



Illinois Chapter

INCORPORATED IN ILLINOIS

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN

Congenital Syphilis: An Update for Pediatricians

8/2/2023

CME Accreditation Statement



INCORPORATED IN ILLINOIS





The Illinois Chapter, American Academy of Pediatrics designates each live webinar for a maximum of 1 *AMA PRA Category 1* $Credit(s)^{TM}$. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nurses and Nurse Practitioners can submit Certificates of Attendance to their accrediting board to claim credit for participation in the live webinars.

8/2/2023

Illinois Chapter

INCORPORATED IN ILLINOIS



CME Disclosure Grid

| Name and Credentials | Role in Activity | Was there a relevant Financial Disclosure | List of Mitigated Disclosures | | | |
|----------------------------|--|---|-------------------------------|--|--|--|
| Irina Tabidze, MD, MPH | Faculty/Presenter | No | N/A | | | |
| | | | | | | |
| Kyran Quinlan, MD, FAAP | Faculty/Presenter Planning Committee Member | No | N/A | | | |
| Arti Barnes, MD, MPH | Faculty/Presenter | No | N/A | | | |
| Stephanie Atella MPH, CHES | Staff | No | N/A | | | |
| | | | | | | |
| Erin Moore, MS | Staff Content Reviewer | No | N/A | | | |

8/2/2023

Learning Objectives



INCORPORATED IN ILLINOIS



After participating in this session, attendees will be able to:

- Describe risk factors for syphilis and how syphilis is transmitted.
- Summarize congenital syphilis epidemiology in Illinois and Chicago.
- Describe clinical implications of congenital syphilis including testing and treatment.
- Apply screening recommendations and treatment best practices.

Speakers

Illinois Chapter

INCORPORATED IN ILLINOIS



- Arti Barnes, MD, MPH Chief Medical Officer
- Kyran Quinlan, MD, MPH, FAAP Pediatric Medical Advisor
- ▶ Irina Tabidze, MD, MPH Director of Program Operations

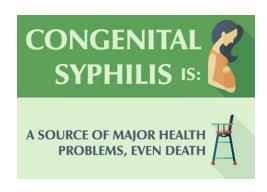
Arti Barnes MD, MPH & Kyran Quinlan MD, MPH, FAAP



What is Congenital Syphilis (CS)?



- A <u>preventable</u> and <u>treatable</u> spirochete infection acquired by the fetus during pregnancy, transmitted through sexual contact to the pregnant person and across the placenta to the fetus
 - ► Adequate treatment for syphilis during pregnancy is 98% effective in reducing congenital syphilis



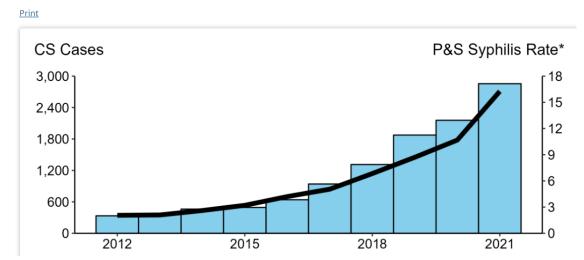
- A disease that causes significant morbidity and mortality
 - 25% untreated pregnancies result in pregnancy loss or other adverse outcomes
 - Neonatal death, prematurity, low birth weight, lifetime morbidity including developmental delay and hearing loss
 - 21% increased risk for stillbirth



But...syphilis is gone from the US, right?

- CS decreased during1991–2005
 - Started increasing slightly by 2008
- By 2014, it had sharply risen to 11.6 per 100K live births;
- By 2018 it had reached33 per 100K live births
- By 2021 it was 77.6 per100k live births
 - >200% increase since 2017

Congenital Syphilis — Reported Cases by Year of Birth and Rates of Reported Cases of Primary and Secondary Syphilis Among Women Aged 15–44 Years, United States, 2012–2021

