Sexually Transmitted Infection Testing in the National Veterans Health Administration Patient Cohort During the Coronavirus Disease 2019 Pandemic

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Background. We performed a retrospective study of chlamydia, gonorrhea, syphilis, and human immunodeficiency virus (HIV) testing in the Veterans Health Administration (VHA) during 2019–2021.

Methods. We determined the annual number of chlamydia, gonorrhea, syphilis, and HIV tests from 2019 through 2021 using electronic health record data. We calculated rates by age, birth sex, race, census region, rurality, HIV status, and use of preexposure prophylaxis.

Results. The VHA system experienced a 24% drop in chlamydia/gonorrhea testing, a 25% drop in syphilis testing, and a 29% drop in HIV testing in 2020 versus 2019. By the conclusion of 2021, testing rates had recovered to 90% of baseline for chlamydia/gonorrhea, 91% for syphilis, and 88% for HIV. Declines and subsequent improvements in sexually transmitted infection (STI) testing occurred unequally across age, sex, race, and geographic groups. Testing for all 4 STIs in 2021 remained below baseline in rural Veterans. Excluding those aged <25 years, women experienced a steeper decline and slower recovery in chlamydia/gonorrhea testing relative to men, but quicker recovery in HIV testing. Asian Americans and Hawaiian/Pacific Islanders had a steeper decline and a slower recovery in testing for chlamydia/gonorrhea. Black and White Veterans had slower recovery in HIV testing compared with other race groups. People living with HIV experienced a smaller drop in testing for syphilis compared with people without HIV, followed by a near-total recovery of testing by 2021.

Conclusions. After dramatic reductions from 2019 to 2020, STI testing rates returned to near-baseline in 2021. Testing recovery lagged in rural, female, Asian American, Hawaiian/Pacific Islander, and Black Veterans.

Keywords. COVID-19; epidemiology; sexual health.

The coronavirus disease 2019 (COVID-19) pandemic has not only resulted in significant global morbidity and mortality but has also affected the spread of sexually transmitted infections (STIs) [1]. While lockdowns and physical distancing policies caused behavioral changes that led to a reduction in sexual contact, the pandemic also interrupted sexual health services and access to care [2–4]. Given the disruptions caused by COVID-19, epidemiological models predict major postpandemic increases in the incidence of STIs including Chlamydia trachomatis and Neisseria gonorrhoeae, which are known to disproportionately affect socially vulnerable individuals such as Veterans [5–8]. Not only does the STI epidemic result in human morbidity and mortality, STIs acquired in 2018 alone will cost the American healthcare system nearly $16 billion over time in direct medical costs [9]. These figures are particularly alarming given that in 2019, immediately preceding the pandemic, cases of STIs in the United States (US) reached a new peak for the sixth consecutive year [9]. Similar to trends in the nation as a whole, rates of chlamydia, gonorrhea, and syphilis infection rose among Veterans Health Administration (VHA) patients and reached a 20-year high in 2019 [10, 11].

Despite extensive care interruptions and decreased access to sexual health services, the effects of the COVID-19 pandemic...
on STI testing in the US are only partially understood [5, 12–15]. During the pandemic, 91% of federally funded STI programs reported substantial impacts from staff reassignment due to COVID-19–related duties [16]. Multiple studies have reported sharply reduced utilization of sexual health services including a 55% drop in visits to sexual health clinics from 2019 to 2020 in 1 study in King County, Washington [17]. Rates of notifiable STIs dropped nationally to 50% of 2020 levels for chlamydia, 71% for gonorrhea, and 64% for primary and secondary syphilis, though it remains unclear whether this represents a true drop in infections or a reduction in testing [18]. Based on large laboratory-based studies examining 2019 and 2020 public health data, test positivity rates increased during the early pandemic period for chlamydia and gonorrhea even as the number of tests declined, suggesting that lack of testing is a major driver and asymptomatic cases may be undiagnosed [14, 15]. These prior reports are limited, however, by lack of key covariates such as age, race, and human immunodeficiency virus (HIV) status to inform understanding of where and in whom gaps in testing are occurring.

The first step to addressing STIs in the aftermath of the pandemic is to understand in greater detail how STI testing has changed during the pandemic period. As the largest integrated healthcare system in the US, with varying operating environments and a geographically dispersed patient population, VHA represents an ideal setting to study the nuances in STI testing patterns. We report on rates of STI testing during the pandemic period 2019–2021 among patients in the national VHA system.

