Congenital Syphilis Surveillance: Infant Medical Chart Abstraction

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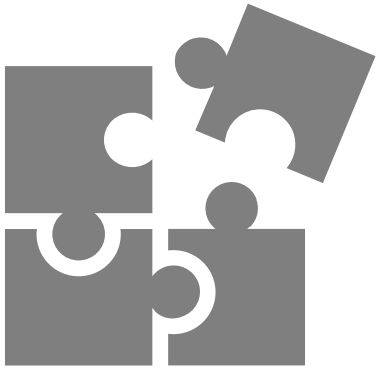
At the end of this webinar, you should:

- Understand the reporting algorithm for congenital syphilis (CS).
- Be able to define all infant criteria elements of the CS algorithm.
- Be able to identify all infant criteria elements through medical chart abstraction.



Outline

- ✓ Review clinical features of CS and epidemiology
- ✓ Review the CS surveillance case definition and report algorithm
- ✓ Navigate an infant's medical record to identify the infant criteria elements for a hypothetical CS investigation

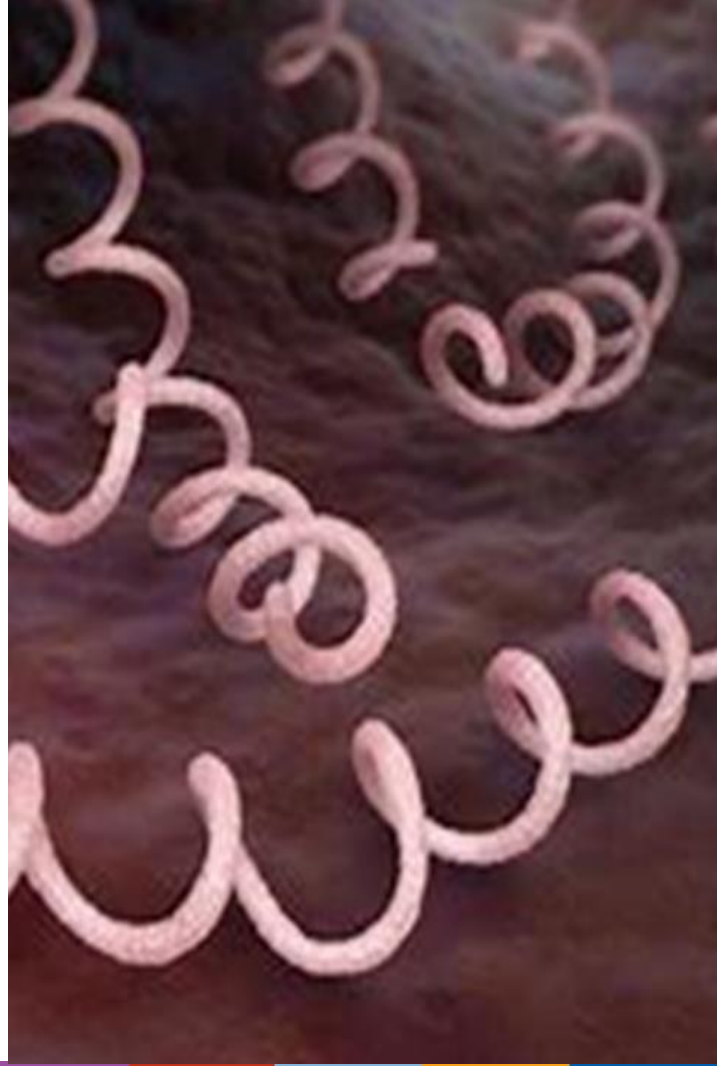
Clinical Features and Epidemiology

Congenital syphilis is an infection with *Treponema pallidum* in an infant or fetus, acquired during pregnancy when a pregnant person has untreated or inadequately treated syphilis.

Syphilis during pregnancy is associated with miscarriage, stillbirth, preterm delivery, perinatal death, and congenital infection.

Congenital syphilis happens when the bacteria crosses the placenta and infects the fetus during pregnancy.

- Can occur at any point in pregnancy
- More common when mom has early syphilis
- Can lead to lifelong physical and neurological problems

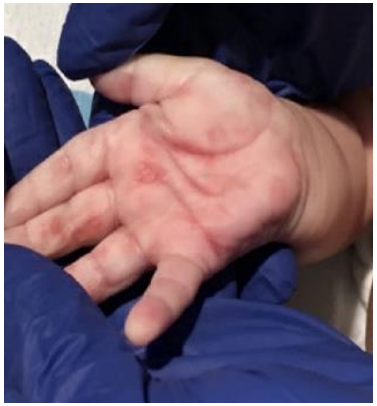


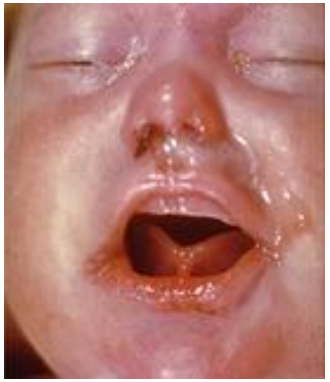
Clinical Features

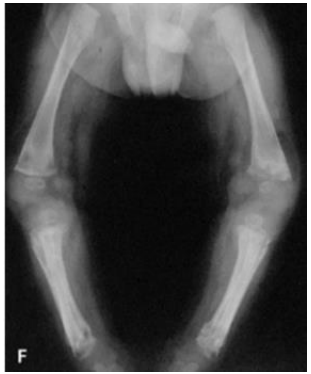
- **Many infected newborns do not show signs of CS at delivery**
  - Signs may develop weeks, months, or years later
- **Early signs develop in the first 2 years of life**
  - Systemic infection
- **Late signs develop over the first 20 years of life**
  - Chronic inflammation and scarring

Clinical Manifestations of Early CS

- **Can appear in the first 2 years**
  - Rash
  - Snuffles
  - Hepatosplenomegaly
  - Jaundice
  - CNS invasion
  - Bone abnormalities



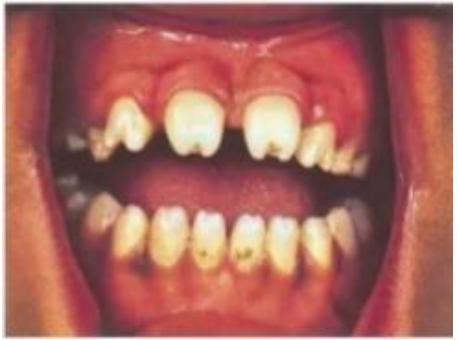


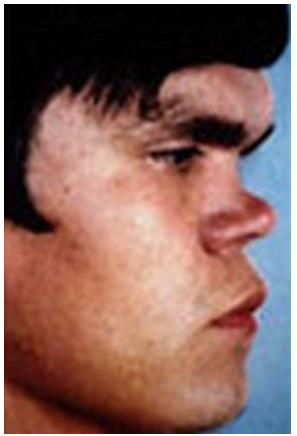


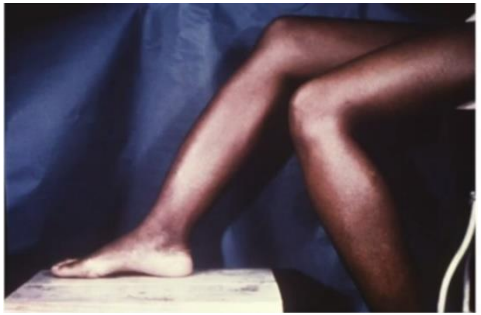
Cooper, Sanchez. Congenital Syphilis. *Seminars in Perinatology.* 2018.

Clinical Manifestations of Late CS

- **Can appear after 2 years of age and can be prevented by treatment in the first 3 months of age**
  - Hutchinson's triad
  - Developmental delay
  - Intellectual Disability
  - Saddle nose
  - Saber shins







