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STI clinic visits and Chlamydia/Gonorrhea testing have not returned to pre-COVID levels, five U.S. jurisdictions, 2018—2022

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Abstract

We evaluated whether sexually transmitted infection (STI) clinic visits and chlamydia/gonorrhea tests in five jurisdictions had returned to pre-COVID levels by 2022. Patient volume and chlamydia/gonorrhea testing have not returned to pre-COVID levels, especially among people <30 years.

Short Summary :

In this note, we evaluated whether sexually transmitted infection (STI) services (clinic visits and chlamydia/gonorrhea testing) in five jurisdictions had returned to pre-COVID levels by 2022.

Keywords

chlamydia; gonorrhea; screening; STI clinics; COVID

Introduction

The deployment of the STI/HIV health department workforce to support the COVID-19 public health response may have had sustained impacts on STI services in the United States. In an assessment of the impact of COVID-19 on STI programs, 96% of programs reported that reassignment of STI staff to COVID-19 work had impacted STI program efforts in

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April 2020, and 95% reported that these impacts were sustained in October 2020 [1]. Further findings included that it was common for programs to release guidance on testing or patient prioritization; to implement telemedicine; and experience interrupted high volume STI testing due to laboratory staffing, clinic closures, and supplies shortages. In May 2020, the National Coalition of STD Directors (NCSD) found that programs reported deferring STI services or field visits, conducting fewer sexual health tests, and were experiencing reduced capacity to treat STDs [2]. In January 2021, NCSD highlighted STI clinic strategies to eliminate or restrict walk-in visits and institute appointment-only policies [3]. Sustained reductions in STI clinic visits and unique patients were reported through December 2021 by seven jurisdictions participating in the STD Surveillance Network [4].

Public health funded STI clinics provide high-quality specialized care for testing, diagnosing, managing, and treating sexually transmitted infections; these clinics are an important safety net for under- and un-insured individuals. Reductions in services at public health STI clinics may have resulted in many undiagnosed and unreported STIs [5].

The nationally reported rate of gonorrhea (GC) steadily increased from 2013 (105.3 per 100,000 population) to 2021 (214.0), as did the rate of chlamydia (CT) (2013, 443.5; 2021, 495.5) [5, 6, 7]. But from 2021 to 2022, this trend reversed, and the rate of reported GC decreased by 9.2% overall (2022, 194.4) and by 14.5% among women (177.9 to 152.1) but was smaller (−5.4%) among men (249.7 to 236.3) [8]. CT, in contrast, stabilized (495.5 to 495.0).

CT/GC are tested for together on the same specimen and because both CT and GC can be asymptomatic, two primary drivers of rates of reported cases are testing coverage and prevalence; changes in either can result in increased or decreased case rates, particularly among women since they are more likely to be asymptomatic [9]. To determine whether changes in testing coverage and numbers of tests reflected changes in case rates, we evaluated changes in STI clinic visits, number of CT/GC tests performed, and CT/GC tests with a positive result, preceding and following the COVID-19 pandemic.

Methods

We used 2018–2022 aggregated STI clinic visits and testing data from all public health department STI clinics across diverse urban, suburban, and rural settings in five U.S. jurisdictions (District of Columbia (DC), Louisiana (LA), Michigan (MI), North Carolina (NC), and Virginia (VA)), as available; Louisiana data also included other public clinic visits for reproductive health. We calculated positivity using numbers of CT or GC positive tests divided by total CT/GC tests (‘test-based positivity’) as well as numbers of unique people testing positive for CT or GC divided by the number of unique people tested for CT/GC (‘person-based positivity’). Annual counts from 2018 and 2019 were averaged to establish a stable period preceding COVID (‘pre-COVID’). We calculated the relative percentage change annually, as well as from ‘pre-COVID’ to 2022; changes $\leq \pm 10\%$ were considered stable. All outcomes were evaluated by jurisdiction and sex at birth. The number of people tested for CT/GC was also evaluated by age and race/ethnicity to estimate a potential demographic shift in the clinic population.

