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INFECTIOUS DISEASE · REPRODUCTIVE HEALTH

Syphilis
The Great Imitator

A spirochete infection that hides in plain sight — staged, systemic, and curable when caught early.

TREPONEMA PALLIDUM

STI / BLOODBORNE

REPORTABLE DISEASE

PCN G = DRUG OF CHOICE

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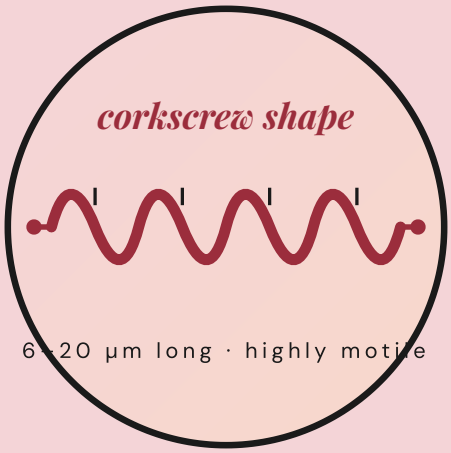
SECTION ONE

Definition & *Overview*

A A **systemic sexually transmitted infection** caused by the spirochete bacterium *Treponema pallidum*, transmitted through sexual contact, transplacentally (mother-to-fetus), or by blood exposure.

B Called the **"Great Imitator"** because its symptoms mimic many other diseases — easy to miss, easy to misdiagnose, and progresses through **four distinct stages** if untreated.

C **Reportable to public health**. Curable with penicillin in early stages; untreated disease leads to neurological, cardiovascular, and congenital catastrophe.



Treponema pallidum

ANAEROBIC SPIROCHETE

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SECTION TWO

Pathophysiology *Simplified*

01

Entry

T. pallidum penetrates mucous membranes or microabrasions in skin during sexual contact.

02

Local Multiplication

Spirochete replicates locally → painless **chancre** appears at inoculation site.

03

Dissemination

Enters bloodstream + lymphatics within hours → spreads systemically (secondary stage).

04

Immune "Truce"

Immune response controls but cannot eliminate → bacteria go dormant (latent stage).

05

End-Organ Damage

Years later: gummas, aortitis, neurosyphilis from chronic immune-mediated tissue destruction.

SECTION THREE

3 Signs & Symptoms *by Stage*

Primary

10–90 DAYS POST-EXPOSURE

- [x] **PAINLESS chancre — single, indurated, clean-based ulcer at inoculation site** RED FLAG
- [ ] Painless regional lymphadenopathy
- [ ] Heals spontaneously in 3–6 weeks (without treatment = false sense of recovery)
- [ ] Highly infectious lesion — fluid teeming with spirochetes

Secondary

WEEKS TO 6 MONTHS LATER

- [x] **Maculopapular rash on PALMS and SOLES — classic NCLEX cue** RED FLAG
- [ ] Condylomata lata — broad, moist, gray-white wart-like plaques (highly infectious)
- [ ] Mucous patches in mouth/genitals
- [ ] Generalized lymphadenopathy
- [ ] Fever, malaise, sore throat, headache
- [ ] Patchy "moth-eaten" alopecia

Latent

ASYMPTOMATIC PHASE

- [ ] **No clinical signs** — only positive serology
- [ ] **Early latent** (< 1 year) — still infectious sexually
- [ ] **Late latent** (> 1 year) — not sexually transmitted, but vertical transmission to fetus still occurs
- [ ] Can persist for years before tertiary disease

Tertiary

3–30+ YEARS UNTREATED

- **Gummas — soft granulomatous lesions in skin, bone, organs** RED FLAG
- **Cardiovascular syphilis — aortitis, thoracic aortic aneurysm, aortic regurgitation** RED FLAG
- **Neurosyphilis — tabes dorsalis, general paresis, Argyll-Robertson pupils (accommodate but don't react to light)** RED FLAG
- Can occur at ANY stage if CNS is invaded

Congenital Syphilis — Vertical Transmission

Transmission across the placenta at any stage of pregnancy. ALL pregnant clients are screened at the first prenatal visit; high-risk clients re-screened in the third trimester and at delivery.

EARLY SIGNS

Snuffles (bloody nasal discharge), maculopapular rash, hepatosplenomegaly, jaundice, IUGR

LATE SIGNS

Hutchinson teeth (notched incisors), mulberry molars, saddle nose, saber shins

HUTCHINSON'S TRIAD

Hutchinson teeth + interstitial keratitis + 8th nerve deafness

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SECTION FOUR

Priority Nursing *Interventions*

ASSESS **Sexual history** in a private, nonjudgmental setting. Inspect skin (palms, soles, mucous membranes, genitals). Document number and location of lesions.

SCREEN Obtain serology: **VDRL or RPR** for screening; confirm with **FTA-ABS or TP-PA**. Co-test for HIV — coinfection is common.

ADMINISTER **Benzathine Penicillin G IM** — single dose for primary/secondary/early latent; weekly × 3 for late latent or unknown duration; IV aqueous PCN G for neurosyphilis.

MONITOR Watch for **Jarisch-Herxheimer reaction** within 24 hrs of treatment — fever, chills, myalgia, headache from rapid spirochete death. Self-limited; treat symptoms.

PROTECT Wear **gloves** when handling lesions or body fluids. Lesions of primary and secondary syphilis are HIGHLY contagious. Standard + contact precautions for moist lesions.

REPORT Mandatory **public health reporting**. Collaborate with health department for partner notification and contact tracing. Maintain client confidentiality.

FOLLOW-UP Repeat **RPR/VDRL titers at 6 and 12 months**. Expect a four-fold decline in titer to confirm cure. Persistent or rising titers = treatment failure or reinfection.

ANAPHYLAXIS Verify PCN allergy BEFORE administration. Have **epinephrine + crash cart available**. Observe client minimum 30 minutes after injection.

SECTION FIVE

5 Pharmacology *at a Glance*

Benzathine Penicillin G

BETA-LACTAM ANTIBIOTIC · DRUG OF CHOICE

ACTION	Inhibits bacterial cell wall synthesis → bacteriocidal against spirochetes.
DOSE	Primary/secondary/early latent: **2.4 million units IM × 1**. Late latent or tertiary: 2.4 million units IM weekly × 3. Neurosyphilis: aqueous PCN G IV × 10–14 days.
ADVERSE	Anaphylaxis · injection site pain · Jarisch-Herxheimer reaction

⚠ **Verify PCN allergy first.** Inject deep IM in dorsogluteal or ventrogluteal site (large volume, viscous). Never IV — fatal embolism risk.

Doxycycline

TETRACYCLINE · ALTERNATIVE

ACTION	Inhibits bacterial protein synthesis at the 30S ribosomal subunit.
USE	**Non-pregnant** PCN-allergic clients only. 100 mg PO BID × 14 days (early); × 28 days (late).
ADVERSE	Photosensitivity · GI upset · esophagitis · tooth discoloration in children

⚠ **Contraindicated in pregnancy and children under 8.** Take with full glass of water; remain upright 30 min. Avoid dairy, antacids, iron (chelation).

★

Pregnant Client + PCN Allergy

There is **NO safe alternative to penicillin in pregnancy**. The client must undergo **penicillin desensitization**

in a controlled setting (typically ICU), then receive standard PCN G. Doxycycline and tetracyclines are contraindicated — they cause fetal bone and tooth deformities.

SECTION SIX

6 NCLEX Test *Traps* ⚠

✗ WRONG THINKING	✓ RIGHT THINKING
"The chancre is painful and tender — like herpes."	The primary chancre is **painless**. Painful genital ulcers point to herpes or chancroid, not syphilis.
✗ WRONG THINKING	✓ RIGHT THINKING
"The rash will be on the trunk like measles."	Secondary syphilis rash **characteristically involves palms and soles** — a key NCLEX distinguisher.
✗ WRONG THINKING	✓ RIGHT THINKING
"The chancre healed, so the infection is gone."	Chancre heals spontaneously but the spirochete **disseminates**. Disease enters latent stage and progresses silently.
✗ WRONG THINKING	✓ RIGHT THINKING
"Give doxycycline to the pregnant client allergic to PCN."	**Desensitize and give penicillin.** Doxycycline is teratogenic — causes fetal tooth/bone abnormalities.
✗ WRONG THINKING	✓ RIGHT THINKING
"Treat neurosyphilis with the standard single IM dose."	Neurosyphilis requires **IV aqueous PCN G × 10–14 days** — IM doesn't cross blood-brain barrier adequately.
✗ WRONG THINKING	✓ RIGHT THINKING
"A positive RPR confirms syphilis diagnosis."	RPR/VDRL are **screening** tests — false positives occur (lupus, pregnancy, viral illness). Confirm with FTA-ABS or TP-PA.
✗ WRONG THINKING	✓ RIGHT THINKING

"Fever after PCN injection = the drug failed."	Fever, chills, headache within 24 hrs = **Jarisch-Herxheimer reaction** — expected response to spirochete die-off. Treat symptoms; continue therapy.
✗ WRONG THINKING "Condoms fully prevent transmission."	✓ RIGHT THINKING Condoms **reduce but do not eliminate** risk — chancres can occur on areas not covered by a condom (scrotum, base of penis, perineum).

SECTION SEVEN

7 Patient *Education*

- ✓ **Abstain from sexual activity** until you and all partners complete treatment AND all lesions are fully healed.
- ✓ **Notify ALL sexual partners** from the past 90 days (primary), 6 months (secondary), or 1 year (early latent) so they can be tested and treated.
- ✓ Use **latex condoms consistently** for future sexual contact — they reduce but don't eliminate risk.
- ✓ **Get HIV tested** — coinfection is common; HIV may alter syphilis presentation and treatment.
- ✓ Return for **follow-up titers at 6 and 12 months** to confirm cure. A four-fold decrease in titer is expected.
- ✓ Report any **fever, chills, or rash within 24 hours** of injection — this is the Jarisch-Herxheimer reaction and is self-limited.
- ✓ This is a **reportable disease** — your case (without your name being publicly disclosed) will be reported to the health department.
- ✓ If pregnant, syphilis can cross the placenta and harm the baby — **treatment protects the fetus**. Never skip prenatal screening.

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SECTION EIGHT

Memory *Boosters*

The Great Imitator

Syphilis mimics countless other diseases — rashes, flu, dementia, dermatitis, aortic disease. **If presentation seems weird and patient is sexually active → think syphilis.**

"Chancre Doesn't Cry"

The primary **chancre is painLESS**. If the ulcer hurts, it's not syphilis — it's herpes (vesicular, painful) or chancroid (painful, irregular border).

"Palms & Soles = Syphilis Rolls"

Rashes on palms and soles narrow your differential fast: **syphilis (secondary), Rocky Mountain Spotted Fever, hand-foot-and-mouth disease, Kawasaki**. On NCLEX with STI history → syphilis.

Stages: C-R-H-G

Chancre → **R**ash → **H**idden (latent) → **G**umma. Four words, four stages, in order.

"PCN Cures, Doxy Damages Babies"

Pregnant + PCN allergy = desensitize and give penicillin. Never doxycycline. Tetracyclines stain fetal teeth and impair bone growth.

Hutchinson's Triad (Congenital)

Hutchinson teeth (notched) · **I**nterstitial keratitis · **D**eafness (8th nerve). Late signs in congenital syphilis — "H-I-D" hidden too long.

"Argyll-Robertson = Prostitute's Pupil"

In tertiary neurosyphilis: pupils **accommodate but don't react to light**

"Treponema → Treat with PCN"

Both start with "T". **T**reponema = **T**reat with penicillin. Pattern recognition that

— the old mnemonic was that they "accommodate but don't react" just like the namesake.

works every time on NCLEX.

SECTION NINE

9 NCJMM Clinical *Judgment Scenario*

Scenario: A 28-year-old client presents to the community clinic reporting a "sore" on the penis noticed 2 weeks ago. States it doesn't hurt but is concerning. Reports multiple sexual partners in the past 6 months and inconsistent condom use. Vital signs WNL. On exam: single, indurated, 1-cm clean-based ulcer on the penile shaft with a firm rolled border. Painless inguinal lymphadenopathy bilaterally.

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RECOGNIZE CUES

- Painless genital ulcer × 2 weeks
- Indurated, clean-based, rolled border
- Multiple sexual partners, inconsistent condom use
- Painless bilateral inguinal lymphadenopathy

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ANALYZE CUES

- Painless ulcer = hallmark of primary syphilis
- Painless adenopathy = consistent with chancre
- Risk factors = high-risk sexual behavior
- Timing (2 weeks) within 10–90 day window

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PRIORITIZE HYPOTHESES

- **#1 Primary syphilis** (painless, indurated)
- #2 Chancroid (usually painful, ragged edge)
- #3 Herpes simplex (painful vesicles)
- #4 LGV / fixed drug eruption (less likely)

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GENERATE SOLUTIONS

- Obtain RPR/VDRL + confirmatory FTA-ABS
- Co-test for HIV, gonorrhea, chlamydia
- Administer benzathine PCN G 2.4 million units IM × 1
- Notify partners; report to health dept

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TAKE ACTION

- Verify PCN allergy before injection
- Administer deep IM dorso/ventrogluteal
- Observe 30 min for anaphylaxis
- Educate: abstinence until cure, partner notification

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EVALUATE OUTCOMES

- Chancre resolution within 3–6 weeks
- 4-fold decline in RPR titer at 6 months = cure
- No anaphylaxis or severe Jarisch-Herxheimer
- Partners tested + treated; client retests at 12 months