INTEGUMENTARY · INFECTIOUS DISEASE

Herpes Simplex *Virus*

HSV-1 & HSV-2 · Lifelong DNA viral infection with latent reactivation · NGN NCLEX 2026 high-yield review

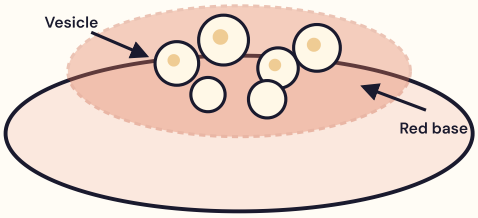
1 Definition & Overview

- **DNA virus** from the *Herpesviridae* family with two main types: **HSV-1** (oral/labial) and **HSV-2** (genital). Crossover is common.
- **Lifelong latency** — virus hides in **dorsal root ganglia** and reactivates with triggers. There is **NO cure**; antivirals only suppress outbreaks.
- **Transmission:** direct contact with lesions OR asymptomatic viral shedding (saliva, genital secretions, skin contact).
- **Why it matters:** highly contagious, common cause of neonatal infection, encephalitis, blindness (keratitis), and disseminated illness in the immunocompromised.

★ HSV at a Glance

Classic HSV Lesion

Clustered vesicles on erythematous base



2 Pathophysiology — Simplified Flow

STEP 1 Virus enters via **mucous membrane** or skin break → **STEP 2** Replicates in **epithelial cells** → primary lesions → **STEP 3** Travels up **sensory nerve** to dorsal root ganglion → **STEP 4** Establishes **lifelong latency** (dormant) →

STEP 5 **Trigger** reactivates virus (stress, sun, fever) → **STEP 6** Travels back down nerve → **recurrent vesicles**

Common triggers (STRESS): *S*un exposure · *T*rauma/illness · *R*un down (fatigue) · *E*motional stress · *S*urgery · *S*teroids/immunosuppression · menstruation · fever

HSV-1 vs HSV-2 — Know the Difference

HSV-1 · "Above the Waist"

- **Oral/labial herpes** ("cold sores," "fever blisters")
- **Herpetic gingivostomatitis** (children — fever, oral ulcers)
- **Herpetic whitlow** (finger lesions — dental/healthcare workers)
- **Herpes keratitis** (cornea — can cause blindness)
- **Herpes encephalitis** (temporal lobe — high mortality)
- Transmitted by saliva, kissing, shared utensils

HSV-2 · "Below the Waist"

- **Genital herpes** — most common STI cause of genital ulcers
- Painful vesicles on genitals, perineum, buttocks, thighs
- **Dysuria**, urinary retention, inguinal lymphadenopathy
- **Vertical transmission** → neonatal herpes (life-threatening)
- Transmitted via sexual contact (even asymptomatic shedding)
- Recurs more frequently than HSV-1 genital infection

3 Signs & Symptoms

Primary Infection (first outbreak — more severe)

- **Prodrome:** tingling, burning, itching, pain at site (24–48 hr before lesions)
- Painful **clustered vesicles** on erythematous base
- Vesicles rupture → **shallow ulcers** → crust over → heal in 2–4 weeks
- **Systemic:** fever, malaise, headache, myalgia
- **Tender lymphadenopathy** (cervical or inguinal)
- Dysuria, painful swallowing depending on location

Recurrent Episodes (milder, shorter)

- Localized prodrome (tingle/burn) **warns 24 hr ahead**
- Fewer vesicles, often unilateral at same site
- Heals in **5–10 days** without systemic symptoms
- Triggered by stress, sun, illness, menses, immunosuppression
- **Viral shedding occurs** even without visible lesions

RED FLAG Findings — Notify Provider Immediately

- **Neonatal herpes** — fever, lethargy, poor feeding, seizures, vesicles in first 2–4 weeks of life · **60% mortality untreated**
- **HSV encephalitis** — altered mental status, fever, focal seizures, behavioral change (temporal lobe involvement)
- **HSV keratitis** — eye pain, photophobia, blurred vision, dendritic corneal ulcer · risk of blindness
- **Eczema herpeticum** — widespread vesicles in pts with eczema; medical emergency
- **Disseminated HSV** in immunocompromised (HIV, transplant) → multi-organ involvement

4 Priority Nursing Interventions (ABCs + Safety)

A

AIRWAY

Assess oral lesions — risk of airway compromise in herpetic gingivostomatitis or severe encephalitis

B

BREATHING

Monitor respiratory status in disseminated HSV and neonatal infection; pneumonitis is possible

C

CIRCULATION & SKIN

Assess hydration (dehydration from poor PO intake with painful oral lesions); inspect lesions

