These recommendations are out of date.

CDPH's newest guidelines can be found here:

California Department of Public Health (CDPH) Updates Syphilis Screening Recommendations

Expanded Syphilis Screening Recommendations for the Prevention of Congenital Syphilis

Guidelines for California Medical Providers

2020

These guidelines were developed by the California Department of Public Health (CDPH) Sexually Transmitted Diseases (STD) Control Branch in conjunction with the California STD/HIV Controllers Association, and the California Prevention Training Center.

CDPH
California Department of Public Health

CA California STD/HIV Controllers Association

CALIFORNIA
STD/HIV PREVENTION
TRAINING CENTER

Contributing Authors

Rosalyn E. Plotzker, MD, MPH[1, 2]

Sarah L. Rudman, MD, MPH[2, 3]

Jennifer L. Harmon, MPH[1]

Laura Kovaleski, MPH[1]

Affiliations:

1. California Department of Public Health, Sexually Transmitted Diseases Control Branch

2. California Prevention Training Center

3. California Sexually Transmitted Diseases (STD)/HIV Controllers Association

Reviewers

Heidi Bauer MD, MS, MPH; Eric Tang, MD, MPH; Joan Chow, DrPH; Ina Park MD, MS; Sharon Adler, MD, MPH; Ashley Dockter, MPH; Nicole Burghardt, MPH; Rachel McLean, MPH; Romni Neiman; James Watt, MD, MPH

Acknowledgements

These clinical recommendations would not have been possible without the support of CDPH STD Control Branch (STDCB) staff. In particular, the authors thank Dr. Ryan Murphy, PhD, MPH; Leila Saadat, MPH; Kelly Nguyen, MPH; Meghan Polich, MPH; Melissa Reyna, MPH; and Jessica Frasure-Williams, MPH. The authors would also like to express their gratitude to all California local health jurisdiction STD controllers for their involvement in the creation of this document, and their tireless efforts in congenital syphilis prevention.

Disclaimer for Public Health Clinical Guidelines

These guidelines are intended to be used as an educational aid to help clinicians make informed decisions about patient care. The ultimate judgment regarding clinical management should be made by the healthcare provider in consultation with their patient, in light of clinical data presented by the patient and the diagnostic and treatment options available. Further, these guidelines are not intended to be regulatory and not intended to be used as the basis for any disciplinary action against the healthcare provider.

Table of Contents

Statement of Purpose

This document was created to enhance syphilis detection among people who are or could become pregnant (e.g. pregnant women and females of childbearing age) to prevent congenital syphilis (CS). Evidence-based recommendations in this document support policies and best practices intended to strengthen the response to the recent dramatic rise in CS incidence across California. These recommendations encourage a multipronged approach necessary to address increases of syphilis amidst underlying social factors (i.e., disparities in access to care, substance use, poverty and homelessness). The recommendations are applicable statewide, inclusive of all California local health jurisdictions. Local Health Officers and Sexually Transmitted Disease (STD) Controllers may recommend additional syphilis screening within their jurisdiction, as determined by local epidemiology and public health needs, such as syphilis outbreaks among particular populations. The clinical management and evaluation of syphilis during pregnancy and neonates exposed to syphilis is nuanced and can be extremely complex; the CDC STD Treatment Guidelines provide detailed guidance in this area.[1-3] Of note, improved syphilis screening for people who *cannot* become pregnant (e.g., people male-assigned at birth) is also an important public health matter; however, syphilis screening for this population is beyond the scope of this document.

Acronyms

AAP	American Academy of Pediatrics
ACOG	American College of Obstetrics and Gynecology
BPG	Benzathine Penicillin G
CAPTC	California Prevention Training Center
CDC	U.S. Centers for Disease Control and Prevention
CDPH	California Department of Public Health
CS	Congenital Syphilis
ED	Emergency Department
Family PACT	Family Planning, Access, Care, and Treatment Program
HIV	Human Immunodeficiency Virus
IM	Intramuscular
MSM	Man who has Sex with Men
MSMW	Man who has Sex with Men and Women
NAAT	Nucleic Acid Amplification Test
NCCHC	National Commission on Correctional Health Care
P&S	Primary and Secondary
PrEP	Pre-Exposure Prophylaxis
QALY	Quality-Adjusted Life Year
RPR	Rapid Plasma Reagin
STD	Sexually Transmitted Disease
STDCB	Sexually Transmitted Diseases Control Branch
STDCCN	Sexually Transmitted Diseases Clinical Consultation Network
Tdap	Tetanus-Diphtheria-Pertussis
TGW	Transgender Woman
USPSTF	United States Preventive Services Task Force
VDRL	Venereal Disease Research Laboratory

I. Executive Summary

In 2018, 329 babies with congenital syphilis (CS) were reported in California, representing a 900% increase from 2012, and a magnitude of CS burden not observed since 1995.[4] In response to this alarming rise, the California Department of Public Health (CDPH) recognized an urgent need to expand syphilis detection among people who are or could become pregnant in order to ensure detection, timely treatment, and subsequent CS prevention.

California STD screening recommendations to date have aligned with national guidelines, which recommend all pregnant patients receive syphilis screening at the first prenatal visit, with additional screening in the third trimester and at delivery for those with identified risk,[1 2 5 a] including in communities and populations with high syphilis prevalence. Given the alarming rise of CS due to the increasing prevalence of syphilis among people who are and could become pregnant in California, CDPH endorses additional syphilis screening during pregnancy in line with these national recommendations.[5] However, because the majority of California CS cases in 2017 and 2018 were born to pregnant patients with delayed or no prenatal care, CDPH supports a more thorough, multipronged approach to case detection and CS prevention, which includes expanded syphilis screening for people who could become pregnant. This is especially important for people identified in settings that serve populations at increased risk for syphilis, as well as patients who might have disruptions in prenatal care and communicable disease treatment due to contributing social factors (e.g., substance use, incarceration, poverty, homelessness, etc.).[b]

This document expands screening recommendations to facilitate timely identification of new syphilis cases among people who are or could become pregnant in order to provide treatment and thus prevent CS. Clinicians caring for patients diagnosed with syphilis should provide treatment and follow-up per the CDC recommendations.[2]

[a] See also page 12 for a description of indications for syphilis screening at delivery. CDPH syphilis screening recommendations and increased risk for syphilis infection are also described in Tables 1 and 2 respectively on pages 5 and 6 of this document, as well as in Appendix A.

[b] Improved prenatal care access is needed for persons at risk for syphilis but is beyond the scope of these recommendations.

The California Department of Public Health recommends:

- All pregnant patients should be screened for syphilis at least twice during pregnancy: once at either confirmation of pregnancy or at the first prenatal encounter (ideally during the first trimester) – and again during the third trimester (ideally between 28–32 weeks' gestation), regardless of whether such testing was performed or offered during the first two trimesters.
- Patients should be screened for syphilis at delivery, except those at low risk[a] who have a documented negative screen in the third trimester.
- Emergency department (ED) providers in local health jurisdictions with high-CS morbidity[c] should consider confirming the syphilis status of all pregnant patients prior to discharge, either via documented test results in pregnancy, or a syphilis test in the ED if documentation is unavailable.
- All people who are or could become pregnant entering an adult correctional facility located in a local health jurisdiction with high-CS morbidity[c] should be screened for syphilis at intake, or as close to intake as feasible.
- All sexually active people who could become pregnant should receive at least one lifetime screen for syphilis, with additional screening for those at increased risk.[a]
- All sexually active people who could become pregnant should be screened for syphilis at the time of each HIV test.

[a] See also page 12 for a description of indications for syphilis screening at delivery. CDPH syphilis screening recommendations and increased risk for syphilis infection are also described in Tables 1 and 2 respectively on pages 5 and 6 of this document, as well as in Appendix A.

[c] CDPH defines local health jurisdictions with high-CS morbidity as those with a rate greater than 8.4 CS cases per 100,000 live births for any of the past three consecutive years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States, when California's CS rate was below that of the national rate.

Table 1. Summary of Recommended Syphilis Screening for Specific Populations

Pregnant people	• Once at either confirmation of pregnancy, or at the first prenatal encounter (ideally during the first trimester)[2] • Third trimester, ideally between 28-32 weeks' gestation • At delivery if no negative screen documented in third trimester or if risk factors for syphilis are present • Prior to Emergency Department (ED) discharge, either via documented test results in pregnancy, or a syphilis test in the ED if documentation is unavailable • If incarcerated at an adult correctional facility, at intake or as close to intake as possible
Nonpregnant people who could become pregnant in the future	• At least once, more frequently if at increased risk • At the time of each HIV test • If incarcerated at an adult correctional facility, at intake or as close to intake as possible
Male assigned at birth: MSW	• If at increased risk[2]
Male assigned at birth: MSM/MSMW & TGW	• Annually • More frequently if at increased risk[2]
All genders: Using HIV PrEP	• Every 3 months[6]
All genders: HIV-seropositive	• Annually • More frequently if at increased risk[7]

MSW: Man who has sex with women; MSM: Man who has sex with men; MSMW: Man who has sex with men and women; PrEP: Pre-Exposure Prophylaxis; TGW: Transgender Woman[d]

[d] Inclusive of all transgender women, regardless of sex partner gender.

Table 2. Recognized Risk Factors for Syphilis among People Who Are or Could Become Pregnant

- Late prenatal care
- HIV Infection
- Living in a local health jurisdiction with high syphilis morbidity among females[e]
- Living in a local health jurisdiction with high-CS morbidity[f]
- History of syphilis infection
- Methamphetamine use
- Intravenous drug use
- Homeless or unstable housing
- Recent incarceration or a sex partner who was recently incarcerated
- Having sex in exchange for resources, such as money or drugs
- Multiple sex partners
- Sex partners who are MSMW or who have other concurrent partners
- Having sex under the influence of alcohol or drugs
- Diagnosis of another STD within the past 12 months
- Pelvic pain or a diagnosis of pelvic inflammatory disease (PID)

[e] There is no specific, evidence-based threshold for what constitutes "high morbidity" among females. National experts accept a rate of at least 4.0 cases of P&S syphilis per 100,000 females (15-44 years) as a reasonable threshold.

[f] CDPH defines local health jurisdictions with high-CS morbidity as those with a rate greater than 8.4 CS cases per 100,000 live births for any of the past three consecutive years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States., when California's CS rate was below that of the national rate.

