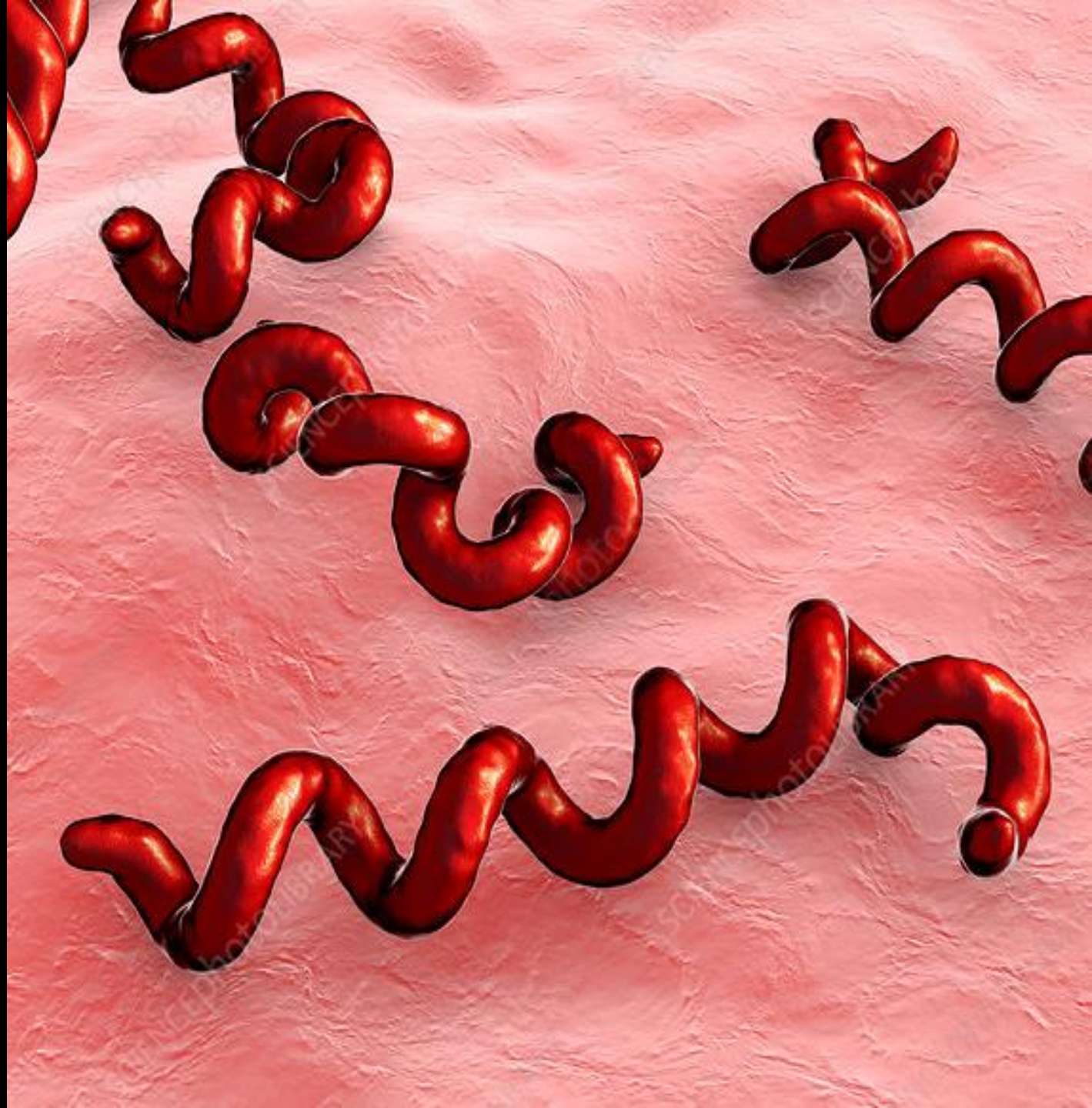

Reverse algorithm in syphilis diagnosis: To use or not to use?

“CONS”

พญ.ณัชกมล เลิศอมรภักดิ์

โรงพยาบาลศิริราช



What is the current syphilis screening algorithm at your hospital?

