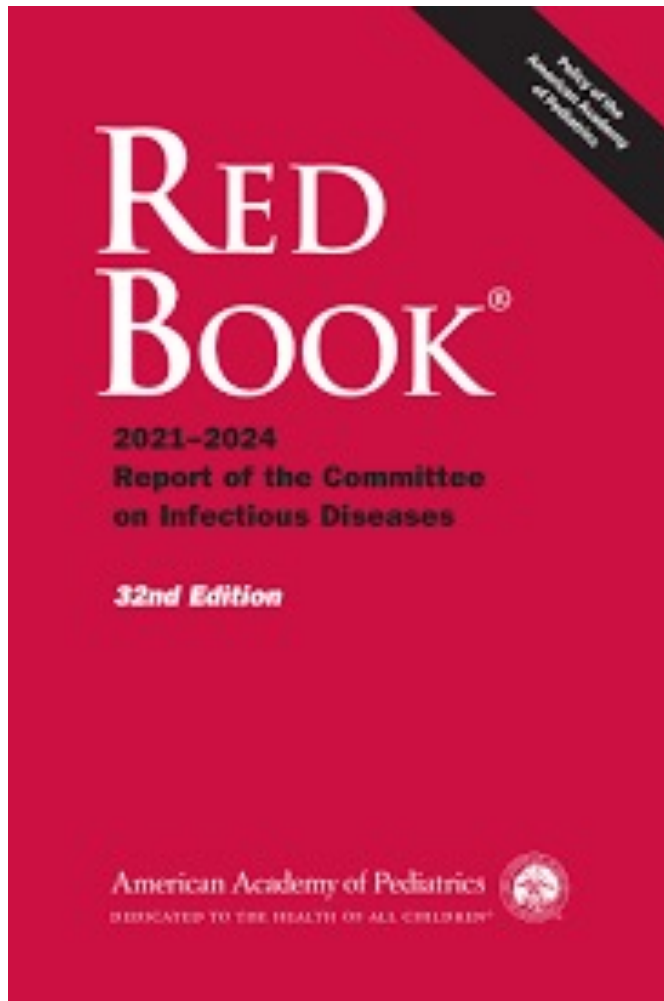
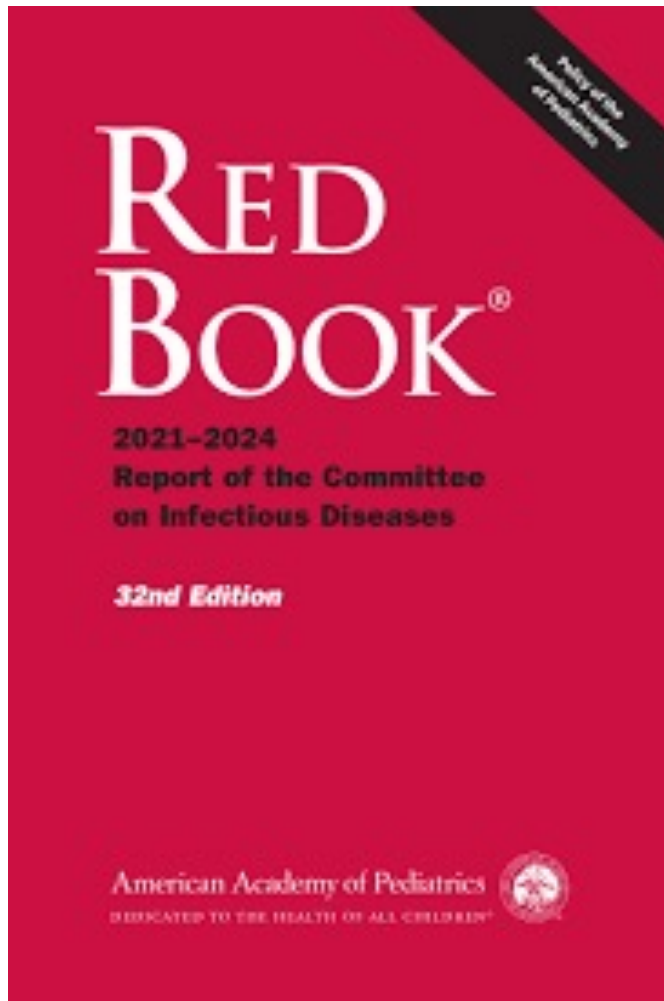


# Syphilis, Stewardship, and Assessing Algorithms

*Ken Zangwill, MD*



Most read  
chapter?

