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Effect of the COVID-19 Pandemic on Chlamydial Infection Treatment in Women Discharged From an Urban Safety-Net Emergency Unit

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Background: Chlamydia is the most frequently reported sexually transmitted infection. COVID-19 exacerbated the challenges in treating and preventing new *Chlamydia trachomatis* (CT) infections. This study examined the impact of COVID-19 on treating CT-positive patients discharged from a safety-net women's emergency unit.

Methods: This was a preretrospective and postretrospective cohort study. *Chlamydia trachomatis*-positive female patients seen in the women's emergency unit were evaluated. Patients discharged in 2019, the "pre-COVID-19" group, and those discharged in 2020, the "COVID-19" group, were compared. The primary outcome was CT treatment within 30 days, and secondary outcomes included prescription dispensation, repeat tests taken, and expedited partner treatment. A subgroup of patients discharged before treatment who entered a nurse-led follow-up program was also evaluated.

Results: Of the 1357 cases included, there were no differences in successful 30-day treatment (709 of 789 [89.9%] vs. 568 of 511 [89.9%], $P = 0.969$) or repeat positive CT test (74 of 333 [22.2%] vs. 46 of 211 [21.8%]), $P = 0.36$) between pre-COVID-19 and COVID-19. However, the patients who picked up their prescription (196 of 249 [78.7%] vs. 180 of 206 [87.4%], $P = 0.021$) and those who were prescribed expedited partner therapy (156 of 674 [23.1%] vs. 292 of 460 [63.5%], $P < 0.001$) increased. Findings in the subgroup of patients who entered the follow-up program were consistent with those in the full cohort.

Conclusions: The COVID-19 pandemic did not change treatment patterns of CT-positive patients in this safety-net women's emergency unit. However, patients were more likely to pick up their medications during COVID-19. Despite the perseverance of these programs through the pandemic, most patients are discharged before positive results, and a fair amount remain untreated.

The US Department of Health and Human Services released a Sexually Transmitted Infection (STI) National Strategic Plan in 2020 to address the rising cases of STIs in the past decade. However, the United States experienced fallbacks in its attempts to control the spread of STIs because of the sudden onset of the COVID-19 pandemic. Many sexual health screenings and services were delayed because available resources were shifted toward treating COVID-19 patients. Furthermore, patients were encouraged to stay away from hospitals and clinics in the absence of urgent concerns or symptoms, leading to sharp reductions in visits to STI clinics.¹

Chlamydia trachomatis (CT) is the most frequently reported bacterial STI in the United States. Female individuals are disproportionately affected by this disease, which increases the risk of ectopic pregnancy, progresses to pelvic inflammatory disease, and causes permanent damage to their reproductive systems when left untreated. In pregnant patients, chlamydia can cause dire consequences in their newborns including premature delivery, ophthalmic conjunctivitis, and pneumonia.² Most CT-positive patients are asymptomatic, which hinders screening efforts, delays timely treatment, and cultivates community spread.³

The transmission of chlamydia is affected by not only the timely treatment of index patients but also their sexual partners. In 2006, a landmark report by the Centers for Disease Control and Prevention supported expedited partner therapy (EPT) as a method of partner treatment and prevention of reinfections for chlamydia in heterosexual populations. Several randomized trials demonstrated the benefit of prescribing partner treatment without medical evaluation. However, there are challenges in studying EPT in real-world settings, such as how to determine valid outcomes to measure and homing in on populations with the same risk factors for infection.^{4,5}

A women's emergency unit setting within a safety-net county hospital poses a unique challenge related to the rapid rates of patient turnover leading to test results pending at discharge. A traditional combination nucleic acid amplification test for chlamydia and gonorrhea typically takes 1 to 4 days, whereas patients typically spend less than 12 hours in the emergency department (ED).^{6,7} Designated callback personnel that notify patients testing positive after discharge are effective in reducing loss to follow-up.⁸ However, the impact of the COVID-19 pandemic on such established follow-up programs has not been well studied.

The overlap of the COVID-19 pandemic with the rising cases of chlamydia presents a necessity for research on the interaction of these 2 complex epidemiological phenomena. In this study, we evaluated the impact of COVID-19 on treating CT-positive patients discharged from a safety-net women's emergency unit.