METHODS

Data Source
We performed a retrospective cohort study of Veterans receiving VHA care between 1 January 2019 and 31 December 2021. Data were obtained from the VHA Corporate Data Warehouse (CDW), a comprehensive, continually updated repository of information from VHA electronic health records. The CDW data includes healthcare encounters, laboratory results, medications, diagnoses, and demographics [19]. We defined patients as receiving VHA care in a given calendar year if they had at least 1 inpatient admission or outpatient visit in that year or the preceding calendar year.

Patient Consent Statement
Because data were obtained and analyzed as part of an operational quality improvement project rather than a systematic investigation designed to develop or contribute to generalizable knowledge, this project was exempt from the requirements of the Common Rule and did not require institutional review board review. Drafting and submission of this manuscript complied with applicable VHA policies (VHA Program Guide 1200.21, VHA Operations Activities That May Constitute Research). The study did not include factors necessitating patient consent.

Ascertainment of Laboratory Screening Tests and Cases
For each calendar year, we determined the number of chlamydia and gonorrhea tests performed via nucleic acid amplification or antigen detection. The total number of tests for gonorrhea and chlamydia were counted by distinct patient, specimen collection date, and anatomic source such that a patient with 3-site testing (oropharyngeal, genitourinary, and rectal) contributed 3 tests to the totals.

We considered an individual to have received syphilis testing within a given year if a treponemal or nontreponemal test was conducted at least once during the year, regardless of result. We calculated the number of syphilis tests and the number of individuals tested per calendar year. The total number of syphilis tests was counted by distinct patient and specimen collection date [11].

We considered an individual to have received HIV testing within a given year based on HIV antibody test, regardless of result. We calculated the number of HIV tests and the number of individuals tested per calendar year among people without a known prior diagnosis of HIV as of the start of the year. The total number of HIV tests was counted by distinct patient and specimen collection date.

Patient Characteristics
For each calendar year from 2019 to 2021, we calculated descriptive statistics for the demographic characteristics of age, birth sex, self-reported race and ethnicity, census region, rurality, and HIV status. Age was assessed on the first day of the calendar year. Census region and rurality were based on geocoded home address. We defined people with HIV (PWH) as meeting any of the following VHA administrative data criteria: positive HIV antibody combined with positive confirmatory testing, positive HIV viral load, prescribed an HIV antiretroviral medication for ≥31 continuous days within the VHA, or HIV on the patient’s problem list (Supplementary Table). We identified all recipients of HIV preexposure prophylaxis (PrEP) using a previously validated algorithm that included individuals in VHA care who received at least one >30-day course of tenofovir (either disoproxil fumarate or alafenamide) and emtricitabine during the calendar year in the absence of an HIV diagnosis (Supplementary Table) [20].

RESULTS

Chlamydia and Gonorrhea Testing
In 2019, VHA performed 202 462 chlamydia tests and 201 273 gonorrhea tests compared with 181 118 (11% decline) and 180 310 (10% decline) in 2021, respectively (Table 1). Rates of
chlamydia and gonorrhea testing, including population subgroups defined by age, birth sex, race/ethnicity, geography, HIV status, and receipt of PrEP, are reported for 2019, 2020, and 2021 in Tables 2–4. The rate of chlamydia/gonorrhea testing per 100,000 individuals dropped 24% between 2019 and 2020. Veterans aged 35–44 years experienced a 26% drop in testing, the greatest in any age group. Testing in men dropped by 21% compared to 31% for women. The race groups with the biggest decrease include Asian Americans (27%) and Hawaiian and Pacific Islanders (28%). Hispanic and non-Hispanic Veterans had similar decreases in testing of 24%. Testing in rural/highly rural residents decreased by 28% compared with 23% for urban dwellers. The Northeast census region experienced the biggest drop (29%) among geographic regions followed by the South (26%). PWH experienced a testing drop of 15% compared with 25% for people without HIV. Veterans receiving PrEP experienced a testing drop of 11%.

By 2021, all population groups remained below prepandemic testing levels except Veterans aged 18–24 years (4% increase relative to 2019) and women younger than 25 years (3% increase). Overall testing rates in women recovered to a lesser degree than men (15% vs 11% below 2019 baseline). The race groups with the least recovery in testing included Asian Americans and Hawaiian and Pacific Islanders (both 14% below baseline). Testing in rural/highly rural residents remained 17% below baseline compared with 10% for urban dwellers. Veterans living in the Northeast, South, or Midwest had the slowest recovery among geographic regions (16%, 11%, and 11% below baseline, respectively). The numbers of Veterans in care who are not living with HIV at the start of the year are used as the denominators to calculate the percentage of Veterans tested for HIV.

