Antenatal screening for syphilis and related care

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KIMBERLEY ABORIGINAL MEDICAL SERVICES

Session outline

Overview of the syphilis outbreak

Syphilis testing

Syphilis staging

Syphilis treatment and follow-up

Congenital syphilis natural history and presentation

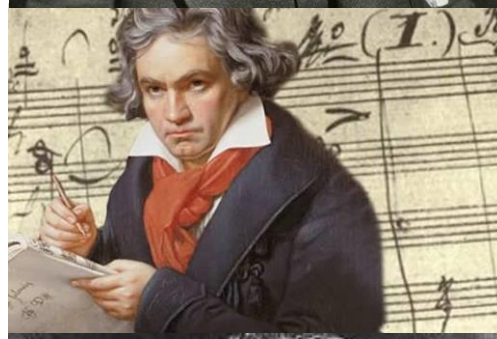
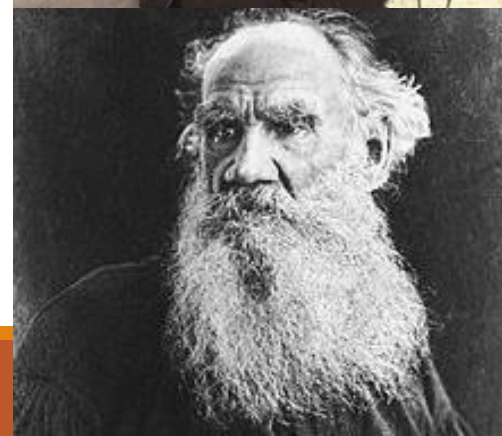
Strategies to prevent congenital syphilis