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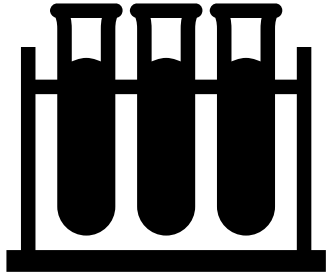
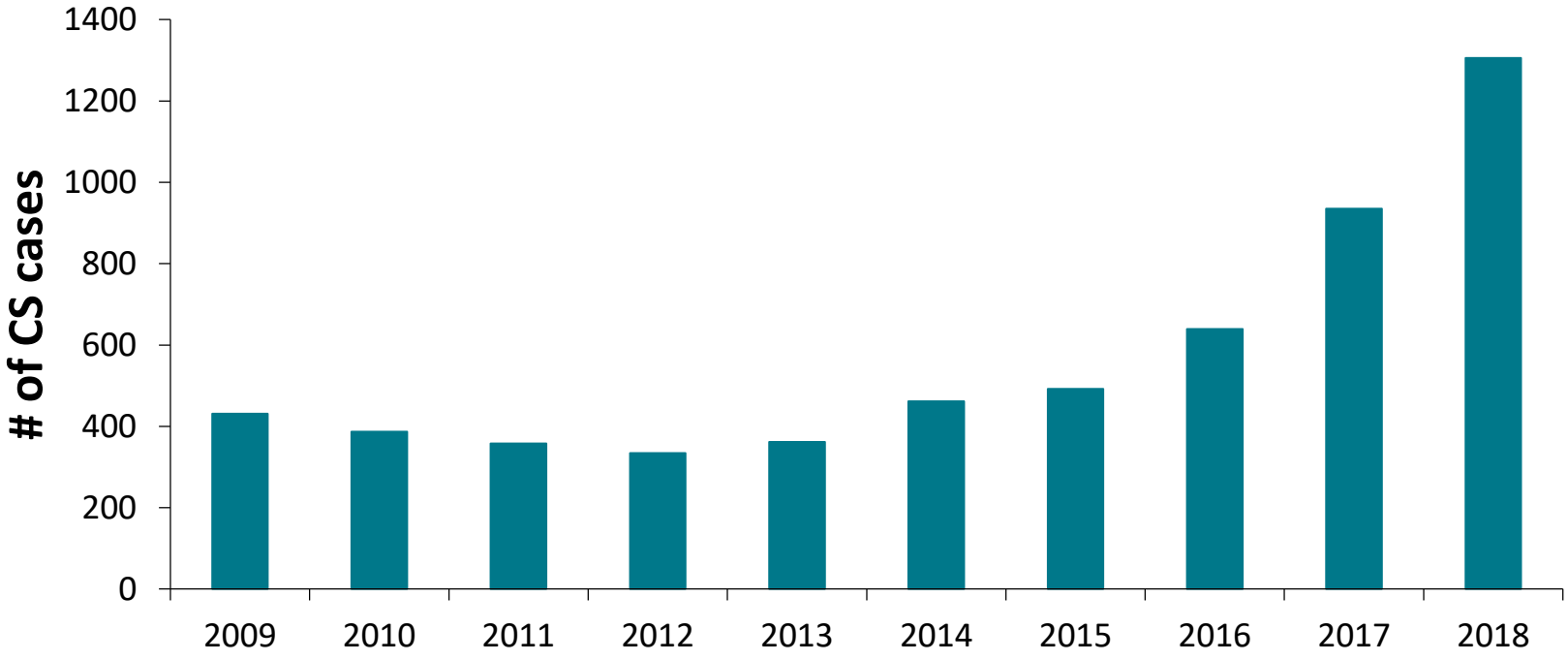
Testing and Treatment of Maternal Infection

- *Treponema pallidum* cannot be cultured like other bacteria.
- Non-treponemal (RPR) and treponemal blood tests (TPPA)

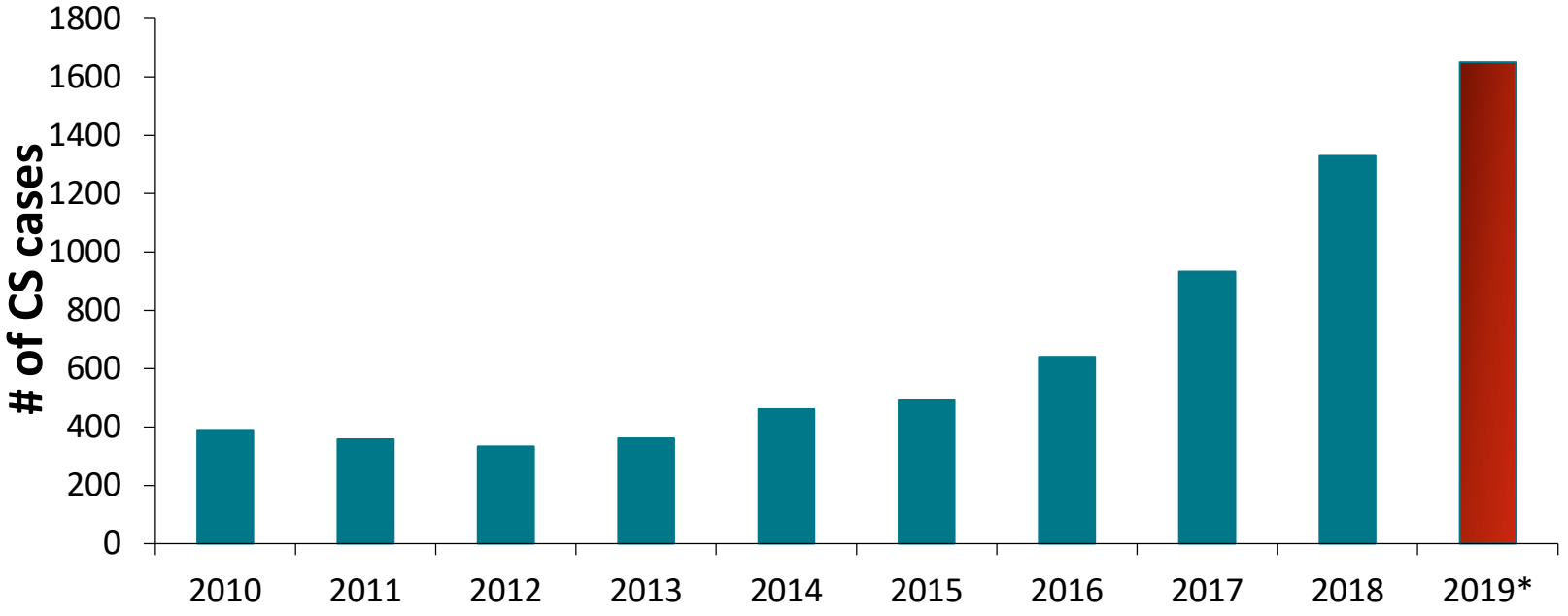


- Penicillin G is the only effective treatment to prevent CS.

U.S. congenital syphilis cases have **increased 291%** since 2012.

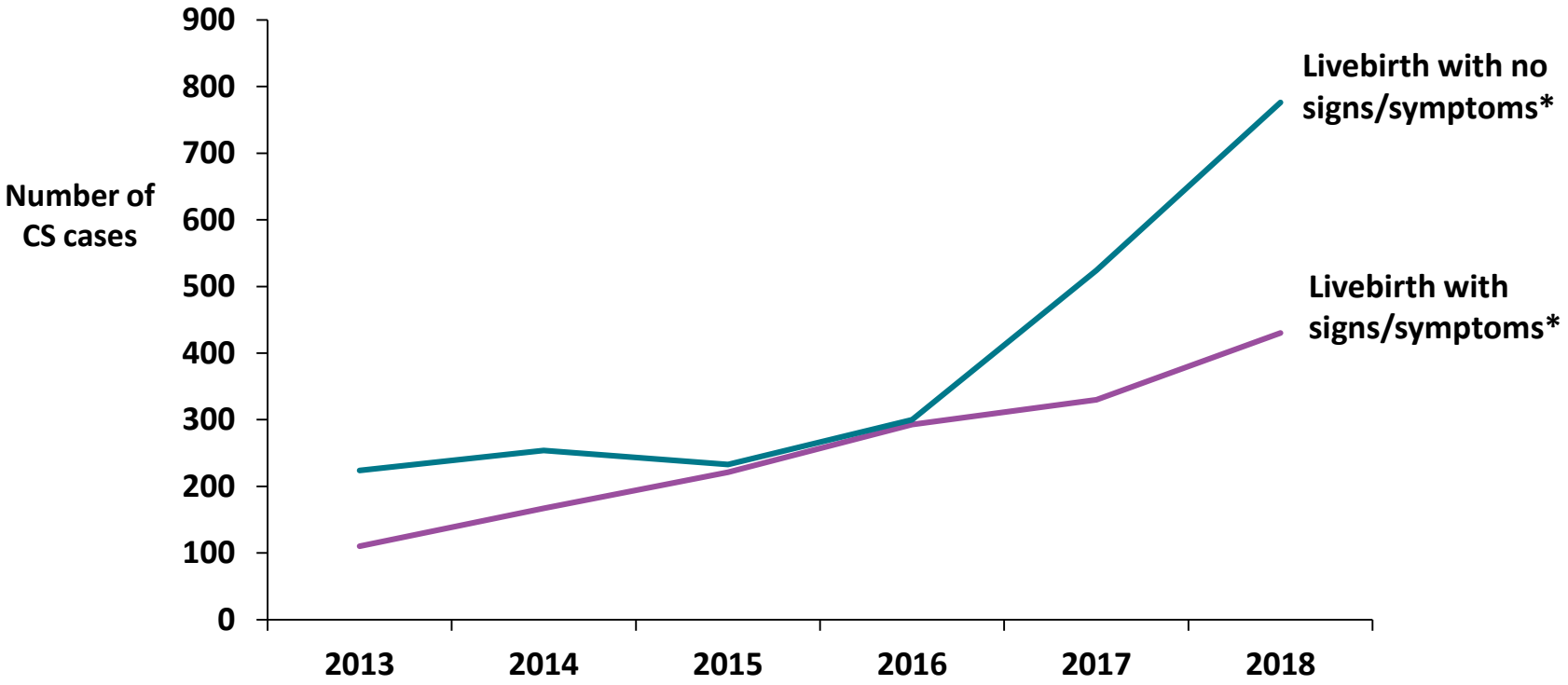


U.S. congenital syphilis cases will likely increase again in 2019.



*2019 data are preliminary

Symptomatic and Asymptomatic Infants with CS



Ref: National CS case report data (unpublished)

**Signs/symptoms include long bone changes, snuffles, condyloma lata, syphilitic skin rash, pseudoparalysis, hepatosplenomegaly, edema, jaundice, hepatitis, direct detection of *T. pallidum*, reactive CSF-VDRL, or elevated CSF WBC or protein.

