

Prevalence of chronic hepatitis infection in Mongolian immigrants of the Washington metropolitan area

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BACKGROUND

Viral hepatitis infection is prevalent at endemic rates in Mongolia. The most recent published data estimates up to 19% of the adult population is infected with either hepatitis B (HBV) or hepatitis C (HCV).¹ Chronic hepatitis infection predisposes individuals to liver cirrhosis and hepatocellular carcinoma. According to the World Cancer Research Fund in 2012, Mongolia had the highest incidence rate for hepatocellular carcinoma worldwide at 78 cases per 100,000 – eight times the global average.² As a result, national efforts have been made to increase screening, vaccination, and treatment against viral hepatitis.¹

In the United States, screening guidelines for HBV and HCV have been provided by the US Preventative Services Task Force to identify individuals at risk and provide standardized care. However, vulnerable immigrant populations are often unscreened due to limitations including language barriers, insurance coverage, access to health care providers, and health literacy. Currently, disaggregated health data for U.S. immigrants is lacking. Underrepresented minorities, including Mongolians, are often grouped and reported together as race.

Using community-based screening data, this project will provide better estimates of the burden of HBV and HCV infection among U.S. immigrants from Mongolia living in the Washington, D.C. metropolitan area.

METHODS

Retrospective data was obtained from two free community health screening events held in August 2016 and April 2017. A total of 637 immigrants, age 18 years and older, living in Virginia, Maryland, and Washington, D.C. participated. Demographic data for each participant included country of birth, year arrived to the United States, insurance status, and access to current primary care physician. Four participants were excluded from the study analysis due to birth country outside of Mongolia. The final sample size was 634.

Serology reports included HBV surface antigen (HBsAg), HBV surface antibody (anti-HBs), and HCV antibody (anti-HCV). Participants with positive anti-HCV also had reflex HCV RNA quantitative testing through reverse transcription polymerase chain reaction assay (RT-PCR). Participants were grouped as follows:

- **HBV infected:** HBsAg +
- **HBV susceptible:** HBsAg -, anti-HBs -
- **HBV immune:** HBsAg -, anti-HBs +
- **HCV infected:** anti-HCV +, quant HCV RNA ≥15IU/mL
- **HCV resolved:** anti-HCV +, quant HCV RNA <15IU/mL
- **HCV negative:** anti-HCV -

The prevalence of each participant group was calculated. Bivariate analyses were then conducted to examine the relationship of prevalence and categorical demographic characteristics using chi-square test and Fisher's exact test. All the analysis were performed with Stata 14 software.

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RESULTS (continued)

Table 1. Distribution of Mongolia-born screening participant demographic characteristics, N = 634.

Demographic Characteristic	n	%
Age mean ± SD (range)	41.3 ± 11.4	(18-82)
Gender		
Male	268	42.3
Female	366	57.7
Primary spoken language		
English	200	31.6
Mongolian	434	68.4
Years living in U.S.		
< 1 year	65	10.3
1-5 years	253	39.9
6-10 years	104	16.4
11-14 years	136	22.5
15+ years	68	10.7
Unknown	8	0.1
Health insured		
No	564	89.0
Yes	70	11.0
Regular primary care physician		
No	569	89.8
Yes	65	10.2

Figure 1. Prevalence of viral hepatitis B in Mongolia-born screening participants, N = 634.

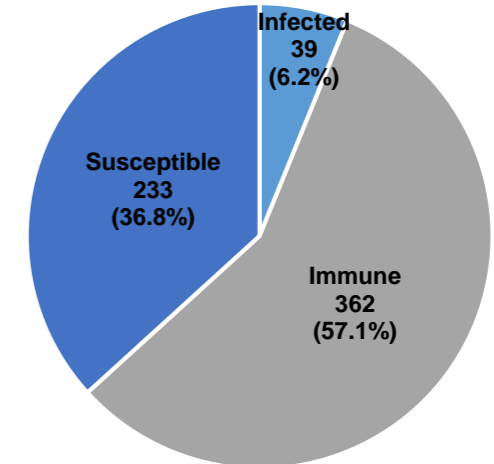


Figure 2. Prevalence of viral hepatitis C exposure (*anti-HCV positive, 2-A) and infection status (via HCV RNA level, 2-B) in Mongolia-born screening participants, N = 634.