By 2021, all population groups remained below prepandemic testing levels except for women aged <25 years (10% increase) and those receiving PrEP (6%). Testing in women and men recovered to a similar degree (10% below 2019 baseline). Testing among Asian American (14% below baseline) and Black Veterans (12% below baseline) was the slowest to recover. Testing in rural/highly rural residents remained 12% below baseline compared with 9% for urban dwellers. Veterans living in the Northeast and South had the least recovery among geographic regions (12% below baseline, respectively). By the end of 2021, syphilis testing in people with HIV was 2% below baseline while people without HIV remained 10% below baseline. Patients receiving PrEP experienced a 6.5% increase in testing rates.

### HIV Testing

In 2019, VHA performed 474,402 HIV antibody tests compared with 414,469 in 2021 (13% decline) (Table 1). HIV testing rates per 100,000, including population subgroups defined by age, birth sex, race/ethnicity, geography, HIV status, and receipt of PrEP, are reported for 2019, 2020, and 2021 in Tables 2–4. The rate of HIV testing per 100,000 individuals dropped 29% between 2019 and 2020 and improved to 88% of baseline by 2021.

| Year | Veterans in Care, No. | Chlamydia Tests | Gonorrhea Tests | HIV Antibody Tests | Syphilis Tests |
|------|----------------------|----------------|----------------|-------------------|---------------|
| 2019 | 6,720,302            | 202,462 (2.3)  | 201,273 (2.3)  | 474,402 (6.6)     | 250,732 (3.2) |
| 2020 | 6,606,172            | 151,491 (1.8)  | 150,617 (1.8)  | 331,470 (4.7)     | 184,792 (2.4) |
| 2021 | 6,696,168            | 181,118 (2.1)  | 180,310 (2.1)  | 414,469 (5.7)     | 226,508 (2.9) |

Data are presented as No. (% of Veterans tested) unless otherwise indicated.

Abbreviation: HIV, human immunodeficiency virus.

Individuals may have >1 test during the year.

The numbers of Veterans in care who are not living with HIV at the start of the year are used as the denominators to calculate the percentage of Veterans tested for HIV.
Table 2. Testing Rates for Chlamydia, Gonorrhea, Human Immunodeficiency Virus, and Syphilis in Veterans Health Administration Patients, 2019

| Characteristic | Veterans in Care, No. | Chlamydia (Tests per 100 000) | Gonorrhea (Tests per 100 000) | HIV* (Tests per 100 000) | Syphilis (Tests per 100 000) |
|----------------|-----------------------|-------------------------------|-------------------------------|--------------------------|-----------------------------|
| All            | 6 720 302             | 3013                          | 2995                          | 7092                     | 3731                        |
| Age, y         |                       |                               |                               |                          |                             |
| 18–24          | 74 855                | 14 067                        | 14 004                        | 18 656                   | 9907                        |
| 25–34          | 573 899               | 11 566                        | 11 514                        | 15 128                   | 8568                        |
| 35–44          | 639 174               | 7586                          | 7551                          | 12 123                   | 6276                        |
| 45–54          | 799 668               | 4044                          | 4019                          | 9849                     | 4525                        |
| 55–64          | 1 163 104             | 2434                          | 2424                          | 8480                     | 4179                        |
| ≥65            | 3 469 388             | 472                           | 463                           | 3491                     | 1991                        |
| Birth sex      |                       |                               |                               |                          |                             |
| Female         | 588 362               | 10 886                        | 10 865                        | 11 570                   | 5794                        |
| Male           | 6 131 940             | 2257                          | 2240                          | 6661                     | 3533                        |
| Race           |                       |                               |                               |                          |                             |
| Asian          | 76 816                | 4940                          | 4909                          | 9859                     | 4726                        |
| Black          | 113 138               | 7049                          | 7022                          | 12 692                   | 7465                        |
| Hawaiian/Pacific Islander | 57 212   | 3620                          | 3587                          | 7891                     | 3978                        |
| Native         | 52 210                | 3714                          | 3700                          | 7515                     | 4003                        |
| White          | 4 808 654             | 2016                          | 2001                          | 5086                     | 2976                        |
| Unknown        | 527 717               | 2609                          | 2600                          | 5962                     | 3009                        |
| Hispanic ethnicity |                   |                               |                               |                          |                             |
| Yes            | 440 455               | 5645                          | 5541                          | 10 537                   | 6514                        |
| No             | 6 279 847             | 2828                          | 2816                          | 6851                     | 3536                        |
| Rurality       |                       |                               |                               |                          |                             |
| Urban          | 4 267 475             | 3870                          | 3846                          | 8045                     | 4576                        |
| Rural/highly rural | 2 261 089 | 1481                          | 1475                          | 5373                     | 2119                        |
| Unknown        | 191 738               | 2001                          | 1991                          | 6242                     | 3922                        |
| Census region  |                       |                               |                               |                          |                             |
| West           | 1 352 211             | 3704                          | 3676                          | 6727                     | 4234                        |
| Midwest        | 1 411 342             | 1975                          | 1981                          | 5303                     | 2337                        |
| South          | 2 937 406             | 3409                          | 3398                          | 8340                     | 4221                        |
| Northeast      | 802 539               | 2688                          | 2689                          | 6665                     | 3330                        |
| Other          | 60 671                | 1108                          | 554                           | 6293                     | 6949                        |
| Unknown        | 156 133               | 1369                          | 1366                          | 5522                     | 3562                        |
| HIV status     |                       |                               |                               |                          |                             |
| Positive       | 32 779                | 65 255                        | 64 874                        | NA                       | 88 892                      |
| Negative       | 6 687 523             | 2708                          | 2692                          | 7092                     | 3314                        |
| Female aged <25 y | 17 259   | 27 759                        | 27 713                        | 21 044                   | 11 791                      |
| PrEP during CY | 3843                  | 350 247                       | 346 266                       | 269 100                  | 224 688                     |

