Infectious diseases

	4/5th Semester Classes on Infectious Diseases, 8-9AM, Tuesdays (LT-1)
	Topics
1	Approach to Infectious Diseases and their prevention
2	Antibiotic stewardship practices
3	Community-Acquired Infections
4	Health Care–Associated Infections
5	Gram-Positive Bacteria (part-1)
6	Gram-Positive Bacteria (part-2)
7	Gram-Negative Bacteria (part-1)
8	Gram-Negative Bacteria (part-2)
9	Spirochetal Diseases
10	Diseases Caused by Atypical/Miscellaneous Bacterial Infections
11	**Revision-cum-exam on bacteria (Must to know type)**
12	Infections Due to DNA Viruses
13	Infections Due to RNA Viruses (part 1)
14	Infections Due to RNA Viruses (part 2)
15	HIV/AIDS – part 1
16	HIV/AIDS – part 2
17	Fungal Infections
18	Parasitic Infections (part 1)
19	Parasitic Infections (part 2)
20	**Revision-cum-exam on Virus, Fungal, and Parasite (Must to know type)**

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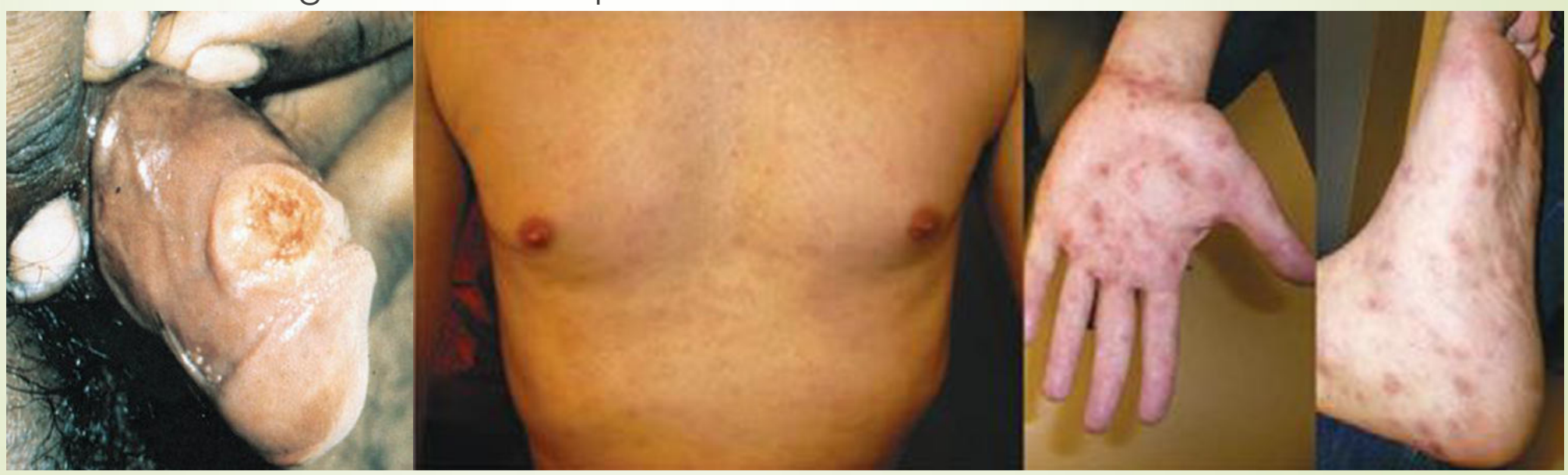
Spirochaetales

- *Leptospira* species, which cause leptospirosis
- *Borrelia* species, which cause relapsing fever and Lyme
- *Brachyspira* species, which cause intestinal infections; and
- *Treponema* species, which cause the diseases ***treponematoses***

- The *Treponema* species include
  - *T. pallidum* subspecies *pallidum*, which causes venereal **syphilis**;
  - *T. pallidum* subspecies *pertenue*, which causes yaws;
  - *T. pallidum* subspecies *endemicum*, which causes endemic syphilis; and
  - *T. carateum*, which causes pinta

- *T. pallidum* **cannot** be cultured in vitro and **only known natural host is the human**
- **Jarisch- Herxheimer reaction** is always a possibility in all spirochetes

- Nearly all cases of **syphilis** are acquired by sexual contact **with infectious lesions** (i.e., the chancre, mucous patch, skin rash, or condylomata lata)
- Others: personal contact, infection in utero, blood transfusion, and organ transplantation
- **IP – average 21 days**
- Rapidly penetrates intact mucous membranes or abrasions in skin and, within a few hours, enters the lymphatics and blood to produce systemic infection
- Identification and examination of sexual contacts are most important for patients with syphilis of <1 year's duration
- The clinical appearance depends on **the number of treponemes inoculated** and on the immunologic status of the patient



