MANAGEMENT OF A NEWBORN INFANT FOLLOWING THE MOTHER BEING TREATED FOR INFECTIOUS SYPHILIS SIX DAYS EARLIER

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DISCLOSURE

- NIL

Government of **Western Australia**
WA Country Health Service

THE PILBARA

PILBARA COVERS AN AREA OF 507,896 SQKM, WITH A POPULATION OF MORE THAN 45,000

SYPHILIS IN THE PILBARA

- Outbreak commenced in Pilbara 2018
- 1st case late February 2018

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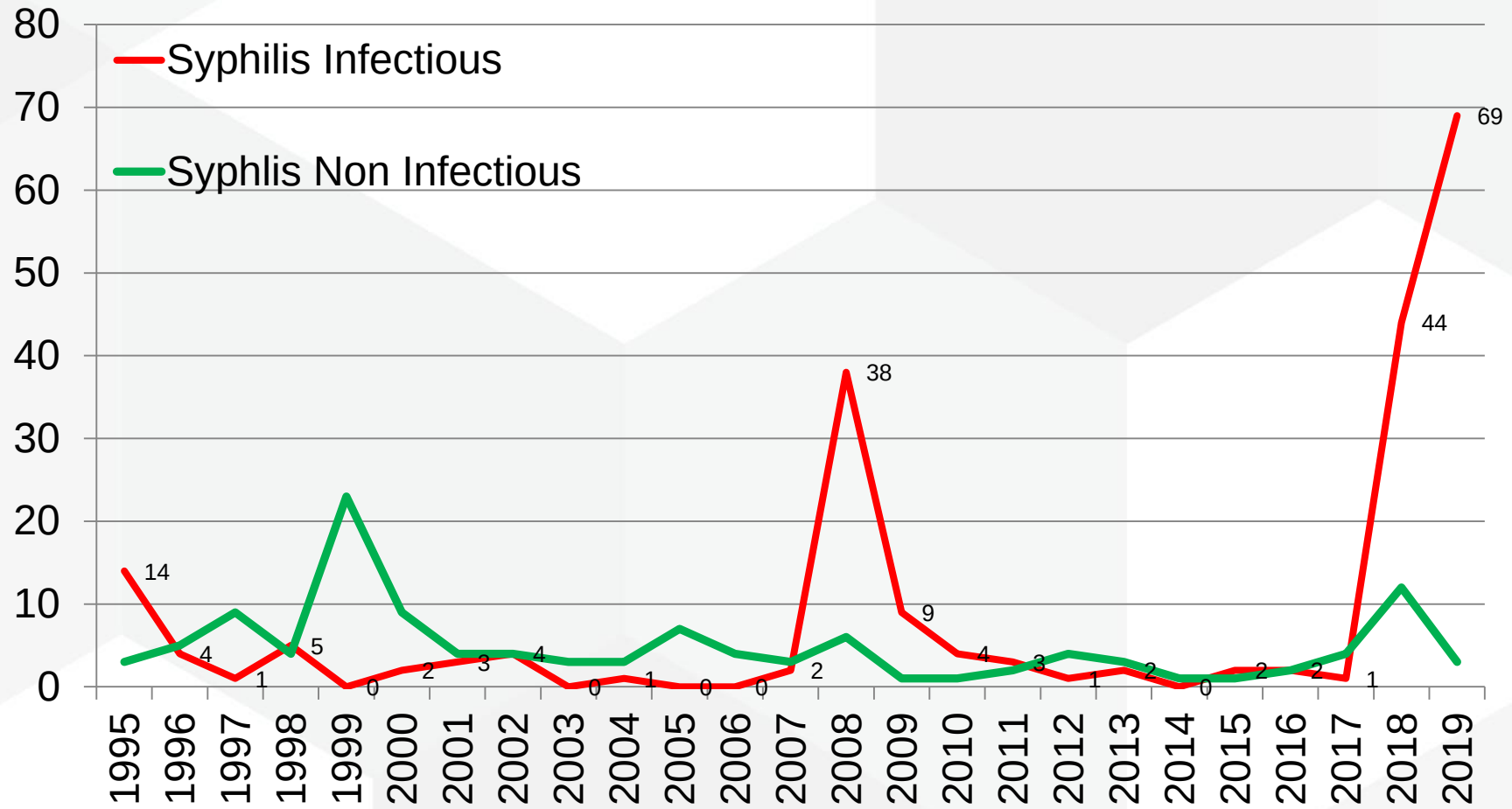
- Outbreak commenced in Pilbara 2018
- 1st case late February 2018
- 5 cases detected in pregnancy since September 2018

