

Indian Health Service STI/Syphilis End the Syndemic (ETS) Informatics Response

2023 IHS PARTNERSHIP CONFERENCE



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Abbreviations

STI = Sexually transmitted infections

STD = Sexually transmitted disease

CMO = Chief Medical Officer

SUD = Substance Use Disorder

MOUD = Medications for Opioid Use Disorder

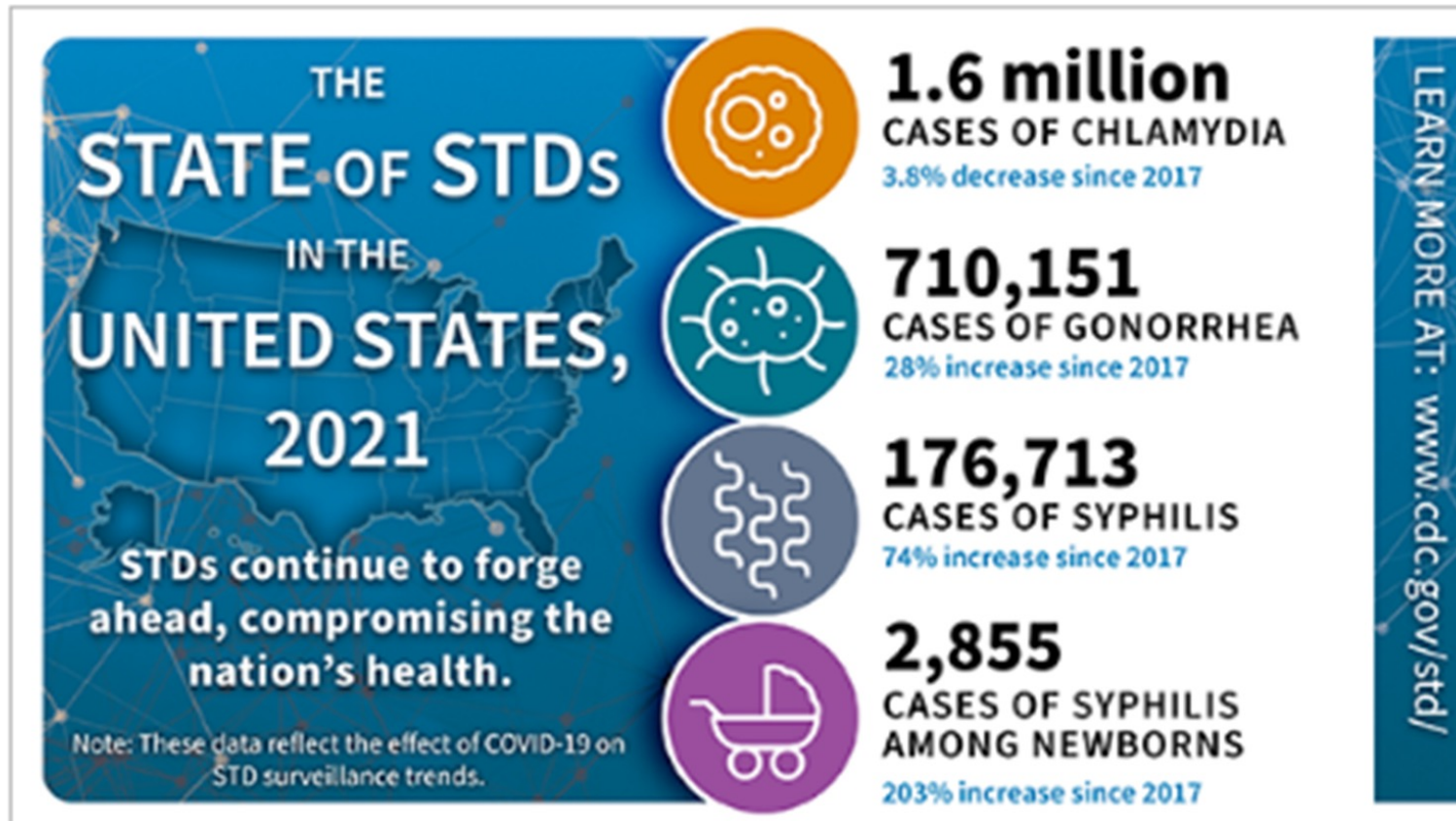
Learning Objectives

- Review the syphilis/STI endemic within Indian Country
- Analyze the call to action from IHS CMO
- Understand syphilis as a disease and associated treatment
- Analyze the connection between SUD and STIs
- Examine informatics clinical decision support tools
- Identify next steps to continue fight against STIs

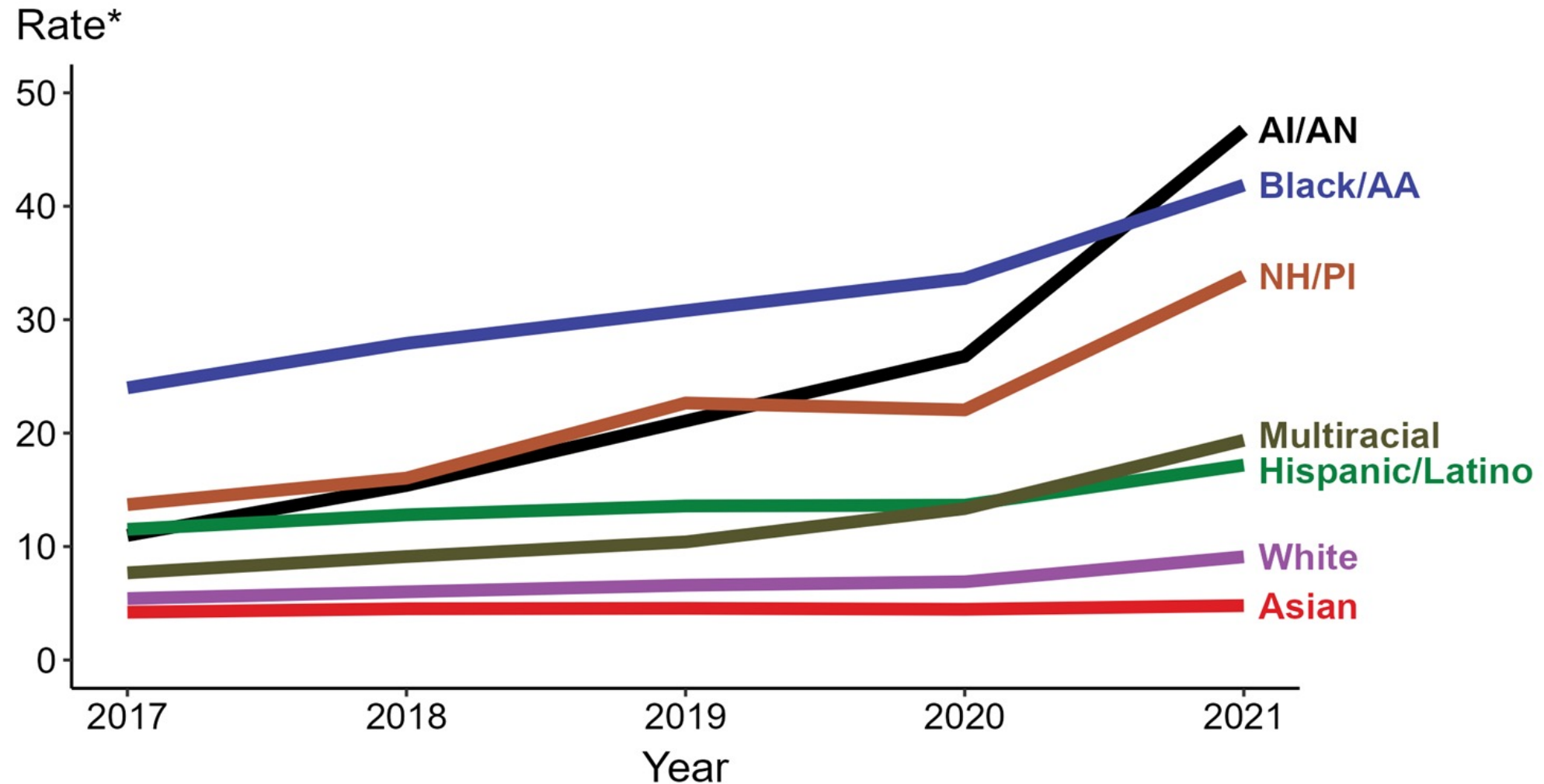
Call to Action

CAPT KATIE JOHNSON

The State of STDs in the United States, 2021



Primary and Secondary Syphilis – Rates of Reported Cases by Race/Hispanic Ethnicity, United States, 2017-2021

