



Published in final edited form as:

Sex Transm Dis. 2025 September 01; 52(9): e61–e63. doi:10.1097/OLQ.0000000000002163.

Implementing a 24/7 Congenital Syphilis Hotline for California Clinicians: Results from a 13-week Pilot Project

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Abstract

The National Network of STD Prevention Training Centers launched a 24 hours/7 days a week hotline pilot for consultations on syphilis during pregnancy and congenital syphilis. Most of the 28 urgent requests were from physicians (61%) in hospitals (54%), involving patients in their third trimester or recently born infants (82%).

Summary:

In this short-term 24/7 congenital syphilis hotline pilot, most urgent requests were from physicians in urban hospitals, during business hours, regarding patients in their third trimester or recently born infants.

Keywords

syphilis; congenital syphilis; syphilis in pregnancy; hotline

Introduction:

According to the Centers for Disease Control and Prevention (CDC), 209,253 syphilis cases were reported in the United States in 2023, representing the greatest number of cases since 1950 and continuing a decade-long upward trend.¹ Cases increased in nearly every demographic group and region, as did disparities in disease burden among specific populations. Among newborns, 3,882 cases of congenital syphilis (CS) were documented – a 3.0% increase from the prior year.¹ Resulting from perinatal transmission, CS can

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Conflicts of interest: The authors have no conflicts of interest to declare.

Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

lead to stillbirth, miscarriage, and various congenital abnormalities.² Lack of timely testing, diagnosis, and adequate treatment during pregnancy contributed to 88% of CS cases in 2022, representing missed opportunities to prevent this highly morbid condition.³

Established by the CDC in 1979, the National Network of Sexually Transmitted Disease Clinical Prevention Training Centers (NNPTC) is a network of eight regional centers that support clinicians in diagnosing and treating sexually transmitted disease (STDs).⁴ In June 2015, the NNPTC established the STD Clinical Consultation Network (STDCCN), an online warmline system for consultations.¹ Clinicians can request expert consultation via phone, email, or text and receive a response within one to five business days.⁵ Mirroring national trends in syphilis, the NNPTC has experienced a 282% increase in syphilis consultations since the system launched in 2015, with consultations rising from 134 to 512 by the year 2022. Nearly half of all consults come from California. From 2015–2022, there was a 232% increase (from 68 to 226) in STDCCN consults about syphilis from California, with 31% of these related to CS or syphilis in pregnancy (SiP) (internal data, NNPTC). In response, the NNPTC developed a 13-week pilot in California to determine the feasibility of a 24/7 hotline for urgent SiP or CS questions. We describe this pilot's utilization and provider satisfaction data and discuss implementation.

Methods:

In December 2023, we expanded the STDCCN system to initiate a 13-week, 24/7 CS hotline pilot. From January 1 through March 31, 2024, a pop-up window would appear for requesters residing in California, asking whether they had an urgent question related to CS or SiP. If yes, the consultation was immediately triaged to administrative staff (regardless of time of day) to confirm urgency and assign the consult to an on-call physician (with specific expertise in CS/syphilis) via a short messaging system text and email. Upon receiving either message, the physician called the requestor to address their question, aiming to respond within two hours (including on nights and weekends). Following the phone consultation, the physician logged into STDCCN to document their recommendations, which were then sent to the requester via an email summary.

The variables collected in STDCCN include the requestor's occupation, work setting, work address, phone number, and consultation question (without patient identifiers). To better understand which providers would use a CS hotline and for what types of questions, we used chi-squared testing (SAS 8.3) to compare urgent (answered via the 24/7 hotline with a phone call) vs. non-urgent consults (answered via the traditional STDCCN system in 1–5 business days) with respect to requestor demographics, content of consultation questions, and requestor county size. Within two weeks after the pilot concluded, we conducted an online survey for users of the CS hotline to measure satisfaction with the consultation provided.

Results:

Over the 13-week pilot, STDCCN received 28 urgent and 28 non-urgent consultation requests related to SiP or CS, averaging 4.3 consults per week. The majority of urgent (79%)

and non-urgent requests (86%) were submitted during business hours (8:00 AM – 5:00 PM, Monday -Friday). The remaining urgent consults (21%) were submitted on Saturday and Sunday or federal holidays.

Comparing urgent to non-urgent consults (Table 1), there were significant differences ($p<0.05$) in requester occupations. Urgent consults were more likely to be submitted by physicians (61%), while 64% of non-urgent consults were submitted by registered nurses or disease intervention specialists. There were also significant differences ($p<0.05$) in requester settings and geography: urgent CS consults were more likely to be submitted by providers working in hospitals (54% vs. 14%) as compared to health departments (21% vs. 79%) and from urban versus rural counties (82% vs 46% urban⁶). Regarding consult content, urgent consults were more likely to concern patients in their third trimester (as opposed to earlier in pregnancy) or recently born infants (defined as three months of age or less) (82% vs 32%, $p<0.05$). Three of the 28 urgent consults (11%) required access to prior syphilis lab results, staging, and treatment history from the state health department to answer the consult question. The average call-back time for urgent consults was 57 minutes, ranging from ten minutes to two hours and 32 minutes, achieving the target call-back time of two hours in all but one instance.

