OHSU PRIMARY CARE REVIEW Public Health and Primary Care Diseases of Concern and How to Collaborate

Sarah Present MD, MPH

- Health Officer, Clackamas County Public Health
- Family Physician, Clackamas County Beavercreek Health Center
- Clinical Assistant Professor, Dept Family Medicine, OHSU

OHSU

CPD

Sometimes it IS the zebra…

- 79 y/o female from India presents with pain and nonhealing wound of ankle and 6 month history of night sweats, weight loss and fatigue.
- 14y/o male from Micronesia with 4 months of cough, fatigue, weight loss and red, swollen lump in neck
- 50y/o homeless female with 8 months of progressive vision loss, weight loss and fatigue
- 4y/o Mexican-born male with 3 months of cough and lack of weight gain and 2d of headache, lethargy, confusion and vomiting.

Sometimes it IS the zebra…

- What do you do?
  - a) Use respiratory isolation precautions to examine the patient
  - b) Test the patient for TB
  - c) Treat pt for the more common condition this likely is
  - d) Call public health to notify them of suspected tuberculosis and discuss management
  - e) All of the above

What do you do?

Use respiratory isolation precautions to examine the patient 0%

Test the patient for TB 0%

Treat pt for the more common condition this likely is 0%

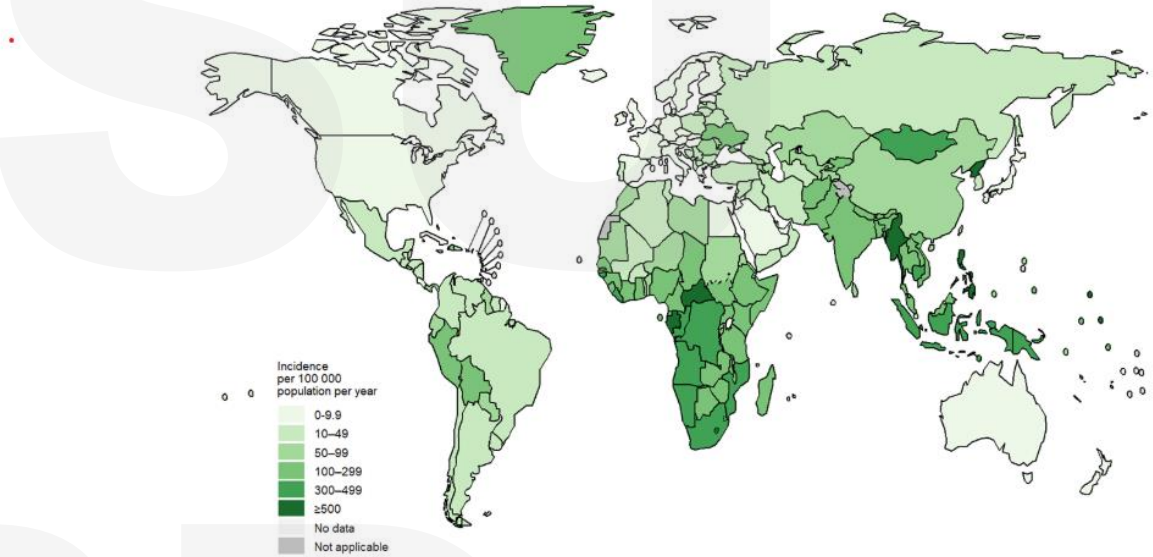
Call public health to notify them of suspected tuberculosis and discuss management 0%

All of the above 0%

Tuberculosis- A leading global threat

- **Globally, TB is the world's leading cause of death from a single infectious agent and among the top 10 causes of death.**
- TB is present in all countries and age groups.
- TB is the leading cause of death of people with HIV and also a major contributor to antimicrobial resistance.
- About a quarter of the global population is estimated to have been infected with TB bacteria (Most LTBI)
- About 5–10% of people infected with TB will eventually get symptoms and develop TB disease.
- TB is preventable and curable.

Fig. 1.1.3 Estimated TB incidence rates, 2023



Source: https://www.who.int/news-room/fact-sheets/detail/tuberculosis

Tuberculosis in Oregon

- https://public.tableau.com/app/profile/oregon.health.authority.public.health.divison/viz/TuberculosisinOregon2015-2024/1Homestate

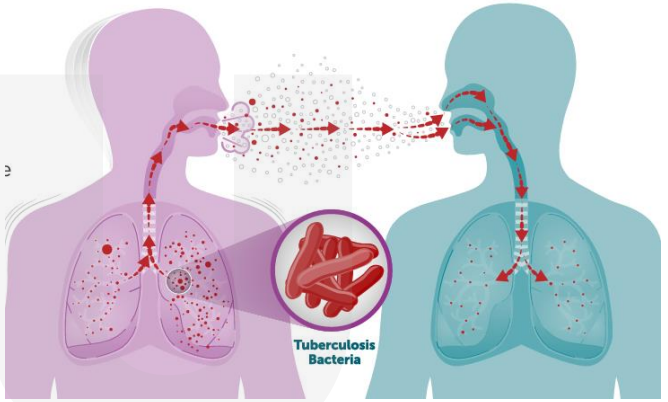
- In 2024, 87 cases of TB disease were reported in Oregon, corresponding to an incidence rate of 2.1 cases for every 100,000 Oregon residents.
  - This rate is a 16.7% increase over 2023 and is the second consecutive annual increase.
  - Oregon remains a medium-incidence state for TB disease and remains below the national case rate.

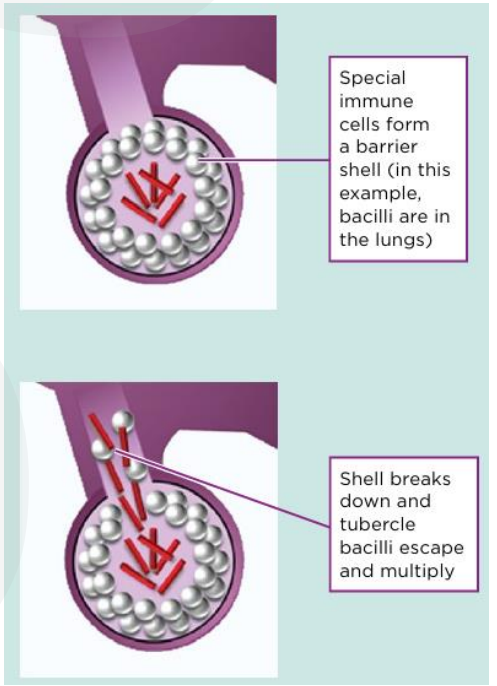
- Nationwide, the TB rate is on a notable upward trend.
  - 2024 was the 4th consecutive year of increase with a case count of 10,347 and a rate of 3.0 cases/100,000 population.
  - This rate is a 6% increase over the 2023 rate of 2.9 cases/100,000 residents.

Oregon University Tuberculosis Hospital, 1939

What is TB?

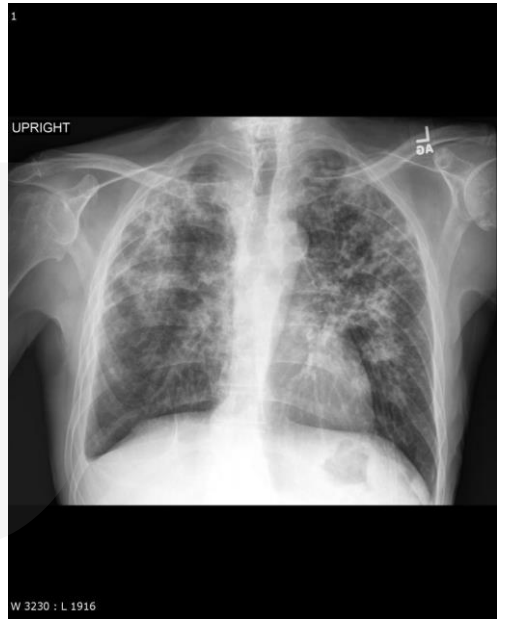
- TB is caused by Mycobacterium tuberculosis complex.
  - This complex includes **M. tuberculosis**, M. africanum, **M. bovis**, M. microti, M. pinipedii and M. canettii.
  - When a person inhales air containing droplet nuclei with M. tuberculosis, most of the larger droplets become lodged in the upper respiratory tract (the nose and throat), where infection is unlikely to develop. However, smaller droplet nuclei may reach the small air sacs of the lung (alveoli), where infection can begin.
  - In the alveoli, some tubercle bacilli are killed, but a few may multiply and enter the lymph nodes and bloodstream spreading throughout the body. Bacilli can reach any part of the body, where TB disease can develop.
  - Within 2 to 8 weeks, the body's immune system usually intervenes, halting multiplication and preventing further spread. At this point, the person has latent TB infection (LTBI). When a person has LTBI the tubercle bacilli are in the body, but the body's immune system is able to keep the bacilli contained. (macrophages→ granulomas)
  - **People are only infectious with active TB disease in the lungs or upper airway**





Source: 1. https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/TUBERCULOSIS/Documents/investigativeguide.pdf
2. https://www.cdc.gov/tb/hcp/education/core-curriculum-on-tuberculosis.html

LTBI to TB Disease Risk



- Without treatment, approximately 5% of persons who have been infected with M. tuberculosis will develop TB disease in the first two years after infection
- Another 5% will develop TB disease sometime later in life.

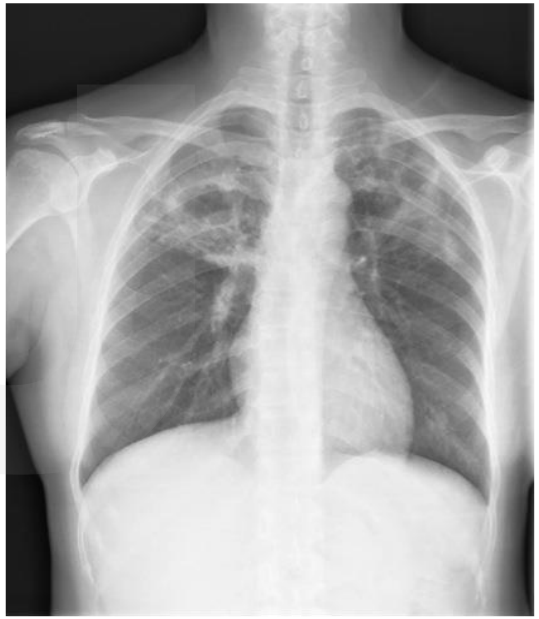
Who is most at risk?

- Persons infected with HIV
- Children younger than 5 years of age
- Persons who were recently infected with M. tuberculosis (within the past 2 years)
- Persons with a history of untreated or inadequately treated TB disease
- Persons who are receiving immunosuppressive therapy such as tumor necrosis factor-alpha (TNF) antagonists, systemic corticosteroids equivalent to/greater than 15 mg of prednisone per day, or immunosuppressive drug therapy following organ transplantation
- Persons with diabetes mellitus
- Other immune or pulmonary compromising conditions
- Populations defined locally as having an increased incidence of disease due to M. tuberculosis

TB symptoms- the great mimicker

Symptoms of Pulmonary and Extrapulmonary TB Disease

Symptoms of Pulmonary TB Disease	Symptoms of Possible Extrapulmonary TB Disease
• Cough (especially lasting for 3 weeks or longer) • Coughing up sputum or blood (hemoptysis) • Chest pain • Loss of appetite • Unexplained weight loss • Night sweats • Fever • Fatigue	• Blood in the urine (may indicate TB of the kidney) • Headache or confusion (may indicate TB meningitis) • Back pain (may indicate TB of the spine) • Hoarseness (may indicate TB of the larynx) • Loss of appetite • Unexplained weight loss • Night sweats • Fever • Fatigue



www.pulmonologyadvisor.com

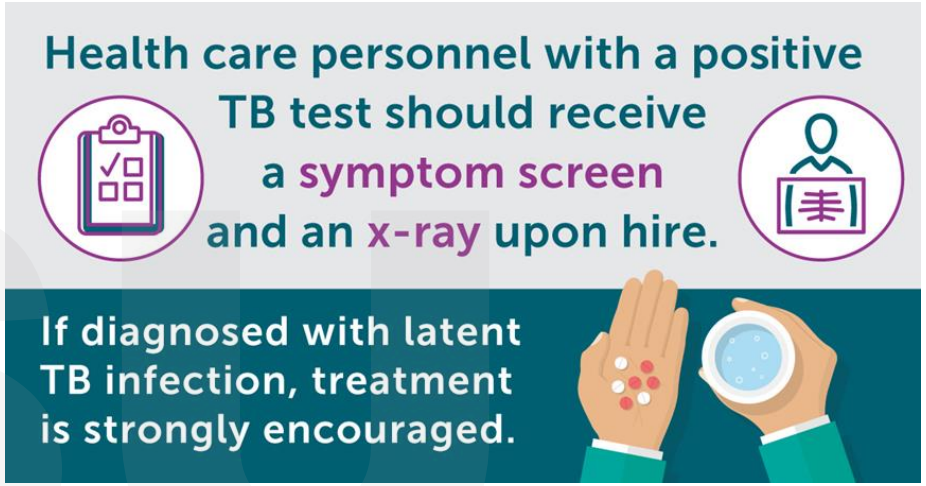
TB testing

- TST <2 y/o, otherwise **QFT** (IGRA) is preferred,
  - especially if history of BCG
  - Many false +/- of TST
- **CXR** if pulmonary TB suspected
- Sputum/fluid/tissue **AFB smear**, and **culture, NAAT** (PCR)
- Report to Public Health
- Other tests
  - HIV for all TB suspects
  - MDRTB testing for high-risk individuals (LPH will arrange)
  - CMP, CBC if initiating treatment

LTBI screening

- USPSTF: Screen for LTBI in populations at increased risk
  - Persons who were born in, or are former residents of, countries with high TB prevalence
  - Persons who live in, or have lived in, high-risk congregate settings
    - Homeless shelters
    - Correctional facilities
- Not necessary to report to public health, but we are available for consultation

LTBI Treatment



- **LTBI is appropriate for primary care**
- **Who to treat:**
  - **High risk for activation of disease**
  - **Those referred to you by public health department**
  - **Consideration in pregnancy**
  - **Tstin3d**
  - www.cdc.gov/thinktesttreattb/
- Provide a completion letter and clear documentation in chart
- No further TST or QFTs ever (symptom screening only)

Latent Tuberculosis Infection Treatment Regimens

Treatment regimens for latent TB infection (LTBI) use isoniazid (INH), rifapentine (RPT), or rifampin (RIF). CDC and the National Tuberculosis Controllers Association preferentially recommend short-course, rifamycin-based, 3- or 4-month latent TB infection treatment regimens over 6- or 9-month isoniazid monotherapy.

