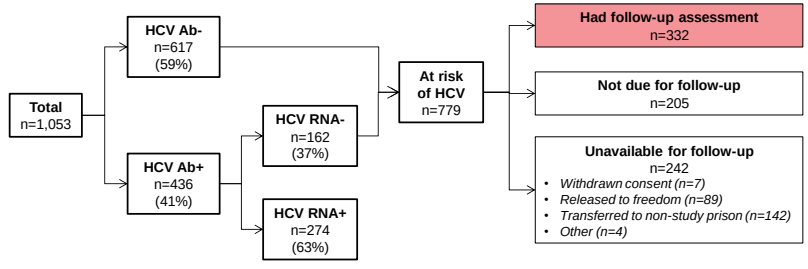
- Data for this analysis includes prisoners enrolled from two maximum-security prisons between October 2014 and June 2017 (before treatment scale-up), with at least one follow-up visit.
- At enrolment, participants were screened for HCV Ab and HCV RNA, and completed a detailed survey, including injecting behaviours.
- HCV Ab or HCV RNA negative participants were tested every six months.
- Those with HCV Ab negative were considered at risk of HCV primary infection
- Those with HCV Ab positive/HCV RNA negative were considered at risk of HCV reinfection

Results



Results

Included in analysis



Results

	Had follow-up assessment (n=332)
Age, median (Q1, Q3), years	34 (27, 45)
Length of sentence, median (Q1, Q3), years	15.0 (6.2, 22.0)
Duration incarcerated*, median (Q1, Q3), years	3.2 (1.2, 6.4)
Previously imprisoned	203 (61%)
Ever injecting	131 (39%)
Ever injecting in the current imprisonment	80 (24%)
Injecting in the last 6 months in prison	58 (17%)
Injecting in the past month in prison	41 (12%)
Sharing needle or syringe**	34 (83%)
Injecting weekly or more frequent**	30 (73%)

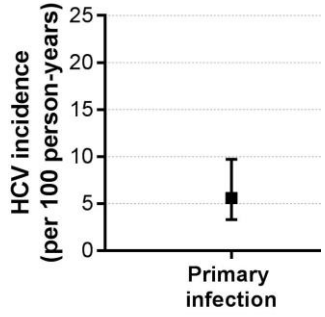
* Current incarceration
** Among those injecting in the past month in prison

Results

	Had follow-up assessment (n=332)	Unavailable for follow-up (n=242)
Age, median (Q1, Q3), years	34 (27, 45)	31 (25, 40)
Length of sentence, median (Q1, Q3), years	15.0 (6.2, 22.0)	4.7 (1.5, 11.0)
Duration incarcerated*, median (Q1, Q3), years	3.2 (1.2, 6.4)	1.0 (0.3, 2.6)
Previously imprisoned	203 (61%)	157 (65%)
Ever injecting	131 (39%)	102 (42%)
Ever injecting in the current imprisonment	80 (24%)	61 (25%)
Injecting in the last 6 months in prison	58 (17%)	52 (21%)
Injecting in the past month in prison	41 (12%)	38 (16%)
Sharing needle or syringe**	34 (83%)	28 (74%)
Injecting weekly or more frequent**	30 (73%)	25 (65%)

* Current incarceration
** Among those injecting in the past month in prison

Results



Person-years follow-up	231
Number of incident Infections	13
HCV incidence (95% CI)	5.6 (3.3, 9.7)

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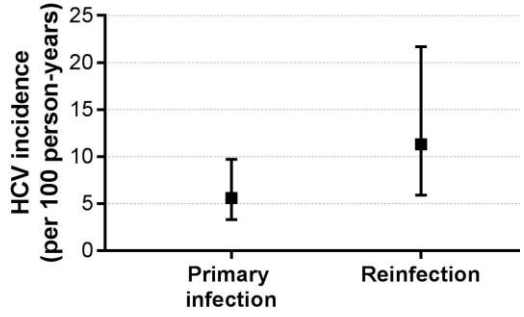
Results



Person-years follow-up	231	80
Number of incident Infections	13	9
HCV incidence (95% CI)	5.6 (3.3, 9.7)	11.3 (5.9, 21.7)

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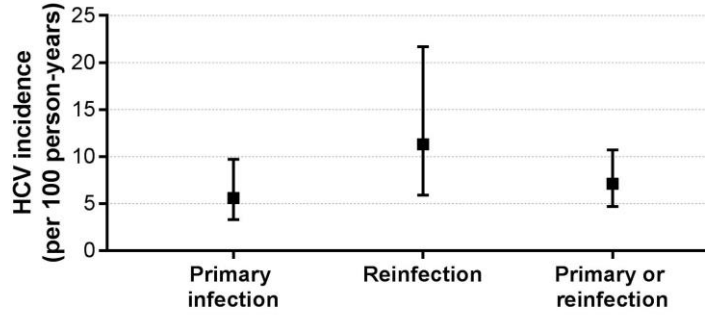
Results



Person-years follow-up	231	80	311
Number of incident Infections	13	9	22
HCV incidence (95% CI)	5.6 (3.3, 9.7)	11.3 (5.9, 21.7)	7.1 (4.7, 10.7)

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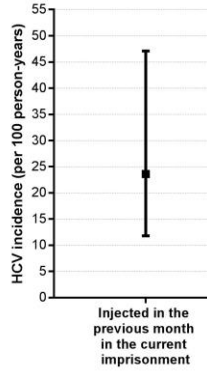
Results



Person-years follow-up	34
Number of incident Infections	8
HCV incidence (95% CI)	23.6 (11.8, 47.1)