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METHODS

Data Source and Population

The study site was an urban safety-net ED staffed by the obstetrics/gynecology emergency service (OGES). *Chlamydia trachomatis*-positive female patients who were older than 15 years and discharged between January 1, 2019, and December 31, 2020, were retrospectively evaluated. Patients who tested positive again more than 6 months after the initial case were counted as a new case. The year 2019 was considered “pre-COVID-19,” and 2020 was considered “COVID-19.” This study received an exempt determination by the UT Southwestern Institutional Review Board.

The process for women presenting to the OGES begins with screening and ends with treatment. Patients can be treated empirically while in the ED, or they will enter into the nurse-led discharge program.

Nurse Follow-up Protocol

The nurse followed an algorithm to contact discharged CT-positive patients from a daily list in the electronic medical record (EMR). First, patients were contacted through the electronic patient portal, followed by telephone number(s) starting with the primary number and ending with emergency contacts. Documentation in the EMR was noted for each attempted call, up to a maximum of 3 tries. If the patient was successfully reached, the nurse followed a standardized script to (1) notify the patient of their positive result, (2) offer the patient a prescription for antibiotic treatment (if not already treated), and (3) offer EPT prescriptions for anyone the patient had sexual contact with up to 60 days before the CT diagnosis (EPT protocol was added in August 2019).⁹ If a prescription for partner treatment was offered but not given, the note included the reason not accepted. For patients concomitantly infected with CT and *Neisseria gonorrhoeae*, the nurse offered a referral to the county health services where the patient's partner could receive treatment for both infections. Finally, if telephonic and electronic attempts to reach the patient after discharge failed, a certified letter with clinic and follow-up nurse contact information was mailed to the address on file.

Measures

Treatment was defined as the index patient receiving either a doxycycline 100 mg twice daily for 7 days or the alternative regimen of 1-time azithromycin 1 g. Methods of medication delivery included directly observed therapy (DOT), dispensed from a clinic pharmacy, prescribed to a retail pharmacy, or patient-reported treatment at an external facility. Patients given empiric treatment of chlamydia before discharge in OGES were excluded from the subgroup analysis of the nurse-led discharge program, which included any patients who left the emergency unit before receiving the diagnosis of chlamydia. The primary outcome was ordered antibiotic treatment within 30 days of discharge from OGES. Odds of treatment within 30 days were analyzed on patient characteristics, including history of STI, discharging provider, time to treat, age, ethnicity/race, relationship status, pregnancy status, insurance status, and available modes of contact.

Secondary outcomes included whether treatment was picked up, if EPT was prescribed, and CT follow-up testing rates and results. Prescription dispensations from internal pharmacies were used to confirm if patients picked up their medication. External retail prescriptions were excluded from dispensation analysis because of unavailable pharmacy records. Expedited partner therapy status for each discharge record was collected by combining electronic prescription orders with manual chart review of notes. Repeat CT testing and results were included if completed within 6 months. Lastly, patients were considered ineligible for EPT and thus not included in the analysis if they met any 1 of 3 exclusion criteria: (1) concurrent infected with gonorrhea, (2) HIV positive, or (3) episode of care due to a reported sexual assault.

Statistical Analysis

Demographics and outcomes were evaluated between pre-COVID-19 and COVID-19 with the χ^2 test for categorical data and Student *t* test for continuous data. For skewed data, the Mann-Whitney test was used. Results were considered significant at a *P* value <0.05. Factors contributing toward timely antibiotic treatment were analyzed via odds ratios (ORs) calculated based on a multivariable logistic regression.¹⁰ Clinical covariates selected based on plausibility were transformed to be binary for applicable categorical factors. Reference group for each transformation was

TABLE 1. Demographics of All Patients Older Than 15 Years With Chlamydial Infections