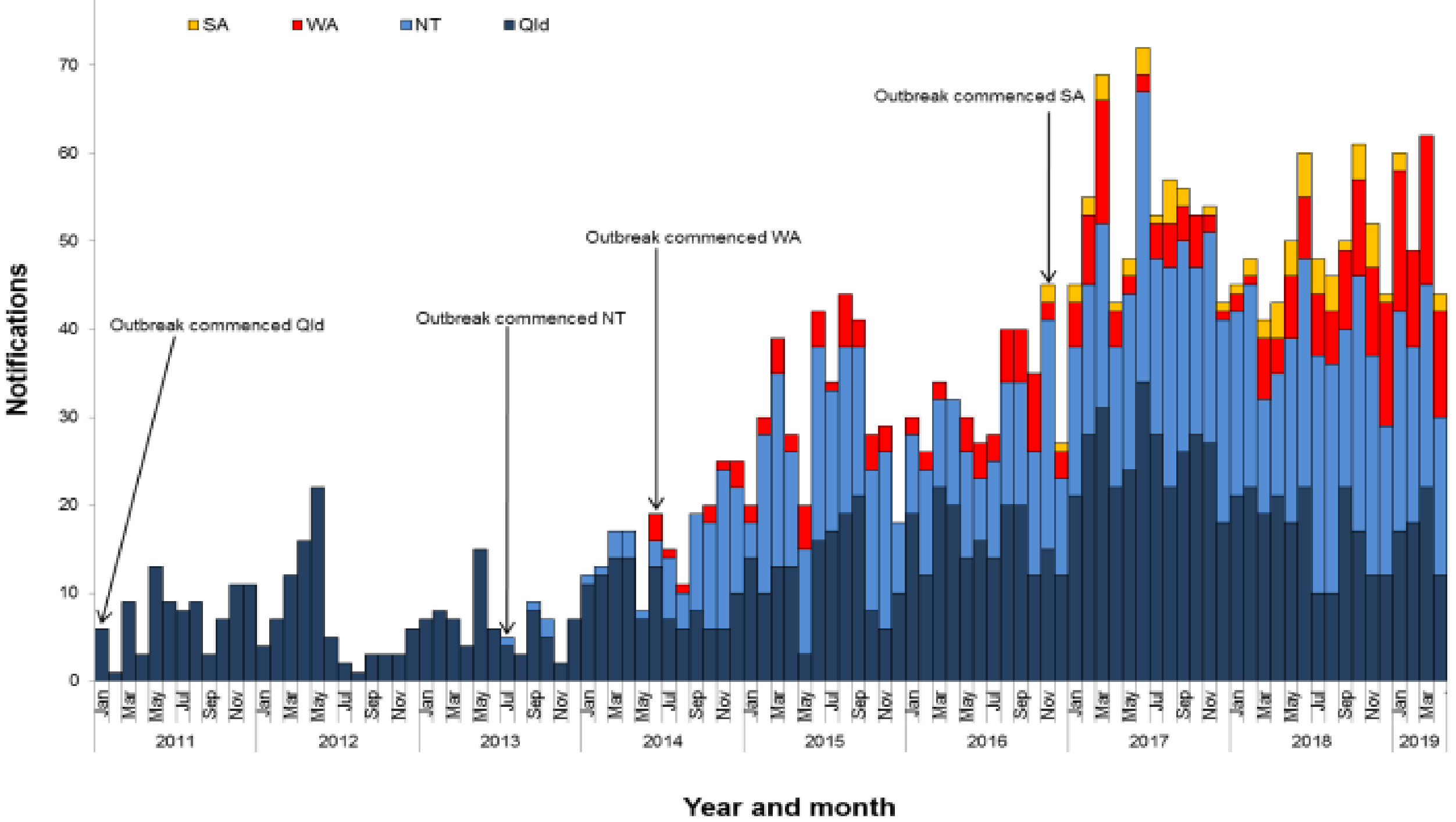
Syphilis

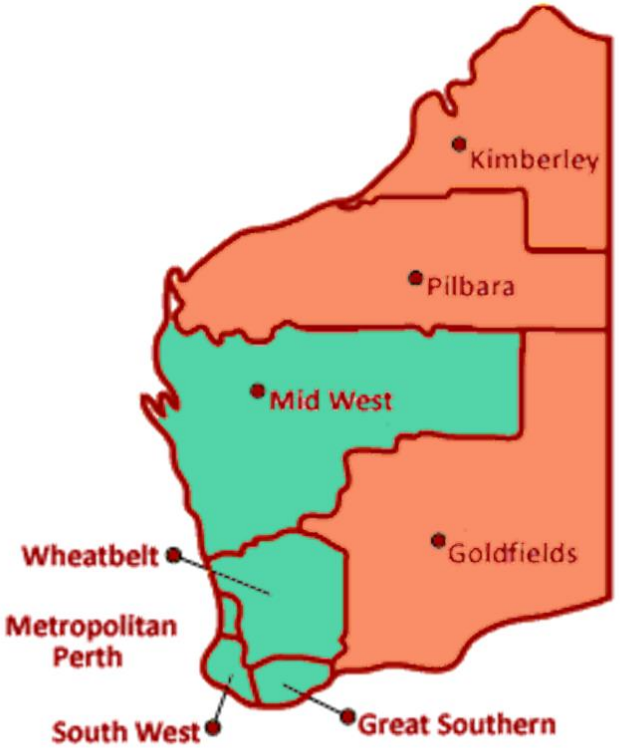
- Late 15th Century: Sailed to Europe with Christopher Columbus
- 17th Century: Mercury used as standard treatment
- 18th Century: Natural history first described
- 1900's: Treponema pallidum identified and test developed
- 1940's: Penicillin available as a treatment

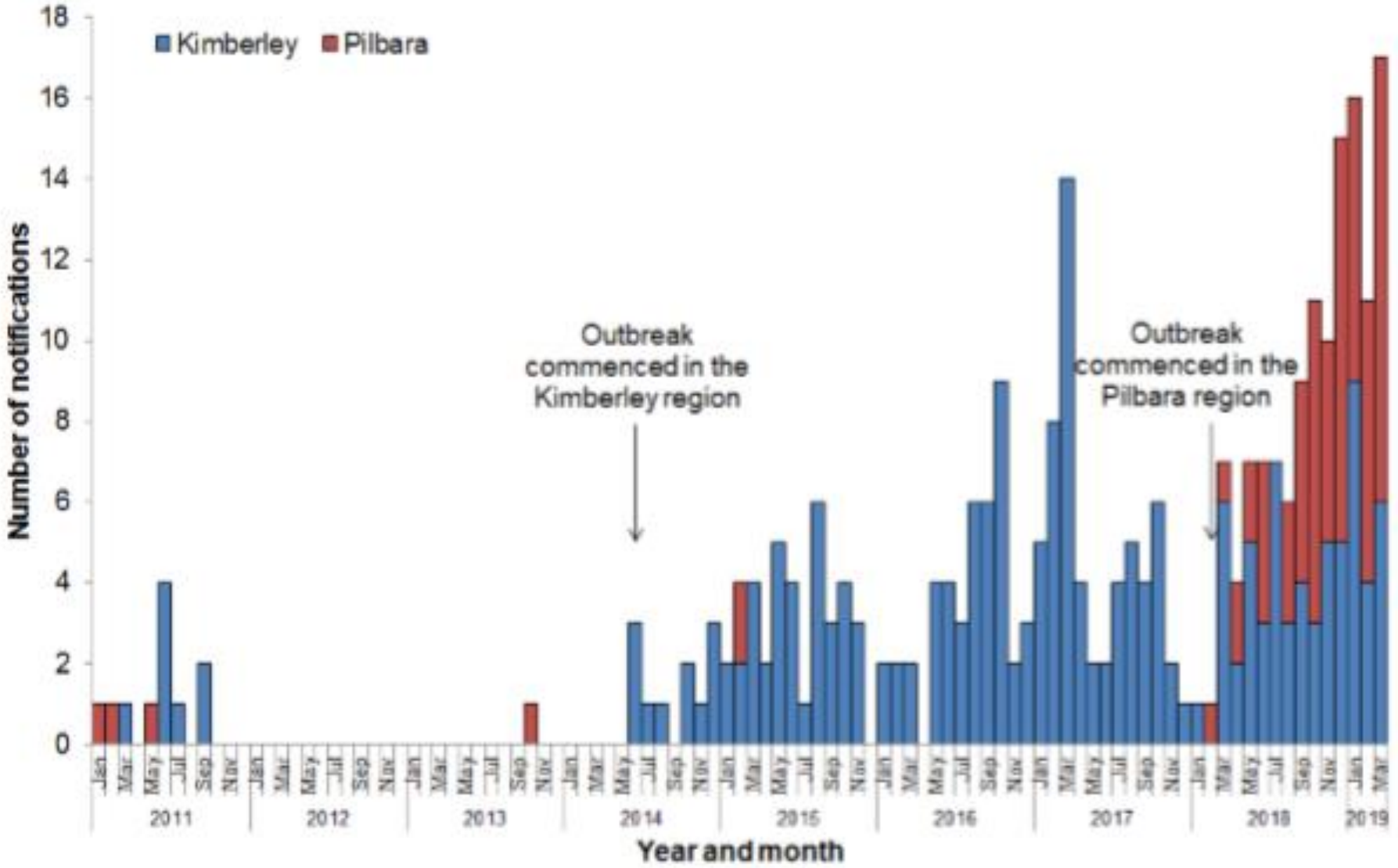
- Bacteria – spirochaetes – very difficult to grow in vitro (first achieved last year!)




