Hepatitis C virus (HCV) testing, liver disease assessment and direct-acting antiviral (DAA) treatment uptake and outcomes in a service for the homeless in Sydney: The LiveRLife study

Bajis S[1], Cooper L[2], Smith J[2], Owen G[2], Chudleigh A[2], Hajarizadeh B[1], Martinello M[1], Yasmin Mowat[1], Marshall AD[1], Adey S[3], Read P[4], Gilliver R[4], Treloar C[5], Maher L[1], Grebely J[1], Dore GJ[1]

[1]The Kirby Institute, UNSW Sydney, Sydney, New South Wales, Australia; [2]Matthew Talbot Hostel, St Vincent de Paul Society NSW Support Services, Sydney, New South Wales, Australia; [3]NSW Users and AIDS Association, Sydney, New South Wales, Australia; [4]Kirketon Road Centre, Sydney, New South Wales, Australia; [5]Centre for Social Research in Health, UNSW Sydney, New South Wales, Australia

Disclosures

- None to declare

Background

- People who are homeless have increased HCV risk, and poorer access to primary healthcare services.
- Estimates of HCV prevalence among people who are homeless range from 4% to 36%.[1]
- Innovative, integrated models of care are needed to reach highly marginalised populations such as those who are homeless.

1.Beijer U et al.,The Lancet Infectious Diseases, 2012

Aims

To determine the prevalence of HCV infection, liver fibrosis burden, and DAA treatment uptake and outcomes among people who are homeless in Sydney.

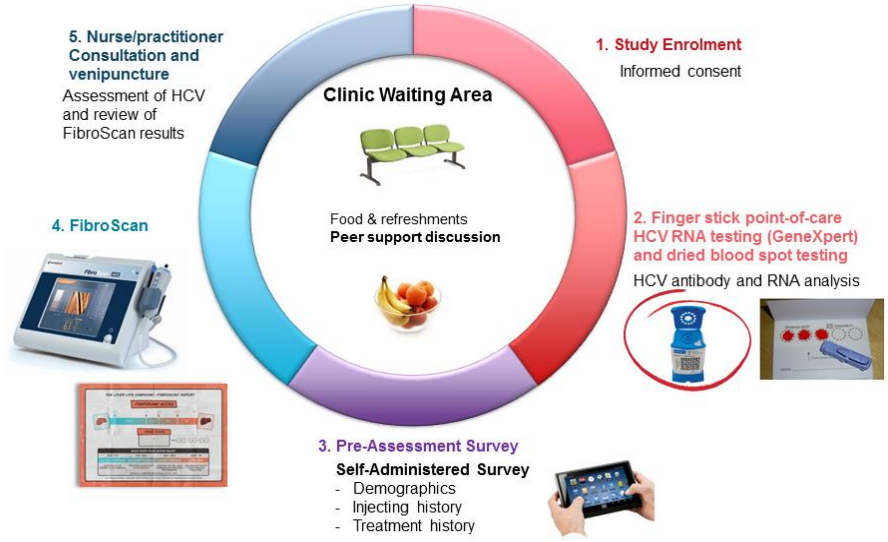
Study design and participants

- Observational cohort study
- Evaluation of an intervention integrating a liver health promotion campaign and non-invasive liver fibrosis assessment on linkage to care and HCV treatment uptake among people who are homeless
- Recruitment at a service for homeless people over 8 liver health campaign days (Feb & Dec 2016)
- ≥18 years, written informed consent

Study site

- Ozanam Learning centre
  - Community centre providing onsite education, living skills, recreational activities
  - No restrictions to access based on gender
- Mathew Talbot Hostel
  - 98 bed – men only
  - Services: meals, clothing, case management, housing support
  - Nurse-led primary health services with GP DAA prescriber
  - Health services provided to ~ 100 men/day

LiveRLife Study intervention



Study outcomes

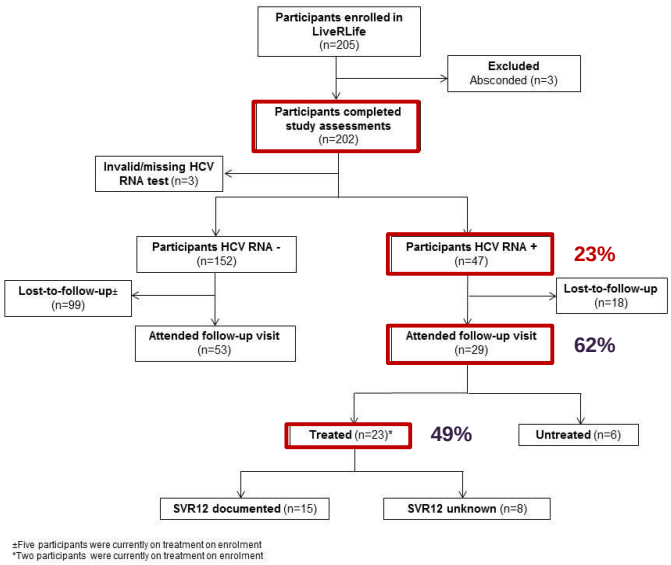
- Detectable HCV RNA prevalence
- Advanced liver disease
- Clinical follow-up
- Treatment uptake
- SVR12