	Overall (N = 1337)	Pre-COVID-19 (n = 785)	COVID-19 (n = 553)	<i>P</i>
Age, mean (SD), y	24.7 (7.5)	24.9 (7.5)	24.5 (7.4)	0.304
Pregnant	409 (30.6%)	257 (32.7%)	151 (27.4%)	0.041
Relationship status				0.005
In a committed relationship	285 (21.3%)	186 (23.7)	99 (17.9%)	
Single	1049 (78.5%)	599 (76.3%)	450 (81.5%)	
Unknown	3 (0.2%)	0 (0.0%)	3 (0.5%)	
Ethnicity/race				0.958
Hispanic	792 (59.3%)	469 (59.7%)	323 (58.5%)	
White	89 (6.7%)	53 (6.8%)	36 (6.5%)	
Black	449 (33.6%)	259 (33.0%)	190 (34.4%)	
Other	7 (0.3%)	4 (0.5%)	3 (0.5%)	
Payor				0.162
Self-pay	613 (45.8%)	364 (46.4%)	257 (46.6%)	
Commercial	179 (13.4%)	109 (13.9%)	70 (12.7%)	
Medicaid	386 (28.8%)	227 (28.9%)	159 (28.8%)	
Medicare	10 (0.7%)	2 (0.3%)	8 (1.4%)	
Charity	141 (10.5%)	83 (10.6%)	58 (10.5%)	
Other	8 (0.6%)	4 (0.5%)	4 (0.7%)	

determined by clinically estimated impact. For inclusion into the final regression model for both cohorts, the initial covariates were first collapsed into the reference group or otherwise eliminated if sample size was insufficient ($n \leq 10$) or caused quasi-separation. All statistical analyses were performed with Python 3.7 (Python Software Foundation).

RESULTS

There were 1337 patients with CT infections enrolled in the study who were seen by OGES. There was no statistical difference in the ethnic or racial characteristics, age, payor, or chlamydial treatment in the full cohort population between the pre-COVID-19 and COVID-19 periods. However, more patients reported being in a committed relationship or being pregnant during the pre-COVID-19 period (23.7% vs. 17.9% [$P = 0.005$] and 32.7% vs. 27.4% [$P = 0.041$], respectively; Table 1).

For the primary outcome, 1357 cases in the full cohort were considered. The higher number of cases than unique patients was due

to 20 patients who had 2 index infections within the study period. Most patients were given antibiotic treatment within 30 days, and there was no difference in the rate of treatment before COVID-19 and during COVID-19 (89.9% vs. 89.9%, $P = 0.969$). Of those treated within 30 days, 433 (31.9%) were treated empirically before discharge from the emergency unit, leaving 924 patients who entered the nurse-led discharge program who were evaluated as a subgroup. In the nurse-led discharge program, although treatment rates were lower than the full cohort, there was no difference in treatment given within 30 days in the pre-COVID-19 and COVID-19 periods (85.1% vs. 85.3%, $P = 0.996$; Table 2).

A lower percentage of patients who used an internal pharmacy picked up their prescriptions pre-COVID-19 when compared with the COVID-19 period (196 of 249 [78.7%] vs. 180 of 206 [87.4%], $P = 0.021$). Forty percent of patients repeated nucleic acid amplification test chlamydia samples within 6 months in both the full cohort and the subgroup of those entering the nurse-led discharge program. There was a nonstatistically significant decrease in repeat testing from pre-COVID-19 compared with

TABLE 2. Primary and Secondary Treatment Outcomes for Cases Diagnosed With Chlamydial Infections in the Obstetrics-Gynecology Emergency Services Unit