II. Background

A. Syphilis and Congenital Syphilis

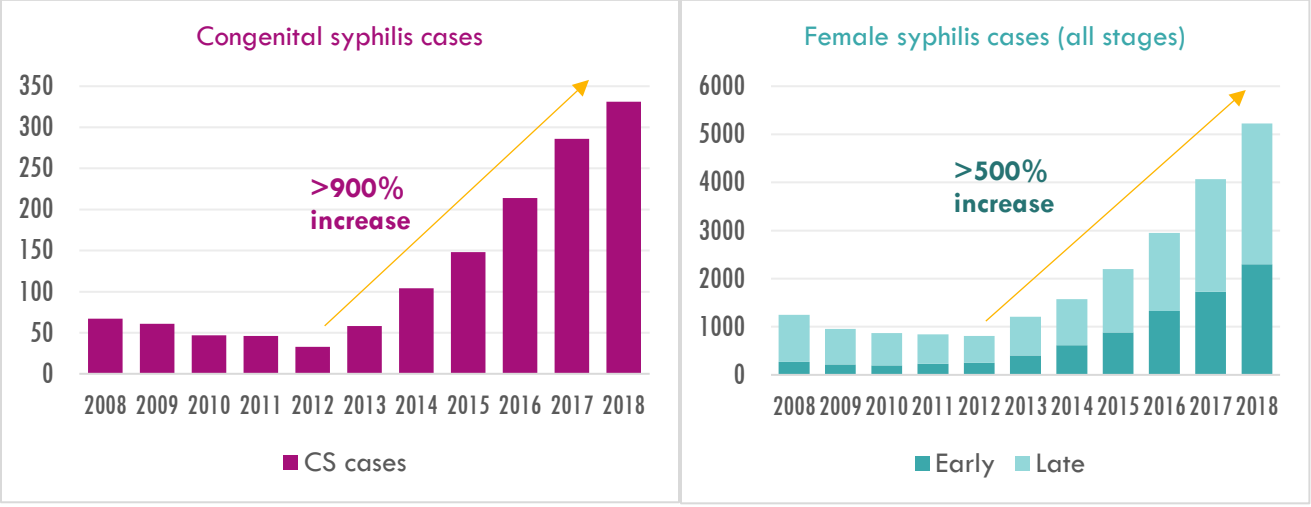
Congenital Syphilis (CS) is the manifestation of *Treponema pallidum* infection in a fetus or infant, acquired via vertical (i.e. transplacental) transmission. Vertical transmission can occur at any gestational age, during all stages of maternal syphilis infections inclusive of primary and secondary (P&S), early latent, and late latent disease. If left untreated, early syphilis in pregnancy results in fetal infection for approximately 80 percent of cases, more than a third of which lead to fetal or neonatal mortality.[8]

Syphilis during pregnancy is associated with multiple prenatal complications, including intrauterine growth restriction, preterm labor, placental abnormalities, and stillbirth. Potential sequelae of CS among live born infants include rash and skin lesions, hepatosplenomegaly, thrombocytopenia, central nervous system manifestations, pulmonary infection, skeletal malformations, and facial disfiguration.

B. Increasing Rates of Syphilis and Congenital Syphilis in California

Since 2012, the United States has seen a surge in CS cases. National increases are driven by trends in Western and Southern states, with California having had the highest number of CS cases in the US in 2017, contributing to approximately a third of the country's total CS. That same year, California also had the second highest CS case rate of all states.[9] In 2018, syphilis increased in all regions of California among both males and females. Fifteen percent of women of childbearing age diagnosed with syphilis were pregnant. Statewide, CS cases increased more than 900 percent between 2012 and 2018.[4] These trends mirror a sharp increase in all stages of syphilis among females, which increased more than 500 percent during the same period. (Figure 1)

Figure 1: Congenital Syphilis and Female Syphilis, California 2008 – 2018



C. Underlying Factors Contributing to Increasing Rates of Congenital Syphilis

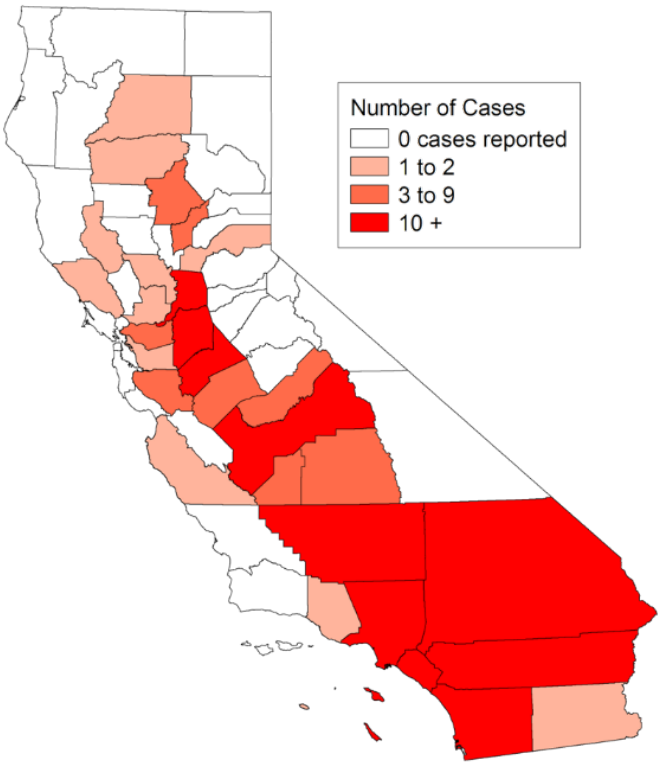
Multiple risk factors are recognized as contributing to the recent increases in both maternal syphilis cases as well as subsequent CS. These most notably include disparities in access to healthcare, substance use, poverty and housing instability. These factors can result in daily living challenges that confound or interrupt prenatal care and communicable disease treatment, resulting in poor health outcomes for

mother and baby. In 2018, the following risk factors were reported among mothers who delivered an infant with CS: over half (56 percent) reported delayed or no prenatal care; half (50 percent) reported methamphetamine use; 9 percent reported injection drug use; 43 percent indicated having sex while high; approximately one quarter (26 percent) reported incarceration; similarly, a quarter (25 percent) reported homelessness or unstable housing. CDC also notes that prior studies suggest a range of factors may contribute to STD increases, including poverty, stigma, discrimination and drug use.[10]

D. Congenital Syphilis Morbidity by Local Health Jurisdiction

The number of California local health jurisdictions reporting CS cases continues to increase. In 2018, 30 out of 61 local health jurisdictions reported at least one case of CS (Figure 2).

Figure 2: Congenital Syphilis: Number of Cases by County, California 2018



The rate of CS in several local health jurisdictions, as well as the overall CS rate statewide, far exceed the national average. In 2017, 22 local health jurisdictions exceeded the 2017 national rate of 23.3 per 100,000 live births, while California's CS rate as a whole was 58.2 cases per 100,000 live births. In 2018, California's CS rate climbed to 68.2 per 100,000 live births. Although CS and syphilis among females are most prevalent in the Central Valley, increasing rates are seen throughout the state. Population movement across local health jurisdiction boundaries should be considered when interpreting disease transmission. With this in mind, CDPH STD Control Branch recognizes the vulnerability of *all* California local health jurisdictions with regard to potential CS case occurrence. Locally specific-CS epidemiology may demonstrate high-CS morbidity, which is an indication for additional CS prevention practices as outlined in this guidance document.

E. Threshold for Local Health Jurisdictions with High-Congenital Syphilis Morbidity

At the time this document was prepared, a nationally agreed upon definition of "high-CS morbidity" had not been established. In the absence of a national standard, CDPH has undertaken a measured process to establish a threshold intended to guide county-specific implementation of CS prevention practices and provide an epidemiologic benchmark for CS prevention.

For the purposes of this document, a local health jurisdiction with high-CS morbidity is defined as any local health jurisdiction having had a CS rate greater than 8.4 CS cases per 100,000 live births during any of the past 3 years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States; of note, 2012 was also the last year in which California's CS rate was below that of the national rate. The three-year window was chosen to account for potential annual fluctuations and provide a metric for data stability with regard to a local health jurisdiction's CS rates.

F. Interdisciplinary Partnership in Case Detection and Prevention of Congenital Syphilis

CS is a potentially devastating condition, which is highly preventable via detection and timely treatment of syphilis during pregnancy, paired with prevention of reinfection.[11] Further upstream, detection and treatment of syphilis among people who could become pregnant in the future could additionally prevent CS cases. While there is no simple solution due to the complex set of factors driving STDs, raising awareness of the intersecting epidemics of syphilis with drug use and unstable housing is an important first step, and collaboration of public health, medical and community partners to expand case detection and treatment is essential.

III. Expanded Prenatal Syphilis Screening and Screening at Delivery

Recommendation Statements

- **All pregnant patients should be screened for syphilis at least twice during pregnancy: once at either confirmation of pregnancy or at the first prenatal encounter (ideally during the first trimester) – and again during the third trimester (ideally between 28–32 weeks' gestation), regardless of whether such testing was performed or offered during the first two trimesters.**
- **Patients should be screened for syphilis at delivery except those at low risk[g] who have a documented negative screen in the third trimester.**
- **Emergency department (ED) providers in local health jurisdictions with high-CS morbidity[h] should consider confirming the syphilis status of all pregnant patients prior to discharge, either via documented test results in pregnancy, or a syphilis test in the ED if documentation is unavailable.**

Relevant California Health Codes

The California Health and Safety Code requires providers to screen pregnant patients at first prenatal encounter:

> *120685: Every licensed physician and surgeon or other person engaged in prenatal care of a pregnant woman, or attending the woman at the time of delivery, shall obtain or cause to be obtained a blood specimen of the woman at the time of the first professional visit or within 10 days thereafter.*
>
> *120690: The blood specimen thus obtained shall be submitted to an approved laboratory for a standard laboratory test for syphilis.*
>
> Div. 105 Communicable Disease Prevention and Control, Part 3 Sexually Transmitted Diseases. Chapter 2. Prenatal Syphilis Tests. (Added by Stats. 1995, Ch. 415 Sec. 7. Effective 1/1/1996)

National Recommendations

National guidelines unanimously recommend screening for syphilis in all pregnant patients at the first prenatal care visit, ideally during the first trimester. These recommendations are based on scientific evidence to support the following conclusions: (1) untreated syphilis in pregnancy can be vertically transmitted to the fetus and cause significant morbidity and mortality; (2) screening can accurately detect infection during pregnancy; (3) early detection can lead to earlier treatment, which can reduce risks of morbidity to the pregnant patient and fetus; and (4) harms of screening and treatment in pregnancy are minimal to both pregnant patient and fetus. Recommendations for additional screening, such as in the third trimester and/or at delivery, recognize its appropriateness in settings serving persons at high risk for syphilis infection during pregnancy (see Appendix A, Table 2).