Definition of housing stability

- **Stable housing:**
  - Owned house/flat
  - Rented house/flat

- **Unstable housing:**
  - Street/homeless
  - Shelter/refuge/boarding house
  - Staying temporarily with friends
  - Staying with parents

Participant disposition



±Five participants were currently on treatment on enrolment
*Two participants were currently on treatment on enrolment

Participant characteristics

Enrolled n=202

Male **82%**

Aboriginal/Torres Strait Islander identification **8%**

Current OST **11%**

High risk alcohol consumption **38%**

48
Mean age

Unstable housing **58%**

Ever been in prison **30%**

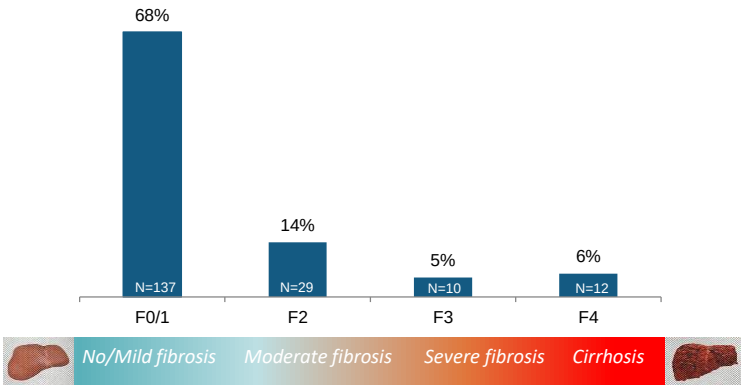
Ever injected drugs **39%**

Injected last month **63%**

HCV RNA prevalence

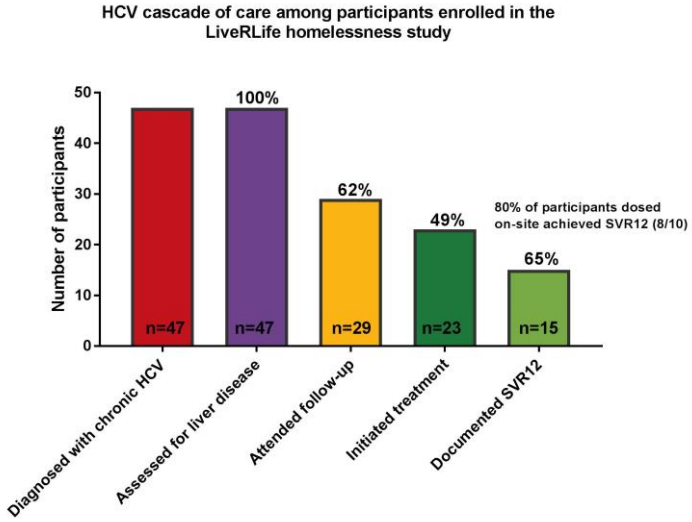
23%
HCV RNA+

Liver disease burden

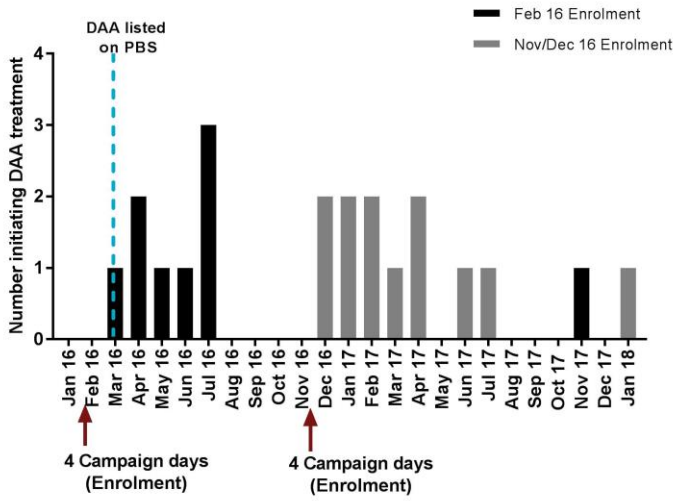


*12 invalid results and 2 missing

Cascade of HCV care



Treatment uptake



Key HCV risk factors and prevalence

Among all participants (n=178)

	History of injecting	
History of incarceration	**No**	**Yes**
No	73 (74%)	25 (26%)
Yes	27 (34%)	53 (66%)