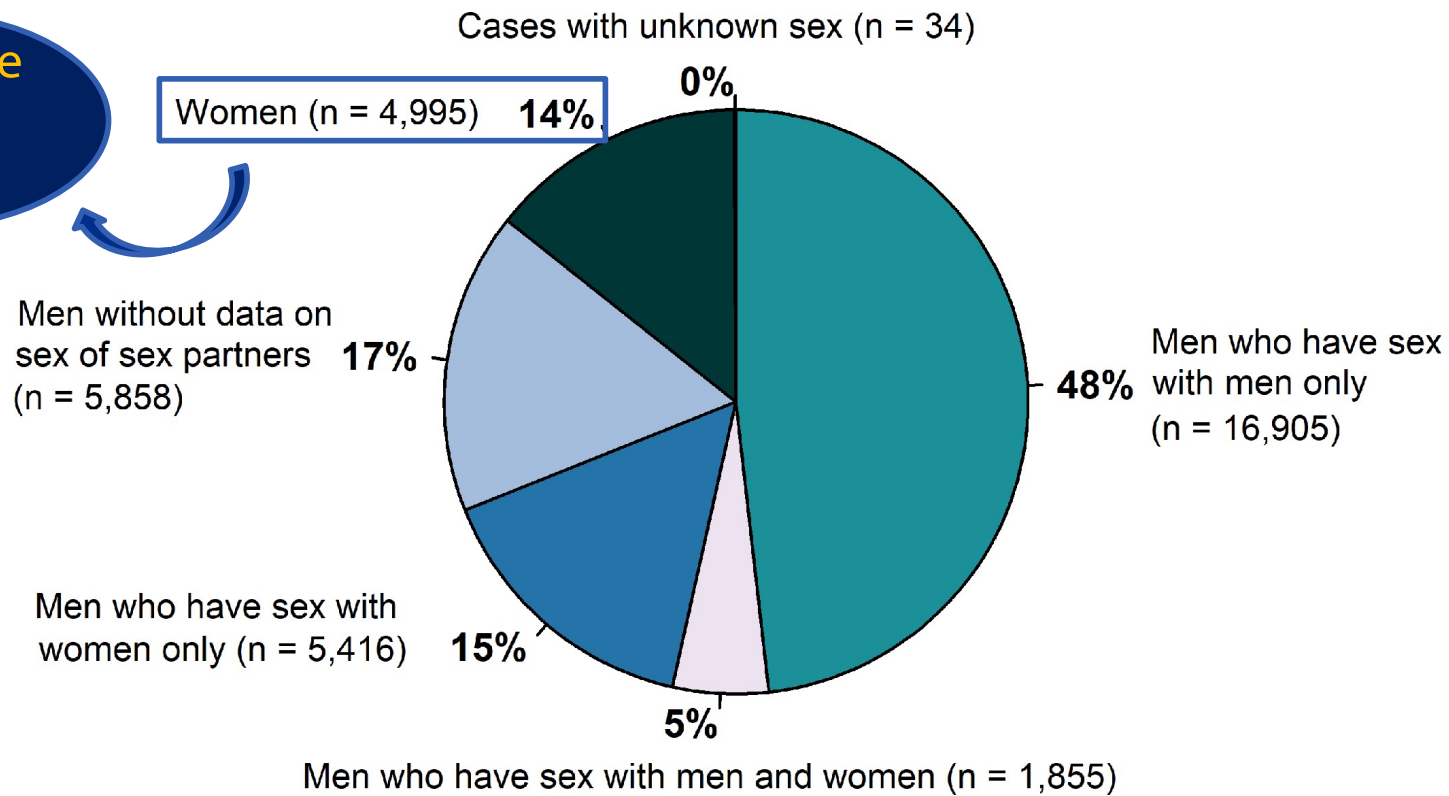


Most read  
chapter?