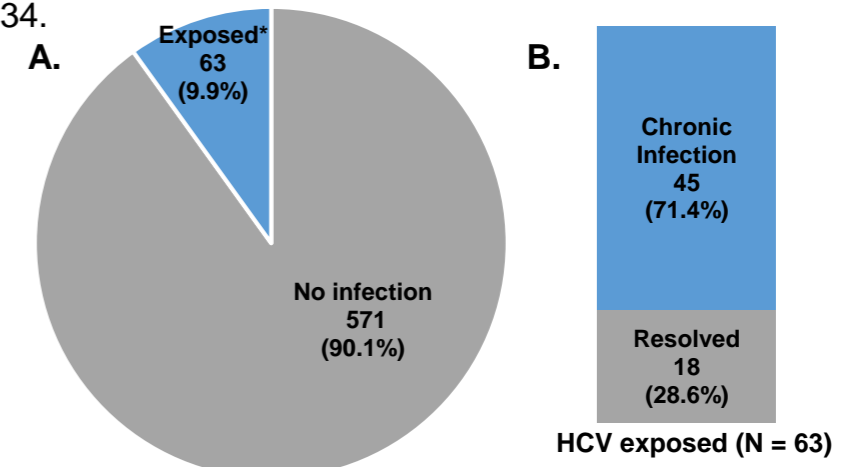


Table 3. Distribution of hepatitis B infection and hepatitis C exposure by demographic characteristics according to chi-square and Fisher's exact tests.

	HBV infected	p-value	HCV exposed	p-value
N (%)	39 (6.2%)		63 (9.9%)	
Gender		0.41		0.33
Males	14 (5.2%)		23 (8.6%)	
Females	25 (6.8%)		40 (10.9%)	
Age		0.49		<.000
<30	8 (6.4%)		4 (3.2%)	
31-40	10 (5.5%)		8 (4.4%)	
41-50	9 (4.6%)		27 (13.6%)	
51-60	9 (9.7%)		14 (15.1%)	
>60	3 (8.6%)		10 (28.6%)	
Primary spoken language		0.13		0.011
English	8 (4.0%)		11 (5.5%)	
Mongolian	31 (7.1%)		53 (12.0%)	
Years living in the U.S.		0.64		0.26
<1 year	6 (9.2%)		9 (13.9%)	
1-5	18 (7.1%)		24 (9.5%)	
6-10	6 (5.8%)		5 (4.8%)	
11-14	6 (4.4%)		17 (12.5%)	
15+	3 (4.4%)		7 (10.3%)	
Health insured		0.11 ^a		0.98
No	38 (6.7%)		56 (9.9%)	
Yes	1 (1.4%)		7 (10%)	
Regular primary care physician		0.41 ^a		0.50
No	37 (6.5%)		55 (9.7%)	
Yes	2 (3.1%)		8 (12.3%)	

CONCLUSIONS

- The majority of the sample population of immigrants from Mongolia in the Washington, D.C. metropolitan area did not speak English primarily (68.4%), were uninsured (89%), and did not have access to a regular primary care physician (89.8%).
- The prevalence of chronic hepatitis B and hepatitis C infection was 6.6% and 7.1% respectively. This is higher than the general U.S. population but lower than recent data in Mongolia of 11.1% HBV and 8.5% HCV prevalence.¹
- Over one-third of tested participants (36.7%) did not have immunity to HBV, indicating lack of vaccination history or low antibody titer level.
- 9.9% of tested immigrants from Mongolia were previously exposed to HCV. 71.4% (45/63) of this exposed-group has chronic HCV infection confirmed by HCV RNA level.
- Two individuals (0.3%) were positive for both chronic HBV and HCV infection.
- No demographic characteristics were significantly associated with HBV infection.
- For HCV exposure, age and language were significant predictors. Older age was more likely to be associated with HCV, which may be explained by the lack of HCV testing in transfusions prior to 1992. Those who reported Mongolian as their primary spoken language were also more likely to be associated with HCV, suggesting the role of acculturation in infection risk.
- Overall, 12.9% (82/634) of the sample population had chronic HBV and/or HCV infection. By identifying prevalence rates for hard-to-reach, vulnerable immigrant populations, initiatives for increased hepatitis screening and immigrant health can be improved.

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