	Overall (N = 1357)	Pre-COVID-19 (n = 789)	COVID-19 (n = 568)	P
Primary outcome: full cohort				
Cases treated within 30 d of discharge	1220 (89.9%)	709 (89.9%)	511 (89.9%)	0.969
Secondary outcomes: full cohort				
Mode of prescription delivery				0.109
Outside facility	3 (0.2%)	3 (0.4%)	0 (0%)	
Internal pharmacy	455 (37.3%)	249 (35.1%)	206 (40.3%)	
DOT	590 (48.4%)	349 (49.2%)	241 (47.2%)	
Class D	17 (1.4%)	13 (1.8%)	4 (0.8%)	
External pharmacy	155 (12.7%)	95 (13.4%)	60 (11.7%)	
Prescription picked up*	376/455 (82.6%)	196/249 (78.7%)	180/206 (87.4%)	0.021
Cases retested within 6 mo [†]	544/1357 (40.1%)	333/789 (42.2%)	211/568 (37.1%)	0.090
Repeat CT (+) within 6 mo	120/544 (22.1%)	74/333 (22.2%)	46/211 (21.8%)	0.360
Avg. no. days for repeat test, mean (SD)	64.0 (41.8)	63.4 (41.0)	64.8 (43.1)	0.691
	Overall (N = 924)	Pre-COVID-19 (n = 536)	COVID-19 (n = 388)	P
Primary outcome: nurse-led postdischarge program				
Cases treated within 30 d of discharge	787 (85%)	456 (85.1%)	331 (85.3%)	0.996
Secondary outcomes: nurse-led postdischarge program				
Ambulatory antibiotic prescribed				0.677
None	90 (9.7%)	49 (9.1%)	41 (10.6%)	
Azithromycin	823 (89.1%)	481 (89.7%)	342 (88.1%)	
Doxycycline	10 (1.1%)	5 (0.9%)	5 (1.3%)	
Amoxicillin	1 (0.1%)	1 (0.2%)	0 (0.0%)	
Mode of prescription delivery				0.114
Outside facility	3 (0.3%)	3 (0.7%)	0 (0%)	
Internal Pharmacy	437 (55.5%)	241 (52.9%)	196 (59.2%)	
DOT	192 (24.4%)	112 (24.6%)	80 (24.2%)	
Class D	17 (2.2%)	13 (2.9%)	4 (1.2%)	
External Pharmacy	138 (17.5%)	87 (19.1%)	51 (15.4%)	
Prescription picked up*	361/437 (82.6%)	190/241 (78.8%)	171/196 (87.2%)	0.029
Cases retested within 6 mo [†]	336/924 (39.6%)	227/536 (42.4%)	139/388 (35.8%)	0.072
Repeat CT (+) within 6 mo	84/336 (25.0%)	53/227 (23.3%)	31/139 (22.3%)	0.918
Avg. no. days for repeat test, mean (SD)	67.1 (42.9)	68.9 (42.8)	64.5 (43.1)	0.324

*Receipt of prescription only evaluated for those filled in the internal pharmacy for the health system.

[†]Percent of total cases that had repeat testing conducted.

during COVID-19 period in the full cohort (333 of 789 [42.2%] vs. 211 of 568 [37.1%], $P = 0.09$) and the subgroup (227 of 536 [42.4%] vs. 139 of 338 [35.8%], $P = 0.072$). Other secondary outcomes including percentage of positive CT results in those who took a repeat test within 6 months and the average number of days for repeat testing were not different before COVID-19 and during COVID-19 in either the full cohort or the subgroup (Table 2).

Odds ratios that were significant by univariate analysis were included in a multivariate regression and labeled as adjusted in Figure 1, and the remaining variables were labeled as unadjusted. In the full cohort of patients, those with concurrent chlamydial and gonorrheal infections were less likely to receive timely treatment compared with patients who only tested positive for chlamydia (OR, 2.2; 95% confidence interval [CI], 1.3–3.5). Those who did not have a previous syphilis result available were less likely to receive timely treatment compared with those with a negative syphilis test result (OR, 2.6; 95% CI, 1.7–4.0). Those without health insurance were less likely to be treated within 30 days compared with patients with commercial health insurance (OR, 2.3; 95% CI, 1.4–3.8). In addition, patients without an active electronic patient portal or without a phone number were less likely to receive timely treatment compared with those with working means of communication (ORs of 2.7 [95% CI, 1.4–5.2] and 1.92 [95% CI, 1.3–2.8], respectively; Fig. 1). Similarly, the multivariate regression analysis of the subgroup revealed self-pay (OR, 2.6; 95% CI, 1.5–4.5), concurrent gonorrhea (OR, 3.0; 95% CI, 1.8–5.1), inactive patient portal (OR, 2.9; 95% CI, 1.5–5.8), and unavailable telephone number (OR, 2.1; 95% CI, 1.4–3.2) to be the variables significant for decreased odds of timely treatment. There was a nonstatistically significant trend in pregnant patients being more likely to be treated in both the full cohort (OR, 0.6; 95% CI, 0.3–1.0) and the subgroup (OR, 0.6; 95% CI, 0.4–1.1).

