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Availability of Extragenital Chlamydia and Gonorrhea Testing in 6 High-Incidence States

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Background: Extragenital testing (rectal and oropharyngeal) of *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) increases the detection of CT/NG infections, compared with genital testing alone. The Centers for Disease Control and Prevention recommends annual extragenital CT/NG screening for men who have sex with men, and additional screenings for women and transgender or gender-diverse individuals if certain sexual behaviors and exposures are reported.

Methods: Prospective computer-assisted telephonic interviews were conducted with 873 clinics between June 2022 and September 2022. The computer-assisted telephonic interview followed a semistructured questionnaire that included closed-ended questions on the availability and accessibility of CT/NG testing.

Results: Of the 873 clinics, CT/NG testing was offered in 751 clinics (86.0%), and extragenital testing was offered in only 432 clinics (57.5%). Most clinics (74.5%) with extragenital testing do not offer tests unless patients request them and/or report symptoms. Additional barriers to accessing information on available CT/NG testing include clinics not picking up the telephone, disconnecting the call, and unwillingness or inability to answer questions.

Conclusions: Despite evidence-based recommendations from the Centers for Disease Control and Prevention, the availability of extragenital CT/NG testing is moderate. Patients seeking extragenital testing may encounter barriers such as fulfilling specific criteria or being unable to access information on testing availability.

Chlamydia trachomatis (CT) and *Neisseria gonorrhoeae* (NG) are the most commonly reported sexually transmitted infections (STIs) in the United States, with 1.6 million and 700 thousand reported cases of infection reported in 2021, respectively.¹ Rates of NG (per 100,000 population) have steadily risen 23.0% between 2017 and 2021.¹ Rates of CT (per 100,000 population), on the other hand, seemingly dropped between 2019 and 2020 po-

tentially because of underreporting during the COVID-19 pandemic, but increased by 2.9% again in 2021.¹ These rising STI rates disproportionately impact adolescents, young adults, and some racial and ethnic minority groups, such as Hispanic and Black individuals.² In addition, there are disparities in STI rates by state. In 2019, Alaska, Mississippi, Louisiana, South Carolina, and New Mexico ranked the highest for rates of CT, whereas Mississippi, Alaska, Alabama, South Carolina, and Louisiana ranked the highest for rates of NG.³

Although commonly tested at genital sites through urine specimens, CT and NG can also infect extragenital sites, known as oropharyngeal (i.e., throat) and rectal infections.⁴⁻⁶ Infections at these sites are often asymptomatic, causing them to be overlooked and undertreated.⁴⁻⁶ If symptomatic, the signs/symptoms can clinically present as other commonly reported symptoms, such as constipation or sore throat, causing providers to dismiss extragenital CT/NG testing.^{4,6} Extragenital infections are more frequently seen in women, transgender individuals, and men who have sex with men (MSM) compared with cisgendered non-MSM.^{4,7,8} In studies testing the prevalence of extragenital CT/NG infections among MSM, rectal infection positivity ranges from 3.0% to 10.5%, and oropharyngeal infection positivity ranges from 0.5% to 2.3%.⁷⁻⁹

Various studies have shown a significant increase in positive diagnoses of CT/NG when oropharyngeal and rectal swabs are tested in addition to routine urine specimens.⁷⁻¹² One study found that approximately 13% of extragenital NG infections in an STI clinic would go undetected if tested for genital sites alone. Another study found up to 33% missed NG diagnoses with urine specimens alone.^{11,12} Previous studies also discuss the oversight of providing STI testing on a symptomatic basis.^{5,11-13} Because most extragenital infections are asymptomatic, screening on present symptoms would miss a large percentage of diagnoses.^{5,11-13} A national survey of 42 clinics found that among MSM, more than 85% of extragenital CT and 70% of extragenital NG infections were found, despite being asymptomatic and associated with negative genital test results.¹⁴