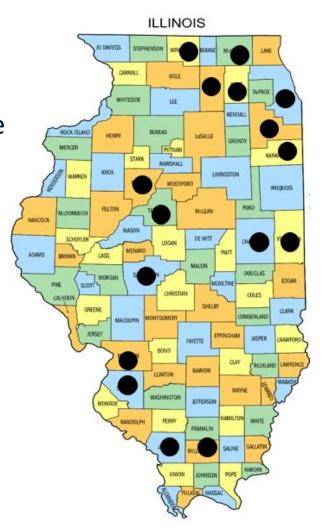


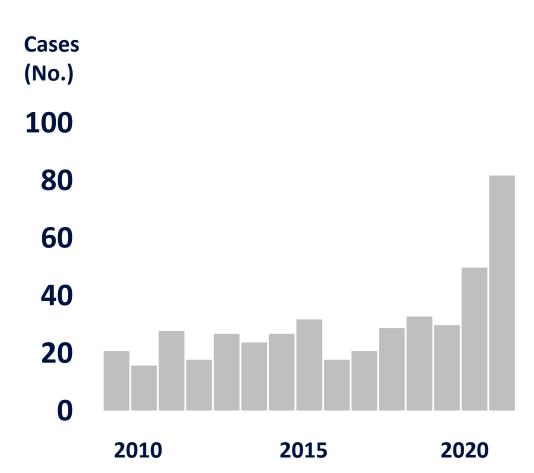
Annual Cases of Congenital Syphilis— Illinois, 2007-2022



Where is it?

2022 presumptive case distribution





And who is this happening to?



TABLE 1. Number and rate* of congenital syphilis (CS) cases by race/ethnicity of mother and region of birth of infant — United States, 2008– 2014^{\dagger}

| Characteristic | 2008 | 2008 | | 2009 | | 2010 | 2011 | 2011 | 2012 | | 2013 | | 2014 | |
|--|------|------|-----|------|-----|------|------|------|------|------|------|------|------|------|
| | No. | Rate | No. | Rate | No. | Rate | No. | Rate | No. | Rate | No. | Rate | No. | Rate |
| Race/ethnicity of mother | | • | • | • | • | • | • | • | ' | • | • | • | • | • |
| White, non-Hispanic | 67 | 2.9 | 65 | 2.9 | 63 | 2.9 | 50 | 2.3 | 50 | 2.3 | 61 | 2.8 | 80 | 3.7 |
| Black, non-Hispanic | 226 | 35.9 | 216 | 35.1 | 216 | 36.3 | 211 | 35.9 | 189 | 32.1 | 185 | 31.4 | 225 | 38.2 |
| Hispanic | 135 | 13.0 | 128 | 12.8 | 91 | 9.6 | 73 | 8.0 | 80 | 8.8 | 92 | 10.2 | 110 | 12.2 |
| Asian/Pacific Islander | 7 | 2.9 | 11 | 4.6 | 9 | 3.8 | 14 | 5.7 | 6 | 2.3 | 9 | 3.5 | 18 | |
| American Indian/Alaska Native | 6 | 13.8 | 5 | 11.8 | 1 | 2.5 | 2 | 5.0 | 2 | 5.1 | 5 | 12.8 | 5 | 12.8 |
| Other | 1 | N/A | 2 | N/A | 3 | N/A | 3 | N/A | 4 | N/A | 3 | N/A | 7 | N/A |
| Unknown | 4 | N/A | 4 | N/A | 4 | N/A | 5 | N/A | 3 | N/A | 4 | N/A | 13 | N/A |
| Region of birth of infant [§] | | • | | • | | • | • | • | | • | • | | | |
| Northeast | 37 | 5.5 | 30 | 4.5 | 26 | 4.0 | 23 | 3.6 | 17 | 2.7 | 17 | 2.7 | 30 | 4.8 |
| Midwest | 37 | 4.2 | 41 | 4.7 | 45 | 5.3 | 41 | 4.9 | 57 | 6.8 | 53 | 6.4 | 71 | 8.5 |
| South | 265 | 16.4 | 263 | 16.7 | 253 | 16.6 | 234 | 15.5 | 206 | 13.7 | 213 | 14.1 | 234 | 15.5 |
| West | 107 | 10.1 | 97 | 9.5 | 63 | 6.4 | 60 | 6.2 | 54 | 5.5 | 76 | 7.9 | 123 | 12.8 |
| Total | 446 | 10.5 | 431 | 10.4 | 387 | 9.7 | 358 | 9.1 | 334 | 8.4 | 359 | 9.1 | 458 | 11.6 |

^{*} CS rates during 2008–2013 were calculated as cases per 100,000 live births by using annual live birth data as denominators. Available at http://wonder.cdc.gov/natality-current.html.

A Moment of Reflection on Inequity in Syphilis



- Black women had a 4.5 times higher odds of birthing a child with congenital syphilis
- ► Hispanic women : 1.8 times higher odds
- Low income : 2.8 times higher odds
- Rural: 2.0 times higher odds
- Immigrant: 4.6 times higher odds
- Use of cocaine: 9.3 times higher odds



Open Forum Infect Dis. 2022 May; 9(5): ofac169.