SA
WA
NT
Qld
Notifications
0
10
20
30
40
50
60
70
Outbreak commenced Qld
Outbreak commenced NT
Outbreak commenced WA
Outbreak commenced SA
Jan
Mar
May
Jul
Sep
Nov
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year and month


Kimberley
Pilbara
Mid West
Goldfields
Wheatbelt
Metropolitan Perth
South West
Great Southern


Kimberley
Pilbara
Number of notifications
0
2
4
6
8
10
12
14
16
18
Outbreak commenced in the Kimberley region
Outbreak commenced in the Pilbara region
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year and month

Who to test

Asymptomatic screening of high risk / priority groups:

- Target age groups (15 – 30 years: 6 monthly, 30 – 40 years: 12 monthly)
- Pregnant women

Testing of those with symptoms (primary, secondary)

Testing of named contacts

Testing of those who have been diagnosed with another STI

MUST RETEST AT TIME OF TREATMENT

Syphilis tests

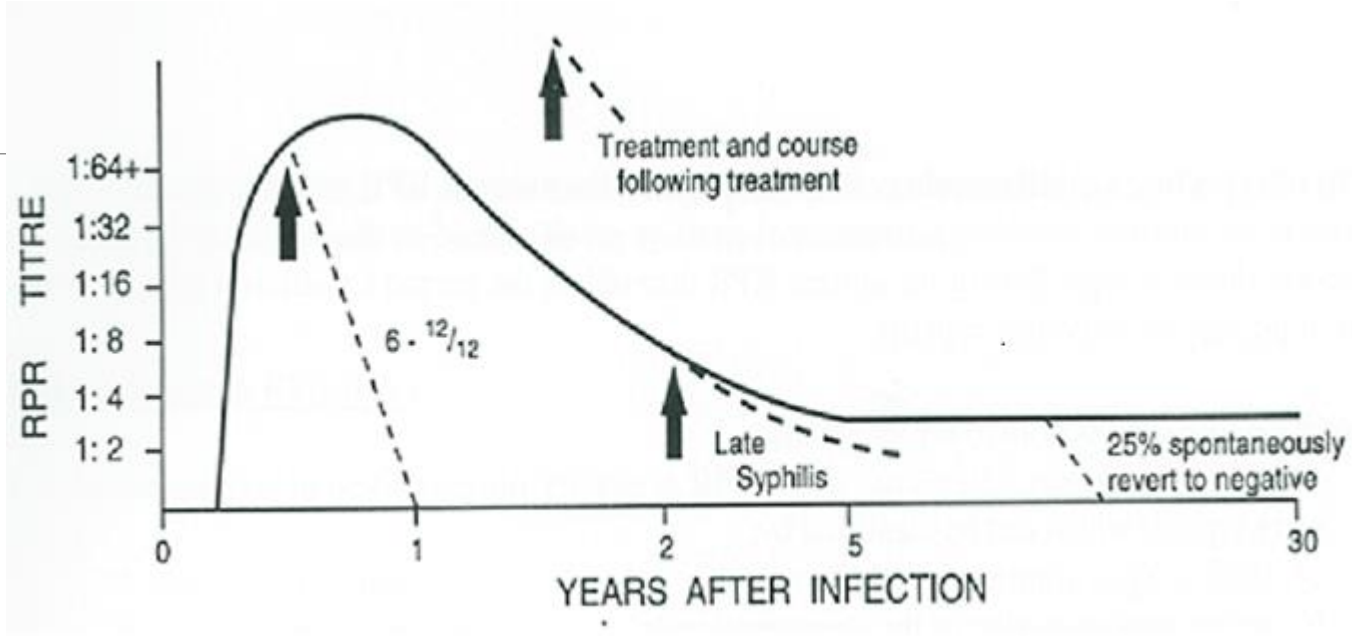
Specific tests: TPTA / TPPA:

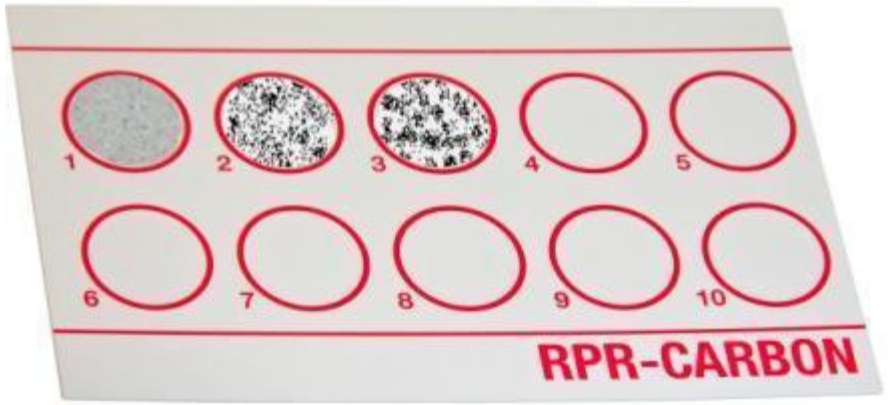
- Neg = no previous syphilis infection
- Pos = previous syphilis infection – could be treated / untreated
- Automated

Non-specific test: RPR:

- Titre = indication of syphilis activity IF specific test is positive
- High = acute infection
- Low = adequate treatment or long interval since infection
- Manual

