

Prevalence of HIV, HCV and HBV among Homeless and Non-homeless United States Veterans

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Key Points: Rates of HIV, HCV and HBV testing are higher in homeless veterans nationally than non-homeless veterans. Homeless veterans experience particularly high prevalence of HIV, HCV, HBV and HIV/HCV co-infection compared to their non-homeless counterparts, and to the general US population.

Running Title: HIV HCV and HBV Prevalence in Homeless Veterans

Abstract

Background: Veterans are disproportionately affected by HIV, hepatitis C (HCV) and hepatitis B (HBV). Homeless veterans are at particularly high risk for HIV, HCV and HBV due to a variety of overlapping risk factors, including high rates of mental health disorders and substance use disorders. The prevalence of HIV, HCV and HBV among homeless veterans nationally is currently unknown. This study describes national testing rates and prevalence of HIV, HCV and HBV among homeless veterans.

Methods: Using data from the VA's Corporate Warehouse Data from 2015, we evaluated HIV, HCV, and HBV laboratory testing and infection confirmation rates and diagnoses on the Problem List for non-homeless veterans and for veterans utilizing homeless services in 2015.

Results: Among 242,740 homeless veterans in VA care in 2015, HIV, HCV and HBV testing occurred in 63.8% (n=154,812), 78.1% (n=189,508), and 52.8% (n=128,262), respectively. The HIV population prevalence was 1.52% (3,684/242,740) among homeless veterans, compared to 0.44% (23,797/5,424,685) among non-homeless veterans. The HCV population prevalence among homeless veterans was 12.1% (29,311/242,740), compared to 2.7% (148,079/5,424,685) among non-homeless veterans, while the HBV population prevalence was 0.99% (2,395/242,740) for homeless veterans, and 0.40% (21,611/5,424,685) among non-homeless veterans.

Conclusions: To our knowledge this work represents the most comprehensive tested prevalence and population prevalence estimates of HIV, HCV and HBV among homeless veterans nationally. The data demonstrate high prevalence of HIV, HCV and HBV among homeless

veterans, and reinforce the need for integrated healthcare services along with homeless programming.

Keywords: homeless, veterans, HIV, hepatitis C, hepatitis B

Background

The Department of Veterans Affairs (VA) is the largest provider of both human immunodeficiency virus (HIV) and hepatitis C virus (HCV) care in the United States (US) [1-2]. VA also provides care to over 200,000 homeless veterans annually [3].

Veterans are disproportionately affected by HIV, HCV and hepatitis B virus (HBV) [4-8]. National VA data for 2013 produced a HIV tested prevalence of 1.42% among 1,791,065 veterans tested for HIV [9]. The US HIV population prevalence is estimated at 0.39% [10]. The HCV tested prevalence among 3,120,350 veterans in care in 2013 with HCV testing was 5.8% [2]. The US HCV population prevalence from NHANES data was estimated as 1.0% [11]. Also from 2013, 12,632 veterans were identified as hepatitis B virus surface antigen (HBsAg) positive out of 1,506,051 veterans for a tested prevalence of 0.84% [8]. The estimated US HBV population prevalence is 0.27% from NHANES data and 0.3%-0.5% from the United States Preventative Services Task Force (USPSTF) [12-14]. Although direct numerical comparison of the above estimates are problematic due to variable denominators representing either those tested or the entire population, the population prevalence of HIV, HCV and HBV among veterans is likely higher than among the general US population given the markedly elevated estimates of tested prevalence among veteran populations in previous studies.

Given a variety of overlapping risk factors related to comorbid mental health disorders and substance use disorders, homeless individuals are at particularly high risk for HIV, HCV and HBV [15-17]. HIV [3,18], HCV [18-21], and HBV [19, 21] are more prevalent in homeless than in non-homeless populations. HIV tested prevalence among homeless individuals ranges from 6.3% up to 21.1% [18-19], while HCV antibody positivity among homeless adults ranges from 3.9% to 36.2% [18-20], and HBV prevalence is estimated to be as high as 32.4% [19]. Such

elevated prevalence has significant implications for population health, especially considering the risk of transmission of these viruses within the community.

Despite the potential high prevalence of infection, there is little data regarding the true prevalence of HIV, HCV and HBV among homeless veterans. A small study in homeless veterans noted a HIV antibody positivity rate of 1.84%, a HCV antibody positivity rate of 41.7% and a HBsAg positivity rate of 1.17% [22]. Another study evaluated HBV prevalence among homeless veterans admitted to a psychiatric hospital, where 3% tested positive for HBsAg [23]. These small studies done more than 10 years ago, however, may not be representative of current HIV, HCV or HBV prevalence among homeless veterans nationally.

