CONGENITAL SYPHILIS IN CHILDHOOD: RECOGNISING THE MISSED AND THE LATE PRESENTATIONS

By: Dr Luvina Nuckchedee Dookhony (Paediatrician FC Paeds (SA) MMed Paeds (Stell))
Dr Noorina B. Joosub (MD, MSc Neonatal Medicine, MPH) SSRN Hospital
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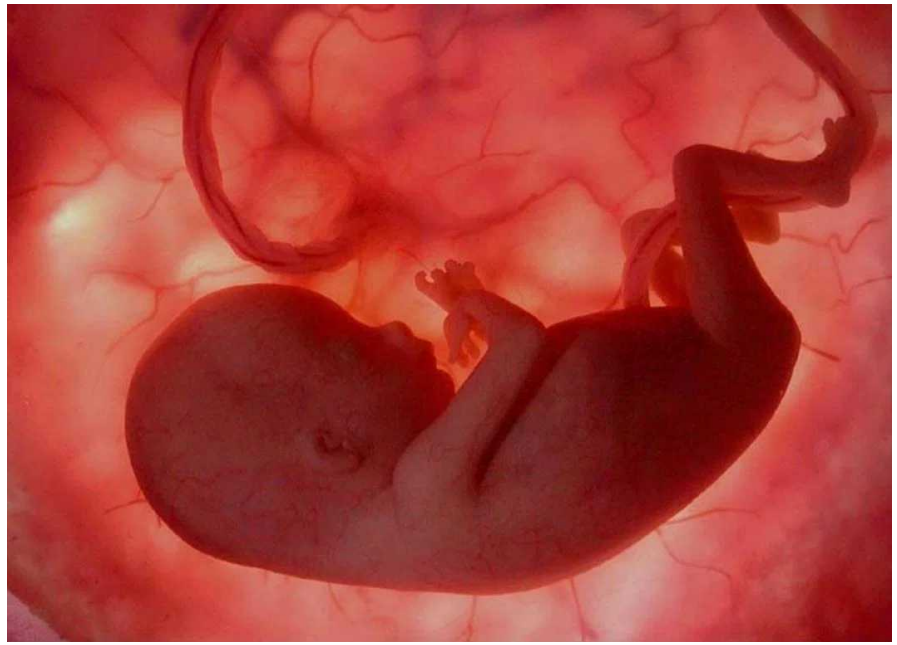
OUTLINE

- Definition of congenital syphilis
- Epidemiology/ Data at SSRN Hospital
- Early signs of congenital syphilis
- Late signs of congenital syphilis
- Risk factors
- Recommendations



Definition of Congenital Syphilis

- According to the World Health Organization (WHO), **Congenital Syphilis** is a severe infection caused by *Treponema pallidum* transmitted from an infected, untreated, or inadequately treated mother to the fetus during pregnancy or at delivery.
- Congenital syphilis may present early (in the first 2 years of life) or late (after 2 years of age).
- Around **two-thirds** of infants with congenital syphilis will be **asymptomatic** at birth but most will develop signs within the first few weeks of life.
- Congenital syphilis is the second most common cause of preventable stillbirth globally, preceded only by malaria.

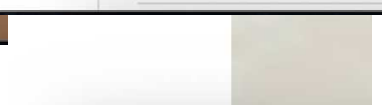
* Source: WHO

Trump administration

This article is more than 1 year old

Trump administration axes key STI lab amid dramatic rise in US syphilis cases

Chaotic cuts to CDC hit expert leadership and programs that surveil, test and research sexually transmitted diseases

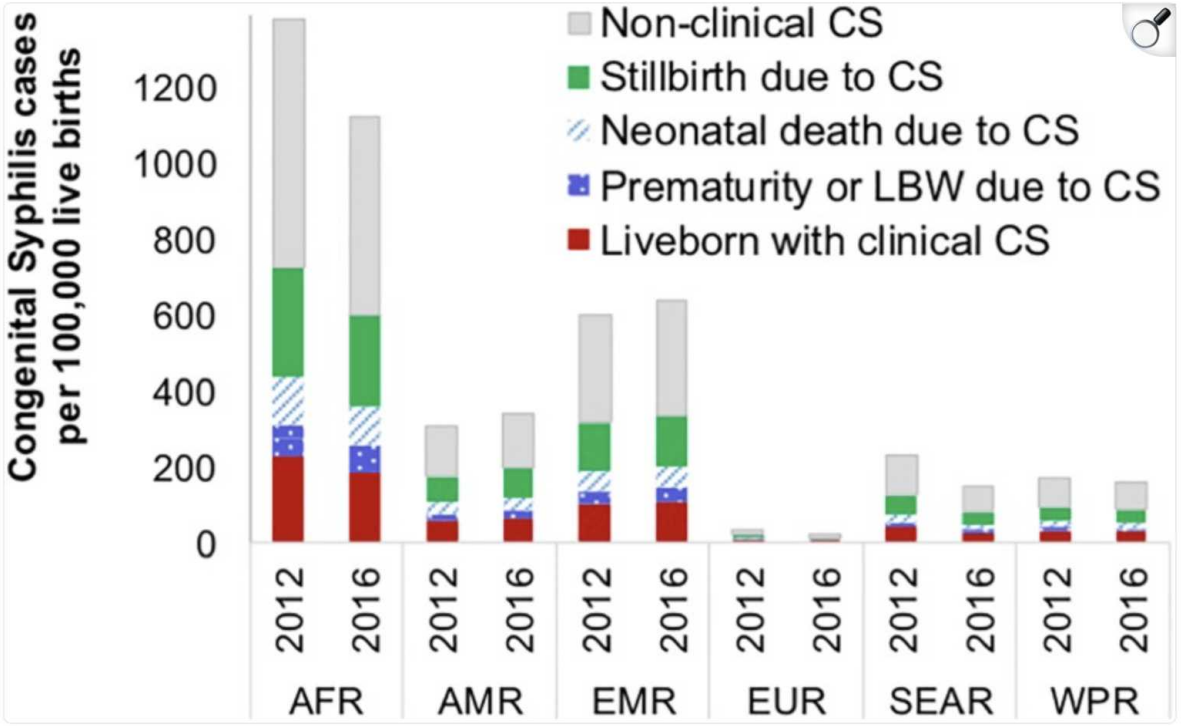


Europe

Annie Lennon

February 19, 2025

Global Burden Of Congenital Syphilis



The global rate was 425 cases per 100,000 live births in 2020, far exceeding the WHO target of 50 per 100,000.

In 2022, WHO estimated 700 000 congenital syphilis cases. Corresponding to rate increase from 473 to 523 cases per 100 000 live births.

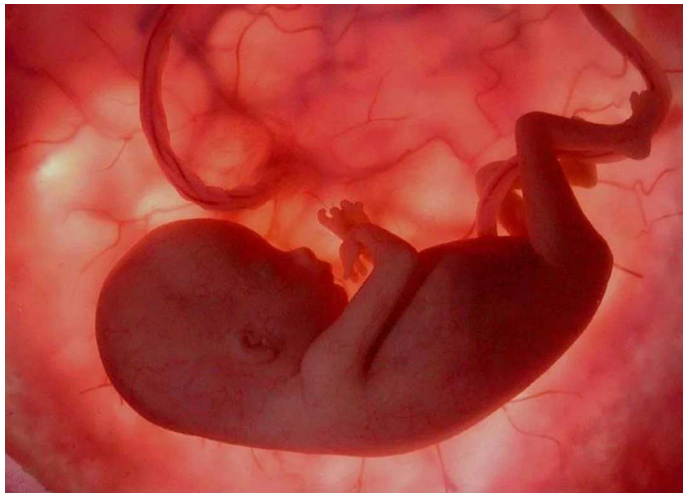
AFR = WHO African Region; AMR = WHO Region of the Americas; EMR = WHO Eastern Mediterranean Region; EUR = WHO European Region; SEAR = WHO South-East Asia Region; WPR = WHO Western Pacific Region.

Distribution of CS rates per 100,000 live births, by type, WHO region and year

* Source: Global burden of maternal and congenital syphilis and associated adverse birth outcomes Estimates for 2016 and progress since 2012

Global Burden of Congenital Syphilis

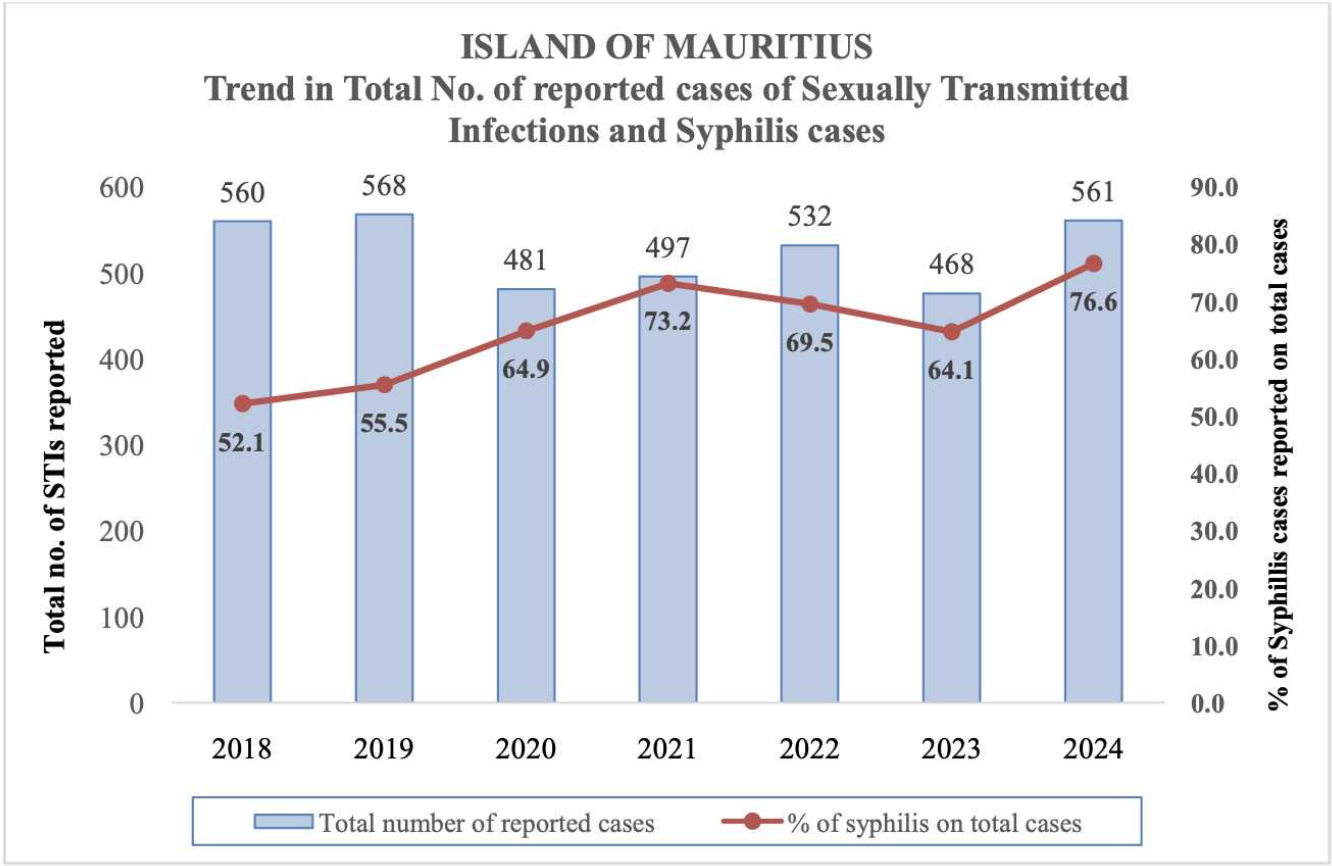
In 2022, WHO estimated 700 000 congenital syphilis cases and 390 000 adverse birth outcomes globally.



These adverse birth outcomes included:

- 150 000 early fetal deaths and stillbirths
- 70 000 neonatal deaths
- 55 000 preterm or low-birth weight births
- 115 000 infants with a clinical diagnosis of congenital syphilis.

Of these adverse birth outcomes,
21% -no ANC follow up;
53% -attended ANC but **were not screened for syphilis**;
16% tested positive for syphilis but were not treated or received inadequate treatment;
9%-tested positive and were adequately treated.



Republic of Mauritius – Statistics on Syphilis							
Year	2018	2019	2020	2021	2022	2023	2024
No of Tests done	85,047	96,166	73,375	79,344	85,724	93,482	95,350
No of positive cases detected	2,401	2,347	2,915	3509	3,380	4,435	4,944
Positivity Rate (%)	2.8	2.4	4.0	4.4	3.9	4.7	5.2

*Source Health Statistics 2025

Selected Laboratory* Confirmed Cases of Communicable Diseases 2013 -2024

Year / Disease	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gonorrhoea	15	44	31	56	104	181	212	113	63	50	110	151
Haemophilus influenza Type B	-	-	2	-	-	-	-	-	-	-	-	-
Hepatitis A	2	3	7	1	2	6	1	3	2	4	5	4
Hepatitis B	330	264	276	290	393	517	320	340	241	278	363	234
Hepatitis C**	1,713	1,901	1,833	1,992	2,000#	1,900#	1,844	1,548	1,786	1,955	4,171	3,544
Leptospirosis	55	30	39	28	34	24	36	44	48	39	40	80
Syphilis	465	866	686	1087	1,591	2,401	2,347	2,915	3,509	3,380	4,435	4,944
Typhoid Fever	3	-	3	2	-	-	1	-	-	3	-	-

NB: certain figures of 2017 to 2022 have been revised in line with change in data reporting from laboratory services.

*Source Health Statistics 2025

DISTRIBUTION OF CERTAIN NOTIFIABLE DISEASES REPORTED TO SANITARY AUTHORITIES

BY AGE-GROUP AND SEX - 2024

DISEASE & SEX / AGE-GROUP (YEARS)	HIV / AIDS@ MAURITIAN		FOOD POISONING		GONORRHOEA		MALARIA (IMPORTED/INTRODUCED)		SYPHILIS		PULMONARY TUBERCULOSIS MAURITIAN/NON-MAURITIAN	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
Less than 1 0	2	3	-	1	-	-	-	-	-	-	-	1
10 - 19	7	9	1	2	3	-	-	-	3	34	-	4
20 - 29	144	44	1	27	14	-	7	3	59	149	9	4
30 - 39	121	37	-	13	6	1	14	1	58	60	13	7
40 - 49	60	30	3	3	6	-	6	1	30	15	17	6
50 - 59	28	13	-	2	4	-	1	2	12	2	15	1
60 & over	18	10	1	-	-	-	4	-	8	-	16	4
TOTAL	**380**	**146**	**6**	**48**	**33**	**1**	**32**	**7**	**170**	**260**	**70**	**27**

@ Human Immuno-Deficiency Virus / Acquired immuno-deficiency syndrome

*Source Health Statistics 2025

ISLAND OF RODRIGUES

DISTRIBUTION OF CERTAIN NOTIFIABLE DISEASES REPORTED TO SANITARY AUTHORITIES 2009– 2024

DISEASE / YEAR	HIV/AIDS @	AMOEBIASIS	FOOD POISONING*	GONORRHOEA #	HEPATITIS#		LEPROSY	LEPTOSPIROSIS	MALARIA (IMPORTED)	MEASLES	MENINGITIS	SYPHILIS #	TUBERCULOSIS&	
					B	C							ULMONARY	OTHER
2009	5	-	13	...	...	...	-	-	-	-	-	...	3	-
2010	8	-	9	...	...	...	-	-	-	-	-	...	-	-
2011	9	-	26	...	8	7	-	-	1	-	-	...	-	-
2012	5	-	7	...	10	3	-	-	-	-	-	...	1	-
2013	4	-	1	...	9	6	-	1	-	-	-	...	1	-
2014	3	-	26	15	9	6	-	-	-	-	-	15	2	-
2015	11	-	40	17	12	8	-	-	-	-	1	18	-	-
2016	7	-	36	19	16	14	-	-	-	-	-	55	-	-
2017	8	-	36	32	7	26	-	-	-	-	-	91	2	-
2018	13	-	28	71	35	14	-	-	-	-	-	148	5	-
2019	15	-	36	117	8	9	-	-	-	-	-	112	4	-
2020	10	-	34	69	2	16	-	-	-	-	-	126	-	-
2021	16	-	91	35	5	12	-	-	-	-	-	116	1	-
2022	14	-	22	11	6	9	-	-	-	-	1	156	1	-
2023	11	-	49	11	1	2	-	1	1	-	2	102	1	-
2024	**23**	**-**	**16**	**23**	**-**	**4**	**-**	-	1	-	**-**	**252**	**3**	-

system

Source: Rodrigues Laboratory Services (positive samples)