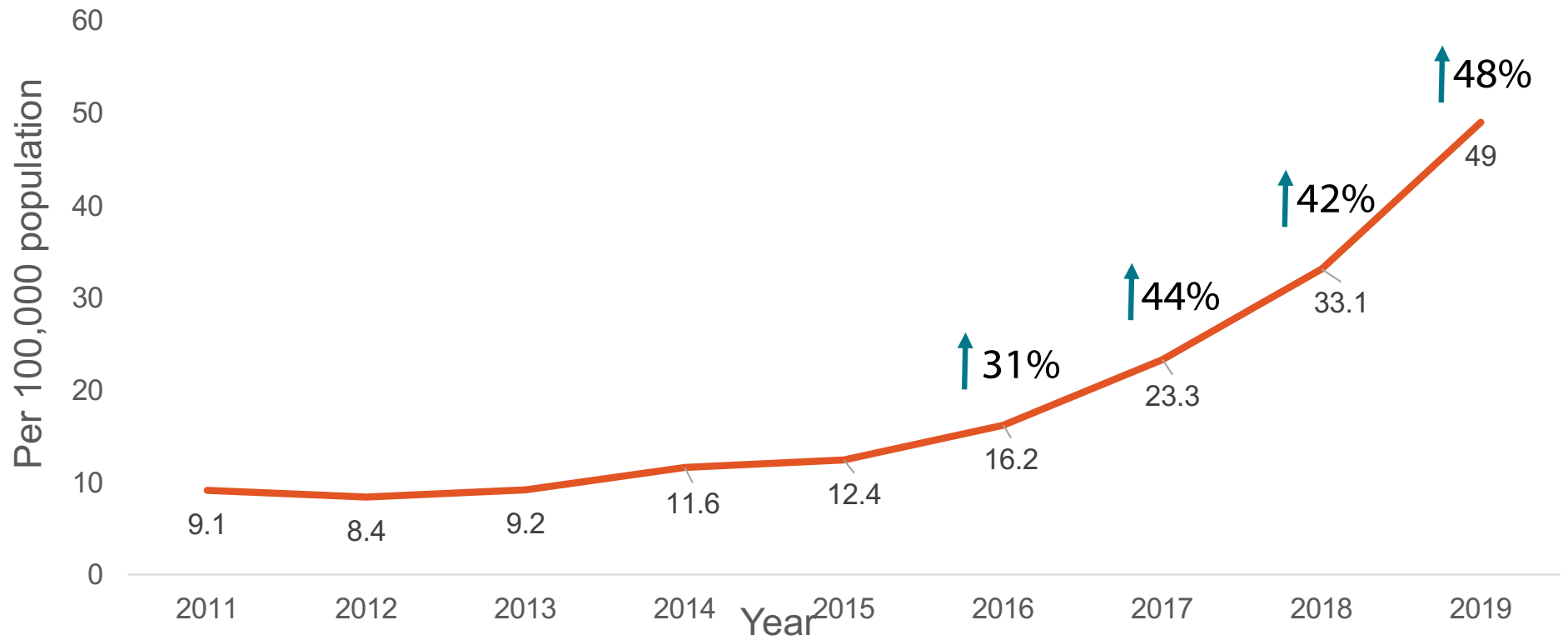
**SYPHILIS!**

# Primary and Secondary Syphilis — Distribution of Cases by Sex and Sex of Sex Partners, United States, 2018

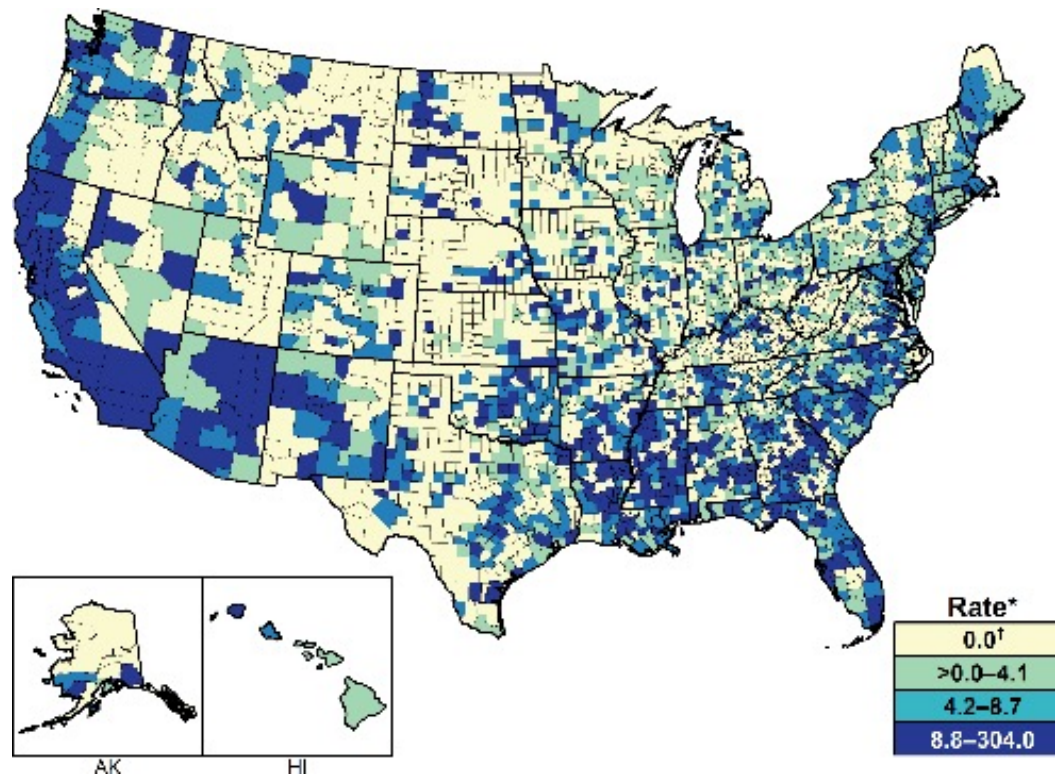
This is the  
NICU's  
world



# Congenital Syphilis



# Primary and Secondary Syphilis — Rates of Reported Cases by County, United States, 2018



\* Per 100,000



## *Transmission to the Baby*

Likelihood varies with stage of disease in the mother and increases with gestational age at time of infection

<b>Stage</b>	<b>Timing</b>	<b>Features</b>
Primary	3-4 weeks after exposure	Painless chancre at inoculation site
Secondary	4-8 weeks after appearance of primary chancre	Rash, condyloma lata, systemic symptoms common
Latent	Early: <1 year after infection Late: >1 year after infection	Asymptomatic
Tertiary	1-10 years after infection	Benign: gummatous lesions Cardiovascular: aortitis, coronary arteritis CNS: tabes dorsalis, paresis