Overall, 39.5% of the 1134 patients eligible for EPT were prescribed partner treatment. Eight months into 2019, an EPT healthcare initiative was implemented. There was an increase in the proportion of patients who were prescribed EPT from pre-COVID-19 to COVID-19 (156 of 674 [23.1] vs. 292 of 460 [63.5%], $P < 0.001$) as well as the proportion of patients who were offered but then declined EPT (59 of 674 [8.8%] vs. 93 of 460

[20.2%], $P < 0.001$). The proportion of patients not offered EPT because of loss to follow-up stayed similar (100 of 674 [14.8%] vs. 64 of 460 [13.9%], $P = 0.717$) and the number of referrals to the health department decreased (359 of 676 [53.1%] vs. 11 of 461 [2.4%], $P < 0.001$). The same trend was evident for the nurse-led postdischarge follow-up subgroup, with increased acceptance of EPT (113 of 480 [23.5%] vs. 213 of 332 [64.1%], $P < 0.001$), increased refusal of EPT (43 of 480 [9.0%] vs. 66 of 332 [19.9%], $P < 0.001$), unchanged loss to follow-up (76 of 480 [15.8%] vs. 50 of 332 [15.1%], $P = 0.841$), and decreased referrals to the health department (248 of 480 [51.7%] vs. 3 of 332 [0.9%], $P < 0.001$; Fig. 2).

DISCUSSION

Primary/Secondary Outcomes

Overall, 90% of patients discharged from OGES received timely treatment of CT within 30 days before and during the first year of the COVID-19 pandemic. In addition, those in the nurse-led follow-up program after discharge received timely treatment 85% of the time during both periods. These results indicate that our existing postemergency discharge follow-up program persevered during COVID-19, mirroring the reported treatment rates from prepandemic studies of 75% to 92%.^{11,12} However, 15% of patients remained untreated in the nurse-led postdischarge follow-up process, which indicates that improvement is still needed to stop the spread of CT infections.

Patients presenting to OGES during COVID-19 were more likely to be single and not pregnant, consistent with the finding that crude birth rates declined early in the pandemic in several high-income countries.¹³ Although single relationship status has previously been linked to a higher risk of CT infections, nonpregnant status has been shown to be a negative risk factor.¹⁴ It is not clear if the COVID-19 cohort was at any higher risk of contracting chlamydia, but being pregnant trended toward a higher likelihood of being treated within 30 days versus not being pregnant. However, the difference in pregnancy status between the pre-COVID-19 and COVID-19 cohorts did not result in higher treatment rates despite this trend.

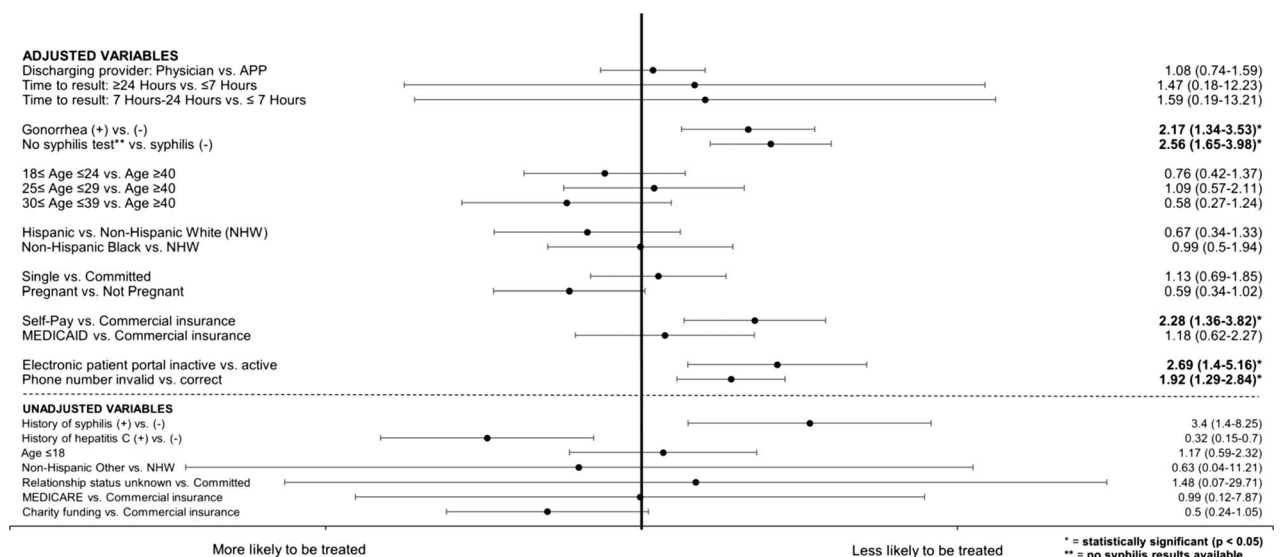


Figure 1. Odds of different variables' effect on patients being treated within 30 days for the full cohort of patients. Variables not included in multivariate regression are shown in the unadjusted variable section, and those included in the multivariate regression are represented by the adjusted variables section.