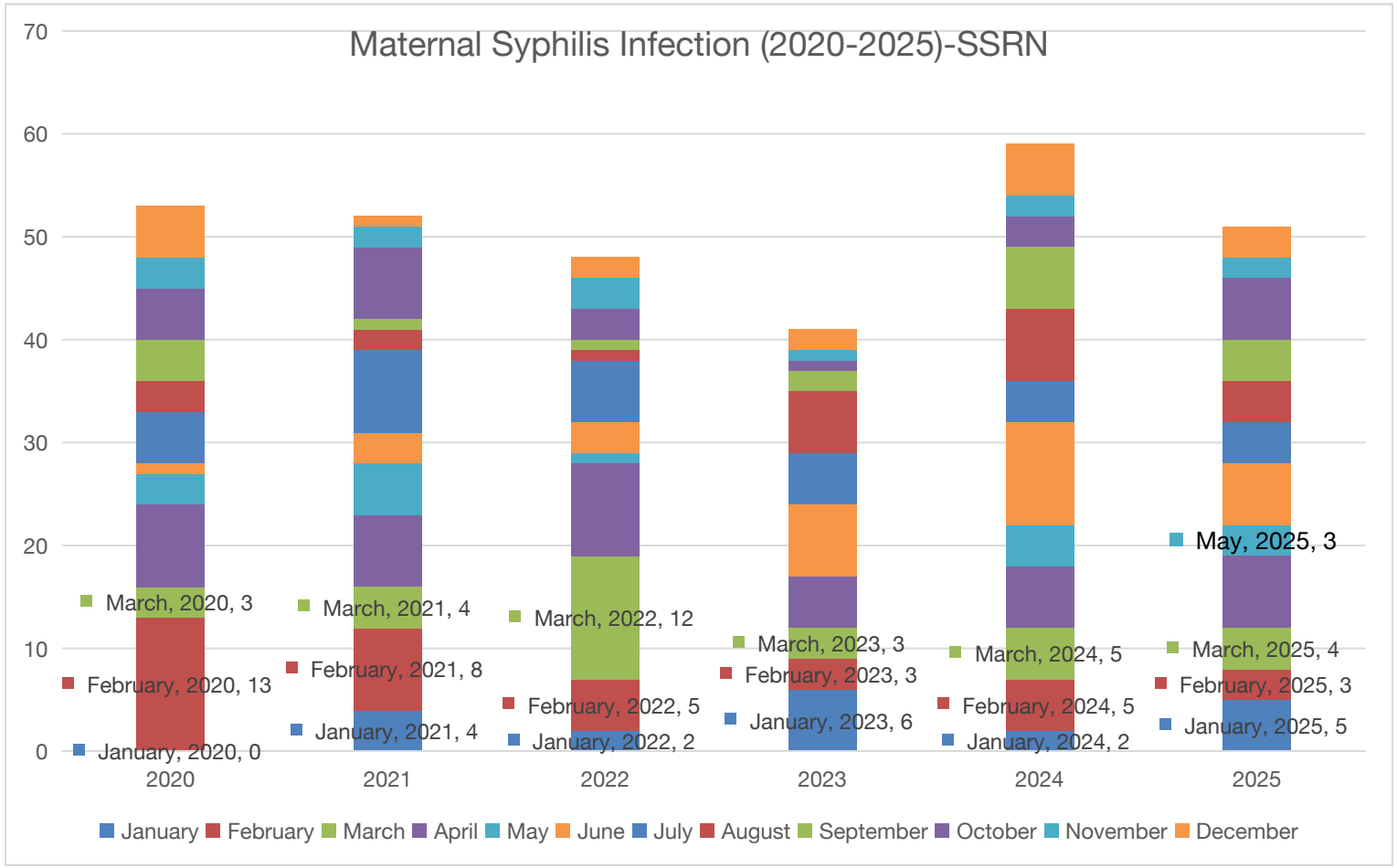
*Source Health Statistics 2025

Syphilis in pregnancy remains a persistent global public health challenge

SSRN Paediatricians have noted a regular occurrence of congenital syphilis over the past five years.

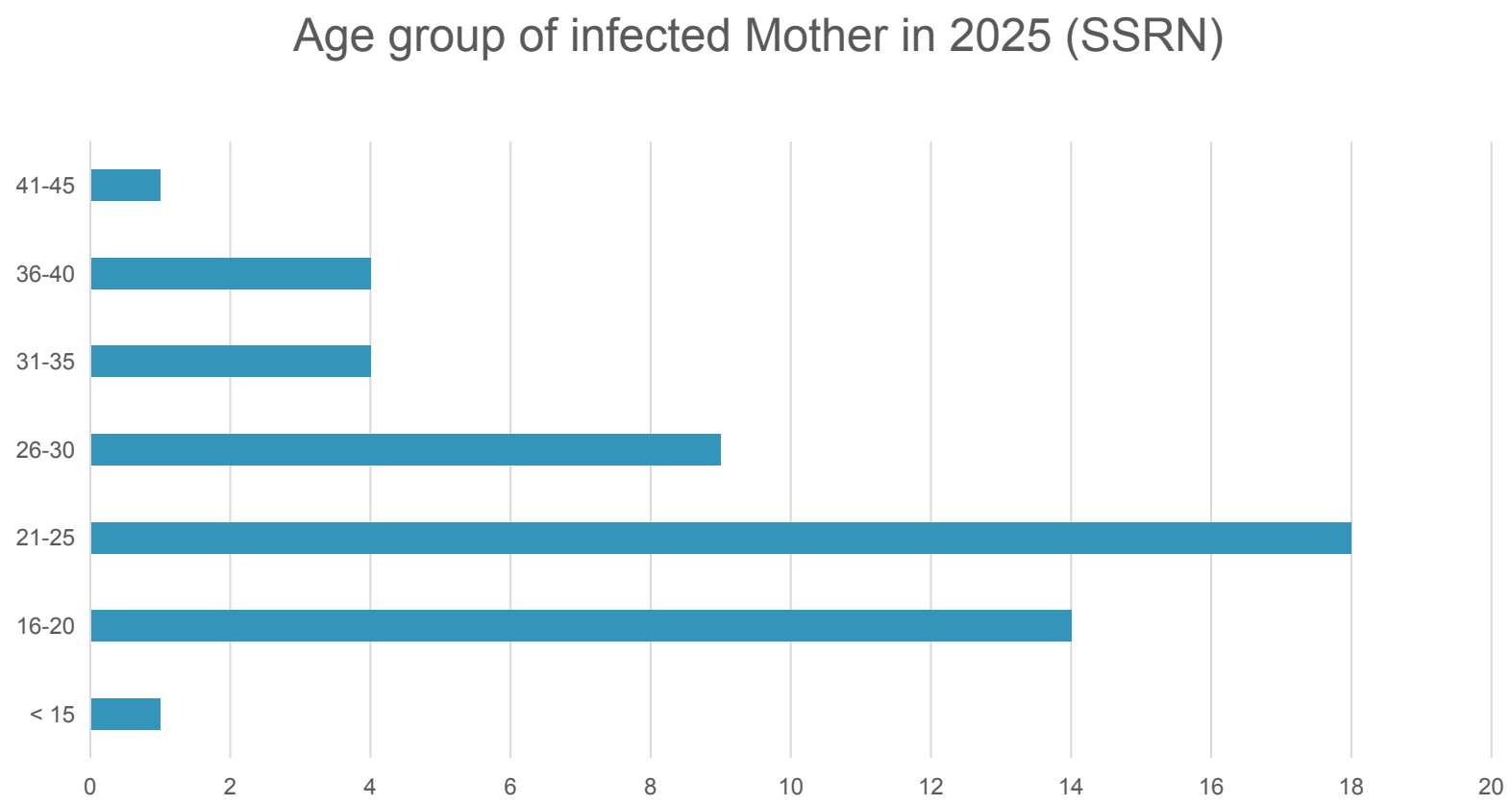
Congenital Syphilis Cases and Rates per 1000 live births (2020-2025) SSRN Hospital

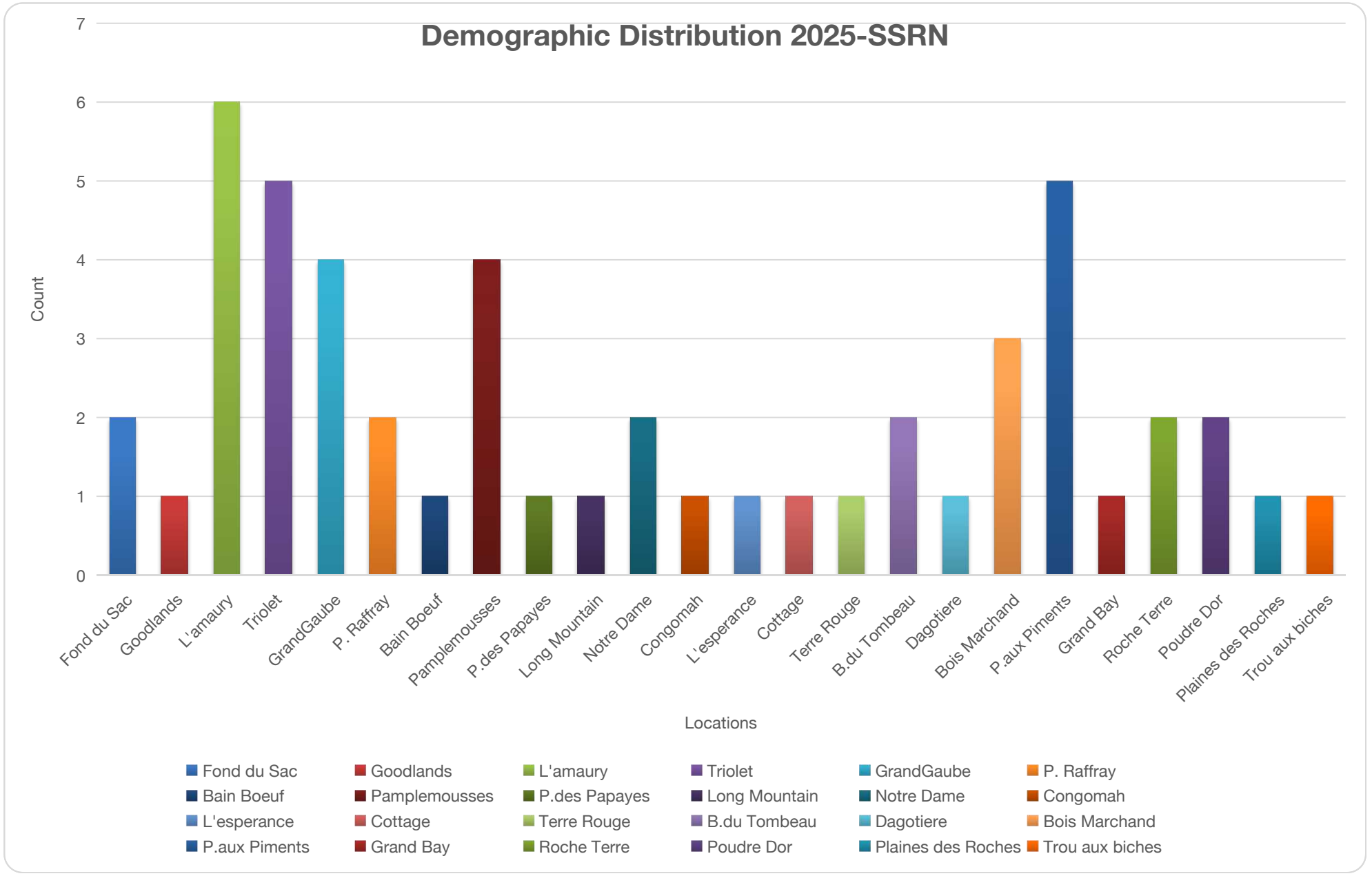
Yearly Statistics			
Year	Cases of congenital syphilis	Live births	Rate per 1,000 births
2020	53	1525	34.8
2021	52	1432	36.3
2022	48	1238	38.8
2023	41	1433	28.6
2024	59	1434	41.1
2025	51	1363	37.4



The purpose of this data collection shows an indication to the public health burden of syphilis, highlighting the critical need for optimized medical treatment of expectant mothers and babies.

- According to cases reported at SSRN Hospital, approximately 51 pregnant women between 13 and 44 years old, were diagnosed with syphilis in the North of Mauritius.




Demographic Distribution 2025-SSRN
Count
0
1
2
3
4
5
6
7
Fond du Sac
Goodlands
L'amaury
Triolet
GrandGaube
P. Raffray
Bain Boeuf
Pamplemousses
P.des Papayes
Long Mountain
Notre Dame
Congomah
L'esperance
Cottage
Terre Rouge
B.du Tombeau
Dagotiere
Bois Marchand
P.aux Piments
Grand Bay
Roche Terre
Poudre Dor
Plaines des Roches
Trou aux biches
Locations
Fond du Sac
Goodlands
L'amaury
Triolet
GrandGaube
P. Raffray
Bain Boeuf
Pamplemousses
P.des Papayes
Long Mountain
Notre Dame
Congomah
L'esperance
Cottage
Terre Rouge
B.du Tombeau
Dagotiere
Bois Marchand
P.aux Piments
Grand Bay
Roche Terre
Poudre Dor
Plaines des Roches
Trou aux biches

Maternal-to-fetal transmission

Rates of maternal-fetal transmission vary according to maternal stage of syphilis

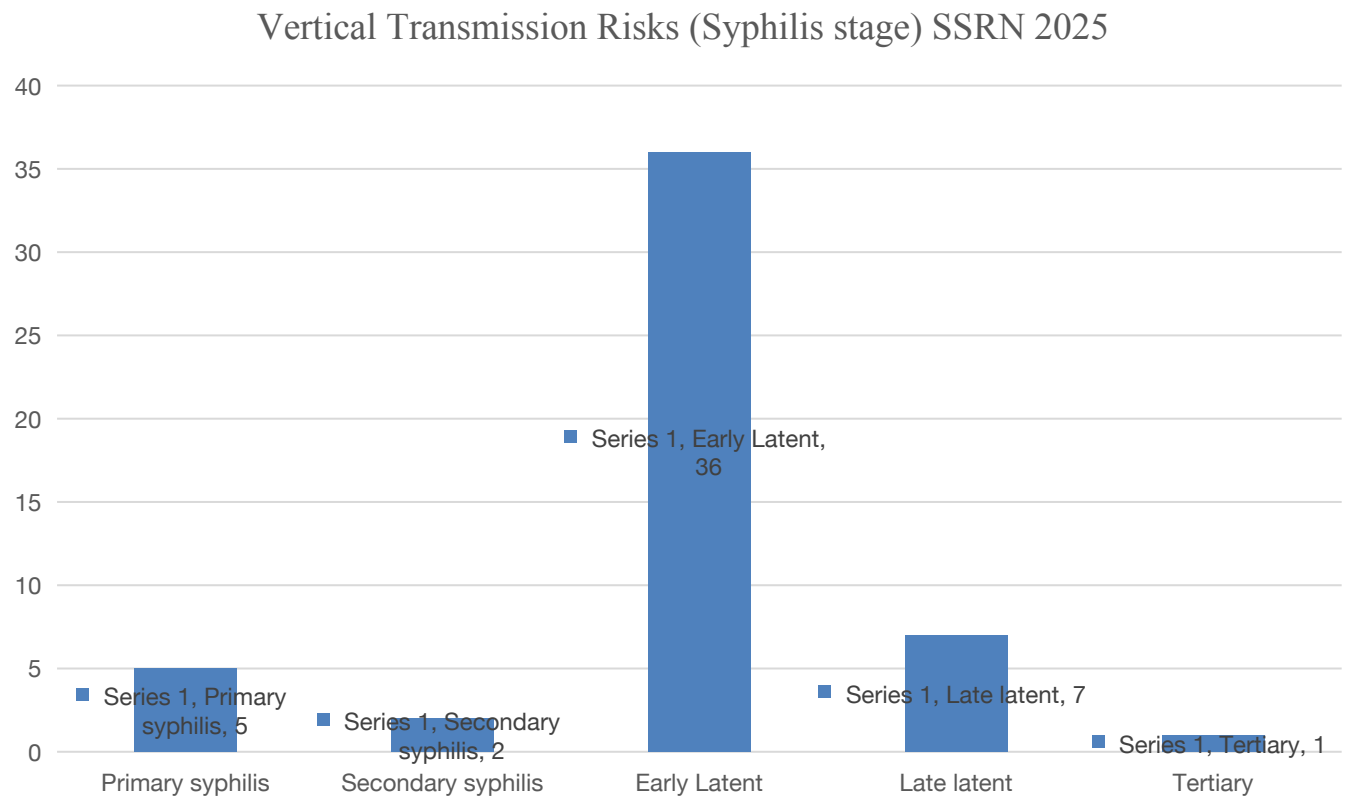
- 60-100% with maternal primary and secondary syphilis
- 40% with early latent infection
- Less than 8% with late latent infection

40% of pregnant persons with early, untreated syphilis have a subsequent spontaneous abortion, stillbirth or perinatal death.