Government of Western Australia
WA Country Health Service

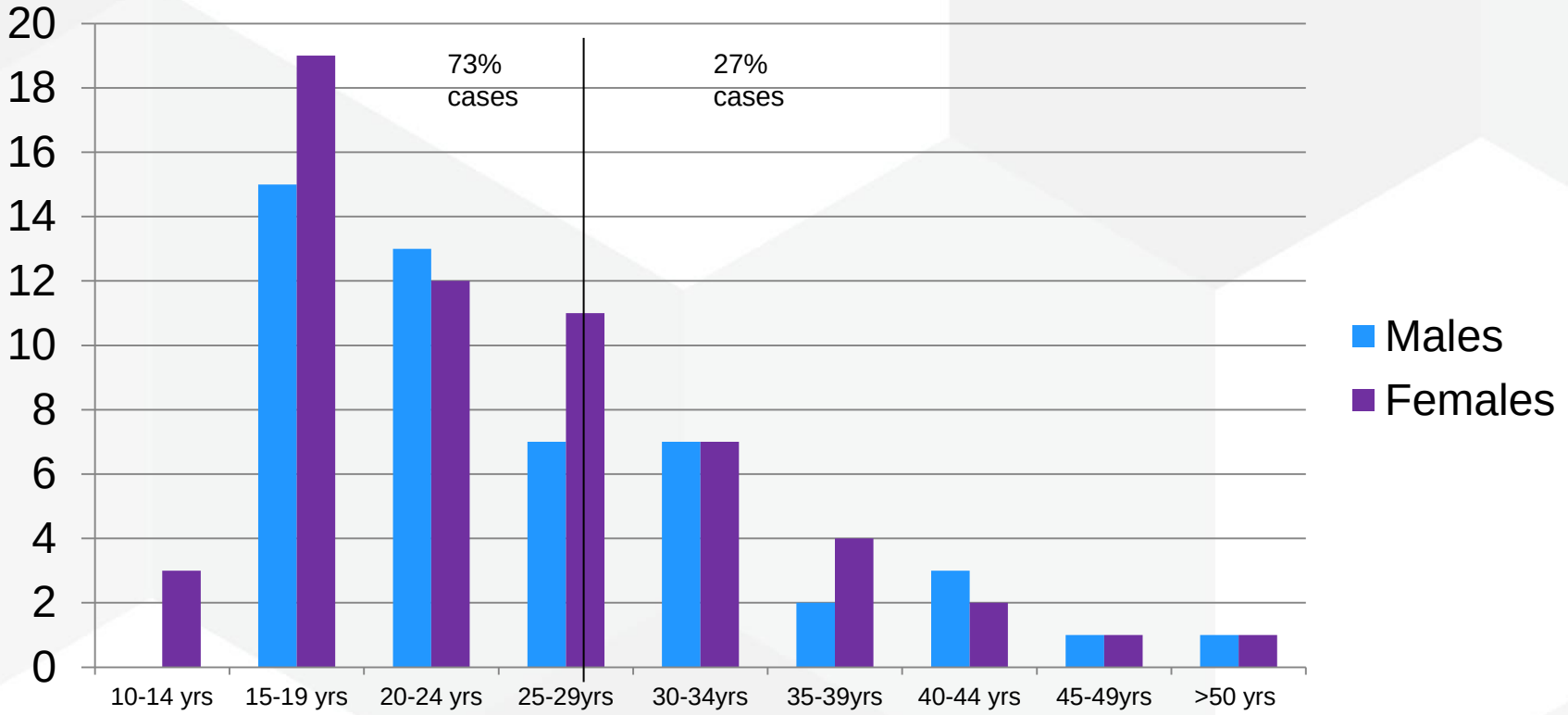
PILBARA

SYPHILIS IN PILBARA – INFECTIOUS AND