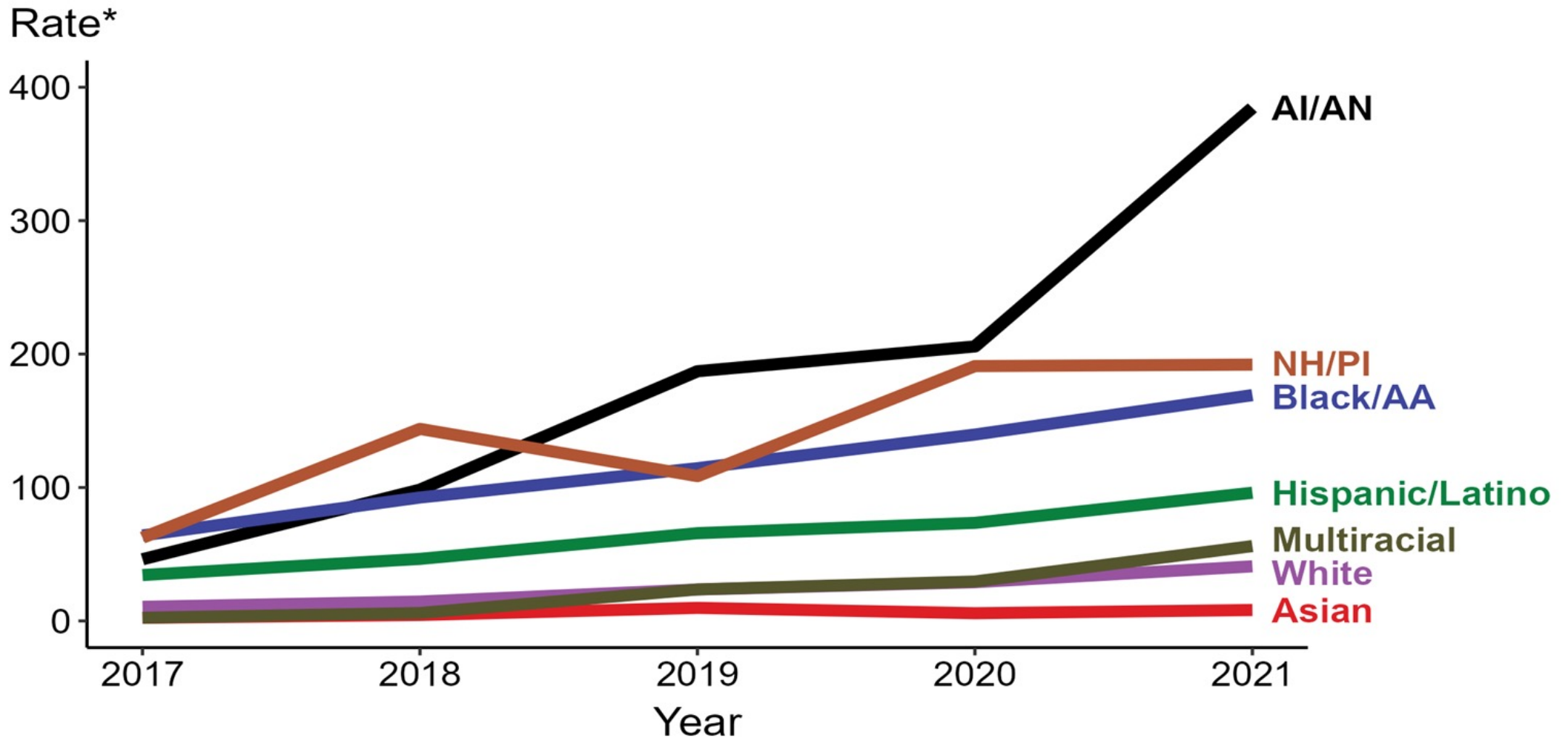


* Per 100,000

ACRONYMS: AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander

<https://www.cdc.gov/std/statistics/2021/figures.htm>

Congenital Syphilis — Rates of Reported Cases by Year of Birth, Race/Hispanic Ethnicity of Mother, United States, 2017–2021



* Per 100,000 live births

ACRONYMS: AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander

<https://www.cdc.gov/std/statistics/2021/figures.html>



June 2023

Dear Colleagues,

Unfortunately, there is a surge in syphilis cases in Indian Country. After conferring with the IHS Infectious Disease Consultant, it's clear that we must take definitive action to address syphilis and all STIs at every site across the Agency. Therefore, please initiate the following at each service unit and community-based testing site in coordination with the respective community health teams and public health nursing.

1. **Annual syphilis testing** for persons aged 13-64 to eliminate syphilis transmission by early case recognition.
2. **Turn on the annual EHR reminder** at all sites to facilitate testing for two years or until incidence rates decrease locally to baseline.
3. **Three-point syphilis testing for all pregnant people:** at the first prenatal visit, the beginning of the third trimester, and delivery.
4. Adoption of an **STI/HIV/Viral hepatitis testing bundle** at all sites to screen broadly:
 - Syphilis screening test with reflex RPR and TPPA
 - HIV serology (with documentation of consent if required in the local state jurisdiction)
 - Screening for gonorrhea and chlamydia at three sites: Urine, Pharynx, Rectum
 - Screening for hepatitis B and C
 - Pregnancy test
5. Adoption of "Express STI Testing." Express STI services refer to triage-based STI testing without needing a full clinical exam.
 - Research shows that express STI services increase clinic capacity and reduce the time to treatment.
 - Find the Express Testing Guide and Toolkit here. [Sample Toolkit for Express STI Resources - Indian Country ECHO](#)
6. **Enhance screening rates by screening outside of hospitals and clinics.**
 - Field testing at community centers, sporting events, health fairs, correctional settings, or on the street.
7. Provide **Field treatments for syphilis** for high-risk adults diagnosed with syphilis and their partners. PHNs could provide treatment with Benzathine Penicillin. The Express STI Services Toolkit includes policy examples. For questions, contact [Tina Tah](#) or [Melissa Wyaco](#).
8. **Presumptive treatment of syphilis** for anyone having signs or symptoms of syphilis or with known exposure to syphilis.
9. **Create and build awareness** and encourage people to get tested and treated. There is a new AI/AN-specific national campaign called [STOP SYPHILIS](#). The campaign offers handouts, posters, and other print materials, as well as social media posts and short educational videos.
 - All materials are free to order at www.stopsyphilis.org.
10. Reference the Syphilis Resources Hub: <https://www.indiancountryecho.org/syphilis-resources/>

Let's work together to address this serious issue!!