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Transmission ~90%

Transmission ~10-40%

Transmission ~40%

Transmission <8%

Transmission ?%

## *The Case...*

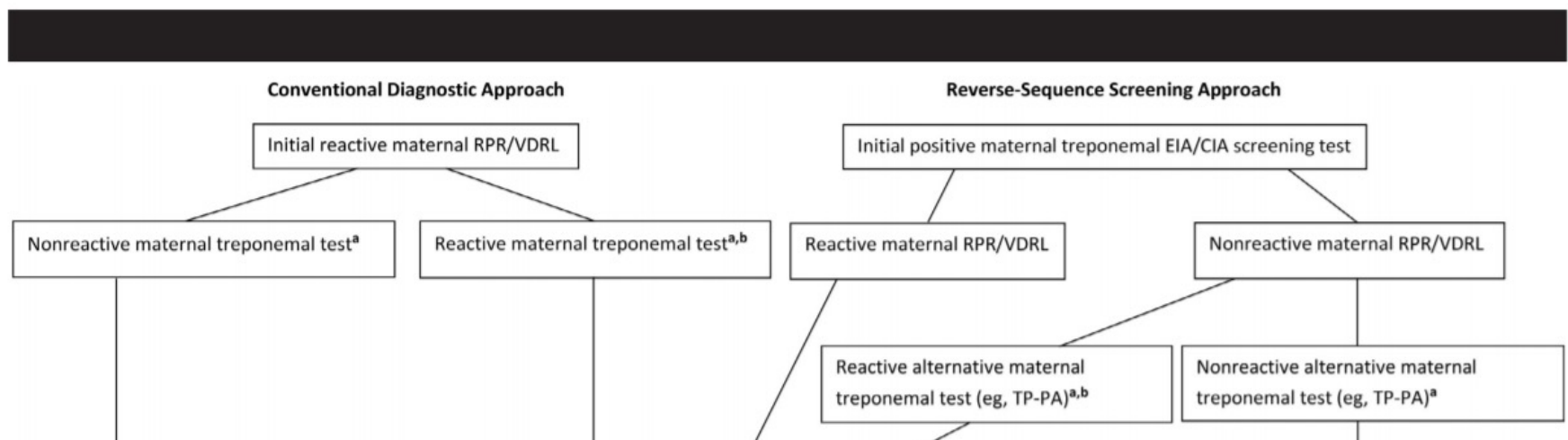
- MOM RPRs
  - 128 pre-pregnancy
  - 9m PTD = 4
  - 2, then 1, **then 4** (over 7m)
  - Tx'ed with 1 dose 28d PTD
- Baby RPR pending
- (Don't do cord blood...contamination by mom blood (false (+) or Wharton jelly false(-))
- (No need for treponemal test)

# What Does Your Lab Do?

## Reverse algorithm:

- High thruput
- Cheaper
- False (+)s, so best if low prevalence

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



## *Back to the Case...*

- MOM RPRs
  - 128 pre-pregnancy
  - 9m PTD = 4
  - 2, then 1, **then 4** (over 7m)
  - Tx'ed with 1 dose 28d PTD
- Immediate questions:
  - 1) Are there more serologic/Tx data available?
  - 2) Right drug/doses/time?
  - 3) Is this the expected serologic response?