NON INFECTIOUS 1995- AUG 2019



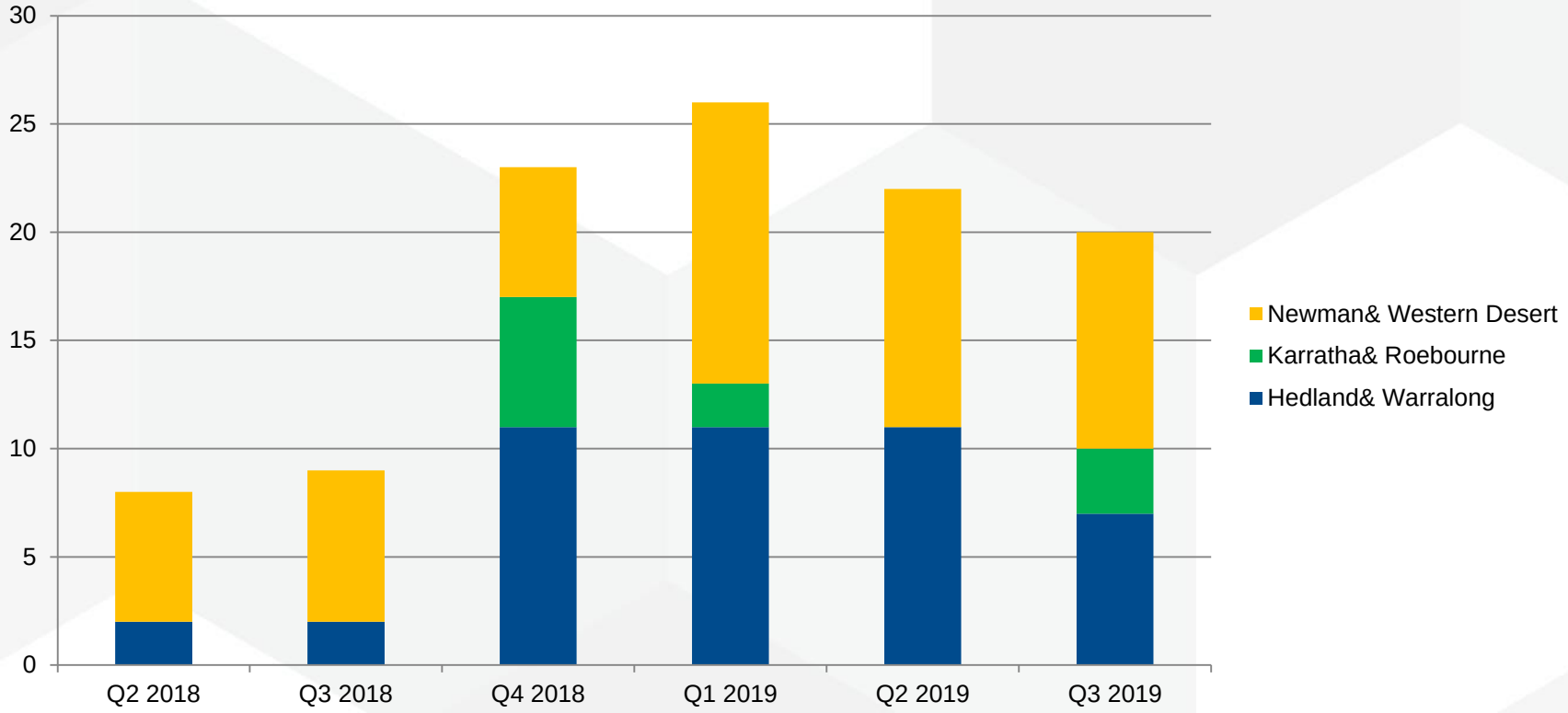
AGES AND GENDER

(109 CASES OF SYPHILIS OUTBREAK PILBARA – 28 AUG 2019)