This study aimed to define the testing rates and prevalence of HIV, HCV and HBV among homeless and non-homeless veterans throughout the US using more recent national data.

Methods

This retrospective analysis used the VA's Corporate Data Warehouse which includes birth dates, sex, race, ethnicity, VA outpatient visits, Problem List diagnoses (a list of significant conditions entered by healthcare providers, coded in SNOMED-CT, and displayed on the main page of each patient's electronic medical record), and VA laboratory tests from October 1, 1999 onward for Veterans who have received VA care. Veterans who had at least one VA outpatient visit in 2015 were considered to be in VA care in 2015. Veterans with at least one outpatient visit during 2015 to any clinic designated by the VA's National Center on Homelessness among Veterans as identifying homeless services constituted the "homeless" population. Specified clinics included Community Outreach to Homeless Veterans, Department of Housing and Urban Development/VA Supported Housing, Grant and Per Diem, Health Care for Homeless

Veterans/Homeless Chronically Mentally Ill, Homeless Veteran Community Employment Services, and Veterans Justice Outreach. All other veterans in VA care in 2015 were included in the “non-homeless” population.

For demographics, patients with a reported ethnicity of Hispanic were considered Hispanic in the combined variable of race/ethnicity regardless of reported race. Cases where race and ethnicity were recorded as unknown, declined to state, or more than one race was reported, were classified as “Other.” Age was calculated as of January 1, 2015.

We determined if each veteran had VA HIV, HCV or HBV testing in the available data through December 31, 2015. HIV testing was identified as a HIV antibody or HIV antigen/antibody test; a positive HIV antibody differentiation immunoassay, positive Western Blot, or detectable HIV viral load qualified as confirmation of HIV infection. HCV testing was identified as a HCV antibody test; a detectable HCV viral load or genotype qualified as confirmation of HCV infection. HBV testing was identified as a HBsAg test; a positive HBsAg qualified as confirmation of HBV infection. Tested prevalence was calculated as the number of patients with laboratory-confirmed infection divided by the number of patients with testing.

For people who come to the VA with established diagnoses of HIV, HCV or HBV, repeat VA testing may not occur. To assess the number of such patients and to include such patients in the population prevalence, we also identified patients who had HIV, HCV or HBV entered on their Problem List as of December 31, 2015 but did not have VA laboratory evidence for the respective infection. Population prevalence was then calculated using the total number of patients with laboratory-confirmed infection or Problem List entry divided by the total number of patients in care in 2015.

Statistical testing is not reported since the large sample size makes extremely small numeric differences statistically significant even when such small differences are not clinically meaningful.

Results:

In 2015, 242,740 veterans received homeless services from VA and comprised the homeless population; 5,424,685 other veterans who received VA care in 2015 comprised the non-homeless population. Homeless veterans were younger than their non-homeless veteran counterparts (mean age 50 years vs. 61 years, respectively), a larger proportion identified as Black (38.8% vs. 15.2%, respectively), fewer identified as White (46.2% vs. 67.4%, respectively) and similar proportions identified as Hispanic (6.8% vs. 5.8%, respectively)(Table 1). Of homeless veterans, 11.1% were female compared to 7.5% for non-homeless veterans.

Regarding HIV testing, 63.8% of the homeless population in VA care in 2015 had ever been tested for HIV compared to 36.8% of the non-homeless population (Table 2). HIV testing rates among homeless females and males were similar (66.8% vs. 63.4%, respectively) while non-homeless females had higher HIV testing rates than non-homeless males (49.5% vs. 35.8%, respectively). Among those tested, 3,599 homeless and 23,044 non-homeless veterans had laboratory-confirmed HIV. Only 85 homeless and 753 non-homeless veterans had HIV on their Problem List without laboratory confirmation. Overall, the HIV tested prevalence among veterans was 1.24%, and the HIV population prevalence was 0.48%. The HIV tested prevalence among homeless veterans was 2.32% and the HIV population prevalence was 1.52%, much higher than the tested prevalence among non-homeless veterans of 1.15% and the population

prevalence of 0.44%. The HIV tested and population prevalence among homeless men was approximately 3.1 and 2.9 times higher, respectively, than among homeless women.