Abbreviations: CY, calendar year; HIV, human immunodeficiency virus; NA, not applicable; PrEP, preexposure prophylaxis.

*The numbers of Veterans in care who are not living with HIV at the start of the year are used as the denominators to calculate rates of HIV testing.

the biggest drop (35%) among geographic regions followed by the Midwest (33%). Patients receiving PrEP experienced a 8% decrease in testing rates in 2020.

By 2021, all population groups remained below prepandemic testing levels except for Veterans aged 18–24 who exhibited a 3% increase (10% for women aged <25 years). Testing in
women recovered to a greater degree than men but remained below 2019 baseline (~11% and ~13%, respectively). Testing among Black Veterans (17% below baseline) was the slowest to recover among race groups, followed by White Veterans (~13%). HIV testing in rural/highly rural residents remained 15% below baseline compared with 12% for urban dwellers. Patients receiving PrEP experienced a 0.6% increase in HIV testing rates.

**DISCUSSION**

The COVID-19 pandemic profoundly affected STI testing in the VHA, similar to other settings [12]. From 2019 to 2020, rates of STI testing in the VHA declined by 24% for chlamydia and gonorrhea, 25% for syphilis, and 29% for HIV, an extraordinary decline in a single year and a sharp deviation from the preceding decade of steady gains [10, 11]. National lockdowns and stay-at-home orders in early 2020 affected both access to testing and risk for infection. Total face-to-face visits within VHA dropped by 51.5% in 2020 compared to 2019 [21], and laboratory supply shortages in swabs and reagents affected VHA similarly to the US as a whole [22]. Despite these challenges, by the conclusion of 2021, testing rates had recovered to 90% of baseline for chlamydia and gonorrhea, 91% for syphilis, and 88% for HIV.

Declines and subsequent improvements in STI testing occurred unequally across age, sex, race, and geographic groups. As reopening gradually occurred in 2021, several populations appeared to be at higher potential risk for delayed STI testing recovery. Testing for all 4 STIs in 2021 remained disproportionately below baseline in rural and highly rural Veterans, as well as people living in the Northeast. Women (other than those aged <25 years) experienced both a steeper decline and a slower recovery in chlamydia/gonorrhea testing relative to men (Figures 1 and 2) but quicker recovery in HIV testing. Compared with other race groups, Asian Americans and Hawaiian/Pacific Islanders had a steeper decline and a slower recovery in testing for chlamydia and gonorrhea, and Black Veterans had slower recovery in HIV testing. PWH experienced smaller drops in testing for STI testing compared with people without HIV, followed by a near-total recovery of syphilis testing, but gonorrhea and chlamydia testing rates remained 10% below baseline. Individuals receiving PrEP exhibited higher HIV and syphilis testing rates in 2021 compared with 2019.