Results

2020 compared to pre-COVID

Overall, counts decreased for all outcomes in 2020 compared to the pre-COVID period (Table 1): there were two-thirds fewer people with STI clinic visits (−35%); half the number of people tested for CT/GC (−52%), and people testing positive for CT (−51%); three-quarters fewer people testing positive for GC (−22%). Person-based positivity in 2020 compared to the pre-COVID period was stable for CT (+2%) and increased for GC (+62%).

2021 compared to 2020

Decreased counts continued into 2021 compared to 2020 for people with STI clinic visits (−13%), testing positive for CT (−12%), and testing positive for GC (−20%); however, there were stable numbers of people tested for CT/GC (−3%); overall, 2021 counts deepened the shortfall in cases compared to the pre-COVID period. Person-based positivity in 2021 compared to 2020 was stable or had decreased for CT (−10%) and GC (−17%).

2022 compared to 2021

Nearly all counts increased in 2022 compared to 2021 (people with STI clinic visits (+11%), tested for CT/GC (+31), testing positive for CT (+40%), and testing positive for GC (+11%)); however, 2022 counts still fell short of the pre-COVID period. Person-based positivity in 2022 compared to 2021 was stable or had decreased for CT (+7%) and decreased for GC (−15%).

2022 compared to pre-COVID

By 2022, all counts were approximately two-thirds their pre-COVID levels (people with STI clinic visits (−37%), tested for CT/GC (−39%), testing positive for CT (−37%), testing positive for GC (−30%)). Person-based positivity in 2022 compared to pre-COVID levels was stable for CT (−1%) and had increased for GC (+14%).

The numbers of total clinic visits, total tests, total positive tests, and test-based positivity followed similarly with corresponding outcomes based on persons.

People tested for CT/GC varied by age (Figure 1). Increases in testing from 2021—2022 were less pronounced among those aged <30 years (+26%, n=+5,246) compared to those ≥30 (+39%, n=+7,207). For people aged <30 years, total tests in 2022 (n=25,426) were half pre-COVID totals, compared to three-quarters the pre-COVID totals for people ≥30 (2022 tests: n=25,740). Findings did not differ by race/ethnicity or sex. Outcomes varied by jurisdiction (Supplemental Table 1).

Discussion

Using data from five jurisdictions from 2018—2022, we found that STI clinic visits and CT/GC testing have not returned to pre-COVID levels. CT/GC testing had decreased during 2020 compared to the pre-COVID period, similar to previous findings across various settings [4, 10–17]. We further demonstrated that reductions in CT/GC testing and overall clinic

attendance continued through 2022 and highlighted that those aged <30 years experienced more extensive shortfalls in testing and clinic attendance as compared to the pre-COVID period, similar to a multijurisdictional analysis of public STI clinics through 2021 [4].

It is possible that the population being tested in public health department STI clinics has changed over time: in the early pandemic, clinic prioritization of symptomatic patients may have resulted in fewer asymptomatic people and those at lower risk for STIs being tested [1]; if true, an increase in positivity would be expected. Asymptomatic testing of an at-risk group may have increased but not returned to pre-COVID levels as of 2022. In our study, positivity for GC initially increased, then stabilized, then modestly decreased, though positivity for CT was stable throughout the study period. Waning GC positivity through 2022 in our data may have indicated a shift in the case mix of the clinic population, with fewer individuals tested among the most vulnerable, such as young people. Other changes to STI clinic services may have introduced or hastened changes in the clinic population, such as eliminating or restricting walk-in services [3] which may have been preferable to young people [18]. Preceding the COVID pandemic, STI clinics increasingly offered HIV services, such as PrEP care coordination, requiring multiple visits throughout the year, as well as increasing extragenital screenings; during this time, STI clinic visits decreased among young people while utilization increased among MSM and people aged ≥ 25 years [19].

Our study was limited to aggregate data for specific metrics from health department STI clinics in five jurisdictions so potential analyses are limited and our findings may not be generalizable. It is possible that the frequency of asymptomatic testing, multisite testing, and/or return visits for retesting changed over time, but we lacked these data. STI clinics increasingly relied on telehealth visits and self-collection testing during the pandemic [3], but we could not discern these service types. Multiple factors can influence case-based surveillance data, including prevalence, which was unavailable, and testing; our findings cannot directly interpret surveillance trends.