Published online 2022 Apr 3. doi: 10.1093/ofid/ofac169

PMCID: PMC9045944

PMID: 35493123

Characteristics of Pregnant Women With Syphilis and Factors Associated With Congenital Syphilis at a Chicago Hospital

Corinne Thornton,^{⊠1} Lelia H Chaisson,² and Susan C Bleasdale²

Women with psychiatric illness and noninjection substance use each had a >5-fold increased odds of having an infant with congenital syphilis.

Cases with congenital syphilis were more likely to have late or scant prenatal care and initiated treatment nearly 3 months later in pregnancy.

High community syphilis rates There's more....



Presence of other STI including HIV

Recent immigration to the US

Incarceration

Transactional sex

Unstable housing

Limited access to prenatal care

 Although national data from 2012-2016 showed almost half of CS cases lacked traditional risk factors



Other Congenital

syphilis risk

factors

The Urgent Need for Provider Based Reporting



- Public health systems experience challenges linking pregnancy data with syphilis results
- In the United States and in IL, congenital syphilis is a national notifiable disease
- For reporting purposes, congenital syphilis includes:
 - Stillbirths due to syphilis
 - Cases of congenital syphilis detected in newborns
 - Cases of congenitally acquired syphilis in infants and children.
- But we need to find the moms first before the children develop congenital syphilis!

Provider Reporting



We need to find these cases fast!

United States Centers for Disease Control and Prevention surveillance case definition for congenital syphilis

Laboratory criteria for diagnosis

Demonstration of Treponema pallidum by any of the following:

- Darkfield microscopy of lesions, body fluids, or neonatal nasal discharge, or
- PCR or other equivalent direct molecular methods of lesions, neonatal nasal discharge, umbilical cord, or autopsy material, or
- Immunohistochemistry or special staining (eg, silver staining) of lesions, neonatal nasal discharge, umbilical cord, or autopsy material

Case classification

Probable

An infant whose mother had untreated or inadequately treated* syphilis at delivery, regardless of signs in the infant, **or**

An infant or child who has a reactive non-treponemal test for syphilis (VDRL, RPR, or equivalent methods) **and** any of the following:

- Evidence of congenital syphilis on physical examination[¶]
- Evidence of congenital syphilis on radiographs of long bones
- Reactive CSF VDRL
- lacktriangle Elevated CSF WBC count or CSF protein (in a nontraumatic LP and without any other cause) $^\Delta$

Confirmed

Any case that is laboratory confirmed according to the laboratory criteria above



Neonatal CS Clinical Findings

- Rhinitis "snuffles": which is contagious
- Hepatosplenomegaly
- Desquamating skin rash
- Hutchinson's Triad
 - Notched teeth
 - Deafness
 - Interstitial keratitis
- Anemia
- Meningitis









Approach to evaluation and management of newborns born to mothers who tested positive for syphilis during pregnancy

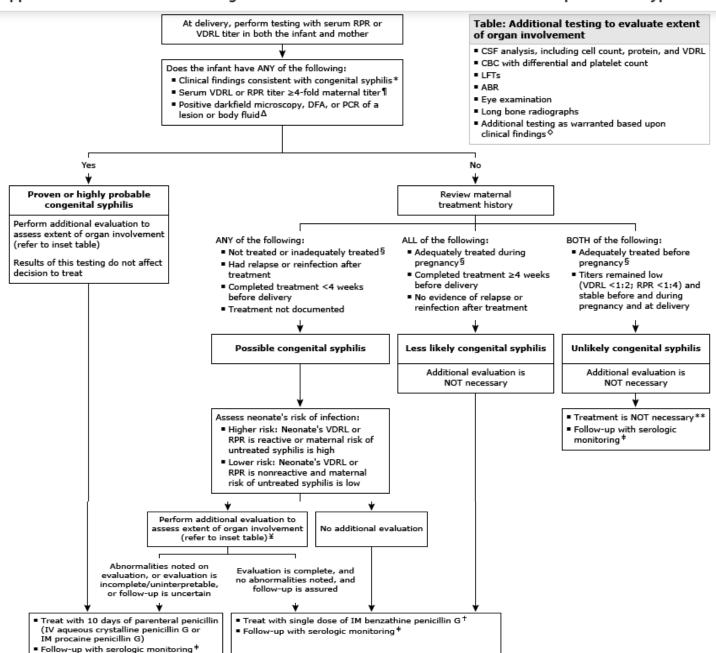
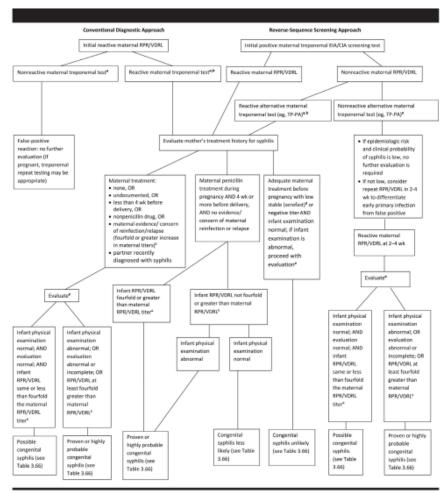