Dr. C

L. Christensen MD MBA MSJ FACS
Chief Medical Officer , Indian Health Service

Call to Action:

Original - October 2022

Updated - June 2023

Syphilis Overview

CAPT KATIE JOHNSON

Syphilis Defined

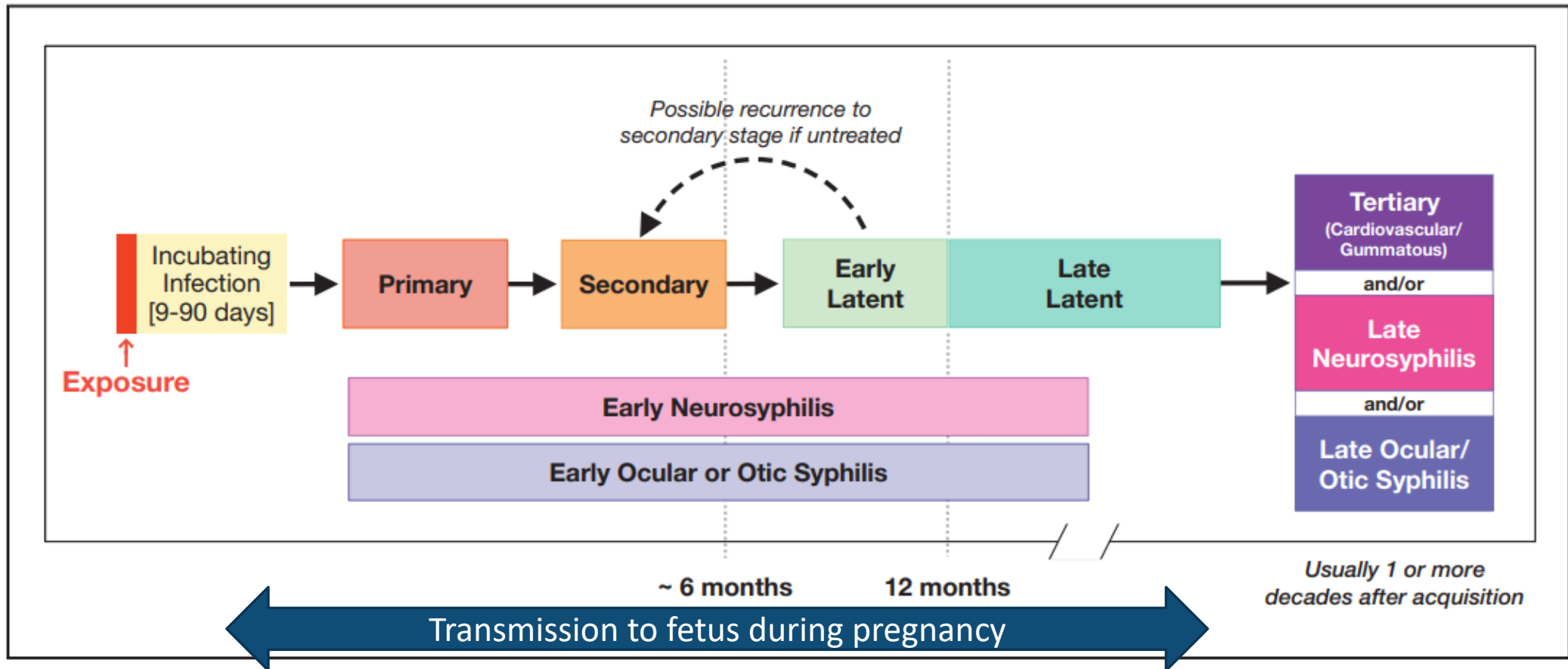
- Sexually transmitted disease
- Vertically transmitted disease in pregnancy
- Horizontal transmission
- Caused by *Treponema pallidum*, a microaerophilic, corkscrew-shaped bacteria

Syphilis Epidemiology

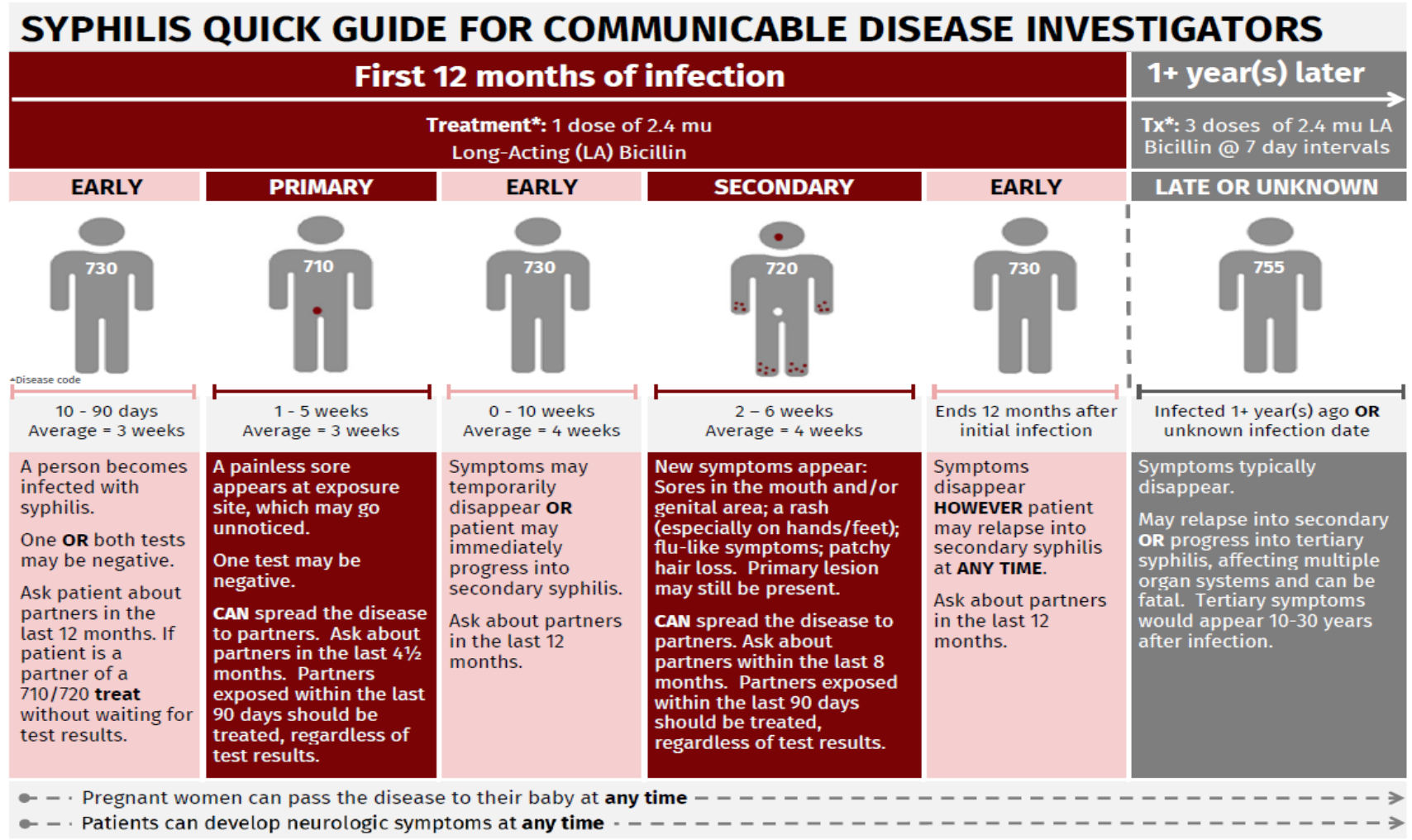
Transmission by ...