Chlamydia and gonorrhea screening decreased during the COVID-19 pandemic due to severe disruptions to the STI health department workforce and test shortages which may have had a sustained impact. However, decreases in STI clinic visits among young people preceded the COVID pandemic [17], and it is likely that other factors are driving young people to seek care elsewhere or not at all, the latter of which may lead to uncontrolled STI transmission and the potential for rising healthcare costs for untreated infections. Young people may be more likely to use walk-in clinics [18] and to use STI testing in non-clinical settings such as school and home-based testing [20, 21]. It is unclear whether young people will return to STI or other public clinics without efforts to engage them. Potential strategies to improve STI testing among young people may include promoting STI care in collaboration with other providers and in alternative settings. Given the historically elevated risk of chlamydia/gonorrhea among young people, enhanced efforts are needed to ensure their access to high-quality STI testing and treatment services.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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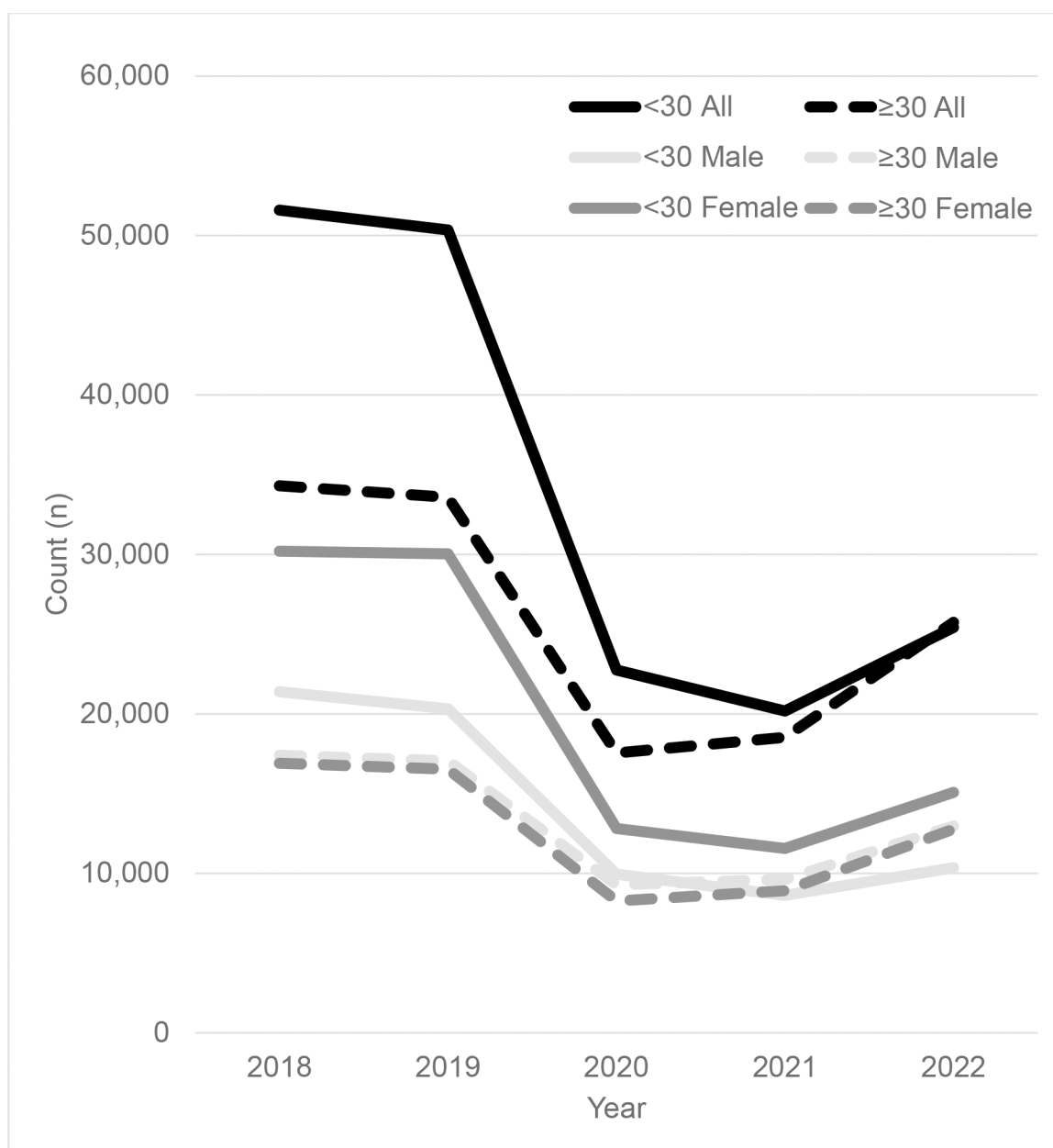