FIG 3.15. ALGORITHM FOR DIAGNOSTIC APPROACH OF INFANTS BORN TO MOTHERS WITH REACTIVE SEROLOGIC TESTS FOR SYPHILIS.



RPR indicates rapid plasma reagin; VDRL, Venereal Disease Research Laboratory.



^{*}Treponema pallidum particle agglutination (TP-PA) (which is the preferred treponemal test) or fluorescent treponemal antibody absorption (FTA-ABS).

bTest for human immunodeficiency virus (HIV) antibody. Infants of HIV-infected mothers do not require different evaluation or treatment for syphilis.

^eA fourfold change in titer is the same as a change of 2 dilutions. For example, a titer of 1:64 is fourfold greater than a titer of 1:16, and a titer of 1:4 is fourfold lower than a titer of 1:16. When comparing titers, the same type of nontreponemal test should be used (eg. if the initial test was an RPR, the follow-up test should also be an RPR).

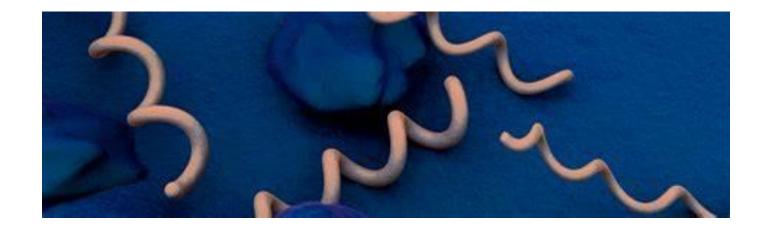
^dStable VDRL titers 1:2 or less or RPR 1:4 or less beyond 1 year after successful treatment are considered low serofast.

^{*}Complete blood cell (CBC) and platelet count; cerebrospinal fluid (CSF) examination for cell count, protein, and quantitative VDRL; other tests as clinically indicated (eg. chest radiographs, long-bone radiographs, eye examination, liver function tests, neuroimaging, and auditory brainstem response). For neonates, pathologic examination of the placenta or umbilical cord with specific fluorescent antitreponemal antibody staining, if possible.



Congenital Syphilis Evaluation and Treatment

- Confirmed/Highly probable
- Possible
- Less Likely
- Unlikely



Confirmed Proven/Highly Probable Congenital Syphilis



- Abnormal physical examination consistent with congenital syphilis
- RPR or VDRL ≥ fourfold higher than mother's at delivery
- a positive darkfield test or PCR

Recommended Evaluation

- CSF analysis for VDRL, cell count, and protein
- CBC with diff and platelets
- Long-bone radiographs
- Other tests as clinically indicated (e.g., chest radiograph, liver function tests, neuroimaging, ophthalmologic examination, and auditory brain stem response)



Possible Congenital Syphilis

Normal physical examination with RPR/VDRL ≤ fourfold of maternal titer at delivery and one of the following:

- Mother was not treated, inadequately treated, no documentation of treatment.
- The mother was treated with a nonpenicillin G regimen.
- The mother received the recommended regimen <30 days before delivery.</p>

Recommended Evaluation

- CSF analysis for VDRL, cell count, and protein.
- CBC with differential and platelets.
- Long-bone radiographs.



Less Likely Congenital Syphilis

Normal physical examination and RPR/VDRL ≤ equal fourfold of the maternal titer at delivery and both:

- The mother was treated during pregnancy, treatment was appropriate for the infection stage, and the treatment regimen was initiated ≥30 days before delivery.
- The mother has no evidence of reinfection or relapse.