Surveillance Evaluation

- We reviewed medical records for 46 CS cases and compared observed findings to those reported to CDC.
- Case report data missed 25% of infants with signs or symptoms.
  - The physical exam findings are the hardest to identify
- CS investigations are very complicated and time-consuming.
- We can provide better instructions.

Case Definition and Report Algorithm

CS Surveillance Case Definition

Probable

A condition affecting 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 (Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], or equivalent serologic methods) **AND** any one of the following:

- Any evidence of congenital syphilis on physical examination (see Clinical description)
- Any evidence of congenital syphilis on radiographs of long bones
- A reactive cerebrospinal fluid (CSF) venereal disease research laboratory test (VDRL) test
- In a nontraumatic lumbar puncture, an elevated CSF leukocyte (white blood cell, WBC) count or protein (without other cause):
  Suggested parameters for abnormal CSF WBC and protein values:
  - During the first 30 days of life, a CSF WBC count of >15 WBC/mm3 or a CSF protein >120 mg/dL.
  - After the first 30 days of life, a CSF WBC count of >5 WBC/mm3 or a CSF protein >40 mg/dL, regardless of CSF serology.
    The treating clinician should be consulted to interpret the CSF values for the specific patient.

Syphilitic stillbirth: A fetal death that occurs after a 20-week gestation or in which the fetus weighs greater than 500 g and the mother had untreated or inadequately treated* syphilis at delivery.

*Adequate treatment is defined as completion of a penicillin-based regimen, in accordance with CDC treatment guidelines, appropriate for stage of infection, initiated 30 or more days before delivery.

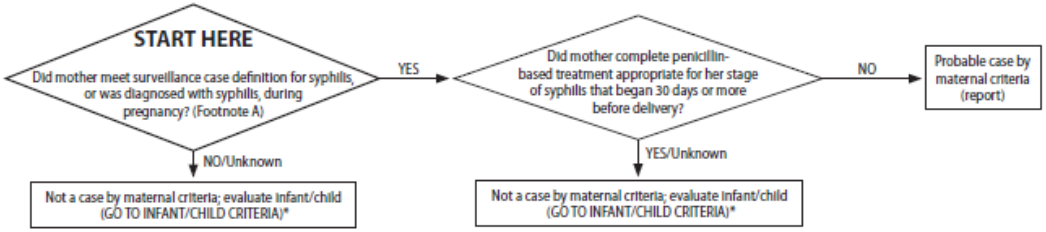
Confirmed

A case that is laboratory confirmed.

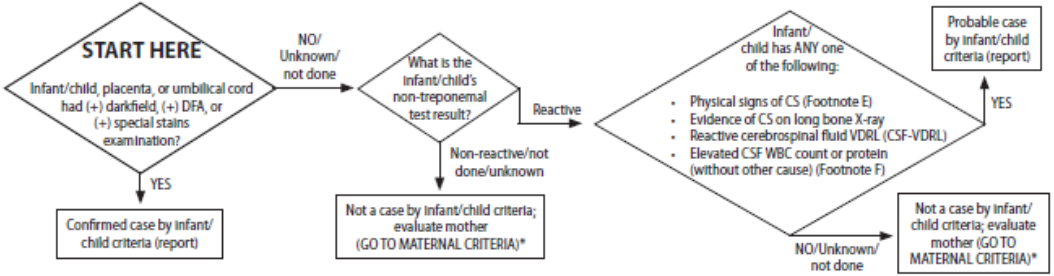
https://wwwn.cdc.gov/nndss/conditions/congenital-syphilis/case-definition/2015/

CS Report Algorithm: a case meeting *any* criteria (maternal, infant/child, or stillbirth) should be reported

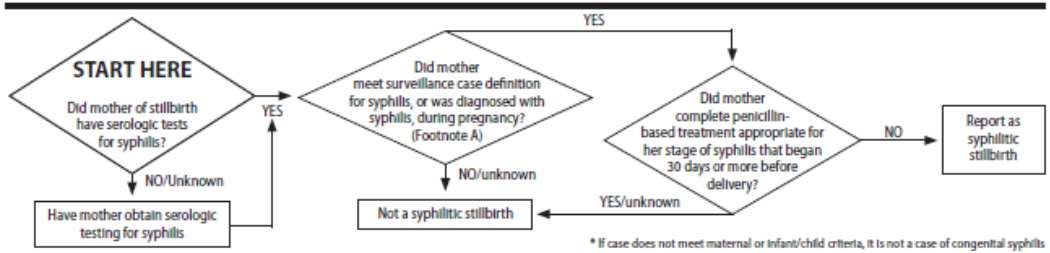
MATERNAL CRITERIA TO REPORT CONGENITAL SYPHILIS



INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS



CRITERIA TO REPORT SYPHILITIC STILLBIRTH



https://www.cdc.gov/std/program/Congenital-Syphilis-Form-2013.pdf

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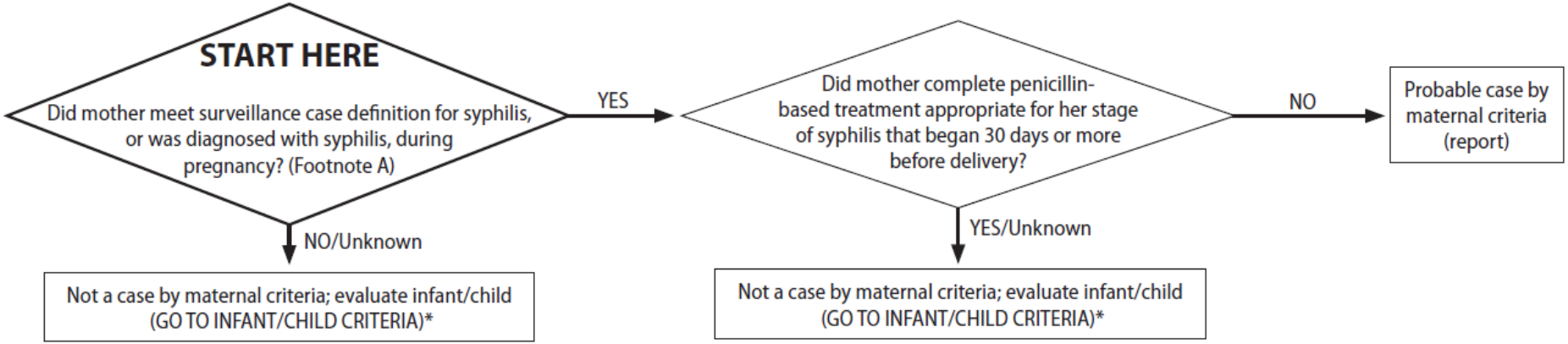
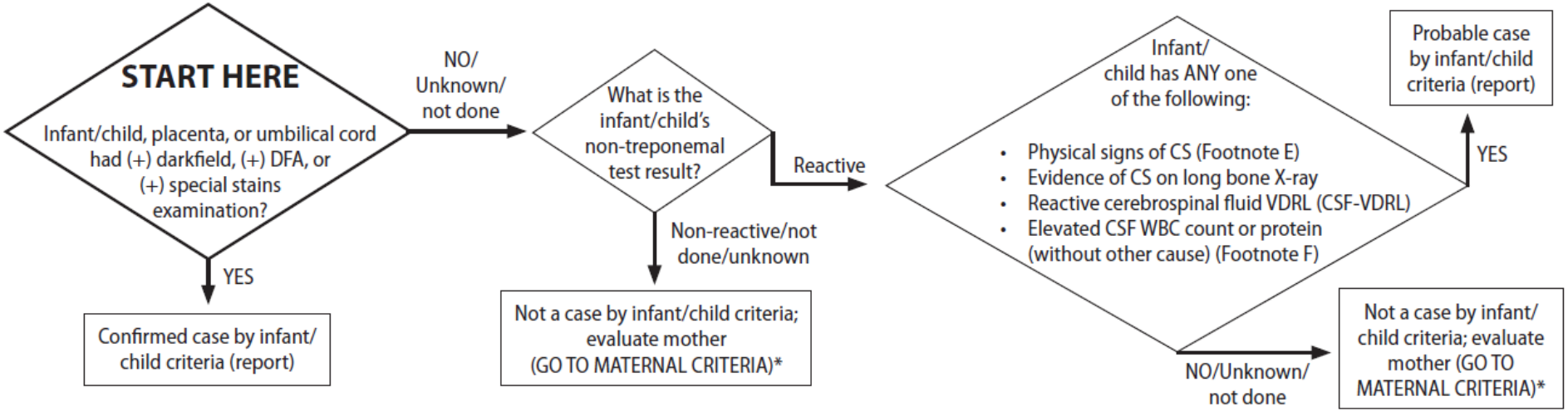


Footnote A — **Primary syphilis** is defined as a clinically compatible case with one or more ulcers (chancres) consistent with primary syphilis and a reactive serologic test. **Secondary syphilis** is defined as a clinically compatible case characterized by localized or diffuse mucocutaneous lesions, often with generalized lymphadenopathy, with a nontreponemal titer ≥1:4. *Latent syphilis* is the absence of clinical signs or symptoms of syphilis, with no past diagnosis or treatment, or past treatment but a fourfold or greater increase from the last nontreponemal titer. **Early latent syphilis** is defined as latent syphilis in a person who has evidence of being infected within the previous 12 months based on one or more of the following criteria: 1) documented seroconversion or fourfold or greater increase in nontreponemal titer during the previous 12 months, 2) a history of symptoms consistent with primary or secondary syphilis during the previous 12 months, 3) a history of sexual exposure to a partner who had confirmed or probable primary, secondary, or early latent syphilis (documented independently as duration <1 year), or 4) reactive nontreponemal and treponemal tests where the only possible exposure occurred within the preceding 12 months. **Late latent syphilis** is defined as latent syphilis in a patient who has no evidence of being infected within the preceding 12 months. See *MMWR Recomm Rep. 1997 May 2;46(RR-10):1-55* for more information.