- 1) Traditional algorithm
- 2) Reverse screening algorithm



Interesting fact

Among 2,360 laboratories participating in the 2015 College of American Pathologists (CAP) syphilis serology proficiency testing program in the USA, of the 1,911 laboratories that responded,

- **63.1%** (1,205 laboratories) are using **traditional algorithm**
- **15.9%** (304 laboratories) are using **reverse sequence algorithm**
- 2.5% (47 laboratories) are using both algorithms
- 5.9% reported “don’t know”
- 3.9% reported “other”

Reverse algorithm in syphilis diagnosis: To use or not to use

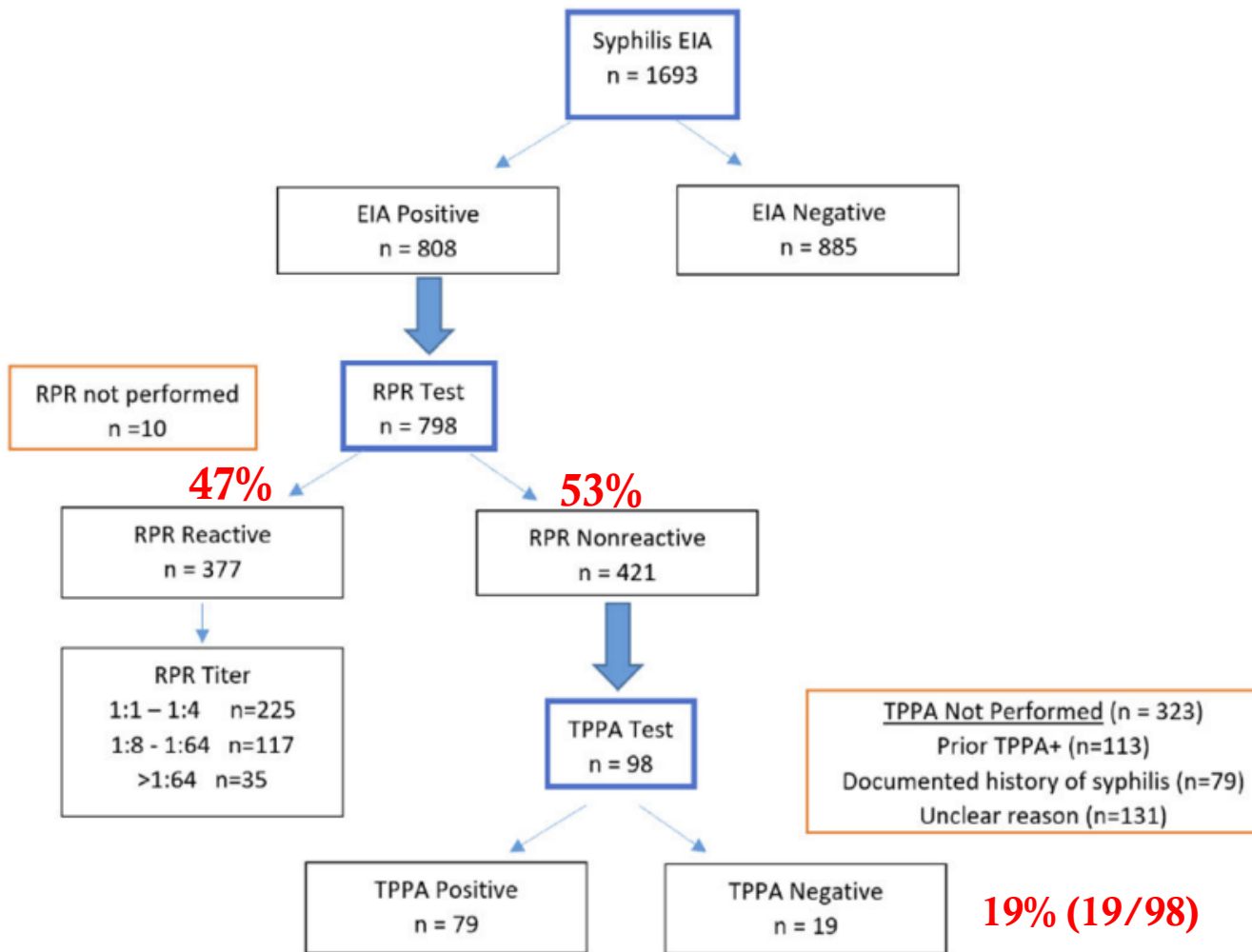
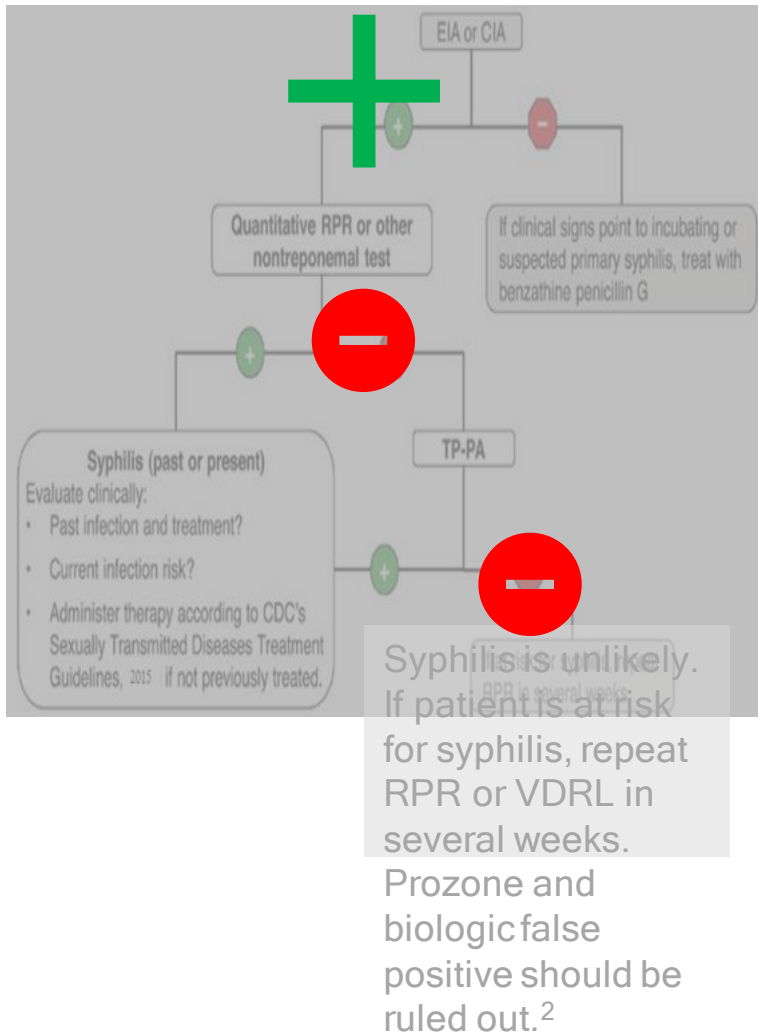