- Sexual contact
- Passage through placenta
- Kissing or other contacts with an active lesion
- Transfusion of blood
- Accidental direct inoculation

Natural History of Untreated Syphilis (1)



Natural History of Untreated Syphilis (2)



Treatment of Syphilis with Penicillin

Stage or Presentation				
Primary	Secondary	Early non-primary, non secondary	Late Latent/ or Unknown Duration	Neurosyphilis, ocular syphilis and otic syphilis
Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units total administered as 3 doses of 2.4 million units IM each at 1-week intervals	<p>Aqueous crystalline penicillin G 18-24 million units per day, administered as 3-4 million units by IV every 4 hours or continuous infusion for 10-14 days</p> <p>Alternative: procaine penicillin G 2.4 million units IM 1x/day PLUS probenecid 500 mg orally 4x/day, both for 10-14 days</p>



Treatment of Syphilis: Pregnant Patients

Stage	Primary / Secondary	Early Latent	Late Latent/ or Unknown Duration	Neurosyphilis, ocular syphilis and otosyphilis
Primary Treatment	Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units total administered as 3 doses of 2.4 million units IM each at 1-week intervals	Aqueous crystalline penicillin G 18-24 million units per day, administered as 3-4 million units by IV every 4 hours or continuous infusion for 10-14 days Alternative: procaine penicillin G 2.4 million units IM 1x/day PLUS probenecid 500 mg orally 4x/day, both for 10-14 days
PCN Allergy	Pregnant women who are allergic to penicillin should be desensitized and treated with penicillin G.			

Syphilis Penicillin Shortage: National IHS Treatment Priorities 4/19/2023

1. Pregnant persons and HIV infected person with syphilis as well as infants with congenital syphilis should receive priority for treatment with Benzathine Penicillin G
2. Other persons with early syphilis (primary, secondary, early latent) and sexual partners should be with Benzathine Penicillin G if supplies are adequate to cover high risk patients listed under priority #1.
3. If Benzathine Penicillin G supplies are inadequate to cover patients listed as priority #2, treat early syphilis with doxycycline 100 mg po bid for 14 days and late latent syphilis or latent syphilis of uncertain duration with doxycycline 100mg po bid for 28 days. *

*Ceftriaxone 1 gm IV daily for 10 days may be an acceptable second line alternate treatment for primary and secondary

Determining Response to Treatment

- Re-testing within 6 and 12 months
 - Four-Fold + change in titer = clinical significance
- Serofast vs Seronegative
 - Stage of infection when treated
- Considerations
 - Treatment failure or re-infection
 - Prior testing and dates

Syphilis Elimination Today

- Addressing a broader array of determinants of sexual health may be a more effective strategy for reducing health disparities but implementing such an approach is challenging.
- What then were the key lessons learned from this latest effort to eliminate syphilis from the United States?
- Five (5) fundamental components emerged as being key:
 1. Access to care is essential,
 2. Expanded partnerships are critical,
 3. Diverse epidemics require tailored interventions,
 4. Effective program evaluation is critical, and
 5. It takes more than money.

Syphilis Best Practices in High Burden Area

- Support active case finding through case investigation and partner elicitation
- Rapid treatment of cases and sexual partners by stage of infection
- Presumptive treatment (prior to test results) of sexual partners of syphilis cases
- Presumptive treatment of people with symptoms consistent with syphilis
- Screening of pregnant women at first prenatal visit, 3rd trimester, and at delivery
- Expanded screening to at-risk communities of sexually active adults and adolescents (schools, corrections, emergency department, primary care, community venues, parole centers, work physicals)
- Field treatment with benzathine penicillin for people with syphilis unable or unwilling to present to a medical facility
- Electronic Health Record (EHR) reminders for screening and standard order sets for testing and treatment)

Substance Use Disorder (SUD) & STI Correlation



HOPE Website: HOPE Committee | Opioid Stewardship in the Indian Health Service (ihs.gov)

Murali, V., & Jayaraman, S. (2018). Substance use disorders and sexually transmitted infections: A public health perspective. *BJPsych Advances*, 24(3), 161-166. doi:10.1192/bja.2017.14

- Recognized that substance use disorders and sexually transmitted infections (STIs) are common comorbid conditions
- Treating one condition while leaving the others untreated leads to increased morbidity and mortality in this patient population

SUD & STI Treatment/Bundle Primary Care Considerations

- Support Harm Reduction Activities
- Safe Syringe Services; naloxone for at-risk; Medications for Opioid Use Disorder (MOUD)
- Access to condoms and lube
- Pre and Post-exposure prophylaxis order sets
- HBV vaccination
- Treat co-addictions
- Screening
- SBIRT strategies
 - Additional screening tools needed
 - Training
- HIV, STI, HBV, HCV testing bundles
- Consolidated guidelines on HIV, viral hepatitis and STI prevention, diagnosis, treatment and care for key populations. Geneva: World Health Organization; 2022. License: CC BY-NC-SA 3.0 IGO. <https://www.who.int/publications/i/item/9789240052390>
- Staff Training and expert consultation – ECHO Resources

Considerations for Action

CAPT AMY RUBIN

Considerations for Action (1)

- HIPAA, Privacy, State, Informed Consent
- Policy, Protocol, Standing Orders
- CMS Conditions of Participation (CoP) and Authentication of Policy/Protocol/Standing Orders
- Standardized Informatics Response
- Missed Treatment Opportunities

Considerations for Action (2)

- Patient Communication
- Incorporate all reportable STIs
- Respond quickly
- Comprehensive response/toolkit
- Proposed National Committee to End the Syndemic of HIV, Hepatitis C, and Sexually Transmitted Infections in Indian Country (ETS Committee)

Call to Action Recommendations

CAPT AMY RUBIN

Syphilis Recommendations

Annual Syphilis Testing #1

- Annual syphilis testing for persons aged 13-64 to eliminate syphilis transmission by early case recognition

Syphilis Recommendations

Syphilis Screening Annual Reminder #2

- Turn on the annual EHR reminder at all sites to facilitate testing for two years or until incidence rates decrease locally to baseline

Syphilis Recommendations

Syphilis Pregnancy Three-Point Testing #3

Three-point syphilis testing for all pregnant people

- At the first prenatal visit
- Beginning of the third trimester
- Delivery

Syphilis Recommendations

STI/HIV/Viral Hepatitis Testing Bundle #4

Adopt an STI/HIV/Viral hepatitis testing bundle at all sites to screen broadly:

- Syphilis screening test with reflex RPR and TPPA
- HIV serology
 - Documentation of consent required
- Screening for gonorrhea and chlamydia at three sites:
 - Urine, Pharynx, Rectum
- Screening for hepatitis B and C
- Pregnancy test

Syphilis Recommendations

Express STI Testing #5

Adoption of "Express STI Testing"

- Triage-based STI testing without needing a full clinical exam
- Increases clinic capacity and reduces the time to treatment
- Express Testing Guide and Toolkit located here:

<https://www.indiancountryecho.org/resources/sample-toolkit-for-express-sti-resources/>

Syphilis Recommendations

Outside Screening #6

Enhance screening rates by screening outside of hospitals and clinics

- Community centers
- Sporting events
- Health fairs
- Correctional setting
- On the street

Syphilis Recommendations

Field Treatments #7

Provide field treatments for syphilis for high-risk adults diagnosed with syphilis and their partners

- Treatment with Benzathine Penicillin by PHNs
- Examples provided in Express STI Service Toolkit