Risk of transmission increases with increasing gestational age at time of infection and maternal coinfection with HIV.

Source: Committee on Infectious Diseases, American Academy of Pediatrics; Kimberlin, D.W.; Barnett, E.D.; Lynfield, R.; Sawyer, M.H.
Red Book: 2021–2024 Report of the Committee on Infectious Diseases; American Academy of Pediatrics: Itasca, IL, USA, 2021.

Vertical transmission risk according to syphilis stage



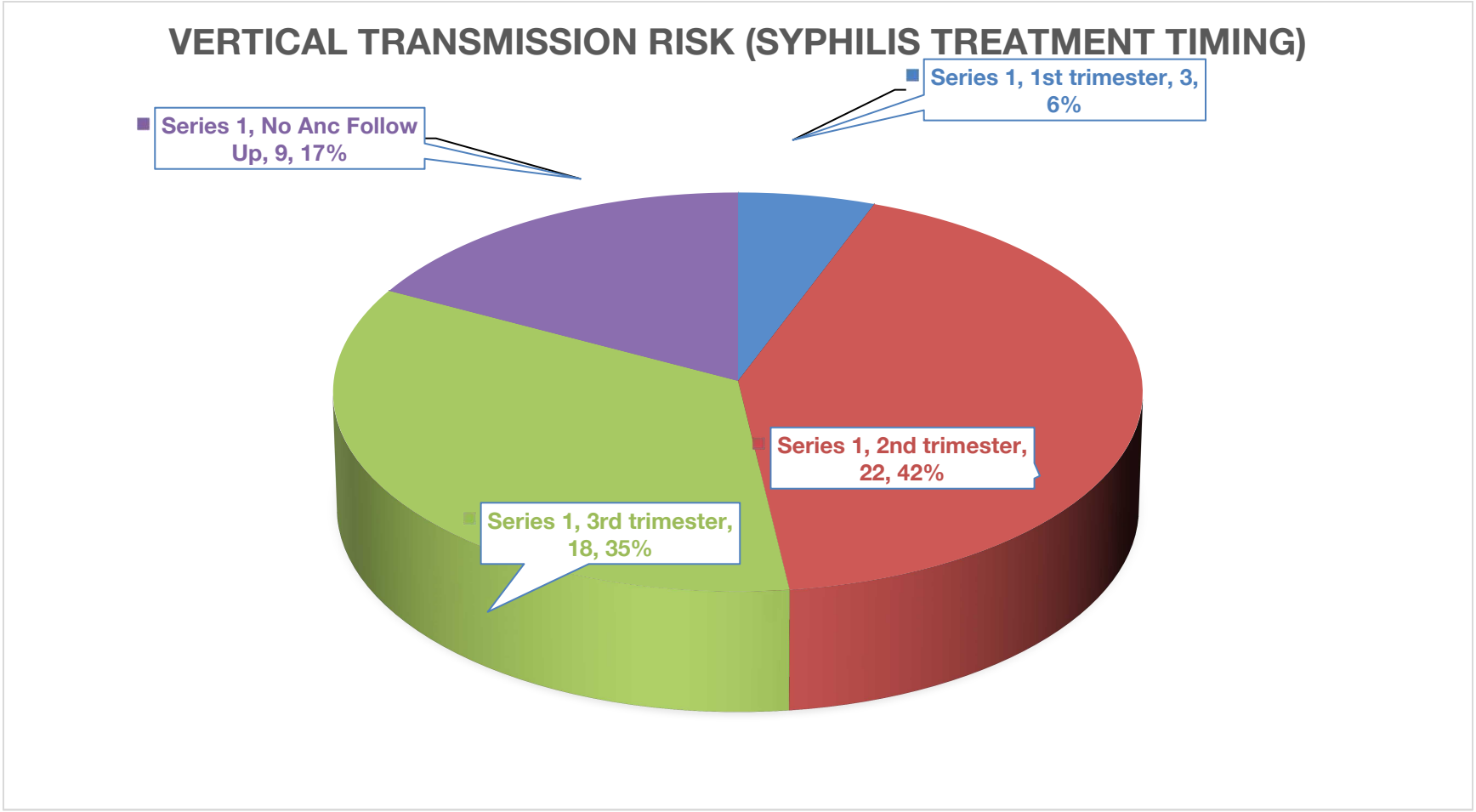
Vertical transmission can occur during pregnancy or at the time of delivery, with the risk of transmission increasing significantly during primary and secondary syphilis compared to latent syphilis.

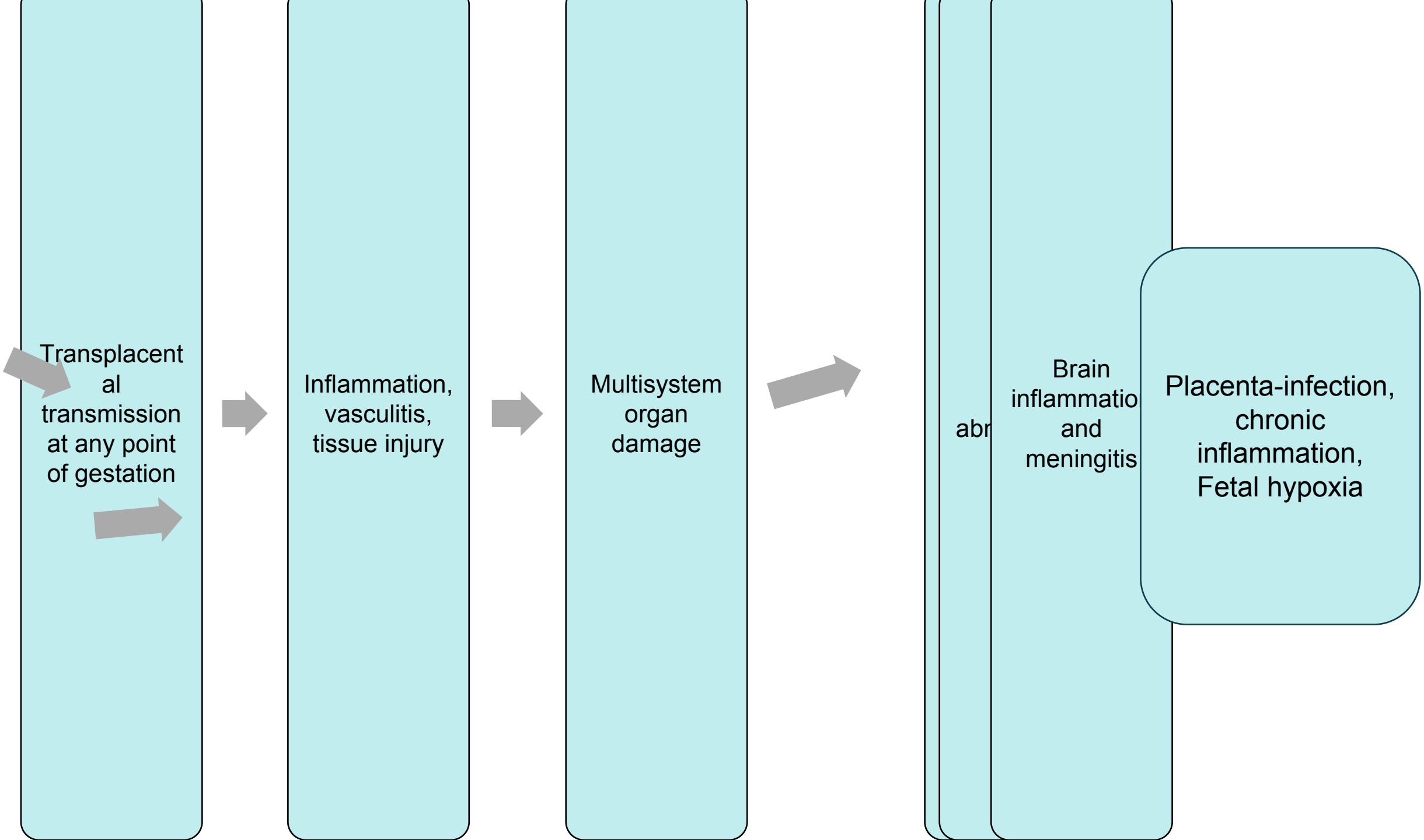
Risk of vertical transmission vs treatment timing in pregnancy

- In the WHO recommendations on antenatal care for a positive pregnancy experience guideline, syphilis screening should be made at the first prenatal care visit, ideally before 12 weeks of gestation (2017).

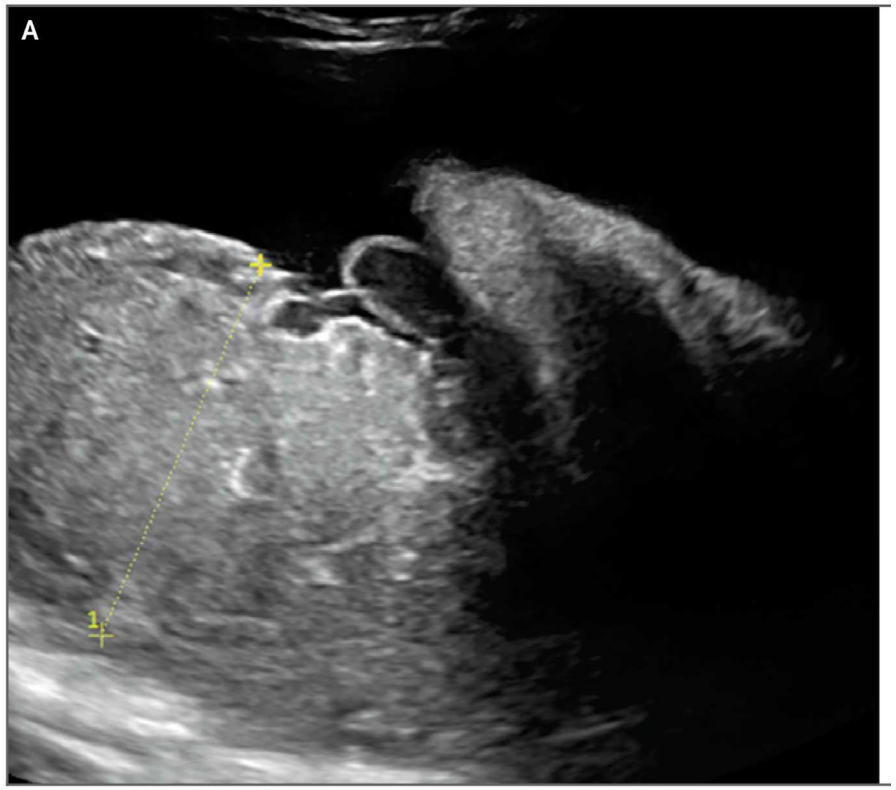
Vertical Transmission Risk According to Treatment Timing in Pregnancy.[12-15]

At the level of our hospital the time between serological testing at the first ANC booking and when the result is known to the pregnant woman takes about 6 to 8 weeks. The required treatment is then administered about 2 to 4 weeks later.



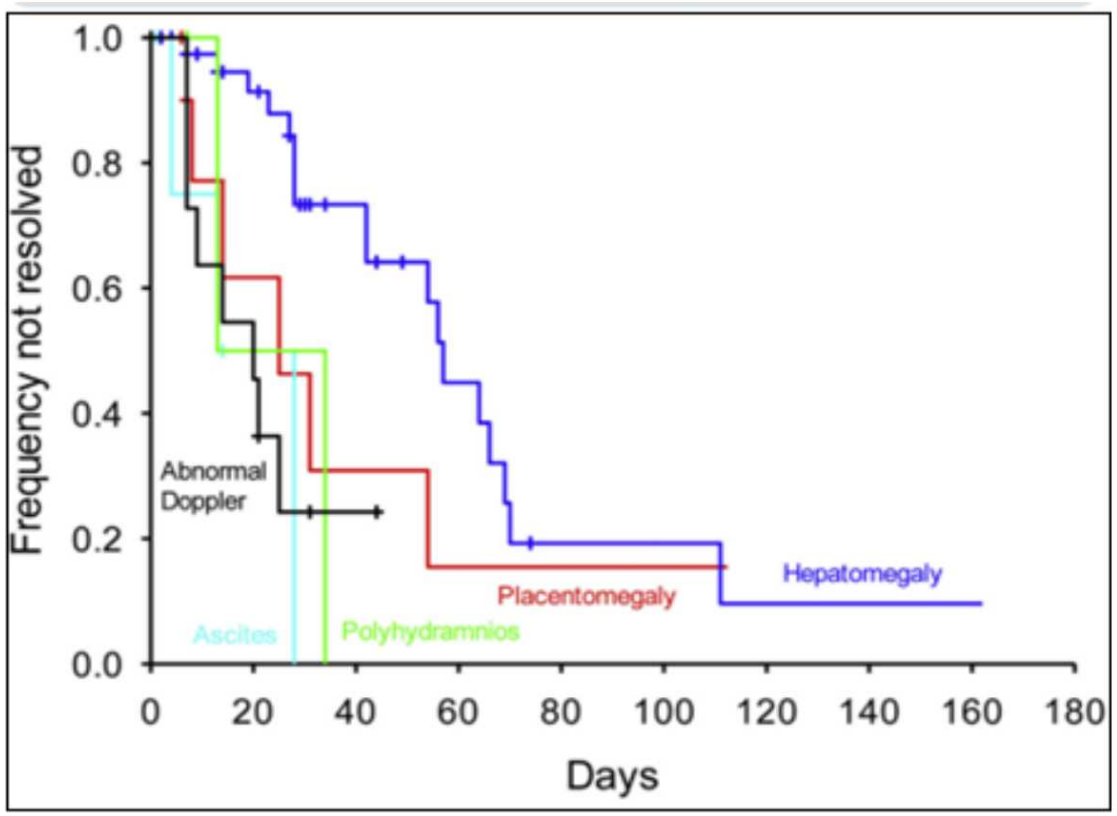

Transplacental transmission at any point of gestation
Inflammation, vasculitis, tissue injury
Multisystem organ damage
abr
Brain inflammatio and meningitis
Placenta-infection, chronic inflammation, Fetal hypoxia