---

[g] See also page 12 for a description of indications for syphilis screening at delivery. CDPH syphilis screening recommendations and increased risk for syphilis infection are also described in Tables 1 and 2 respectively on page 5 and 6 of this document, as well as in Appendix A.

[h] CDPH defines local health jurisdictions with high-CS morbidity as those with a rate greater than 8.4 CS cases per 100,000 live births for any of the past three consecutive years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States, when California's CS rate was below that of the national rate.

"For communities and populations in which the prevalence of syphilis is high and for women at high risk for infection, serologic testing should also be performed twice during the third trimester: once at 28–32 weeks' gestation and again at delivery."[3]

"All pregnant women should be tested as early as possible when they first present to care, whether it is at the first prenatal visit or at delivery, if the patient has not received prenatal care. For pregnant women at high risk for infection, many organizations recommend repeat serologic testing in the third trimester and again at delivery. According to the [CDC], pregnant women at high risk for syphilis infection who warrant repeat testing include women with a history of syphilis infection, incarceration, or drug use; women with multiple or concurrent sex partners; and women who live in high-prevalence areas. The American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists (ACOG) recommend repeat screening in communities and populations with a high prevalence of disease. Clinicians should be aware of the prevalence of infection in the communities they serve. Persons with a diagnosed sexually transmitted disease may be more likely than others to engage in high-risk behavior, which places them at increased risk for syphilis infection."[3 5]

Given the increasing prevalence of both CS and syphilis among people who are or could become pregnant in California, following the CDC guidelines, all pregnant people in California should be screened not only at the first prenatal care visit, but also during the third trimester (ideally between 28-32 weeks' gestation) and at delivery. In addition to the above recommendations, in December 2017, the Joint Commission updated its *Elements of Performance* to include a requirement effective July 1, 2018 that syphilis status be documented in all labor and delivery charts along with HIV and Hepatitis B status. This requirement supports the recommendation herein to obtain screening at time of delivery for those pregnant patients who lack a documented negative syphilis screening test at time of admission for labor and delivery.[11]

Supportive Evidence for Expanded Prenatal Screening

A. Limitations of existing risk-based rescreening guidelines

Existing CDC guidelines recommend risk assessment throughout pregnancy, with risk-based rescreening in the third trimester and at delivery. However, limitations of risk-based screening exist, both in providers' potentially insufficient training, willingness, and capacity to perform such screening, and in patients' potential hesitance to disclose highly stigmatized risk factors. These risk factors, such as substance use, exchange sex, history of incarceration, homelessness or unstable housing, and multiple sexual partners might also prompt fear of legal consequences of such disclosure. The California laws pertaining to drug use during pregnancy are included in Appendix D of this document.

National data have identified cases of CS in which no such risk factors were identified.[12] In 2017, 50 percent of cases of prenatal syphilis in California were identified among patients without reported risk factors, demonstrating a limitation of risk-based screening. With regard to patient report of syphilis

exposure via sex partner, one's knowledge is dependent on 1) the partner's knowledge of their infection and 2) the partner's disclosure of syphilis status. An internal qualitative review of 2017 California syphilis cases identified multiple syphilis cases in which the case did not notify a pregnant partner of exposure. In these instances, the exposed pregnant patient would be unable to report the exposure to a prenatal care provider during risk assessment.

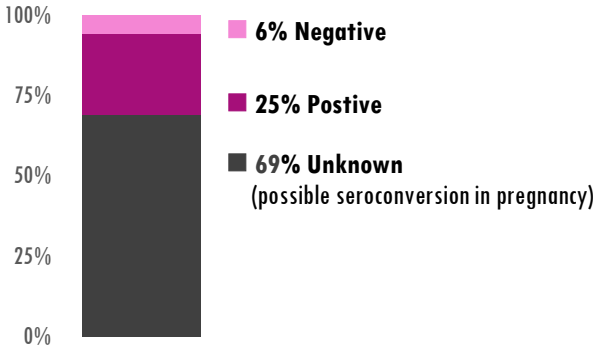
B. Summary of benefits of expanded prenatal screening

A range of missed opportunities for syphilis detection exist among mothers of CS infants in California, as demonstrated by individual case reviews from local health jurisdictions and as reflected in state epidemiology. No single practice can adequately address the wide variety of barriers to prenatal syphilis detection. Therefore, a multipronged approach to prenatal syphilis screening that allows for additional detection opportunities is necessary for comprehensive CS prevention.

B1. Potential for case detection and treatment in the third trimester

Routine syphilis screening performed early in the third trimester could detect syphilis and afford time for treatment to prevent CS in the settings of limited early prenatal care, seroconversion after an initial negative screen, or a lapse in first-encounter syphilis screening. In 2017, only 31% of California CS cases were born to mothers who had first or second trimester screening, including 6% who had an initially negative screen during this period suggesting seroconversion during pregnancy (Figure 3). Therefore, this 6% plus the 69% not screened in the first or second trimester, would have likely benefited from third trimester screening.

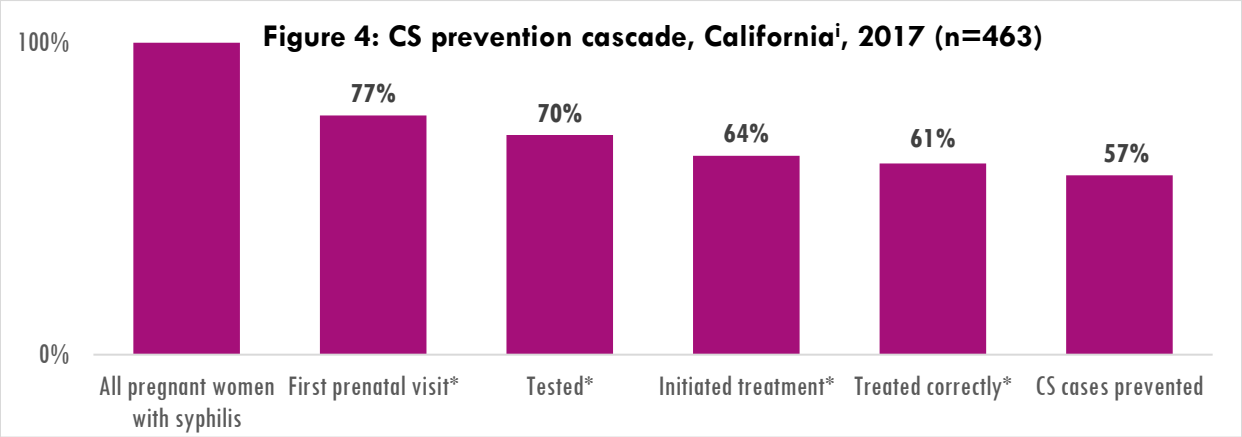
Figure 3: Prenatal syphilis screening results during the first or second trimester among mothers of CS infants California 2017



Notably, a proportion of CS cases are born to mothers who did not initiate prenatal care until late in gestation, some of whom were *not* screened for syphilis at the first prenatal encounter. For instance, between 2012 and 2014, of mothers of CS infants in California (n=164), 65 percent entered prenatal care by 28 weeks' gestation. However, only 41 percent of all mothers of CS cases received their first syphilis test at least 40 days prior to delivery, allowing sufficient time to initiate treatment 30 days prior to delivery. Of particular concern, an additional 29 percent of cases received first testing *within* 40 days prior to delivery, and the remaining 30 percent did not receive any prenatal syphilis screening. More recently, in 2017, of all pregnant people with syphilis linked to a birth outcome who lived in California,[i] 77 percent (n=357) presented for prenatal care at least 30 days prior to delivery.

[i] Excludes San Francisco and Los Angeles.

However, just 70 percent (n=324) received any syphilis screening at least 30 days prior to delivery, demonstrating a lapse in first visit testing for at least 37 cases (Figure 4).



Universal routine third trimester screening also may detect syphilis in patients who did not receive first prenatal visit screening, but whose prenatal provider in the third trimester may be unaware of this lapse.

Finally, routine third trimester screening may identify cases in which an initial prenatal screening was positive, but treatment was not completed. In this scenario, third trimester screening would provide a second opportunity for full treatment and thus averting a case of CS.

B2. Potential for detection of seroconversion in pregnancy

Third trimester rescreening (or screening at delivery if a third trimester screening test was not performed) is a key strategy to detect and treat syphilis infections that occur after an initial negative prenatal syphilis screening test. Six percent of 2017 California CS cases had a negative first or second trimester screening test, demonstrating documented seroconversion during pregnancy for at least this proportion of CS cases. Comparing these CS cases due to seroconversion to the total 471,658 births in California in 2017, we find that a minimum rate of seroconversion-related CS is 3.4/100,000 live births. The remaining 2017 CS cases – approximately 69 percent – did not have a first or second trimester screening test. It is unknown if syphilis infection occurred during or prior to pregnancy.

This estimated rate of seroconversion during pregnancy that could potentially be detected with third trimester rescreening is consistent with recent evaluations in other state and local high morbidity regions. For example, repeat third trimester screening, defined as 28 weeks' gestation to 30 days prior to delivery, detected 5 percent of prenatal syphilis diagnoses in Florida and Louisiana between 2012–2014; this led to prevention of 30 CS cases.[13] More locally, a review of 2015-2016 CS cases in Los Angeles County indicated 5 and 11 percent of CS cases, respectively, might have been preventable with rescreening at 28-32 weeks' gestation.[14]

B3. Efficacy of prenatal treatment for CS prevention, by stage and gestational age

Stage-appropriate syphilis treatment with Benzathine penicillin G during pregnancy is highly effective in preventing CS, with an overall efficacy of 98.2 percent inclusive of all stages of disease and

gestational ages.[15] Congenital syphilis cases due to seroconversion[j] represent a small proportion of total cases. However, these pregnancies are particularly vulnerable, having the highest likelihood of vertical transmission due to early stage of disease and associated elevated maternal titers (an of indication high treponemal burden) that occur early in infection. These pregnancies are at higher risk for treatment failure–the occurrence of CS despite accurate and appropriate treatment during pregnancy–in part due to later gestational age at time of treatment and shorter treatment-delivery intervals.[15-20] The impact of these factors on CS likelihood may be interdependent.[21] Cases of syphilis seroconversion during pregnancy are thus a high priority for detection and immediate treatment in light of high likelihood of fetal infection and the need for especially close monitoring after treatment to ensure therapeutic adequacy.