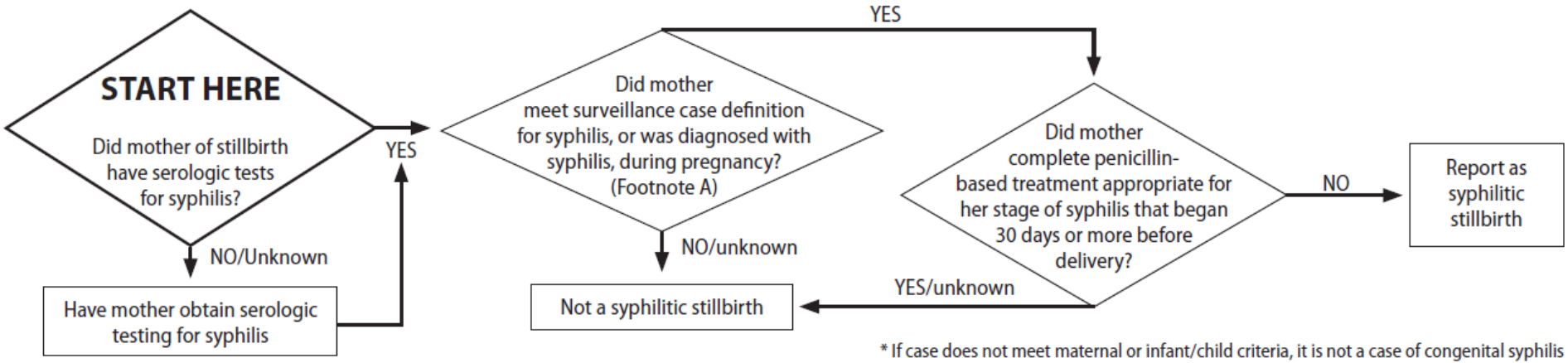
INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS



Footnote E — Signs of CS (usually in an infant or child <2 years old) include: condyloma lata, snuffles, syphilitic skin rash, hepatosplenomegaly, jaundice/hepatitis, pseudoparalysis, or edema (nephrotic syndrome and/or malnutrition). Stigmata in an older child might include: interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson's teeth, saddle nose, rhagades, or Clutton's joints.

Footnote F — Cerebrospinal fluid (CSF) white blood cell (WBC) count and protein vary with gestational age. During the first 30 days of life, a CSF WBC count of >15 WBC/mm^3 or a CSF protein >120 mg/dl is abnormal. After the first 30 days of life, a CSF WBC count of >5 WBC/mm^3 or a CSF protein >40 mg/dl is abnormal, regardless of CSF serology.

CRITERIA TO REPORT SYPHILITIC STILLBIRTH



* If case does not meet maternal or infant/child criteria, it is not a case of congenital syphilis

Let’s walk through a case.

Make notes on your own paper whenever you think that something may be important in your CS investigation.

You are notified of a new CS case to investigate.

- A woman and her newborn have reactive RPRs at the birth hospital in your county. You have no prior record of this woman in your surveillance system. You have remote access to the EMR for this hospital.
- You open the baby's chart and see that the date of delivery was 1 week ago.

Infant Chart → Provider Notes → History and Physical (H&P) Note

NICU H&P: History

Babygirl was delivered via NSVD to a 28 year old G2P1 woman at 34 2/7 weeks. Birthweight 1900g. Apgars 4 and 6. Required PPV in the DR x 1min due to lack of spontaneous respirations and brought up to NICU on nasal CPAP.

Maternal history: mom was seen in the ED and had + pregnancy test around 16 weeks. No labs were drawn in the ED. No other prenatal care or previous notes in our system. Mom presented in preterm labor and all screening labs drawn on presentation to L&D are still pending.

NICU H&P: Physical Exam

Gen: Small preterm infant

HEENT: AFSOF, nasal CPAP and OG in place

Lungs: Course bilaterally, mild tachypnea with mild retractions

Cardiac: RRR, no murmur, pulses 2+ upper and lower

Abd: Mildly distended, liver edge palpable 2cm below costal margin

Skin: Faint maculopapular rash on trunk, mild acrocyanosis

Neuro: Grossly intact, good tone, spontaneous movements of all extremities, consistent with gestational age

NICU H&P: Assessment and Plan

Preterm infant admitted to NICU with mild respiratory distress. Mother has no prenatal care, screening labs pending.

Plan: Monitor on CPAP. Blood culture, CBC-diff pending. Follow up maternal infectious disease labs and tox screen. Start empiric Amp/Gent as GBS unknown and infant with respiratory distress. Monitor glucose q2h, adjust dextrose in fluids. Exam concerning for congenital infection.

Infant Chart → Provider Notes → Most Recent Progress Note

Most Recent Progress Note

Subjective: Babygirl is a 6-day old infant born at 34, 2 with RDS and congenital syphilis. On day 4 of penicillin, after receiving 2 days of ampicillin. Required frequent nasal suctioning overnight for copious secretions. Tolerating enteral feeds. D/C'd PTX yesterday, with persistent direct hyperbilirubinemia.

Most Recent Progress Note

Objective

Physical Exam:

Gen: Small preterm infant in isolette

HEENT: AFSOF, nCPAP and OG in place, thick nasal discharge

Lungs: Coarse bilaterally, intermittent tachypnea

Cardiac: RRR, no murmur, good perfusion

Abd: Mildly distended, liver 3cm below the costal margin, spleen palpable 2cm below the costal margin

Skin: Maculopapular rash on trunk and extremities, no edema, + jaundice

Neuro: Grossly intact, spontaneous movements of all extremities, suck improving

Most Recent Progress Note

Labs and Imaging:

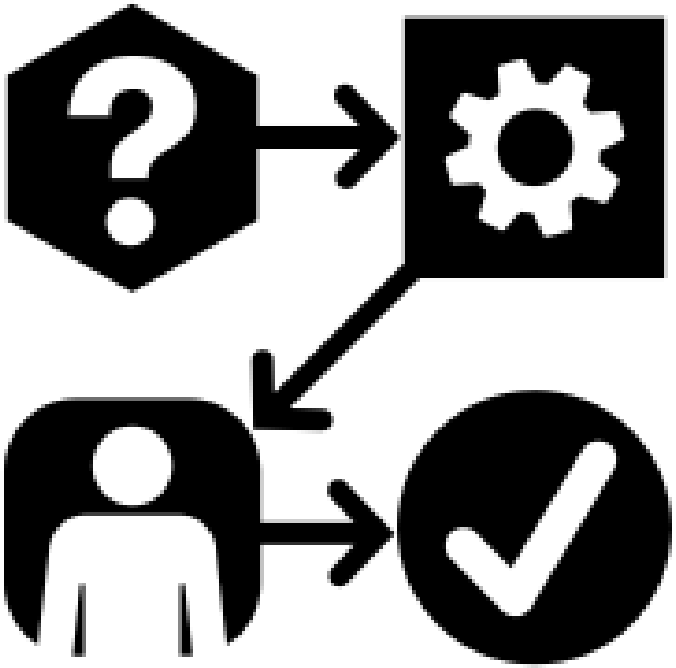
- Maternal RPR at delivery 1:128, TPPA Reactive. HIV Negative.
- Baby RPR drawn on day 2 after mom's results, RPR 1:64
- Elevated WBC, borderline low H/H, persistent thrombocytopenia – likely due to CS
- LP performed on day 2 with high WBC and protein – likely due to CS
  - Bacterial culture with no growth
- CSF VDRL reactive
- Mildly elevated transaminases
- Indirect Bili normalized after PTX x2d, Direct Bili remains elevated
- CXR consistent with RDS, no cardiomegaly
- Skeletal films pending

Most Recent Progress Note

Assessment: Babygirl is a 6-day old infant born at 34, 2 with RDS, congenital syphilis, conjugated hyperbilirubinemia.

Plan:

- Continue CPAP and frequent suctioning.
- Continue to increase enteral feeds.
- Follow up results of skeletal films.
- Recheck D Bili and CBC tomorrow.
- Continue PCN x10 days total.



A Systematic Approach to Infant Chart Abstraction

1. Provider Notes section
   - History and Physical (H&P) Note
   - Discharge Summary
   - Progress Notes

A Systematic Approach to Infant Chart Abstraction

1. Provider Notes section
   - History and Physical (H&P) Note
   - Discharge Summary
   - Progress Notes
2. Results section
   - Infectious Disease or Microbiology
   - CSF Studies
   - Hematology
   - Chemistries
   - Radiology

Structure of a Healthcare Provider Progress Note

- Subjective information – what happened overnight, what is going on in general
- Objective information
  - Physical exam performed that day
  - New labs or imaging results (or all of them may be included)
- Assessment – what the provider thinks is going on with the patient, what the diagnoses are, rationale for management
- Plan for the day and for remainder of the hospitalization

What is documented in the Physical Exam Section?