Fetal signs in early congenital syphilis



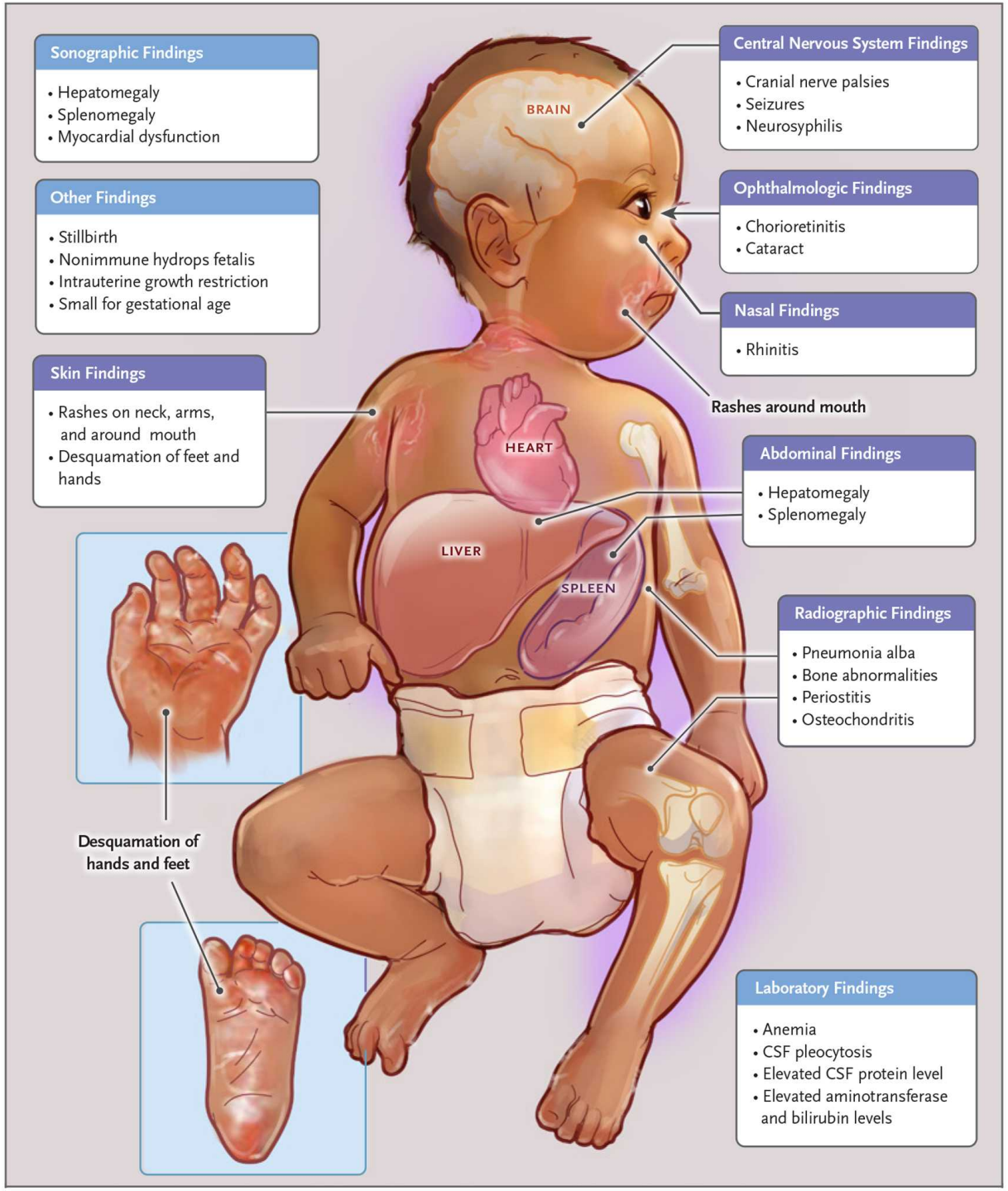
Ultrasonographic evidence of placentomegaly (>95% for gestational age).

Fig. S3. Time to Resolution of Abnormal Ultrasound Findings Associated with Congenital Syphilis[3].



Adopted from Ultrasound Findings of Congenital Syphilis. Rac, et al in Am J Obstet Gyecol with permission (Rac MW, 2014)

Early signs of congenital syphilis



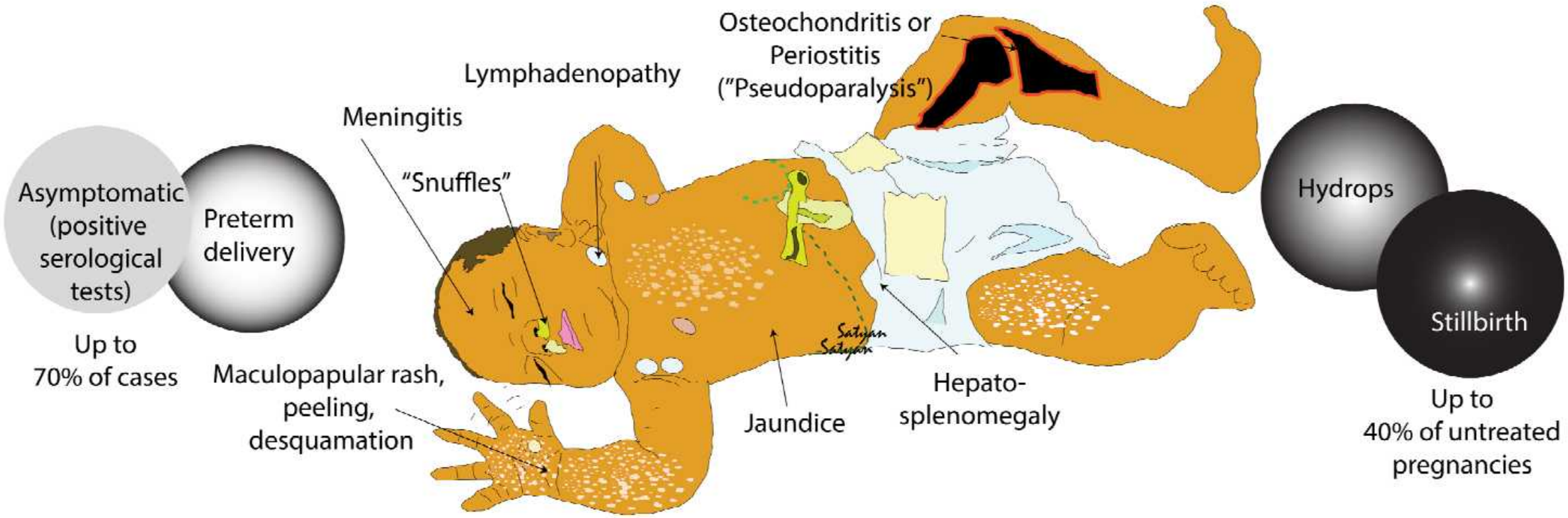
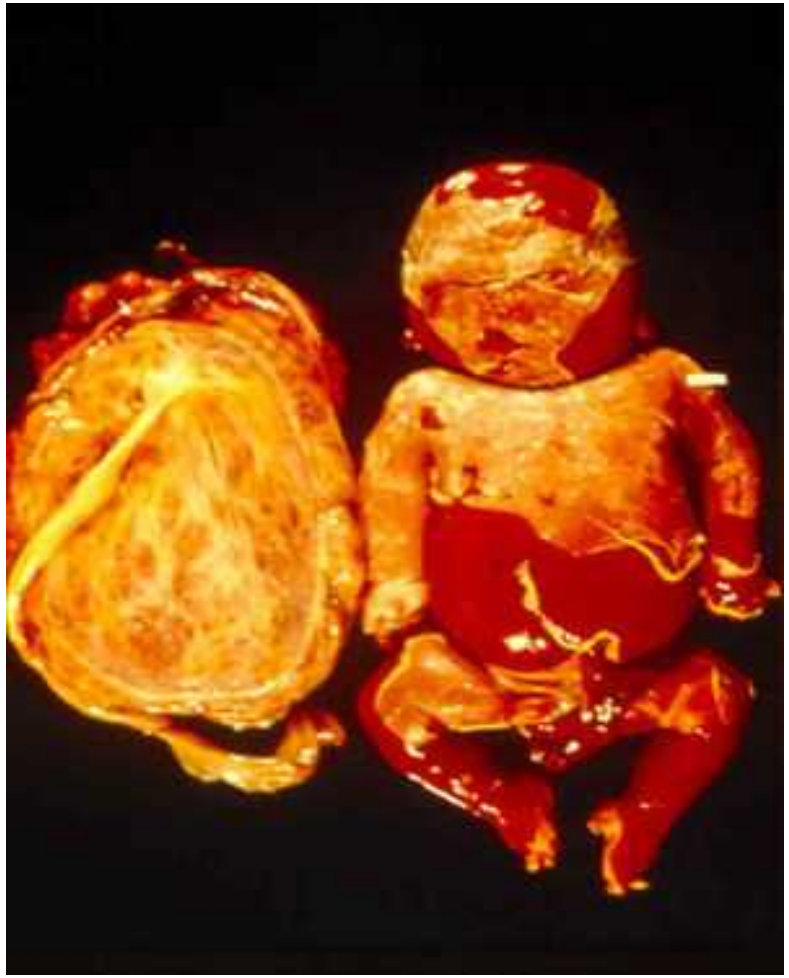
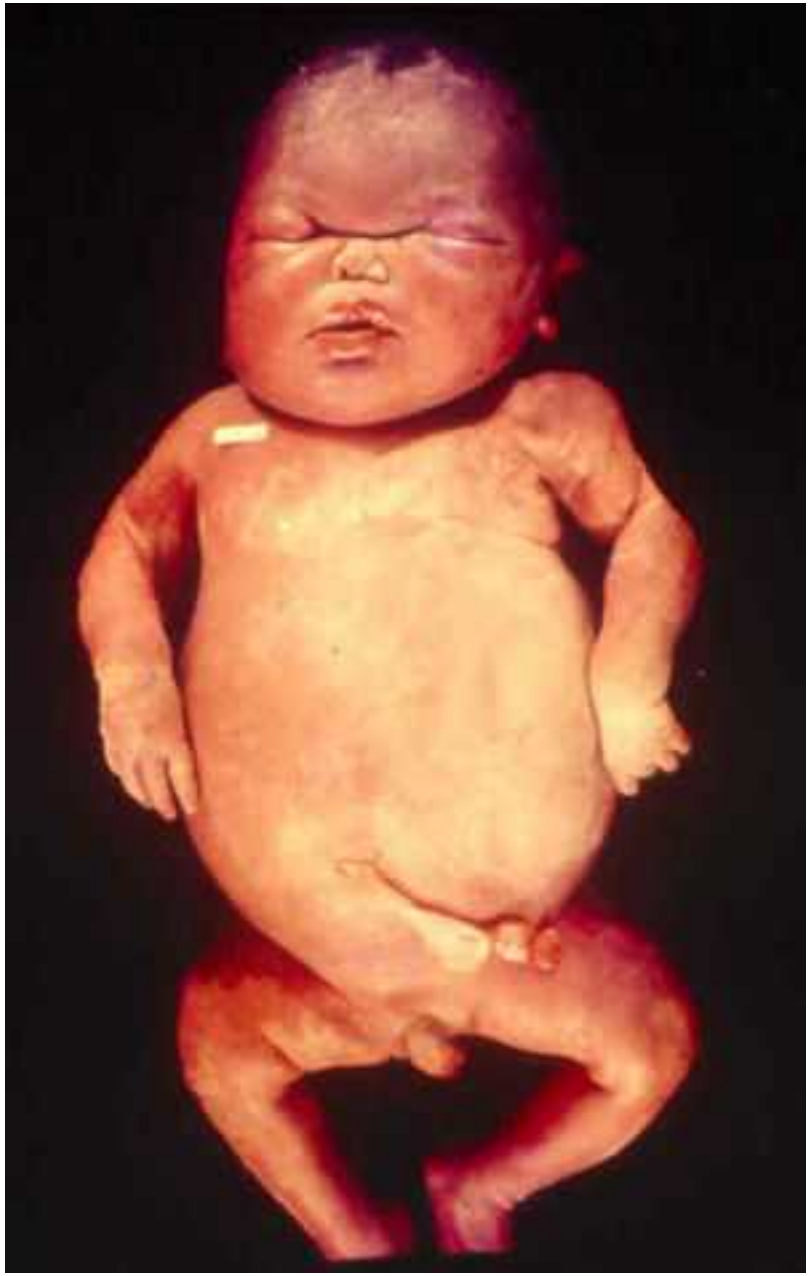


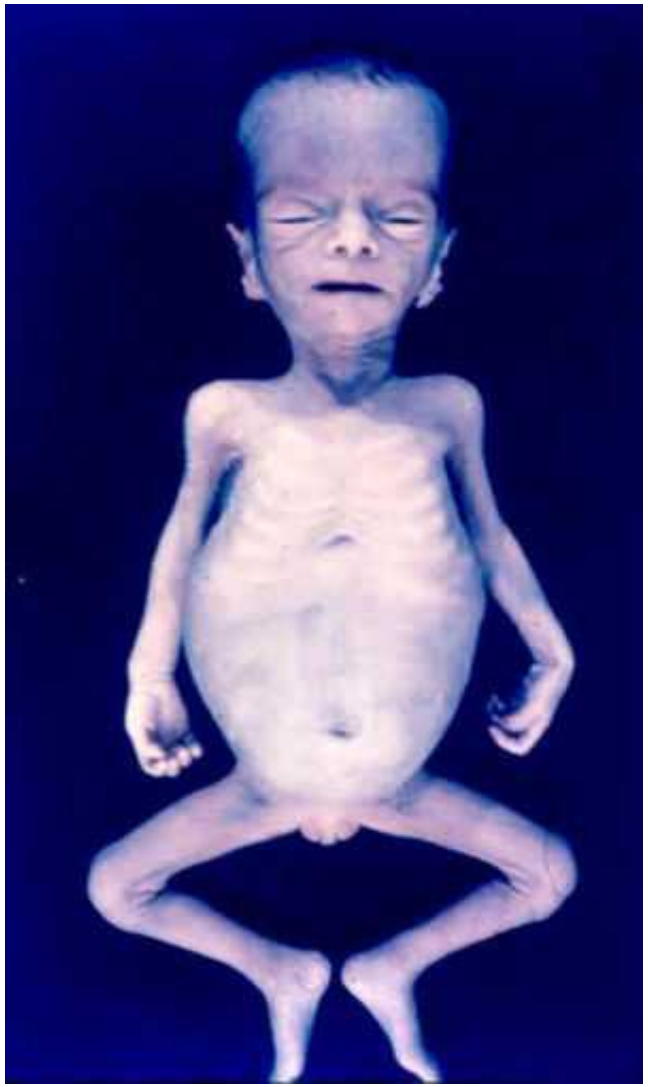
Figure 2. Clinical features of congenital syphilis. A newborn with congenital syphilis may remain asymptomatic in up to 70% of cases, and may be born preterm. Clinical symptoms and signs include snuffles (nasal congestion), maculopapular, peeling, desquamating rash especially involving the palms and soles, lymphadenopathy, jaundice, hepatosplenomegaly, and osteochondritis or periostitis ("pseudoparalysis" due to limited range of movement of affected extremity). Severely infected fetuses may have hydrops fetalis or result in stillbirth (in up to 40% of untreated pregnancies). Copyright: Satyan Lakshminrusimha.



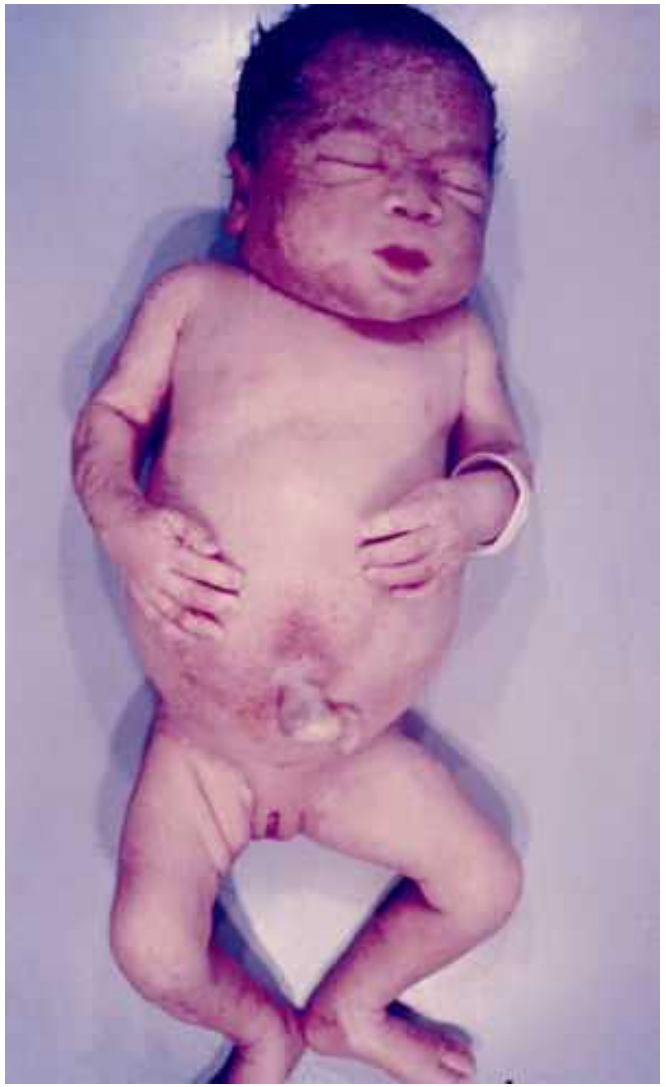
Placental changes include focal villitis (villous proliferation) with necrosis as well as focal infiltration by maternal lymphocytes and plasma cells. Villi are immature, enlarged and hypercellular.