The risks of third trimester rescreening and treatment are minimal, similar to risks associated with first prenatal visit screening. Risk of rescreening include anxiety, local pain at phlebotomy site, and potential for false positive results. The risk of benzathine penicillin G (BPG) associated adverse events for pregnant patient and infant is extremely low.[22-25] [k]

B4. Evaluation of national and state prenatal screening laws

Historically, universal prenatal syphilis testing laws have contributed to a decrease in CS morbidity and mortality. For example, implementation of such laws in the late 1930s-1940s were associated with a 8.6 percent reduction in neonatal mortality rates among nonwhites, and an 18 percent narrowing of the white-nonwhite neonatal mortality gap by 1947.[26]

Today, prenatal syphilis screening is included in state prenatal screening laws for 45 U.S. states, the vast majority of which require screening at the first prenatal visit. Additionally, 17 states require prenatal testing in the third trimester.[27] Of note, median rate of primary and secondary syphilis among females in these states, within the year prior to law enactment, was 2.6 cases per 100,000 population; this is a rate lower than California's female primary and secondary rate of 6.1 per 100,000 population in 2016.[28] The majority of these states require syphilis screening at third trimester, delivery or both, regardless of individual maternal risk factors.

A nationally recognized criteria for third trimester screening is local syphilis morbidity among females (15-44 years). While there is no national standard or threshold to ensure consistency in the definition of "high morbidity" of female syphilis cases, national experts accept a rate of at least 4.0 cases of P&S syphilis per 100,000 females (15-44 years) as a reasonable threshold.[l] As of 2018, many local health jurisdictions within California far surpassed this cutoff and rates in California as a whole were 13.2 cases of P&S syphilis per 100,000 females (ages 15-44 years).[29] This rate is also above the overall

[j] New infection after an initial negative prenatal screen.

[k] Jarisch-Herxheimer (JH) reaction is an acute inflammatory response that occurs during spirochete death. In pregnancy, JH reactions can precipitate fever, uterine contractions, abnormal fetal heart rate, preterm labor, and stillbirth. Some practices administer BPG on labor and delivery floors with fetal heart monitoring for this reason. JH reactions resolve within 24 hours of treatment.

[l] S. Kidd, Medical Officer Division of STD Prevention, Centers for Disease Control and Prevention, Personal communication. February, 2016.

median rate for states that already have universal third trimester screening in place (e.g., Connecticut, Florida, Delaware, Missouri, etc.) at the time the law went into effect.

B5. Cost-effectiveness of third trimester screening

A systematic review performed in 2018 found limited literature evaluating the cost-effectiveness of screening for syphilis during pregnancy.[30] The few studies evaluating cost-effectiveness of initial syphilis screening in pregnancy have found high rates of cost savings and very low cost per disability-adjusted life year.[31-33]

Four additional publications evaluated the cost-effectiveness of rescreening for syphilis in third trimester. The most recent study, published in 2018, was the first to evaluate quality-adjusted life years (QALYs) and found that third trimester rescreening not only had significant increases in QALYs but an associated cost savings of $52 million nationally using scenarios based on the most recent national surveillance data.[34] Two earlier studies, which did not demonstrate cost-effectiveness, had limited applicability to California due to study assumptions that were inconsistent with current California state epidemiology.[35] [36] Finally, a mathematical modeling study designed to evaluate cost-effectiveness of national universal third trimester rescreening found mixed results, but also had assumptions limiting its applicability to California. For instance, this study's base scenario derived a rate of seroconversion from national 2000-2009 data, when the country's rate of CS was at a low point.[36] [37] Also, the study's cost-estimates for preterm delivery ($75,000) and lifelong care of an un-averted CS case ($1 million), were both below the estimates of these costs used in more recent studies.[34]

B6. Potential for prenatal syphilis detection in emergency departments

Often, pregnant patients with limited access to consistent prenatal care, in part due to drug use and unstable housing or homelessness, seek medical attention for acute needs at emergency departments (ED). A CDPH review of 123 mothers who delivered infants with CS between 10/1/2017 and 12/31/2018 in two local health jurisdictions with high-CS morbidity found 16 percent (20/123) were seen in an ED during their pregnancies, 80 percent (16/20) of whom lacked any prenatal care. In local health jurisdictions with high-CS morbidity, EDs are an important setting for syphilis detection and linkage to treatment among pregnant patients whose disease might otherwise go unidentified.

This strategy for case detection, paired with public health disease investigation to ensure timely patient follow-up and treatment, has been useful for CS prevention in other states with similar CS morbidity to California. For instance, Miami-Dade County's enhanced routine screening infrastructure incorporated syphilis screening into an ED, triggered by either a positive qualitative pregnancy test, patient complaint indicating possible syphilis, or history of an STD. Between April and December 2018, 2,532 syphilis tests were performed, with a 2.7 percent positivity rate – 25 percent of whom were pregnant patients. Ultimately, this approach averted up to 6 CS cases.[37] Similarly, a study conducted in a New Orleans ED in 1991 identified eight cases of previously undetected syphilis among 72 pregnant women who were screened during the study's six-month duration. Seven patients delivered live infants, none of whom had reactive serology or signs of CS.[38]

A high proportion of mothers of CS infants, report being homeless or unstably housed. This guidance is therefore complimentary to Senate Bill 1152, which amends the Health and Safety Code Section 1262.5 to delineate appropriate screening tests based on local epidemiology for homeless individuals who are being discharged from hospitals and EDs.

Senate Bill 1152 places the following wording into the Health and Safety Code Section 1262.5:

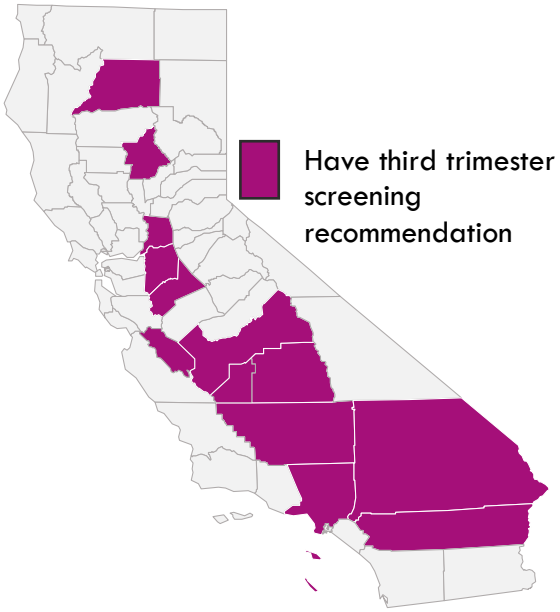
(6) The homeless patient has been offered or referred to screening for infectious diseases common to the region as determined by the local health department.

Many California local health departments have endorsed screening homeless individuals for syphilis in EDs in light of increasing syphilis rates in their jurisdictions. Although screening is typically offered in primary care and prenatal settings, homeless pregnant patients often do not present to those settings, but rather to hospitals and emergency departments for acute issues as needed. Therefore, this may be the only opportunity to identify a syphilis infection and provide timely treatment for these pregnant persons.

Rationale in California

Many local health jurisdictions in California have already issued recommendations for universal screening at third trimester, some with additional rescreening at delivery. The number of jurisdictions issuing such recommendations continues to increase, especially among those with high syphilis rates among people who could become pregnant, as well as high CS incidence (Figure 5). These jurisdictions represented over half of the live births occurring in California in 2017. Therefore, were these local recommendations perfectly adhered to, greater than 50 percent of pregnancies would already receive third trimester screening. If these practices were to be adopted in *all* jurisdictions in which the rate of CS has been greater than 8.4/100,000 live births at least once in the past 3 years (in accordance with this document's definition of high-CS morbidity), 94 percent of all live births in California would be covered. In addition to rates of CS and rates of syphilis among females, local prevalence of maternal risk factors (e.g., methamphetamine use, homelessness) should also be considered when estimating local CS vulnerability.

Figure 5: California counties with third trimester syphilis screening recommendation, 2018



CDPH believes that there is increased risk of CS throughout California. There have been several years of steady increases in syphilis among females, with some local health jurisdictions experiencing their first CS case in years, suggesting that CS may become an issue in additional local health jurisdictions in the

near future. Thus, CDPH endorses a statewide recommendation, rather than a recommendation for only local health jurisdictions which meet this document's threshold for high-CS morbidity.

Finally, many prenatal care providers in California are members of large healthcare organizations that serve patient populations that cross jurisdictional lines or provide care at multiple clinic sites in different jurisdictions. Such providers additionally benefit from statewide recommendations that allow consistent routinization of practice across medical settings.

Implementation Considerations

A. Logistics of universal third trimester screening

Maximizing the benefits of universal third trimester screening will require education for both providers and patients, with added support for system-wide changes. The California CS prevention cascade (Figure 4 in this document) demonstrates an ongoing need for improving access to and uptake of early prenatal care, with testing at or near first prenatal visit if these screening recommendations are to have the greatest impact. Existing barriers may include cost of care, insurance access, location and transportation, incarceration, immigration status, and substance use (see Appendix C for laws pertaining to drug use during pregnancy). Like many other diseases – where poverty, homelessness and substance use may play a role – stigma, discomfort, and perceived legal consequences may discourage pregnant people from seeking medical care and speaking openly about risk behavior. The benefit of a transition from a risk-based assessment for third trimester rescreening to a universal recommendation is dependent on routinization and automatization of the rescreening. Clinical settings may decrease the burden of increased screening and follow up by leveraging existing visits[m] or testing opportunities, or by making systems changes such as order sets and clinical reminders in electronic health records.

B. Targeted versus universal screening at delivery

Some clinical guidelines, such as those published by the American College of Gynecologists and Obstetricians (ACOG) and CDC, recommend screening at third trimester *and delivery* for individuals at high risk for syphilis or those in high-CS morbidity areas. Many California local health jurisdictions already have issued local guidance for such universal screening at both time points based on local epidemiology, as have some other states.