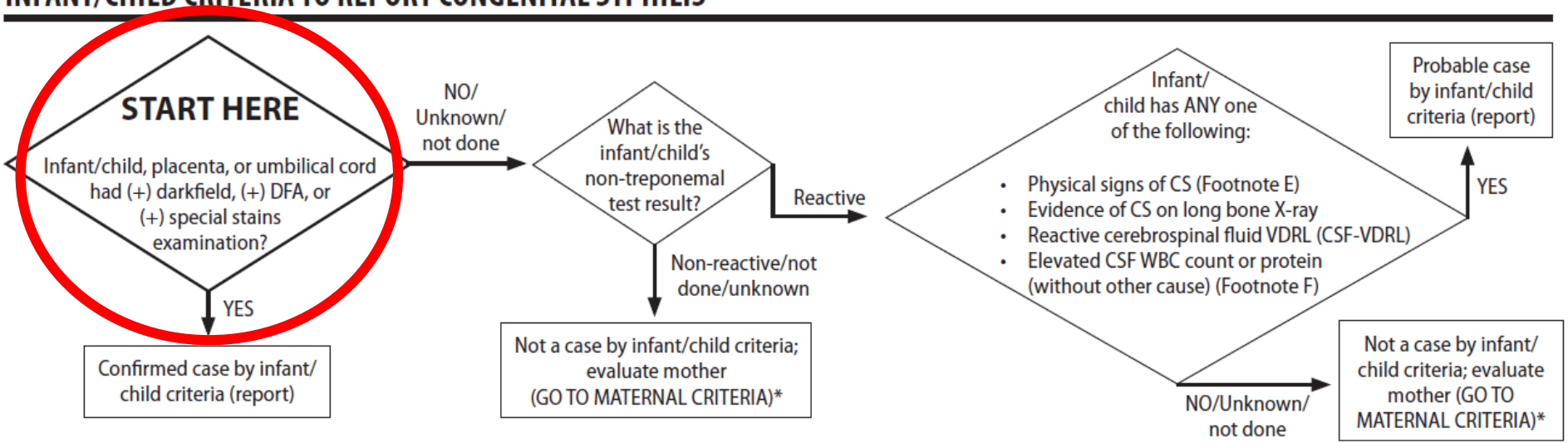
- Vital signs – Temperature, HR, RR, BP, O2 saturation, weight
- General
- HEENT – head, eyes, ears, nose, throat
- Lungs
- Heart
- Abdomen
- GU - genitourinary
- Skin
- Neuro
- Extremities or Musculoskeletal

Keep in mind:

- Many infants with CS are born before their estimated delivery date.
- The healthcare facility where the infant is diagnosed with CS may be different from the delivery hospital.
- Some hospital systems may require you to be on site to abstract records and some may have remote access.
- Having a good relationship with the birth hospitals and children’s hospitals in your area is important.

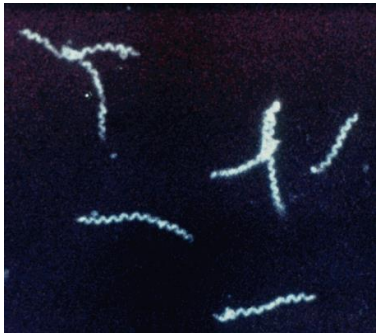
Let’s review each infant criteria element and how you can find it in the medical record.

INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS



Darkfield, Special Stains, PCR will be in Results Section

- **Pathology tab**
  - Darkfield microscopy
  - Immunohistochemistry (IHC) staining
  - Silver staining
- **Infectious disease or microbiology tab**
  - PCR for *T. Pallidum*
- **Samples can be from:**
  - Placenta
  - Umbilical cord
  - Nasal discharge from baby
  - Skin lesion from baby



T. Pallidum by PCR: Positive
T. Pallidum by PCR: Detected

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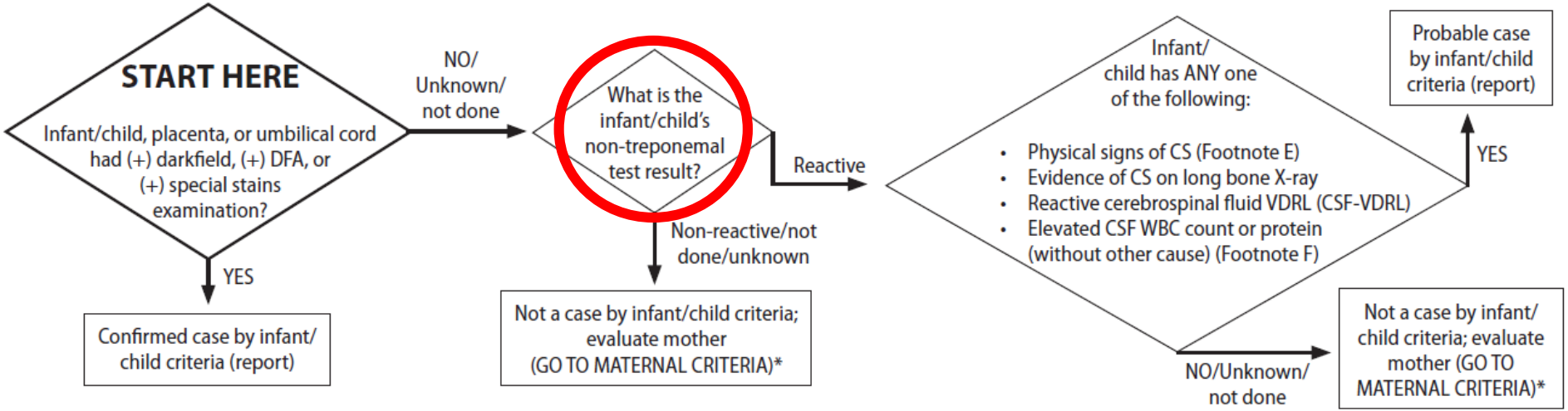
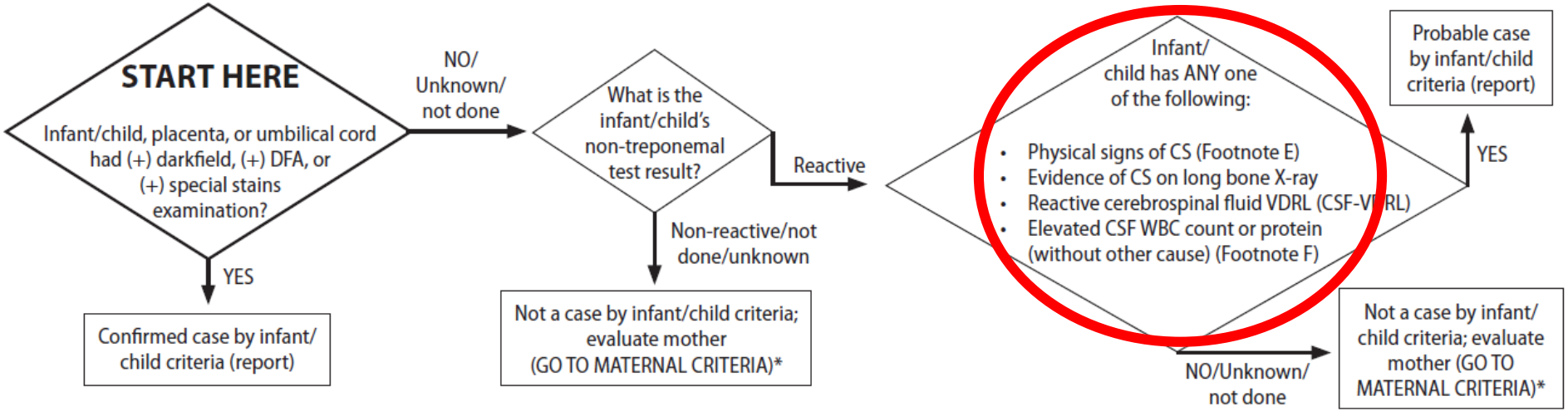


Infant's RPR

- **If not clearly stated in the provider notes that you read, look in the result section**
  - Infectious diseases or microbiology tab

RPR: Reactive
Titer 1:64

INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS



Physical Signs of Early CS

- Condyloma lata
- Rash
- Snuffles
- Hepatosplenomegaly
- Jaundice due to syphilitic hepatitis
- Pseudoparalysis
- Edema (nephrotic syndrome or malnutrition)

Note: Some of these physical exam findings may need labs or imaging to confirm.