HCV testing rates were higher than HIV testing rates, although with the same pattern of higher testing rates in homeless veterans than in the non-homeless veterans (Table 3). The HCV tested prevalence among veterans was 5.1%, while the population prevalence was 3.1%. In the homeless population, 78.1% had been tested for HCV compared to 59.5% of the non-homeless population. The HCV testing rate among homeless females was lower than among homeless males (73.4% vs. 78.7%, respectively) but the testing rates for the homeless were still higher than among their non-homeless female and male counterparts (62.7% and 59.2%, respectively). Among those HCV tested, 29,063 homeless and 144,964 non-homeless veterans had laboratory-confirmed HCV infection. A small number of homeless and non-homeless veterans had HCV entered on their Problem list without laboratory confirmation (248 and 3,115, respectively). The HCV tested prevalence among homeless veterans compared to non-homeless veterans was 15.3% compared to 4.5%, and the population prevalence was 12.1% compared to 2.7%, respectively. HCV tested and population prevalence of HCV, similar to HIV, was 3.1 and 3.4 times, respectively higher among homeless males than among homeless females.

HBV testing rates were lower than HIV and HCV testing rates although still higher in homeless veterans than in non-homeless veterans (Table 4). Among veterans, the HBV tested prevalence was 1.36%, while the population prevalence was 0.42%. In the homeless, 52.8% had been tested for HBV compared to 27.6% of the non-homeless. Among those HBV tested, 2,306 homeless and 19,816 non-homeless veterans had laboratory-confirmed HBV infection. Few homeless and non-homeless veterans had HBV on their Problem List without laboratory confirmation (89 and 1,795, respectively). The HBV tested prevalence among homeless and

non-homeless veterans was 1.80% and 1.32% respectively, and the population prevalence was 0.99% and 0.40%, respectively. The tested and population prevalence of HBV, in contrast to HIV and HCV, was only slightly higher among homeless males than among homeless females.

Additionally, we examined testing rates and prevalence of HIV/HCV co-infection (Table 5). In the homeless, 59.0% had testing for both HIV and HCV, which was nearly twice the testing rate of 29.9% in the non-homeless. The testing rate for HIV and HCV was similar in homeless females and homeless males (58.9% and 59.0%, respectively) and higher than among their non-homeless female and male counterparts (40.3% and 29.1%, respectively). Among those tested for both HIV and HCV, 1,071 homeless veterans and 4,062 non-homeless veterans had both confirmed HIV and HCV infection. The HIV/HCV co-infection tested prevalence among homeless veterans was three times higher and the population prevalence nearly six times higher than among non-homeless veterans, respectively. HIV/HCV co-infection prevalence was higher among homeless males than among homeless females as would be expected given the higher prevalence of HIV and HCV individually among homeless males.

Discussion

This analysis uses VA data to determine HIV, HCV, and HBV testing rates and prevalence for a diverse, national population of over 5.6 million veterans, including over 200,000 homeless veterans, in VA care. The size of the population supports great confidence in the results which showed testing rates for HIV, HCV and HBV were much higher in homeless veterans than in their non-homeless counterparts. Likewise, tested prevalence and population prevalence of each of these infections was much higher in homeless veterans than in non-homeless veterans. Notably, the HIV tested prevalence was more than double in homeless

compared to non-homeless veterans, and the HCV tested prevalence was more than triple in homeless compared to non-homeless veterans. In addition, population prevalence of these three infections in the veteran population in VA care was markedly higher than the population prevalence for the general US population estimated from other sources [10-14].

Homelessness is often a fluid state in which individuals transition between levels of housing stability. While the use of homeless services does not guarantee that the veteran was homeless at the time of the visit, the use of homeless services undoubtedly identifies veterans who have recently been homeless, are currently homeless, or are at substantial risk of becoming homeless. The present work did not investigate the timing of testing in relation to the use of homeless services, so some veterans may have been tested at a time when they were, in fact, housed. Nevertheless, veterans who use homeless services clearly comprise a population with increased prevalence of HIV, HCV and HBV. Thus, while VA's homeless services' primary focus is on housing, a veteran's involvement with homeless services provides a unique opportunity for engagement in other healthcare services [24], potentially using an integrated, co-located clinic model [25] in a comprehensive approach.