The online satisfaction survey was sent to the 28 requestors with urgent consults, of whom twelve responded (43% response rate). All respondents (12/12, 100%) indicated they would refer this service to a colleague, and only a third (33%) had used the STDCCN warmline system in the past. Most respondents (83%) indicated it was “absolutely essential” to receive an immediate response to managing their patient, with 17% of respondents saying it was “nice but not essential.” Nearly half (49%) reported that they did not have “alternative services/sources for expert consultation on SiP and CS.” Table 2 (supplemental) includes additional satisfaction measures.

Discussion:

This 13-week pilot established the short-term feasibility of a 24/7 CS hotline. There were 28 urgent consultation requests, providing insight into (1) which providers would likely use a CS hotline and (2) the priority topic areas for urgent consultation.

Most urgent requests (over 60%) were from physicians working in hospital settings. The vast majority of these requests (over 80%) involved pregnant patients in their third trimester or recently born infants – scenarios in which timely and appropriate syphilis diagnosis and treatment can prevent CS and/or mitigate the potential for CS-related morbidity and mortality.^{3,7} Concerningly, among requesters who responded to the satisfaction survey, nearly half reported that they did not have another reliable source of information regarding SiP or CS, and only a third were familiar with STDCCN as a resource before the CS hotline pilot. Since 1999, when syphilis had previously approached elimination in the US⁸, many, if not most, practicing clinicians may not have had clinical experience with syphilis/CS and thus lack knowledge about the recognition, diagnosis (including interpretation of serologic test results), treatment, and prevention of this infection.^{9,10} Real-time clinical consultation with syphilis experts, such as that provided through the CS hotline pilot, is a potential

strategy to address these provider knowledge gaps, facilitating timely syphilis diagnosis, treatment, and management for pregnant patients and their infants, hopefully averting CS and preventing long-term morbidity.

This pilot project taught us several “lessons learned” regarding implementation. First, we found that providers appropriately identified urgent clinical questions (e.g., those involving patients in the third trimester of pregnancy or newborns), suggesting that triage staff may be unnecessary and that consult requests, if deemed urgent by the requester, could be routed directly to on-call physicians, saving personnel time. Second, although a 24/7 CS hotline may not be necessary, weekend and holiday consultations are desirable, as is the availability of urgent clinical consultation during business hours. While most urgent consults (79%) were submitted during business hours, another 21% would have been missed or delayed without weekend or holiday coverage. Moreover, the majority (over 80%) of responders to the satisfaction survey indicated that it was “absolutely essential” to receive an immediate response to their question (as opposed to waiting a full business day, which is the fastest turnaround time offered on the STDCCN warmline otherwise). Third, communication with local and state public health departments is critical to maximizing the success of any CS consultation system: 11% of urgent requests required access to prior syphilis lab results, staging, and treatment history to answer the consult question. Fourth and finally, although CS has disproportionate impacts in more rural areas of California,¹¹ the CS hotline was accessed primarily by providers in urban areas, suggesting that further outreach to more remote locations may be required.

Given that this project was limited to a single state, over a short period in time, did not include clinical outcomes, and was based on self-reported data with a small sample size, our experiences may not be generalizable elsewhere. There was no substantial funding or dedicated staff for this effort (our on-call physicians were all volunteers), and additional resources would likely increase the sustainability of projects like ours over time. Given the existing infrastructure and expertise, the NNPTC could perhaps be an ideal network to implement a more permanent CS hotline in the future.

Ultimately, with CS cases at their highest rate (105.8/100,000 live US births in 2023) since 1991,¹² creative strategies are needed to support providers caring for pregnant patients and infants affected by syphilis. As demonstrated by this experience, efforts to provide clinical consultation in as close to real-time as possible would be frequently utilized and greatly appreciated by clinicians practicing on the frontlines to turn the tide on rising rates of CS.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Financial Support:

The work was partly supported by the Centers for Disease Control and Prevention’s National Network of Sexually Transmitted Diseases Clinical Prevention Training Centers (cooperative agreement PS20–2004 Component A and B).

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Table 1:

Urgent vs. Non-Urgent Consultations, 24/7 Congenital Syphilis Hotline Pilot Project, State of California, January – March 2024

	Urgent		Non-Urgent		P-Value
Total Consults (n=56)					
	Total	Percent	Total	Percent	
Hours					0.4835
Business [^]	22	79%	24	86%	
Non-business	6	21%	4	14%	
Settings					0.0003
Hospital	15	54%	4	14%	
Community Health Center	6	21%	1	4%	
Local/State Health Department	6	21%	22	79%	
Private Practice	0	0	1	4%	
Other	1	4%	0	0	
Occupation					0.0125
Physician	17	61%	6	21%	
Registered Nurse	5	18%	9	32%	
Advanced Practice Nurse/Nurse Practitioner/Physician Assistant	4	14%	4	14%	
Disease Intervention Specialist	2	7%	9	32%	
Third Trimester or Recently Born Infants[*]					0.0002
Yes	23	82%	9	32%	
No	5	18%	19	68%	
Population					0.0155
Suburban	5	18%	13	46%	
Urban	23	82%	13	46%	
Rural	0	0	2	7%	

[^] Business Hours are defined as 8:00 a.m. to 5:00 p.m. Monday through Friday.

^{*} Recently born infants were defined as infants who were born within the last three months.