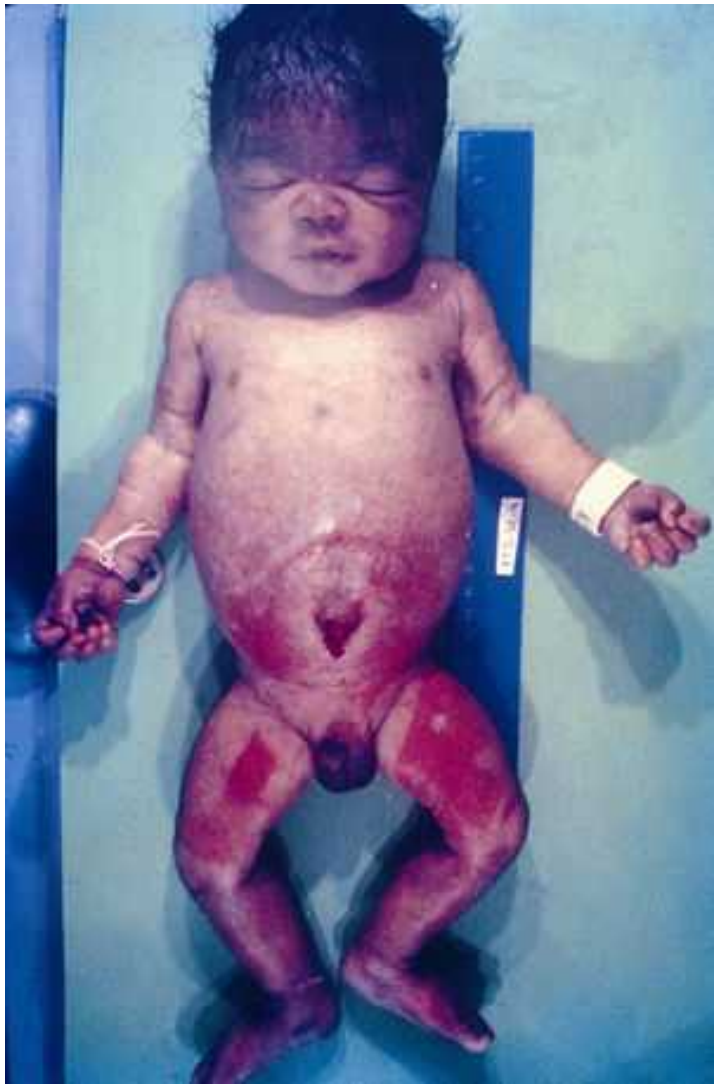
Hydrops fetalis in a neonate who lived several hours. Note hepatomegaly.



Neonate with severe atrophy and malnutrition (early congenital syphilis).



Fetus with myxedema and hypothyroidism.

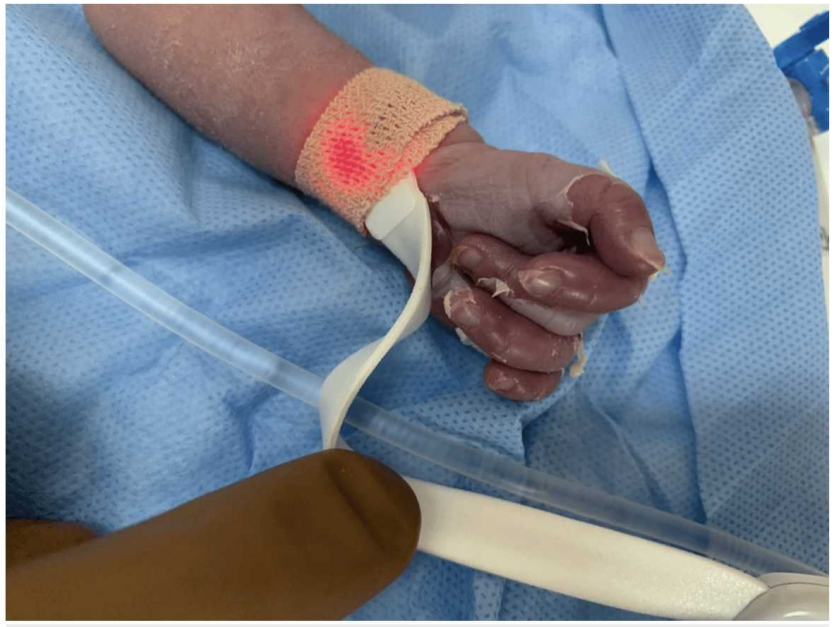


Skin rash and a distended abdomen in a neonate who survived several days with early congenital syphilis

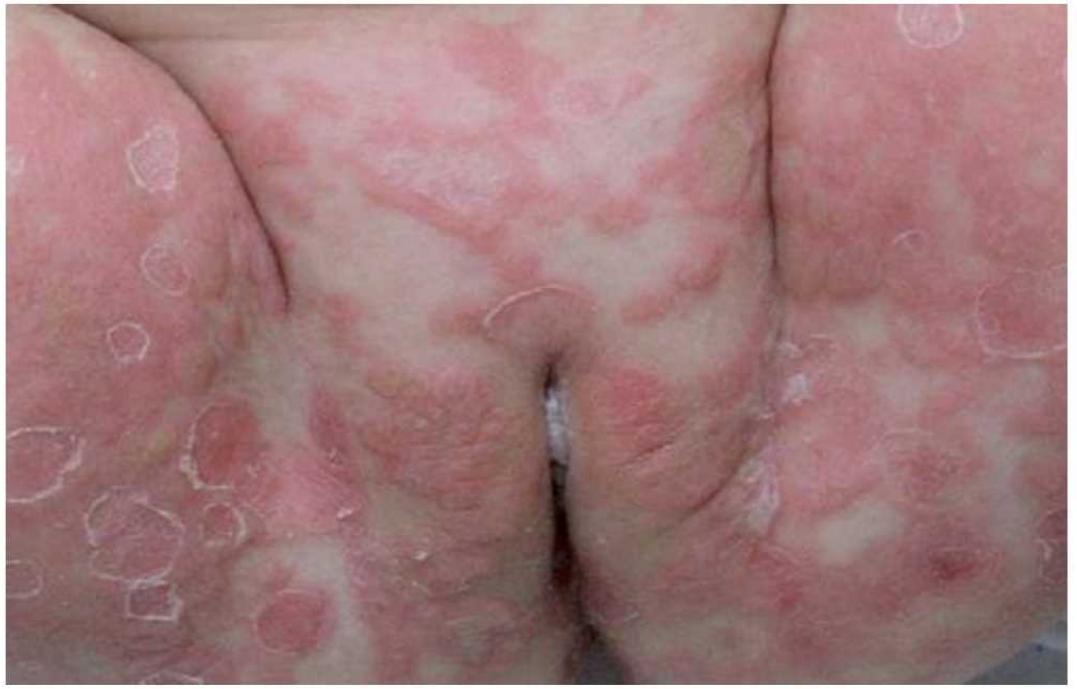
A

B

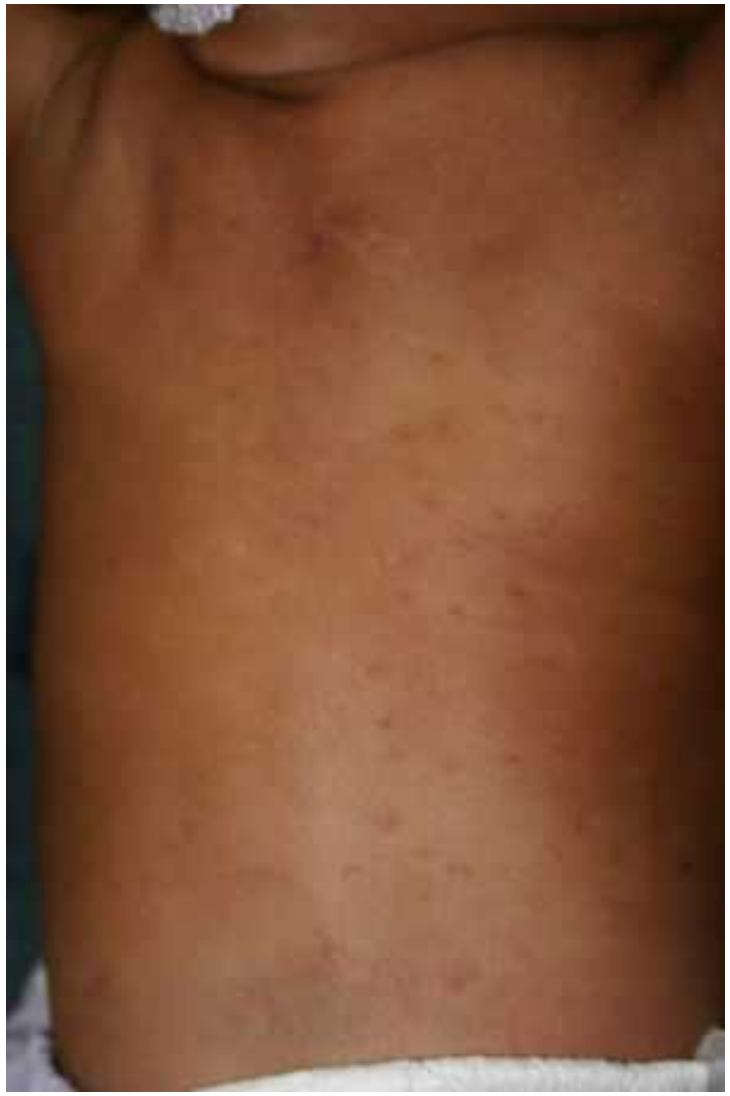
Infant with peeling bullous lesions



Pemphigus syphiliticus present at birth

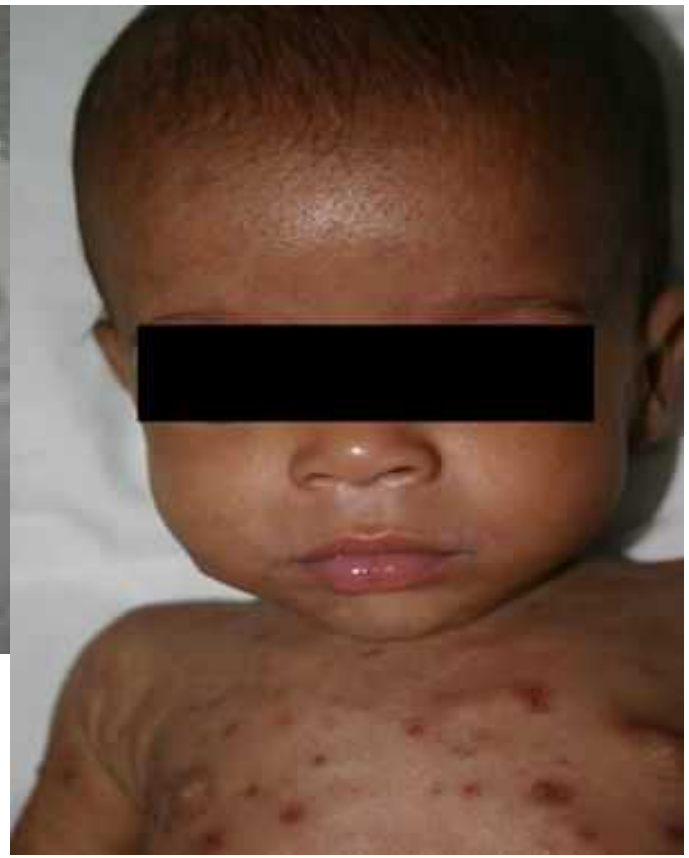


Infant with erythematous patches and superficial bullae and desquamations on inguinal area

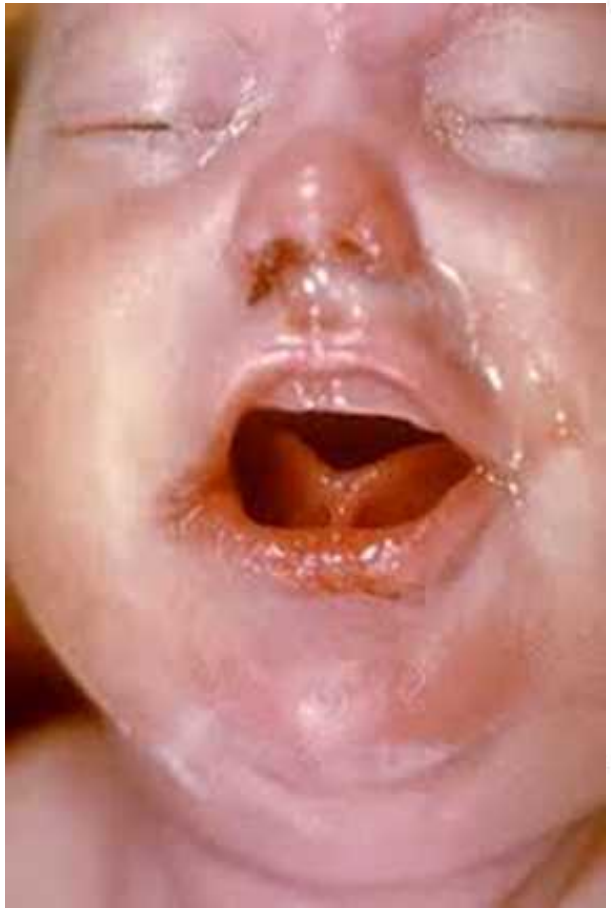


Disseminated erosive papules in an infant with congenital syphilis.

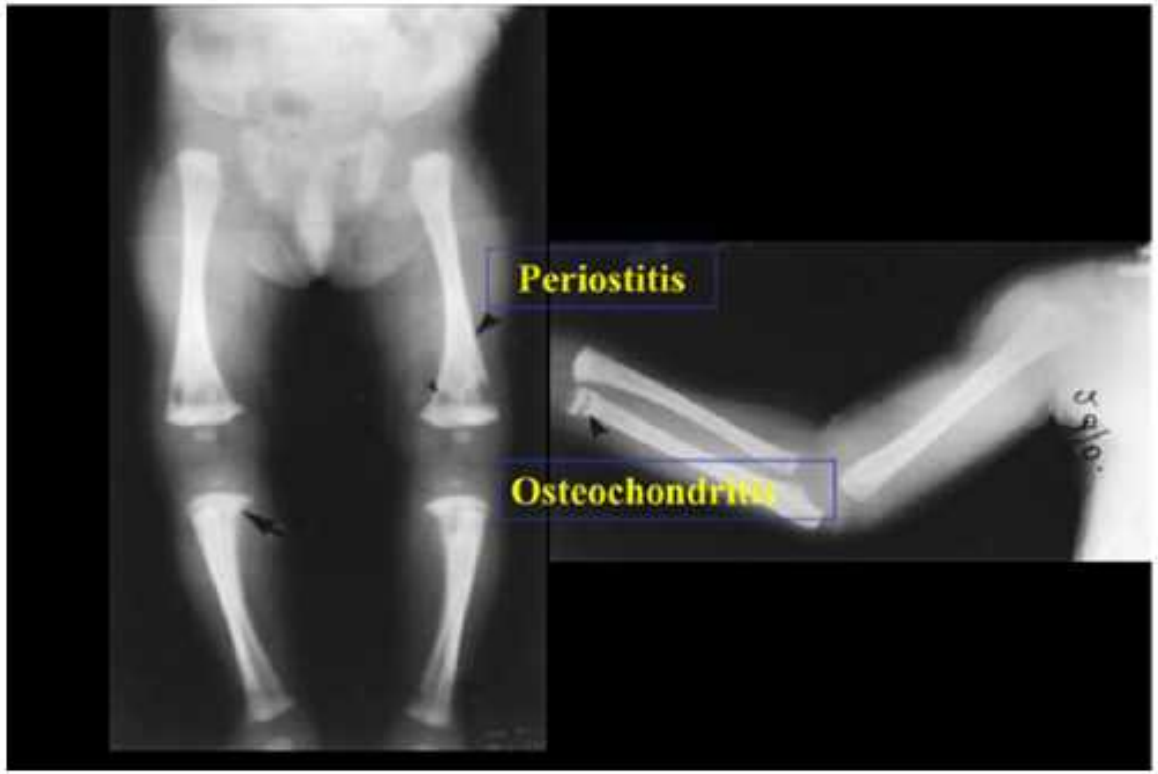
Infant with hepatosplenomegaly and a generalized maculopapular rash.