PILBARA SYPHILIS EPICURVE BY RESIDENCE

(TO 28TH AUGUST 2019 – HALFWAY THROUGH Q3)



MOTHER F

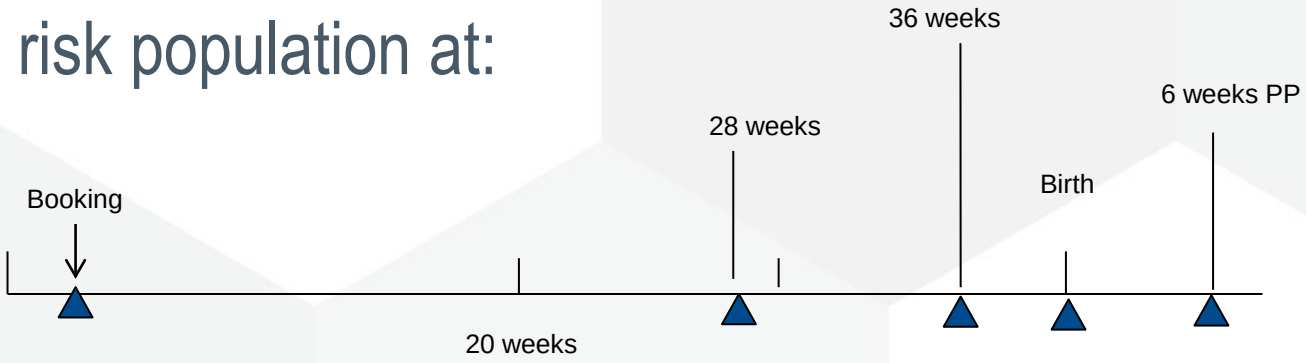
- 20yr old woman –remote Pilbara community
- Tested at 8/40, 11/40, 26/40 – all negative tests
- Chlamydia and Gonorrhoea positive –26/40 weeks
- Significant issues getting attendance at ANC
- Multiple DNA of appointments between Hedland and remote Pilbara nursing post
- **Positive test 35/40 RPR=128 TPPA - Detected**
- Mother treated with 1.8g Benzathine Penicillin 36/40 weeks (1 week later)
- Baby delivered early at 37/40 (**4 days after Rx**)

MOTHER F

- Repeat Serology taken 3/7 after birth
- RPR 128
- Given Repeat Benzathine Penicillin 1.8g after birth
- Repeat Serology 7 weeks post-partum
- RPR 16

WA ANTENATAL SCREENING GUIDELINES

- Screen high risk population at:
- Booking
- 28 weeks
- 36 weeks
- Birth
- 6 weeks post –partum
- IN PILBARA – NATURAL DELAY WITH RESULTS DUE TO TESTING OCURRING IN PERTH
- ESP. REMOTE AREAS



WA ANTENATAL SCREENING GUIDELINES

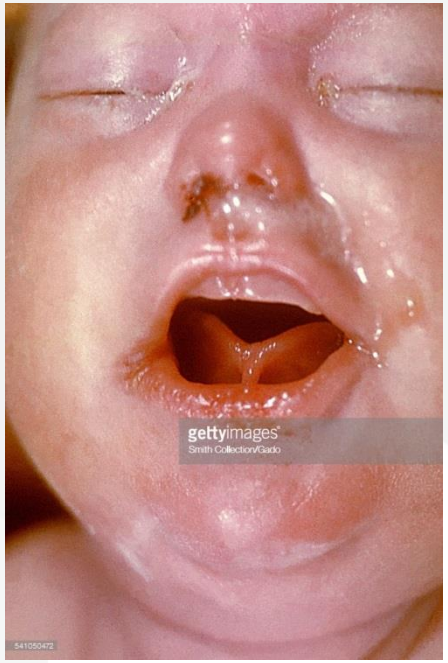
- This patient screened:
- Booking
- 11 Weeks
- 26 weeks
- 35 weeks – Fortuitously
- If Guidelines followed and screen at 36 weeks – may not have had result at time of birth
- Delivered 37 weeks

