Title: Hepatitis C virus transmission risk in incarcerated or detained populations.

Ethan K. Gough (ethan.gough@mail.mcgill.ca)[1], Mirjam-Colette Kempf (mkempf@uab.edu)[2], Eric Chamot[2] (echamot@uab.edu).

[1]Department of Epidemiology, Biostatistics and Occupational Health, McGill University, Montreal, Quebec, Canada

[2]Department of Epidemiology, University of Alabama at Birmingham, Birmingham, Alabama, USA

Keywords: epidemiology, viral hepatitis, prisoners, recidivists, injection drug use

Corresponding Author

Eric Chamot

UAB School of Public Health

Department of Epidemiology

1665 University Blvd.

Ryals Public Health Building

Room 217

Birmingham, AL 35294-0022

Telephone: (205) 934-7176

Email: echamot@uab.edu

Abbreviations

HCV: hepatitis c virus

IDU: injection drug use

Financial Support:

None.

Prisons and other closed settings are important sentinel sites for understanding the epidemiology of Hepatitis C virus (HCV) and other blood-borne infections. We commend Larney et al. for their recent review, which provides much needed global and regional estimates of HCV prevalence among detainees, confirms the occurrence of HCV transmission in closed settings,[1] and stratifies estimates by injection drug use (IDU) history. Incidence rates are critical when evaluating the full impact these settings may have on HCV epidemics. Larney et. al attempt to evaluate HCV incidence rates among detainees globally, but concerns arise regarding the authors' estimation and interpretation of these estimates.

In their pooled analysis of incidence rates in prisons, Larney et al. included three studies that did not control for the HCV antibody seroconversion window (pg 5 of Supplementary Materials). These studies recruited an unknown number of subjects who could have been infected prior to detention, and thus might have biased HCV seroconversion rates upwards. If these studies are excluded from the analysis, the incidence rates are reduced in both general detainees (from 1.4/100 person-years [95%CI:0.1, 2.7] to 0.4/100 person-years[95%CI:-0.3,1.1]) and detainees with a history of IDU (from 16.4/100 person-years [95%CI:0·8,32·1] to 6.6/100 person year[95%CI:-3.2,16.4]). The resulting revised rates suggest that HCV incidence in detainees indeed is very low. Furthermore, because of overlapping confidence intervals between general and drug injecting detainees, even when the three studies are included, there seems to be little evidence supporting the conclusion that HCV incidence is higher among detainees who inject drugs than those who do not.

There is no doubt that transmission of blood-borne infections during detention does occur, although data on HCV incidence in detainees might be too sparse for definitive conclusions about who is at highest risk of infection. In an earlier meta-analysis,[1] we were unable to derive estimates of HCV incidence for drug injecting detainees due to a lack of data in this group. However, we found that blood-borne infection transmission inside closed settings was significantly lower than that observed among both IDU in the community and recidivist detainees.[1] In short, our synthesis of existing evidence for blood-borne infections suggested that risk to detainees might be highest outside of the prison setting, within subgroups that frequently move between the community and detention.[1] To develop appropriate policy, prevention and care programs for both detainees and the communities they return to, a stronger body of evidence is needed as to when and why detainees are at highest risk for HCV and other blood-borne infections.

Larney S, Kopinski H, Beckwith CG, Zaller ND, Jarlais DD, Hagan H, Rich JD, et al. The incidence and prevalence of hepatitis C in prisons and other closed settings: Results of a systematic review and meta-analysis. *Hepatology* 2013; [Epub ahead of print].

References

1. Gough E, Kempf MC, Graham L, Manzanero M, Hook EW, Bartolucci A, Chamot E. HIV and hepatitis B and C incidence rates in US correctional populations and high risk groups: a systematic review and meta-analysis. *BMC Public Health* 2010; 10:777.