Adherence to STI screening guidelines in the US (as well as in VHA) was already suboptimal prepandemic despite well-described clinical and public health benefits, with wide variance reported by age, race, and rural/urban residence [23]. For example, in a nationally representative sample of men and women in the US (2017–2019), a higher proportion of individuals aged 20–29 years received STI testing compared with those aged 15–19 years (31% vs 12%) [22]. Black people (42%) were more likely to receive STI testing compared with White people (18%), and individuals living in rural/nonmetropolitan areas (19%) were less likely to receive testing than those in

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**Table 4. Testing Rates for Chlamydia, Gonorrhea, Human Immunodeficiency Virus, and Syphilis in Veterans Health Administration Patients, 2021**

| Characteristic                  | Veterans in Care No. | Chlamydia (Tests per 100,000) | Gonorrhea (Tests per 100,000) | HIV* (Tests per 100,000) | Syphilis (Tests per 100,000) |
|--------------------------------|----------------------|--------------------------------|-------------------------------|-------------------------|-----------------------------|
| All                            | 6,695,168            | 2,705                          | 2,693                         | 6,220                   | 3,383                       |
| Age, y                         |                      |                                |                               |                         |                             |
| 18–24                          | 63,001               | 14,665                         | 14,641                        | 19,146                  | 9,757                       |
| 25–34                          | 532,862              | 10,475                         | 10,431                        | 13,966                  | 7,920                       |
| 35–44                          | 722,120              | 6,884                          | 6,647                         | 10,732                  | 5,662                       |
| 45–54                          | 796,311              | 3,519                          | 3,499                         | 8,490                   | 3,888                       |
| 55–64                          | 1,135,498            | 2,189                          | 2,177                         | 6,976                   | 3,638                       |
| ≥65                            | 3,445,340            | 433                            | 433                           | 3,073                   | 1,891                       |
| Birth sex                      |                      |                                |                               |                         |                             |
| Female                         | 636,615              | 928                            | 925                           | 10,244                  | 5,212                       |
| Male                           | 6,058,624            | 2,014                          | 2,004                         | 5,796                   | 3,191                       |
| Race                           |                      |                                |                               |                         |                             |
| Asian American                 | 83,652               | 4,263                          | 4,212                         | 8,866                   | 4,085                       |
| Black                          | 1,152,826            | 6,244                          | 6,220                         | 10,530                  | 6,601                       |
| Hawaiian/Pacific Islander      | 58,342               | 3,106                          | 3,061                         | 7,397                   | 3,699                       |
| Multiracial                    | 62,706               | 5,768                          | 5,735                         | 9,541                   | 5,644                       |
| Native American                | 51,757               | 3,476                          | 3,462                         | 7,150                   | 3,797                       |
| White                          | 4,706,272            | 1,769                          | 1,761                         | 5,068                   | 2,593                       |
| Unknown                        | 579,613              | 2,606                          | 2,593                         | 6,153                   | 2,983                       |
| Hispanic ethnicity             |                      |                                |                               |                         |                             |
| Yes                            | 447,001              | 5,062                          | 5,022                         | 9,028                   | 5,917                       |
| No                             | 6,248,167            | 2,537                          | 2,527                         | 6,020                   | 3,202                       |
| Rurality                       |                      |                                |                               |                         |                             |
| Urban                          | 4,335,444            | 3,477                          | 3,459                         | 7,100                   | 4,161                       |
| Rural/highly rural             | 2,221,586            | 1,229                          | 1,230                         | 4,553                   | 1,857                       |
| Unknown                        | 138,138              | 2,212                          | 2,206                         | 5,539                   | 3,531                       |
| Census region                  |                      |                                |                               |                         |                             |
| West                           | 1,378,249            | 3,392                          | 3,339                         | 6,316                   | 4,031                       |
| Midwest                        | 1,385,234            | 1,754                          | 1,740                         | 4,380                   | 2,154                       |
| South                          | 2,975,789            | 3,033                          | 3,032                         | 7,355                   | 3,746                       |
| Northeast                      | 798,805              | 2,284                          | 2,283                         | 5,410                   | 2,922                       |
| Other                          | 59,749               | 700                             | 700                           | 4,408                   | 5,990                       |
| Unknown                        | 97,342               | 1,345                          | 1,339                         | 4,217                   | 2,797                       |
| HIV status                     |                      |                                |                               |                         |                             |
| Positive                       | 33,053               | 58,570                         | 58,367                        | NA                      | 87,218                      |
| Negative                       | 6,662,115            | 2,428                          | 2,417                         | 6,220                   | 2,967                       |
| Female ≤25 y                   | 15,490               | 28,728                         | 28,741                        | 23,139                  | 12,931                      |
| PrEP during CY                 | 5021                 | 313,961                        | 302,569                       | 270,662                 | 239,195                     |

Abbreviations: CY, calendar year; HIV, human immunodeficiency virus; NA, not applicable; PrEP, preexposure prophylaxis.