These studies provide strong recommendations for extragenital testing based on exposure and behavior rather than symptomatic expression, especially for high-risk groups.^{11,14,15} In addition, the Centers for Disease Control and Prevention (CDC) also provides varying screening recommendations for extragenital testing depending on the STI and risk group.¹⁶ For MSM, the CDC recommends annual screening for urethral and rectal sites for CT and NG, and an additional screening of oropharyngeal sites for NG.¹⁶ For women, transgender persons, and gender-diverse persons, the CDC recommends rectal and oropharyngeal for NG, and rectal screening for CT, if sexual behaviors and exposures are reported.¹⁶

Despite numerous recommendations from academic literature and the CDC, there is no national requirement for any health care center, including primary care settings and STI clinics, to provide extragenital CT/NG testing. In addition, locations advertising available CT/NG testing rarely specify extragenital testing. Although studies have indicated the importance of extragenital CT/NG

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testing, no studies have assessed its availability and accessibility across a large sample of locations. Using a CDC list of locations offering any CT/NG testing, we surveyed health clinics in 6 states to assess the availability of extragenital CT/NG testing. In addition, barriers to receiving information on STI testing via telephone calls and criteria for receiving testing were also documented.

and NG, narrowing down the study sample to 6 states: Alabama, Alaska, Louisiana, Mississippi, New Mexico, and South Carolina, with 873 clinics that, according to the NPIN, offer both CT and NG testing.³

MATERIALS AND METHODS

Clinic Inclusion

The CDC's National Prevention Information Network (NPIN) provides a database on organizations and their provided services for HIV, STIs, tuberculosis, and hepatitis.¹⁷ Using this list, organizations were filtered by services to include "chlamydia testing" and "gonorrhea testing."¹⁷ In addition, geographic locations were filtered to include the top 5 states with the highest CT rates per population and the top 5 states with the highest NG rates per population. Four states were common among the top 5 for both CT

Questionnaire Development and Data Collection

Research staff conducted prospective computer-assisted telephone interviews with 873 clinics using a semistructured questionnaire including closed-ended questions on CT/NG testing availability, extragenital testing, and criteria for receiving extragenital testing, while noting barriers to accessing this information. The questionnaire was piloted in 50 randomly chosen clinics from our sample. To mimic a patient's experience, the research staff posed questions as interested patients rather than researchers. Figure 1 shows the logic flow and potential responses of the questionnaire.

Apart from documenting the availability of testing and barriers, the research staff also documented the duration of the call and the number of people they spoke to. The call was concluded

