NGN NCLEX 2026 · INFECTIOUS DISEASE SERIES

The Herpes *Viruses*

All 8 human herpesviruses (HHV-1 through HHV-8), their clinical presentations, transmission-based precautions, and antiviral management — built for clinical judgment and NGN test items.

SYSTEMS · INTEGUMENTARY · NEURO · REPRO

STANDARD PRECAUTIONS REQUIRED

8 VIRUS TYPES

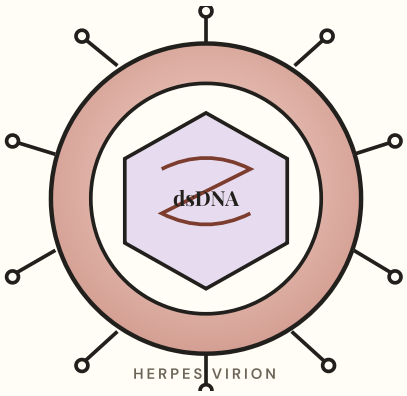
DNA VIRUSES · LIFELONG LATENCY

1 Definition & Overview

What the herpes virus family is — and why every nurse must recognize it

The **Human Herpesvirus (HHV) family** contains 8 large, enveloped DNA viruses that share three defining behaviors: they enter the body through skin or mucosa, establish **lifelong latency** in nerve ganglia or lymphoid cells, and **reactivate** under stress, illness, immunosuppression, fever, sun exposure, or hormonal change.

There is **no cure** — antivirals shorten outbreaks and suppress recurrences. Transmission occurs through direct contact with vesicle fluid, saliva, genital secretions, blood, or transplacental routes. Precaution type varies by virus and by lesion status — a frequent NCLEX trap.



8 HUMAN HERPESVIRUS TYPES	**Life** LATENCY DURATION AFTER INFECTION
DNA DOUBLE-STRANDED ENVELOPED VIRUS	**Rx** ACYCLOVIR FAMILY SUPPRESSES

2 Pathophysiology

From exposure → latency → reactivation

STEP 1

Exposure

Direct contact with lesion fluid, saliva, genital secretions, or respiratory droplets (VZV).

STEP 2

Primary Infection

Virus replicates in epithelial cells → vesicles form → systemic symptoms.

STEP 3

Latency Established

Virus travels along sensory nerves → hides in dorsal root or trigeminal ganglia (or lymphoid cells for EBV/CMV).

STEP 4

Trigger

Stress · UV light · fever · menstruation · illness · immunosuppression · trauma.

STEP 5

Reactivation

Virus travels back down nerve → vesicles erupt at original dermatome or site.

Why latency matters

Once a herpes virus enters the body, it **cannot be eradicated**. The patient is a carrier for life. Antivirals reduce viral shedding and outbreak severity but do not cure. Educate every patient on this reality at diagnosis.

Asymptomatic shedding

HSV-1, HSV-2, and CMV can be transmitted even when **no lesions are visible**. This is critical for STI counseling (condom use) and for pregnancy/neonatal exposure decisions.

3

The 8 Human Herpesviruses

Quick reference comparison — common name, disease, transmission, latency site

Virus	Disease(s)	Hallmark Signs	Transmission	Latency Site
HHV-1 (HSV-1) Oral herpes	Cold sores · fever blisters · herpes labialis · herpetic gingivostomatitis	Painful vesicles on lips/mouth, tingling prodrome	Saliva, direct contact, kissing, shared utensils	Trigeminal ganglion
HHV-2 (HSV-2) Genital herpes	Genital herpes · neonatal herpes	Painful genital vesicles, dysuria, inguinal lymphadenopathy	Sexual contact, perinatal (vaginal birth)	Sacral ganglia (S2–S5)
HHV-3 (VZV) Varicella-Zoster	Chickenpox (primary) · Shingles (reactivation)	Chickenpox: pruritic vesicles in *all stages* · Shingles: unilateral dermatomal rash + severe pain	Airborne + contact (chickenpox); contact (shingles)	Dorsal root & cranial nerve ganglia
HHV-4 (EBV) Epstein-Barr	Infectious mononucleosis · Burkitt lymphoma · nasopharyngeal CA	Fever, fatigue, pharyngitis, posterior cervical lymphadenopathy, *splenomegaly*	Saliva ("kissing disease")	B-lymphocytes
HHV-5 (CMV) Cytomegalovirus	CMV mono · congenital CMV · CMV retinitis (AIDS) · transplant CMV	Often asymptomatic; severe in immunocompromised; congenital: hearing loss, microcephaly, IUGR	Body fluids: saliva, urine, blood, breast milk, transplacental	Monocytes, lymphocytes
HHV-6 & HHV-7 Roseolovirus	Roseola infantum (exanthem subitum)	High fever 3–5 days, then rash erupts as fever drops; risk of febrile seizure	Saliva (most adults seropositive)	T-lymphocytes
HHV-8 KSHV	Kaposi sarcoma · primary effusion lymphoma	Purple/red/brown skin or mucosal lesions (often in AIDS)	Saliva, sexual, blood, transplant	B-lymphocytes, endothelial cells