The risks and benefits of screening at delivery are similar to doing so in third trimester with a few important differences. At time of delivery, identification of maternal syphilis can still prompt evaluation and early antibiotic treatment of an infant born with CS, which has been demonstrated to prevent many of the complications of both early and late congenital infection. Maternal treatment at that time can also prevent maternal complications, transmission to other sexual partners, syphilis transmission in

[m] If a prenatal visit between the 28th and 32nd week is logistically very difficult for the patient or not feasible, providers may consider coordinating syphilis rescreening at the time of glucose tolerance testing, which is recommended between 24 and 28 weeks' gestation. Although this precedes the third trimester, it is clinically prudent to avoid delays of rescreening to ensure timely treatment when indicated. Providers may also consider rescreening for syphilis at the time of Tetanus-Diphtheria-Pertussis (Tdap) vaccine administration, recommended between 27 and 36 weeks' gestation, with the earliest possible rescreening opportunity preferred.

future pregnancies, and/or the rare outcome of post-natal transmission via contagious oral or skin lesions. However, screening at delivery lacks the benefit of identification and treatment in pregnancy early enough to prevent CS, and thus avoid a prolonged neonatal intensive care unit admission and antibiotic treatment. Risks of screening at delivery may include prolonged hospitalization for both the parent and infant while awaiting results and/or separation of the infant from parents during this period. At the time this document was prepared, there were no identified cost-effectiveness studies evaluating universal screening at delivery for CS prevention and related complications, although it can be inferred from the above risks and benefits that delivery screening may be less cost-effective than third trimester screening. Finally, in the context of the above risks, benefits, and practical implications, these guidelines recommend screening at delivery in the following settings:

- All patients except those at low risk[n] who have a documented negative screen in the third trimester.
- All patients in local jurisdictions that have already issued such recommendations.

C. Prenatal Syphilis Detection in Emergency Departments

Confirmation of syphilis status among pregnant patients admitted to an ED requires three components: 1) knowledge of a patient's pregnancy, 2) access to patient medical records to confirm prior syphilis testing was performed during pregnancy, and 3) ability to perform syphilis screening in the event that patient records cannot be obtained.

These steps could be operationalized into ED admission and discharge processes. For example, upon admission, ED triage staff could verify pregnancy status at intake, which could then prompt an electronic reminder to ED providers to confirm syphilis status or create an automatic order for a syphilis test. Such information could be included with other elements of pregnancy information (such as estimated due date or last menstrual period). In addition, a patient's previous labs may be available via interconnected electronic medical records that may be accessible to the ED. If syphilis status remains unknown or is undocumented, screening protocols prompted by electronic orders or reminders may be an option to ensure pregnant patients are screened prior to discharge. Testing options may include rapid testing and/or standing orders for syphilis testing. While follow up of results can be challenging in this setting, EDs can partner with their local public health departments, which prioritize investigation of pregnant patients with syphilis and can help with staging and coordination of treatment.

[n] CDPH syphilis screening recommendations and increased risk for syphilis infection are also described in Tables 1 and 2 respectively on page 3 of this document, as well as in Appendix A.

IV. Syphilis Screening in Correctional Facilities

Recommendation Statement

- **All people who are or could become pregnant entering an adult correctional facility located in a local health jurisdiction with high-CS morbidity[o] should be screened for syphilis at intake, or as close to intake as feasible.**

Relevant California Codes

At the time this document this was prepared, regulations for STD screening in correctional facilities was limited to juvenile detention settings, as shown below in the California Code of Regulations Title 15. However, no such regulations exist yet for adults. In addition, minimum standards of care pertaining to individuals who have experienced either sexual assault or sexual assault attempts specify obtaining baseline syphilis serology. While not specific to incarceration, this code is applicable to many individuals entering the correctional system, and those already incarcerated**.** For example, one national study estimated that 68 percent of women in prison experienced sexual victimization prior to incarceration.[39] Because high proportions of people entering the correctional system have a history of sexual assault, this population might benefit from expanded syphilis screening.

Title 15 Section 1432: The health appraisal/medical examination shall be completed within 96 hours of admission, excluding holidays, to the facility and result in a compilation of identified problems to be considered in classification, treatment, and the multi-disciplinary management of the youth while in custody and in pre-release planning. It shall be conducted in a location that protects the privacy of the youth and conducted by a physician, or other licensed or certified health professional working within his/her scope of practice and under the direction of a physician. Laboratory and diagnostic testing includes: tuberculosis screening and testing for sexually transmitted diseases for sexually active youth.

Title 15. Crime Prevention and Corrections Section 1432. Health Appraisals/Medical Examinations Div. I Board of State and Community Corrections, Chapter I., Subchapter 5. Minimum Standards for Juvenile Facilities. Article 8. Responsibility for Health Care Service

Penal Code Section 13823.11: Minimum standards for the examination and treatment of victims of sexual assault, or attempted sexual assault, includes taking baseline syphilis serology (among other actions).

Penal Code, Part 4, Title 6, Chapter 3, 13823.11)

[o] CDPH defines local health jurisdictions with high-CS morbidity as those with a rate greater than 8.4 CS cases per 100,000 live births for any of the past three consecutive years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States; of note, 2012 was also the last year in which California's CS rate was below that of the national rate.

National Recommendations

National recommendations from both CDC and the U.S. Preventive Services Task Force (USPSTF) support syphilis screening policies in correctional facilities informed by local syphilis disease burden, as determined by public health surveillance. These recommendations are derived from evidence supporting associations between syphilis infection, history of incarceration, and behavioral risk factors such as commercial sex work and illicit substance use, which are common reasons for arrest among people who could become pregnant.[40]

The National Commission on Correctional Health Care (NCCHC) released a 2014 position statement regarding STD screening for both adolescents and adults in correctional settings.[41] This statement supports the partnership of correctional facilities with local public health departments in the provision of STD screening, and endorses syphilis screening tests as guided by local syphilis morbidity.

"Universal screening should be conducted on the basis of the local area and institutional prevalence of early (primary, secondary, and early latent) infectious syphilis. Correctional facilities should stay apprised of syphilis prevalence as it changes over time."

"When deciding which other persons to screen for syphilis, clinicians should be aware of the prevalence of infection in the communities they serve, as well as other sociodemographic factors that may be associated with increased risk of syphilis infection. Factors associated with increased prevalence that clinicians should consider include history of incarceration, history of commercial sex work, certain racial/ethnic groups, and being a male younger than 29 years, as well as regional variations that are well described."

"NCCHC recognizes the ongoing constraints associated with providing additional STD screening and testing services to persons entering correctional facilities. NCCHC also recognizes that those services should prioritize men and women under age 25. NCCHC also acknowledges the availability of noninvasive laboratory test methods for ease in screening. Therefore, NCCHC recommends the following:

"…Local institutional administrators and medical staff are encouraged to develop and/or enhance their working relationships with their local health departments' communicable disease managers in an effort to determine the best use of resources available for the provision of STD laboratory testing and treatment.

"…Facilities should review the yield of active syphilis screening within their institutions to determine whether laboratory testing is appropriate."

Facilities should consider additional STD testing (i.e., HIV, Trichomonas vaginalis) for persons testing positive and newly diagnosed for chlamydia/gonorrhea or syphilis."

Supportive Evidence for Syphilis Screening in Correctional Facilities

A. Utility of screening in correctional facilities to prevent CS

Studies that demonstrate the effectiveness of screening in correctional facilities to prevent CS are limited. This strategy for disease detection and timely treatment in order to preclude later fetal infection, should pregnancy occur, has yet to be explored within the context of the current CS epidemic. Nevertheless, findings from studies conducted in the 1990's, when national CS rates were similarly elevated, suggest screening people who are incarcerated when they are or could become pregnant is an important cost-effective component of case detection, and – when paired with timely treatment – CS prevention. For example, in 1993 a New York City women's jail implemented a rapid syphilis screening protocol for all people who were admitted to the facility. Of 727 included in the analysis, 190 (26 percent) had indications for syphilis treatment, 115 (61 percent) of whom were newly identified infections; 84 percent of all infections were treated by the jail. Of 55 pregnant people screened, 17 (31 percent) had indications for treatment, 15 (88 percent) of whom were treated on site. Eight of these pregnancies were followed to delivery; in seven (88 percent) of these pregnancies, CS was prevented by case detection and treatment during incarceration.[42]

B. Cost-effectiveness

A study conducted between 1993 and 1995 in a county jail located near New York City evaluated an expedited syphilis screening protocol with regard to case detection and treatment among all adults incarcerated. This study also evaluated subsequent CS prevention, as well as cost-effectiveness.[p] The estimated prevalence of syphilis among people who are or could become pregnant was 4 percent. Screening was cost-effective for both syphilis and CS prevention. The authors concluded the cost breakeven point would have occurred at a syphilis prevalence of only 0.15 percent among study participants who identified as female.[43] Similarly, Kraut et al. created a mathematical model to assess cost-effectiveness of universal rapid syphilis screening at intake in jails and prisons for all adults.[q] Results indicated programs would be cost-advantageous in both jails and prisons in which the prevalence is greater than 1 percent. The model did not consider pregnancy or account for additional savings associated with CS prevention.[44]

Rationale in California

In 2018, nearly one million adult Californians were booked into local jails. Females comprise approximately 5-15 percent of people who are incarcerated. Although a relatively small portion of the

[p] Costs included partial staff time, testing supplies, and syphilis treatment – both for BPG and doxycycline. Costs savings of syphilis treatment incorporated aversion of CS cases, aversion of late stage syphilis management, as well as offsetting costs related to neurosyphilis and cardiovascular sequelae in late stage disease.

[q] Data derived from costs from the mid to late 1990's. Model assumptions included 100 percent screening, linkage to treatment, and treatment efficacy. Cost considerations included screening with a STAT and quantitative RPR; positive RPRs underwent fluorescent treponemal antibody absorption confirmation, and those with positive RPRs received treatment. Treatment costs included medical therapy as well as all components related to cardiovascular and neurosyphilis that would have been needed.

total incarcerated population, the number of females in jails has risen 6-fold from 1970 to 2014.[45] Syphilis prevalence among people incarcerated in California women's jails is thus far unknown. However, from 2017 to 2018, syphilis prevalence ranged from 3 to 5 percent among people in California women's prisons.[46]

Despite a lack of strong screening recommendations, some jails that have implemented routine syphilis screening programs have identified a significant number of infections. In 2017, one high-CS morbidity local health jurisdiction screened nearly 1,000 incarcerated females, age 35 years or younger; 7.2 percent had indications for treatment.[r] More recently, a jail in an adjacent local health jurisdiction screened 292 females over 10 months (from July 2017 to April 2018) and identified 29 cases (10 percent) for treatment.[s] Combining these two groups, the prevalence of syphilis among females who were incarcerated in one of these two facilities was 9.2 percent – well above both that found in the state prison system where routinized screening is already in place, and the 4 percent prevalence used for Kraut's hypothetical cohort.