PCR tests of clinical lesions (swabs, biopsies) or CSF





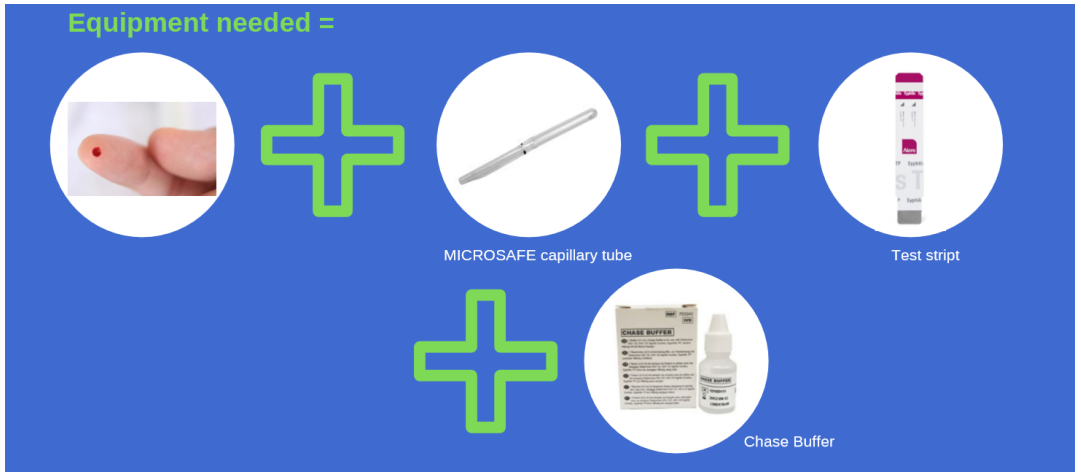
Point of care testing

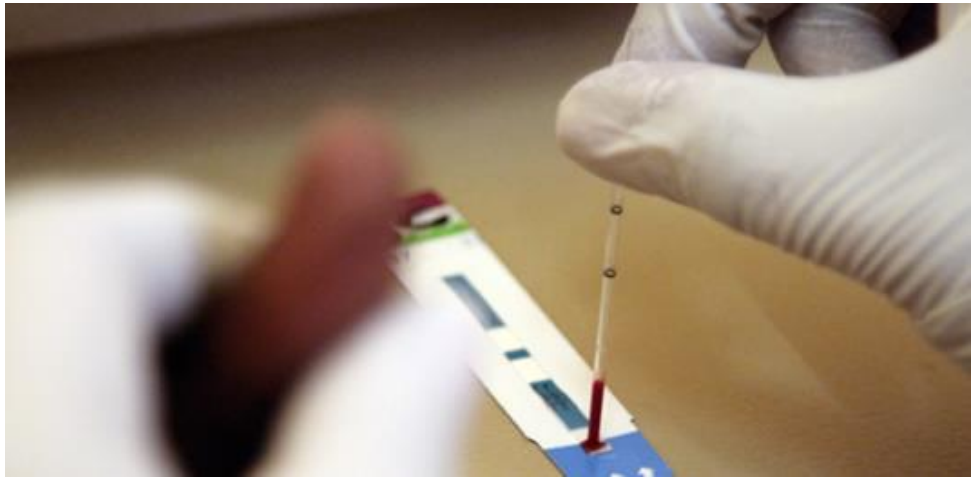
Enhanced response program

ONLY detects specific AB

Can’t distinguish between treated and untreated

Aim is to reduce time to treatment





Routine syphilis testing in antenatal care

NON-OUTBREAK AREA

Test at first antenatal visit

<u>Then assess risk:</u>

STI in current pregnancy or last 12 months

Previous infectious syphilis in pregnancy

IVDU during pregnancy

Comes from high prevalence country

Has partner who: is a man who has sex with men, or who has the risk factors above

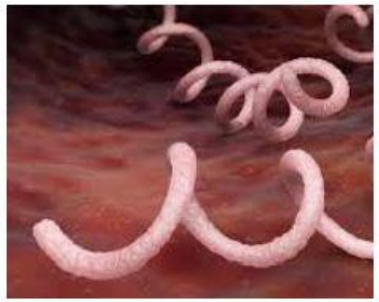
Consider offering increased testing

OUTBREAK AREA

Test at:

- First antenatal visit
- 28 weeks
- 36 weeks
- Delivery
- 6 weeks post-partum

Timeline of untreated SYPHILIS



Considered non-infectious sexually after 2 years but still infectious mother to baby

Infectious Syphilis

Non-Infectious Syphilis

Incubation 9-90 days

Primary Syphilis

Secondary Syphilis

Early latent Syphilis

2 YEARS

Late latent Syphilis

Tertiary Syphilis

UP TO 35 YEARS

Symptoms and signs

Symptoms and signs

	Time period	Signs / symptoms	Implications
Incubation	9 – 90 days *Typically 2 – 3 weeks*	Nil	
Primary	4 – 6 weeks duration	<u>Local symptoms:</u> Inoculation site (chancre) + / - regional lymphadenopathy *(Usually described painless and indurated, but consider **any ulcer** as possible syphilis)*	<u>Infectious syphilis</u> Initial rx: 1 x LAB Contact trace: 3/12
Secondary	3 – 12 weeks duration may overlap with primary may be relapsing	<u>Systemic symptoms:</u> Flu-like, pharyngitis, generalised lymphadenopathy, fatigue Rash *Usually papulosquamous, symmetrical, face, flexures, genitals, palms and soles of feet and non-pruritic but can present with **any morphology*** Condylomata lata, patchy alopecia Ocular and neurological symptoms (meningitis, cranial neuropathy)*	<u>Infectious syphilis</u> Initial rx: 1 x LAB Contact trace: 6/12
Early latent	< 2 years post infection	Nil	<u>Infectious syphilis</u> Initial rx: 1 x LAB Contact trace: 12/12
Late latent	> 2 years post infection	Nil or <u>tertiary syphilis</u> (CVS, CNS*, gummatous lesions in bone and soft tissues).	<u>Non-infectious syphilis</u> Initial rx: 3 x LAB

Neurosyphilis may occur at any stage and requires specific treatment.