Homelessness is not specifically listed in the screening recommendations of the Centers for Disease Control and Prevention (CDC) or USPSTF as a risk factor for HIV, HCV or HBV infection [13, 14, 26-29]. In regards to HIV, the CDC does, however, identify homeless shelters as a high-prevalence setting, defined as a geographic location or community with a HIV prevalence of at least 1% [26]. Our data emphasize that HIV risk goes beyond homeless shelters, given our broader definition of homelessness as receipt of homeless services and the observed HIV tested and population prevalence in homeless veterans of 2.32% and 1.52%, respectively. The HIV tested prevalence among homeless veterans was more than double that observed in

non-homeless veterans. Increased risk for homeless veterans applies to HCV infection as well, given the three-fold higher HCV tested prevalence in homeless veterans compared to non-homeless veterans.

HCV testing rates, both in homeless and non-homeless veterans, were much higher than testing rates for either HIV or HBV; however, testing rates were 19 (HCV) to 27 (HIV and HBV) percentage points higher in homeless veterans compared to non-homeless veterans, and substantially higher than rates reported in the general US homeless population [30]. Such high testing rates likely reflect the fact that HCV has been a high priority for VA since work in the late 1990s demonstrated a HCV population prevalence in veterans that was 5-6 times the US prevalence [4]. Furthermore, the high testing rates may be influenced by VA's inclusion of Vietnam Era military service as a risk factor to prompt HCV testing long before the CDC, USPSTF and VA recommendations for 1945-1965 birth cohort testing. This risk factor, which was functionally based on age, carries little stigma to impede testing. The current work, which continues to document an elevated HCV tested and population prevalence in veterans in VA care, particularly among homeless veterans, validates VA's emphasis on HCV and the continued need to address vulnerable populations.

The lower HIV testing rates may reflect a VA requirement for written informed consent for HIV testing in effect until 2009. Although CDC, USPSTF and VA all recommend at least one-time HIV testing for all adults, the stigma associated with HIV and the reinforcement of that stigma by requiring written informed consent potentially contributed to the lower HIV testing rates. HBV testing remains solely risk-based [13-14,31] and unlike VA-specific HCV testing recommendations, HBV testing recommendations do not include Vietnam Era military service as a risk factor, further decreasing HBV testing rates.

The high rate of HIV/ HCV co-infection among homeless veterans, particularly male homeless veterans, deserves attention. HIV/ HCV co-infection substantially increases mortality in comparison to mono-infection with either alone, and treatment of either HIV or HCV is associated with significant, incremental reductions in mortality [32]. HCV antiviral treatment reduces mortality by almost 60% and HIV antiviral treatment further decreases mortality by approximately 10% [32]. While homeless veterans face competing priorities including housing, comorbid medical conditions, and a myriad of social barriers to maximizing their health, these data suggest that comprehensive, wrap-around services for homeless veterans combined with treatment of HIV and HCV for co-infected individuals might be necessary to address these major determinants of health simultaneously.

The present work provides two useful estimates of prevalence: tested prevalence defined by those with laboratory-confirmed infection among those who were tested and population prevalence based on laboratory-confirmed cases as well as Problem List entry among the entire population. The population prevalence provides a solid lower bound prevalence estimate. If patients who have HIV, HCV or HBV have not yet been tested, the additional laboratory-confirmed cases that would be found if these patients were tested would increase the estimated population prevalence. Given the high rates of largely risk-based testing, however, those veterans at highest risk have likely been preferentially tested. Thus, the prevalence in those untested – who likely represent those at lower risk – is likely lower than the prevalence among those already tested and testing of the untested would likely yield few additional cases and increase the population prevalence only slightly. As a demonstration of this, while the overall tested prevalence of HCV among homeless and non-homeless veterans in VA care in 2015 was

15.3% and 4.5%, respectively, the tested prevalence in those homeless and non-homeless veterans *first* tested in 2015 was much lower (6.7% and 4.5%, respectively, data not shown).

Limitations

The present work has several limitations. Homeless veterans who received VA care but did not use the specified homeless services will be misclassified as non-homeless. VA's emphasis on addressing veteran homelessness, however, means considerable efforts are spent ensuring that homeless veterans are seen in homeless services which would limit such misclassification. The CDW does not capture laboratory testing done outside VA. Some veterans receive care from both VA and non-VA facilities; the observed VA testing rates may underestimate the total testing of the population. In general, however, healthcare providers are more likely to repeat testing in patients who report outside positive test results than negative test results. Any preferential repeat testing would enrich the tested population with cases and potentially inflate the tested prevalence, but such cases would not impact the population prevalence. Using the Problem List entry also helps capture patients diagnosed outside VA who did not get repeat VA testing. Homeless veterans who use VA homeless services may have different patterns of healthcare utilization than non-homeless veterans. Providers of homeless services and other healthcare services might also maintain the Problem List differently. The higher testing rates in homeless than non-homeless veterans, however, suggests that veterans using homeless services were also using other healthcare services which would be expected to affect the Problem List similarly for all patients regardless of housing status. Additionally, this work reflects patients' most recent testing, and does not address on-going risk or whether patients should undergo repeat testing. Individuals who tested negative but later acquired