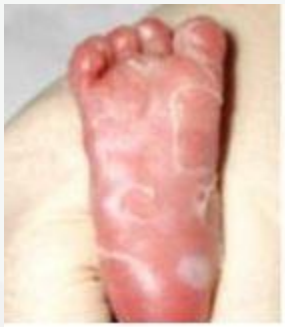
BABY F

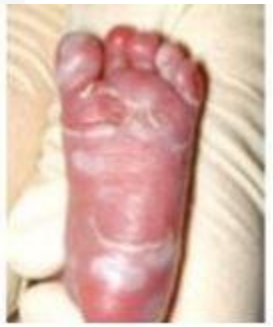
- Born 37+2/40 late at night
- Apgar Scores 9 at 1 minute, 9 at 5 minutes
- Birth weight 2560g (25th centile)
- Birth length 48cm (50th centile)
- Head Circumference 33cm (50th centile)
- Cord RPR taken
- Paediatric team notified – review next morning

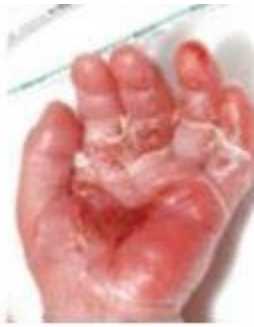
BABY F

- Initial examination
  - Alert
  - No rash
  - No snuffles
  - No macerated hands or feet
  - No lymphadenopathy
  - No hepatosplenomegaly
  - General examination unremarkable









BABY F INITIAL MANAGEMENT

- Initially managed according to KEMH Protocol :
  - Infant serology (IgM, RPR) run in parallel with maternal serum specimen.
  - Full clinical examination: rash, mucosal lesions, nasal discharge, hepatosplenomegaly, bony tenderness, eye lesions.
  - Placental histopathology plus syphilis PCR.
  - Treat if serology is abnormal, examination is abnormal or placental investigations suggestive of syphilis.

BABY F PROGRESS

- Discussed with PCH Infectious Disease Team
- Use NT Protocol
- High Risk Infant
- 10/7 IV Benzylpenicillin 50mg/kg bd