Treat

- Benzathine penicillin 1.8g (2.4 million units)
  - **TWICE dose for RHD prophylaxis**
- Three doses unless:
  - Baseline serology confirms duration < 2 years
  - Symptoms of primary or secondary syphilis documented
- If three doses:
  - Given a week apart
  - If missed for more than two weeks, must restart
  - Single injection = repeat dose with full 1.8g
- Other regimes are available but are less effective, consult a specialist
- In pregnancy, consult a specialist

Follow-up

Of the case:

- Retest at 3, 6 and 12 months, by the same laboratory to allow testing in parallel
- Looking for four-fold drop in titre (e.g. 1:64 down to 1:16) at 6 months
- Ensure full STI screen has been completed
- Infectious cases are non-infectious by 5 days

Follow-up

Contact tracing:

- Resources exist to support what can be a difficult task – prioritise rapport, allow sufficient time, do not assume number or gender of partners
- Up to 12 months back depending on stage
- Test and treat contacts of infectious syphilis at the first review
- If no positive contact is found or two cases name only each other, cases may need to be reinterviewed

Treatment does not prevent reinfection!

Congenital syphilis: Natural history

Frequency of vertical transmission is greatest with PRIMARY / SECONDARY infection (highest infectious dose) LATER in pregnancy

However:

- Severity of foetal infection decreases with gestational age
- Transmission may occur even in late latent if untreated

In the pre-antibiotic era, most pregnancies affected by infectious syphilis resulted in congenital syphilis or stillbirth

Most common congenital infection worldwide

Early congenital syphilis

Intrauterine growth restriction, premature birth, stillbirth, neonatal death, failure to thrive

Hepatosplenomegaly, jaundice, lymphadenopathy

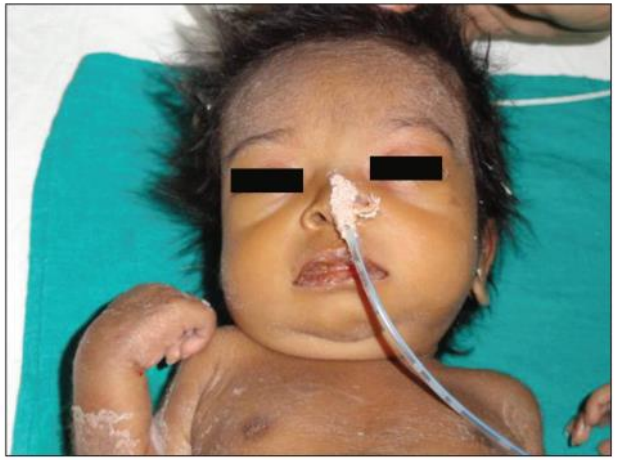
Rhinitis (severe / persistent, white / may be bloody from ulceration)

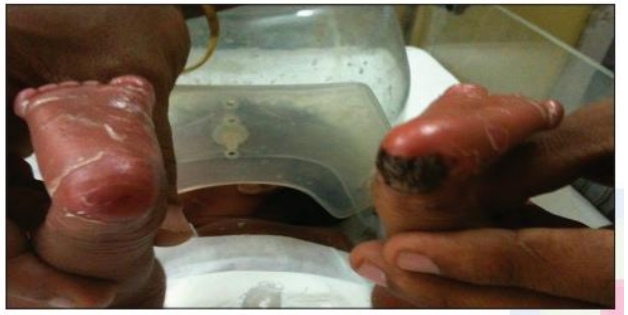
Maculopapular rash + / - bullae (peeling)

Skeletal abnormalities

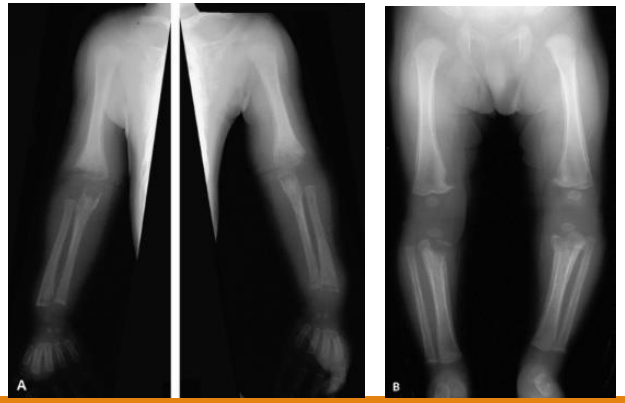
Ocular and neurological (cataracts, chorioretinitis, nerve palsies, seizures)

Nasal discharge and fluid from bullae are highly contagious





Angoori G, Observance of Kassowitz law-late congenital syphilis: Early congenital syphilis, Indian Journal of Paediatric Dermatology 2015



www.isradiology.com, The imaging of tropical diseases.

Late congenital syphilis

Characteristic deformities:

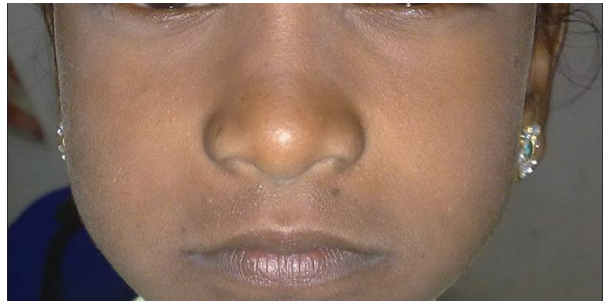
- Facial features – frontal bossing, saddle nose
- Hutchinson teeth, Mulberry molars
- Bowing of the shins