A large proportion of people who could become pregnant who are (or have been) incarcerated have significant risk factors for syphilis infection such as drug use and having had experienced sexual assault. With regard to substance use, in 2002, more than two-thirds (68 percent) of surveyed individuals incarcerated in local jails across the country met substance use disorder criteria.[47] Among people incarcerated in California's women's prisons in 2017, approximately 5 percent were sentenced for drug offenses.[48]

Importantly, a significant number of pregnant people with syphilis in California report a history of incarceration, often not long prior to pregnancy. In 2018, 26 percent of pregnant people with syphilis in California[t] had been incarcerated in the previous 12 months. An in-depth review of 69 CS cases in 2017 from high-CS morbidity counties found missed screening opportunities among 13 percent of maternal syphilis cases. Los Angeles County similarly reviewed 239 cases of syphilis among pregnant people in 2017, finding 34 percent of cases had a history of arrest. Meanwhile, in the same year, forty-six percent of the county's CS cases by surveillance criteria were born to mothers with a history of incarceration.[49]

Implementation and Evaluation of Clinical Practice Outcomes

A. Opt-out versus opt-in screening

Opt-out screening programs consistently reach more people compared to an opt-in model, which relies on the accuracy of an individuals' risk-perception to initiate screening. For instance, although not explored in the context of syphilis for CS prevention, jail-based chlamydia and gonorrhea opt-out screening programs have been shown to detect more cases of infection compared to an opt-in model.[50]

California's prison system has robust infection screening procedures in place. All individuals entering the state prison system enter through reception centers, where California Correctional Health Care Services

[r] S. Dhaliwal. California Epidemiologist Evaluator, Fresno County. Personal communication. January, 2019.
[s] J. Spolsdoff. Public Health Laboratory Director, Kings County. Personal communication. May, 2018.
[t] California Project Area (excludes San Francisco and Los Angeles).

offers opt-out syphilis screening with quantitative RPR blood tests, paired with treatment when indicated. Of 2,589 females who entered the state prison system in 2018, 99.7 percent were screened for syphilis. This opt-out screening protocol could be adapted for California jails. For example, as of 2018, one jail in a high-CS morbidity local health jurisdiction in California conducts routine quantitative RPR blood tests for females, age 35 and younger, who enter the facility.

In light of shorter lengths of stay in jail settings, a rapid syphilis test (e.g. STAT RPR) could expedite the identification of individuals with syphilis. Presumptively treating those with reactive results while waiting for confirmatory testing could increase treatment of infected individuals. The New York City jail protocol used this strategy, which informed the mathematical modeling study by Kraut et al. In Kraut's model, overtreatment costs would be offset by savings in disease costs if immediate treatment based on a positive STAT RPR prevented at least five people with syphilis (of a hypothetical cohort of 10,000 people, with an 8 percent syphilis prevalence) from being released untreated and lost to follow up.[44]

B. Screening at intake

In 2017, the national average length of stay in U.S. jails was 26 days, while duration of jail-stay from time of booking to release can be as short as 24 hours or less. In light of the potential brevity of stay, screening that is performed should occur as close to intake as possible, in order to facilitate syphilis detection among a larger proportion the people who are or could become pregnant and afford opportunities for treatment prior to release.

C. Ensuring timely adequate treatment

The prevention of CS is dependent on timely screening paired with adequate treatment according to stage of disease. Treatment delivery in correctional settings should include the following: (1) availability of treatment on-site, inclusive of (a) stocked unexpired BPG stored in appropriately refrigerated temperatures, and (b) supplies needed to safely administer an intramuscular (IM) injection; (2) medical personnel with capacity to administer treatment; (3) ability to arrange for people with penicillin allergy to undergo desensitization prior to treatment if doxycycline is contraindicated; and (4) a protocol to ensure medical follow-up, including communication with the local public health department, for remaining doses of BPG needed for adequate therapy for people who will be released prior to treatment completion.

V. Syphilis Screening for All People Who Could Become Pregnant

Recommendation Statements

- **All sexually active people who could become pregnant should receive at least one lifetime screen for syphilis, with additional screening for those at increased risk.[u]**
- **All sexually active people who could become pregnant should be screened for syphilis at the time of each HIV test.**

Relevant California Health Codes

In California, all persons age 12 years and older have a right to consent on their own to confidential STD prevention, testing, and treatment services, including syphilis-related care.

> *6929: (a) A minor who is 12 years of age or older and who may have come into contact with an infectious, contagious, or communicable disease may consent to medical care related to the diagnosis or treatment of the disease, if the disease or condition is one that is required by law or regulation adopted pursuant to law to be reported to the local health officer, or is a related sexually transmitted disease, as may be determined by the State Public Health Officer. (b) A minor who is 12 years of age or older may consent to medical care related to the prevention of a sexually transmitted disease. (c) The minor's parents or guardian are not liable for payment for medical care provided pursuant to this section.*
>
> California Family Code, Div 11. Minors [6500-7143] Part 4. Medical Treatment [6900-6929] Ch. 3 Consent by Minor [6920-6929]

[u] Criteria for increased risk for syphilis infection are described in Appendix A and on page 3 of this document. Risk of syphilis infection should include local syphilis morbidity among people who could become pregnant, as well as recent incidence of CS. CDPH defines local health jurisdictions with high-CS morbidity as those with a rate greater than 8.4 CS cases per 100,000 live births for any of the past three consecutive years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States; of note, 2012 was also the last year in which California's CS rate was below that of the national rate.

National Recommendations

1. Syphilis screening pertaining to patients who could become pregnant:

"For sexually active persons living with HIV, screen at first HIV evaluation and at least annually thereafter. More frequent screening might be appropriate depending on individual risk behaviors and the local epidemiology."

2. Concurrent HIV and STD screening:

"All persons who seek evaluation and treatment for STDs should be screened for HIV infection. Screening should be routine, regardless of whether the patient reports any specific behavioral risks for HIV infection. Persons at high risk for HIV infection with early syphilis, gonorrhea, or chlamydia should be screened at the time of the STD diagnosis, even if an HIV test was recently performed. Some STDs, especially rectal gonorrhea and syphilis, are a risk marker for HIV acquisition."

Syphilis screening pertaining to patients who could become pregnant:
"This recommendation applies to asymptomatic, nonpregnant adults and adolescents who are at increased risk for syphilis infection. Screening for syphilis in nonpregnant populations is an important public health approach to preventing the sexual transmission of syphilis and subsequent vertical transmission of congenital syphilis...The USPSTF recommends screening for syphilis in persons who are at increased risk for infection."

CDC recommends routine syphilis screening for pregnant people and people who are HIV-positive, as well as risk-based screening for people uninfected with HIV who could become pregnant. CDC screening guidelines further recognize risk factors that are common to both HIV and syphilis, indicating people who could become pregnant seeking evaluation and treatment for STDs should be screened for HIV.[2] USPSTF recommends risk-based syphilis screening for asymptomatic, non-pregnant, HIV-negative people who could become pregnant.[40] Recommendations from leading medical associations, such as ACOG, AAP, and the American Academy of Family Physicians, align with CDC and USPSTF recommendations.

Rationale in California

In 2016-2017, more than half of CS infants were born to mothers who may have been infected prior to becoming pregnant. Additionally, in 2018, nearly one-third of interviewed pregnant syphilis cases did not report any risk factors, suggesting syphilis acquisition may have occurred long before conception.

In light of dramatic increases in early syphilis among females (15-44 years of age), screening for syphilis in all people who could become pregnant at least once in their lifetime is an important component of disease detection and treatment. In California 2018, the peak incidence of early syphilis among females was between 20-35 years, thus an ideal time for once lifetime screening. In order to detect syphilis in asymptomatic latent stages, screening is necessary to decrease the overall syphilis burden among people who are or could become pregnant, as well as prevent vertical transmission of undiagnosed syphilis from mother to fetus in future pregnancies.

Overlapping risk factors for HIV and syphilis and parallel testing methodologies warrant concurrent syphilis and HIV screening. In California, more incident syphilis is identified among females each year than HIV, with 2301 cases of early syphilis[v] among females in 2018 compared to 557 new cases of HIV reported among cisgender women in 2018.[29] [51] Current universal HIV screening recommendations are supported by the frequency of asymptomatic infection, disease morbidity, treatment options available, decreased transmission as a result of adequate treatment, and the long-term health outcomes of early versus delayed treatment of a new HIV diagnosis. Syphilis infection is similarly asymptomatic in the majority of cases and has shown an elevated and growing morbidity among people who could become pregnant. Like HIV, early treatment of syphilis decreases transmission and has significant long-term preventive benefits for both the infected people who could become pregnant as well as infants of future pregnancies.

The lack of syphilis screening recommendations for people who could become pregnant has led to inconsistent screening practices across individual providers and medical groups. Risk-based screening can be challenging to implement due to stigma surrounding social risk factors such as exchange sex, methamphetamine use, homelessness, and incarceration. Clinical risk factors, such as an indicated HIV test or diagnosis of another STD, are more readily available to providers. Still, while reflexive and/or routine syphilis screening for people who could become pregnant has been implemented in some California STD clinics, such as those in San Diego and Orange counties, syphilis screening based on clinical risk factors is inconsistently practiced outside of specialty STD clinic settings.

Evidence to determine optimal syphilis screening intervals for HIV-negative people who could become pregnant is limited. One reasonable approach is one-time screening for all non-pregnant people who could become pregnant, paired with additional risk-based repeated screening as determined by provider and patient. At the time this document was prepared, one health jurisdiction experiencing increasing rates of CS and syphilis among females had already implemented local guidelines matching these recommendations.[52]

Summary of Benefits of Increased Screening

Expanded screening to people who could become pregnant could identify syphilis cases that might otherwise be undetected until pregnancy. When paired with timely treatment, this practice could reduce sexual transmission, potential late-stage sequelae, and vertical transmission from mother to fetus for people who become pregnant.

Identification and treatment of syphilis prior to pregnancy, along with a discussion about pregnancy intention and a referral to family planning for people who do not want to become pregnant, can prevent future cases of CS. Finally, an established syphilis status prior to pregnancy may help distinguish between early stage versus late latent and unknown duration stages of infection, should syphilis be detected in a future pregnancy. Improvements in staging accuracy may allow a proportion of patients to receive one-dose BPG treatment, as opposed to three doses required for late latent and unknown duration syphilis.

[v] Early Syphilis is inclusive of primary, secondary, and early latent stage disease.

Compared to three-dose therapy, a single dose reduces patient burden, improves treatment completion rates, and reduces overall cost.

Implementation Considerations

A. Implementation in family planning settings

Family planning settings are ideal locations to implement expanded syphilis screening recommendations due to the existing focus on delivering high quality sexual health care. It is especially important to expand syphilis testing among patients being tested for HIV. In addition to implementing the expanded guidelines, consider the following protocols to assist in CS prevention efforts:

In reporting Title X-funded family planning clinics, 18 percent of females who received an HIV test (n=174,316) in 2017 also received a syphilis test (n=32,120).[w]

In the Family PACT program, more HIV tests were performed in Fiscal Year 2014-15 than syphilis tests (37 percent of all STD tests versus 28 percent of all STD tests).[53]

1) Expanded syphilis screening at pregnancy test only visits, regardless of the pregnancy result.
2) Counsel people who could become pregnant who are at risk for syphilis but do not desire pregnancy about contraception methods.

B. Implementation in primary care settings

Increasingly, people rely on their primary care provider to deliver all needed health services, including sexual health care. Primary care providers should routinely (at least annually) ask sexual history questions to identify people who could become pregnant who have never been tested for syphilis, those who have no documentation of syphilis status, and those who are at increased risk. As a reminder, all persons in California ages 12 and older have a right to consent to STD prevention, testing, and treatment services, including syphilis-related care, on their own and to receive those services confidentially. [Cal. Family Code Section 6926]

C. Bicillin-Long Acting (LA) stocking and reimbursement

Clinics diagnosing syphilis should have immediate access to Bicillin-LA to facilitate adequate and timely treatment. Clinics facing stocking challenges should contact their local health department for assistance. The policy and reimbursement environment in California supports expanded syphilis screening recommendations. Clinics enrolled in the 340B Drug Pricing program may be able to access Bicillin-LA at discounted rates. Public insurance sources, including Medi-Cal and Family Planning, Access, Care, and Treatment (PACT) Program, will reimburse for syphilis testing and treatment for plan members.

D. Case follow up and partner services

Across the state, local disease investigation resources are prioritized to support follow up of syphilis cases among people who are or could become pregnant (15-44 years). As part of the investigation, counties attempt to identify and follow up with sex partners (also called “Partner Services”).

---

[w] Title X data - E. Crowley. Sexual and Reproductive Health Program Manager, Essential Access Health. Personal communication. October, 2018.

E. Training and consultation

The correct diagnosis and appropriate management of syphilis is often complex. Training and consultation resources are available to California providers. Any provider can request timely consultation on specific cases via the STD Clinical Consultation Network. Additional training opportunities and resources are available from the California Prevention Training Center (See Also "Resources" below).

Resources

STD Treatment Guidelines
CDC 2015 STD Treatment Guidelines: www.cdc.gov/std/tg2015 **California STD Treatment Guideline summary table:** www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/STD-Treatment-Guidelines-Color.pdf

Additional CDPH STD Control Branch Resources
Guidelines and Job Aids: www.cdph.ca.gov/Programs/CID/DCDC/Pages/STDs-ClinicalGuidelines.aspx# **Women's Sexual Health:** www.cdph.ca.gov/Programs/CID/DCDC/Pages/WomensSexualHealth.aspx **Syphilis Reporting Form *(Confidential Morbidity Reporting)*:** www.cdph.ca.gov/CDPH%20Document%20Library/ControlledForms/cdph110a.pdf

Clinical Training and Consultation Resources
STD Clinical Consultation Network: https://stdccn.org **National STD Curriculum:** www.std.uw.edu **California Prevention Training Center:** https://californiaptc.com **National Network of Prevention Training Centers:** www.nnptc.org

References

1. American Academy of Pediatrics and the American Academy of Obstetrics and Gynecologiests. Guidelines for Perinatal Care. 8th ed. Elk Grove village, IL: American Academy of Pediatrics 2017.
2. Workowski KA, Bolan GA. Sexually Transmitted Diseases Treatment Guidelines, 2015. *Centers for Disease Control and Prevention MMWR*. 2015; 64(3):34-48.
3. Centers for Disease Control and Prevention. Sexually transmitted disease surveillance 2016. Atlanta: U.S. Department of Health and Human Services; 2017.
4. Syphilis in Women and Babies: 2017 Snapshot for California: California Department of Public Health, STD Control Branch, 2018.
5. U.S. Preventive Services Task Force. Screening for syphilis infection in pregnancy: US Preventive Services Task Force reaffirmation recommendation statement. *Ann Intern Med*. 2009;150:705-09.
6. Centers for Disease Control and Prevention. Preexposure prophylaxis for the prevention of HIV infection in the United States—2017 update: a clinical practice guideline. Atlanta: U.S. Public Health Service; 2018.
7. Aberg JA, Gallant JE, Ghanem KG, et al. Primary care guidelines for the management of persons infected with HIV: 2013 update by the HIV Medicine Association of the Infectious Diseases Society of America. *Clinical Infectious Diseases*. 2013;58(1):e1-e34.
8. Kamb ML, Newman LM, Riley PL, et al. A road map for the global elimination of congenital syphilis. *Obstetrics and Gynecology International*. 2010.
9. Centers for Disease Control and Prevention. Sexually transmitted disease surveillance 2017. Atlanta: U.S. Department of Health and Human Services; 2018.
10. Kimball A, Torrone E, Miele K, et al. Missed opportunities for prevention of congenital syphilis—United States, 2018. *Centers for Disease Control and Prevention MMWR*. 2020;69(22):661.
11. The Joint Commission. R3 report issue 12: maternal infectious disease status assessment and documentation standards for hospitals and critical access hospitals. The Joint Commission. 2017.
12. Bowen V, Su J, Torrone E, et al. Increase in incidence of congenital syphilis–United States, 2012–2014. *Centers for Disease Control and Prevention MMWR*. 2015;64(44):1241-45.
13. Matthias JM, Rahman MM, Newman DR, et al. Effectiveness of prenatal screening and treatment to prevent congenital syphilis, Louisiana and Florida, 2013–2014. *Sexually Transmitted Diseases*. 2017;44(8):498-502.
14. Baldwin S, Munoz M, Montano A, Fernandez R, Murphy R. Congenital syphilis in Los Angeles county, California: understanding the outbreak. Poster presented at: 2016 STD Prevention Conference; September, 2016; Atlanta, GA.
15. Alexander JM, Sheffield JS, Sanchez PJ, et al. Efficacy of treatment for syphilis in pregnancy. *Obstetrics & Gynecology*. 1999;93(1):5-8.
16. Sheffield JS, Sánchez PJ, Morris G, et al. Congenital syphilis after maternal treatment for syphilis during pregnancy. *American Journal of Obstetrics and Gynecology*. 2002;186(3):569-73.
17. Cheng J, Zhou H, Hong F, et al. Syphilis screening and intervention in 500 000 pregnant women in Shenzhen, the People's Republic of China. *Sexually Transmitted Infections*. 2007;83(5):347-50.
18. Qin JB, Feng TJ, Yang TB, et al. Maternal and paternal factors associated with congenital syphilis in Shenzhen, China: a prospective cohort study. *European Journal of Clinical Microbiology & Infectious Diseases*. 2014;33(2):221-32.

19. Qin JB, Feng TJ, Yang TB, et al. Risk factors for congenital syphilis and adverse pregnancy outcomes in offspring of women with syphilis in Shenzhen, China: a prospective nested case-control study. *Sexually Transmitted Diseases*. 2014;41(1):13-23.
20. Zhu L, Qin M, Du L, et al. Maternal and congenital syphilis in Shanghai, China, 2002 to 2006. *International Journal of Infectious Diseases*. 2010;14:e45-e48.
21. Liu JB, Hong FC, Pan P, et al. A risk model for congenital syphilis in infants born to mothers with syphilis treated in gestation: a prospective cohort study. *Sexually Transmitted Infections*. 2010;86(4):292-96.
22. Galvao TF, Silva MT, Serruya SJ, et al. Safety of benzathine penicillin for preventing congenital syphilis: a systematic review. *PloS One*. 2013;8(2):e56463.
23. Brown S. Adverse reactions in syphilis therapy. *Journal of the American Venereal Disease Association*. 1976;3(2 Pt 2):172-76.
24. Klein VR, Cox SM, Mitchell MD, et al. The Jarisch-Herxheimer reaction complicating syphilotherapy in pregnancy. *Obstetrics & Gynecology*. 1990;75(3):375-80.
25. Myles TD, Elam G, Park-Hwang E, et al. The Jarisch-Herxheimer reaction and fetal monitoring changes in pregnant women treated for syphilis. *Obstetrics & Gynecology*. 1998;92(5):859-64.
26. Fung W, Robles O. Effects of antenatal testing laws on infant mortality. *Journal of Health Economics*. 2016;45:77-90.
27. Warren HP, Cramer R, Kidd S, et al. State requirements for prenatal syphilis screening in the United States, 2016. *Maternal and Child Health Journal*. 2018;22(9):1227-32.
28. Hollier LM, Hill J, Sheffield JS, et al. State laws regarding prenatal syphilis screening in the United States. *American Journal of Obstetrics and Gynecology*. 2003;189(4):1178-83.
29. Sexually Transmitted Diseases Data 2019. California Department of Public Health STD Control Branch website. https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/STD-Data.aspx. Accessed August 22, 2019.
30. Plotzker RE, Murphy RD, Stoltey JE. Congenital syphilis prevention: strategies, evidence, and future directions. *Sexually Transmitted Diseases*. 2018;45:S29-S37.
31. Bristow CC, Larson E, Anderson LJ, et al. Cost-effectiveness of HIV and syphilis antenatal screening: a modelling study. *Sexually Transmitted Infections*. 2016:sextrans-2015-052367.
32. Owusu-Edusei K Jr, Gift TL, Ballard RC. Cost-effectiveness of a dual non-treponemal/treponemal syphilis point-of-care test to prevent adverse pregnancy outcomes in sub-Saharan Africa. *Sexually Transmitted Diseases*. 2011;38(11):997-1003.
33. Kahn JG, Jiwani A, Gomez GB, et al. The cost and cost-effectiveness of scaling up screening and treatment of syphilis in pregnancy: a model. *PLoS One*. 2014;9(1):e87510.
34. Hersh AR, Megli CJ, Caughey AB. Repeat screening for syphilis in the third trimester of pregnancy: a cost-effectiveness analysis. *Obstetrics & Gynecology*. 2018;132(3):699-707.
35. Edwards RK, Bennett M, Langstraat C, et al. Assessment of the value of rescreening for syphilis in the third trimester of pregnancy. *Infectious Diseases in Obstetrics and Gynecology*. 2006.
36. Shiber L, Todia WJ. Cost and clinical utility of repeated syphilis screening in the third trimester in a high-risk population. *American Journal of Obstetrics and Gynecology*. 2014;210(3):267. e1-67. e5.
37. Venegas LA, Duquette W. Enhancing the routine screening infrastructure to address a syphilis epidemic in Miami-Dade county. Presented at: 2019 HIV Diagnostics Conference; 2019; Atlanta, GA.
38. Ernst AA, Romolo R, Nick T. Emergency department screening for syphilis in pregnant women without prenatal care. *Annals of Emergency Medicine*. 1993;22(5):781-85.