KEY ACTIONS

- **Standard + Contact Precautions** — gown and gloves for direct lesion contact; private room for severe/disseminated cases
- **Assess lesions:** location, stage (vesicle/ulcer/crust), pain level, signs of secondary bacterial infection
- **Administer antivirals** within **72 hours of outbreak onset** for maximum effect (acyclovir, valacyclovir, famciclovir)
- **Pain management:** acetaminophen, topical lidocaine (oral), sitz baths (genital), loose cotton clothing
- **Keep lesions clean and dry** — gentle cleansing, air dry; avoid occlusive dressings
- **Hand hygiene** after lesion contact; teach patient to **NEVER touch lesions then eyes** (auto-inoculation risk)
- **Hydration & nutrition** — cool soft foods for oral lesions; popsicles for children; avoid acidic foods
- **Pregnancy:** assess for active genital lesions at term · **Cesarean delivery** if active lesions or prodrome at onset of labor
- **Isolate** from neonates, pregnant women, immunocompromised contacts during active outbreak
- **Eye involvement:** immediate ophthalmology referral · **NEVER apply corticosteroids**

5 Pharmacology — Antiviral Therapy

DRUG	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Acyclovir (Zovirax) *1st line · PO / IV / topical*	Inhibits viral DNA polymerase → stops viral replication	Nephrotoxicity (esp. IV), HA, N/V, phlebitis at IV site, neurotoxicity (high doses)	**Hydrate aggressively** with IV form to prevent crystalluria · monitor BUN/Cr · infuse IV slowly over ≥1 hr · start within 72 hr of outbreak
Valacyclovir (Valtrex) *PO · prodrug of acyclovir*	Converted to acyclovir in body → better bioavailability, less frequent dosing	HA, nausea, abdominal pain, rare TTP/HUS in immunocompromised	More convenient dosing than acyclovir · used for suppressive therapy in frequent recurrences · adjust for renal impairment
Famciclovir (Famvir) *PO*	Prodrug of penciclovir · inhibits viral DNA synthesis	HA, nausea, diarrhea, fatigue	Alternative when acyclovir/valacyclovir not tolerated · renal dose adjustment
Docosanol (Abreva) *OTC topical*	Blocks viral entry into healthy cells	Local skin irritation	For oral cold sores only · apply at first prodrome · 5×/day until healed · NOT for genital herpes
Trifluridine (Viroptic) *Ophthalmic drops*	Inhibits viral DNA synthesis in corneal cells	Eye irritation, burning, photosensitivity	**For HSV keratitis ONLY** · ophthalmologist managed · **NEVER use steroid drops** (worsens infection)

Suppressive Therapy: daily antiviral indicated for ≥6 outbreaks/year, severe outbreaks, or to reduce transmission to a partner. Reduces viral shedding by ~80%.

6 NCLEX Test Traps — Wrong vs. Right

✗ TRAP	✓ TRUTH
"Once treated with acyclovir, the herpes virus is eliminated from the body."	HSV is **incurable and lifelong**. Antivirals shorten outbreaks and reduce shedding — they do **NOT eradicate** the virus from dorsal root ganglia.
"The patient cannot spread herpes when lesions are healed."	**Asymptomatic viral shedding** occurs even without visible lesions. Condoms reduce — but do **not eliminate** — transmission risk.
"A pregnant woman with a history of genital herpes always needs a C-section."	Cesarean is indicated **only if active lesions OR prodrome are present at the onset of labor**. History alone does not require C-section.
"Apply corticosteroid ointment to soothe the painful eye lesion in HSV keratitis."	**NEVER use steroids** in HSV keratitis — they cause rapid viral spread and corneal perforation. Treat with antivirals (trifluridine drops) and ophthalmology referral.
"Give IV acyclovir as a fast bolus to treat severe HSV encephalitis."	IV acyclovir must be infused **slowly over at least 1 hour** with **vigorous IV hydration** to prevent crystalluria and acute kidney injury.
"Cold sores and canker sores are the same condition."	**Cold sores = HSV-1** (on lip vermilion border, contagious). **Canker sores = aphthous ulcers** (inside mouth, not viral, not contagious).