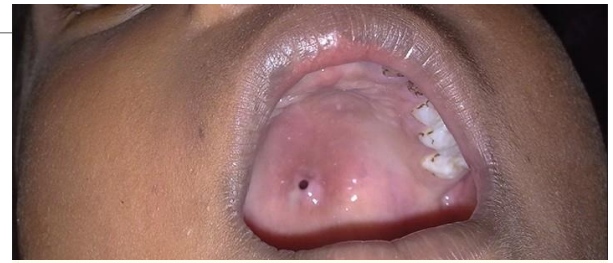
Ocular, auditory, neurological deficits

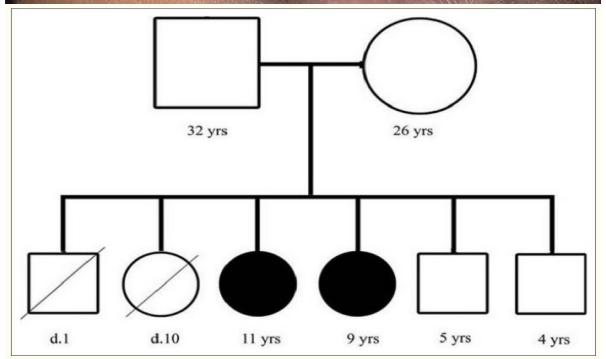
Intellectual disability

Children with late congenital syphilis are

not infective







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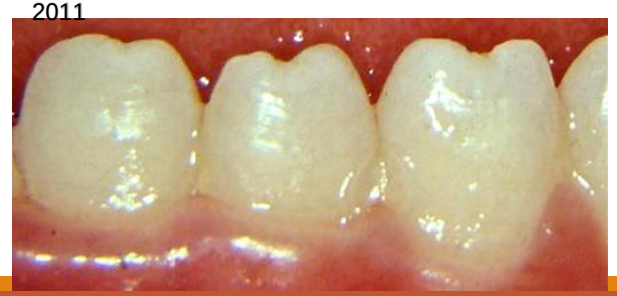
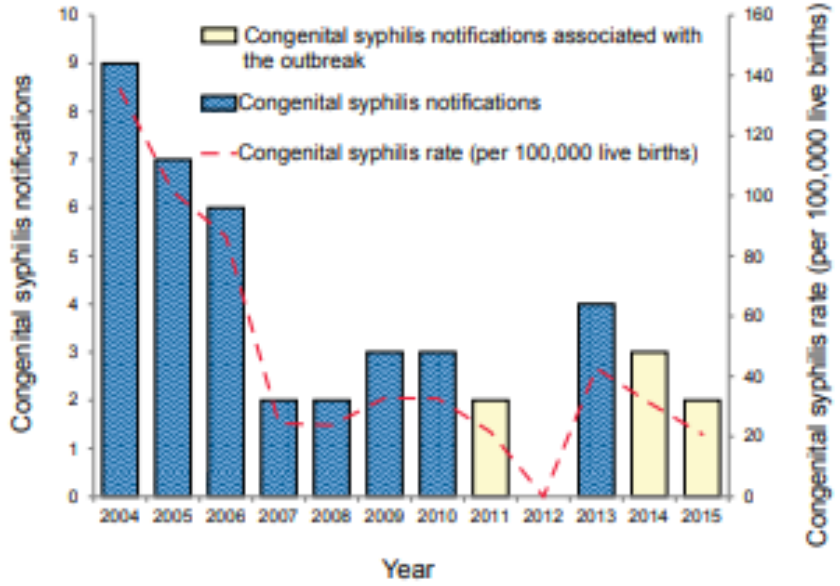


Pessoa et al, Clinical aspects of congenital syphilis with Hutchinson's triad, BMJ Case Reports 2011

Congenital syphilis in Australia

Figure 2: Number of congenital syphilis notifications and notification rate per 100,000 live births, in Aboriginal and Torres Strait Islanders people, Western Australia, the Northern Territory and Queensland, 2004 to 2015



Public health emergency

<u>Australia: outbreak cases:</u>

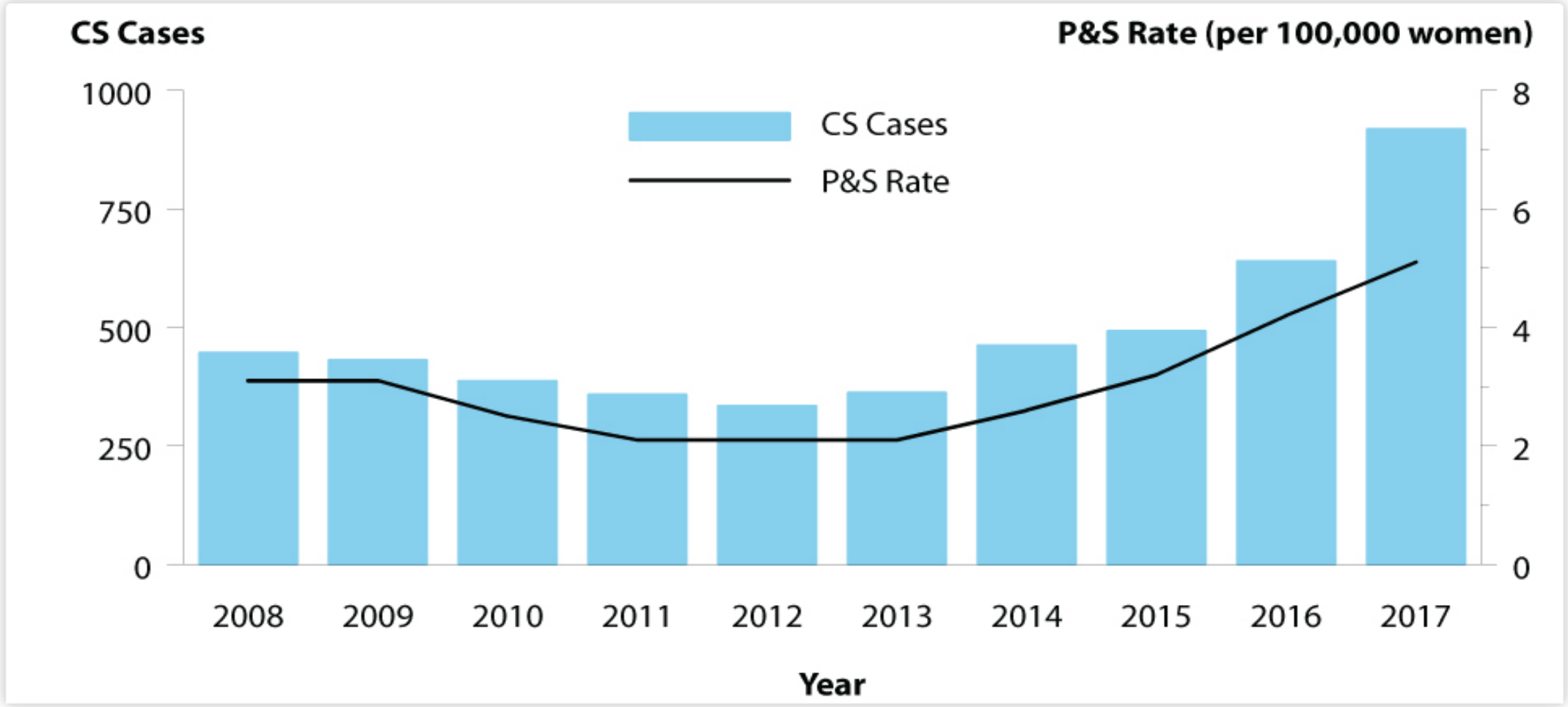
15 cases total from 2011 – 2018 (first seven years of outbreak) i.e. average ~ 2 cases a year.