infection without repeat testing will be missed, suggesting that prevalence could be even higher. While the veteran population is predominantly male, given the large population size, these data still provide useful information about testing and prevalence among homeless and non-homeless women.

Conclusion

Homeless veterans experience particularly high prevalence of HIV, HCV, and HBV compared to their non-homeless counterparts, and to the general US population. These national data describe the most comprehensive estimates of HIV, HCV and HBV testing rates, tested prevalence and population prevalence in the heterogeneous population of homeless and non-homeless veterans in VA care in 2015. The unique structure of VA allows for the integration of healthcare delivery with homeless services to better meet the needs of homeless veterans living with HIV, HCV and HBV moving forward.

Notes:

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Testing rates, tested prevalence and population prevalence for HIV, HCV, HBV and HIV/HCV coinfection for homeless and non-homeless veterans for VA's 18 regions, known as Veterans Integrated Service Networks (VISNs), along with a map of the VISNs are available as supplementary material.

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Table 1. Demographics of Homeless and Non-Homeless Veterans

	Homeless Veterans N=242,740	%	Non-homeless Veterans N=5,424,685	%
<u>Age</u>				
Mean Age (\pmSD)	50 \pm 16		61 \pm 16	
<30	21,601	9.8	266,050	5.2
30-39	33,987	15.4	432,094	8.4
40-49	36,946	16.7	517,087	10.0
50-59	87,825	39.7	815,045	15.8
60-69	51,162	23.1	1,733,862	33.6
70-79	8,658	3.9	911,397	17.7
\geq80	2,552	1.2	748,852	14.5
<u>Sex</u>				
Female	26,966	11.1	408,481	7.5
Male	215,774	88.9	5,016,204	92.5
<u>Race/Ethnicity</u>				
American Indian/Alaska Native	3,465	1.4	45,599	0.8
Asian	1,653	0.7	54,000	1.0
Black	94,166	38.8	824,828	15.2
Hispanic	16,601	6.8	316,125	5.8
Native Hawaiian/Pacific Islander	2,058	0.8	47,095	0.9
White	112,137	46.2	3,655,678	67.4
Other	12,660	5.2	481,360	8.9

SD = standard deviation

Table 2. HIV Testing and Prevalence among Homeless and Non-Homeless Veterans

	In VA Care in 2015	HIV Testing ^a	HIV Testing Rate ^b (%)	Laboratory-confirmed HIV ^c	HIV Tested Prevalence ^d (%)	Problem List or Laboratory-Confirmed HIV ^e	HIV Population Prevalence ^f (%)
Homeless	242,740	154,812	63.8	3,599	2.32	3,684	1.52
Female	26,966	18,009	66.8	147	0.82	152	0.56
Male	215,774	136,803	63.4	3,452	2.52	3,532	1.64
Non-homeless	5,424,685	1,996,328	36.8	23,044	1.15	23,797	0.44
Female	408,481	202,240	49.5	748	0.37	781	0.19
Male	5,016,204	1,794,088	35.8	22,296	1.24	23,016	0.46
TOTAL	5,667,425	2,151,140	38.0	26,643	1.24	27,481	0.48

^aVA HIV laboratory testing based on HIV antibody or antibody/antigen testing

^bNumber with HIV testing divided by number in VA care in 2015

^cLaboratory-confirmed HIV based on positive antibody differentiation immunoassay, positive Western Blot or detectable HIV viral load

^dNumber with laboratory-confirmed HIV divided by number with HIV testing

^eNumber with laboratory-confirmed HIV or HIV on VA problem list without laboratory confirmation

^fNumber with laboratory-confirmed HIV or HIV on VA problem list without laboratory confirmation divided by number in VA care in 2015

