

# STANDARD DEVIATIONS: Pandemic? Which One?

Greetings,

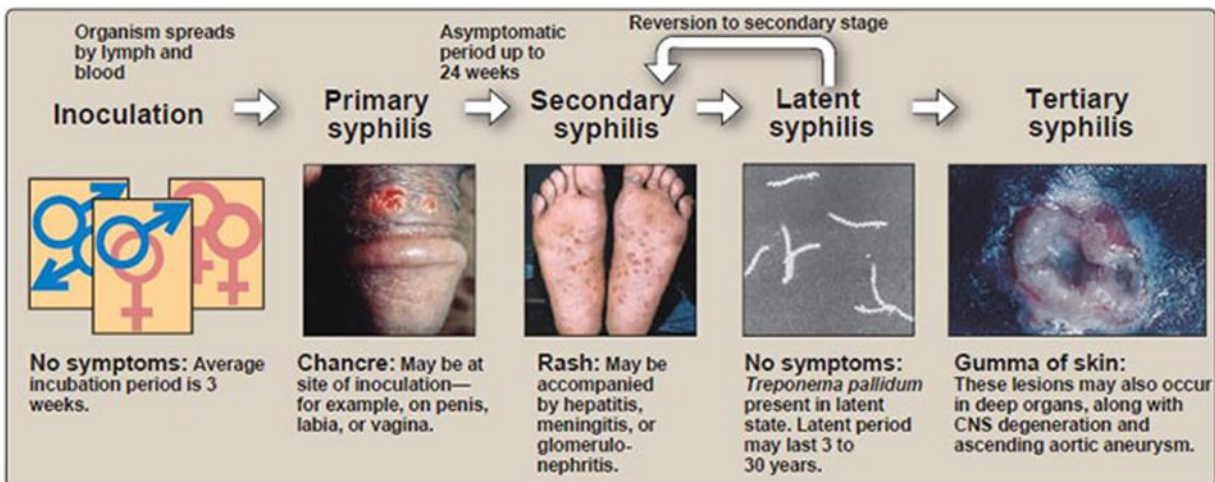
There's a pandemic going on. Well, actually, there are more than one. If we define a pandemic as infectious disease affecting global populations then we need to include HIV/AIDS, measles, tuberculosis, **and syphilis**.

Since we're celebrating Columbus Day, we should pay some attention to the disease that he is less famous for having introduced and the pandemic that has been ravaging the world for centuries.

In 1495, mercenaries returned from Columbus's New World with a disease transmitted by sexual contact. During the Siege of Naples, they started an epidemic that has spread throughout the world.

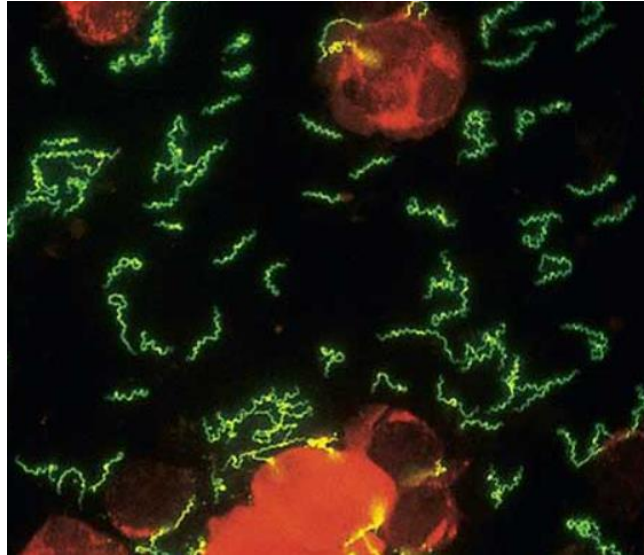
Today, millions are infected, hundreds of thousands will die and tens of thousands will be born with congenital disease or be stillborn. Unfortunately, epidemiology of syphilis is woefully outdated (2017 is our latest accurate surveillance) and we just don't understand the true world burden of this disease. It's thought to infect 0.6% of our population.

