

A Case-Control Study of Hepatitis C Virus Re-Infection in Incarcerated Patients in California Receiving Medication for Opioid Use Disorder

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BACKGROUND

- Hepatitis C virus (HCV) disproportionately affects incarcerated people in California.
- CA State prisons have a robust, system-wide HCV testing and treatment program with linkage to substance use disorder treatment, including medication for opioid use disorder (MOUD, e.g., buprenorphine).
- Opioid use disorder and other substance use disorders are associated with HCV (re-) infection; MOUD reduces this risk.
- We investigated risk factors associated with HCV re-infection in incarcerated patients receiving MOUD.

METHODS

1. Chart review and database queries collected a wide range of demographic, clinical, and behavioral predictors, including self-reported exposures, urine drug toxicology, and MOUD adherence and dosing.
2. Follow-up continued until HCV re-infection or negative re-test at one year.
3. Explored unadjusted odds ratios (ORs) and developed a multivariate regression model.

Hepatitis C re-infection in incarcerated Californians is associated with injection drug use, methamphetamine use, tattooing, younger age, and lower adherence to buprenorphine.

Independent Risk Factors for HCV Re-Infection				
	Cases (n=50) N (%)	Controls (n=108) N (%)	Adjusted OR (95% CI)	p-value
Injection drug use				
Yes	38 (76.0)	48 (44.4)	3.4 (1.3-8.5)	0.01
No/Unknown	12 (24.0)	60 (55.6)	Reference	
Methamphetamine use				
Yes	31 (62.0)	45 (41.7)	2.5 (1.0-6.1)	0.05
No/Unknown	19 (38.0)	63 (58.3)	Reference	
Non-sterile tattooing/piercing				
Yes	16 (32.0)	14 (13.0)	3.4 (1.2-9.9)	0.02
No/Unknown	34 (68.0)	94 (87.0)	Reference	
Age in years (units=5)			0.7 (0.5-0.9)	0.006
Proportion of follow-up days with ≥16mg/day buprenorphine (units=25%)			0.7 (0.6-1.0)	0.03
Proportion of follow-up days with ≥16mg/day buprenorphine (units=100%)			0.3 (0.1-0.9)	0.03



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DISCUSSION

Even 100% MOUD adherence at ≥16mg/day did not eliminate re-infection risk (aOR=0.3). California’s prison health system might further reduce hepatitis C re-infection and other negative outcomes via:

- Evidence-based treatment for stimulant use disorder (medication and contingency management)
- Access to syringe services, harm reduction supplies, and supervised injection facilities
- Expanded use of higher (24-32mg/day) buprenorphine doses, combined with novel adherence supports
- Tattoo artist training as vocational education plus access to sterile equipment
- Targeted outreach to younger incarcerated people who use drugs

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