Viraemic prevalence with either injecting or incarceration history:

37/105 = **35%**

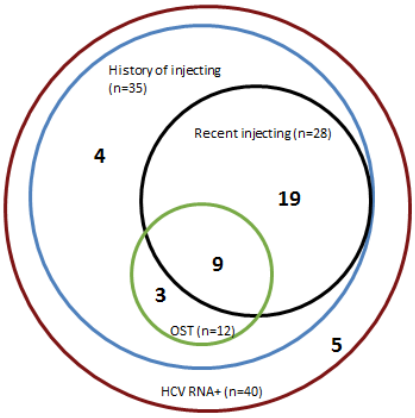
Among HCV RNA detectable participants (n=40)

	History of injecting	
History of incarceration	**No**	**Yes**
No	**3 (23%)**	10 (77%)
Yes	2 (7%)	**25 (93%)**

Viraemic prevalence with neither injecting or incarceration history:

3/73 = **4%**

Injecting drug use among HCV RNA detectable



Among HCV RNA detectable (n=40):

- **85%** History of injecting
- **70%** History of recent injecting

Predictors of treatment uptake

	Treatment uptake, n (%*)	Unadjusted model OR (95% CI)	P
Age			
18 – 35 years	1 (17%)	1.00	
36 – 50 years	14 (61%)	7.78 (0.78, 77.93)	0.081
≥51 years	4 (36%)	2.85 (0.24, 33.90)	0.406
Sex			
Male	18 (47%)	1.00	
Female	1 (50%)	1.11 (0.06, 19.10)	0.942
Housing			
Stable	6 (50%)	1.00	
Unstable	13 (46%)	0.87 (0.22, 3.35)	0.836
History of injecting drug use			
No history of injecting	3 (60%)	1.00	
Yes, but not in previous month	4 (57%)	0.89 (0.09, 9.16)	0.921
Injecting in previous month	12 (43%)	0.50 (0.07, 3.48)	0.484
OST			
Never	9 (45%)	1.00	
Yes, previously received	2 (25%)	0.41 (0.07, 2.53)	0.335
Yes, currently receiving	8 (66%)	2.44 (0.55, 10.83)	0.239
FibroScan® Liver disease stage§			
No/mild fibrosis (F0/F1)	14 (61%)	1.00	
Moderate/severe fibrosis (F2/F3)	4 (33%)	0.32 (0.07, 1.39)	0.129
Cirrhosis (F4)	1 (33%)	0.32 (0.03, 4.10)	0.382

* Row percentages; § two participants excluded due to invalid/missing fibroScan results

Discussion

- High HCV RNA prevalence among homelessness service population
- Key risk factors (history of injecting and incarceration) identified vast majority of HCV viraemic participants, suggesting good reporting of risk
- Encouraging study follow-up and DAA treatment uptake, but enhanced strategies required for further improvements
- Low treatment uptake among those with significant fibrosis of concern, as may indicate poor liver disease stage knowledge despite FibroScan

Study limitations

- Sample size
  - Limited power to evaluate predictors of DAA treatment uptake
- Selection bias
  - Sample may not be representative of the broader population of homeless
- Women under-represented
  - Matthew Talbot Hostel accommodation is male-only, although Ozanam not restrictive
- Uncontrolled study
  - Unable to evaluate specific impact of ***LiveRLife*** intervention on DAA treatment uptake

Conclusions/Implications

- Despite active screening and a committed clinical service with a GP DAA prescriber, linkage to care and treatment uptake was sub-optimal.
- A highly marginalised population requires innovative and holistic strategies to enhance linkage to care and treatment uptake.
- Risk-based HCV screening in homeless settings would provide a more targeted approach to HCV RNA testing and linkage to care
- An HCV ‘test and treat’ model of care, incorporating same-day DAA initiation should be evaluated

Acknowledgements

Kirby, UNSW Sydney
A/Prof. Jason Grebely
Prof. Gregory Dore
Prof. Lisa Maher
Dr. Tanya Applegate
Mr. Francois Lamoury
Ms. Pip Marks
Ms. Yasmin Mowat
Ms. Hannah Reid
Mr. David Silk
Ms. Mahshid Tamaddoni
Dr. Behzad Hajarizadeh
Dr. Marianne Martinello
Dr. Alison Marshall
Dr. Brendan Jacka
Dr. Evan Cunningham

Ozanam Learning Centre/ Mathew Talbot Hostel, Sydney
Mr. Greg Own
Mr. Alan Chudleigh
Dr. Lucy Cooper
Ms. Julie Smith
Ms. Arlene Everson

Centre for Social Research in Health, UNSW Sydney
Prof. Carla Treloar

Kirketon Road Centre, Sydney
Dr. Phil Read
Ms. Rosemary Gilliver

NUAA
Ms. Sara Adey