Clinicians should choose the appropriate treatment regimen based on drug susceptibility results of the presumed source case (if known), coexisting medical conditions (e.g., HIV*), and potential for drug–drug interactions.

https://www.cdc.gov/mmwr/volumes/69/rr/rr6901a1.htm?s_cid=rr6901a1_w

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	ISONIAZID† AND RIFAPENTINE†† (3HP)	3 months	Once weekly	12	**Adults and children aged ≥12 yrs** INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg 14.1–25.0 kg; 450 mg 25.1–32.0 kg; 600 mg 32.1–49.9 kg; 750 mg ≥50.0 kg; 900 mg maximum
					Children aged 2–11 yrs INH†: 25 mg/kg; 900 mg maximum RPT††: See above
	RIFAMPIN§ (4R)	4 months	Daily	120	**Adults:** 10 mg/kg; 600 mg maximum
					Children: 15–20 mg/kg; 600 mg maximum
	ISONIAZID† AND RIFAMPIN§ (3HR)	3 months	Daily	90	**Adults** INH†: 5 mg/kg; 300 mg maximum RIF§: 10 mg/kg; 600 mg maximum
					Children INH†: 10-20 mg/kg‖; 300 mg maximum RIF§: 15-20 mg/kg; 600 mg maximum
Alternative	ISONIAZID† (6H/9H)	6 months	Daily	180	**Adults** Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly¶	52	
		9 months	Daily	270	**Children** Daily: 10-20 mg/kg‖; 300 mg maximum Twice weekly: 20–40 mg/kg‖; 900 mg maximum
			Twice weekly¶	76	

*For persons with HIV/AIDS, see Guidelines for the Use of Antiretroviral Agents in Adults and Adolescents Living with HIV available at: https://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv/367/overview.
†Isoniazid is formulated as 100-mg and 300-mg tablets.
††Rifapentine is formulated as 150-mg tablets in blister packs that should be kept sealed until use.
¶Intermittent regimens must be provided via directly observed therapy (i.e., a health care worker observes the ingestion of medication).
§Rifampin (rifampicin) is formulated as 150-mg and 300-mg capsules.
‖The American Academy of Pediatrics acknowledges that some experts use rifampin at 20–30 mg/kg for the daily regimen when prescribing for infants and toddlers (**Source**: American Academy of Pediatrics.

CDC and the National TB Controllers Association LTBI Treatment Guidelines

https://www.cdc.gov/tb/hcp/treatment/latent-tuberculosis-infection.html

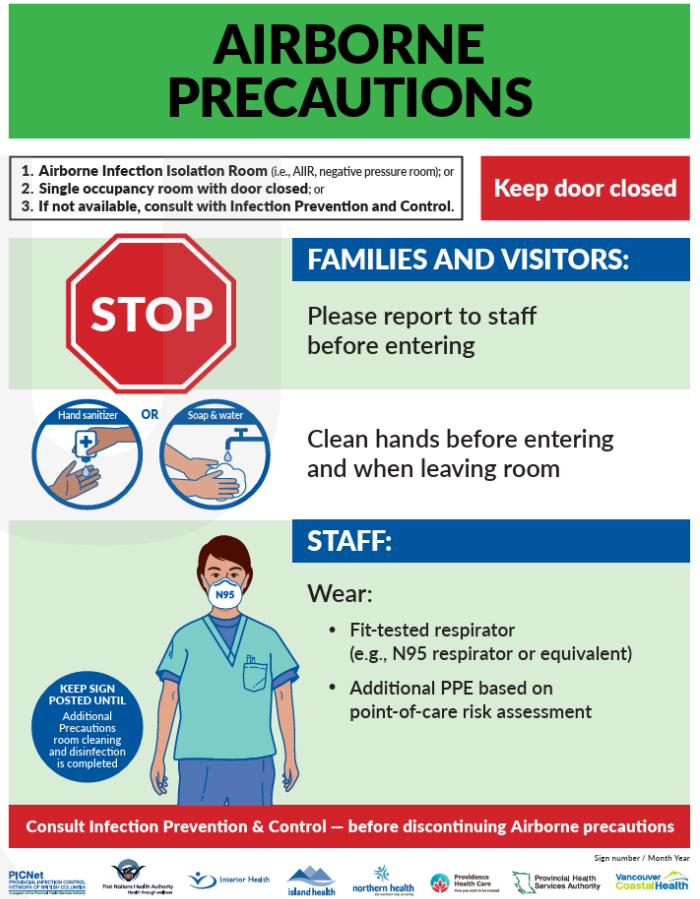
Active TB treatment

- **Active TB: 6-9 months of multi-drug directly observed therapy (DOT) regimen in partnership with LPH +/- ID**
  - **RIPE (rifampin, isoniazid, pyrazinamide, ethambutol) x 2 months, then rifampin/isoniazid x 4-6 months**
- Common side effects/complications:
  - Nausea, abdominal pain
  - Pruritis
  - Transaminitis
  - Neuropathy
  - Vision changes
  - Orange-tinged body fluids

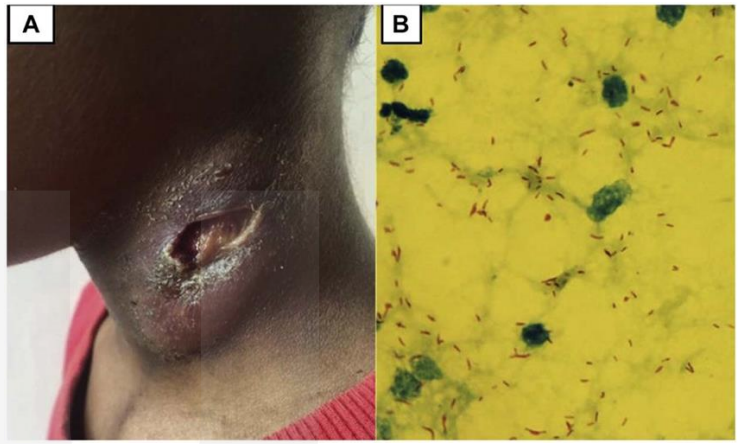
https://ethnomed.org/resource/tuberculosis-series-treatment/

Airborne infection isolation

- For patients with confirmed active pulmonary TB disease, airborne isolation in the community may be discontinued when the patient has been on 4 drug TB treatment given by DOT for 5 days with the below exceptions.
  - The patient has significant risk factors for drug resistant TB and GeneXpert or CDC MDDR or culture based drug susceptibility test results are unavailable to rule out drug resistant TB or
  - The patient works or lives in a high-risk setting (healthcare, nursing home, correctional facility, daycare, other congregate setting) or lives with persons at high risk for TB (children under age 5, HIV+, other immunocompromised) or
  - The patient was sputum smear+4 with a cavitary CXR at diagnosis or is currently highly symptomatic with a cough.



If you suspect TB disease:

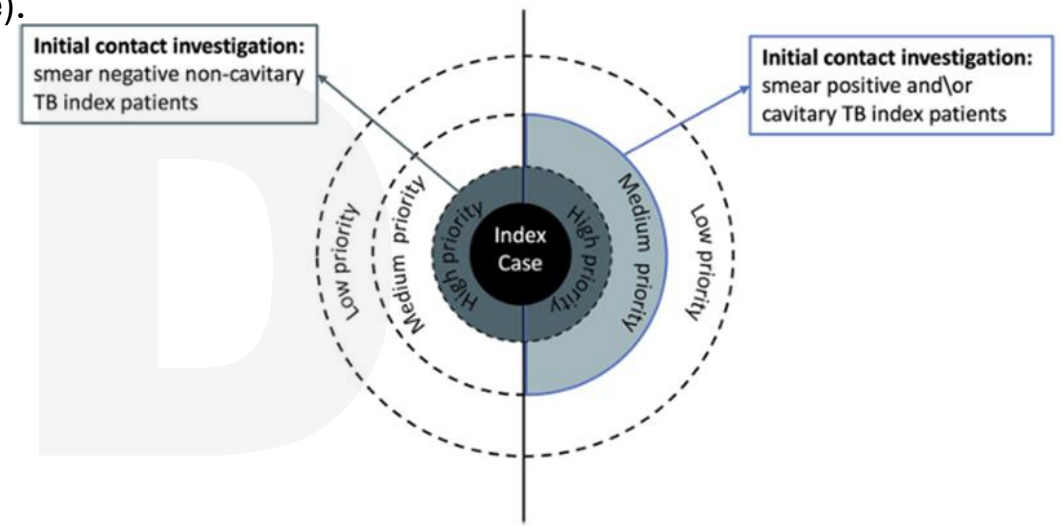


https://www.jpeds.com/article/S0022-3476(17)30795-3/fulltext

- Respiratory precautions if appropriate
- Test appropriately (sputum AFB/**NAAT**, AFB smear, culture, QFT/PPD, CXR)
- Avoid fluoroquinolones if unsure
- Have them isolate and advise PH will contact
- CALL PUBLIC HEALTH

What will your LPHD do?

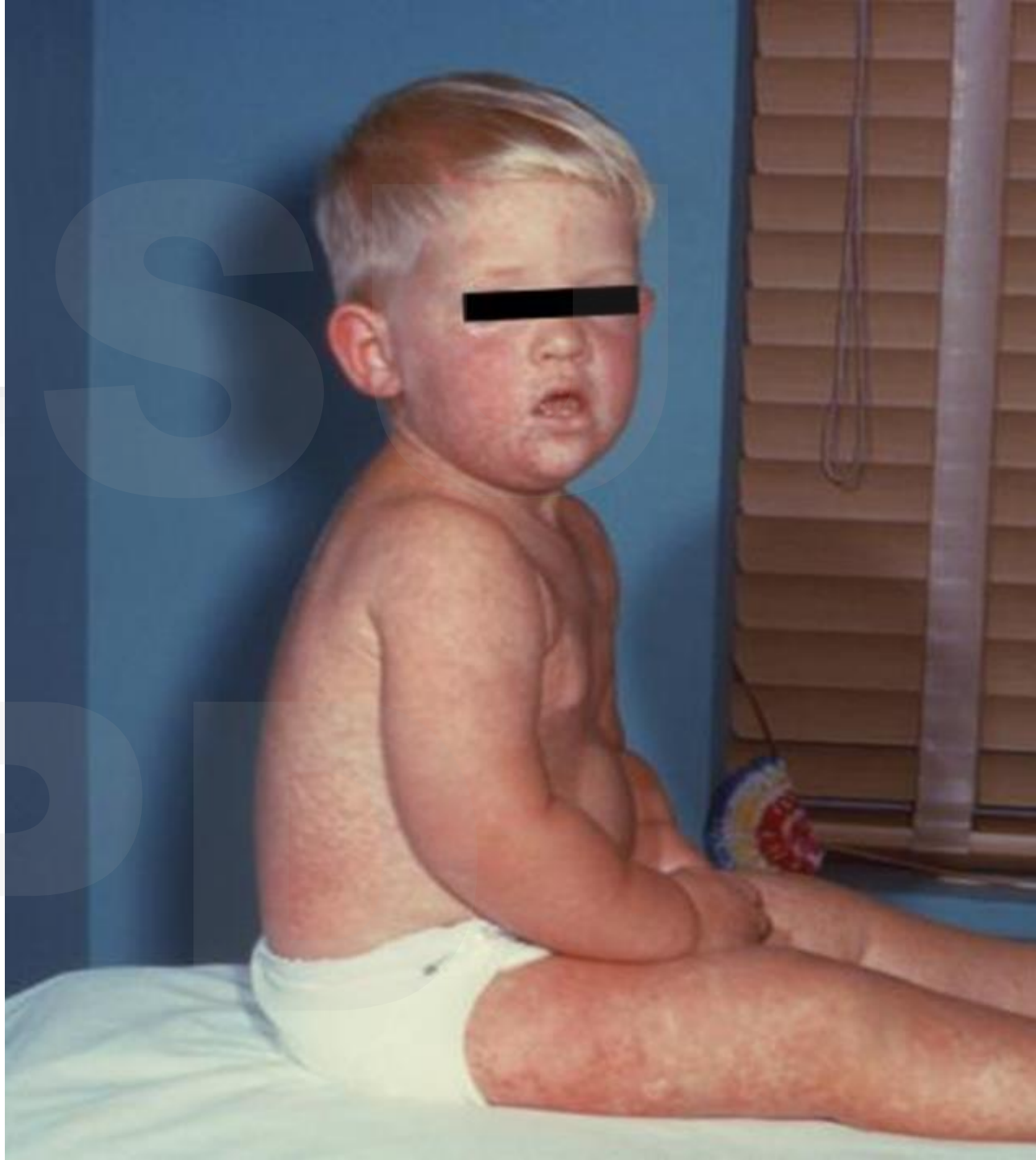
- Basic requirements include: Assigning a TB Case Manager (TB-CM) for each suspected or confirmed TB case.
  - Using directly observed therapy (DOT) for suspected or confirmed TB cases (including extrapulmonary)
  - Monitoring therapy and treatment response for all TB cases.
  - Initiating a contact investigation within 72 hours of confirming the case has TB disease (as appropriate).
  - Evaluating contacts and initiating therapy (as appropriate).
- May be available:
  - Coordination of or collection of laboratory specimens
  - Clinical evaluation
  - Medication provision
  - LTBI treatment



Chapter 11: Tuberculosis contact investigation and outbreak management, Canadian Journal of Respiratory, Critical Care, and Sleep Medicine, 6:sup1, 167-183

Fever and rash

- 8 year old presents with fever 102, maculopapular rash that started one day ago on face and neck, spread to the rest of his body.
- Mom says he’s had a cold the past week, instead of getting better he developed the fever up to 104 and rash
- Other history unremarkable
- Not up to date on vaccinations



Fever and rash

A. What do you do next?

    A. Reassure the mother this is a common viral exanthem, conservative care only is needed
    B. Collect swab for viral respiratory panel
    C. Draw blood for serology
    D. Immediately implement respiratory precautions, gather more information about exposures, and call public health.

What do you do next?

Reassure the mother this is a common viral exanthem, conservative care only is needed

0%

Collect swab for viral respiratory panel

0%

Draw blood for serology

0%

Immediately implement respiratory precautions, gather more information about exposures, and call public health.