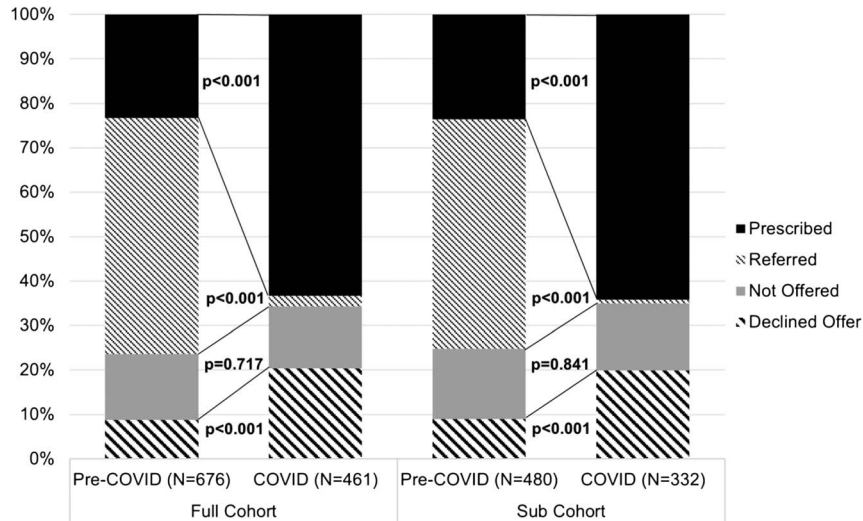


Figure 2. Expedited partner treatment prescribing habits before and after the COVID-19 pandemic.

The decrease in cases from pre-COVID-19 to COVID-19 may reflect the paucity of ED visits for nonemergent conditions during the lockdown in early 2020.¹⁵ The trend toward a decrease in repeat testing rates after the onset of COVID-19 further hints at the influence of the pandemic on patients' behaviors with respect to in-person clinical visits.

In contrast, the significant increase in the proportion of patients picking up their prescriptions at the internal safety-net pharmacy during the COVID-19 pandemic suggests different motivations for treating known infections. We postulate that patients risking the visit to the hospital during lockdown may have had a higher perceived need for treatment, which may have motivated more patients to fill their prescriptions. Nationally, prescription drug claims were variable across different drug classes, and although the overall number of dispensations went down, there were some medications that patients filled more than others, suggesting selective adherence during the pandemic.¹⁶

The high rate of asymptomatic patients with CT poses a barrier to prescribing empiric treatment at the cost of stewardly usage of antibiotics. In our study, one-third of patients were treated empirically, a practice that is provider dependent based on a collection of variable signs and symptoms.¹⁷ In addition, during the time period studied, patients were primarily treated with 1 dose of azithromycin through DOT, which was the standard of care before the 2021 Centers for Disease Control and Prevention guideline-recommended 7-day course of doxycycline.¹⁸ This change was attributed to recent literature noting a risk of CT treatment failure. In addition, doxycycline was found to be more efficacious in the treatment of both rectal and oropharyngeal chlamydial infections, which can increase the likelihood of persistent urogenital infections when inadequately treated.^{19,20} Despite these therapeutic advantages of doxycycline over single-dose azithromycin, patient nonadherence to the recommended 7-day regimen is a potential limitation to its use.²¹ This raises further questions regarding its utility in patients who are at higher risk of being lost to follow-up.²² Considering these concerns, faster reliable testing and treatment of CT before the patient's discharge from emergency services supports the best patient care along with good stewardship of antibiotic use.²³