Test tip: HSV-1 vs HSV-2 crossover

The classic teaching is **HSV-1 = above the waist, HSV-2 = below the waist**, but oral-genital contact has blurred this line. Either virus can occur at either site. Diagnosis is by viral culture, PCR, or type-specific serology — not by location alone.

4 Signs & Symptoms by Type

Prodrome → active lesions → resolution · with NCLEX red flags

HSV-1 · ORAL

Herpes Labialis

PRODROME	Tingling, burning, itching at site 6–24 hrs before vesicles
ACTIVE	Painful clustered vesicles on lips/perioral area → ulcers → crusts
COURSE	Heals in 7–10 days without scarring
TRIGGERS	Sun, stress, fever, menstruation

Herpetic whitlow — HSV on finger of caregivers/dental staff. Wear gloves.

HSV-2 · GENITAL

Genital Herpes

PRIMARY	Painful genital vesicles, dysuria, urinary retention, fever, malaise, inguinal lymphadenopathy
RECURRENT	Milder, shorter (5–7 days), often preceded by tingling
PREGNANCY	Active lesions at delivery = C-section indicated

Neonatal herpes is life-threatening — disseminated infection, encephalitis, ~50% mortality untreated.

VZV · PRIMARY

Chickenpox (Varicella)

PRODROME	Low-grade fever, malaise 1–2 days before rash
RASH	Macules → papules → vesicles → pustules → crusts; *all stages present simultaneously*
COURSE	Spreads centrifugally from trunk outward; very pruritic
CONTAGIOUS	From 1–2 days before rash until ALL lesions crusted over

Adults & immunocompromised: pneumonia, encephalitis, Reye syndrome if given ASA.

VZV · REACTIVATION

Shingles (Herpes Zoster)

PRODROME	Burning, tingling, deep pain along ONE dermatome — often days before rash
RASH	Unilateral, clustered vesicles in a band along a single dermatome, does NOT cross midline
COMPLICATIONS	Post-herpetic neuralgia (pain > 90 days), ophthalmic zoster (CN V1) → vision loss

Disseminated zoster (>2 dermatomes) in immunocompromised = airborne + contact precautions.

EBV · HHV-4

Infectious Mononucleosis

CLASSIC TRIAD	Fever · pharyngitis · posterior cervical lymphadenopathy
OTHER	Profound fatigue, hepatosplenomegaly, palatal petechiae, ± maculopapular rash (esp. if given amoxicillin)
LABS	Positive monospot (heterophile antibodies), atypical lymphocytes, ↑ LFTs

Splenic rupture risk — NO contact sports × 4 weeks minimum. Sudden LUQ pain = emergency.

CMV · HHV-5

Cytomegalovirus

HEALTHY HOST	Asymptomatic OR mono-like illness (monospot-negative mono)
AIDS	CMV retinitis ("pizza-pie" fundus → blindness), colitis, esophagitis, pneumonitis
TRANSPLANT	CMV is #1 viral infection — pneumonitis, hepatitis, rejection
CONGENITAL	SNHL (#1 nongenetic cause of hearing loss), microcephaly, IUGR, periventricular calcifications

Pregnant nurses/staff: avoid heavy CMV exposure; meticulous handwashing after diapers and saliva

contact.