- Primary Syphilis - primary **chancre**
- Secondary Syphilis - parenchymal, constitutional, and mucocutaneous manifestations
- Tertiary Syphilis – **gumma** (a usually benign granulomatous lesion); cardiovascular syphilis (usually ascending aorta and resulting in aneurysm); and **neurosyphilis** (asymptomatic, meningeal, meningovascular, and parenchymatous (tabes dorsalis and paresis) syphilis)
- Latent Syphilis - Positive serologic tests for syphilis, together with a normal CSF examination and the absence of clinical manifestations
- Congenital Syphilis - fetal damage generally does not occur until after the **fourth month** of gestation; most common clinical problem is **the healthy-appearing baby born** to a mother with a positive serologic test Routine serologic testing in early

- **Screening or diagnosis** (RPR or VDRL)
- Quantitative measurement of antibody to assess clinical syphilis activity or **to monitor** response to therapy (RPR or VDRL)
- **Confirmation o**f a syphilis diagnosis in a patient with a reactive RPR or VDRL test (FTA-ABS, TPPA, EIA/CIA)
- Persons with newly diagnosed **HIV infection** should be tested for syphilis; conversely, all patients with newly diagnosed syphilis should be tested for HIV infection

TABLE 206-1 INDICATIONS FOR CEREBROSPINAL FLUID EXAMINATION IN ADULTS WITH ALL STAGES OF SYPHILIS

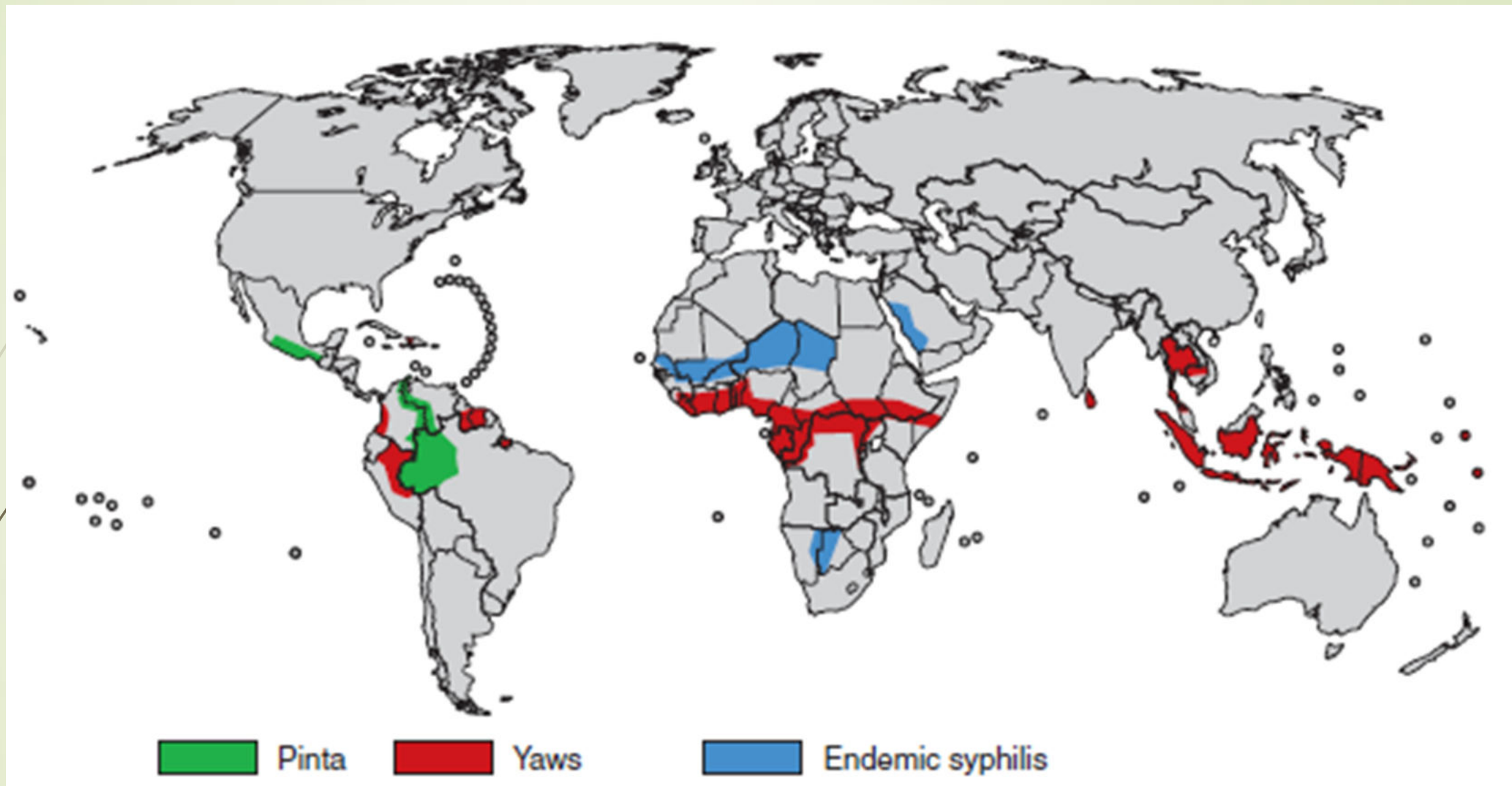
All Patients
Signs or symptoms of nervous system involvement (e.g., meningitis, hearing loss, cranial nerve dysfunction, altered mental status, ophthalmic disease [e.g., uveitis, iritis, pupillary abnormalities], ataxia, loss of vibration sense), *or*
RPR or VDRL titer ≥1:32, *or*
Active tertiary syphilis, *or*
Suspected treatment failure
Additional Indications in HIV-Infected Persons
CD4+ T cell count ≤350/μL, *or*
All HIV-infected persons (recommended by some experts)