Syphilis Recommendations

Presumptive Treatment #8

Presumptive treatment of syphilis for anyone having signs or symptoms of syphilis or with known exposure to syphilis

Syphilis Recommendations

Awareness #9

- Create and build awareness
- Encourage people to get tested and treated

Syphilis Recommendations

Syphilis Resources #10

Reference the Syphilis Resources Hub:

<https://www.indiancountryecho.org/syphilis-resources/>

Other Syphilis Recommendations

Antimicrobial Stewardship Program (ASP)

- Treatment approach to syphilis
 - Understanding syphilis lab results
 - Standard Treatment
 - Alternative syphilis treatment options for special populations
 - Antimicrobial resistance
- Penicillin Allergy Screening and Testing
- EHR Order Sets
- Treatment Metrics

Other Syphilis Recommendations

Advanced Practice Pharmacy

- Leveraging Pharmacists to Improve Outcomes
- Standing Order Policy and Testing Waiver
- Training and Education
- EHR Templates
- Workflow for Pharmacy Access Points
- Current Active Pharmacy Programs

Other Syphilis Recommendations

Supporting prevention

- Offer HIV Pre-exposure Prophylaxis (PrEP) to every patient
- Offer Monkeypox JYNNEOS vaccine to every patient

Tools to Support Recommendations

CAPT AMY RUBIN

Clinical Decision Support (CDS) Definition

- Provides clinicians, staff, patients or other individuals with knowledge and person-specific information
- Intelligently filtered or presented at appropriate times
- Enhances health and health care

CDS Tools

- Encompasses a variety of tools to enhance decision-making
- Computerized alerts
- Reminders
- Clinical guidelines
- Condition-specific orders sets
- Focused patient data reports or summaries
- Templates
- Diagnostic support
- Contextually relevant references information

CDS Five Rights

- Right Information
- Right Person
- Right CDS Intervention Format
- Right channel
- Right point in workflow

Benefits of CDS

- Increased quality of care
- Enhanced health outcomes
- Avoidance of errors and adverse events
- Improved efficiency, cost-benefit, and provider and patient satisfaction
- Promotion of best practices
- Cost profile improvements
- Rapid response to public health emergencies

Optimization of CDS

- Measurable value in addressing a recognized problem area or area for improvement
- Leverage multiple data types
- Produce actionable insights from multiple data sources
- Deliver information to the user
- Demonstrate good usability principles
- Testable in small setting & expandable to larger settings
- Support successful participation in quality initiatives

CDS Challenges

- Need to independently develop, deploy, and manage CDS content
- Lack of reliable, shareable CDS content and capabilities
- Absence of systemic means to validate content
- Technical difficulties of sharing CDS
- Suboptimal user interfaces
- Inappropriate and inapplicable CDS

Attributes for Successful CDS

- Leadership
- Identified and assigned roles
- Multi-disciplinary team approach
- Communication
- Integration
- Value to users
- Training and support
- Standardization
- Centralization

Standardization Benefits

- Reduces resources dedicated to operations & maintenance
- Simplifies training, error identification & remediation
- Realizes Economies of Scale for processes
- Enhances clinical decision support pathways
- Enhances ability to inter-operate with different systems & organizations
- Enhances reliability of quality and performance reporting
- Enhances ability to span episodes of care between organizations
- Enhances patient centricity & enhances continuity of care

CDS Examples

- Clinical Reminders
- Order Menus
- Order Sets
- Order Checks
- Clinical Warnings
- Patient Record Flags
- Health Summaries
- Note templates
- iCare

Action: Clinical Decision Support Laboratory

ARLINDA LEE

STI/HIV/Viral Hepatitis Testing Bundle

Syphilis Testing

- Serum, Plasma

HIV Screen

- Documentation of Consent if Required in the Local State Jurisdiction
- Serum, Plasma or whole blood (Point of Care), Reactive reflexes to Confirmation Testing

Gonorrhea/Chlamydia Screen – three (3) sample types

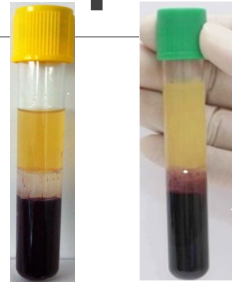
- Urine, Swabs (Vaginal/Cervical, Pharynx, Rectum), and Thin Prep/PAP

Hepatitis B and C

- Serum, Plasma, Reactive reflexes to confirmation testing

Pregnancy Test (Sexually Transmitted Condition)

- Rapid qualitative for child-bearing age females (urine sample); serum can also be submitted for quantitative tests to detect the hormone if not detected by the rapid test method.



or whole blood (Point of Care)



Considerations for Building Syphilis Tests

Research:

- ✓ Are these tests being performed within your laboratory or being referred out to a reference laboratory?
- ✓ Are your waived test (POC) testers entering results into the EHR point of care data entry? How are follow-up or confirmation test orders documented in these entries and where is the test ordered?
- ✓ RPR Screen orders are normally built in the RPMS Laboratory Package as PANELS. Not all of the test names will have a result entered, depends if the screen is reactive or positive. Which test name will you choose for your reminders or grab for your data compilation?
- ✓ Are you using an outside laboratory such as the State Department of Health (not interfaced) and results are normally **scanned** into the patient's EHR? How do you capture these results?

Items to consider:

- ✓ Standardize the ordering of laboratory tests per IHS Area? Not recommended as Areas may not have the Informaticst to edit files and the workflow varies widely between service units.
- ✓ Some reference laboratories require one blood tube for every test ordered so consider those patients that are neonate, pediatric or hard-to-stick. How will you prevent rejections for very little volumes?

RPR tests useful to detect re-infection & for congenital syphilis screenings

Persons with previous treatment will require no further management unless sexual history indicates a re-exposure.

- Repeat nontreponemal test 2-4 weeks after a confirmed medical history and physical examination is recommended to evaluate for early infection.
- Changes in titer are followed after treatment to detect a therapeutic response and to assess for new infection.
 - With adequate treatment, most individuals will return to a non-reactive RPR.
 - Some individuals may maintain a low titer RPR for life despite adequate treatment (serofast).
- Prenatal or OB panels always include RPR tests in order to detect a current infection as the mother may not have seroconverted yet to produce antibodies.
 - Some hospital labs have an RPR manual test kit for STAT requests to rule out congenital syphilis.

Example of a Reference Lab Syphilis Test: iCare/Data Pull

In this example, there are several test results reported back by the reference laboratory. Work with your CAC/EHR Informaticist to select the correct test to pull.

TESTS	RESULT	FLAG	UNITS	REFERENCE INTERVAL	LAB
RPR, Rfx Qn RPR/Confirm TP					
RPR	Reactive	Abnormal		Non Reactive	01
RPR, Quant.	1:8	High		NonRea<1:1	01
Treponema pallidum Antibodies					
	Positive	Abnormal		Negative	02

Which Syphilis Test?

Best to ask your laboratory professional or lab informaticist:
what are the test names in RPMS in File 60?