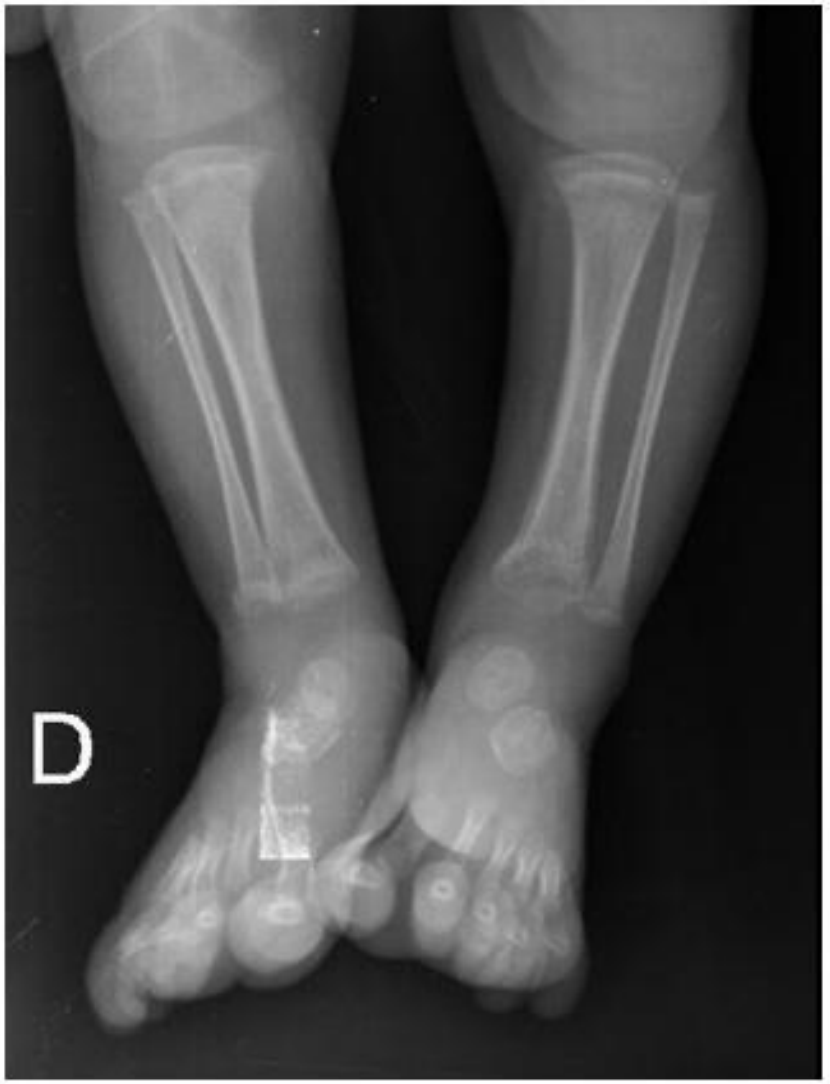
BABY F INITIAL MANAGEMENT

- Infant RPR – 16
- Parallel Maternal RPR - 128
- Infant Treponema Pallidum Total Ab – Detected
- Infant TPPA Detected 3+
- Infant T Pallidum IgM NEG (often neg)
- Infant - FBP - NAD
- Placenta histopathology and PCR - requested

BABY F PROGRESS

- LFT NAD

- XR Long bones
  - No periostitis
  - No metaphyseal lucencies



Gameiro V, Labronici P, Rosa I, Silva J. Congenital syphilis with bone lesion: case report. Revista Brasileira de Ortopedia (English Edition) [Internet]. 2017;52(6):740-742. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-36162017000600740

BABY F PROGRESS

- Nose swab PCR – T Pallidum NEG
- CSF
  - Bloody tap
  - RBC 4640
  - WBC <1
  - **Protein 2.1g/L (0.3-1.1)**
  - T Pallidum PCR NAD
  - **T Pallidum Total Ab Detected**
  - VDRL NEG (often neg in early neurosyphilis)
  - **Thought C/W Neuropenetration despite blood staining**

BABY F PROGRESS

- 10/7 IV Penicillin completed
- At time of Discharge
  - Placental Histopathology – NAD
  - **Placental T Pallidum PCR - DETECTED**

BABY F PROGRESS

- 10/7 IV Penicillin completed
- At time of Discharge
  - Placental Histopathology – NAD
  - **Placental T Pallidum PCR – DETECTED**
- CDNA Criteria
  - Maternal and Child Seropositive
  - Detection of T Pallidum in Placenta
- **CONFIRMED CASE CONGENITAL SYPHILIS**

CDNA Congenital Syphilis Case Definition	Fulfil criterium?	Baby	Mum
Confirmed case - requires at least two of the following types of **laboratory definitive** evidence	**Yes?**		
Laboratory definitive evidence			
Mother and child both seropositive by a treponemal specific test[2]	Yes	TPPA 3+	TPPA 3+
AND one or more of the following :			
Direct demonstration of *Treponema pallidum* by any of the following: nucleic acid amplification (NAA) test, dark field microscopy, fluorescent antibody or silver stain - in specimens from lesions, nasal discharge, **placenta,** umbilical cord, cerebrospinal fluid (CSF), amniotic fluid or autopsy material	YES ?	CSF PCR NEG	Placenta PCR POS
OR			
Detection of *Treponema pallidum* specific IgM in the child	No	NEG	
OR			
The child's serum non-treponemal[3] serology titre at birth is at least fourfold greater than the mother's titre.	No	RPR 16 (serum) 1/4/2019	RPR 128 (3/4/2019)
Probable case - requires **laboratory suggestive** evidence AND **clinical** evidence.			
Laboratory suggestive evidence			
Direct demonstration of *Treponema pallidum* as described under laboratory definitive evidence (above), but without serological confirmation in the child.	No	NEG	
OR			
Child seropositive on non-treponemal testing in the absence of IgM testing	No	Had IgM - NEG	
OR			
A reactive CSF non-treponemal test (VDRL or RPR) in a child.	No	NEG	
OR			
A child who remains seropositive by a treponemal specific test at 15 months of age, which is confirmed either by another, different reactive treponemal specific test or a reactive non-treponemal test, in the absence of post-natal exposure to *Treponema pallidum* , including the non-venereal subspecies *Treponema pallidum* subsp. *pertenue* (Yaws) or subsp. *endemicum* (Bejel, endemic syphilis).	N/A until 15 months old		
Clinical evidence			
1. Any evidence of congenital syphilis on physical examination	No	NAD	
OR			
2. Any evidence of congenital syphilis on radiographs of long bones	?	?	
OR			
3. An elevated CSF cell count or protein (without other cause)	?	?	
OR			
4. The mother is seropositive in the perinatal period AND has no documented evidence of adequate treatment[4].	Yes	Inadequate Rx - 4 days prior to delivery	

BABY F FOLLOW UP

- Presented at 4 weeks of age
  - Fever and conjunctivitis
  - Repeat CSF
    - Protein 1.21g/L
      - Still elevated
      - ? Due to syphilitic penetration
      - No syphilis serology on CSF as not purpose of sample
- Rpt Serology at 3/12
  - NT Guidelines
  - RPR NEG
- Will receive developmental follow up at 12 months if possible

ISSUES

- Fitted with screening times (more by chance than complying with appointments)
- Detected at 35 weeks. Delivered at 37 weeks.

- **36 weeks test vital** –testing often not done at time of delivery
  - If delay in processing sample that occurs in Pilbara case may have been detected after birth **or not at all**
  - Potentially found in mum after discharge of her and baby to community
  - Potential for missing of case or significant delay in treatment
  - In this case that could have been devastating

ISSUES

- Cord Blood taken for initial RPR
  - Cord Blood not suitable for RPR measurement
  - May be contaminated with maternal blood

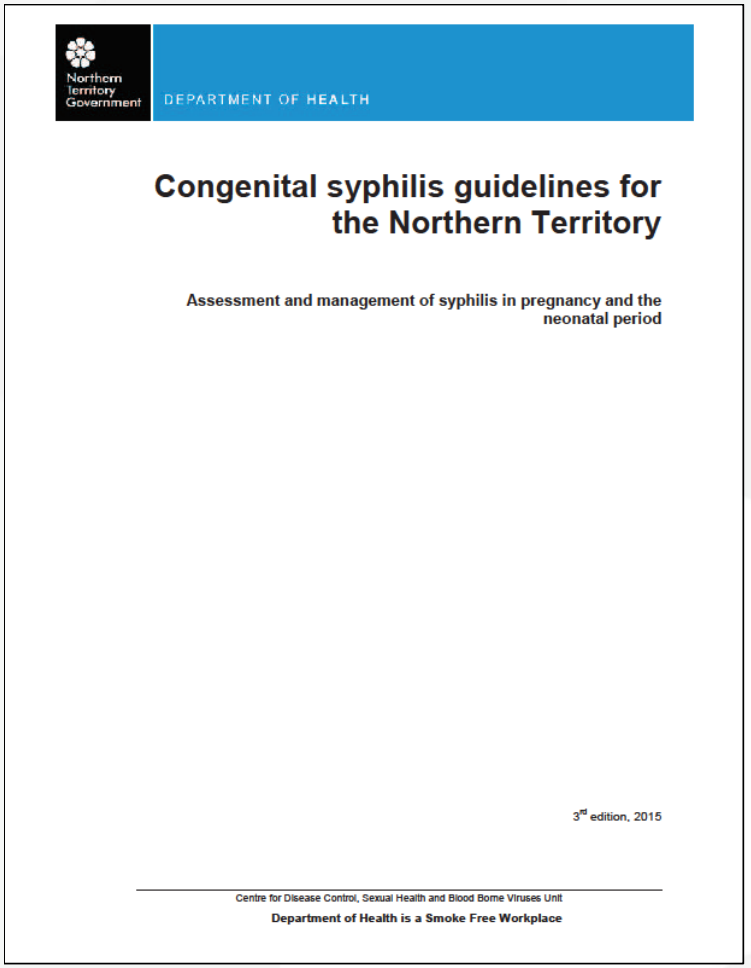
- Initial Maternal Blood not paired with Infant Sample
  - Required re-bleeding of mother
  - Needs to be the same batch for pairing

ISSUES

- BABY
  - No clear guidelines
  - No Paediatric staff familiar with congenital syphilis
  - KEMH and ASID Guidelines not suitable for remote areas
  - WA has no uniform guidelines for management of syphilis in pregnancy and the neonatal period
    - BEING DEVISED AT PRESENT

GUIDELINES

- **NT Guidelines**
- Excellent for our population
- Account for difficulties of remote areas
- Stratify into
  - NO RISK
  - LOW RISK
  - HIGH RISK
- Aggressive treatment
  - Better to be more aggressive in treatment in remoter areas as the logistics of treatment after discharge are extremely difficult.


Northern Territory Government
DEPARTMENT OF HEALTH

Congenital syphilis guidelines for the Northern Territory

Assessment and management of syphilis in pregnancy and the neonatal period

3rd edition, 2015

Centre for Disease Control, Sexual Health and Blood Borne Viruses Unit
Department of Health is a Smoke Free Workplace

GUIDELINES

- We would suggest the development and implementation of WA guidelines ASAP
  - Need to involve Infectious Disease Physicians at PCH

- We would suggest the use of the NT guidelines in WA until State specific guidelines are adopted.

ISSUES

- No experience in Port Hedland with the insertion and management of Neonatal Long Lines
- We managed with peripheral IV but were running out of veins by the end of 10/7.

ISSUES – CULTURAL COMPETENCY

- Involvement of AHW and Aboriginal Social Work
  - Help explain treatment of baby
  - Help explain initial need for Barrier Nursing
  - Help with issues during prolonged stay
  - Issues around maintaining confidentiality when questions of long stay in hospital for an apparently well baby arose
  - Engagement of Aboriginal women into antenatal services.

CONCLUSION

- **We were lucky!!**
  - Paediatrician decided to check with ID at PCH about treatment as knew nothing about syphilis.
  - Potentially could have been large delay in diagnosis or missed diagnosis
- **Natural diagnostic and treatment delays**
  - Time for specimens to be transported and processed in Perth – 1 week to get results, then takes time to find the patient
  - In Pilbara 5 pregnant patients (1 re-infection) the time between positive blood test and treatment was 3-28 days average 6.6 days
- **Maternal screening** despite mother transient lifestyle, she still received appropriate testing close to recommended guidelines
  - Take every opportunity –as can change in 2 weeks (and has)

CONCLUSION

- Develop connections between Public Health, Obstetric Staff, Midwifery and Paediatric Staff early
  - We have developed a good dialogue now around syphilis in pregnancy, with early notification from Public Health of cases to Obstetric, Midwifery and Paediatric staff, to allow for pre birth planning.
  - NB 5 positive syphilis pregnant women to date
- Cultural Competency
  - Sensitive issue
  - Barrier Nursing
  - Confidentiality

SUGGESTIONS

- Development of WA Guidelines for the management of syphilis in pregnancy and the newborn period ASAP.

SUGGESTIONS

- In areas just in front of the epidemic
- Commence planning!
- Educate medical and nursing staff around syphilis in pregnancy and the neonate
- Develop links between Public Health and Obstetric, Midwifery and Paediatric Staff
- Determine protocols and educate all staff on them
- Decide on Infection Control matters
- Ensure all staff have the skill set necessary to manage infants at High Risk