<u>Western Australia:</u>

1991 – 2009: six cases in WA, two acquired overseas

Current outbreak: one case

Timely penicillin is very effective at preventing congenital syphilis.



ACRONYMS: CS = Congenital syphilis; P&S = Primary and secondary syphilis.

[Congenital syphilis – Reported cases by Year of Birth and Rates of Reported Cases of Primary and Secondary Syphilis Among Women Aged 15-44 Years, United States, 2009 – 2017
https://www.cdc.gov/std/stats17/figures/49.htm]

Strategies to prevent congenital syphilis

Reduce background rate of infection

- Rate of testing in target groups
- Rate of testing in people who test positive for other STI (100%)
- Time to treatment < two weeks (80%)
- Symptomatic cases treated at first presentation (80%)
- Cases follow-up up with serology at 3 – 6 months (80%)
- Contacts tested and treated at first presentation, and within a month of being named (80%)

Screen and treat pregnant women

Engage women in antenatal care

Test as per local guidelines

Test and treat partners

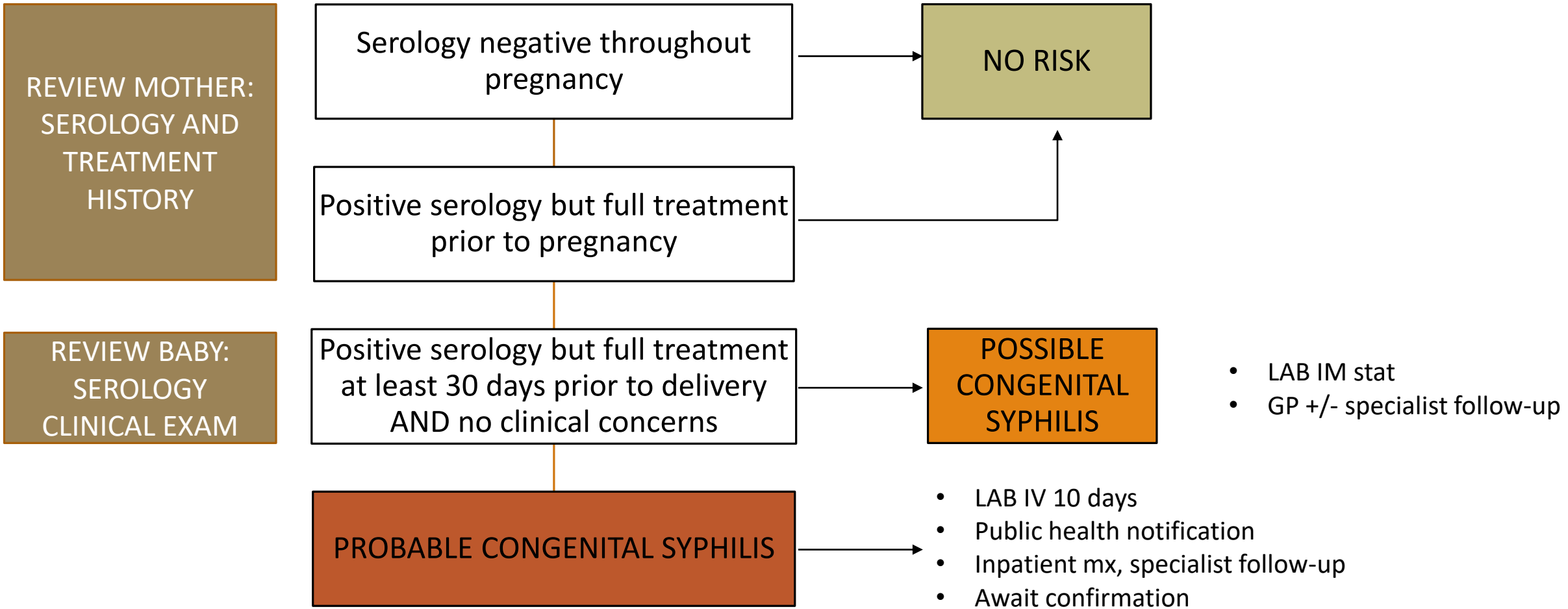
Test additionally if risk increases

(e.g. diagnosed with other STI, partner change, partner has partner change)