Figure 1.
Number of people tested for chlamydia/gonorrhea annually by health department STI clinics in 5 jurisdictions from 2018 to 2022, by age and sex.

Table 1.

Counts and percentage change in STD clinic visits and chlamydia/gonorrhea testing metrics in health department STI clinics* by year**, 5 jurisdictions†‡, 2018—2022.

	Year	All jurisdictions		
		TOTAL	Male	Female
Total STI clinic visits, n¹				
	2018–19**	181,509	84,534	95,381
	2020	122,335	57,088	64,928
	2021	105,228	52,153	52,770
	2022	115,677	58,087	57,172
Change (n, %): 2021 to 2022		+10,449 (+10%)	+5,934 (+11%)	+4,402 (+8%)
Change (n, %): 2018/19** to 2022		–65,832 (–36%)	–26,447 (–31%)	–38,209 (–40%)
People with STI clinic visits, n²				
	2018–19**	165,171	87,494	76,376
	2020	106,865	55,479	51,158
	2021	92,825	50,505	42,128
	2022	103,469	56,776	46,418
Change (n, %): 2021 to 2022		+10,644 (+11%)	+6,271 (+12%)	+4,290 (+10%)
Change (n, %): 2018/19** to 2022		–61,706 (–37%)	–30,717 (–35%)	–29,958 (–39%)
Total CT/GC Tests, n³				
	2018–19**	138,258	70,360	67,733
	2020	71,910	41,266	30,528
	2021	72,505	41,809	30,608
	2022	100,084	54,254	45,685
Change (n, %): 2021 to 2022		+27,579 (+38%)	+12,445 (+30%)	+15,077 (+49%)
Change (n, %): 2018/19** to 2022		–38,175 (–28%)	–16,106 (–23%)	–22,048 (–33%)
People Tested for CT/GC, n⁴				
	2018–19**	88,507	40,434	48,011
	2020	42,628	20,829	21,754
	2021	41,265	20,043	21,192
	2022	53,890	25,238	28,607
Change (n, %): 2021 to 2022		+12,627 (+31%)	+5,195 (+26%)	+7,415 (+35%)
Change (n, %): 2018/19** to 2022		–34,616 (–39%)	–15,196 (–38%)	–19,404 (–40%)
Total positive CT tests, n⁵				