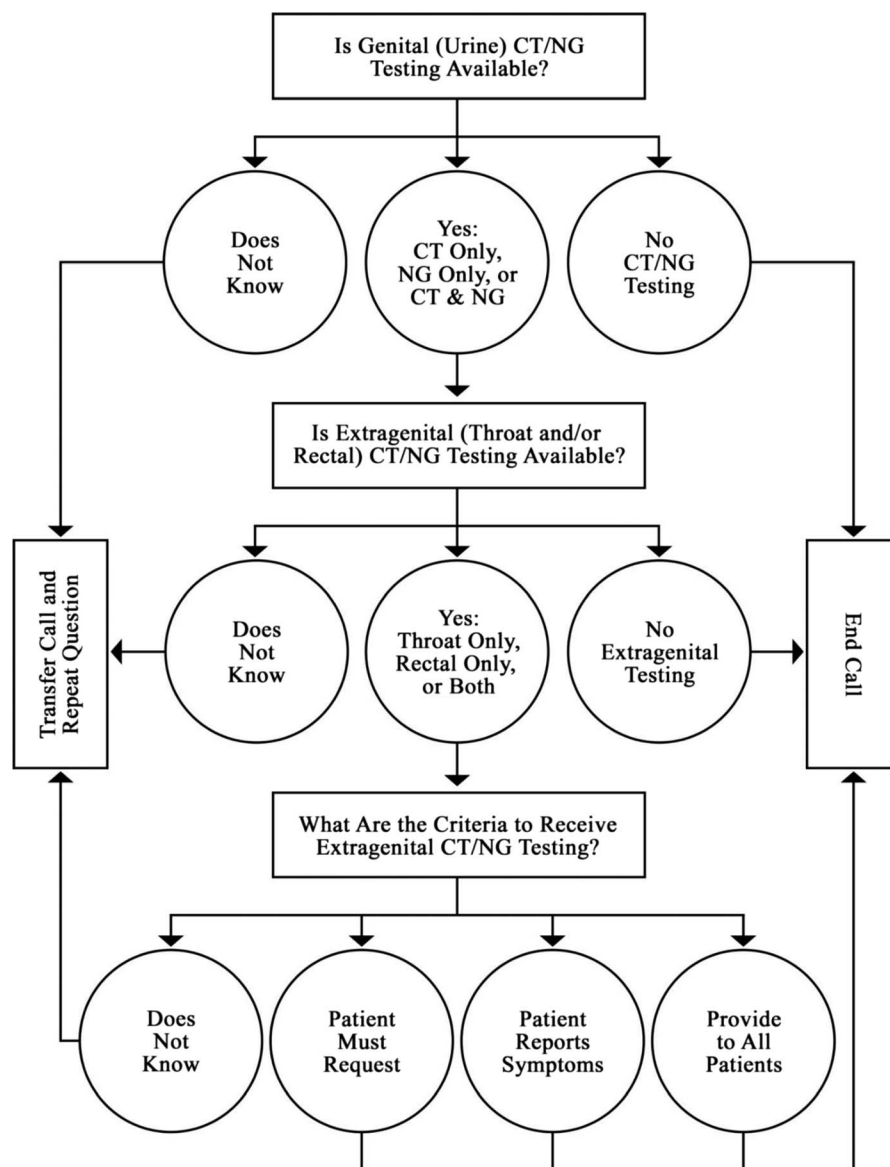


Figure 1. CATI questionnaire logic flow. CATI, computer-assisted telephone interview.

TABLE 1. STI Clinics Called About Chlamydia (CT) and Gonorrhea (NG) Testing by State

State	No. Clinics Called	%
Alabama (AL)	187	21.4
Alaska (AK)	71	8.1
Louisiana (LA)	136	15.6
Mississippi (MS)	197	22.6
New Mexico (NM)	112	12.8
South Carolina (SC)	170	19.5
Total	873	100.0

if it reached 10 minutes per clinic. If the telephone was not picked up for the first time, those clinics were called a second time 1 week later. After 2 attempts with no answer, these clinics were noted as “did not pick up” and were no longer contacted. Data-validated Excel spreadsheets were used to document all responses. The hours of operation and time zone differences were considered before calling. All analyses were performed using SAS 9.4.

RESULTS

Clinics Called

Table 1 reports the number of clinics called by state. Of the 873 clinics called, 197 were from Mississippi (22.6%), 187 from Alabama (21.4%), 170 from South Carolina (19.5%), 136 from Louisiana (15.6%), 112 from New Mexico (12.8%), and 71 from Alaska (8.1%). Seven hundred eighty-five clinics (89.9%) picked up the telephone and provided responses. Among these 785 clinics, the average duration of each call was 4.25 minutes

and the average number of clinic staff members spoken to was approximately 2.

CT/NG Testing Availability

Table 2 reports the availability of CT/NG testing. Of 785 clinics that picked up the telephone, 751 reported having CT or NG testing available: 750 (95.5%) clinics reported having both CT and NG testing available, 29 (3.7%) had neither available, and 1 (0.1%) had only CT testing available. By state, Louisiana had the highest percentage of clinics offering both CT and NG testing (97.8% [133 of 136 clinics]), followed by Mississippi (94.4% [186 of 197 clinics]), Alaska (83.1% [59 of 71 clinics]), Alabama (81.8% [153 of 187 clinics]), New Mexico (79.5% [89 of 112 clinics]), and South Carolina (76.5% [130 of 170 clinics]). Eighty-eight clinics did not pick up the telephone; 5 clinics that picked up the telephone were unable or unwilling to answer questions about CT/NG testing availability.