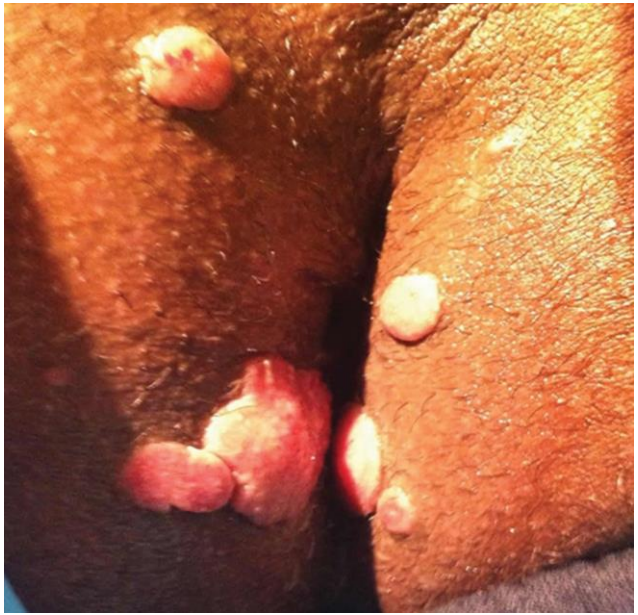
For each sign:

1. What is it?
2. And what are some keywords to help you identify it?
3. Where in the medical chart should you look to find it?

Condyloma Lata

- **Flat moist raised skin lesion often—but not exclusively—around the mouth or anus**
  - May be described as “plaques” or warts

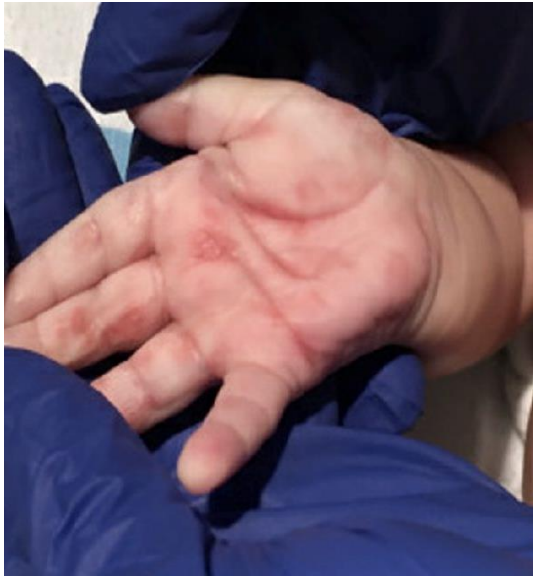
- **Notes → Physical Exam → Skin or HEENT or GU sections**



Syphilitic Skin Rash

- **Diffuse, widespread rash**
  - Often described as “maculopapular”
  - Looks like reddish-brown spots
  - Can occur all over the body, including chest, arms and legs; often occurs on palms of hands and soles of feet

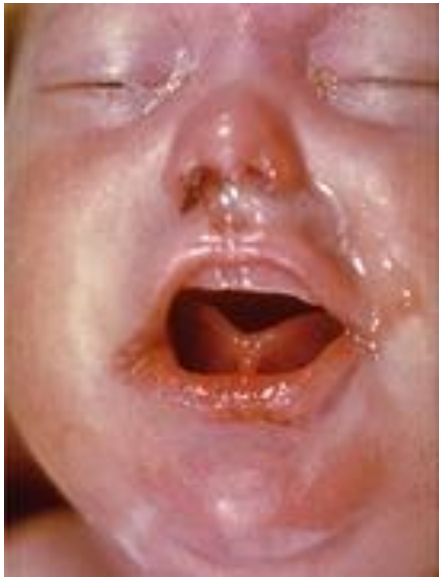
- **Notes → Physical Exam → Skin sections**



Snuffles

- **Thick nasal discharge or nasal secretions**
  - Described as rhinorrhea
  - May be watery initially
  - May be bloody
  - Often described as “purulent”

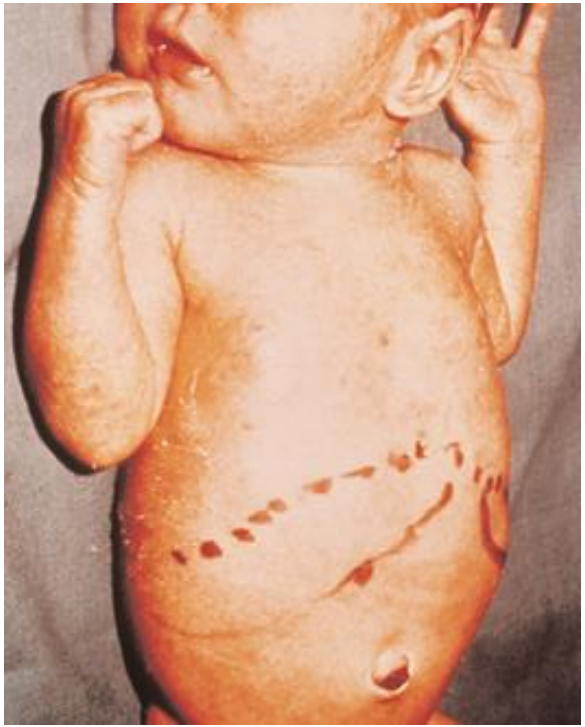
- **Notes → Physical Exam → HEENT section**



Hepatosplenomegaly

- **Enlarged liver <u>and/or</u> enlarged spleen**
  - Abbreviated as “HSM”
  - Described as organomegaly, hepatomegaly or splenomegaly - do not need to have both!
  - Described as a palpable liver edge or palpable spleen tip below the costal margin (ribcage)
  - An enlarged liver or spleen may be confirmed by an abdominal ultrasound

- **Notes → Physical Exam → Abdominal section**
- Results → Ultrasound



*marked areas shows where the liver is felt or “palpable” below the ribs

Jaundice due to Syphilitic Hepatitis

Jaundice is a common problem in newborns.

- **Jaundice is when the skin and whites of the eyes turn yellow due to high levels of bilirubin in the blood.**
  - Bilirubin is a part of red blood cells (RBCs) and gets released when RBCs break down.
  - Bilirubin leaves the body through bile and stool or urine.

- **There are 2 kinds of bilirubin.**
  - Indirect (unconjugated) → RBC breakdown
  - Direct (conjugated) → Liver and gall bladder problems

A lot of Jaundice in Newborns is NOT related to CS.

- **Jaundice is common in newborns**
  - Indirect or unconjugated hyperbilirubinemia
  - “Physiologic jaundice”
  - Responds to phototherapy (PTX) and hydration
  - Related to increased RBC breakdown, dehydration, and difficulty of newborn’s body to appropriately get rid of bilirubin

Jaundice due to CS is related to problems in the liver and gallbladder.

Keywords to look for in the provider's notes:

- Cholestatic jaundice
- Conjugated hyperbilirubinemia
- Direct hyperbilirubinemia or "D bili"
- Jaundice with hepatitis
  - Hepatitis = inflammation of the liver marked by elevated liver enzymes (AST and ALT), also known as transaminases

- **Notes → Physical exam → Skin section, supported by labs and provider assessment**

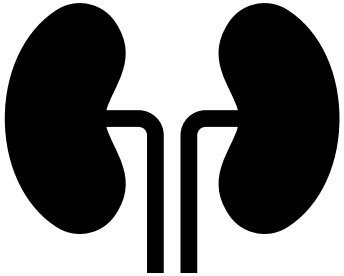
Pseudoparalysis

- **The infant does not move an arm or leg due to pain or fractures caused by syphilitic bone lesions**
  - Lack of movement or refusal to move of an arm or a leg
  - Not often seen in newborns

- **Notes → Physical exam → Extremity/Musculoskeletal section, supported by imaging and provider assessment**

Edema due to nephrotic syndrome or malnutrition

- **Edema = “swelling”**
- Caused by many different things
- Only count as sign of CS if notes state that edema is due to nephrotic syndrome (kidney involvement from syphilis), malnutrition, or CS
- **Notes → Physical exam → Skin or General section, supported by labs and provider assessment**



Other Signs

- Other rashes on the skin that could be signs of CS
  - Petechial rash due to thrombocytopenia
  - Mucous patches
  - Pemphigus rash (fluid-filled blister-like lesions)
- Anemia and thrombocytopenia (labs, provider assessment)
- Pneumonitis or “pneumonia alba” (chest x-ray)
- Nephrotic syndrome (chemistry and urine tests)
- Eye involvement: cataracts (ophthalmology note)

Note: Look for provider documentation that these signs were likely related to CS

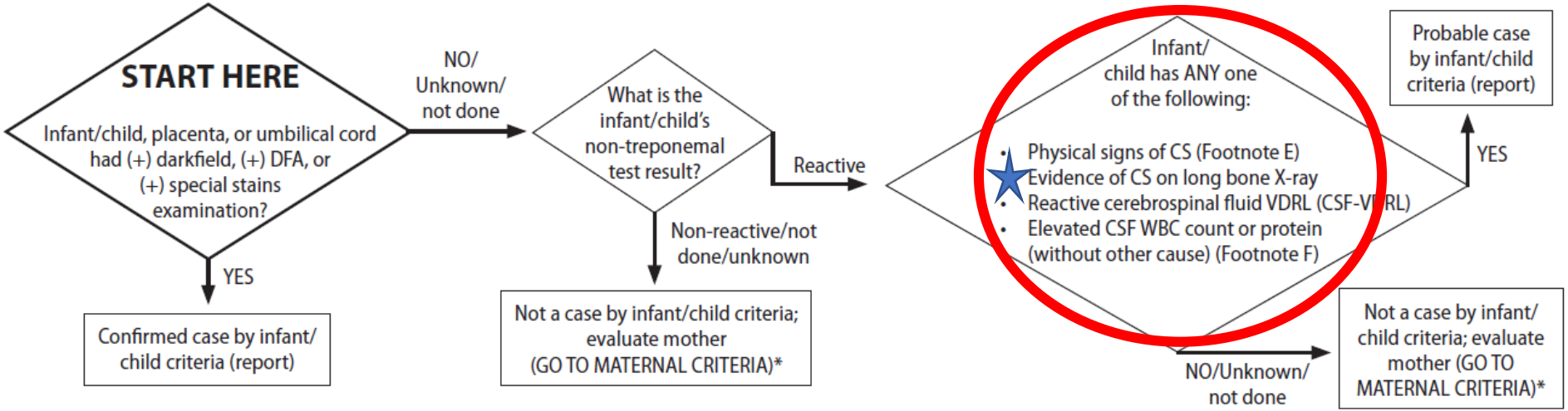
No signs = Asymptomatic

- Infant has none of the signs
- Physical exam documented as “normal”