*The numbers of Veterans in care who are not living with HIV at the start of the year are used as the denominators to calculate rates of HIV testing.
major metropolitan areas (27%) [22]. Complex sociocultural and health system factors have been linked to STI testing disparities including healthcare access, local funding for sexual health services, systematic biases affecting historically marginalized groups, medical distrust, and stigma around STIs. Specifically, access to a regular source of care, especially among Black people, is a major structural barrier to STI care [24, 25]. Provider bias may play a role in whether patients receive STI testing [26]. Lack of trust in the medical system may lead certain groups to avoid or delay preventive care, especially sexual healthcare [27–29]. The COVID-19 pandemic amplified existing healthcare challenges that disproportionately impact socially vulnerable groups who continue to be most affected by STIs. COVID-19–related disruptions especially impacted women, including loss of employment or childcare, and may have deterred STI screening requiring an office visit. Fear of COVID-19 exposure and limited clinic appointments led to fewer in-person medical appointments where STI testing might have been obtained [30]. This is one likely explanation why testing recovered faster for chlamydia and gonorrhea, which do not require phlebotomy, compared with syphilis and HIV.

In 2020, the first STI National Strategic Plan was published to systematically address the STI epidemic in the US [23]. Additional evaluation will be needed to determine whether

![Figure 1. Chlamydia, gonorrhea, human immunodeficiency virus (HIV), and syphilis tests per 100,000 Veterans by birth sex in the Veterans Health Administration, 2019–2021.](image-url)
Figure 2. Percentage change in rate of testing for chlamydia, gonorrhea, human immunodeficiency virus (HIV), and syphilis in Veterans Health Administration in 2020 and 2021 versus 2019, presented as percentage change in sexually transmitted infection testing rates per 100,000 for each year relative to 2019. Please refer to the Methods for definitions of stratifying variables (birth sex, age, on preexposure prophylaxis during year, HIV status, race/ethnicity, rurality, and census region). Abbreviations: A, Asian American; B, Black; Hisp, Hispanic; HIV, human immunodeficiency virus; Mult, multiracial; Nat, Native American; NE, Northeast; PI, Hawaiian/Pacific Islander; PrEP, preexposure prophylaxis; Unk, unknown race; W, White.
reductions in STI testing during the pandemic represent lasting changes in risk behavior or, more likely, changes in access to STI testing. To achieve the goals outlined in the STI National Strategic Plan, further study will be necessary to understand the effects of the COVID-19 pandemic on the STI care continuum, including linkage to treatment and PrEP. Future work using Veterans Affairs data could be undertaken to investigate early reports that lower PrEP use during the pandemic may be linked to increased HIV incidence in high-risk groups [31]. Although the current study lacks the necessary data to examine STI testing in groups with specific sexual risks, we note that HIV testing in Veterans receiving PrEP in 2021 surpassed 2019 levels.

Our study has several important limitations that should inform interpretation of our findings. We lacked information regarding sexual orientation or individual sexual risk behaviors, precluding assessment of testing rates in several groups with known high prevalence of STIs. Our analysis was limited to users of the VHA healthcare system and to STI tests performed within VHA, potentially restricting generalizability, although prior work in VHA populations has demonstrated parallel STI trends compared to the general US population [10, 11]. Finally, although VHA data have overall low levels of missingness for most variables, 9.3% of our cohort was missing data for race.

CONCLUSIONS

Despite dramatic reduction in the use of STI testing from 2019 to 2020 in the national VHA system during the COVID-19 pandemic, 2021 testing rates for chlamydia, gonorrhea, syphilis, and HIV approached baseline levels. However, recovery occurred unevenly in some patient groups and across different STIs, most notably leaving rural, female, Black, Asian American, and Hawaiian/Pacific Islander Veterans at risk for disparities. Encouragingly, chlamydia and gonorrhea testing rates in Veterans aged <25 years (particularly women), syphilis testing in Veterans with HIV and those receiving PrEP, and HIV testing in Veterans receiving PrEP have all reached or exceeded prepandemic levels. Our findings highlight the need to ensure a broader and more equitable recovery of STI testing in order to meet the goals outlined in the STI National Strategic Plan.

Supplementary Data

Supplementary materials are available at Open Forum Infectious Diseases online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

Notes

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