Good clinical handover between service providers

https://youtu.be/U_AxOB6T2zk

Identify high risk neonates and treat

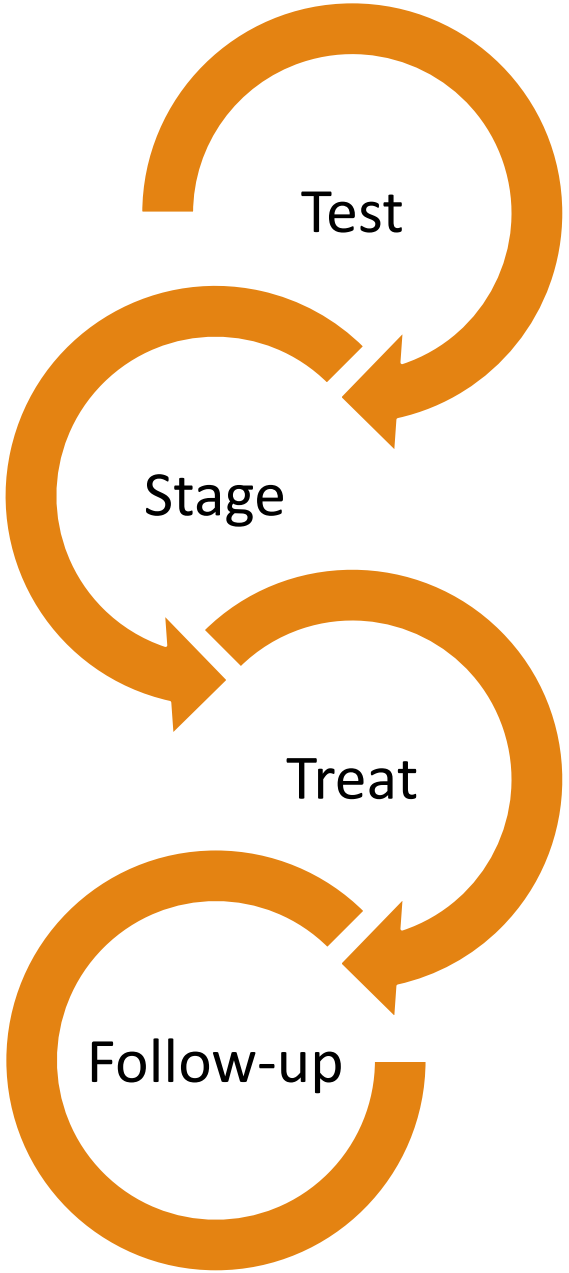


https://static1.squarespace.com/static/5b5fbd5b9772ae6ed988525c/t/5ca5b8a1c8302509fba43e59/1554364579595/KAHPF_protocols_Syphilis.pdf

Summary

- Primary
- Secondary
- Latent (early, late)

- Confirm serological response
- Identify reinfection



- Asymptomatic screening of high risk / priority groups
- Testing of symptomatic individuals

- LAB
- Promptly
- Adequate to stage
- Contact tracing

Testing and staging

PITFALLS

No baseline serology to compare a new positive result to

Symptoms of infectious syphilis not documented, therefore patients need three instead of one doses

Atypical symptoms missed (e.g. skin lesions)

Contacts tested early in window period (3 weeks), false negative serology

SOLUTIONS

Achieve good coverage of testing in target group

Look for and document symptoms

Low threshold for testing with suggestive symptoms

- Including PCR swab of any possible lesions (genital ulcer multiplex)

Remember mouth + / - anus for chancres

If known exposure and result negative re-test at 4 weeks

Treatment and follow-up

PITFALLS

900mg given instead of 1.8g

Pain at needle site with injection

Not retested at time of treatment, therefore can't prove treatment was effective

Patient tests positive and then proves hard to track down

SOLUTIONS

Consider reminders in pharmacy near LAB storage

Reduce pain as much as possible by using lignocaine, warming syringe to room temperature, apply pressure for 10 seconds, administer slowly

Ensure re-testing day of treatment (extra venesection better than extra 3x LAB!)

Treat immediately if symptoms of infectious syphilis OR named contact

Resources

Silver book: https://ww2.health.wa.gov.au/Silver-book

Young deadly free: https://youngdeadlyfree.org.au/

National pregnancy care guidelines: https://beta.health.gov.au/resources/pregnancy-care-guidelines

Your local public health unit!

Syphilis outbreak control attempts a 'total failure' says Australian Medical Association

ABC Radio Darwin By Robert Baird

Updated 8 Jan 2019, 11:29am

Attempts to reduce the spread of a disease that can kill newborn children have been labelled a "total failure" by an expert medical group.

Federal health data shows 896 Indigenous men and women have been infected with syphilis, a sexually transmitted infection, since it spread from north Queensland in 2013, now reaching three states and the Northern Territory.

That includes around 30 new cases in the NT per month — a far higher rate than in other jurisdictions.

Australian Medical Association NT president Robert Parker said the national problem had been met with a lack of federal leadership.

"There's a total failure of the Federal Government to actually control the situation currently," Dr

PHOTO: The syphilis outbreak has reached three states and the Northern Territory. (AAP)

RELATED STORY: 'Massive' syphilis outbreak in NT

RELATED STORY: A disease that once sent kings mad is now killing babies in Queensland

RELATED STORY: Sixth infant dies from congenital syphilis amid outbreak in northern Queensland

Key points: