

Title Page

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Title: Brief report: Prevalence of hepatitis C virus infections in U.S. Air Force basic military trainees who donated blood, 2017-2020.

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Introduction

Chronic infection with hepatitis C can cause significant morbidity to individuals due to inflammatory damage to the liver. This chronic inflammatory damage can lead to further complications, including cirrhosis, hepatocellular carcinoma, and fulminant liver failure. In the military, HCV presents a concern for fitness for duty, readiness, and healthcare costs of its members.

In the US, prevalence of chronic HCV infection is approximately 1%.¹ From 2010-2017, HCV incidence quadrupled, primarily driven by increased detection via increased testing as well as increased infections stemming from increased injection drug use within the opioid abuse epidemic²; during this timeframe, the majority of new HCV infections occurred in those aged 20-39 (which approximates the ages of those joining the military).³ The estimated overall prevalence of chronic HCV infection in the U.S. was found to be 0.48%, 5.4%, and 1.6% for active duty, veteran, and civilian populations respectively.

The US Preventive Services Task Force (USPSTF), Centers for Disease Control and Prevention (CDC), and American Association for the Study of Liver Diseases (AASLD) recommend screening for HCV infection in all adult patients; previously, the USPSTF had only recommended screening individuals born between the years of 1945 and 1965. It is important to identify the prevalence of HCV infections for the potential health consequences, but also the inherent cost of clinical evaluation and treatment.

While the identification of active HCV infection is disqualifying to military accession given the conflict with mission readiness and the burden on disease management immediately upon entry to service, force screening for HCV is not currently completed at USAF Basic Military

Training (BMT) (though this is completed for other conditions including HIV, measles, mumps, rubella, and Hepatitis A and B); therefore, a true prevalence cannot be ascertained in this population. However, a prevalence can be extrapolated based on the number of HCV infections diagnoses following positive screening during blood donations (which occur voluntarily by trainees near the end of training). At the time of donation, antibody testing is performed; if positive, the trainee will be referred for further testing/evaluation, to include confirmatory testing for active infection via HCV RNA. Alternatively, a negative HCV RNA with a positive HCV antibody typically denotes a cleared infection.²

The goal of this inquiry is to estimate the most recent prevalence of HCV infections within the USAF basic training population.

Methods

The Joint Base San Antonio-Lackland Blood Donor Center was queried for the results of HCV screening for all basic military trainees who donated blood between January 2017 and December 2020. All other blood donors were excluded. HCV prevalence in those who donated blood were calculated by using the total trainee donations as the denominator and those who not only screened positive upon donation but who also were confirmed to have active infection upon subsequent testing as the numerator.

Results

From 2017 through 2020, a total of seven confirmed positive HCV individuals were identified through blood donation screenings in Air Force Basic Training from 29,086 screened. The prevalence of HCV in those that were screened was 0.02407%. Over the same time period, there were 146,325 total trainees who went through USAF BMT.

Discussion

The prevalence of HCV in those BMT trainees that were screened from 2017-2020 was 0.02407% (7 of 29,086 screened), which is 3.7 times higher ($p=0.101$) than the prevalence of HCV infection during 2013-2016 (0.0065%, 2 of 30,660 screened). This study is limited in that screened blood was of trainees attempting to donate blood, and this does not reflect a random sampling of the basic military trainee population as a whole. The true prevalence would be known if USAF BMT instituted accession-wide HCV screening, which would be an addition to the lab evaluation already in place in Air Force Basic Military Training and an efficient way to ensure all new USAF enlisted Airmen are up to date on this screening as recommended by USPSTF, CDC, and AASLD.

Conclusions

The prevalence of HCV in those BMT trainees that were screened from 2017-2020 was 0.024%.

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Figures/Tables

None.

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