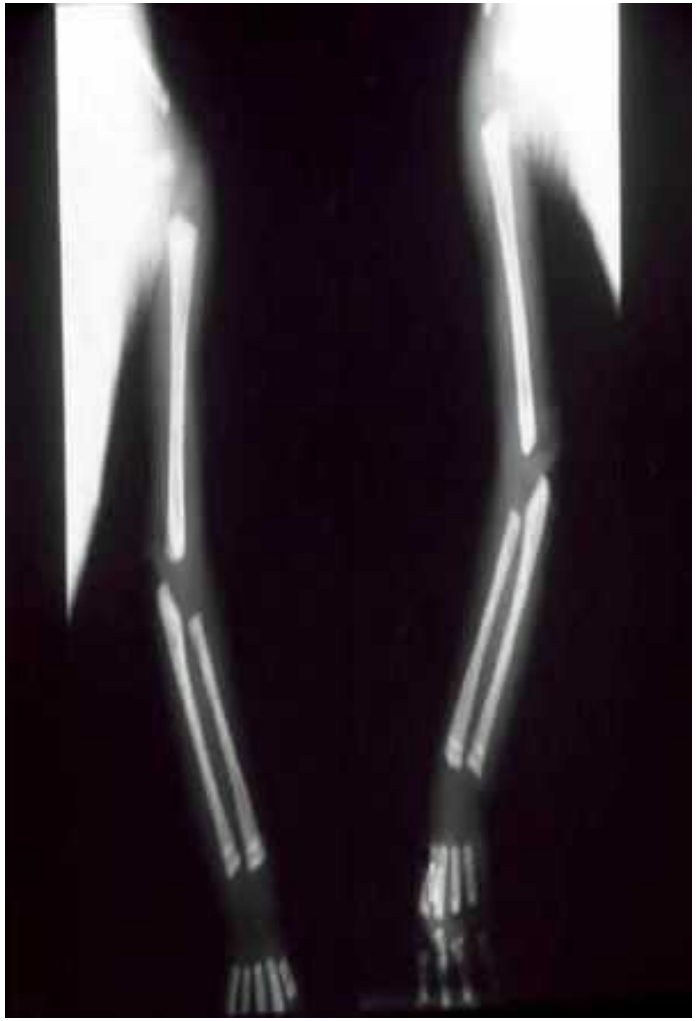
An infant with early congenital syphilis who has characteristic perioral lesions and the frontal bossing of hydrocephalus



Affected infants typically have rhinitis with mucus that is rich in treponemes but may appear clear, purulent, or bloody.



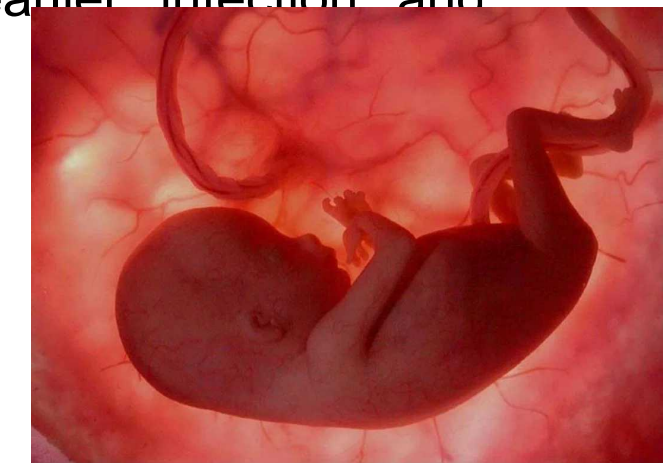
Bone radiographs of infant with early CS demonstrating periostitis of femur and osteochondritis of femur, tibia and ulna (saw-tooth pattern)

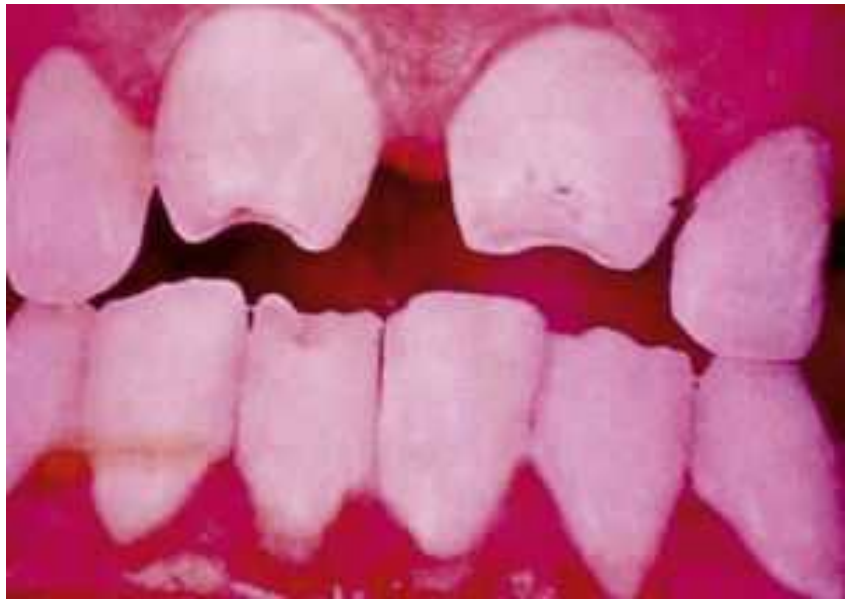


Radiographs showing osteolytic lesions in the proximal and distal metaphyses of the humerus, ulna, and radius bilaterally.

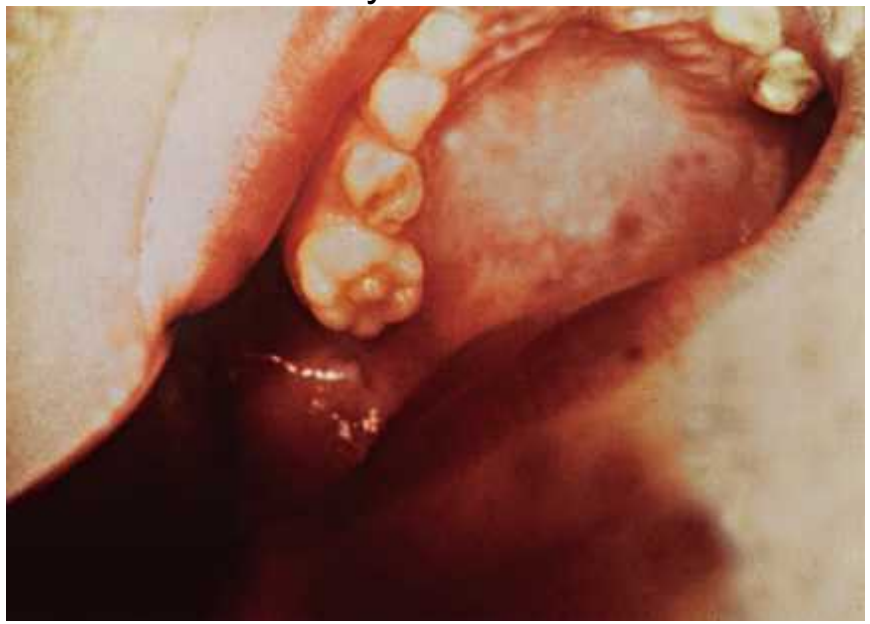
Late signs of congenital syphilis

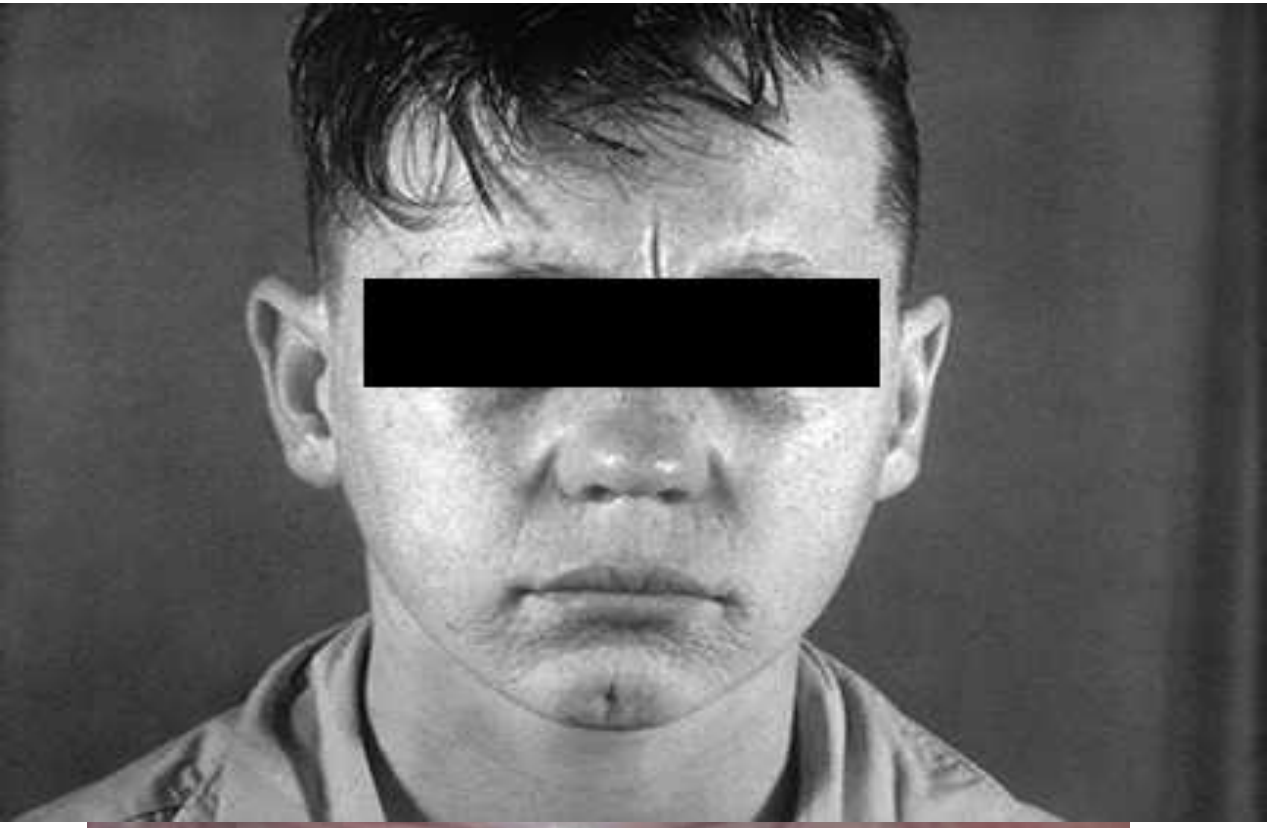
- It is defined as clinical disease that occurs after 2 years of age and results from persistent inflammation or scars caused by infection of early congenital syphilis.
- Late manifestations of congenital syphilis are similar to those seen in the adults, except for the rarity of cardiovascular involvement in the child. Malformations (clinical stigmas) may develop, either because infection occurred at a critical growth stage or as a direct result of disease.
- Findings relate to ongoing inflammation or scarring from earlier infection and resembles tertiary syphilis.



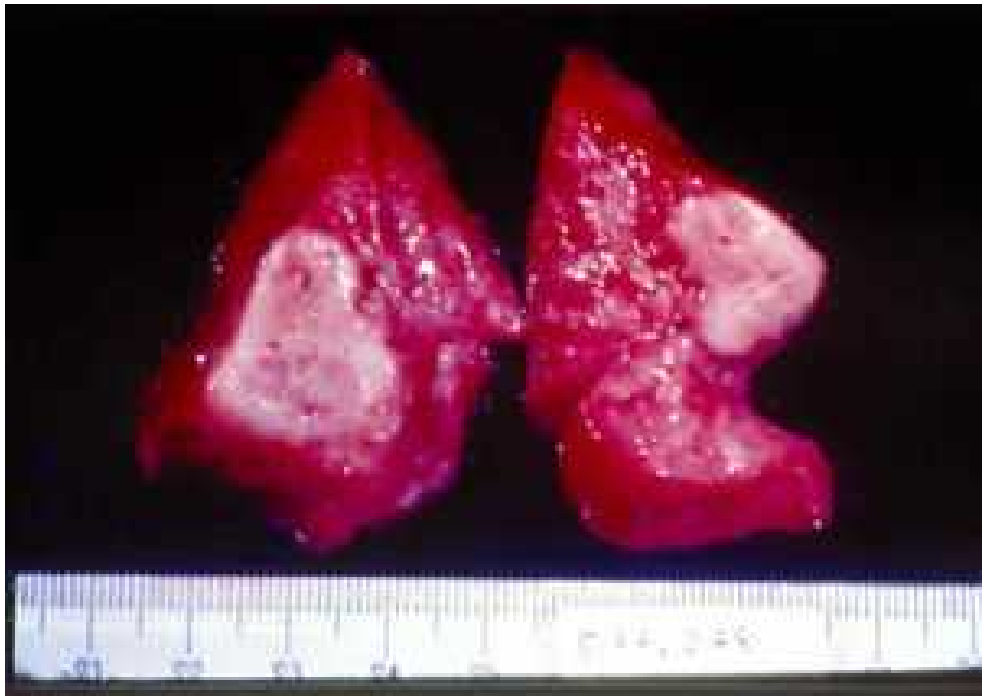


Hutchinson's teeth (notched, peg-shaped incisors) with enamel defects and incipient caries and mulberry molars below.



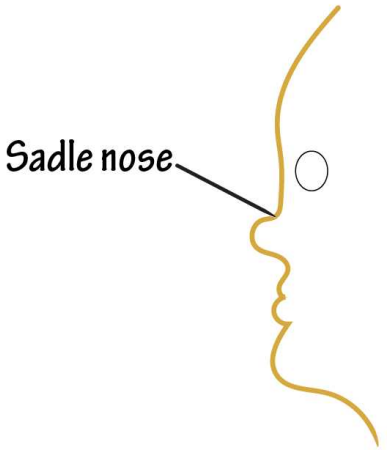


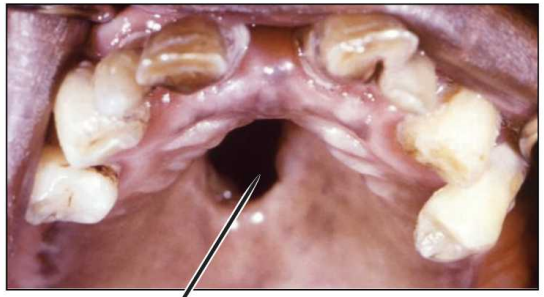
Rhagades around mouth and labia

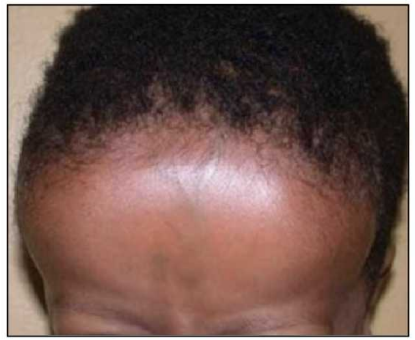


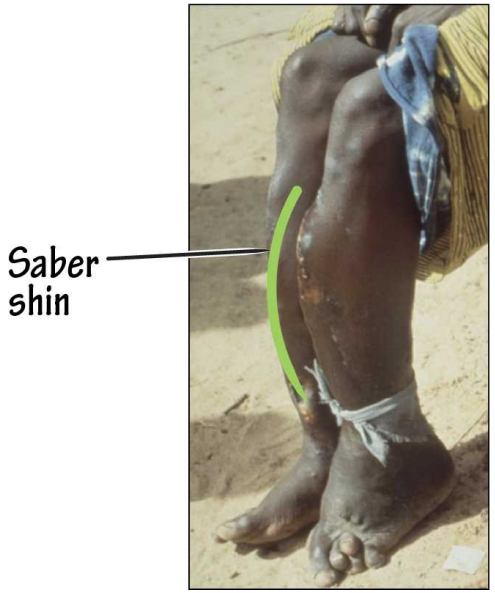
The white lesions (gummas) had a firm, elastic consistency in the lungs