Extragenital CT/NG Testing Availability

Of the 751 clinics that offered any CT and/or NG testing (750 clinics offered both, and 1 offered CT only), 432 (57.5%) offered extragenital testing: 415 (55.3%) offered both oropharyngeal and rectal testing, 15 (2.0%) offered only oropharyngeal testing, and 2 (0.3%) offered only rectal testing. Among the clinics offering any extragenital testing by state, Mississippi had the highest percentage at 142 of 187 clinics (75.9%), followed by Louisiana (96 of 133 [72.2%]), Alaska (37 of 58 [62.7%]), and New Mexico (48 of 89 [53.9%]). Alabama and South Carolina had the lowest percentages of clinics offering extragenital testing at 36.0% (55 of 153 clinics) and 41.5% (54 of 130 clinics), respectively. Of the 751 clinics that offered CT and/or NG testing, 295 (39.3%) did

TABLE 2. Availability and Accessibility of Extragenital Chlamydia (CT) and Gonorrhea (NG) Testing by State

State	Alabama		Alaska		Louisiana		Mississippi		New Mexico		South Carolina		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
CT/NG testing availability														
Yes, both CT and NG	153	81.8	59	83.1	133	97.8	186	94.4	89	79.5	130	76.5	750	85.9
Yes, CT only	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	1	0.1
Yes, NG only	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
No, neither CT nor NG	5	2.7	12	16.9	3	2.2	1	0.5	5	4.5	3	1.8	29	3.3
Did not pick up the phone	28	15.0	0	0.0	0	0.0	9	4.6	15	13.4	36	21.2	88	10.1
Unable/unwilling to answer questions about CT/NG Testing	1	0.5	0	0.0	0	0.0	0	0.0	3	2.7	1	0.6	5	0.6
Extragenital CT/NG testing availability														
Yes, oropharyngeal and rectal	52	27.8	36	50.7	92	67.7	138	70.1	47	42.0	50	29.4	415	47.5
Yes, oropharyngeal only	2	1.1	1	1.4	4	2.9	4	2.0	1	0.9	3	1.8	15	1.7
Yes, rectal only	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	1	0.6	2	0.2
No, neither oropharyngeal nor rectal	92	49.2	22	31.0	37	27.2	45	22.8	40	35.7	59	34.7	295	33.8
Unable/unwilling to answer questions about extragenital testing	6	3.2	0	0.0	0	0.0	0	0.0	1	0.9	17	10.0	24	2.8
Not applicable*	34	18.2	12	16.9	3	2.2	10	5.1	23	20.5	40	23.5	122	14.0
Extragenital testing criteria														
Provide to all patients	10	5.4	0	0.0	34	25.0	50	25.4	15	13.4	1	0.6	110	12.6
Patient must request	22	11.8	37	52.1	37	27.2	49	24.9	15	13.4	31	18.2	191	21.9
Patient reports symptoms	18	9.6	0	0.0	24	17.7	42	21.3	15	13.4	15	8.8	114	13.1
Patient must request and report symptoms	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	2.4	4	0.5
Other	4	2.1	0	0.0	1	0.7	0	0.0	3	2.7	1	0.6	9	1.0
Unable/unwilling to answer questions about extragenital testing criteria	1	0.5	0	0.0	0	0.0	1	0.5	0	0.0	2	1.2	4	0.5
Not applicable*	132	70.6	34	47.9	40	29.4	55	27.9	64	57.1	116	68.2	441	50.5
Total	187	100.0	71	100.0	136	100.0	197	100.0	112	100.0	170	100.0	873	100.0

*Clinics are categorized as “not applicable” if they are included in one or more of the following: did not pick up the phone, reported no CT/NG testing availability, reported no extragenital testing availability, and/or unable/unwilling to answer questions.