Recommended Evaluation

No evaluation is recommended.

Unlikely Congenital Syphilis



- Normal physical examination and RPR/VDRL ≤ fourfold of the maternal titer at delivery and both:
 - Mother's treatment was adequate before pregnancy.
 - The mother's RPR/VDRL remained low and stable (i.e., serofast) before and during pregnancy and at delivery.

Recommended Evaluation

No evaluation is recommended.

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Treatment

Depends on likelihood of infection.

Confirmed: PCN X 10 days (IV PCN G or IM Procaine PCN)

Possible: Above or LA Bicillin X 1 dose

Less likely: LA Bicillin X 1 dose

Unlikely: No Tx







Sexually Transmitted Infections Treatment Guidelines, 2021

Bicillin L-A® Shortage

The FDA has listed penicillin G benzathine injectable suspension products (Bicillin L-A®) on their drug shortage webpage , noting limited supply due to increased demand. The FDA website includes an expected duration for the shortage. CDC continues to monitor the situation and will post updates as needed.

Bicillin L-A® is the first-line recommended treatment for syphilis and the only recommended treatment option for some patients.

During this time, programs should:

- Continue to follow <u>CDC's treatment recommendations</u>. Penicillin G benzathine (Bicillin L-A®) is the only recommended treatment for pregnant people infected with or exposed to syphilis.
 - Doxycycline 100mg PO BID for two weeks (for early syphilis) or for four weeks (for late latent or syphilis of unknown duration) is an alternative for the treatment of non-pregnant people with a penicillin allergy.
- Prioritize the use of Bicillin L-A® to treat pregnant people and babies with congenital syphilis.
- To help CDC continue to monitor the situation, notify DSTDP (stdshortages@cdc.gov) of:
 - Shortages or stock-outs of Bicillin L-A® in the jurisdiction.
 - Situations in which patients diagnosed with syphilis are not being treated due to the inability to procure Bicillin L-A® in the jurisdiction.
- Report any shortages to the Pfizer Supply Continuity Team at 844-646-4398 (select 1 and then select 3).

ILLINOIS DEPARTMENT OF PUBLIC HEALTH

Follow-up

- Follow Exam and RPR/VDRL Q 2-3 mo.
- Expect titer to decrease by 3 mo, non-reactive by 6 mo.
- Persistent RPR/VDRL at 6-12 mo. May need LP, retreatment? Consult ID
- Seroneg at birth-check RPR/VDRL at 3 mo to rule out incubating CS
- ► If initial CSF abnormal, repeat LP not needed unless RPR/VDRL persist at 6-12 months. Consult ID



Case



- Male in prison with rash—Syphilis.
- One partner who has a 2.5 mo old baby.
- Mom syphilis neg at delivery, Mom tested and seropositive now.
- Baby seen: Rash, long bone xrays abnormal, seropos and CSF with high VDRL titer.
- Mom and baby treated.



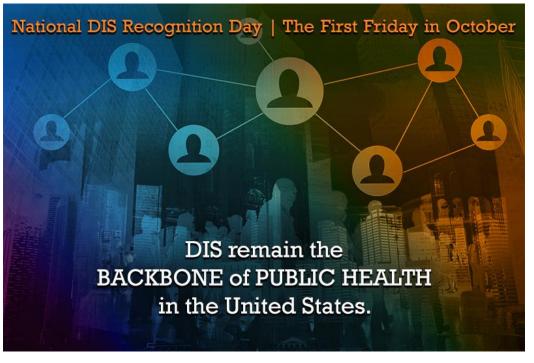
Incubating syphilis at birth.

Follow-up



Connect with your Local Health Department!

Disease Intervention
Specialists (DIS) will help!



Resources

In Chicago/CDPH

CS Reporting

For Clinical Questions Or To Report Suspect Cases, Contact:

The CDPU Disease Reporting Hotline at 312-743-9000

*After hours, weekends, and holidays, call <u>311</u> and ask for the communicable disease physician on-call (or <u>312-744-5000</u> if outside the City of Chicago)

▶ In Illinois/IDPH

REPORT ALL SYPHILIS CASES

Local Health Departments employ confidential means to locate and notify the partners of all early syphilis cases to prevent continued transmission.