TABLE 206-2 RECOMMENDATIONS FOR THE TREATMENT OF SYPHILIS[a]

Stage of Syphilis	Patients without Penicillin Allergy	Patients with Confirmed Penicillin Allergy[b]
Primary, secondary, or early latent	*CSF normal or not examined:* Penicillin G benzathine (single dose of 2.4 mU IM)	*CSF normal or not examined:* Tetracycline HCl (500 mg PO qid) or doxycycline (100 mg PO bid) for 2 weeks
	CSF abnormal: Treat as neurosyphilis	*CSF abnormal:* Treat as neurosyphilis
Late latent (or latent of uncertain duration), cardiovascular, or benign tertiary	*CSF normal or not examined:* Penicillin G benzathine (2.4 mU IM weekly for 3 weeks)	*CSF normal and patient not infected with HIV:* Tetracycline HCl (500 mg PO qid) or doxycycline (100 mg PO bid) for 4 weeks
	CSF abnormal: Treat as neurosyphilis	*CSF normal and patient infected with HIV:* Desensitization and treatment with penicillin if compliance cannot be ensured
		CSF abnormal: Treat as neurosyphilis
Neurosyphilis (asymptomatic or symptomatic)	Aqueous crystalline penicillin G (18–24 mU/d IV, given as 3–4 mU q4h or continuous infusion) for 10–14 days *or* Aqueous procaine penicillin G (2.4 mU/d IM) plus oral probenecid (500 mg qid), both for 10–14 days	Desensitization and treatment with penicillin[c]
Syphilis in pregnancy	According to stage	Desensitization and treatment with penicillin

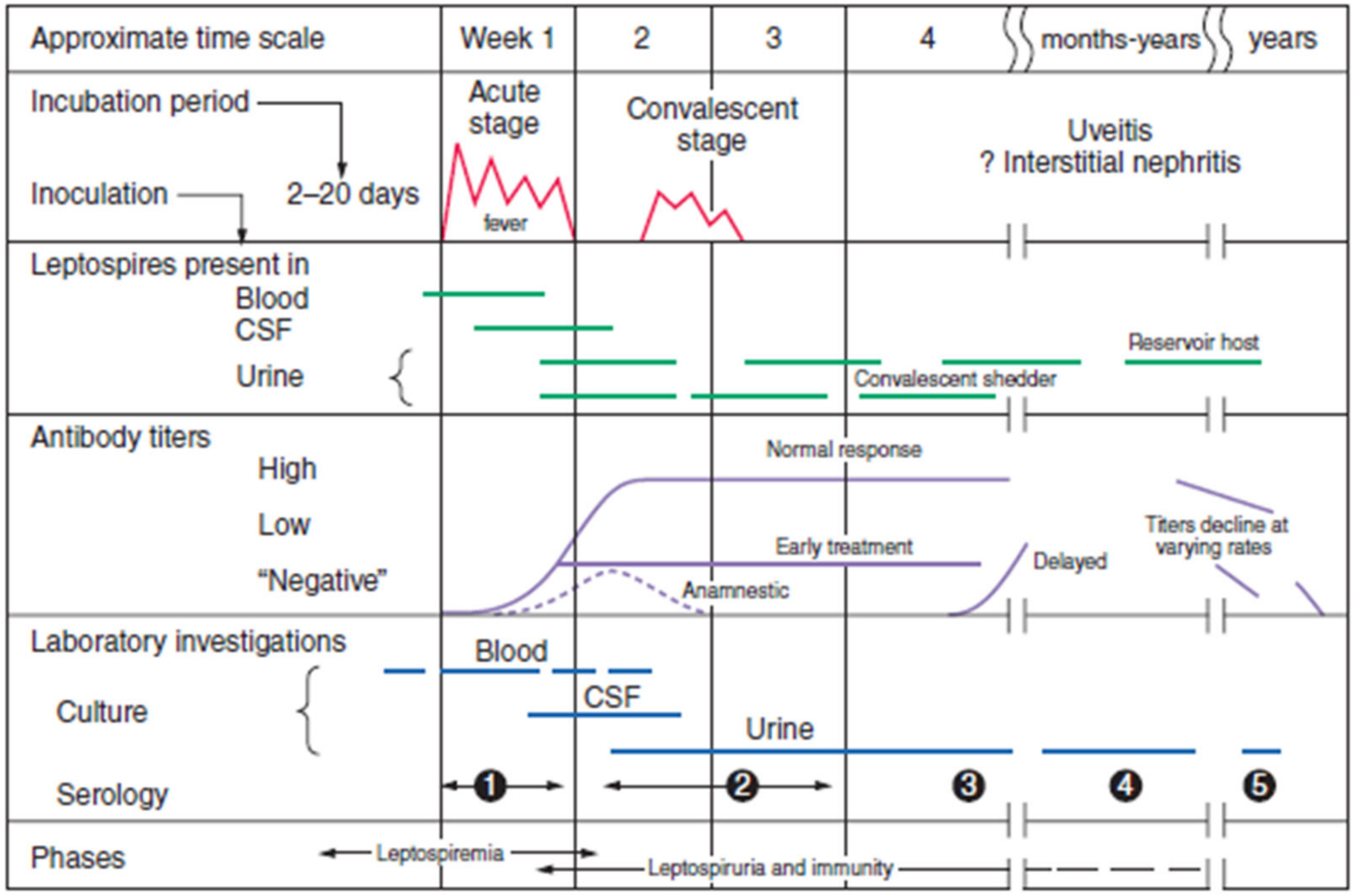
An infant should be treated at birth

- if the treatment status of the seropositive mother is unknown;
- if the mother has received inadequate or nonpenicillin therapy;
- if the mother received penicillin therapy in the third trimester; or
- if the infant may be difficult to follow



Leptospirosis

- Recent outbreaks on **virtually all continents (mainly in the tropics and subtropics**)
- By pathogenic species, *L. interrogans* designated as ***L. interrogans* sensu lato**
- **Underappreciated problem** with a broad spectrum of clinical manifestations, varying from asymptomatic infection to fulminant, fatal disease
- Rodents, especially rats, are the most important **reservoir**
- Transmission may **follow direct contact** with urine, blood, or tissue from an infected animal or, more commonly, exposure to environmental contamination **through cuts, abraded skin, or mucous membranes**
- **IP -** 1 to 30 days
- *Leptospiremic phase* – evade complement-mediated killing by binding **factor H**
- Immune phase - bacteria persist in various organs



- Mild Leptospirosis - usually presents as **a flu-like illness, with** fever, conjunctival suffusion, pharyngeal injection, muscle tenderness, lymphadenopathy, rash, meningismus, hepatomegaly, and splenomegaly
- Severe Leptospirosis **- *Weil's syndrome***, encompasses the triad of hemorrhage, jaundice, and acute kidney injury; Other syndromes include (necrotizing) pancreatitis, cholecystitis, rhabdomyolysis, and neurologic manifestations including aseptic meningitis
- **Clinical diagnosis** should be based on an appropriate exposure history combined with any of the protean manifestations
- Definitive diagnosis is based on isolation of the organism, polymerase chain reaction (PCR), or seroconversion or a rise in antibody titer (by MAT/ELISA)
- **Nonoliguric hypokalemic renal insufficiency** is characteristic of early leptospirosis

TABLE 208-1 TREATMENT AND CHEMOPROPHYLAXIS OF LEPTOSPIROSIS IN ADULTS[a]

Indication	Regimen
Treatment	
Mild leptospirosis	Doxycycline[b] (100 mg PO bid) *or* Amoxicillin (500 mg PO tid) *or* Ampicillin (500 mg PO tid)
Moderate/severe leptospirosis	Penicillin (1.5 million units IV or IM q6h) *or* Ceftriaxone (2 g/d IV) *or* Cefotaxime (1 g IV q6h) *or* Doxycycline (loading dose of 200 mg IV, then 100 mg IV q12h)
Chemoprophylaxis[c]	
	Doxycycline[b] (200 mg PO once a week) *or* Azithromycin (250 mg PO once or twice a week)

Thank you