Unknown

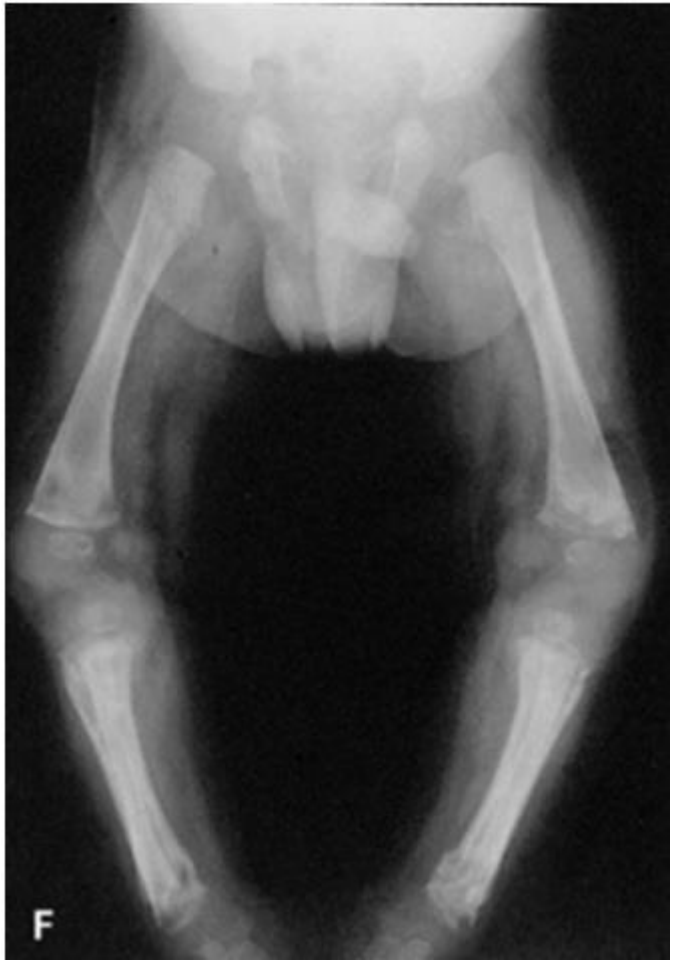
- Only select this if you were unable to review infant medical records

INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS

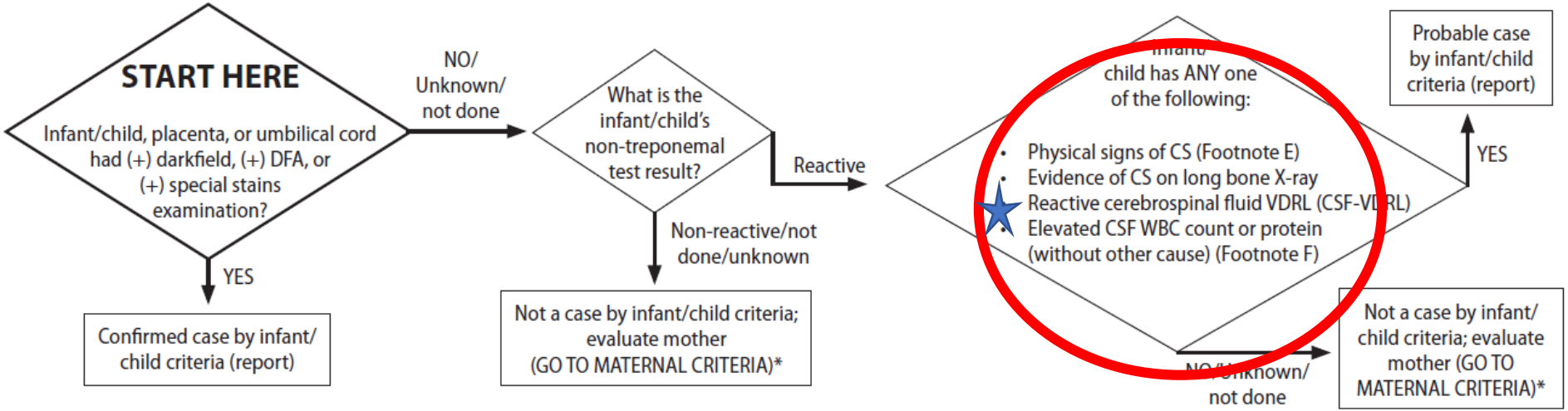


Long Bone X-ray Findings

- **Findings on x-rays consistent with CS include: osteochondritis or periostitis**
  - Long bones: tibia, femur, humerus
  - Skull
- Bone X-rays also known as “skeletal films” or “radiographs”
- Wimberger’s sign is specific for CS – seen on x-rays of the lower legs.
- **Notes → Imaging section**
- **Results → Radiology Sections → Xrays → read the radiologist’s impression**



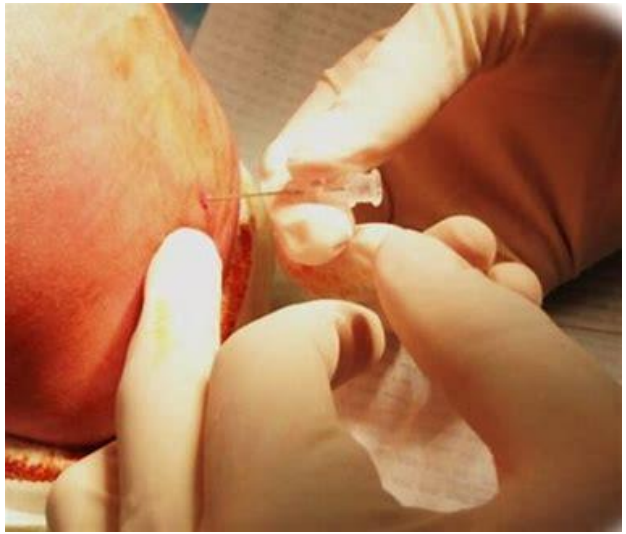
INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS



Footnote F — Cerebrospinal fluid (CSF) white blood cell (WBC) count and protein vary with gestational age. During the first 30 days of life, a CSF WBC count of >15 WBC/mm^3 or a CSF protein >120 mg/dl is abnormal. After the first 30 days of life, a CSF WBC count of >5 WBC/mm^3 or a CSF protein >40 mg/dl is abnormal, regardless of CSF serology.

CSF VDRL

- **Cerebrospinal fluid = fluid around the brain and spinal cord**
- Obtained through a lumbar puncture (LP) or spinal tap
- **Results section**
  - CSF studies sub-section or Infectious diseases sub-section



CSF VDRL: Reactive

CSF WBC and Protein Counts

- **CSF WBC and protein vary with gestational age. The suggested parameters for defining elevated values are:**
  - During the first 30 days of life, a CSF WBC count of >15 WBC/mm^3 or a CSF protein >120 mg/dl is considered elevated.
  - After the first 30 days of life, a CSF WBC count of >5 WBC/mm^3 or a CSF protein >40 mg/dl is considered elevated.

- **Read the provider's notes to see whether they say that the CSF WBC count and/or protein were elevated due to another cause.**
  - Causes for elevation may include: traumatic lumbar puncture contaminated with blood, non-syphilitic bacterial meningitis, prematurity

- **Results → CSF Studies**

Infant Treatment

- **Where to look:**
  - Discharge Summary → Hospital Course or Infectious Disease section
  - Progress Notes → Assessment and Plan
  - Medications tab or Medication Administration Record
- **10 days of IV/IM penicillin or 1 dose of IM penicillin.**
  - Must be 10 full days of penicillin (ampicillin no longer counts)

Let’s go back to our Case!

Infant Chart → Provider Notes → History and Physical (H&P) Note

NICU H&P: History

Babygirl was delivered via NSVD to a 28 year old G2P1 woman at 34 2/7 weeks. Birthweight 1900g. Apgars 4 and 6. Required PPV in the DR x 1min due to lack of spontaneous respirations and brought up to NICU on nasal CPAP.

Maternal history: mom was seen in the ED and had + pregnancy test around 16 weeks. No labs were drawn in the ED. No other prenatal care or previous notes in our system. Mom presented in preterm labor and all screening labs drawn on presentation to L&D are still pending.