- Reporting of all new syphilis cases within <u>seven days of diagnosis to public health is required by law in Illinois;</u> timely reporting of new cases is critical to the success of prevention and partner notification efforts
- STD Morbidity Report Forms should be completed and faxed to your local health department <u>within seven</u> days of disease diagnosis or treatment for presumed syphilis
- Additional information about disease reporting in Illinois can be found at: http://dph.illinois.gov/topics-services/diseases-and-conditions/infectious-diseases/stds

Please help us increase awareness among your patients of this serious statewide rise in early syphilis infections and what they can do to prevent infection. If your patients would like to learn more about syphilis or other STDs and how to prevent them, please refer them to CDC's STD website, http://www.cdc.gov/std/.

We appreciate your commitment to maintaining and promoting the health of all Illinoisans. For any questions or assistance please contact the Illinois STD Section at 217-782-2747.



Congenital Syphilis, Chicago, IL

Irina Tabidze, MD, MPH



THE STATE OF STDS

IN

CHICAGO, IL, USA 2021

STDs in Chicago is part of a larger trend across the United States



27,404 CASES OF CHLAMYDIA

9.5% decrease since 2017



13,451 CASES OF GONORRHEA

14.6% increase since 2017



2,611 CASES OF SYPHILIS

7.5% increase since 2017



25 CASES OF SYPHILIS AMONG NEWBORNS

127% increase since 2017





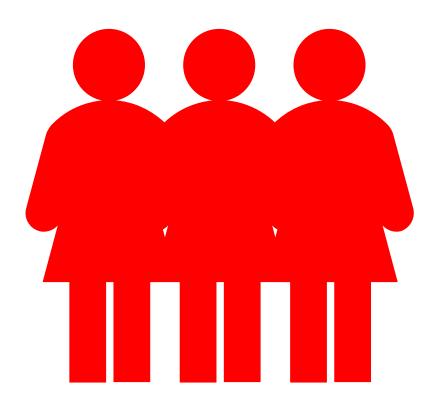
STDs, Chicago, 2021

- Chlamydia (53.9%)
- Gonorrhea (48.9%)
- Primary & Secondary (P&S)
 Syphilis (34.3%)



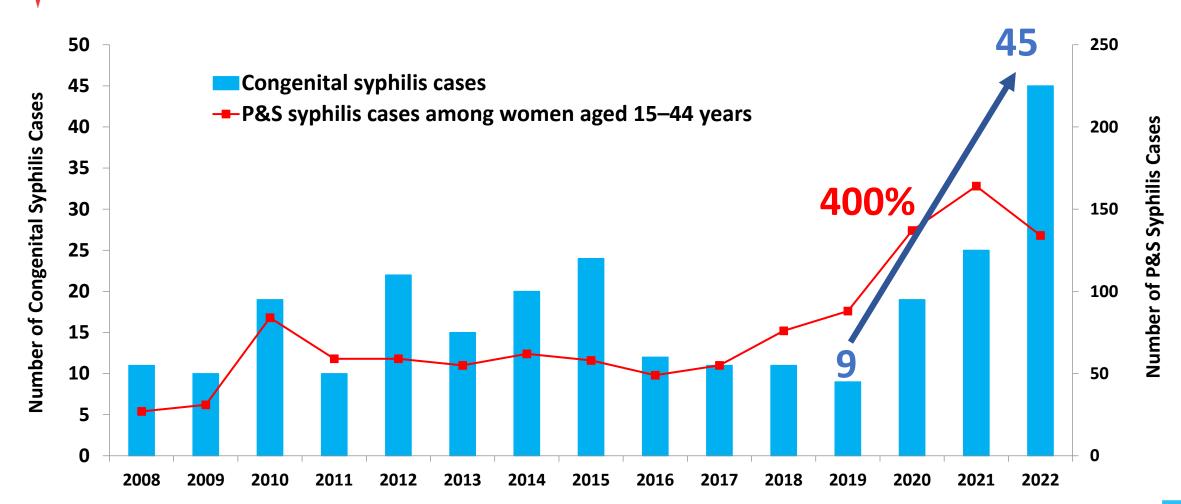


- Multiple sex partners
- History of incarceration
- Poverty
- Unstable housing
- Substance use disorders
- History of exchanging sex for drugs/money/housing
- Having a partner with multiple partners or history of incarceration