7 Patient & Family Education

- 🦠 **Lifelong infection** with no cure — but manageable with medication and trigger avoidance.
- ⚡ **Recognize prodrome** (tingling, burning, itching) — start antivirals at first sign for shorter, milder outbreak.
- 🚫 **Avoid sexual contact** during outbreaks AND prodrome (highest contagiousness).
- 🛡️ **Use latex condoms** consistently — reduces but doesn't eliminate transmission risk.
- 💋 **Don't kiss or share utensils, lip balm, towels** during oral outbreak.
- 🧼 **Wash hands** after touching lesions — prevent auto-inoculation (especially to eyes!).
- ☀️ **Wear SPF lip balm** daily — sun is the #1 trigger for HSV-1 cold sores.
- 😌 **Manage stress, sleep well, eat well** — supports immune system, fewer recurrences.
- 🤰 **Tell every OB provider** if pregnant or planning pregnancy — neonatal HSV is life-threatening.
- 👶 **Never kiss a newborn** with active cold sore — can cause fatal neonatal herpes.
- 💊 **Complete the full antiviral course** even if feeling better; take daily if suppressive therapy.
- 📞 **Call provider** for eye involvement, severe headache, confusion, or worsening lesions.

8 Memory Boosters & Mnemonics

STRESS

HSV reactivation triggers:
Sun · **T**rauma/illness · **R**un-down · **E**motional stress · **S**urgery · **S**teroids

VESICLE

Viral · **E**rythematous base · **S**haded clusters · **I**tching/tingling prodrome · **C**ontagious always · **L**atent forever · **E**asily transmitted by shedding

"1 above, 2 below"

HSV-**1** typically affects **oral/face** (above waist).
HSV-**2** typically affects **genital** (below waist).
Crossover happens!

A·CYCLO·VIR

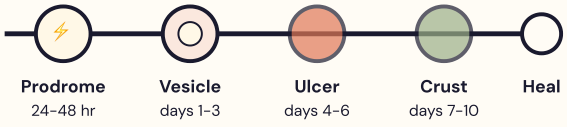
"**A-Cycle**-stopper" — blocks the viral DNA **cycle**.
Remember: **Always Cycle Your IV fluids with acyclovir** to protect kidneys!

★ Pattern Recognition Tips

- **Tingling + burning + clustered vesicles** on red base = HSV until proven otherwise
- **Tzanck smear** shows **multinucleated giant cells** (the classic HSV finding)
- **Dendritic ulcer on cornea** (fluorescein stain) = HSV keratitis
- **Temporal lobe** involvement on imaging = HSV encephalitis (think: *"HSV loves the Temporal lobe"*)
- **Painful** genital ulcers = HSV (vs. *painless* = syphilis chancre)
- **Fever, drooling, refusal to eat** in toddler = herpetic gingivostomatitis
- **Healthcare worker with finger vesicles** = herpetic whitlow (wear gloves!)
- **Newborn vesicles in 1st month of life** = neonatal HSV → IV acyclovir *immediately*

HSV Lesion Progression

Contagious through the crust stage



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NCJMM Clinical Judgment Scenario

Next Generation NCLEX · 6-Step Clinical Judgment Model

Scenario: *A 28-year-old G2P1 client at 39 weeks gestation presents to L&D in active labor. She reports a history of genital herpes and describes a "burning, tingling sensation" in the perineal area that began 14 hours ago. On inspection, the nurse identifies* ***clustered vesicles on the right labia****. Vital signs: T 99.4°F, HR 92, BP 118/74, contractions every 4 minutes. Cervix 4 cm dilated, membranes intact.*

1

Recognize Cues

Active labor at term · history of HSV-2 · prodromal symptoms (burning/tingling) × 14 hr · **visible active vesicles on labia** · low-grade temp · membranes still intact · multiparous client.

2

Analyze Cues

Active genital HSV outbreak during labor = high risk of **vertical transmission to neonate via birth canal**. Neonatal HSV carries **~60% mortality untreated**, with survivors at risk for permanent neurologic damage. Intact membranes still allow exposure during vaginal delivery.

3

Prioritize Hypotheses

Priority: Risk for neonatal HSV transmission. This outranks maternal comfort and routine labor management. Secondary concern: maternal infection management with antivirals.

4

Generate Solutions

Immediate provider notification · prepare for **cesarean delivery** (indicated before rupture of membranes when active lesions present) · obtain informed consent · type and screen, IV access, NPO status · pediatric/NICU team notification · consider IV acyclovir for maternal treatment · plan neonatal HSV surveillance.

5

Take Action

Notify obstetric provider STAT · document lesions with photos/diagram · place on contact precautions · do NOT perform unnecessary vaginal exams · prepare OR for cesarean · educate client and partner on rationale · administer prescribed antivirals · ensure NICU is alerted to high-risk delivery.

6

Evaluate Outcomes

Cesarean delivered before rupture of membranes · neonate without vesicles or signs of HSV at delivery · neonatal HSV cultures/PCR obtained as ordered · neonate monitored for 14–21 days for symptoms · maternal lesions resolving with antivirals · client verbalizes understanding of lifelong suppressive therapy and future pregnancy planning.