Figure 1 --
Reverse Algorithm Syphilis Testing in 1693 Men who have Sex with Men with HIV

- The reverse testing algorithm **cannot discriminate** between **newly acquired syphilis** and **past syphilis**.
- EIA+/RPR-/TPPA - rate is 19%
- Screening syphilis RS was inefficient for MSM in HIV clinic, because of **high rates of prior syphilis Dx & Rx** and **false positive EIA screening (BFP)**.
- Frequent syphilis screening in high prevalence populations prefer traditional algorithm.

Reverse algorithm in syphilis diagnosis: To use or not to use



False positive treponemal test ¹

Thyroiditis
SLE
Hyperglobulinemia
Pregnancy
Cirrhosis
Injection drug use
Advancing age
Infectious mononucleosis
Yaws , pinta, bejel
Bacterial infections: brucellosis, leptospirosis, Lyme disease, malaria
Recent immunization

Negative impact

- Potential impact on recent **sexual partners** due to **incorrectly notified** that they have been exposed to the disease
- False positive creates burden for public health professionals.
- Partly based on the data, our university laboratory has **switched back** to the **traditional algorithm for syphilis testing in our HIV clinic.**²

¹Soreng, Katherine et al. "Serologic Testing for Syphilis: Benefits and Challenges of a Reverse Algorithm." *Clinical microbiology newsletter* vol. 36,24 (2014): 195-202.

² Dionne-Odom, Jodie et al. "Limited Utility of Reverse Algorithm Syphilis Testing in HIV Clinic Among Men Who Have Sex With Men." *Sexually transmitted diseases* vol. 48,9 (2021): 675-679.