TABLE 3. Barriers to Accessing Information on Extragenital Chlamydia (CT) and Gonorrhea (NG) Testing Via Telephone Call

State	Alabama		Alaska		Louisiana		Mississippi		New Mexico		South Carolina		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Barriers														
Clinic closed for maintenance	0	0.0	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0	1	0.1
Did not pick up phone the first time	14	7.5	0	0.0	4	2.9	9	4.6	7	6.3	19	11.2	53	6.1
Did not pick up phone the second time	11	5.9	0	0.0	0	0.0	8	4.1	9	8.0	22	12.9	50	5.7
Disconnected phone line	0	0.0	0	0.0	0	0.0	0	0.0	5	4.5	0	0.0	5	0.6
Hung up the phone	10	5.4	0	0.0	0	0.0	0	0.0	0	0.0	4	2.4	14	1.6
Invalid phone number	1	0.5	0	0.0	0	0.0	0	0.0	0	0.0	10	5.9	11	1.3
Transferred (unable to complete questionnaire)	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9	0	0.0	1	0.1
Did not answer questions	10	5.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	1.2
No barriers reported	141	75.4	71	100.0	132	97.1	179	90.9	90	80.4	115	67.7	728	83.4
Total	187	100.0	71	100.0	136	100.0	197	100.0	112	100.0	170	100.0	873	100.0

not offer any extragenital testing. One hundred twenty-two clinics did not pick up the telephone, were unable or unwilling to answer questions about CT/NG testing availability, or previously answered as having no CT/NG testing available. Twenty-four clinics that picked up the telephone were unable or unwilling to answer questions regarding the availability of CT/NG extragenital testing.

Extragenital Testing Criteria

Among the 432 clinics offering CT/NG extragenital testing, 110 (25.5%) provided extragenital testing to all patients as a standard procedure, 191 (44.2%) responded that the patient needs to request extragenital testing specifically, 114 (26.4%) responded that extragenital testing is only available for patients who report symptoms, 9 (2.1%) responded that other criteria must be met, and 4 (0.9%) responded that 2 criteria are required: patients need to request it and report symptoms.

By state, Louisiana (35.4%) and Mississippi (35.2%) have the highest percentage of clinics with no criteria for extragenital testing (“Provide to all patients”). Clinics in other states have a range of criteria; however, every clinic in Alaska responded that patients should specifically request extragenital testing. South Carolina is the only state in which some clinics require patients to request extragenital testing and report their symptoms.

Barriers to Accessing Information on Testing

A total of 145 clinics were recorded as having barriers to accessing information on CT/NG testing via telephone calls. These barriers included not picking up the telephone, disconnecting the call after picking up the telephone, and being unable/unwilling to answer. Clinics that did not pick up the telephone were recorded with the following barriers: “clinic closed for maintenance” (0.7%), “did not pick up phone the first time” (36.6%), “did not pick up phone the second time” (34.5%), “disconnected phone line” (3.5%), or “invalid phone number” (7.6%). Clinics that discontinued the call were recorded with the following barriers: “hung up the phone” (9.7%), “transferred (unable to complete questionnaire)” (0.7%), and “did not answer questions” (6.9%). Notably, South Carolina had the highest percentage of clinics that did not pick up the first or second calls (34.6% and 40.0%, respectively). Alabama had the highest percentage of clinics that hung up the telephone during the call (21.7%) and were unable/unwilling to answer questions (21.7%; Table 3).

DISCUSSION

We found that most (751 of 781 [96.2%]) surveyed clinics offered at least one form of CT/NG testing; however, there were still 29 clinics in our sample that had no CT/NG testing available.

