

A global systematic review of hepatitis C virus in prisons and other closed settings

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Introduction

- Injecting drug use (IDU) is the primary mode of hepatitis C virus (HCV) transmission
- There is a high prevalence of IDU among people detained in prisons and other closed settings (e.g. extra-judicial detention centres for people who use drugs)
- Risk behaviours while detained, such as drug injection and tattooing, may result in incident HCV infection inside closed settings.

Aims

To determine the

1. Rate of incident HCV infection, and

Methods

- Broad-based search of published and grey literature
- "Closed settings" included prisons, jails and extra-judicial detention centres for people who use drugs
- Eligible studies reported HCV seroconversion among continuously detained persons, or anti-HCV prevalence in a detainee population
- Data extracted for general detainee samples (i.e. samples unselected for drug use or any other characteristics) and samples of detainees with a history of IDU
- Meta-analysis of studies, with heterogeneity examined through stratification by global region and meta-regression.
- Regional and global summary estimates were used to extrapolate the size of the anti-
- 2. Prevalence of HCV antibody (anti-HCV) among detainees of closed settings.

HCV+ detainee population

Results

HCV incidence

- HCV incidence among general population detainees was **1.4 per 100py** (95% CI: 0.1, 2.7; *k*=4)
- HCV incidence among detainees with a history of IDU was **5.5 per 100py** (95% CI: 0.8, 32.1; *k*=3)

Anti-HCV prevalence: General detainee samples

 Global summary anti-HCV prevalence among general population detainees was 26% (95% CI: 23%, 29%; *k*=93) – Figure 1

Figure 1: Regional and global summary estimates of anti-HCV prevalence among	9
general population detainees	

Region	ES (95% CI)	% Weight
Sub-Saharan Africa Subtotal (I-squared = 96.4%, p = 0.000)	0.16 (0.07, 0.26	6) 4.40

Anti-HCV prevalence: Detainees with a history of IDU

• Global summary anti-HCV prevalence among detainees with a history of IDU was **65%** (95% CI: 59%, 71%; *k*=51) – **Figure 2**

Figure 2: Regional and global summary estimates of anti-HCV prevalence among detainees with a history of IDU

Region		ES (95% CI)	% Weight
Sub-Saharan Africa Subtotal (I-squared = .%, p = .)	\diamond	0.40 (0.36, 0.44)	2.07
Western Europe Subtotal (I-squared = 98.8%, p = 0.000)		0.73 (0.64, 0.82)	42.70
Eastern Europe Subtotal (I-squared = 97.9%, p = 0.000)	>	0.34 (0.16, 0.53)	8.22
Australasia Subtotal (I-squared = 96.9%, p = 0.000)		0.61 (0.50, 0.72)	8.28
East and southeast Asia Subtotal (I-squared = 96.7%, p = 0.000)	<	> 0.81 (0.67, 0.95)	6.20
South Asia			





Sources of heterogeneity

- Convenience samples returned higher anti-HCV prevalence than random samples (in general population detainee samples only)
- More **recent** sources reported **lower** anti-HCV prevalence than older sources

Extrapolated global population of anti-HCV+ detainees

- Using 92 sources from 10 of 12 world regions, we estimate there are **2.2 million** anti-HCV+ positive detainees globally (range 1.4 million-2.9 million)
- The largest population of anti-HCV+ detainees is in North America: **668,500** (range 553,500-784,000)

Conclusions

Consistent evidence of HCV seroconversion in closed settings

- Widespread implementation of preventive interventions in prisons and other closed settings is needed
- **Multi-component interventions** that combine evidence-based treatment for drug dependence and access to sterile needles and syringes are most effective in reducing HCV seroconversion among people who inject drugs
- Education/counselling alone are **insufficient** to prevent HCV transmission.

Large pool of prevalent HCV infection

- Closed settings are important sites for diagnosis and treatment of HCV
- HCV **screening** in closed settings may significantly increase the number of people aware of their infection
- Diagnosis allows for education about transmission risks and risks for disease progression; hepatitis A and B vaccination; and treatment of chronic infection
- **Treating** chronic HCV in closed settings will reduce the pool of infection and the burden of advanced liver disease.



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