0%

Fever and rash: measles

- Highly contagious (airborne), severe, febrile viral respiratory illness.
- 3C's: Early prodromal symptoms of measles include high fever, cough, runny nose (coryza), and conjunctivitis (eye redness).
- May be followed 2 – 3 days later by Koplik spots (1-2 mm white spots on the buccal mucosa).
- Rash appears 3 – 5 days after prodromal symptoms and typically appears first on the head or neck, spreading down the body to affect the trunk, arms, legs and feet. The measles rash is maculopapular and may coalesce as it spreads.
- Fever tends to persist through the rash stage
- In recent years, approximately 30% of Oregon cases have required hospitalization

Measles: Healthcare Infection Control

- Mask and room a patient with possible measles promptly. Use a negative pressure room if available or keep the clinic room door closed.
- If feasible and appropriate, schedule possible measles patients as the last patient of the day. Consider patient evaluation outdoors.
- If possible, escort suspected measles patients into the building via an entrance that allows them to access an exam room without exposing others.
- Minimize the number of health care workers interacting with the patient. Caregivers should have documented immunity to measles and wear a fit tested N-95 mask or PAPR.
- Perform all labs and clinical interventions in the exam room if possible.
- The exam room should not be used for 2 hours after the patient has left (time dependent on air change rate), and door should be kept closed during this time
- Advise the patient to isolate at home until 4 days after rash onset. Measles can be transmitted from 4 days before until 4 days after rash onset.
- If recommending ER evaluation, call ER in advance, have patient wait in vehicle until ready to be roomed

Measles: immunity

- Preventable by vaccination
  - 2 doses of MMR after age 12 months 97% effective
  - (1 dose=93%)
- Who is immune:
  - Pre-school age child w one MMR
  - School-age child (K-12) or adult w two MMRs
  - Individual born before 1957
  - History of measles disease (diagnosed by health care provider and documented)
  - Documented IgG+ serology
- Please let your patients know that Public Health will follow-up with any confirmed cases.
- Be aware that unvaccinated or undervaccinated children and staff can be excluded from school during their incubation period.

Measles: Testing (in order of preference)

- **Nasopharyngeal (NP) or oropharyngeal (OP) swab PCR.**
  - NP swab should be collected ideally within 5 days of rash
  - Nasal swabs are not acceptable
  - Be sure to use appropriate viral sample collection swabs: a synthetic swab, such as Dacron or rayon on a plastic shaft, and submit in Viral Transport Media (VTM) or Universal Transport Medium (UTM)
  - Call Public Health for approval to send to OSPHL for most timely results
- **Urine for measles PCR:**
  - Urine PCR test is most sensitive 3-10 days after rash onset.
  - Urine should be accompanied by a respiratory swab (NP or OP), especially if NP/OP collected after 5 days
- **Serum for measles IgM and IgG testing:**
  - Measles specific IgM antibody may not be present until 3 days after rash onset and may persist for about 30 days after rash onset.
  - A positive IgG early in illness may suggest prior immunity.
  - False-positive IgM can occur due to cross-reactivity with other causes of febrile rashes (e.g., Parvovirus), prior vaccination, and other factors such as presences of rheumatoid factor.

Measles Treatment

- Conservative tx for viral illness. Treat complications as indicated
- Post-exposure prophylaxis to susceptible contacts
    - MMR vaccine: must be administered within 72 hours of initial measles exposure- preferable for vaccine eligible people aged ≥12 months
    - Immunoglobulin (IG): must be administered within six days of exposure.
- For infants 6–12 months of age, either MMR vaccine or IG may be provided.
- Groups are at risk for severe disease and complications from measles and should be prioritized to receive IG:
    - Infants under age 12 months (intramuscular IG 0.5 mL/kg, max 15 mL)
    - Pregnant women without evidence of immunity (400 mg/kg IVIG)
    - Severely immunocompromised persons regardless of vaccination history (400 mg/kg IVIG)
- Vaccination should be offered at any interval following exposure in order to offer protection from future exposures.
- 5% chance of a vaccine rash after immunization—which could be confused with measles, especially if given during the incubation period after exposure. However, this should not deter you from vaccinating.

Measles Misinformation: Vit A

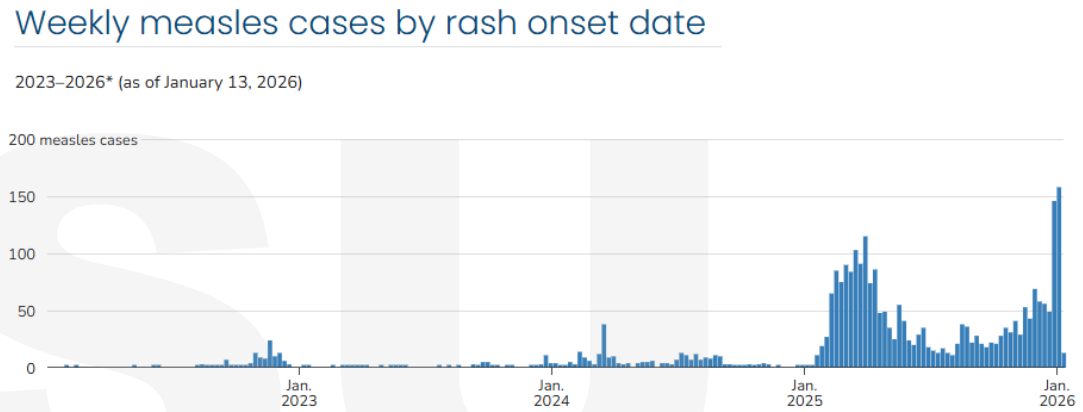
- No scientific evidence supports the false claim that vitamin A can prevent measles or serve as a replacement for medical treatment.
- Cod liver oil does not prevent measles. It has high amounts of vitamin A, much higher than the recommended daily amounts. It also can make kids sick if they take too much.
- Vitamin A has been shown to decrease pneumonia specific mortality and all cause mortality in young children with measles and vitamin A deficiency.
- Vitamin A toxicity: nausea, vomiting, headache, fatigue, joint and bone pain, blurry vision, alopecia, liver damage, CNS effects.

Source: AAP Fact Check

Measles takeaways

- If suspected or high probability measles:
  - Mask patient and airborne precautions/N95 for staff, limit movement through clinic or provide care outside if feasible
  - Test w NP/OP PCR (IGM has poor sensitivity); +urine if >5d after rash onset
- Encourage patient/family to isolate.
- **Call local Public Health right away**
  - To notify of suspected case
  - To coordinate getting specimens to state public health lab
  - To start contact investigation and arrange for post-exposure management for contacts as needed

Measles- current situation



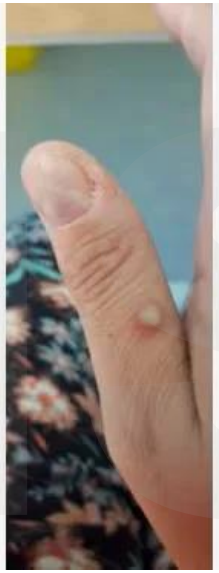
https://www.cdc.gov/measles/data-research/index.html

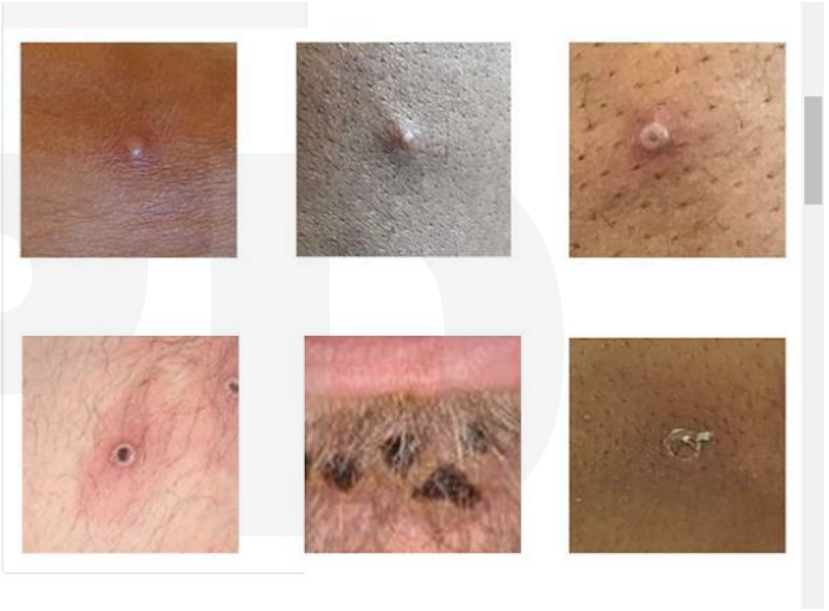
[Weekly Oregon Data]

[National Wastewater monitoring]

- Any change in recommendations for Oregon clinicians?
  - Consider early vax for 6-12mo as indicated
  - Keep encouraging vaccination, making space for conversation with those who have questions/concerns
  - MMR for post-exposure prophylaxis 6 months and older
  - IG for post-exposure prophylaxis for other high risk

Now let's look at another rash illness....



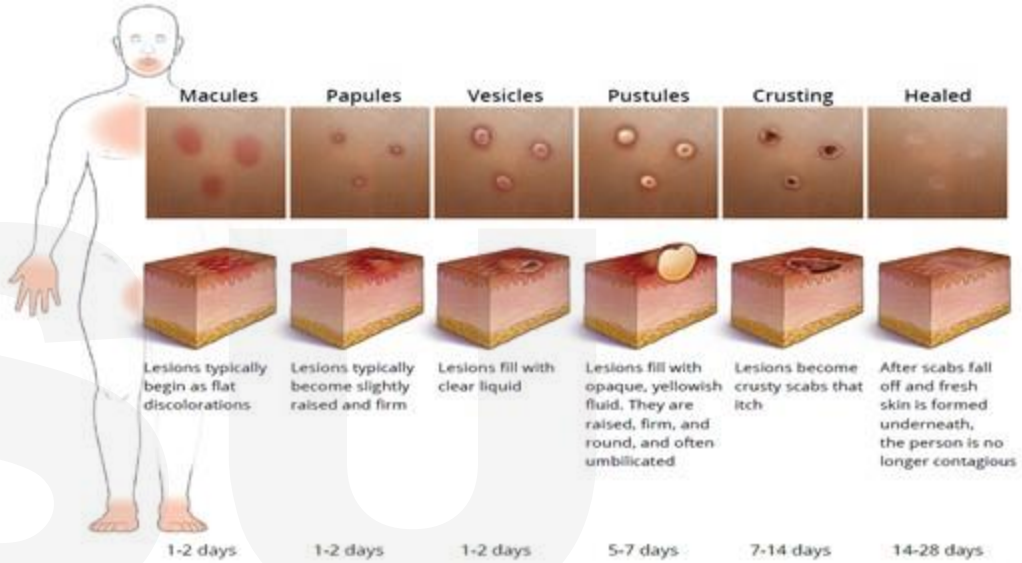


Mpox (MPXV-an orthopoxvirus)

- Clade I and clade II, each with two known subclades (Ia, Ib, IIa, IIb).
- Can all be spread, treated, and prevented similarly.
- Data from recent outbreaks suggest that the case-fatality rate for both clades is low, especially when optimal supportive care is provided.
- Risk factors, affected populations, and locations of sustained transmission can differ between clades.
  - A large outbreak of clade I MPXV began in 2024 and continues throughout Central and Eastern Africa.
  - There have been travel-associated clade I MPXV cases reported worldwide, including the United States.
  - Community transmission has been identified in certain parts of Europe and the United States.
- A global clade II MPXV outbreak began in 2022, and cases continue to spread at low levels in many countries around the world.
- MPXV is usually transmitted from person to person through close, sustained physical contact. In the clade I outbreak originating in Central Africa, transmission has occurred through sexual contact, day-to-day household contact, and in healthcare settings when PPE was not available.
- In the ongoing clade II MPXV outbreak, transmission has been almost exclusively associated with sexual contact

https://www.cdc.gov/monkeypox/hcp/clinical-overview/index.html

Mpox – symptoms



- Incubation: typically 1-2 weeks (up to 3)
- Prodrome-may or may not have prodromal symptoms.
  - fever, malaise, headache, sore throat, or cough, and lymphadenopathy
  - Presymptomatic and prodromal transmission has been seen
- Rash
  - Lesions typically develop simultaneously and evolve together on any part of the body.
  - 4 stages—macular, papular, vesicular, pustular—before **scabbing over and desquamating.**
  - A person is contagious until all the scabs have fallen off, revealing a fresh layer of intact skin underneath.
  - Lesions often occur in the genital and anorectal areas or in the mouth.
  - Patients regularly present with rectal symptoms (e.g., purulent or bloody stools, rectal pain, or rectal bleeding).
  - Rash may be confined to only a single lesion or a few lesions.
  - Rash is not always disseminated across the body.
  - Rash may or may not appear on palms and soles.