	Year	All jurisdictions		
		TOTAL	Male	Female
	2018–19 **	8,853	4,617	4,235
	2020	4,374	2,446	1,928
	2021	4,818	2,603	2,215
	2022	5,888	3,050	2,838
Change (n, %): 2021 to 2022		+1,070 (+22%)	+447 (+17%)	+623 (+28%)
Change (n, %): 2018/19 ** to 2022		-2,965 (-33%)	-1,567 (-34%)	-1,397 (-33%)
People with positive CT tests, n⁶				
	2018–19 **	8,068	4,246	3,822
	2020	3,963	2,211	1,752
	2021	3,473	2,016	1,457
	2022	4,862	2,579	2,283
Change (n, %): 2021 to 2022		+10,644 (+11%)	+6,271 (+12%)	+4,290 (+10%)
Change (n, %): 2018/19 ** to 2022		-61,706 (-37%)	-30,717 (-35%)	-29,958 (-39%)
Total positive GC tests, n⁷				
	2018–19 **	4,460	3,029	1,431
	2020	3,053	2,224	829
	2021	3,365	2,306	1,059
	2022	3,512	2,396	1,116
Change (n, %): 2021 to 2022		+147 (+4%)	+90 (+4%)	+57 (+5%)
Change (n, %): 2018/19 ** to 2022		-948 (-21%)	-633 (-21%)	-315 (-22%)
People with positive GC tests, n⁸				
	2018–19 **	3,717	2,470	1,247
	2020	2,907	2,110	797
	2021	2,340	1,622	718
	2022	2,586	1,767	819
Change (n, %): 2021 to 2022		+246 (+11%)	+145 (+26%)	+101 (+35%)
Change (n, %): 2018/19 ** to 2022		-1,131 (-30%)	-703 (-28%)	-428 (-34%)
Positivity of positive CT tests, n				
	2018–19 **	6.40%	6.56%	6.25%
	2020	6.08%	5.93%	6.32%
	2021	6.65%	6.23%	7.24%
	2022	5.88%	5.62%	6.21%

	Year	All jurisdictions		
		TOTAL	Male	Female
Change absolute % (relative %): 2021 to 2022		-0.76% (-12%)	-0.60% (-10%)	+1.02% (-14%)
Change absolute % (relative %): 2018/19 ^{**} to 2022		-0.52% (-8%)	-0.94% (-14%)	-0.04% (<-1%)
Positivity of persons testing positive for CT, n				
	2018–19 ^{**}	9.12%	10.50%	7.96%
	2020	9.30%	10.62%	8.05%
	2021	8.42%	10.06%	6.88%
	2022	9.02%	10.22%	7.98%
Change absolute % (relative %): 2021 to 2022		+0.61% (+7%)	+0.16% (+2%)	+1.11% (+16%)
Change absolute % (relative %): 2018/19 ^{**} to 2022		-0.09% (-1%)	-0.28% (-3%)	+0.02% (<+1%)
Positivity of positive GC tests, n				
	2018–19 ^{**}	3.23%	4.30%	2.11%
	2020	4.25%	5.39%	2.72%
	2021	4.64%	5.52%	3.46%
	2022	3.51%	4.42%	2.44%
Change absolute % (relative %): 2021 to 2022		-1.13% (-24%)	-1.10% (-20%)	-1.02% (-29%)
Change absolute % (relative %): 2018/19 ^{**} to 2022		+0.28% (+9%)	+0.11% (+3%)	+0.33% (+16%)
Positivity of persons testing positive for GC, n				
	2018–19 ^{**}	4.20%	6.11%	2.60%
	2020	6.82%	10.13%	3.66%
	2021	5.67%	8.09%	3.39%
	2022	4.80%	7.00%	2.86%
Change absolute % (relative %): 2021 to 2022		-0.87% (-24%)	-1.09% (-20%)	-0.53 % (-29%)
Change absolute % (relative %): 2018/19 ^{**} to 2022		+0.06% (+14%)	+0.89% (+15%)	+0.27% (+10%)

* Louisiana data also included other public clinic visits for reproductive health.

** 2018/19: Average of 2018 and 2019 counts to stabilize the 'pre-COVID' period.

[†] Jurisdictions contributed STI clinic visits and CT/GC testing data as available; (¹ DC, NC, VA: n=706,257; ² DC, MI, NC, VA: n=633,509; ³ DC, LA, MI, VA: n=521,008 ; ⁴ DC, LA, MI, VA : n=314,793 ; ⁵ DC, LA, MI: n=32,785; ⁶ DC, LA, MI: n=28,433 ; ⁷ DC, LA, MI: n=18,849 ; ⁸ DC, LA, MI: n=15,266).

[‡] Sex was unknown for <1% of data for any given outcome and was excluded from the table; some totals will not add up to column total.