This is concerning, as we received our sample location from the CDC NPIN database, which claims that all these clinics offered some form of CT/NG testing.¹⁷ This discrepancy is especially notable by state: 16.9% of clinics in Alaska reported not having CT or NG testing available.

Despite existing CDC screening recommendations for oropharyngeal and rectal CT/NG testing,¹⁶ more than half (432 of 751 [55.3%]) of the clinics surveyed offered any extragenital testing. The availability of extragenital testing varies widely by state, with less than half of the clinics in Alabama and South Carolina offering extragenital testing for both CT and NG. At the higher end, approximately three-quarters of clinics in Mississippi and Louisiana offer extragenital CT/NG testing. The lack of extragenital testing is concerning as multiple studies have demonstrated its importance in detecting infections that would otherwise be missed from genital testing alone.⁷⁻¹²

The lack of extragenital testing disproportionately affects women, transgender individuals, and MSM who are more likely to contract extragenital CT/NG.^{4,18} Although most of the literature focuses on MSM and/or transgender individuals, some studies have indicated that a majority of women who report genital CT/NG infections have concurrent asymptomatic extragenital infections and would benefit from increased extragenital CT/NG testing.^{4,18} Our findings also demonstrate that a quarter of clinics offering extragenital testing require patients to have symptoms present to receive testing. However, because a majority of extragenital infections are asymptomatic, especially in women, many studies caution providing extragenital CT/NG testing solely based on clinical symptoms, especially in high-risk settings such as STI clinics.^{5,10-13} Other studies also caution against CT/NG testing based on reported behaviors, especially for women, as most women with extragenital infections do not report anal or oral sex.^{10,13} Common reasons for not reporting include lack of awareness, stigma, and fear of discrimination.^{7,19} Although our questionnaire did not have separate criteria dedicated to testing based on reported behavior, a majority of clinics categorized in the “other” or symptoms-based categories responded that certain reported behaviors are necessary to receive testing as well.

In addition to recording the criteria required to receive testing, this study also recorded any barriers that may prevent an individual from seeking information about STI testing via telephone calls. Common barriers recorded included clinics not picking up the telephone or unable/unwilling to answer questions. Our findings also suggest that barriers of stigma, fear of discrimination, and lack of awareness are present when individuals seek information regarding extragenital CT/NG testing. Although these measures were not officially included in the study, it was noted that nearly a quarter of the clinics answered with hostility or even refused to answer questions regarding extragenital STI testing. This

barrier was also noted to be more prevalent in South Carolina and Alabama, the 2 states with the lowest percentage of clinics offering extragenital testing.

There were 2 key limitations. First, the team of researchers contacting clinics consisted of all women. Because these researchers acted as inquiring patients for the purpose of the study, this may cause the call recipient to provide CT/NG testing information specifically for women, and potentially result in an inaccurate assessment of extragenital testing accessibility for the general public. Second, the call recipients primarily consisted of front desk staff, who may not be fully knowledgeable about the available STI services. Previous studies have demonstrated the importance of knowledgeable front desk staff in patients' healthcare experience, behaviors, and health.^{20–22} In particular, knowledge gaps regarding available clinic services are associated with missed opportunities for youth to seek and access care.^{21,22} Because this study aimed to identify barriers to patient service access, we did not validate for the accuracy of information provided; however, we acknowledge that the results may differ if we were able to speak to a medical provider instead.

In conclusion, testing for CT/NG at extragenital sites is an important public health effort aimed at curbing STI transmission. Despite its importance, only more than half of the clinics surveyed in this study offered extragenital testing for CT or NG. Because most extragenital infections are asymptomatic or undetected due to underreporting of sexual behaviors, efforts should be made to ensure extragenital testing does not rely solely on symptoms or reported sexual behaviors.^{4–6,18} Additional considerations should be made regarding how clinics advertise and inform the public about their available STI services. This would alleviate barriers of misinformation, lack of awareness, access to information, and stigma/discrimination when seeking CT/NG information via telephone calls.

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