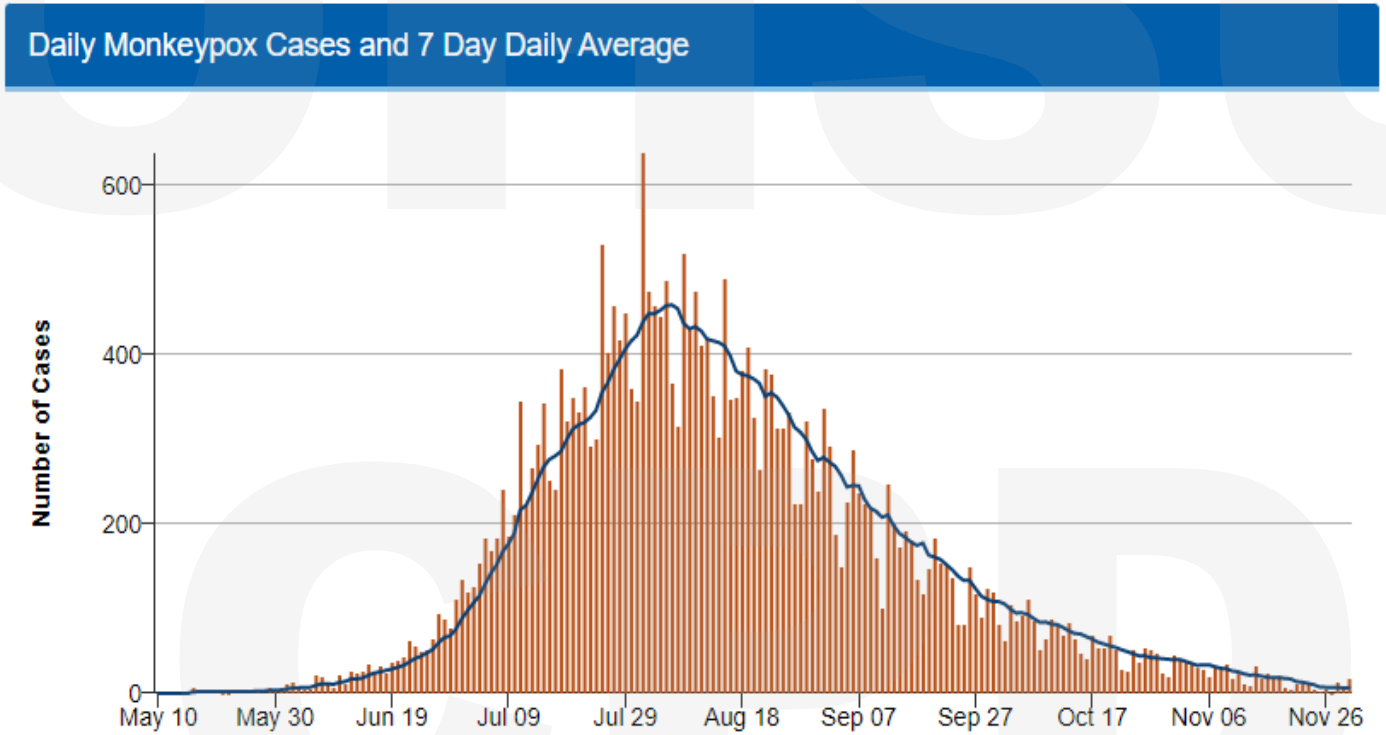
Mpox-testing and treatment

- OSPHL testing:
  - Collect **two dry lesion swabs** from the **same lesion**.
  - Use sterile nylon, polyester, or Dacron swabs with plastic or aluminum shafts.
  - Swab or brush lesion vigorously with two separate dry swabs.
  - Place each swab in a **separate** sterile container (one swab per container). DO NOT ADD VTM OR UTM TO CONTAINERS.
    Send virology test form
    If possible, repeat the collection procedure for an additional lesion site.
  - Unroofing or aspiration of lesions is not necessary, nor recommended, due to the risk for sharps injury
- Treatment: Most people recover on their own in 2-4 weeks without treatment
  - Tecovirimat can be considered for severe disease, immunocompromised, children, pregnant people
- Vaccine
  - Jynneos- pre- or post-exposure prophylaxis
  - Should be considered as part of routine comprehensive sexual health care

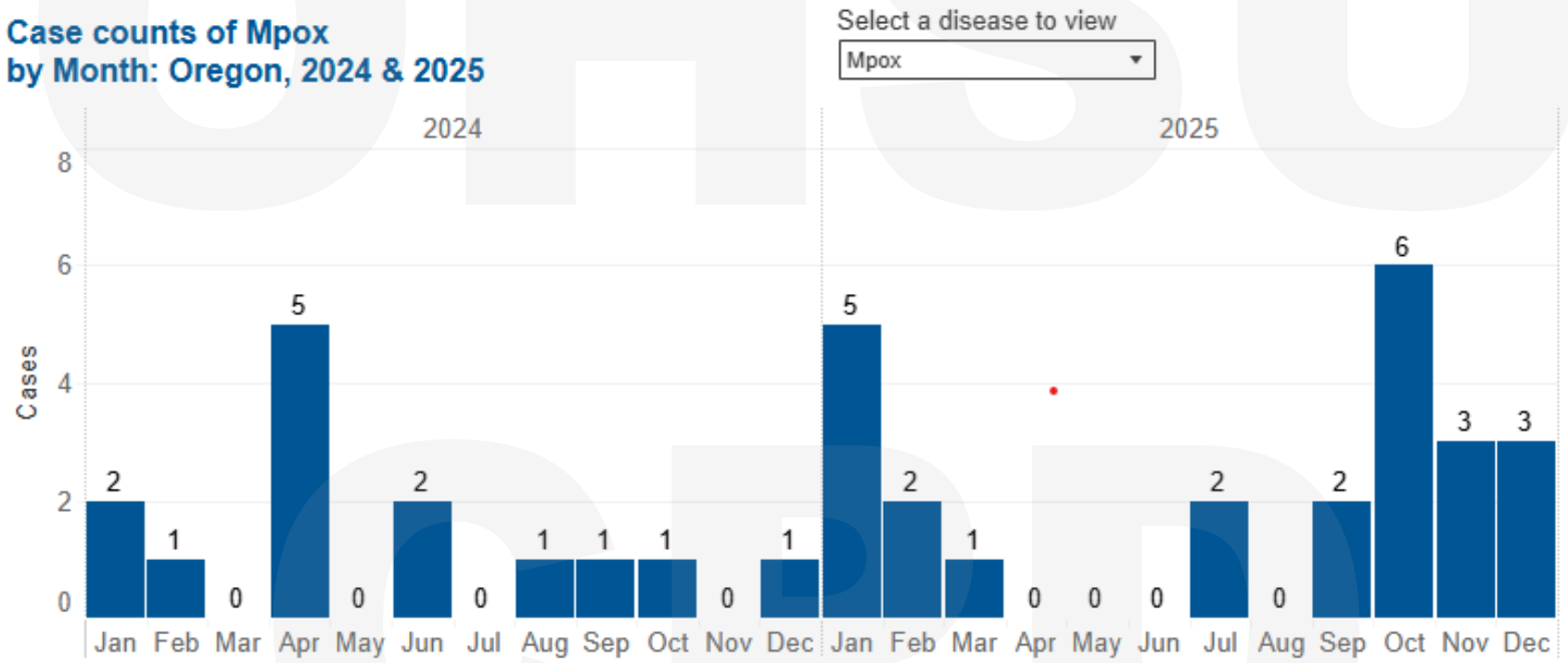
Clinicians should recommend mpox vaccination to patients who

- Test for HIV and STI
- Have a history of STI (gonorrhea, chlamydia, syphilis) in the prior 2 years
- Are eligible for or taking PrEP
- Are living with HIV
- Are transgender and non-binary (one's gender identity does NOT increase the risk of acquiring mpox, but transphobia, misogyny, racism, and homophobia do. State and national data indicate that transgender and non-binary people are over-represented among cases of mpox and may experience delayed diagnosis)
- Trade sex, dance, strip, perform, and/or work in sexualized settings or industries
- Live in structured or unstructured congregate settings (e.g., encampments, shelters, dormitories, carceral settings)

Mpox: 2022 introduction to Oregon



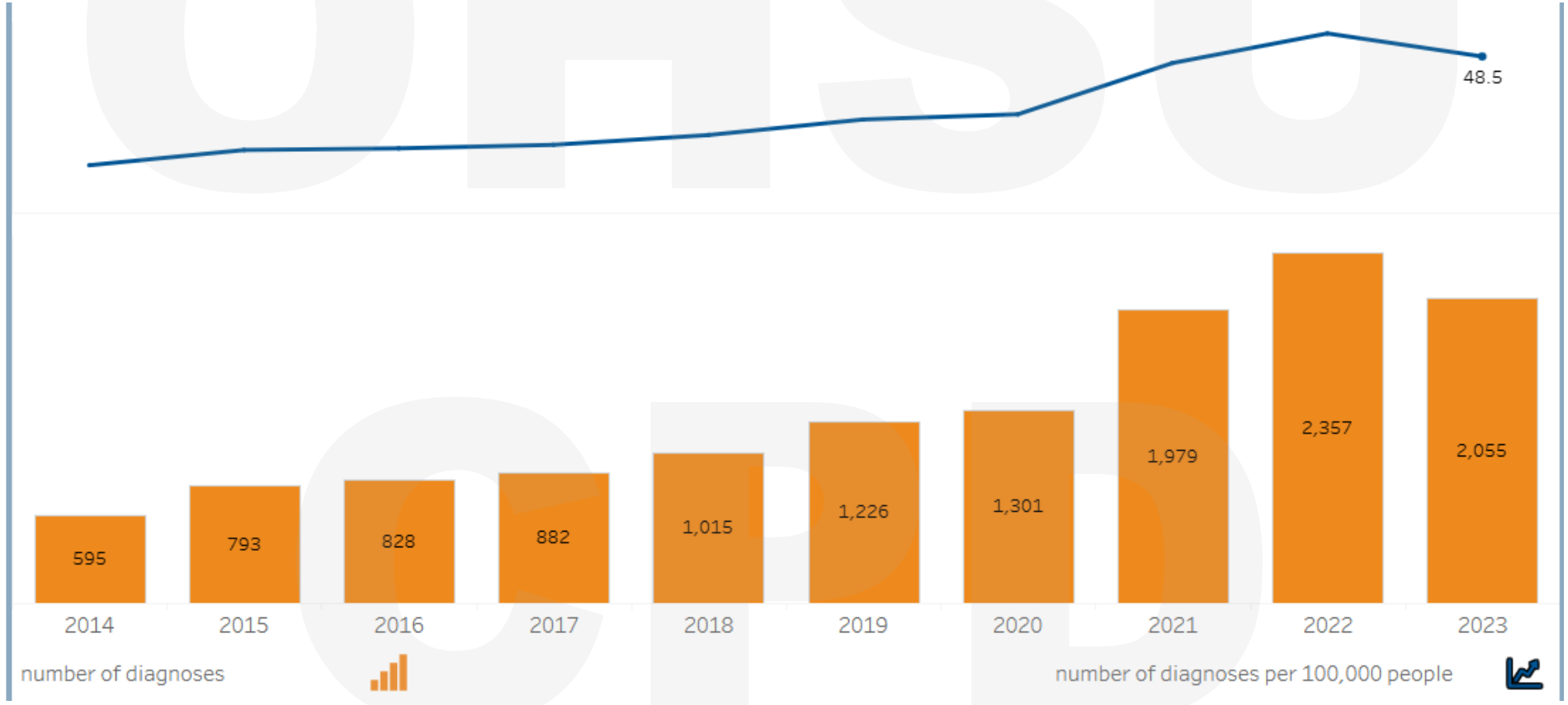
Mpox: Current State



WHAT ELSE CAN CAUSE A PALMAR RASH?

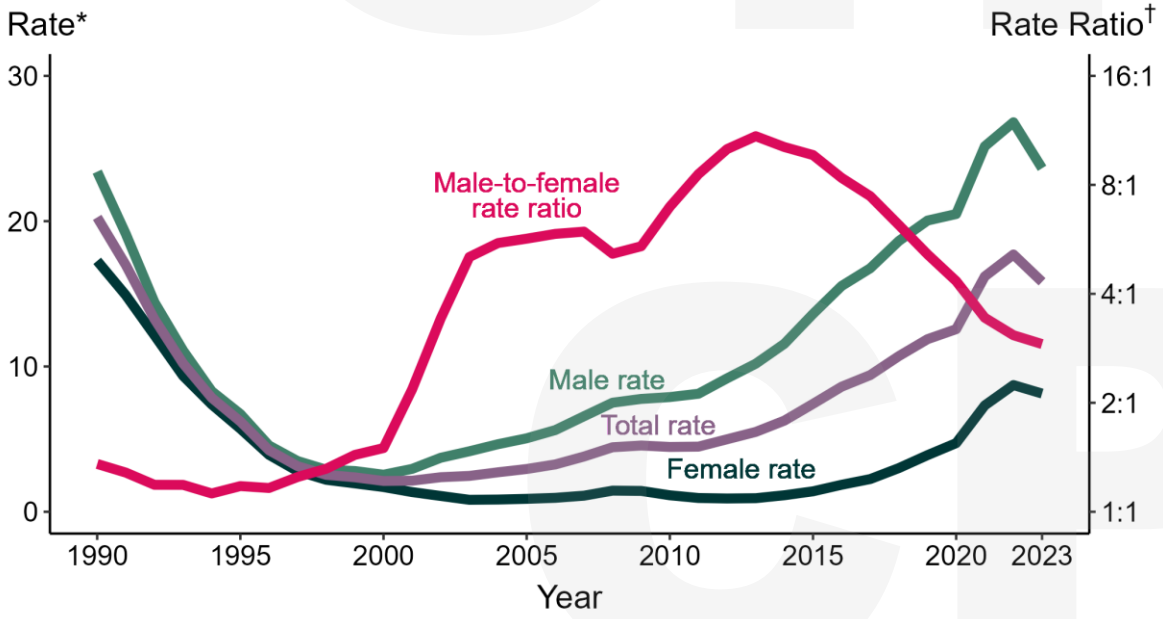
- Syphilis…

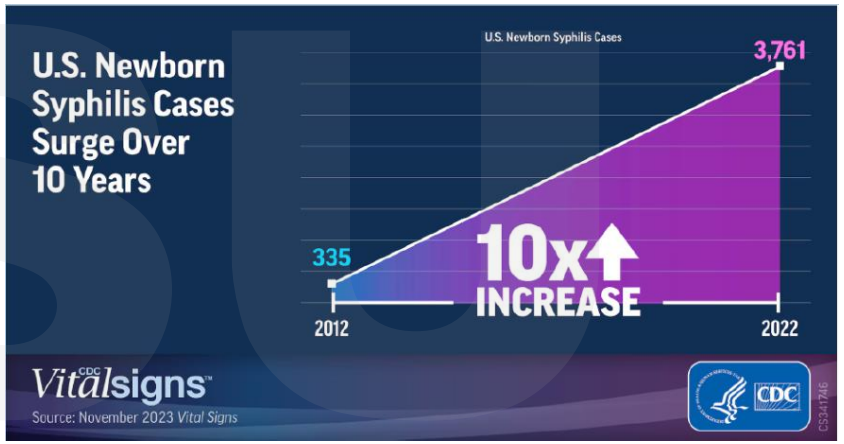
Oregon syphilis rates: Total (all adult stages)