LAC DPH STD hotline!!  
213-368-7441

## *Appropriate Therapy for the Mom?*

- Primary, Secondary/  
Early latent: 1 dose PCN
- Late latent, tertiary: 3 doses, 7-9d intervals
- Neuro, other: 10-14d therapy

# *Serologic Testing*

- Non-treponemal (VDRL, RPR):
  - Correlates w/ disease activity
  - Targets bound cardiolipin (and treponeme) really...
  - false (+): autoimmune conditions, TB, EBV, endocarditis
  - false (-): high Ab level prevents agglutination (prozone)

# *Serologic Testing*

- Non-treponemal (VDRL, RPR):
  - Correlates w/ disease activity
  - Targets bound cardiolipin/lecithin (and treponeme)
  - false (+): autoimmune conditions, TB, EBV, endocarditis, pregnancy
  - false (-): high Ab level prevents agglutination (prozone)
- Treponemal:
  - Not needed for babies
  - Does not correlate with disease activity

## *Expected RPR Response After Therapy in Adults*

- By 3 months after therapy, 76-88% with 4-fold decrease
- By 6m, ~78% with 8-fold decrease
  
- Independent of baseline titer

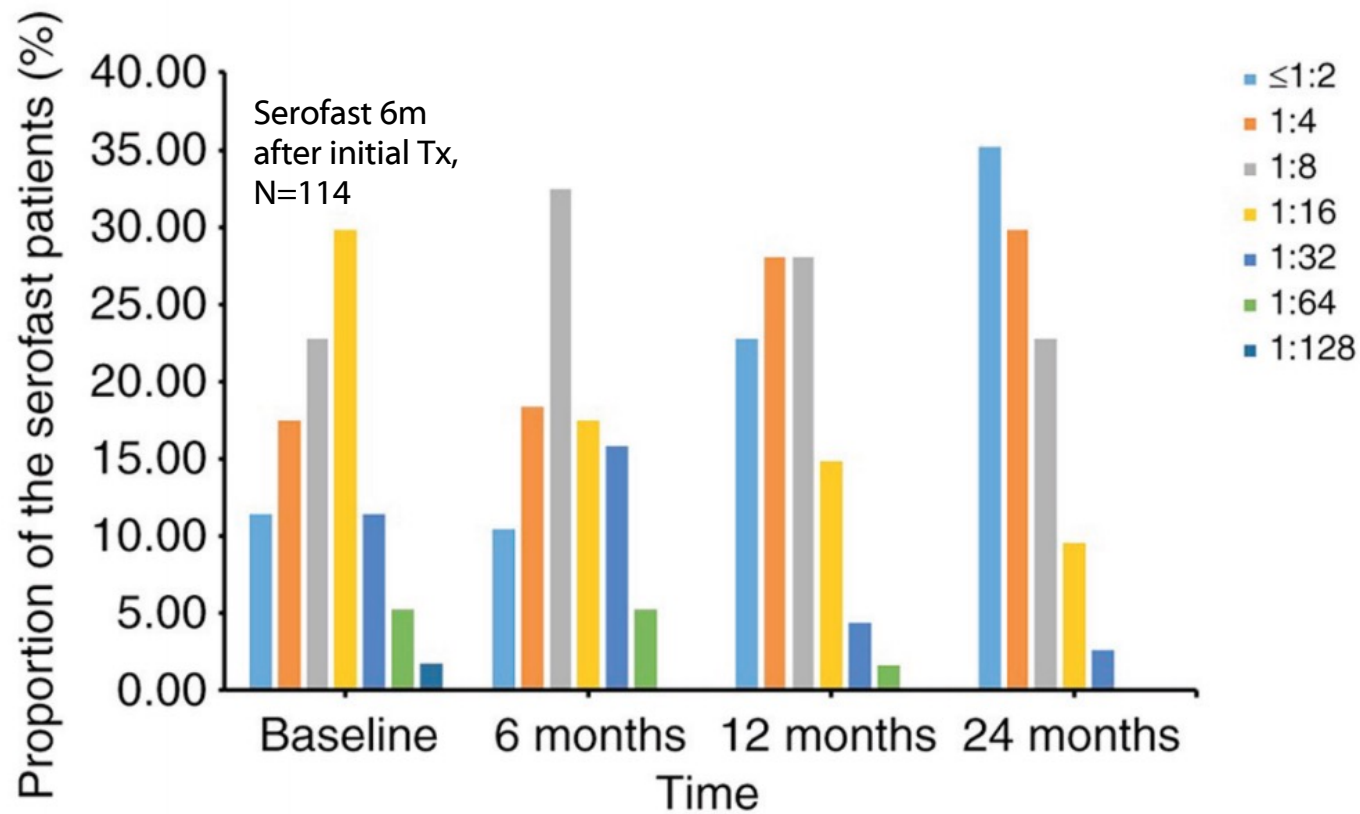


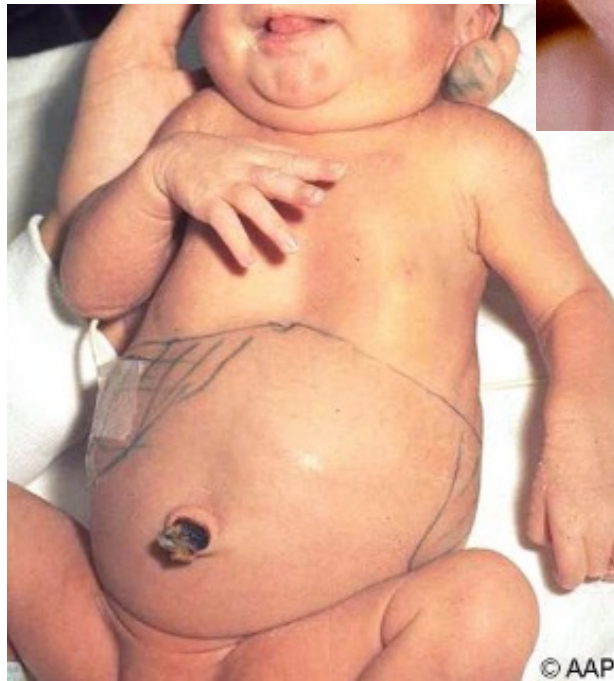
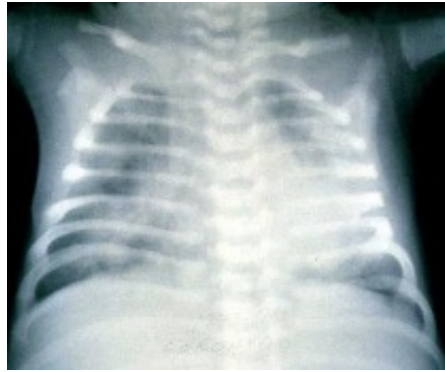
# *RPR Response After Therapy*

Percent of people who have non-reactive RPR after therapy

<b>Stage of syphilis</b>	<b>3 months</b>	<b>6 months</b>	<b>9 months</b>	<b>12 months</b>
Primary (n=86)	9 (10.5%)	20 (34.9%)	30 (34.9%)	32 (37.2%)
Secondary (n=170)	1 (0.6%)	7 (4.1%)	10 (5.9%)	17 (10.0%)
Early latent (n=77)	5 (6.5%)	5 (6.5%)	8 (10.4%)	8 (10.4%)
<b>Total early syphilis (N=333)</b>	<b>15 (4.5%)</b>	<b>32 (9.6%)</b>	<b>48 (14.4%)</b>	<b>57 (17.1%)</b>