Table 3. HCV Testing and Prevalence Among Homeless and Non-Homeless Veterans

	In VA Care in 2015	HCV Testing ^a	HCV Testing Rate ^b (%)	Laboratory-confirmed HCV ^c	HCV Tested Prevalence ^d (%)	Problem List or Laboratory-confirmed HCV ^e	HCV Population Prevalence ^f (%)
Homeless	242,740	189,508	78.1	29,063	15.3	29,311	12.1
Female	26,966	19,792	73.4	1,047	5.3	1,062	3.9
Male	215,774	169,716	78.7	28,016	16.5	28,249	13.1
Non-homeless	5,424,685	3,227,554	59.5	144,964	4.5	148,079	2.7
Female	408,481	255,924	62.7	4,995	2.0	5,112	1.3
Male	5,016,204	2,971,630	59.2	139,969	4.7	142,967	2.9
TOTAL	5,667,425	3,417,062	60.3	174,027	5.1	177,390	3.1

^aVA HCV laboratory testing based on HCV antibody, viral load or genotype testing

^bNumber with HCV testing divided by number in VA care in 2015

^cLaboratory-confirmed HCV based on detectable HCV RNA or detectable genotype

^dNumber with laboratory-confirmed HCV divided by number with HCV testing

^eNumber with laboratory-confirmed HCV or HCV on VA problem list without laboratory confirmation

^fNumber with laboratory-confirmed HCV or HCV on VA problem list without laboratory confirmation divided by number in VA care in 2015

Table 4. HBV Testing and Prevalence among Homeless and Non-Homeless Veterans

	In VA Care in 2015	HBV Testing ^a	HBV Testing Rate ^b (%)	Laboratory-confirmed HBV ^c	HBV Tested Prevalence ^d (%)	Problem List or Laboratory-confirmed HBV ^e	HBV Population Prevalence ^f (%)
Homeless	242,740	128,262	52.8	2,306	1.80	2,395	0.99
Female	26,966	12,275	45.5	160	1.30	168	0.62
Male	215,774	115,987	53.8	2,146	1.85	2,227	1.03
Non-homeless	5,424,685	1,499,203	27.6	19,816	1.32	21,611	0.40
Female	408,481	129,673	31.7	1,401	1.08	1,488	0.36
Male	5,016,204	1,369,530	27.3	18,415	1.34	20,123	0.40
TOTAL	5,667,425	1,627,465	28.7	22,122	1.36	24,006	0.42

^aVA HBV laboratory testing based on HBsAg testing

^bNumber with HBV testing divided by number in VA care in 2015

^cLaboratory-confirmed HBV based on positive HBsAg

^dNumber with laboratory-confirmed HBV divided by number with HBV testing

^eNumber with laboratory-confirmed HBV or HBV on VA problem list without laboratory confirmation

^fNumber with laboratory-confirmed HBV or HBV on VA problem list without laboratory confirmation divided by number in VA care in 2015

Table 5. HIV/HCV Co-infection Testing and Prevalence among Homeless and Non- Homeless Veterans

	In VA Care in 2015	HIV/HCV Testing ^a	HIV/HCV Testing Rate ^b (%)	Laboratory-confirmed HIV/HCV ^c	HIV/HCV Tested Prevalence ^d (%)	Problem List or Laboratory-confirmed HIV/HCV ^e	HIV/HCV Population Prevalence ^f (%)
Homeless	242,740	143,144	59.0	1,071	0.75	1,100	0.45
Female	26,966	15,884	58.9	21	0.13	24	0.09
Male	215,774	127,260	59.0	1,050	0.83	1,076	0.50
Non-homeless	5,424,685	1,622,393	29.9	4,062	0.25	4,216	0.08
Female	408,481	164,688	40.3	75	0.05	78	0.02
Male	5,016,204	1,457,705	29.1	3,987	0.27	4,138	0.08
TOTAL	5,667,425	1,765,537	31.2	5,133	0.29	5,316	0.09

^aVA HIV/HCV laboratory testing based on HIV antibody or antibody/antigen testing and HCV antibody, HCV RNA or genotype testing

^bNumber with HIV/HCV testing divided by number in VA care in 2015

^cLaboratory-confirmed HIV/HCV based on positive HIV antibody differentiation immunoassay, positive HIV Western Blot or detectable HIV viral load and detectable HCV RNA or HCV genotype

^dNumber with laboratory-confirmed HIV/HCV divided by number with HIV/HCV testing

^eNumber with laboratory-confirmed HIV/HCV or HIV/HCV on VA problem list without laboratory confirmation

^fNumber with laboratory-confirmed HIV or HIV on VA problem list without laboratory confirmation and confirmed HCV or HCV on VA problem list divided by number in VA care in 2015