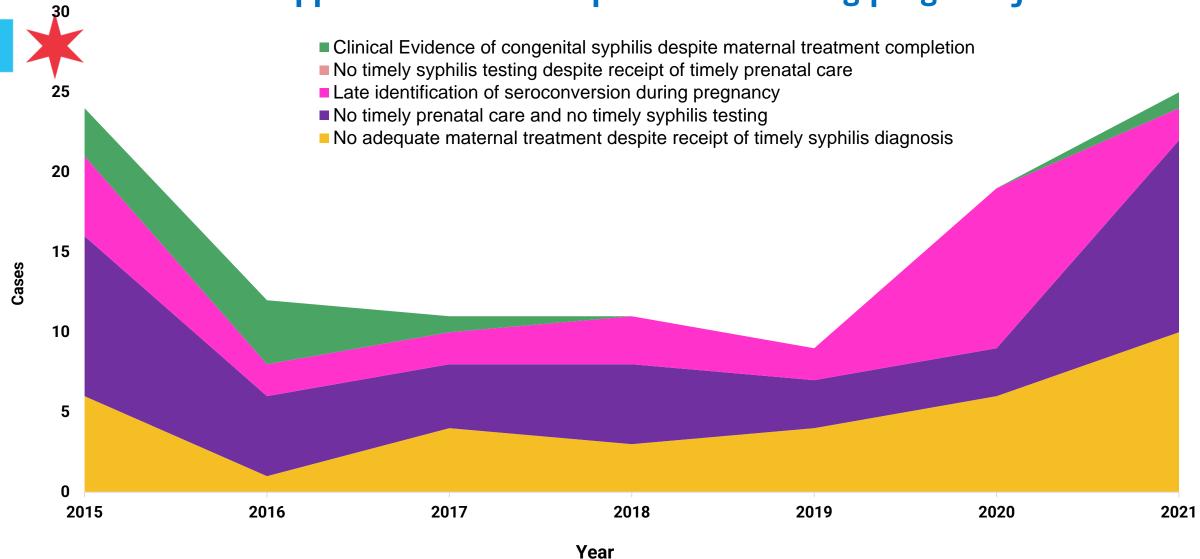




Reported Cases of Congenital Syphilis and Primary and Secondary (P&S) Syphilis Among Women, Chicago, 2008–2022



Missed Opportunities for CS prevention during pregnancy



What Are We Doing?

- In 2019, Chicago Department of Public Health in collaboration with medical and community partners formed Syphilis Elimination Task Force
- Working with regional HIV/STI Prevention Training Center to ensure providers have the knowledge to provide evidence-based quality of clinical care (grand round presentation, academic detailing were provided)
- Expanded capacity to provide quality care at the CDPH STI Specialty Clinic
- Expanding Disease Intervention Specialists capacity to provide rapid outbreak investigations and continue to work with communities
- Conducting public awareness campaigns that use culturally competent and linguistically appropriate messages



What Do Healthcare Providers Need to Know?



Syphilis Screening Recommendations:

Prenatal

1st prenatal visit: All pregnant women

Early 3rd trimester (~28 weeks) and at delivery

Some states require all women to be screened at 3rd trimester and/or at delivery

Neonates: should *NOT BE* discharged from the hospital unless the syphilis serologic status of the mother has been determined at least one time during pregnancy and preferably again at delivery if at risk

Stillborn: Any woman who delivers a stillborn infant should be tested for syphilis



What Do Healthcare Providers Need to Know, cont..?

- Benzathine penicillin is the only acceptable treatment for a pregnant woman with syphilis
- Timely and adequate treatment for the stage of disease is critical to prevent transmission of syphilis from mother to her unborn baby
- Don't delay in treating a pregnant woman for syphilis
- Work closely with the Chicago Department of Public Health.
- Trained Disease Intervention Specialists (DIS) can help with locating hard-to-reach women
- Health Department may have historical syphilis information, including old titers and treatment information.





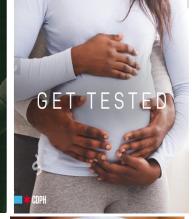














You can get syphilis or other STDs more than once. If you would like more information, talk to your health care provider, call or visit one of the Chicago Department of Public Health's STD/HIV clinics.

Too and Austin STI Specialty Clinic Resulted STI Special Still Special STI Special Still Special STI Special STI Special Special STI Special Special STI Special Special STI Special Special Special STI Special Speci West Town STI Specialty Clinic 2416 W. Dinision Phone: 312.7445464 312.742.4992

Protecting Your Baby Congenital Syphilis

Conozca los hechos : Su bebé se lo agradecerá!