Late signs of Congenital Syphilis

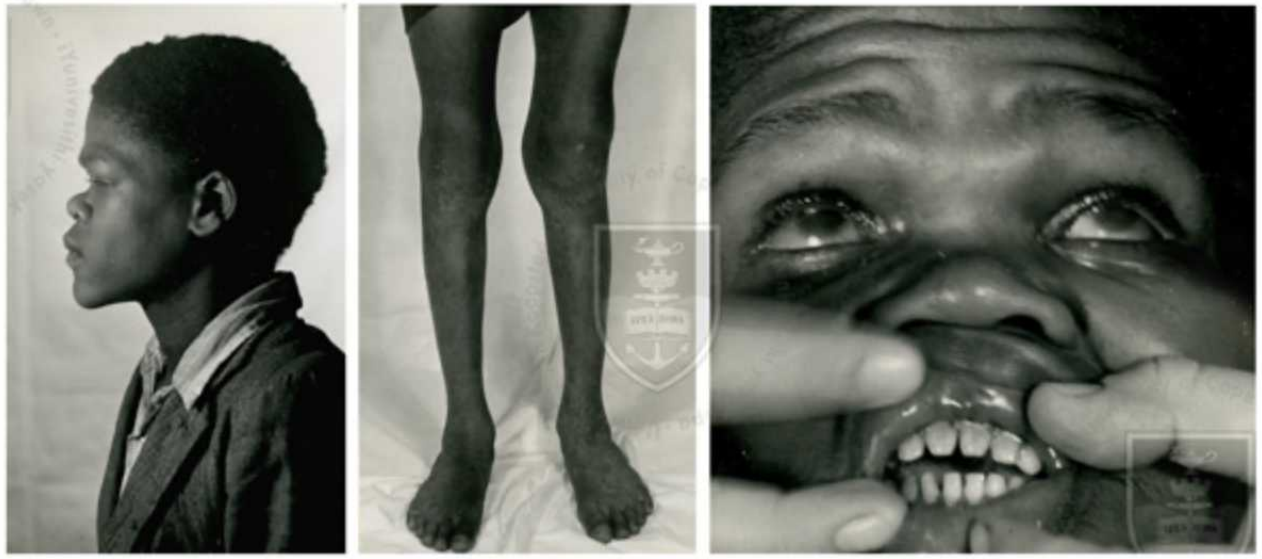






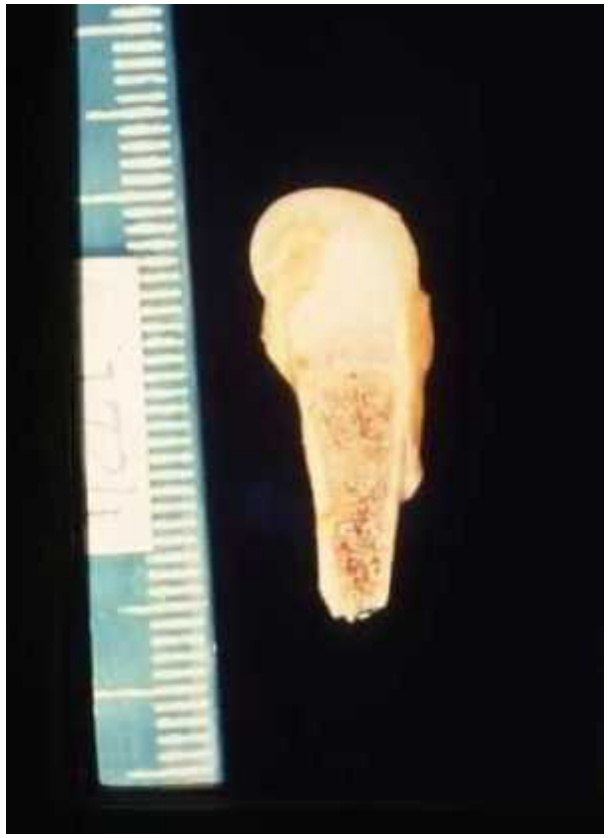


Frontal bossing and saddle nose in an infant with late congenital syphilis.

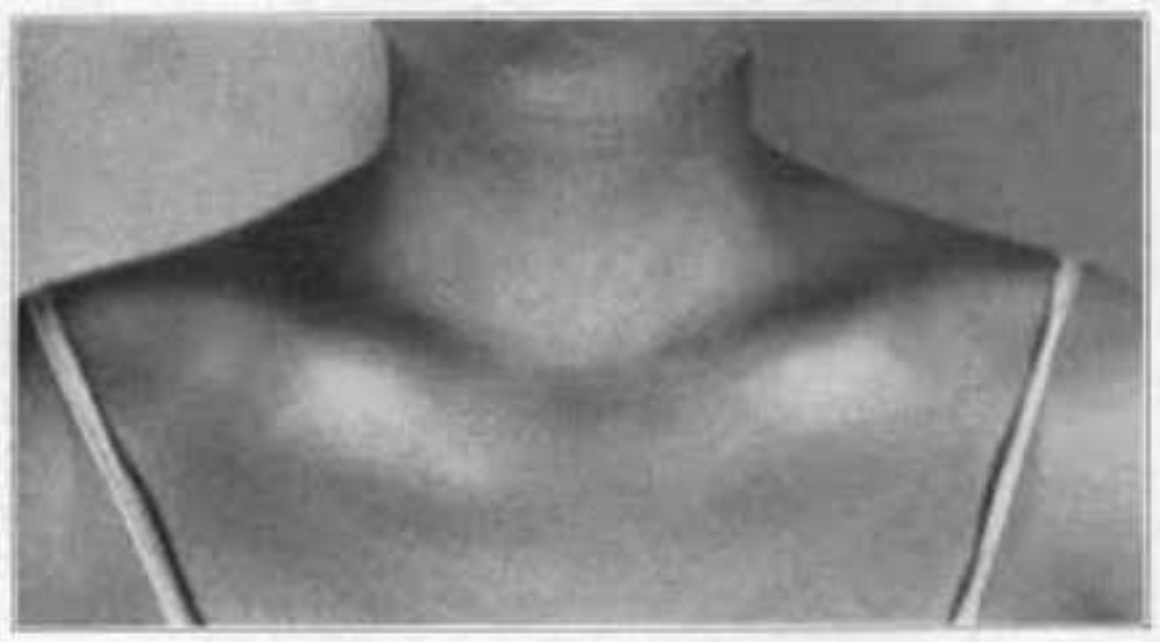


Stigmata of late congenital syphilis in a boy at age 15 years, year 1943.

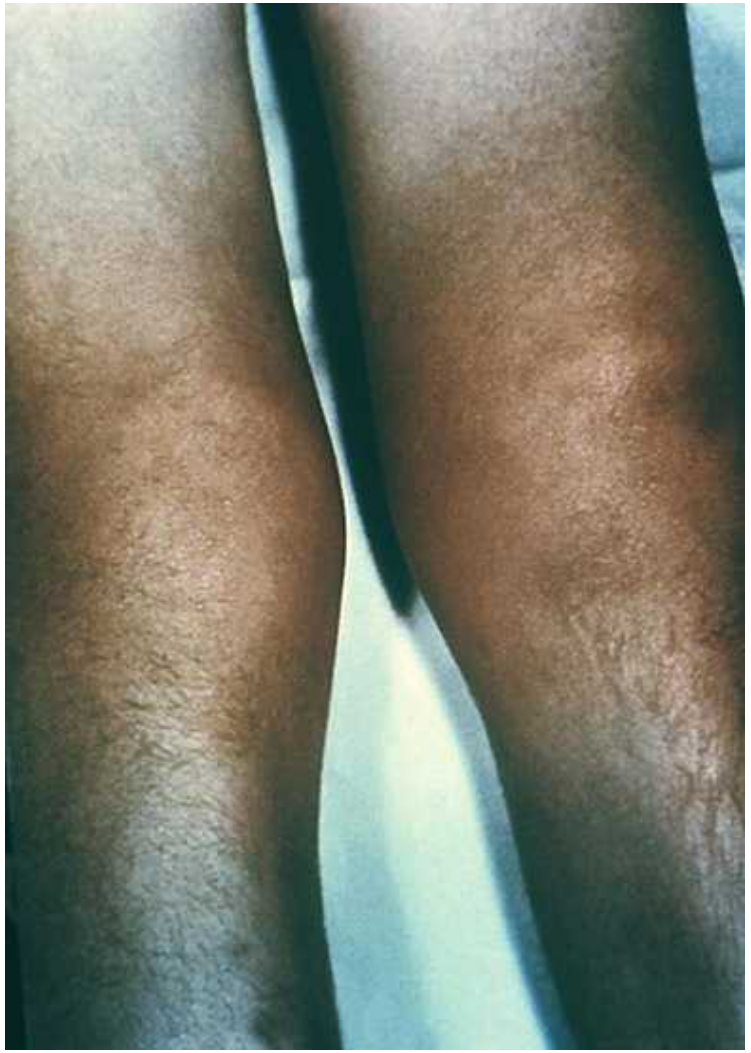
Saddle nose, clutton ' s joints, Hutchinson ' s teeth and interstitial keratitis i.e chronic, non-ulcerative inflammation of the corneal stroma (the middle layers of the cornea), without involvement of either epithelium or endothelium.



Femur with abnormalities along the epiphyseal line, thickening of the periosteum, and a white nodular area corresponding to a bone

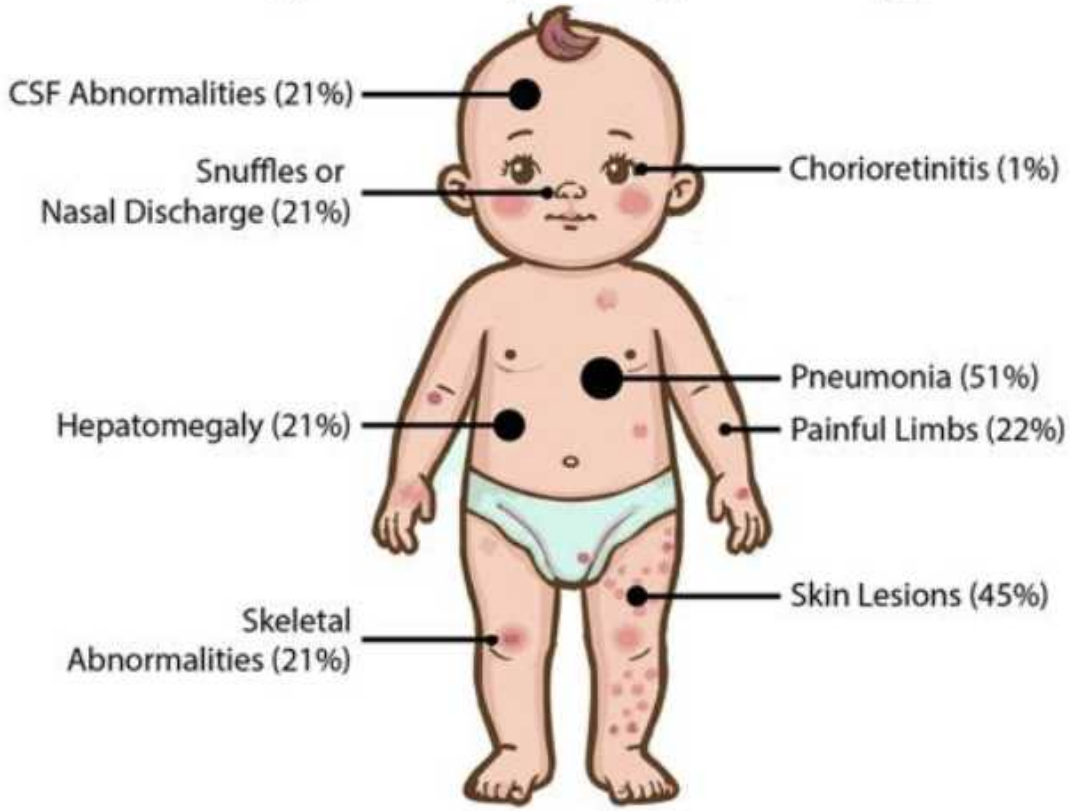


Higoumenakis sign: sternoclavicular thickening or deformity



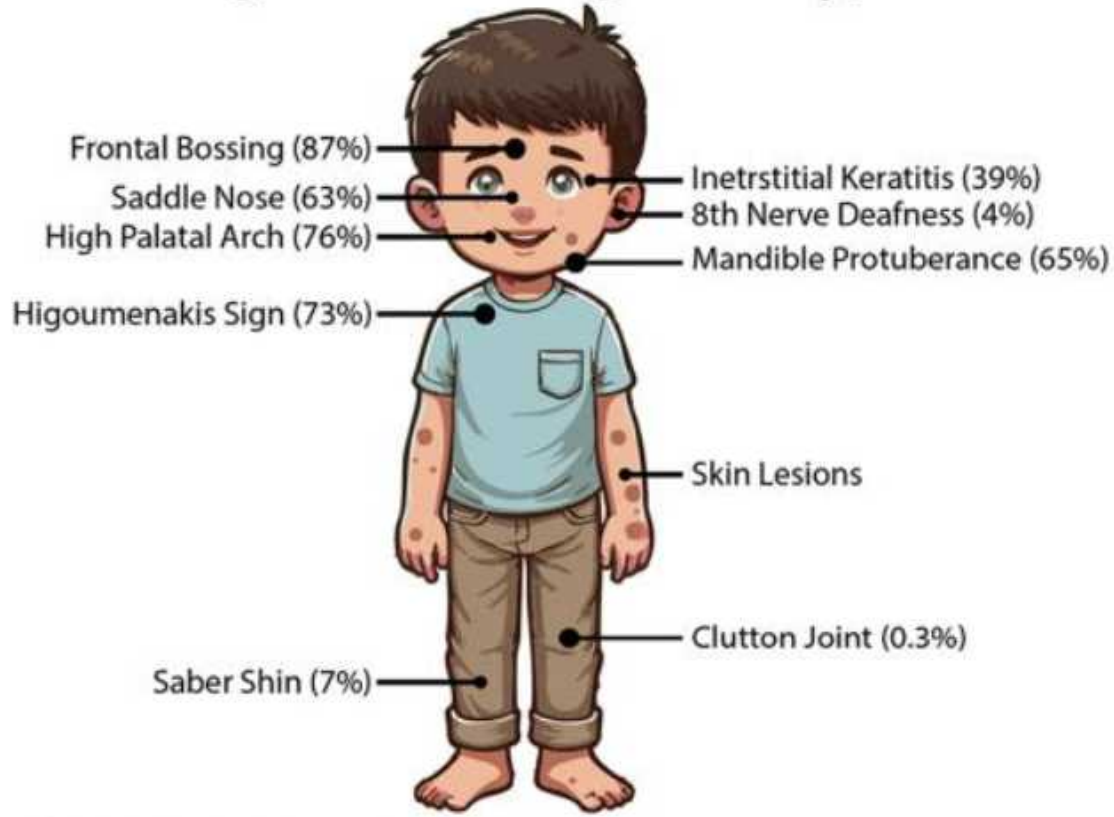
Clutton joints- painless effusion of both knees with little or no impairment of function. Causes chronic, often permanent effusion but rarely disrupts joint function.

Findings in Early Congenital Syphilis



Other findings (non-exhaustive):
Small for gestational age (51%), Hyperbilirubinemia (40%), Anemia (50%), Failure to Thrive (10%).

Findings in Late Congenital Syphilis



Other findings (non-exhaustive):
Short Maxilla (84%), Rhagades (26%), Mulberry Molars (9%), Hutchinson Teeth (3%), Scaphoid Scapulae (0.7%).

"Know syphilis in all its manifestations and relations, and all other things clinical will be added unto you."

Sir William Osler

European Journal of Pediatrics
https://doi.org/10.1007/s00431-024-05698-x

RESEARCH

Syphilitic hepatitis in infants, the forgotten disease that hepatologists have to brush up on: from a case series to a revision of literature

Valeria Delle Cave[1] · Geremia Zito Marinosci[2] · Dolores Ferrara[3] · Francesco Esposito[3] · Andrea Lo Vecchio[4] · Marco Sciveres[5] · Claudia Mandato[6] · Daniele De Brasi[7] · Paolo Siani[7] · Giusy Ranucci[5]

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Abstract

Clinical manifestations of congenital syphilis (CS) include liver disease with/without impaired liver function, identified as syphilitic hepatitis. Hepatic involvement may be dramatic; therefore, early diagnosis is crucial to provide treatment and prevent fatal outcomes. A new resurgence of CS cases has been described in recent years worldwide. We reported our experience with a case series of infants hospitalized for liver disease with a final diagnosis of CS, highlighting the wide spectrum of liver involvement, the rapid progression in cases with late diagnosis, and the pitfalls of the management of this forgotten but reemerging disease. A retrospective analysis of CS patients with hepatic presentation in the period 2008–2023 was conducted. We collected five cases (three female) with a median age of 13.8 days (range 1–84 days). In three cases, mothers were not screened for syphilis during pregnancy, and in two cases, they were seronegative in the first trimester screening. None practiced specific therapy during pregnancy. Hepatic involvement was characterized by hepatosplenomegaly, in four cases associated with cholestatic jaundice and in three cases with liver failure. Rapid plasma reagin (RPR) and *Treponema pallidum* hemagglutination assay (TPHA) were positive in all cases in mothers and infants. CS presented with multiorgan involvement and was fatal in one case.