EXAMPLE OF <u>INHOUSE</u> TEST PANEL NAME			EXAMPLE OF A REFERENCE LAB TEST PANEL NAME		
NAME: RPR/TITER [AIX1000]			NAME: RPR RFX TITER+TP-PA 1054		
LAB TEST: _RPR Screen			LAB TEST: _RPR Screen		
LAB TEST: _RPR Titer			LAB TEST: _Titer/if RPR=react		
			LAB TEST: _TP-PA		
			LAB TEST: __TP PA Result [Q]		
Collection Sample	Container	Vol Req(ml)	Collection Sample	Container	Vol Req(ml)
BLOOD	Red (SST)	1	BLOOD, SST	SST	1

Best to add “Syphilis” as a Synonym in built Test Name(s)

Common Syphilis Serologic Tests

Test	Full Name	Type	Target	Notes
RPR	Rapid Plasma Reagin	Non-treponemal	Cardiolipin Antibodies	Quantitative results reported as a titer.
VDRL	Veneral Disease Research Laboratory	Non-treponemal	Cardiolipin Antibodies	Quantitative results reported as a titer. Only test approved for CSF (cerebrospinal fluid) specimens.
FTA-ABS	Fluorescent Treponemal Antibody-Absorption	Treponemal	<i>T. pallidum</i> Antibodies	
TP-PA	<i>Treponema pallidum</i> -particle agglutination	Treponemal	<i>T. pallidum</i> Antibodies	
MHA-TP	Microhemagglutination- <i>Treponema pallidum</i>	Treponemal	<i>T. pallidum</i> Antibodies	
EIA	Enzyme immunoassay	Treponemal	<i>T. pallidum</i> Antibodies	May be initial test in reverse sequencing algorithm.
CIA	Chemiluminescent immunoassay	Treponemal	<i>T. pallidum</i> Antibodies	May be initial test in reverse sequencing algorithm.

Note: This table is not exhaustive of all the tests available for diagnosing syphilis.

Challenges with Order Sets - Lab Perspective

- Can be difficult to make sure samples were collected correctly
 - Large numbers of order sets cause confusion and frustration
- Train the ordering person to select the correct sample that is being sent to the lab for testing as some quick orders require the ordering person to select the correct sample name.
 - For example, the order set name includes sample type for bundled chlamydia/gonorrhea tests and syphilis such as “STI Urine/Serum Express” or “STI Swab/Serum Express”
- Different sample types and different collection dates & times will create multiple order collection dates & times will create multiple order numbers.

Example Lab Order Set – Portland Area

Seven tubes will need to be collected: 3 purple tops, 4 serum yellow tops, for example

```
Select ORDER SET NAME: LRZSET PRENATAL PANEL
NAME: LRZSET PRENATAL PANEL
DISPLAY TEXT: Prenatal Panel
DESCRIPTION:
  No existing text
  Edit? NO//
ENTRY ACTION:
EXIT ACTION:
ORDER SET COMPONENTS:
  1    LRZ CBC (PRENATAL)
  2    LRZ HIV (PRENATAL)
  3    LRZ RPR (PRENATAL)
  4    LRZ HBVs Ag (PRENATAL)
  5    LRZ RUBELLA Ab (IgG) (PRENATAL)
  6    LRZ ABO/RH (PRENATAL)
  7    LRZ AB SCR N W/RFLX (PRENATAL)
Select COMPONENT SEQUENCE#: |
```

Action: CDS Antibiotic Stewardship (ABS) Order Sets

LCDR FRANCISCO ANTIGUA

ABS STI Order Sets — Facility Considerations

Ambulatory

- Outpatient w/ Urgent Care
- Outpatient w/ ED

Hospital

- Critical Access
- Acute Hospital
- Medical Center

Laboratory Capability

OB and/or ID Specialist

- Referral or On-site

Order Sets — Essential Components

Laboratory Ordering

- Based on local capability and other considerations

Treatment Recommendations for Each Stage

Treated/Encountered

- Primary Regimen
- Penicillin Allergy Confirmation
- Treatment for true penicillin allergy
- Pregnancy

Desensitization Policy/Protocol

- In-house vs. Transfer

Order Set Example — Penicillin Allergy

Woodrow Wilson Keeble Memorial Health Care Center

SYPHILIS	
<u>PENICILLIN IS THE DRUG OF CHOICE TO TREAT SYPHILIS</u>	<u>PRIMARY OR SECONDARY INFECTIONS</u>
Patient with penicillin allergy : ~~~Perform PCN allergy testing If reactive patient should undergo PCN desnsitization If NON reactive patient should be treated with PCN	Penicillin G 2.4 MU IM once NON pregnant patient with PCN allergy Doxycycline 100mg bid x 14d
<u>PREGNANT patient with confirmed PCN allergy should undergo PCN desensitization and treatment with PCN</u>	<u>TERTIARY SYPHILIS INFECTIONS WITH NORMAL CSF</u> Penicillin G 2.4 MU IM qwk x3
	<u>EARLY LATENT SYPHILIS</u> Penicillin G 2.4 MU IM once
	<u>LATE LATENT SYPHILIS</u> Penicillin G 2.4 MU IM qwk x3

Order Set Example — Oyate Health Center

Syphilis Stages

SYPHILIS STAGE DETERMINES DURATION OF TREATMENT

EARLY SYPHILIS (primary, secondary or early latent)

Primary Syphilis (highly infectious)
Chancere (treat regardless of test results)
Lab evidence may or may not be present in primary syphilis

Secondary Syphilis (highly infectious)
Lab evidence AND any of the following:
Rash
Fever
Malaise
Pharyngitis
Hepatitis
Mucous patches
Condyloma lata
Alopecia

Early Latent Syphilis:
Lab evidence AND Asymptomatic AND any of the following:
Documented seroconversion within the past 12 months
Sustained rise in nontreponemal test titer of 2 or more dilutions (4 fold or greater rise) within last 12 months
Symptoms of primary or secondary or early latent syphilis during the last 12 months
Only possible exposure was within the last 12 months

IF UNSURE OF TIMING OF INITIAL INFECTION THEN ASSUME LATE LATENT INFECTION AND FOLLOW TREATMENT FOR LATE SYPHILIS

EARLY SYPHILIS TREATMENT:
[] TREATMENT FOR EARLY (primary or secondary or early latent) SYPHILIS

References:
1. Sexually Transmitted Infections Treatment Guidelines 2021
Centers for Disease Control and Prevention

Reviewed and approved by Antimicrobial Stewardship Committee 11/10/2021

LATE SYPHILIS (Tertiary and Late Latent)

Tertiary Syphilis:
Lab evidence AND
Cardiovascular disease
Gummatous disease (granulomatous disease of the skin and subcutaneous tissues, bones or viscera)

Late Latent Syphilis:
Lab evidence AND
No exam finding of primary or secondary or tertiary syphilis AND
Criteria not met for early latent syphilis AND
Evidence suggests that the infection was acquired greater than 12 months ago
Occurs more than 1 year after initial infection.

If unknown timing of infection presume late latent syphilis

LATE SYPHILIS TREATMENT:
[] TREATMENT FOR LATE (Tertiary and Late Latent) SYPHILIS

NEUROSYPHILIS
*Can occur at any time during the course of infection
Asymptomatic or symptomatic meningitis
Meningovascular disease
Vision or hearing loss
Dementia (general paresis)
Tabes dorsalis

NEUROSYPHILIS TREATMENT
Please consult with Infectious Disease
Preferred treatment is penicillin G 3 to 4 million units IV every 4 hours for 10 to 14 days
or Penicillin G procaine 2.4 million units IM daily plus Probenecid 500mg orally 4 times daily for 10 to 14 days
or Ceftriaxone 2 g IV daily for 10 to 14 days

Follow up after neurosyphilis treatment
Clinical and nontreponemal testing frequency depends upon the stage of disease

Order Set Example — Outpatient Northern Navajo Medical Center (NNMC)