Usted puede contraer sifilis u otras enfermedades de transmisión sexual más de una vez. Si desea más información , hable con su doctor o proveedor de cuidado de la salud, o llame o visite una de las clinicas de enfermedades sexuales del

Departamento de Salud Pública.

South Austin STI Specialty Clinic 4989 N. Division, 2nd Floor 200 E. 115th St. 166ms 112.74.4011 312.744.402 166ms 112.74.2011 312.741.805









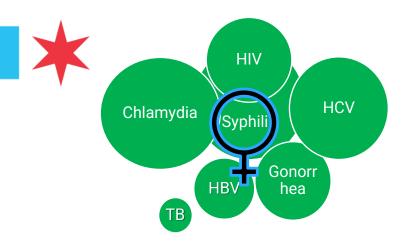
Case Study

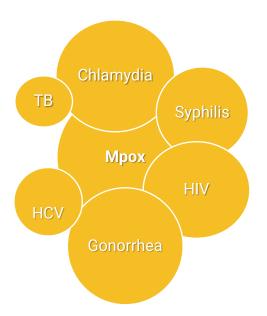
- 25-year-old single, NH Black female
- Unemployed, no reported drug use, no previous pregnancies
- Nov 15—1st prenatal visit, negative for all STIs
- Feb 7— 3rd prenatal visit, no syphilis testing ordered by prenatal care provider
- March 1st- generalized body rash observed by physician
- April 1 —patient presented to hospital for COVID concerns (fever)
 - Fetal demise at 29 weeks gestation induction of labor
- April 15 patient received treatment for secondary syphilis

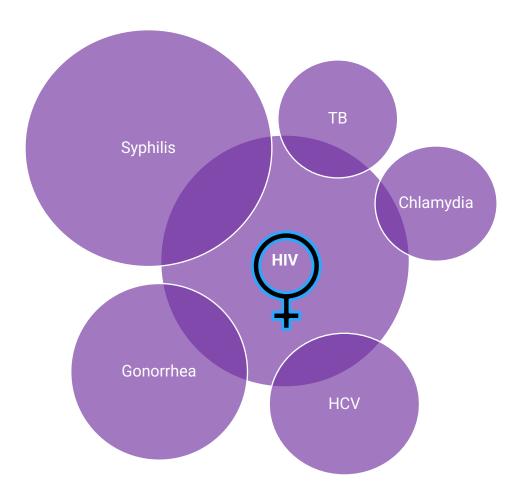


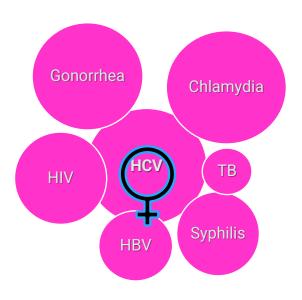
Syndemics are epidemics that interact with each other and by that interaction increase their adverse effects on the health of communities, that face systematic, structural, and other inequities.

Syndemics in Chicago









Challenges are Real & Serious







A routine blood test for syphilis protects the pregnant mother and her baby

Prioritize screening, diagnosis, and treatment of pregnant women => congenital syphilis is preventable!

Acknowledgments



- Syndemic Infectious Disease (SID) Bureau
- SID Bureau, Surveillance and Public Health Intervention Team
- Taylor Guidry
- Fric Warren
- Helen Cejtin
- CDPH Congenital Syphilis Team
- CDPH Office of Public Health Information

Upcoming Events



INCORPORATED IN ILLINOIS



- Bi-weekly COVID-19 Commercialization Updates
 - Friday, August 18 at 12PM
- Illinois Vaccinates Against COVID-19 (I-VAC) Virtual Bootcamp
 - ► Thursday August 24th from 8:00AM 12:30PM
- ICAAP Immunizations Webinar: Flu & COVID Vaccines
 - Tuesday, September 19 at 12PM
- Vaccine Summits In-Person!
 - September 7 October 11

Register at illinoisaap.org/events



SCAN ME FOR CME



JOIN ICAAP FOR THE 2023

ANNUAL EDUCATION CONFERENCE

November 9 &10, 2023 Northern Illinois University Naperville

Illinois Chapter

INCORPORATED IN ILLINOIS

American Academy of Pediatrics

- > Network and earn CME.
- → Hear the latest on "hot topics" and recent practical advances on a variety of subspecialty areas.
- ⇒ Keynote topics include:

 Pediatric Firearm Injuries

 and Fatalities

 &

 Pediatric Mental Health

Register today!