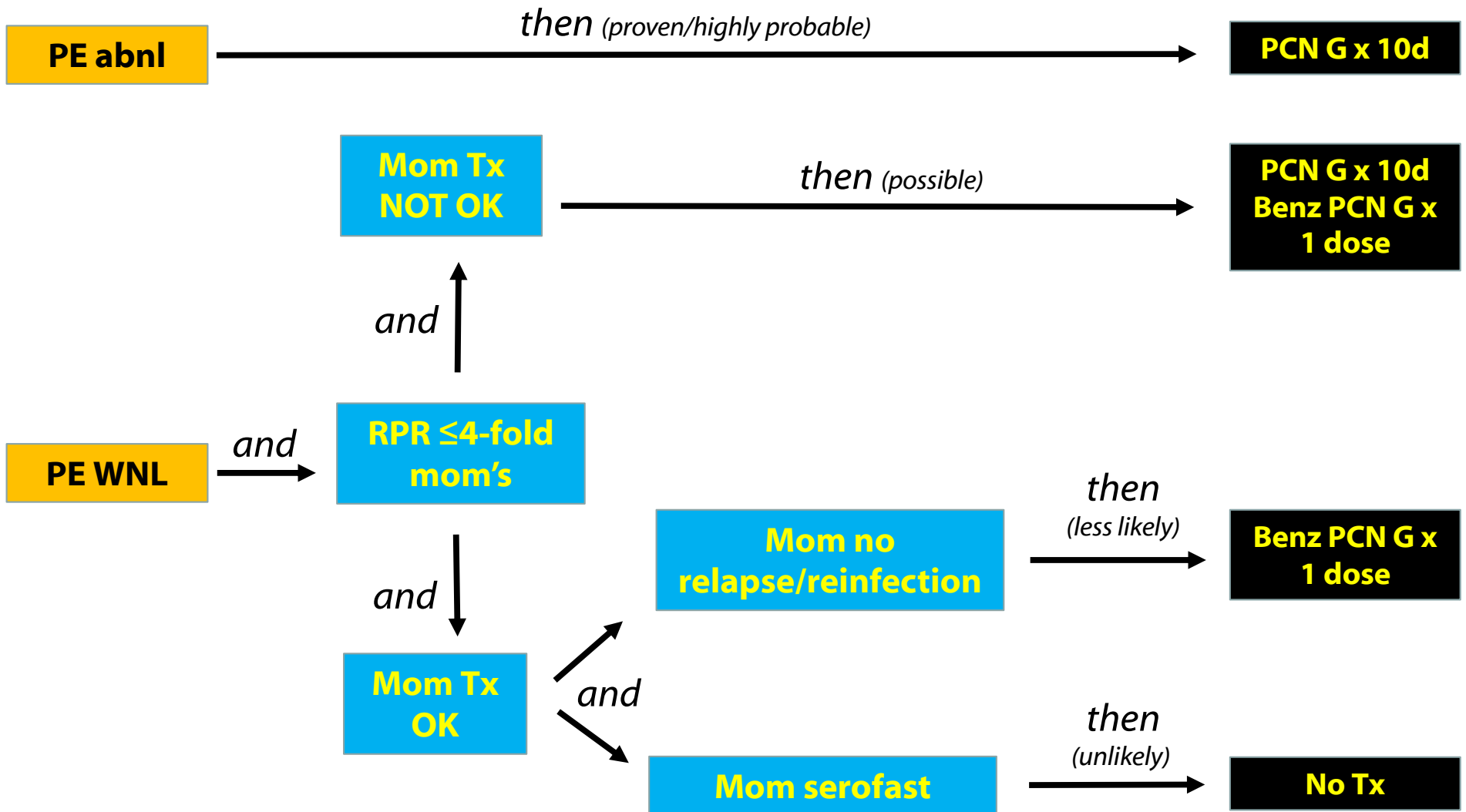
# What is Serofast?