Even with the implementation of rapid diagnostic testing, there will be patients that are discharged from the ED before results being received. In addition, all patients will need to schedule a follow-up laboratory screening. Not having an active patient portal to access health records or an accurate telephone number on file

increased the risk of not receiving timely treatment. Patient portals have been associated with increased patient-reported convenience and improved overall health.²⁴ Because the electronic patient portal is the first-line method of communication by the nurse for follow-up, it was logically sound that patients without access to it were less likely to be treated via follow-up. However, socioeconomic barriers have been shown to hinder patient portal enrollment. The association is mediated by factors such as health literacy and access to the Internet.²⁵ Jones et al.²⁶ demonstrated the usefulness of telephone callback programs in the ED, and our findings that having an accurate telephone number was associated with timely treatment confirmed its effectiveness in patient education and follow-up care. Future attempts should be made to increase health literacy and patient portal uptake in lower socioeconomic groups, as well as to ensure that alternate methods of communication are guaranteed before discharge.

Self-paying patients in our cohort were found to be significantly less likely to be treated compared with patients with commercial/Medicare payors, contrary to previous literature that reported no association between insurance and STI treatment.²⁷ Prior studies have also shown that access to continuous health insurance coverage was associated with fewer chlamydial infections.²⁸ Our findings in self-paying patients suggest that disparities in access to care contribute to the prevalence of chlamydia.

Another finding was that patients with a concurrent infection of *N. gonorrhoeae* were less likely to be treated compared with patients with chlamydia alone. The standard treatment for a gonorrheal infection, which requires an intramuscular injection of ceftriaxone in-person, may serve as an additional barrier to treatment compliance. However, patients seeking clinic administered injections for gonorrhea may have received treatment for chlamydia at clinic locations not connected to our EMR, creating a potential for missing data versus nontreatment of chlamydia. Patients without a previous syphilis test result were found to be significantly less likely to receive timely treatment compared with those previously screened. We hypothesize that not having been previously screened for syphilis may indicate that the patient has a lower likelihood of sexual risk factors that may otherwise flag to providers for the potential need for treatment.¹⁸

The increase in offered EPT from 2019 to 2020 was likely influenced by a healthcare improvement initiative that was implemented at the system level mid-August 2019.^{4,9} Because the intervention occurred halfway through the pre-COVID year, it is

difficult to generalize the findings through the context of pre-COVID-19 and during COVID-19. Despite the increase in EPT, rates of repeat infections remained consistent between 2019 and 2020, which may be due to the large proportion of pregnant patients in both cohorts, as previous studies have conflicting findings between the effectiveness of EPT in the pregnant patient population versus the general female population.^{4,9} In addition, there are different follow-up recommendations on repeat testing between the populations, which further confounds the mixed groups in relation to this secondary outcome.¹⁸

In the future, it is paramount to identify the high-risk populations at the clinical site in which the patient is being seen, as it may be beneficial for clinicians to be more partial to treating high-risk patients empirically rather than waiting for confirmatory results. For all patients, providers in emergency units should educate patients on the importance of follow-up and confirm accurate and updated contact information face-to-face.

Limitations

The nature of a retrospective pre-post study poses limitations on the generalizability of our findings. For example, the quality initiative for EPT in August 2019 affected the pre-and post-EPT outcomes unrelated to the COVID-19 pandemic. Data collection was limited by the medical records available within the EMR system of the institutional review board-approved study site. We were generous in how timely treatment was defined in that we gave 30 days for patients to be notified and treated for their CT infections. It is possible that the pandemic affected other outcomes, such as the duration of time patients went untreated. In addition, we focused primarily on the prescriber's ability to get treatment to patients, but other factors were difficult to capture retrospectively, such as patient education and contraception use. Inevitable selection biases caused by missing data, unstructured repeat testing, and loss to follow-up may have influenced repeat testing outcomes. Lastly, our cohort was a mixed population of pregnant and nonpregnant patients, for which providers have different practice guidelines for testing, treatment, and repeat testing.

In this established women's emergency services discharge program for CT-positive patients, the rates of successful treatment within 30 days were unchanged despite the challenges generated by COVID-19. However, 15% of patients discharged without treatment were lost to follow-up. Timely treatment was associated with electronic patient portals, accurate telephone numbers, lack of concurrent gonorrhea, previous syphilis screening, and having a commercial or Medicare payor. Although our follow-up protocol improved the rates of EPT acceptance, it did not seem to affect the rates of reinfection during the COVID-19 pandemic.

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