## *Treponema pallidum* Pathogenesis and Clinical manifestations



Sure, but how deadly is it? Left untreated, syphilis has a mortality rate of 5-50% (compared to SARS-CoV2 CFR of <1%). Without treatment it is a deadly prognosis.

Syphilis is caused by the bacterium *Treponema pallidum*.



{Fluorescein-labeled antitreponemal monoclonal antibodies are used to stain the bacteria.}

We have several diagnostic tools to identify the bug. We can stain it (DFA), amplify a (NAAT), or use serologies (RPR, VRDL). UPHL tests thousands of specimens each year.

What we can't seem to do is stop it, Oh, sure, we can treat it; that's easy. Penicillin has been an effective antibiotic for decades. Where we have good surveillance and good health care the disease is readily cured. But much of the world is not so lucky. And the organism has developed antibiotic resistance to drugs that were supposed to stop it in its tracks.

- Penicillin is the drug of choice for treating *T. pallidum* infections.
- Long-acting benzathine penicillin is used for the early stages of syphilis, and penicillin G is recommended for congenital and late syphilis.
- Doxycycline or Tetracycline or Erythromycin or Chloramphenicol can be used as alternative antibiotics for patients allergic to penicillin.
- Only penicillin can be used for the treatment of neurosyphilis.

The problem is not treatment but detection and prevention. We continue to see increases in transmission, not only across the globe but here (yes, right here) as well.



Figure 14. Syphilis Rates, Utah and United States, 2008-2017

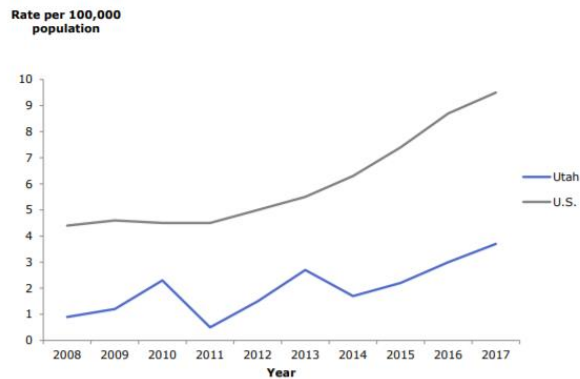
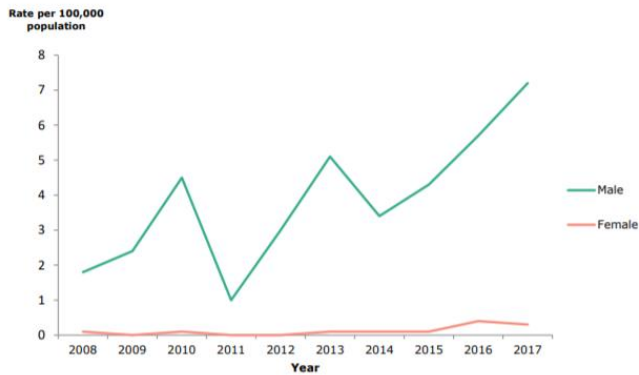


Figure 15. Syphilis Rates by Sex, Utah, 2008-2017



{health,Utah.gov. Headed the wrong way.}

Our celebration of Christopher Columbus is a tainted and confusing occasion. Our Euro-centric appreciation is tempered by genocide and pandemic. Syphilis is a global pandemic. It continues to affect millions. Easily cured, we still have huge swaths of the world that are seeing the consequence of untreated disease.

Are we thinking about syphilis today? What about measles, or TB, or HIV? Our attention is narrowly focused on one certain condition that dominates our worldview. Pandemics happen; and some are still happening. As good laboratorians and good stewards of public health, we need to remember that the work we do is inclusive of all the maladies we are capable of detecting, treating, and preventing.

Have a great week and be safe,

Bryan