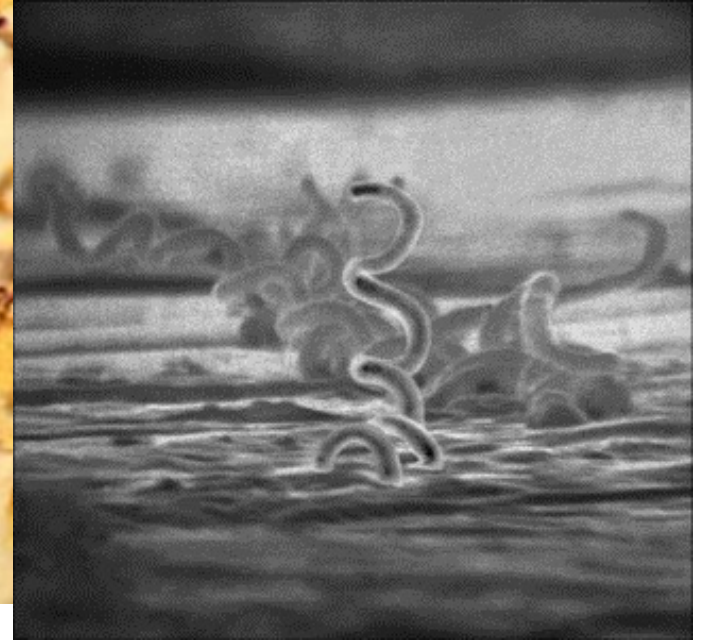
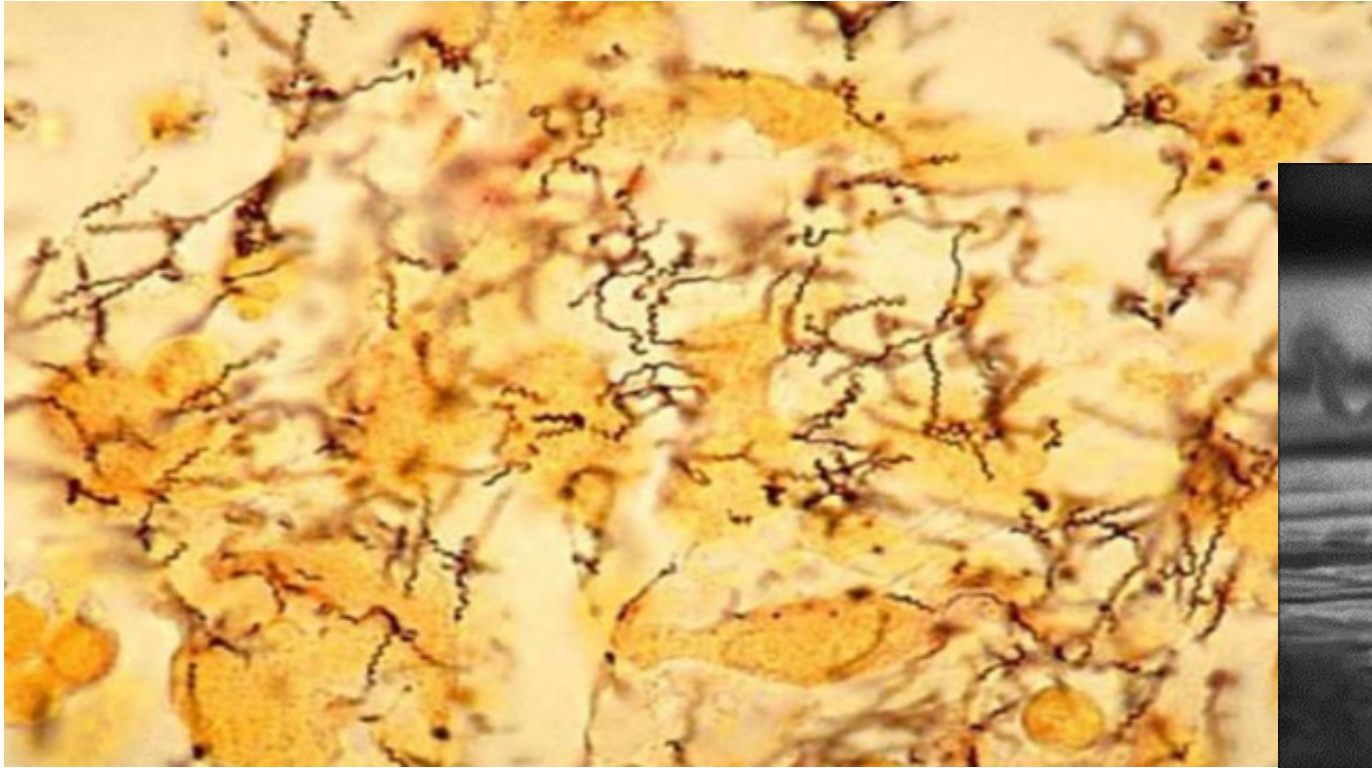
## *Treat, or Not?*

- *Need a risk assessment*
  - *“Proven or highly probable”*
  - *“Possible”*
  - *“Less likely”*
  - *“Unlikely”*



## *Main Stewardship Points*

- *Call STD hotline to get more information*
  - *They often have new information which limits PCN use*
- *Think about serofast*
  - *Will allow for NOT starting drug – moves from “less likely” to “unlikely”*
- *Double check if mom got too much PCN for her disease stage and crossed the “4 week PTD line”...*
  - *Move from “possible” to “less likely/unlikely”*
- *Baby allergic to PCN: Desensitize (to avoid use of ceftriaxone alternative)*



# Syphilis, Stewardship, and Assessing Algorithms

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