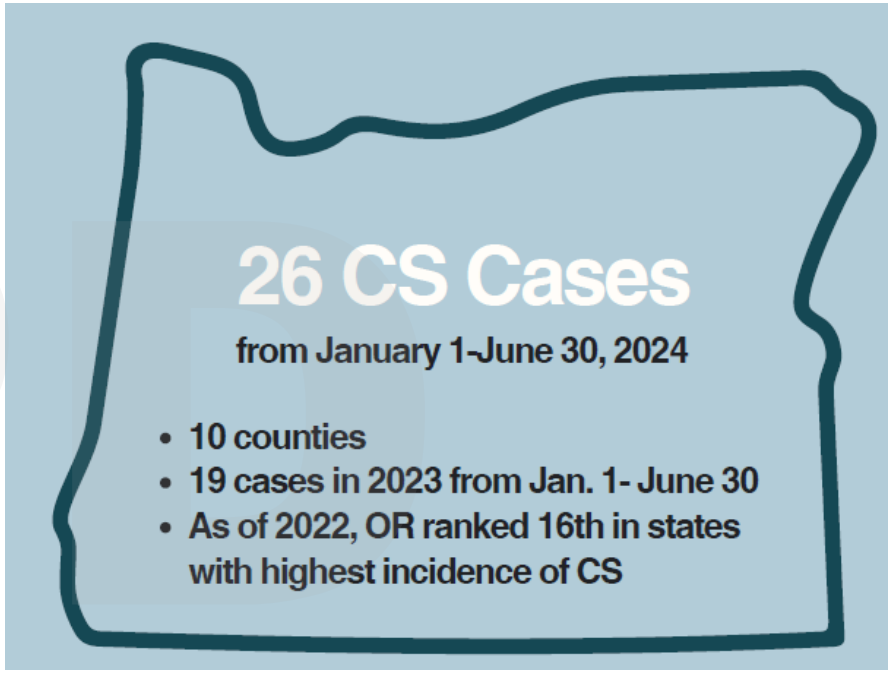


Congenital Syphilis

Primary and Secondary Syphilis — Rates of Reported Cases by Sex and Male-to-Female Rate Ratios, by Year, United States, 1990–2023 (CDC)



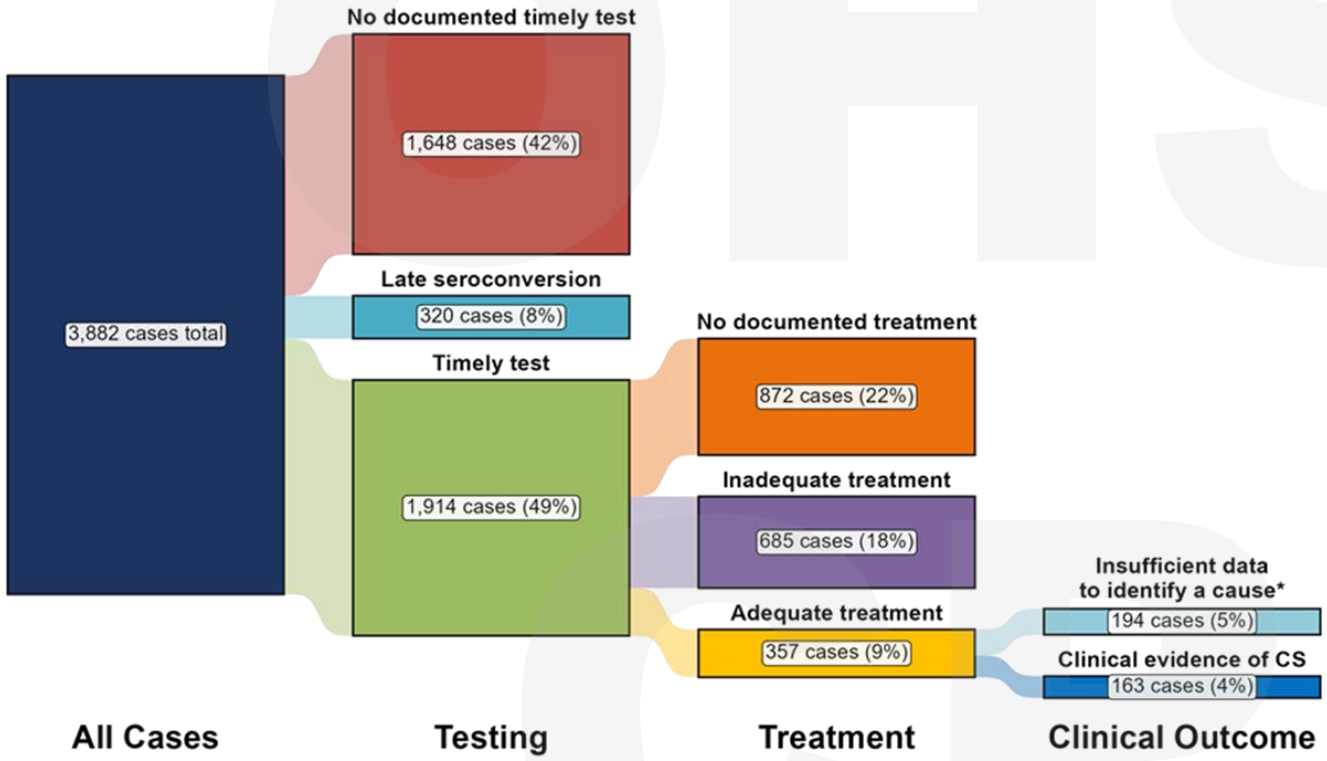




Congenital Syphilis Is A Serious Infection

- Results from transplacental infection of the fetus
- In primary (chancre) and secondary syphilis (rash), 80% of infants are affected
  - 25% stillbirth, 14% neonatal death, 41% alive but affected
- In late syphilis (asymptomatic), 23% of infants are affected
  - 12% stillbirth, 9% neonatal death, 2% alive but affected
- The clinical manifestations are varied:
  - Reticuloendothelial
  - Mucocutaneous
  - Skeletal
  - Neurologic, ocular, otic
  - Other (renal, hepatic, pulmonary, GI)

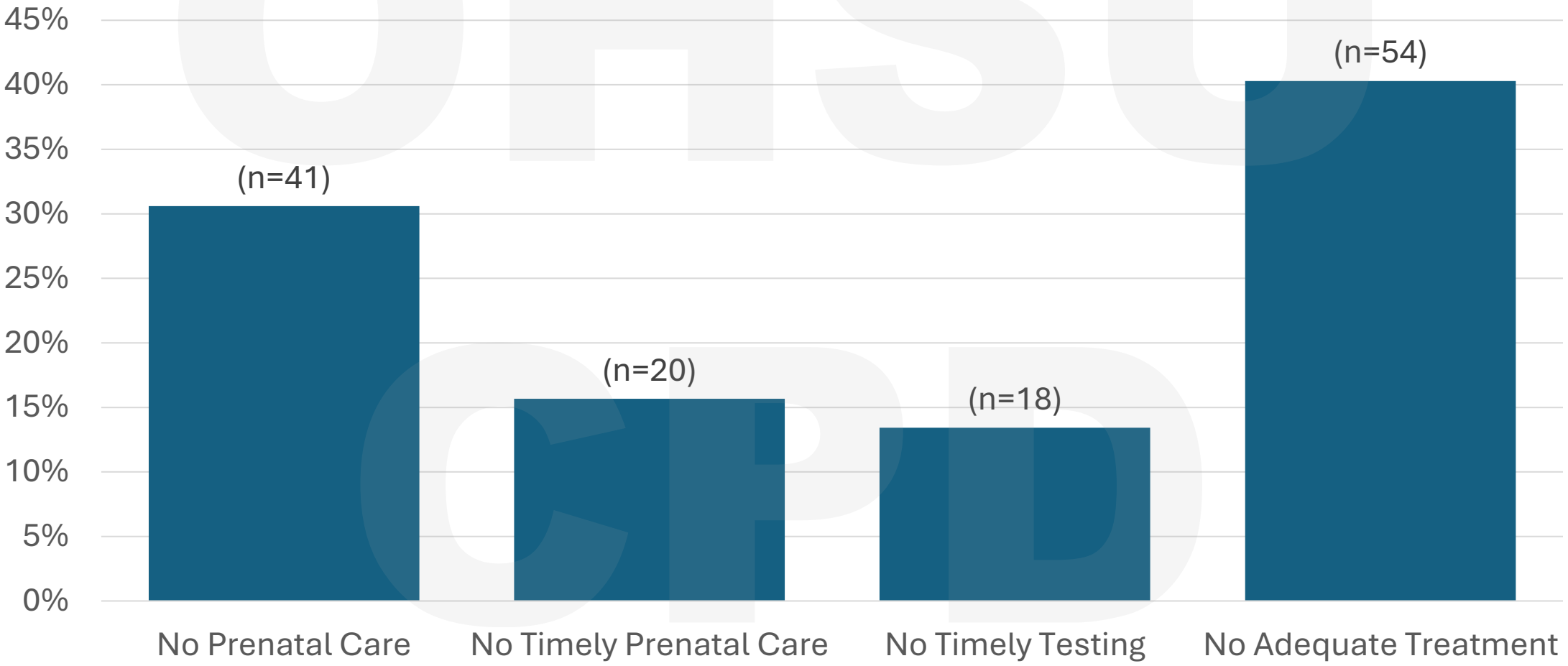
CS: Work to address missed opportunities



CDC: Distribution of Receipt of Testing and Treatment by Pregnant Persons with a Congenital Syphilis Outcome, United States, 2023

- Work with public health department of residence of your patient on outreach options
- Opt-out testing in the Emergency Room
- Gather detailed information on how to find people and their partners
- POC tests!
- Presumptive treatment
- Partnerships
- Talk about it

Missed opportunities to prevent congenital syphilis, Oregon 2014-2022 (n = 133)



What are we doing to curb (congenital) syphilis in Oregon?

- Screening guidelines for Oregon:
  - Screen all sexually active people under 45 years of age at least once if not screened since 1/1/2021
  - Screen all pregnant people at three time points in pregnancy
    - At first presentation to prenatal care
    - Early third trimester (~28 weeks)
    - At delivery
- Encouraging opt-out screening in Emergency Departments and Urgent Cares
  - POC tests or serology
  - Connect with public health, find as much information as possible about where to find the individual
- Increase access to POC tests for community partners

Created Programs and Resources

- A **Bicillin Access Program** to improve clinics/provider access to medications for syphilis treatment

- An **Incentive Program** to engage pregnant patients and partners in screening, re-screening, and treatment

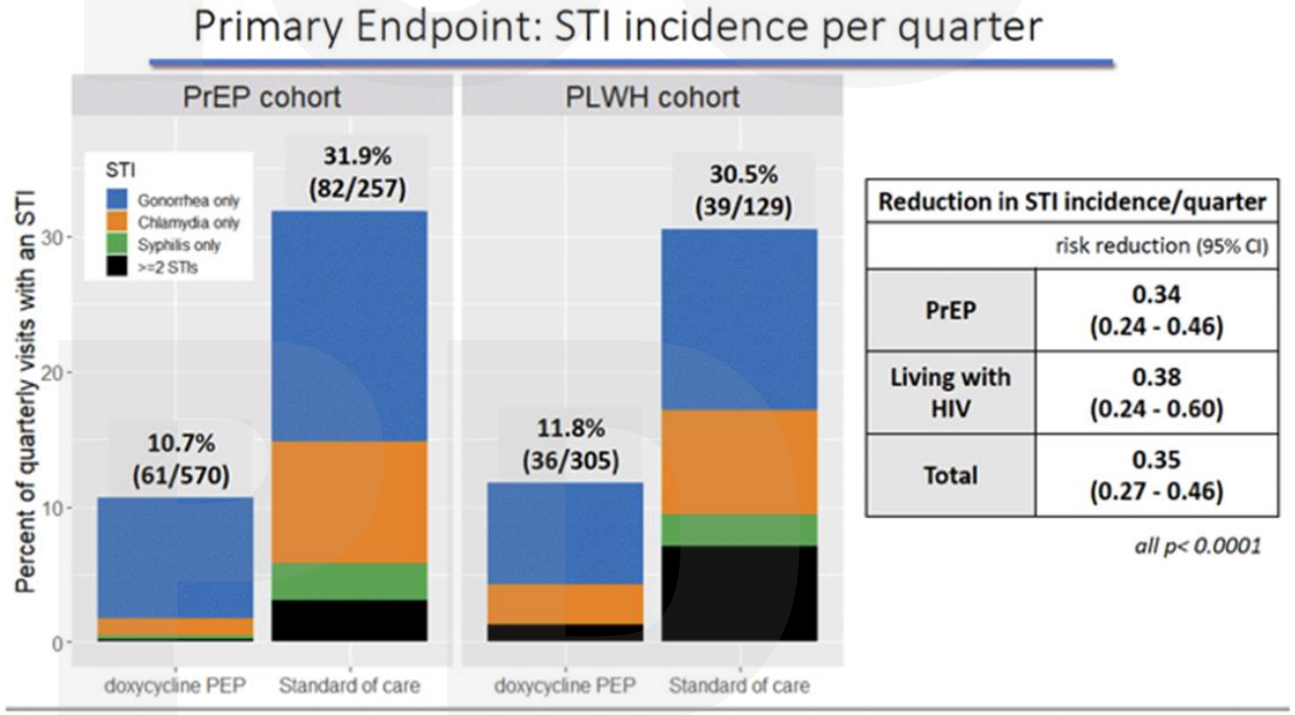
- **Special Needs Funding** to LPHAs to assist with short-term housing and other social determinants of health to facilitate care and treatment

DoxyPEP

- DoxyPEP: reduced STIs by 62% and 66% among people living with HIV and people on PrEP, respectively

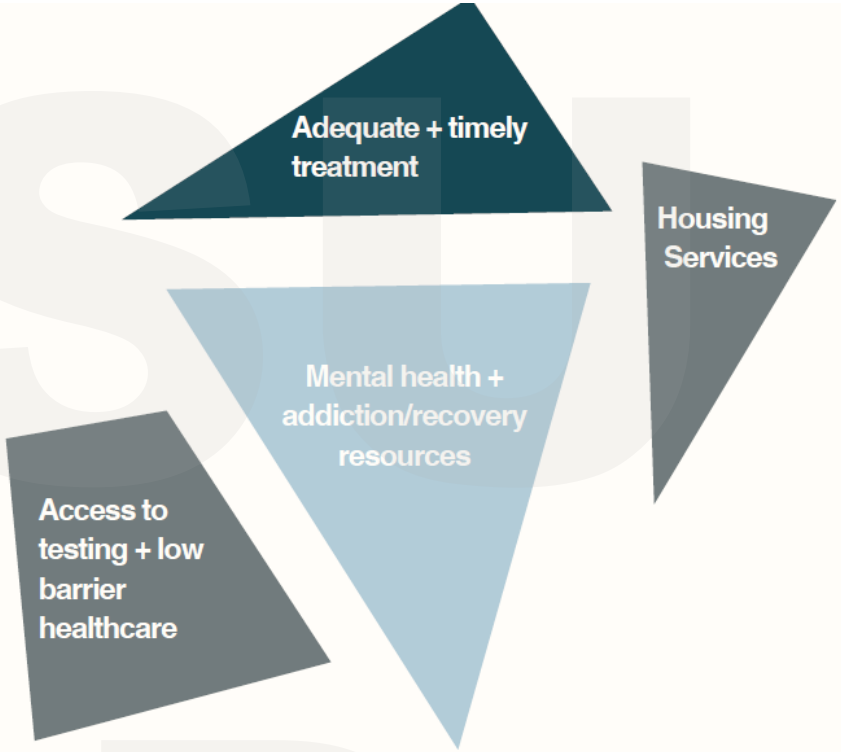
The number of people needed to use doxyPEP to prevent one STI in a 3-month period:

5



Reduction in STI incidence/quarter	
	risk reduction (95% CI)
PrEP	0.34 (0.24 - 0.46)
Living with HIV	0.38 (0.24 - 0.60)
Total	0.35 (0.27 - 0.46)

all p< 0.0001

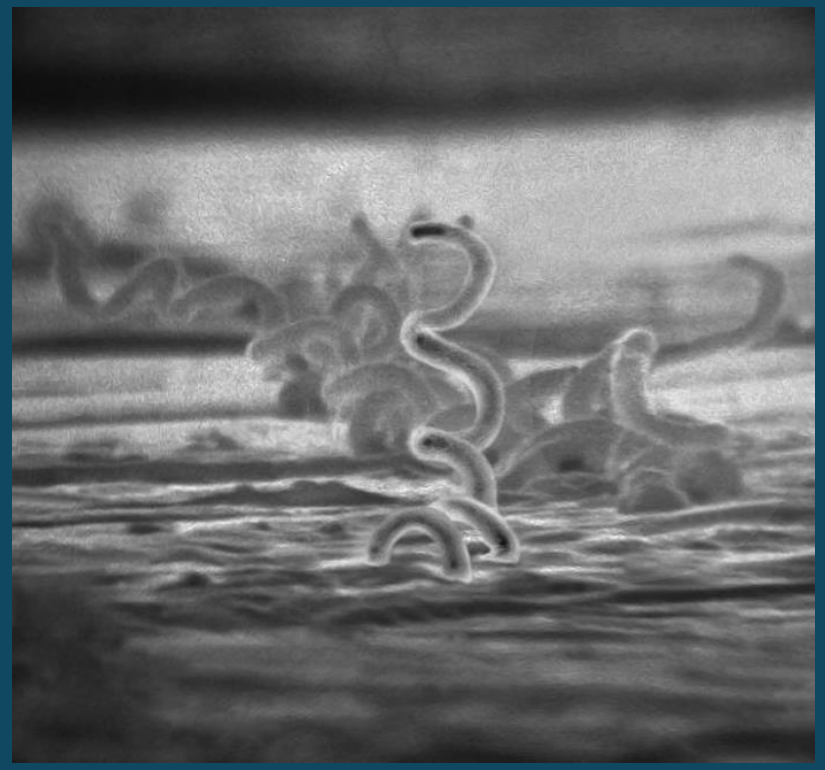


Protecting Futures

A Preventive congenital syphilis Project in Clackamas county

Focus Group Key Takeaways

- **Awareness is low:** Most participants had minimal knowledge about syphilis/CS- including that it can be spread during pregnancy to a baby and can be treated.
- **Health care is a low priority:** When in active usage cycles or experiencing housing insecurity, healthcare is not the main objective for these populations. Most seek care when absolutely necessary from EDs.
- **Accessibility + Shame:** Transportation, cost and stigma are large contributing factors to high risk populations accessing healthcare.
- **"Othering":** Participants felt that not only syphilis, but all STIs were something that happen to other people, not to them.
- **Language Matters:** Participants noted that the way certain messages were stated felt aggressive, judgmental or evoked shame.

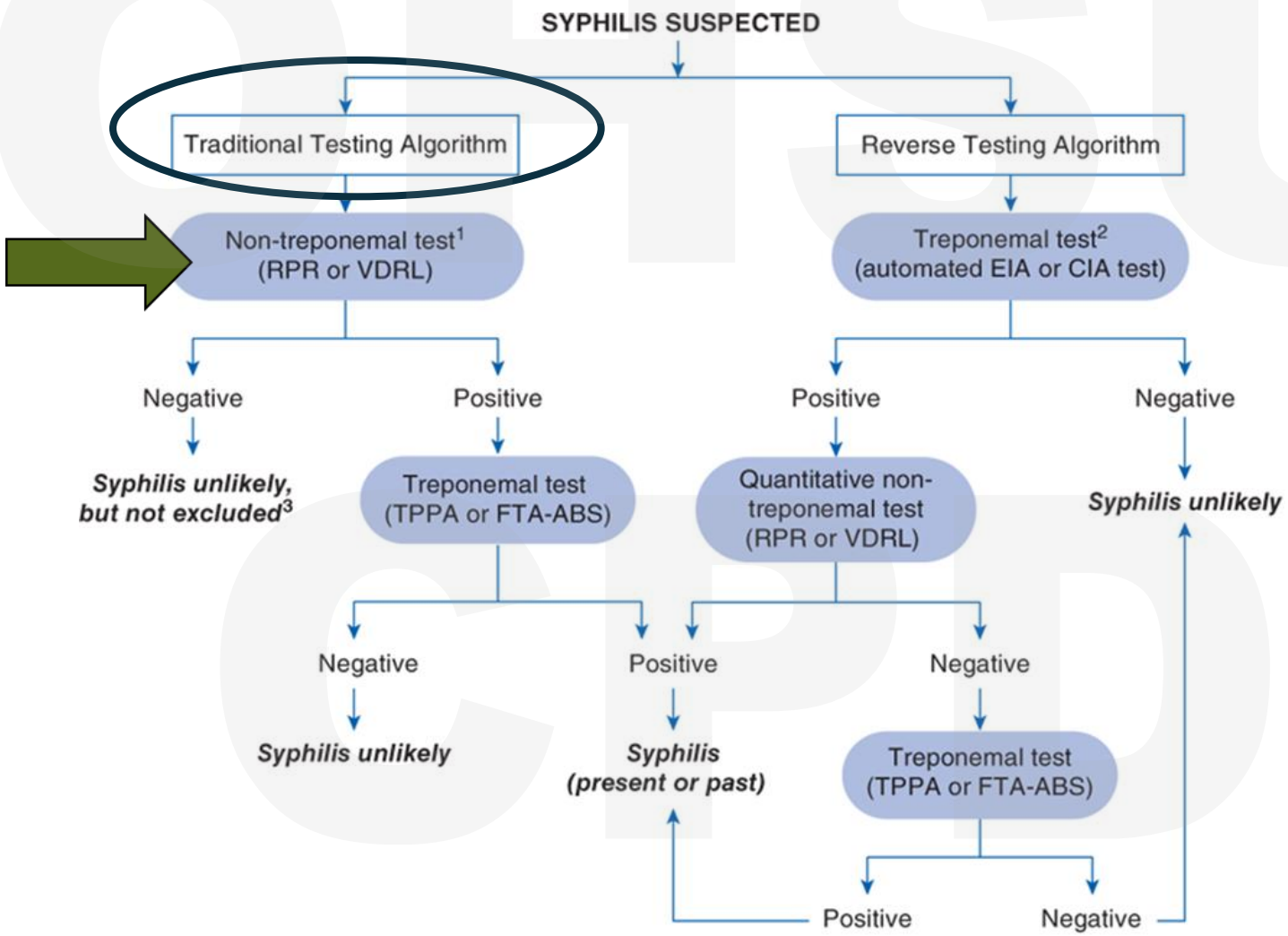


Syphilis Screening/Testing

It’s easier than it seems!

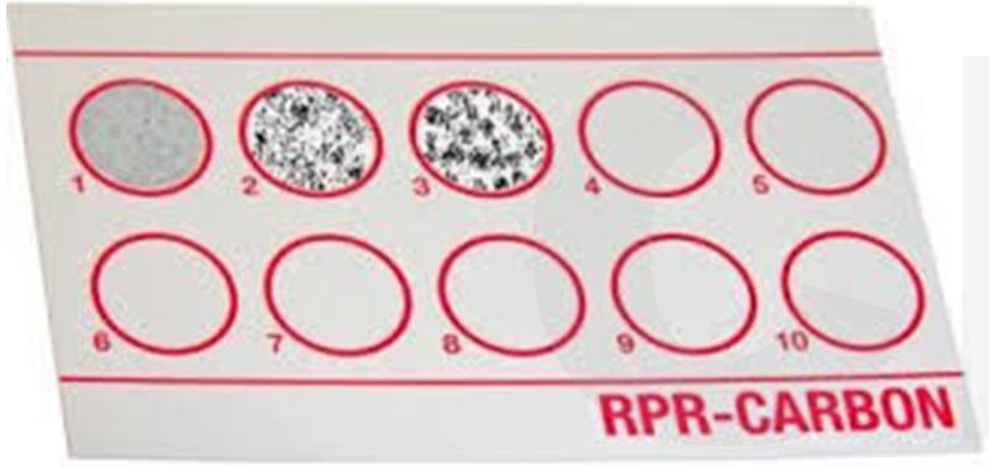
Source: Centers for Disease Control and Prevention Public Health Image Library “PHIL” (CDC/Dr. David Cox , 1977; Renelle Woodall, 1969).

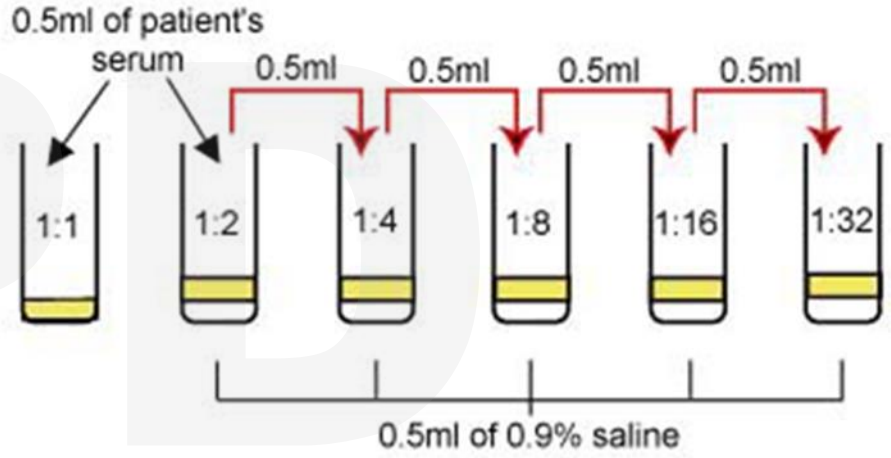
Syphilis Screening Algorithms



Non-treponemal tests: RPR and VDRLNon-treponemal tests: RPR and VDRL

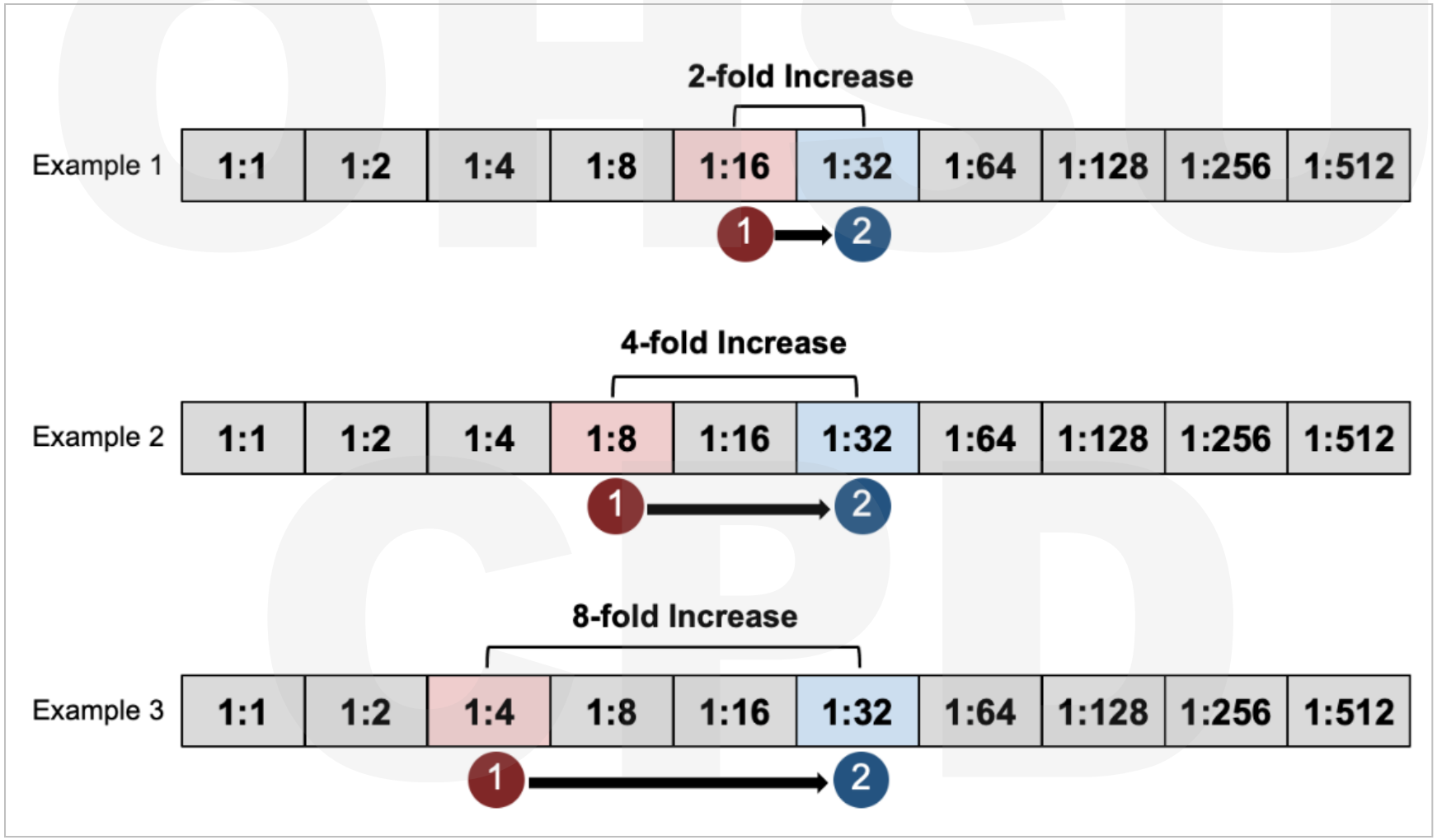
- RPR: most common
- VDRL: mostly used to test CSF in congenital syphilis or neurosyphilis workup
- Qualitative
- Quantitative titer (e.g. 1:4, 1:32, 1:512)