NICU H&P: Physical Exam

Gen: Small preterm infant

HEENT: AFSOF, nasal CPAP and OG in place

Lungs: Course bilaterally, mild tachypnea with mild retractions

Cardiac: RRR, no murmur, pulses 2+ upper and lower

Abd: Mildly distended, liver edge palpable 2cm below costal margin

Skin: Faint maculopapular rash on trunk, mild acrocyanosis

Neuro: Grossly intact, good tone, spontaneous movements of all extremities, consistent with gestational age

NICU H&P: Assessment and Plan

Preterm infant admitted to NICU with mild respiratory distress. Mother has no prenatal care, screening labs pending.

Plan: Monitor on CPAP. Blood culture, CBC-diff pending. Follow up maternal infectious disease labs and tox screen. Start empiric Amp/Gent as GBS unknown and infant with respiratory distress. Monitor glucose q2h, adjust dextrose in fluids. Exam concerning for congenital infection.

Infant Chart → Provider Notes → Most Recent Progress Note

Most Recent Progress Note

Subjective: Babygirl is a 6-day old infant born at 34, 2 with RDS and congenital syphilis. On day 4 of penicillin, after receiving 2 days of ampicillin. Required frequent nasal suctioning overnight for copious secretions. Tolerating enteral feeds. D/C'd PTX yesterday with persistent direct hyperbilirubinemia.

Most Recent Progress Note

Objective

PE:

Gen: Small preterm infant in isolette

HEENT: AFSOF, nCPAP and OG in place, thick nasal discharge

Lungs: Coarse bilaterally, intermittent tachypnea

Cardiac: RRR, no murmur, good perfusion

Abd: Mildly distended, liver 3cm below the costal margin, spleen palpable 2cm below the costal margin

Skin: Maculopapular rash on trunk and extremities, no edema, + jaundice

Neuro: Grossly intact, spontaneous movements of all extremities, suck improving

Most Recent Progress Note

Labs and Imaging:

- Maternal RPR at delivery 1:128, TPPA Reactive. HIV Negative.
- Baby RPR drawn on day 2 after mom's results: Reactive RPR 1:64
- Elevated WBC, borderline low H/H, persistent thrombocytopenia – likely due to CS
- LP performed on day 2 with high WBC and protein – likely due to CS
  - Bacterial culture with no growth
- CSF VDRL reactive
- Mildly elevated transaminases
- Indirect Bili normalized after PTX x2d, Direct Bili remains elevated
- CXR consistent with RDS, no cardiomegaly
- Skeletal films pending

Most Recent Progress Note

Assessment: Babygirl is a 6-day old infant born at 34, 2 with RDS, congenital syphilis, conjugated hyperbilirubinemia.

Plan:

- Continue CPAP and frequent suctioning.
- Continue to increase enteral feeds.
- Follow up results skeletal films.
- Recheck D Bili and CBC tomorrow.
- Continue PCN x10 days total.

Infant Chart → Results → CSF Studies

Look for specifics in the Results section

CSF Studies:

WBC: 42

RBC: 5

Protein: 175

CSF VDRL: Reactive

CSF Culture: No growth x 5 days.

Are we done with our investigation?

Check the EMR again the next day

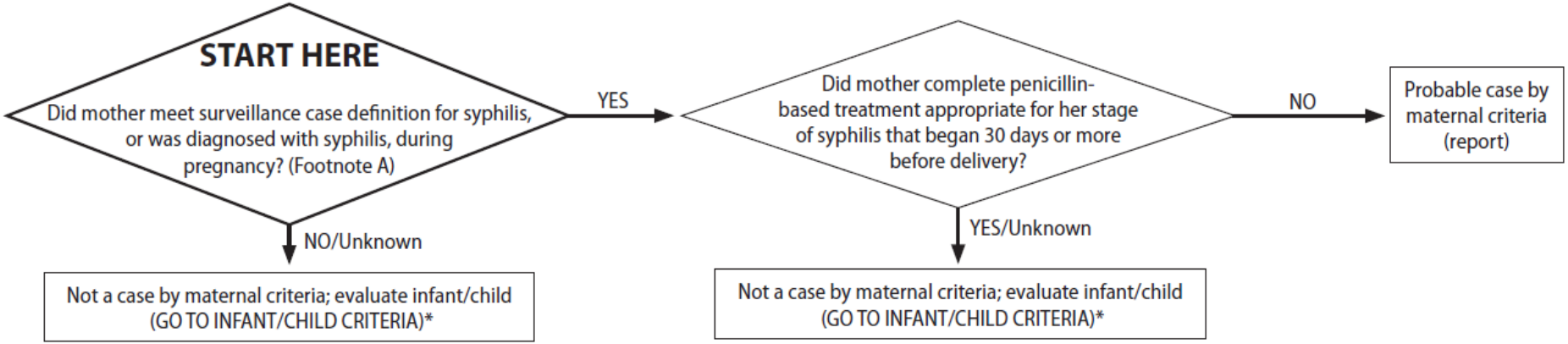
- **Results → Radiology → X-rays**
- **Double click to open the Radiologist's Report:**
  - Upper extremities: There is periostitis involving the diaphysis and metaphysis of both humeri and radii. There is lucency along the metaphyseal region of both humeri. No evidence of pathologic fracture in upper extremities.
  - Lower extremities: The examination is limited due to patient positioning. There is periostitis involving the diaphysis and metaphysis of both femurs and tibias.
  - Impression: Findings consistent with congenital syphilis.

- **Review the Radiologist's Report:**
  - Upper extremities: There is periostitis involving the diaphysis and metaphysis of both humeri and radii. There is lucency along the metaphyseal region of the humeri. No evidence of pathologic fracture in upper extremities.
  - Lower extremities: The examination is limited due to patient positioning. There is periostitis involving the diaphysis and metaphysis of both femurs and tibias.
  - Impression: Findings consistent with congenital syphilis.

Go back and look for Darkfield examination, special stains, PCR….

- No mention in progress notes or in the Results tab, indicating that they were not performed

MATERNAL CRITERIA TO REPORT CONGENITAL SYPHILIS

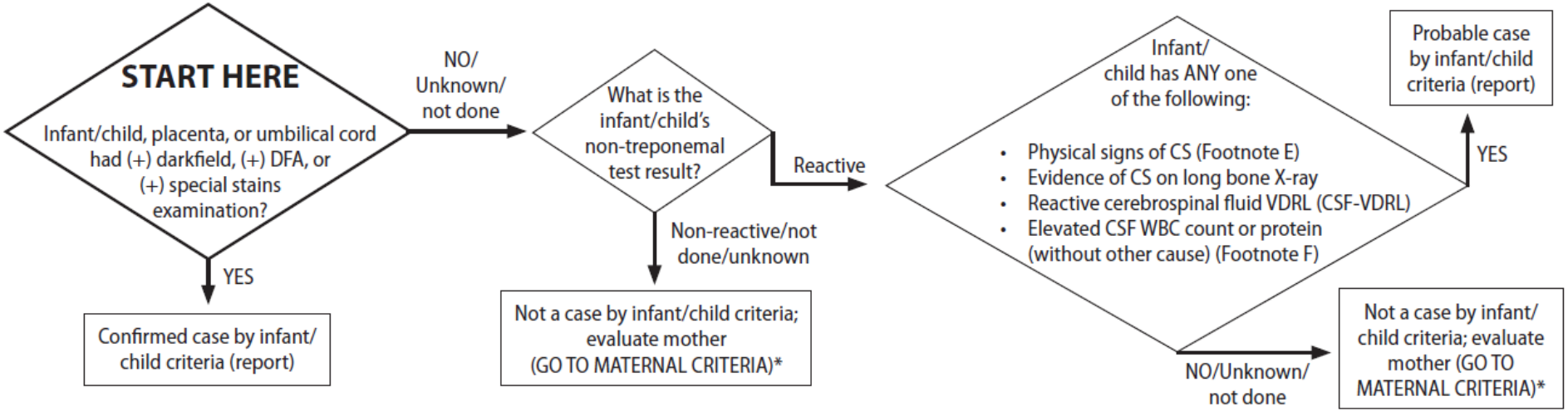


Case determination – Maternal Criteria

- **Did mom have syphilis during pregnancy?**
  - YES
- **Was mom adequately treated for her stage of syphilis with a regimen initiated at least 30 days before delivery?**
  - NO

Probable case by maternal criteria
→ Go to infant criteria

INFANT/CHILD CRITERIA TO REPORT CONGENITAL SYPHILIS



Case determination – Infant Criteria

- Any positive darkfield, DFA, PCR, or staining?
  - No
- What is the infant's non-treponemal test result?
  - Reactive
- Does the infant have any of the following?
  - Physical signs of CS
    - YES – Rash, Snuffles, Jaundice, Hepatosplenomegaly, Other (anemia, thrombocytopenia)
  - Evidence of CS on long bone x-ray
    - YES
  - Reactive CSF VDRL
    - YES
  - Elevated CSF WBC and/or protein
    - YES

Probable case by infant criteria

Both Maternal and Infant Criteria Met → Report

You have all of the evidence needed for your case classification and to complete the infant variables.

Reopen the chart one final time after discharge and read the Discharge Summary to ensure that the infant completed 10 days of therapy and that there were no significant updates.

Any questions?

Acknowledgements

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Elizabeth Torrone

For more information, contact CDC
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TTY: 1-888-232-6348 www.cdc.gov