Syphilis	
<u>Clinical Notes</u>	<u>Primary/Secondary/Early Latent (<1yr since negative RPR)</u>
~Prenatal Pts: Consult OBGYN for tx	[] Penicillin (LA Bicillin) 2.4MU IM x 1
~Low threshold for sending RPR and tx	
~Any pts with s/sx or risk factors	<u>Late Latent/Unknown Duration/Tertiary</u>
	[] Penicillin (LA Bicillin) 2.4MU IM Weekly x 3wks
~Assess pt's neurological sx for possible neurosyphilis	
	<u>Severe PCN Allergy (Anaphylaxis)</u>
	~Primary/Secondary/Early Latent
	[] Doxycycline 100mg po BID x 14 Days
	~Late Latent/Unknown Duration/Tertiary
	[] Doxycycline 100mg po BID x 28 Days
<u>References</u>	Updated May 2021
1. CDC STD Guidelines. MMWR. 2015	

Order Set Example – Inpatient — NNMC

Lab Order and Interpretation

Syphilis

Clinical Information:

Link to CDC Guidelines: <https://www.cdc.gov/std/treatment-guidelines/syphilis.htm>

Order RPR if none w/in past 2 wks

- RPR

Neurosyphilis Labs

- CSF orderset
- ~AND~
- CSF VDRL

Consults:

- Consider discussion with ID
- Consider Otology Consult
- Optometry Consult (*found on consults tab*)
~must call to mobilize consult
- PHN Consult for contact tracing (*found on consults tab*)

Duration:

Neuro/Ocular/Oto: 10-14 days

Follow Up:

- RPR in 6 months post tx and expect 4 fold change
- Routine repeat LP not indicated for test of cure in immunocompetent pts

References:

1. CDC STI Guidelines. MMWR. 2021
2. <https://www.cdc.gov/std/treatment-guidelines/default.htm>

Primary/Secondary/Early Latent (<1yr since negative RPR)

- Penicillin (LA Bicillin) 2.4MU IM once

Late Latent (>1yr)/Unknown Duration/Tertiary

- Penicillin (LA Bicillin) 2.4MU IM Weekly x3wks

Neuro/Ocular/Otosyphilis

- Aqueous Crystalline Penicillin G 24MU IV Cont. Infusion
 - ~OR~
- Aqueous Crystalline Penicillin G 4MU IV q4h
 - ~THEN OPTIONAL~
- ~1 additional dose at discharge to complete treatment for Late Latent/Unknown Duration~
 - Penicillin (LA Bicillin) 2.4MU IM once

Severe PCN Allergy (Anaphylaxis)

- Primary/Secondary/Early Latent (<1yr)
 - Doxycycline 100mg PO BID x14 Days
- Late Latent
 - Doxycycline 100mg PO BID x28 Days
- Neuro/Ocular/Otosyphilis
 - Expert Consultation
- Pregnant
 - Expert Consultation

Updated Sep 2022

Action: CDS Antibiotic Stewardship (ABS) Data Tracking Metrics

CAPT JOHN LESTER

General Considerations

- Difficult to define a one-size-fits-all solution
 - RPMS EHR not centralized
 - Commercially obtained EHRs/systems
- Demonstrates the importance of having an inter-professional, Antibiotic Stewardship Committee/Team
- Goal is to outline a broad strategy and to provide some examples of tools that can be used (RPMS EHR-focused)

Tracking Cases and Treatment (1)

Ideal is to have a comprehensive data aggregation and analysis plan

- Critical piece of any system-wide response

Required to answer complex questions surrounding the epidemic

- Testing results and identification of cases
 - Totals, proportions, incidence rates
- Ongoing tracking of cases
 - Staging, treatment, reinfection

Tracking Cases and Treatment (2)

- RPMS/EHR data extraction techniques range from simple to complex
 - Programmed reports on menus (“Canned” reports)
 - General retrieval utilities (PGEN, VGEN)
 - Direct data pulls from VA Fileman
- Multiple reports to aggregate and track data
- Part of a broader plan, data validation, owner of the data

Tracking Cases and Treatment (3)

- Canned reports likely to be of limited use
- PGEN/VGEN straight-forward with many end-users familiar and able to use
- Direct extraction from VA Fileman has the most potential for robust reports
 - Wide range of skill levels from novice to expert
 - End-users with advanced VA Fileman/MUMPS programming skills can produce more complex/streamlined reports

Tracking Cases and Treatment (4)

- Example of a VGEN report to identify patients receiving benzathine penicillin by diagnosis
- Logic — retrieves all visits with a POV SNOMED code belonging to these subsets and where benzathine penicillin was ordered
 - PXRMBQIPRIMARY SYPHILIS
 - PXRMBQISYPHILIS CONGENITAL
 - PXRMBQINEUROSYPHILIS
 - PXRMBQISYPHILIS ECR
- Limitations — VGEN only searches outpatient medication orders via the V MEDICATIONS file. If the order was placed using Inpatient Medications for Outpatient (IMO), they will not show up on this report; data should be validated via chart review

Tracking Cases and Treatment (5)

- Example of an easier VA Fileman search
- Scenario - Want to track certain Quick-Orders (QO) hung on guideline driven menus
- If the QO is built specifically for the menu/treatment and named accordingly, you can pull that information
- Main advantage is that you can design and integrate into the workflow exactly as you want it using specific menus/QO and then extract reports suitable for Excel

Search the ORDER file looking for your QO

Select VA FileMan Option: SEARCH File Entries

OUTPUT FROM WHAT FILE: ORDER//

- A- SEARCH FOR ORDER FIELD: ITEM ORDERED
- A- CONDITION: CONTAINS
- A- CONTAINS: PSOXZ PENICILLIN G BENZATHINE

- B- SEARCH FOR ORDER FIELD: WHEN ENTERED
- B- CONDITION: GREATER THAN
- B- GREATER THAN DATE: T-32 (JAN 01, 2023)

- C- SEARCH FOR ORDER FIELD:

IF: AB

ITEM ORDERED CONTAINS (case-insensitive) "PSOXZ PENICILLIN G BENZA
THINE" and WHEN ENTERED GREATER THAN the entire day JAN 1,2023 (T-32)

OR:

STORE RESULTS OF SEARCH IN TEMPLATE: {Can Store Search Logic for repeated use}

Example of line-list output suitable for import to Excel

ORDER SEARCH			
FEB 2, 2023 12:10		PAGE 1	
NUMDATE (WHEN ENTERED)	OBJECT OF ORDER	OBJECT OF ORDER:VA PATIENT:HRCN	ITEM ORDERED
01/03/23	DEMO,PATIENT A	12345	PSOXZ PENICILLIN G BENZATHINE
01/04/23	DEMO,PATIENT B	67890	PSOXZ PENICILLIN G BENZATHINE
01/09/23	DEMO,PATIENT C	54321	PSOXZ PENICILLIN G BENZATHINE
01/12/23	DEMO,PATIENT D	98765	PSOXZ PENICILLIN G BENZATHINE
01/13/23	DEMO,PATIENT E	09786	PSOXZ PENICILLIN G BENZATHINE
01/20/23	DEMO,PATIENT F	55555	PSOXZ PENICILLIN G BENZATHINE
02/02/23	DEMO,PATIENT G	44444	PSOXZ PENICILLIN G BENZATHINE

7 MATCHES FOUND.

Action: Clinical Decision Support Clinical Reminders

CAPT JOHN LESTER

National Council of Informatics Clinical Decision Support (NCI-CDS)

Develop CDS informatics tools to **End-the-Syndemic**
(ETS) – Clinical Reminders

- Syphilis Screening
- Missed Treatment Opportunities
 - NCI-Syphilis Opportunity
 - NCI-Public Health Alert

NCI - Syphilis Screening Reminder (Alarm Clock)

Turns **On** Yearly for:

- All patients Age 13-64

Turns **Off** if the following is found in the last year:

- Syphilis Screening Test
- STI-Test Education (1 day)
- Historical Syphilis Screening Test (CPT)

NCI - Syphilis Screening Dialog Note Template

- Standardizes documentation
- Orders local syphilis test
 - Provider order, policy order
- Documents Historical syphilis lab testing
- Documents STI-Education
- Promotes authentication

Supporting Treatment Opportunities

- Optimize opportunities to get patients treated
- Attempting to capture scenarios when a patient needing treatment presents to the healthcare facility for a different purpose of visit

Syphilis Missed Treatment Opportunities

What is the Best Way to "Flag" in RPMS EHR?