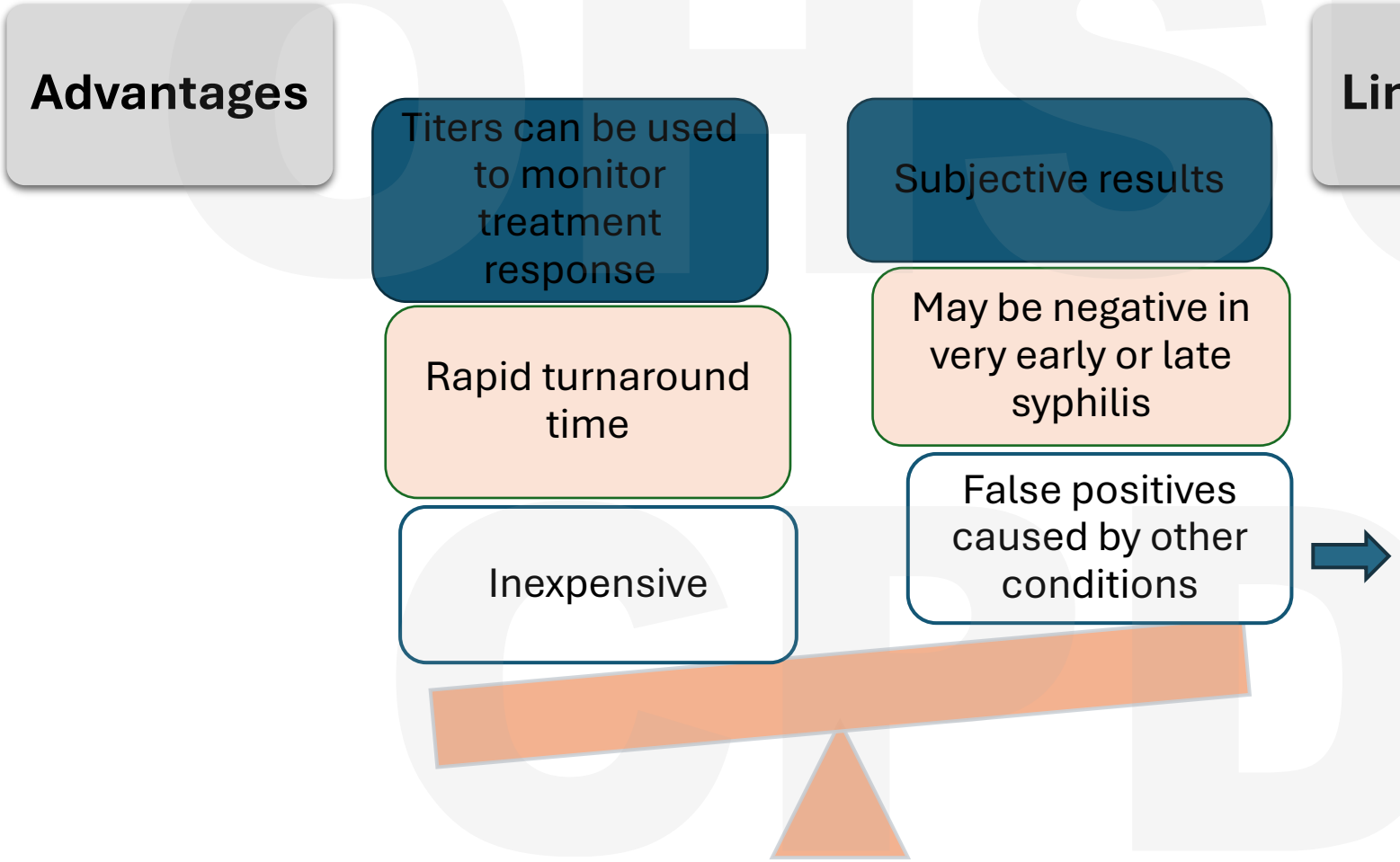


Dr. Tim Menza AETC presentation, Jefferson County, OR

Examples of increases in RPR titers

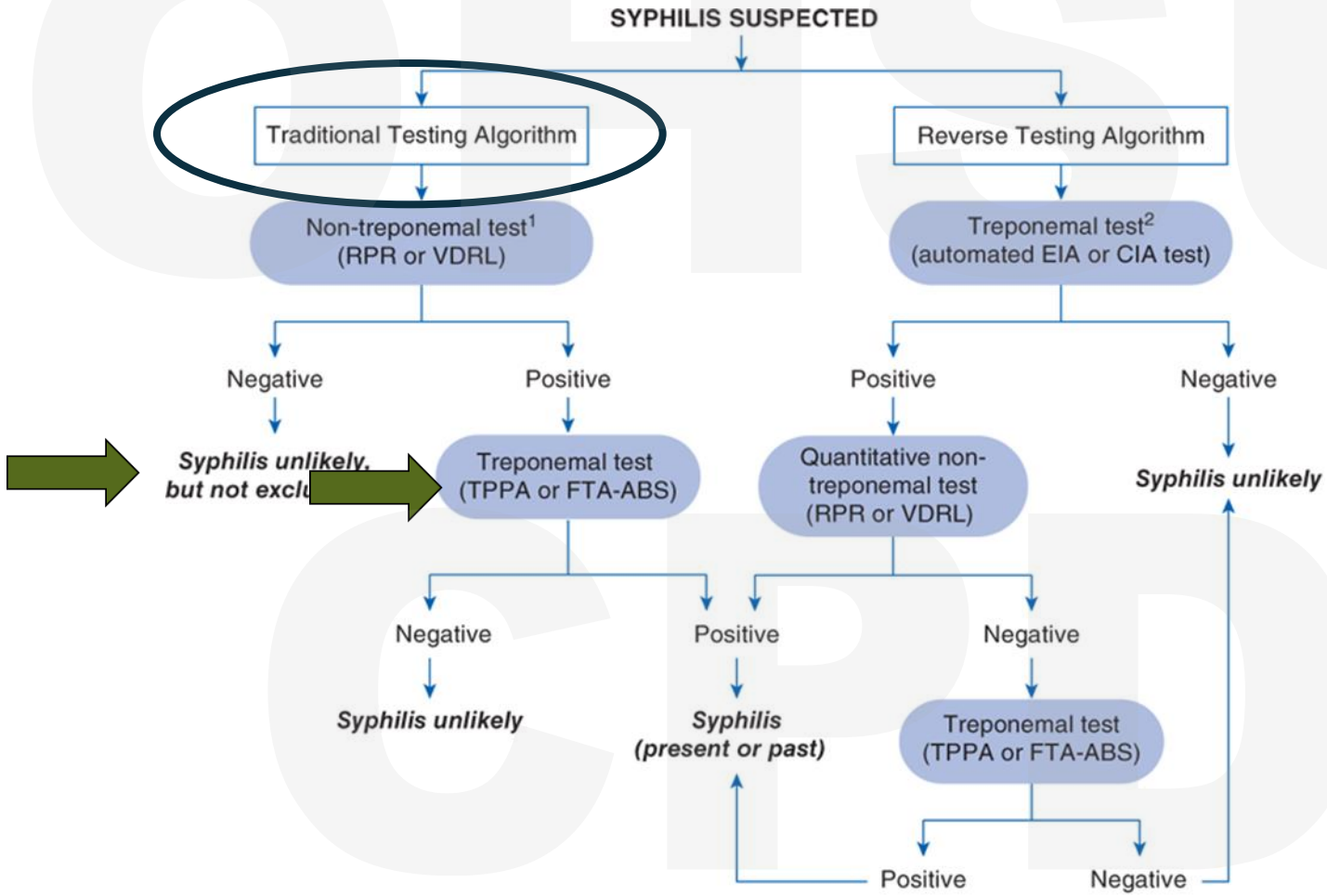


Non-treponemal tests: RPR



- Infections
  - TB, Malaria, early HIV
- Autoimmune Diseases
  - Systemic lupus
  - Rheumatoid arthritis
- Other
  - Pregnancy
  - Older age
  - Following vaccination
  - Injection drug use

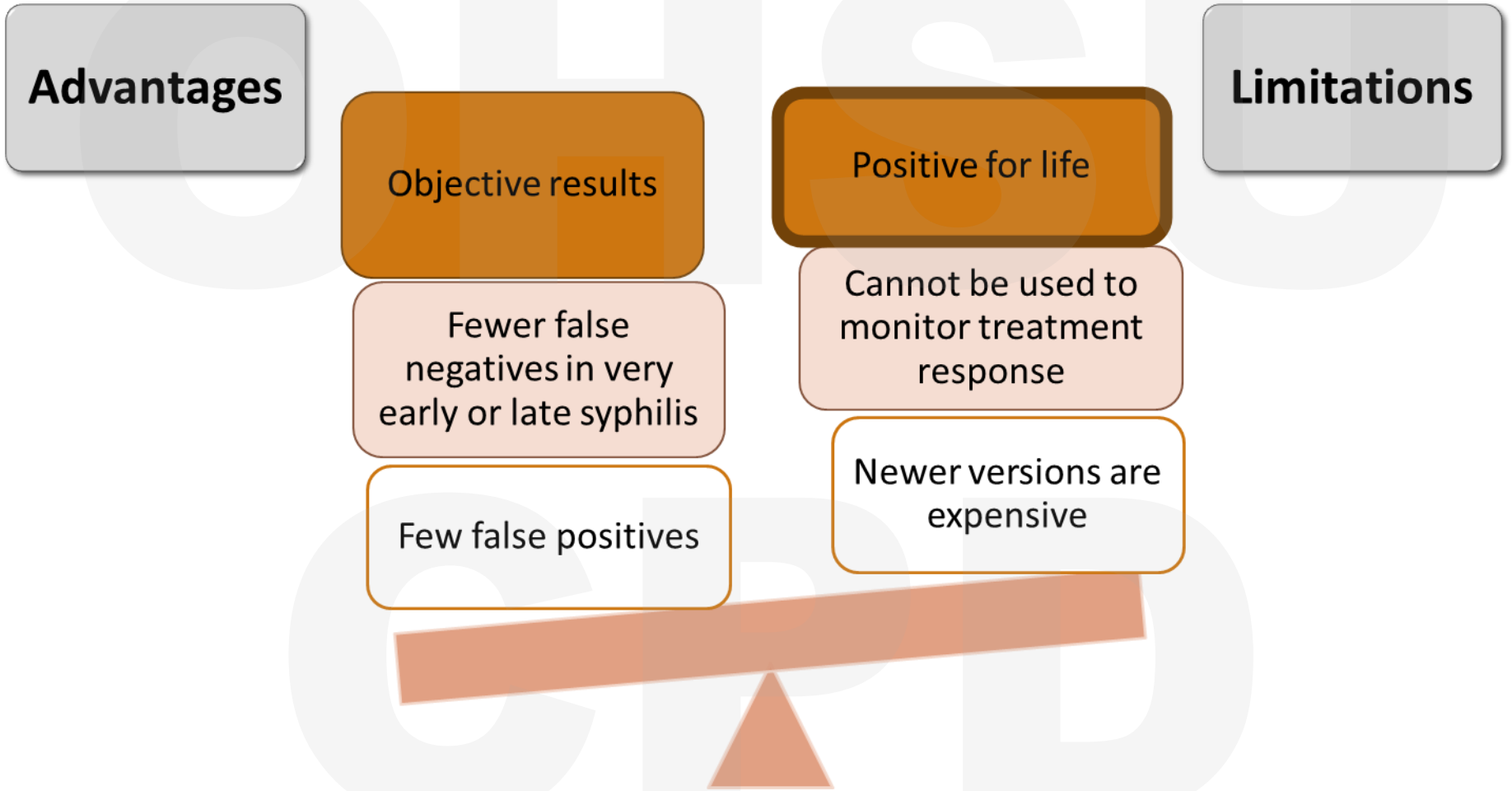
Syphilis Screening Algorithms



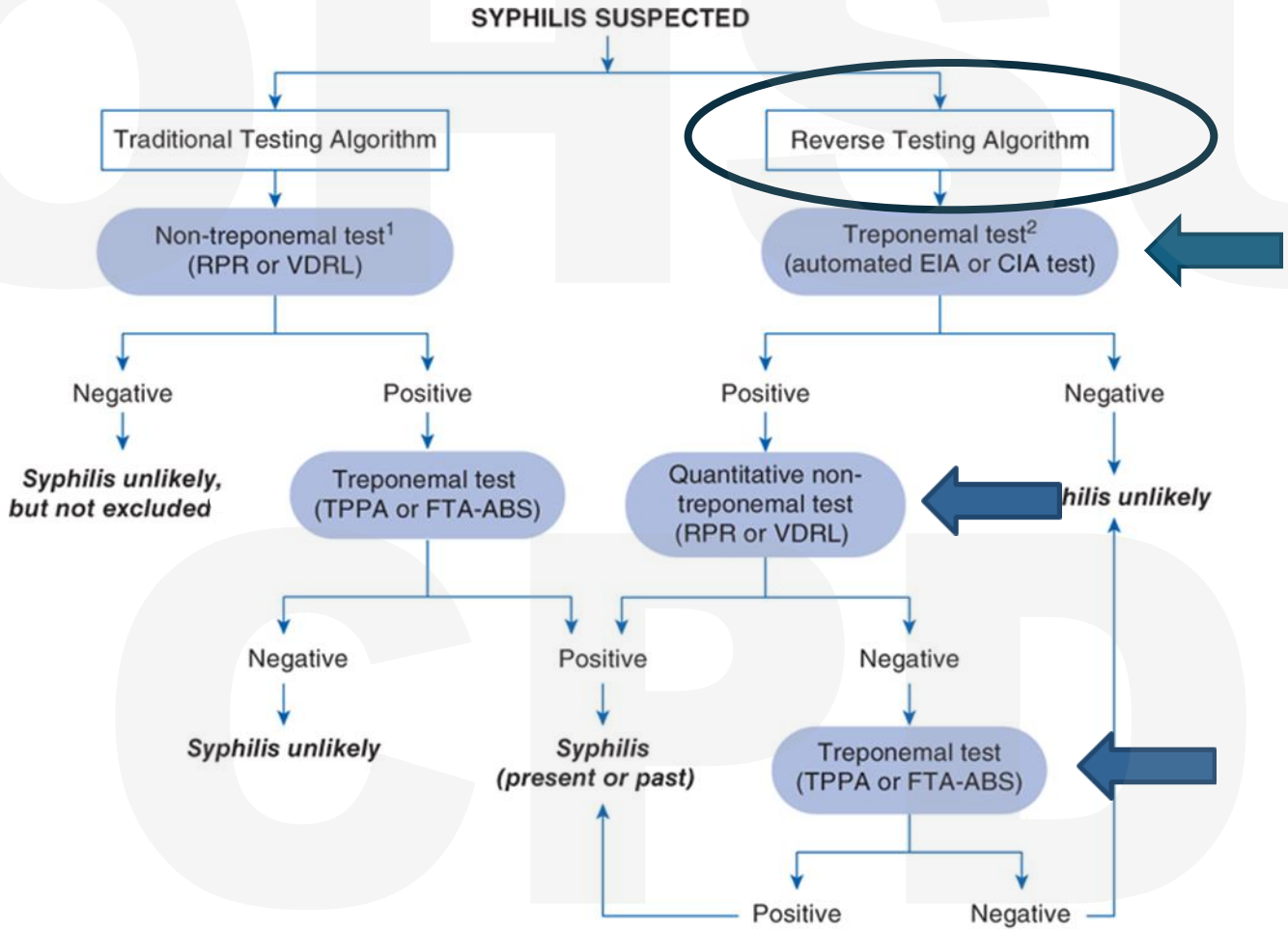
Treponemal tests

- Detect antibodies to *T. pallidum*
- Test types: Syph-TP, FTA, TPPA, EIA, CLIA, and more!
- Qualitative
- Quantitative (1+ to 4+)