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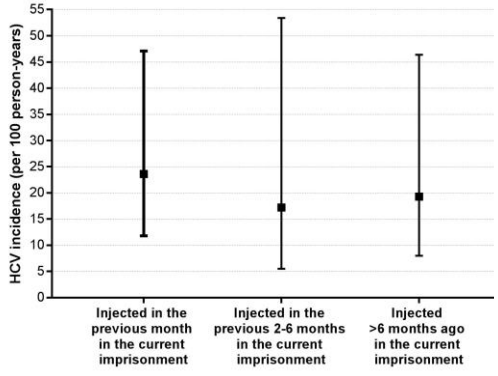
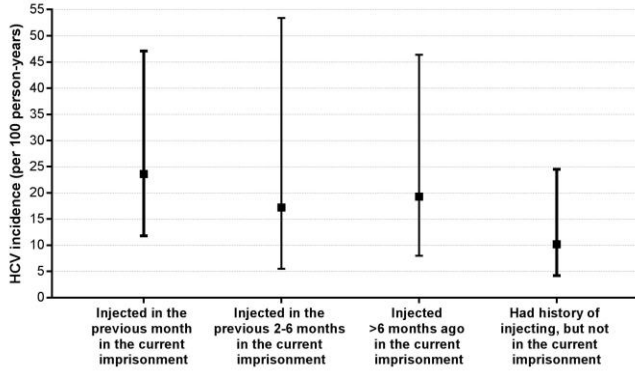
Results



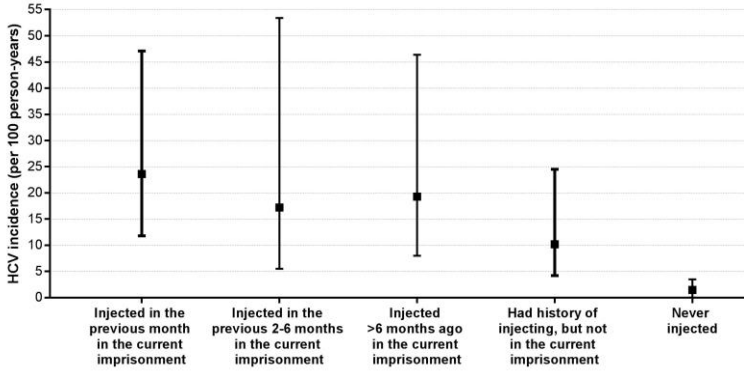
Person-years follow-up	34	17	26
Number of incident Infections	8	3	5
HCV incidence (95% CI)	23.6 (11.8, 47.1)	17.2 (5.5, 53.4)	19.3 (8.0, 46.4)

Results



Person-years follow-up	34	17	26	49
Number of incident Infections	8	3	5	5
HCV incidence (95% CI)	23.6 (11.8, 47.1)	17.2 (5.5, 53.4)	19.3 (8.0, 46.4)	10.2 (4.2, 24.5)

Results



Person-years follow-up	34	17	26	49	185
Number of incident Infections	8	3	5	5	1
HCV incidence (95% CI)	23.6 (11.8, 47.1)	17.2 (5.5, 53.4)	19.3 (8.0, 46.4)	10.2 (4.2, 24.5)	0.5 (0.1, 3.8)

Results

22 participants with incident HCV

Results

22 participants with incident HCV

21 participants (95%) had a history of injecting drugs

Results

22 participants with incident HCV

8 participants (36%) reported injecting drugs in the past month in the prison

Results

8 participants reported injecting drugs in the past month in the prison

Results

8 participants reported injecting drugs in the past month in the prison

7 participants (87%) reported sharing needle and/or syringe in the prison.

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Results

Factors associated with HCV incidence (unadjusted analysis)

	HR (95% CI)	*P*
Age, years	0.89 (0.84, 0.95)	<0.001
Duration incarcerated, years	0.82 (0.70, 0.96)	0.017
Previously imprisoned	3.87 (1.13, 13.19)	0.031
Aboriginal or Torres Strait Islander background	3.19 (1.34, 7.59)	0.009
Injecting behaviour		
Never injected	1.00	
Had history of injecting but not in current imprisonment	18.05 (2.11, 154.62)	0.008
Injected >1 month ago in the current imprisonment	29.79 (3.72, 238.58)	0.001
injected in previous month in current imprisonment	43.49 (5.40, 350.44)	<0.001

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Results

Factors associated with HCV incidence (adjusted analysis)

	aHR (95% CI)	*P*
Age, years	0.94 (0.87, 1.01)	0.097
Duration incarcerated, years	0.89 (0.76, 1.05)	0.174
Previously imprisoned	1.22 (0.33, 4.53)	0.771
Aboriginal or Torres Strait Islander background	1.51 (0.55, 4.17)	0.427
Injecting behaviour		
Never injected	1.00	
Had history of injecting but not in current imprisonment	11.92 (1.33, 106.97)	0.027
Injected >1 month ago in the current imprisonment	20.96 (2.53, 173.25)	0.005
injected in previous month in current imprisonment	19.17 (2.23, 164.86)	0.007

Conclusion

- High HCV incidence (both primary infection and reinfection) was observed in SToP-C maximum-security prisons, supporting the need for comprehensive prevention strategies, including harm reduction.
- Further evaluation of HCV treatment as prevention evaluation programs in prison is required.
- HCV transmission was associated with injecting drugs and was the highest among participants with recent injecting in the prison. It suggests strategies to reduce HCV transmission need to target populations at risk.
- Among prisoners with recent injecting drug use, almost all individuals with incident HCV reported sharing needle/syringe.

Acknowledgements

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Study partners:

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