Conclusions: It is important to consider CS in infants with cholestasis and acute liver failure, but also in sick infants with isolated hepatomegaly. Early recognition of infants with CS is critical to identify missed cases during pregnancy and to start early treatment.

Tests used for syphilis detection

Tests	
Non-treponemal testing	RPR (Rapid Plasma Reagin), VDRL (Venereal Research Laboratory) • Measures host immune response to infections • Detects **current** syphilis infection. • Used to monitor response to treatment. • Not 100% sensitive or 100% specific
Treponemal testing	TPHA (Treponema Pallidum Haemagglutination assay), TPPA (Treponema pallidum particle agglutination assay) , FTS-ABS (fluorescent treponemal antibody absorbed) • Measure **antibodies** to infection • Cannot differentiate between a person who is currently infected or one who has been cured.
Rapid diagnostic test (RDT) eg Combo dual HIV/syphilis RDT	Immunoassays that detect antibodies or antigens- results in 30mins. - Can miss early infections

STI Treatment Guideline MOHW 2025

Scenario 1

Confirmed proven

OR

Highly Probable congenital syphilis

A physical exam abnormal

Or

Serum quantitative VDRL >= 4x maternal titre at delivery

IV Penicillin G x 10 days

Scenario 2

Possible congenital syphilis

Normal physical exam AND VDRL titre =or< 4-fold maternal titre AND maternal treatment none/unknown/inadequate or initiated <30 days before delivery

IV Penicillin G x 10 days

Scenario 3

Less likely congenital syphilis

A physical exam normal

AND

VDRL less or equal 4x maternal titre

AND

Mother completed Rx appropriately, >30 days before delivery and mother no evidence of relapse or reinfection

<u>No treatment required if follow up certain</u>

(CDC 2021

IM Benzathine penicillin

if follow up uncertain)

Scenario 4

Unlikely congenital syphilis

A physical exam normal

AND

VDRL < or = 4x maternal titre

AND

Mother adequate Rx **before** pregnancy

Maternal VDRL low before/during pregnancy/after delivery

2024 IM Benzathine penicillin if follow

Management when baby presents after delivery

- If the baby presents **within first 7 days** of delivery, treat with:
Aqueous crystalline penicillin 50,000 units / kg intravenous, **12 hourly** for 7 days and then 50,000 units / kg IV **8 hourly** for 3 days (altogether for 10 days)

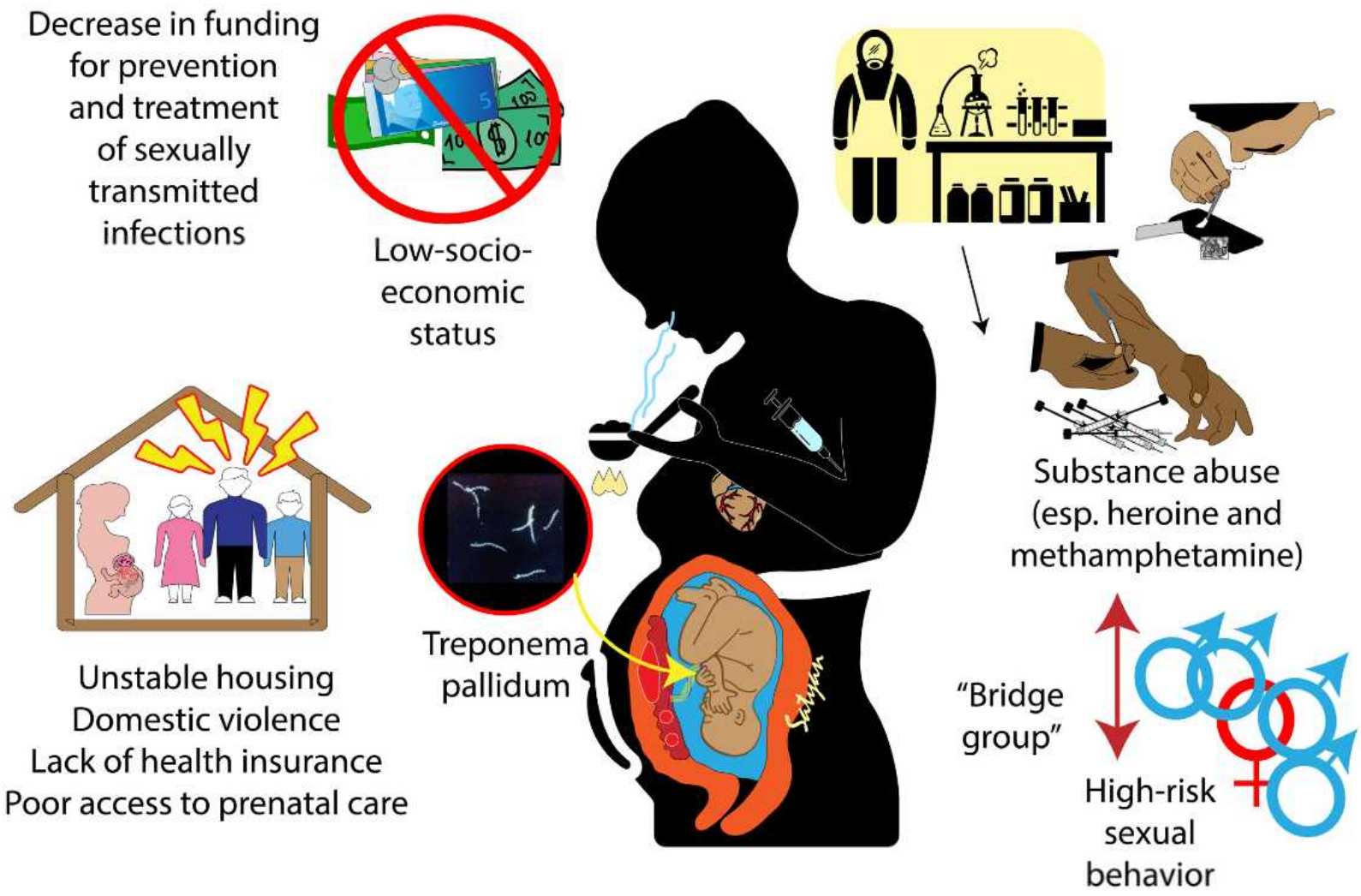
- If the baby presents **between 8-30 days** of delivery treat with :
Aqueous crystalline penicillin 50,000 units / kg IV **8 hourly** for 10 days

- If the baby presents **more than one month** after delivery, treat with:
Aqueous crystalline penicillin 50,000 units / kg IV **4-6 hourly** for 10 days

Follow up

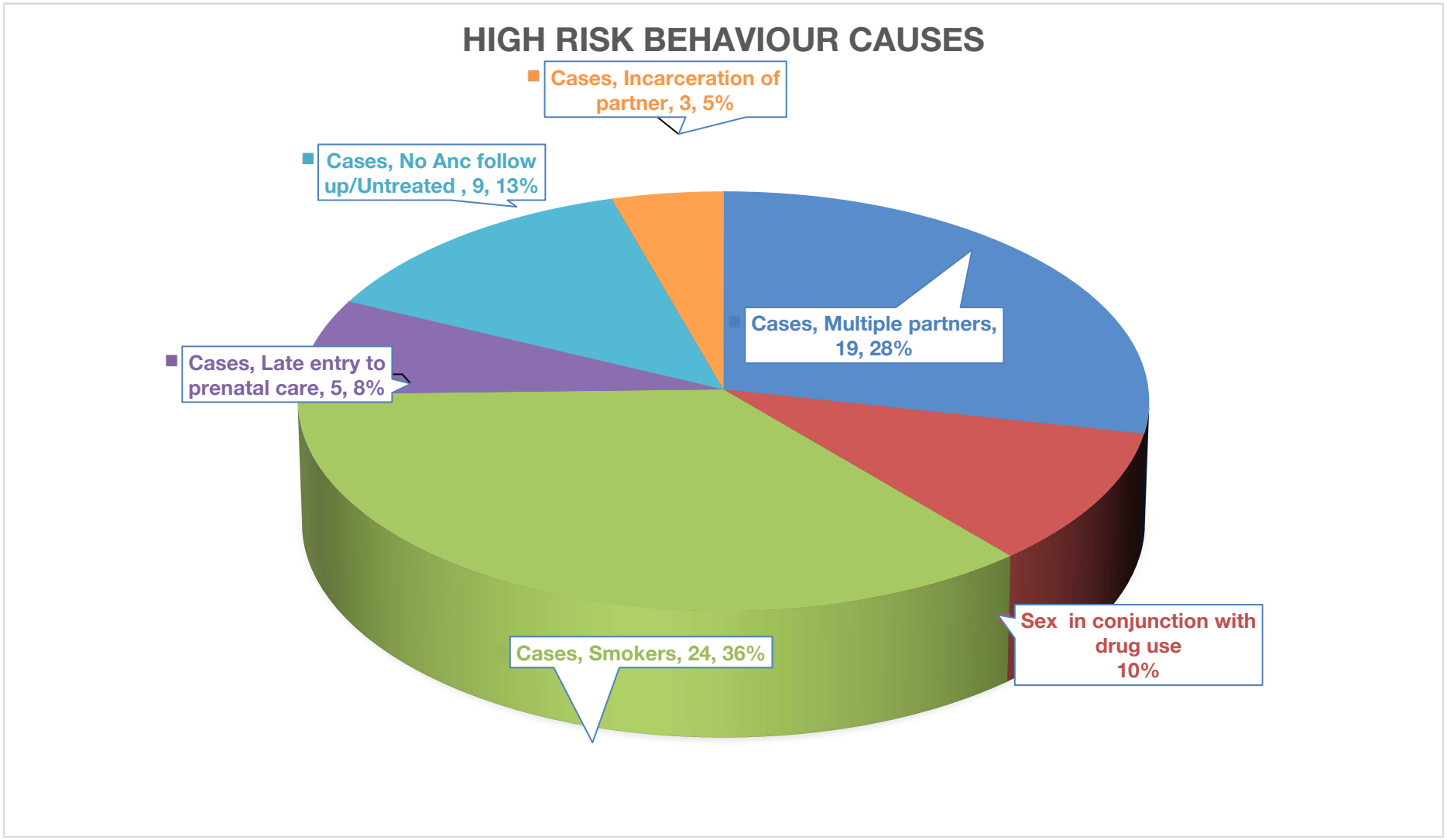
Infection treatment status	Timing of syphilis serology	SSRN Hospital
Baby Not treated at delivery (due to adequate maternal treatment completed BEFORE pregnancy AND no maternal reinfection concerns post-treatment)	Birth 3 months 6 months 12 to 18 months	29 (57%) attended 3rd month visit (15 had unreactive serology) 15 (29%) attended 6th month visit 7 (14%) attended 9th month visit
Baby Not treated at delivery (due to adequate maternal treatment completed in pregnancy>4weeks before delivery AND no maternal reinfection concerns post-treatment)	Birth ~6 to 8weeks 4 months 6 months 12 to 18 months	
Baby treated with 10 days IV penicillin G at delivery	Birth 3 months 6 months 12 to 18 months	

Risk factors for perinatal syphilis infection



Type Of Risk Factor	Description
At individual level	High risk sexual behaviour Substance use, Belonging to vulnerable groups Inadequate prioritisation healthcare and poor utilisation of available resources Stigma and fear of judgement
Community level	Inadequate access to healthcare, inadequate medical knowledge among clinicians, stigma, poor provision of sexual education
System level	Poverty Home insecurity Resource constraints/lack of funding Inadequate public infrastructure Health policy makers

Risk Factors



Outcome

- IUGR (< 3rd percentile) n=13
- Stillbirth n=1 (29+5 days gestation-1.46kg)
- Term with Deranged LFT n=2
- Term with medical NEC n=1

Success models

At birth all babies born to mothers with syphilis in pregnancy were initiated treatment. Laboratory syphilis serology result is usually obtained at about 7th day of life.

15 of the neonates born from mother who had positive serology during pregnancy were successfully treated within 3 months of life with unreactive serologic laboratory testing.

- ❖ At birth neonatal serum:VDRL + 1:2, TPHA +++ 1:1280
- ❖ At 3 month of age: VDRL neg, TPHA neg
- Their respective mothers were treated with the 3-week regimen of Benzathine Penicillin G during the first trimester. They even joined the smoking cessation clinic. ANC follow up was done as per protocol.
- Following contact tracing, 15 sexual partners have been treated for syphilis and have undergone follow-up testing (using nontreponemal test-VDRL). Both partners admitted that they abstain from sexual activity until at least seven days after they have completed treatment.

Recommendations

- Having a point of care test is sufficient to start treatment, a strategy recommended to reduce the risk of losing the opportunity to prevent transplacental transmission and congenital syphilis.
- Treponemal rapid tests (on site test) can thus be used as the entry point followed by laboratory-based testing, thus speeding up diagnosis and timely treatment among pregnant women as well as women of reproductive age in all medical centres both at primary care level and in hospitals as well as prisons.
- Understanding the signs and symptoms could enable us to swiftly identify potential cases of syphilis and initiate appropriate testing and treatment, thus reducing risk of complications and transmission.
- Additionally all cases of intrauterine fetal demise/stillbirth should be investigated for syphilis.
- All persons who have sexual contact with a person diagnosed with primary, secondary, or early latent syphilis infection should undergo evaluation, testing, and treatment for syphilis.

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Maldives achieves triple elimination of mother-to-child disease transmission

Priya Venkatesan

Article Info

On Oct 13, 2025, the Maldives became the first country in the world validated by WHO as having eliminated mother-to-child transmission of HIV, syphilis, and hepatitis B.

The criteria for elimination status include 50 or fewer cases of new paediatric HIV infections per 100 000 livebirths; 50 or fewer cases of congenital syphilis per 100 000 livebirths; and less than 0·1% prevalence of hepatitis B surface antigen in children aged 5 years and younger. In the Maldives, no infants were born with HIV or syphilis in 2022 or 2023, and no hepatitis B was noted in young children in 2023, which surpassed the required targets. In a press statement, the Maldives

Country guidance for planning triple elimination of mother-to-child transmission of HIV, syphilis and hepatitis B virus programmes

World Health Organization

unicef

Box 3.1. Summary of required impact and process targets for global validation of EMTCT of HIV, syphilis and HBV

EMTCT IMPACT TARGETS

(Must be the most recent verified data and must be achieved for at least one year)

- MTCT rate of HIV of <2% in non-breastfeeding populations OR <5% in breastfeeding populations (see section 6.2)
- a population case rate of new paediatric HIV infections due to MTCT of ≤50 cases per 100 000 live births
- a case rate of CS of ≤50 per 100 000 live births
- hepatitis B surface antigen (HBsAg) prevalence of ≤0.1% in the ≤5-year-old birth cohort (and older children)[a]
- In countries that provide targeted timely HepB-BD, an additional impact target of HBV MTCT rate of ≤2% should be utilized.

EMTCT PROCESS TARGETS

(Must be the most recent verified data and must be achieved for two consecutive years)

Maternal ANC and testing coverage

- ≥95% ANC coverage (at least one visit) (ANC-1)
- ≥95% coverage of HIV testing of pregnant women
- ≥95% coverage of syphilis testing of pregnant women in ANC
- ≥90% coverage of HBsAg antenatal testing among pregnant women.

MATERNAL TREATMENT

- ≥95% ART coverage of pregnant women living with HIV
- ≥95% adequate treatment of syphilis-seropositive pregnant women (see Box 3.6)
- ≥90% coverage with antivirals for eligible HBsAg-positive pregnant women with high viral loads (plus coverage of HBV-exposed babies with hepatitis B immune globulin (HBIg), where available).

INFANT HBV VACCINATION

- ≥90% coverage with three doses of HBV infant vaccinations (HepB3)[b]
- ≥90% HepB timely[c] birth dose coverage (with universal programme) or infants at-risk[d] (with targeted timely HepB-BD).

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