39. Blackburn AG, Mullings JL, Marquart JW. Sexual assault in prison and beyond: Toward an understanding of lifetime sexual assault among incarcerated women. *The Prison Journal*. 2008;88(3):351-77.
40. US Preventive Services Task Force. Final recommendation statement: syphilis infection in nonpregnant adults and adolescents: screening. US Preventive Services Task Force; 2016.
41. Position statement: STD testing for adolescents and adults upon admission to correctional facilities. National Commission on Correctional Health Care website. https://www.ncchc.org/STI-testing-upon-admission. Updated October 2014. Accessed June 2015.
42. Blank S, McDonnell DD, Rubin SR, et al. New approaches to syphilis control: finding opportunities for syphilis treatment and congenital syphilis prevention in a women's correctional setting. *Sexually Transmitted Diseases*. 1997;24(4):218-26.
43. Silberstein GS, Coles FB, Greenberg A, et al. Effectiveness and cost-benefit of enhancements to a syphilis screening and treatment program at a county jail. *Sexually Transmitted Diseases*. 2000;27(9):508-17.
44. Kraut JR, Haddix AC. 81 Cost-effectiveness of routine screening for sexually transmitted diseases among inmates in United States prisons and jails. National Commission on Correctional Health Care; 2002.
45. Swavola E, Riley K, Subramanian R. Overlooked: women and jails in an era of reform. Vera Institute of Justice; New York, NY; August 2016.
46. Hutchinson J, Mohle-Boetani J. Executive briefing on sexually transmitted infections: screening and treatment in reception centers, calendar year 2018. California Correctinoal Health Care Services; March 2019.
47. Karberg J, James D. Bureau of justice statistics special report: substance dependence, abuse, and treatment of jail inmates, 2002 (NCJ209588). Washington, DC: US Department of Justice, Bureau of Justice Statistics, Office of Justice Programs. Accessed: October 17, 2007.
48. Jail Population Trends (Booking Totals) 2017. California Board of State and Communicty Corrections website. https://public.tableau.com/profile/kstevens#!/vizhome/ACJROctober2013/About. Accessed 2018.
49. Blackman KC, Garland WH, Kulkarni SP, Rumanes SF. A comparison of pregnant women with syphilis with and without a history of arrest in Los Angeles county, 2014-2016. Presented at: 2018 CDC STD Conference; Washington, D.C.; August 2018.
50. Shaikh RA, Simonsen KA, O'Keefe A, et al. Comparison of opt-in versus opt-out testing for sexually transmitted infections among inmates in a county jail. *Journal of Correctional Health Care*. 2015;21(4):408-16.
51. California Department of Public Health Office of AIDS. California HIV surveillance report - 2018. California Department of Public Health. Sacramento, CA; 2020.
52. Los Angeles County STD Screening Recommendations 2018. Los Angeles County Department of Public Health website. http://publichealth.lacounty.gov/dhsp/SyphilisInWomen/18_LA_County_STDScreeningRecommendations_2018.pdf. Updated January 2018.
53. California Department of Health Care Services, Office of Family Planning. Family PACT program report fiscal year 2015-2016. Sacramento, CA: California Department of Health Care Services; 2017.

Appendices

Appendix A: Summary Tables

Table 1. Summary of Recommended Syphilis Screening for Specific Populations

Pregnant people	• Once at either confirmation of pregnancy, or at the first prenatal encounter (ideally during the first trimester)[2] • Third trimester, ideally between 28-32 weeks' gestation • At delivery if no negative screen documented in third trimester or if risk factors for syphilis are present • Prior to Emergency Department (ED) discharge, either via documented test results in pregnancy, or a syphilis test in the ED if documentation is unavailable • If incarcerated at an adult correctional facility, at intake or as close to intake as possible
Nonpregnant people who could become pregnant in the future	• At least once, more frequently if at increased risk • At the time of each HIV test • If incarcerated at an adult correctional facility, at intake or as close to intake as possible
Male assigned at birth: MSW	• If at increased risk[2]
Male assigned at birth: MSM/MSMW & TGW	• Annually • More frequently if at increased risk[2]
All genders: Using HIV PrEP	• Every 3 months[6]
All genders: HIV-seropositive	• Annually • More frequently if at increased risk[7]

MSW: Man who has sex with women; MSM: Man who has sex with men; MSMW: Man who has sex with men and women; PrEP: Pre-Exposure Prophylaxis; TGW: Transgender Woman[x]

[x] Inclusive of all transgender women, regardless of sex partner gender.

Table 2. Recognized Risk Factors for Syphilis among People Who Are or Could Become Pregnant

- Late prenatal care
- HIV Infection
- Living in a local health jurisdiction with high syphilis morbidity among females[y]
- Living in a local health jurisdiction with high-CS morbidity[z]
- History of syphilis infection
- Methamphetamine use
- Intravenous drug use
- Homeless or unstable housing
- Recent incarceration or a sex partner who was recently incarcerated
- Having sex in exchange for resources, such as money or drugs
- Multiple sex partners
- Sex partners who are MSMW or who have other concurrent partners
- Having sex under the influence of alcohol or drugs
- Diagnosis of another STD within the past 12 months
- Pelvic pain or a diagnosis of pelvic inflammatory disease (PID)

[y] There is no specific, evidence-based threshold for what constitutes "high morbidity" among females. National experts accept a rate of at least 4.0 cases of P&S syphilis per 100,000 females (15-44 years) as a reasonable threshold.

[z] CDPH defines local health jurisdictions with high-CS morbidity as those with a rate greater than 8.4 CS cases per 100,000 live births for any of the past three consecutive years. This "threshold" reflects the national rate of CS in 2012, prior to recent increases in California and the United States., when California's CS rate was below that of the national rate.

Appendix B: Additional Settings for Syphilis Screening Under Consideration

Additional venues may be useful for syphilis screening and treatment for people who could become pregnant. Selection of setting is guided by an understanding of the people who are or could become pregnant who are at highest risk of infection, and where they might interact with a healthcare provider. Given a recent CDPH analysis of people who birthed CS infants, urgent care settings, substance use treatment programs, syringe access programs, and field outreach to homeless encampments are potential sites for future syphilis screening.

Appendix C: California Laws Related to Drug Use during Pregnancy

California Penal Code Section 11165.13.

For purposes of this article, a positive toxicology screen at the time of the delivery of an infant is not in and of itself a sufficient basis for reporting child abuse or neglect. However, any indication of maternal substance abuse shall lead to an assessment of the needs of the mother and child pursuant to Section 123605 of the Health and Safety Code. If other factors are present that indicate risk to a child, then a report shall be made. However, a report based on risk to a child which relates solely to the inability of the parent to provide the child with regular care due to the parent's substance abuse shall be made only to a county welfare or probation department, and not to a law enforcement agency.

Welfare and Institutions Code Section 300

A child who comes within any of the following descriptions is within the jurisdiction of the juvenile court which may adjudge that person to be a dependent child of the court:

(a) The child has suffered, or there is a substantial risk that the child will suffer, serious physical harm inflicted nonaccidentally upon the child by the child's parent or guardian. For purposes of this subdivision, a court may find there is a substantial risk of serious future injury based on the manner in which a less serious injury was inflicted, a history of repeated inflictions of injuries on the child or the child's siblings, or a combination of these and other actions by the parent or guardian that indicate the child is at risk of serious physical harm. For purposes of this subdivision, "serious physical harm" does not include reasonable and age-appropriate spanking to the buttocks if there is no evidence of serious physical injury.

(b) (1) The child has suffered, or there is a substantial risk that the child will suffer, serious physical harm or illness, as a result of the failure or inability of his or her parent or guardian to adequately supervise or protect the child, or the willful or negligent failure of the child's parent or guardian to adequately supervise or protect the child from the conduct of the custodian with whom the child has been left, or by the willful or negligent failure of the parent or guardian to provide the child with adequate food, clothing, shelter, or medical treatment, or by the inability of the parent or guardian to provide regular care for the child due to the parent's or guardian's mental illness, developmental disability, or substance abuse. **A child shall not be found to be a person described by this subdivision solely due to the lack of an emergency shelter for the family.**

Health and Safety Code Section 11379.7.

(a) Except as provided in subdivision (b), any person convicted of a violation of subdivision (a) of Section 11379.6 or Section 11383, or of an attempt to violate subdivision (a) of Section 11379.6 or Section 11383, as those sections relate to methamphetamine or phencyclidine, when the commission or attempted commission of the crime occurs in a structure where any child under 16 years of age is present, shall, in addition and consecutive to the punishment prescribed for the felony of which he or she has been convicted, be punished by an additional term of two years in the state prison.

(b) Any person convicted of a violation of subdivision (a) of Section 11379.6 or Section 11383, or of an attempt to violate subdivision (a) of Section 11379.6 or Section 11383, as those sections relate to methamphetamine or phencyclidine, where the commission of the crime causes any child under 16 years of age to suffer great bodily injury, shall, in addition and consecutive to the punishment prescribed for the felony of which he or she has been convicted, be punished by an additional term of five years in the state prison.

(c) As used in this section, "structure" means any house, apartment building, shop, warehouse, barn, building, vessel, railroad car, cargo container, motor vehicle, housecar, trailer, trailer coach, camper, mine, floating home, or other enclosed structure capable of holding a child and manufacturing equipment.

(d) As used in this section, "great bodily injury" has the same meaning as defined in Section 12022.7 of the Penal Code.