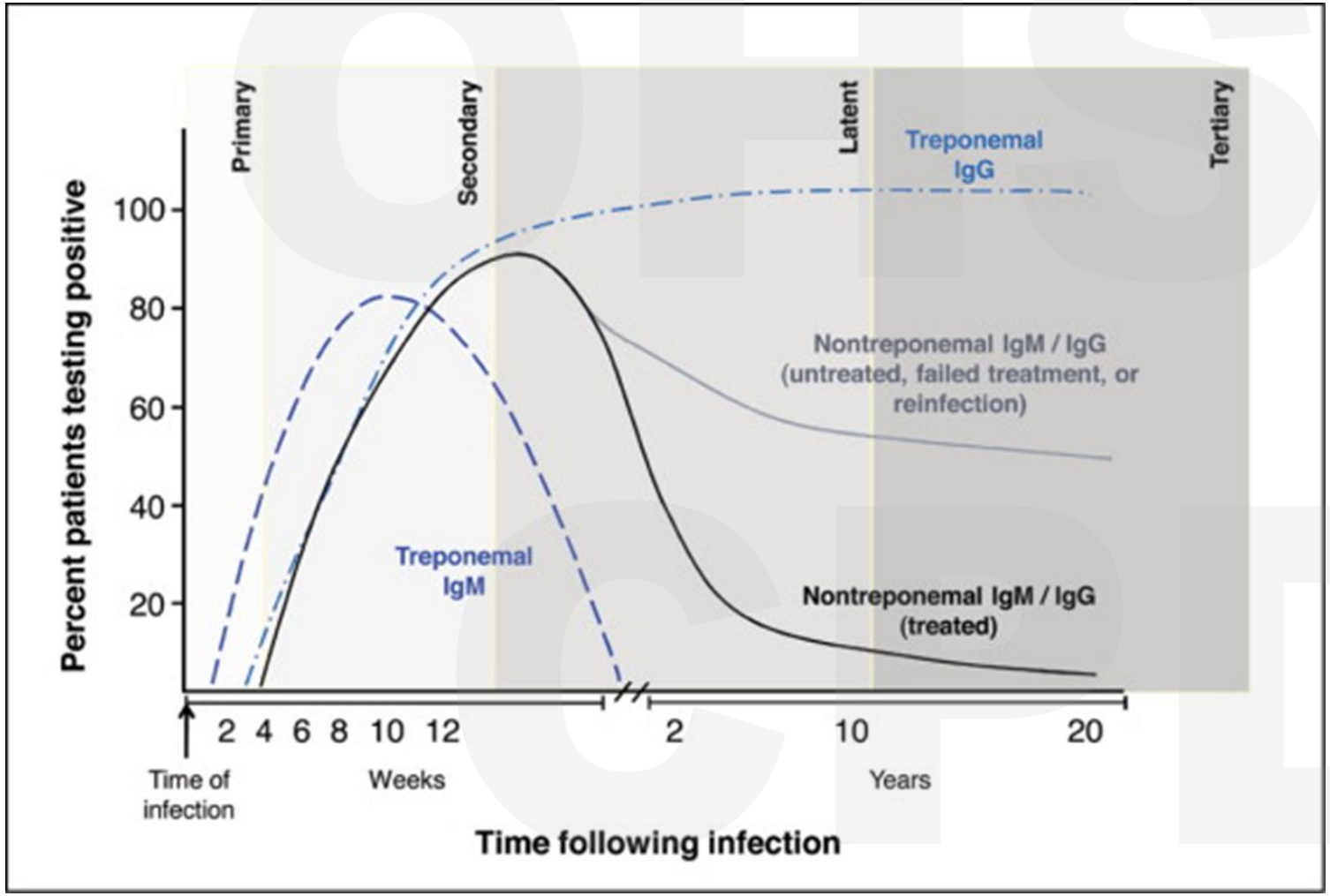
Treponemal tests

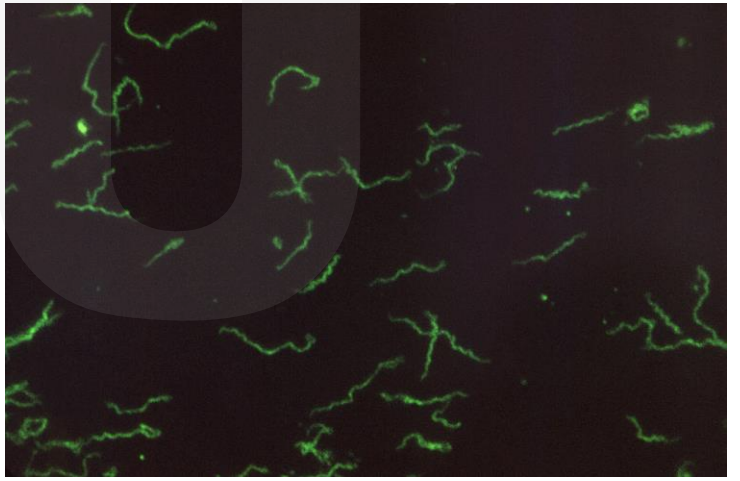


Syphilis Screening Algorithms



Immune response timeline of syphilis



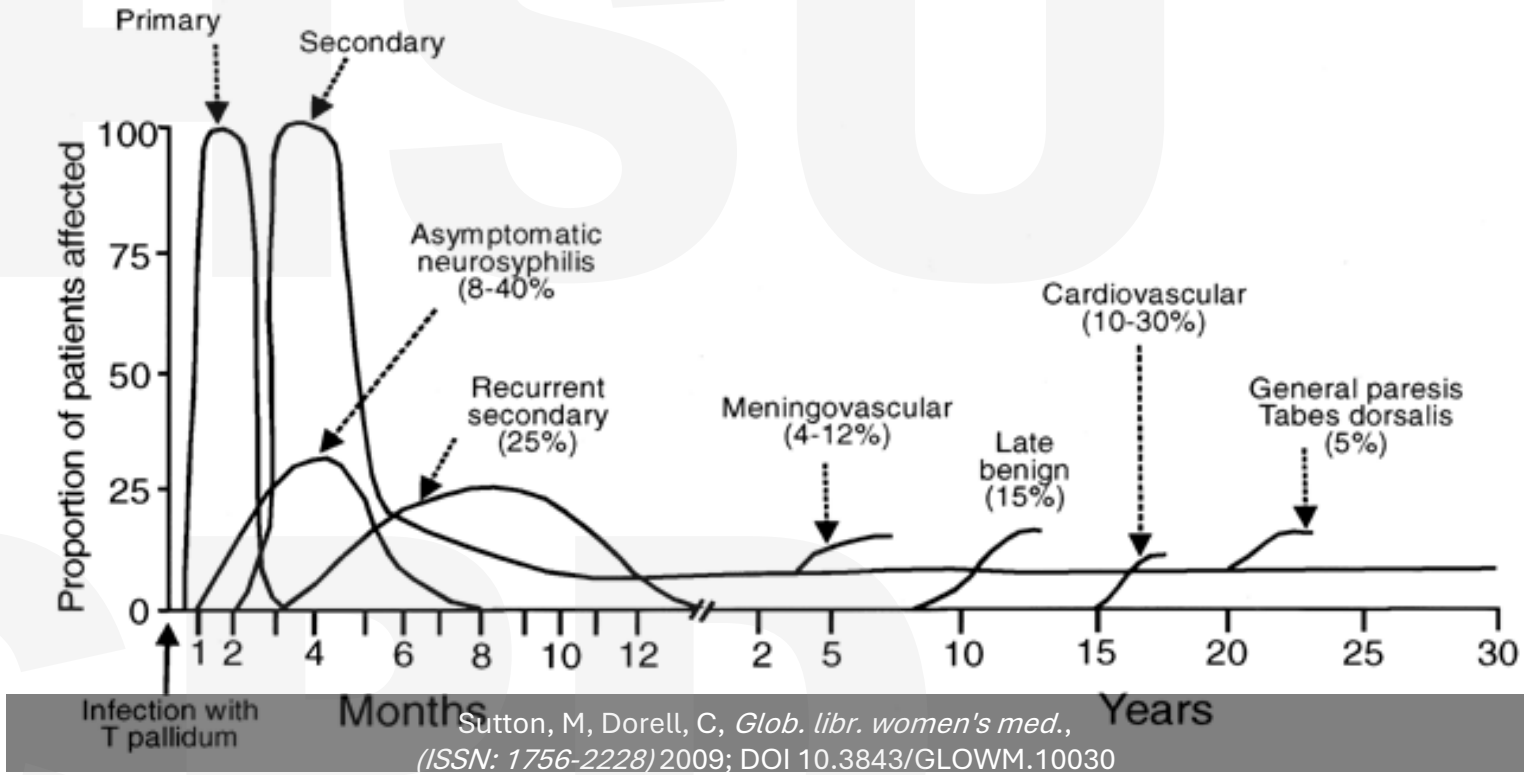


The fluorescent treponemal antibody absorption (FTA-ABS)

National STD Curriculum; Centers for Disease Control and Prevention Public Health Image Library (CDC/Russell, 1967)

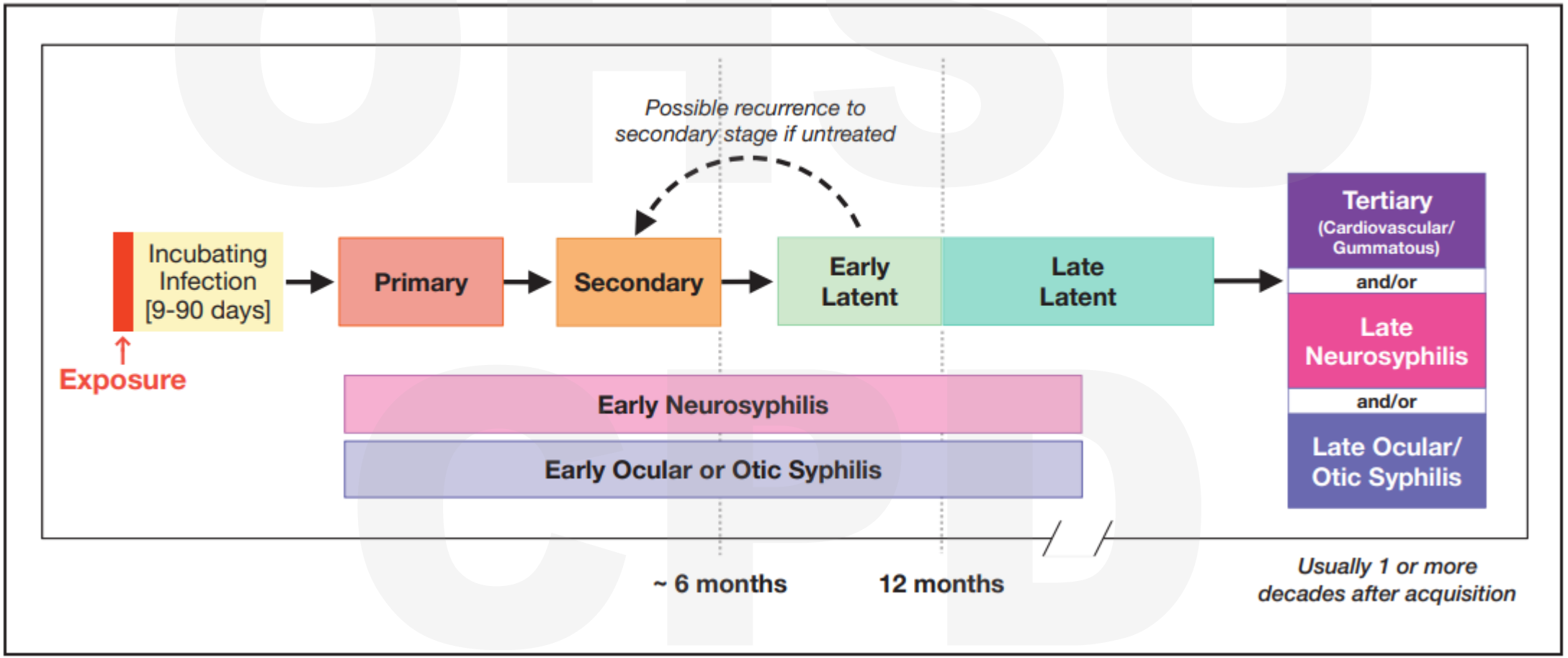
Maybe a bit harder than it seems...

Syphilis Staging



Sutton, M, Dorell, C, *Glob. libr. women's med.*, *(ISSN: 1756-2228)* 2009; DOI 10.3843/GLOWM.10030

Stages of syphilis



Stages of disease progression

- Primary
- Secondary
- Early non primary non secondary
- Unknown duration or late
- Tertiary

Early Syphilis: Infection within past 12 months

Basic Treatment for Adults

	Recommended Treatment	Alternative Treatment
Primary/Secondary/Early non-primary non-secondary	Benzathine penicillin G (BPG) 2.4 million units IM x 1	Doxycycline 100 mg twice daily for 14 days (not if pregnant)
Unknown Duration or late	Benzathine penicillin G (BPG) 7.2 million units as three doses of 2.4 million units each at 1-week intervals	Doxycycline 100 mg twice daily for 28 days (not if pregnant)

Reasons for alternative treatment?

- Penicillin allergy
- Medication shortages
- Concern for lack of follow up
- IM administration not feasible

CDC STI Treatment Guidelines, 2021

THANK YOU!

QUESTIONS?