- Patient Record Flag (PRF)
- CWAD – Clinical Warning
- Clinical Reminders – two different approaches developed and in testing

Syphilis Missed Treatment Opportunity Reminder “Alarm Clock”

Turns On – Due:

- Active Integrated **P**roblem **L**ist (**IPL**) Problem of Syphilis
AND
- Reactive RPR + Detected Antibody + RPR Titer Resulted

Turns Off – Resolved:

- Penicillin G Benzathine Medication Order
OR
- Doxycycline Medication order
AND
- Medication Orders must be completed **after** last RPR Titer

Public Health Alert Note Reminder “Alarm Clock”

Turns On – Due:

- Progress Note Title (Public Health Alert Syphilis – Active)

Turns Off – Resolved:

- Progress Note Title (Public Health Alert Syphilis – Inactive)
- **AND**
- Progress Note Title containing “Inactive” must be dated after note title containing “Active”

Action: CDS Reminder Data Tracking Metrics

CAPT JOHN LESTER



Reminder Reports

```
RP Reminder Reports...  
D Reminders Due Report
```

Example: STI Screening Reminder

Reminder reports can be an efficient way of tracking how many patients are eligible for screening and how many are receiving it



Example Reminder Report Output

Clinical Reminders Due Report - Summary Report

Facility: CIHA HOSPITAL 8259

Reminders due 8/3/2023 - A CLINIC for 5/5/2023 to 8/3/2023

Patients with Reminders

Applicable	Due	%Appl	%Due	%Done
------------	-----	-------	------	-------

-----	---	-----	----	-----
-------	-----	-------	------	-------

1 PUBLIC HEALTH ALERT - Syphilis

1	1	7	100	0
---	---	---	-----	---

Report run on 15 patients.

Action: CDS iCare Functionality & Care Management

MELINDA NEZ

iCare STI Informatics Response – Data Management

Objective: General overview of iCare components that relate to the STI call to action response.

1. Community Alerts: Importance of the data on the splash screen.
2. Care Management Event Tracking (CMET): Recent developments to assist in caring for the patient and population.
3. Panel Definitions: Identifying target patients and populations for STI Response data management.
4. Taxonomies: Understand taxonomy management strategy for the STI Response.
5. Electronic Care Reporting (ECR): Reporting STI data to required entities.

iCare STI Community Alerts

- The purpose of a Community Alert is to promote early awareness among healthcare workers of a potential community health issue or problem based on documented RPMS data. Community Alerts are identified during the iCare Nightly Background Job.
- Nightly job finds new cases of HIV, Syphilis, Chlamydia and Gonorrhea by community so that clusters can be identified.
- Patch 4 allows for graphing of alerts over time to identify if there are certain months where there are higher incidences.
- Data is exported to the Department of Epidemiology for upload to their database nightly.

iCare STI Care Management Event Tracking (CMET)

- Track events as pending, tracked and future. Worksheet for specific events includes findings, follow-up, and notifications.
- Nightly job finds new cases of HIV, Syphilis, Chlamydia and Gonorrhea where results can be identified. Positives can be tracked with indicated follow-ups. Patients can be notified.

iCare STI Panel Definitions

- Panel Definitions - The ability to create multiple panels of patients with common characteristics (e.g., age, diagnosis, community, high risk/immunocompromised) allows users to personalize the way they view patient data.
- Panels can be created by appointments, assigned to, registers, diagnoses, medications, lab tests, visits and many other criteria such as note titles, orders, or reminders.
- Care Mgmt Groups by panel can show specific information about HIV and, in Patch 5, a new STI/STD display. In the Prenatal Care Mgmt group, Syphilis indicators have been added to track initial labs, third trimester labs, postpartum labs and if any medications were prescribed.

iCare STI Related Taxonomies

- PXRМ Syphilis Clinical Reminder Taxonomy
- Lab LOINC Taxonomies
- SNOMED subsets
- RXNORM subsets

Example:

```
LABEL: Syphilis, Primary  
TAXONOMY NAME: BKM SYPHILIS DXS  
LOINC TAXONOMY: BQI SYPHILIS TP-AB LOINC   LAB TAXONOMY: BQI SYPHILIS TP-AB TEST TAX  
LOINC TAXONOMY: BQI SYPHILIS REAGIN LOINC  LAB TAXONOMY: BQI SYPHILIS REAGIN TEST TAX  
SNOMED SUBSETS: PXRМ BQI PRIMARY SYPHILIS  CODESET: SNOMED  
SNOMED SUBSETS: RXNO BQI Bicillin (PCN G Benz)  CODESET: RXNORM
```

iCare STI Electronic Case Reporting (ECR)

Electronic Case Reporting: Tracks by diagnosis and/or positive lab
ECR does contain some cases that have not been approved yet for
Community Alerts.

Example:

Hepatitis C is reports as a Community Alert, but Hepatitis E is only identified for Electronic Case Reporting.

```
LABEL: Hepatitis C                                TITLE: Viral hepatitis type C
  CATEGORY: CDC NND
TAXONOMY NAME: BKM HEP C
LOINC TAXONOMY: BQI HEP C NUCLEIC LOINC
LOINC TAXONOMY: BQI HEP C ANTIGEN LOINC
LOINC TAXONOMY: BQI HEP C ANTIBODY LOINC
SNOMED SUBSETS: PXR M BQI HEPATITIS C VIRUS INF  CODESET: SNOMED
```

```
LABEL: Hepatitis E, Viral                          TITLE: Viral hepatitis type E
  ECR CASE?: ECR Only                             CATEGORY: ECR
TAXONOMY NAME: BQI HEP E DXS
LOINC TAXONOMY: BQI HEP E ANTIBODY LOINC
LOINC TAXONOMY: BQI HEP E NUCLEIC ACID LOINC
SNOMED SUBSETS: PXR M BQI HEP E                   CODESET: SNOMED
```

iCare Resources

- IHS RPMS Clinical Applications website: iCare User Manuals [Clinical | Applications \(ihsgov.com\)](https://www.ihsgov.com/clinical-applications)
- IHS RPMS Recording & Material Library: RPMS Applications > iCare Management System (BQI) series [RPMS Recording and Material Library | Training \(ihsgov.com\)](https://www.ihsgov.com/rpms-recording-and-material-library)
- IHS RPMS Training website: iCare Office Hours (held once a month) [Upcoming Classes | Training \(ihsgov.com\)](https://www.ihsgov.com/upcoming-classes)

iCare Federal & GDIT Development Team

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- Kathy Ray, NAO CAC, Acting Statistician
- Melinda Nez, IHS DIT-OIT Nurse Informaticist
- Michael “Mike” Wetzel, Software Engineer
- Mylyn Goya, Project Manager
- Vincent Darius, Software Engineer

Next Steps

CAPT AMY RUBIN

Next Steps

- Assess system and optimize as needed
- Identify the existing local barriers
- Implement targeted interventions
- Continued development of CDS tools
 - Pregnancy Screening
 - Express Testing

Thank you!