HHV-6/7 · ROSEOLA

Roseola Infantum

POPULATION	Infants 6 months – 2 years
PHASE 1	Sudden high fever 102–105°F × 3–5 days; child often appears well
PHASE 2	Fever resolves → blanching pink maculopapular rash on trunk → spreads outward × 1–2 days

Febrile seizures occur in ~10–15% — parent education on fever management is priority.

HHV-8 · KSHV

Kaposi Sarcoma

LESIONS	Painless purple, red, brown, or violaceous patches/plaques/nodules on skin, oral mucosa, GI tract, lungs
SETTING	AIDS-defining illness; also organ transplant recipients
TREATMENT	Antiretroviral therapy (HAART) is mainstay; chemo if visceral involvement

New purple skin lesions in an HIV+ patient — escalate immediately for staging.

5 Priority Nursing Interventions

Transmission-based precautions · pain · skin · safety

Precautions by virus type (high-yield)

Condition	Precautions	Key Nursing Notes
HSV-1 / HSV-2 lesions	Standard + Contact (if open lesions)	Gloves for lesion care. Private room not required. Cover lesions during care.
Chickenpox (Varicella)	**Airborne + Contact**	Negative-pressure room, N95 respirator. Continue until ALL lesions are crusted.
Shingles — localized, immunocompetent	Standard + Contact (cover lesion)	Pregnant, non-immune, and immunocompromised staff/visitors must avoid the room.
Shingles — disseminated OR immunocompromised host	**Airborne + Contact**	Treat as chickenpox; negative-pressure room.
EBV / Mono	Standard precautions	No isolation needed. Educate on saliva (no sharing drinks/utensils, no kissing during illness).
CMV	Standard precautions	Strict hand hygiene after body fluid exposure. Pregnant caregivers: meticulous precautions.
Roseola (HHV-6/7)	Standard precautions	Not contagious once rash appears; focus on fever control and seizure precautions.

A Airway & ABCs first

- Severe stomatitis or pharyngitis (HSV gingivostomatitis, EBV): monitor airway and hydration
- Disseminated VZV: watch for pneumonia, hypoxia, altered LOC (encephalitis)
- Splenomegaly with mono: assess for splenic rupture — sudden LUQ or shoulder pain, hypotension

B Pain & comfort

- Cool compresses, calamine, oatmeal baths for chickenpox pruritus
- Trim nails, mittens on children to prevent scratching/infection
- Shingles: gabapentin/pregabalin for neuropathic pain; lidocaine patches; opioids if severe
- Topical anesthetic mouthwashes for oral HSV before meals

C Skin integrity

- Keep lesions clean and dry; do NOT rupture vesicles
- Loose cotton clothing; cover lesions before contact with others
- Encourage handwashing after touching lesions
- Assess for secondary bacterial infection (Staph, Strep)

D Safety & protection

- Isolate from pregnant women, neonates, immunocompromised, and non-immune adults
- Children with chickenpox: stay home until ALL lesions crusted
- NEVER give aspirin to children with VZV or influenza → Reye syndrome
- Mono: no contact sports × 4+ weeks (splenic rupture risk)

- Post-exposure prophylaxis: VariZIG within 10 days for high-risk exposed

6 Pharmacology

Antivirals · vaccines · what to monitor

FIRST-LINE · HSV / VZV

Acyclovir

Zovirax · PO, IV, topical

MECHANISM

Inhibits viral DNA polymerase → halts replication

USES

HSV-1, HSV-2, VZV (chickenpox & shingles), HSV encephalitis (IV)

SIDE EFFECTS

Nephrotoxicity (crystalluria), HA, N/V, neurotoxicity (confusion, tremor) at high doses

⚠ **Push PO/IV fluids — 2–3 L/day — to prevent crystal nephropathy. Monitor BUN/creatinine. Topical: wear gloves.**

PREFERRED · ORAL SUPPRESSION

Valacyclovir

Valtrex · PO

MECHANISM

Prodrug of acyclovir; better oral bioavailability (3–5×)

USES

Genital herpes (episodic & suppressive), shingles, cold sores

SIDE EFFECTS

HA, nausea, dizziness; TTP/HUS in immunocompromised (rare but serious)

⚠ **Daily suppressive therapy reduces transmission to partners — key teaching point.**

ALTERNATIVE · HSV / VZV

Famciclovir

Famvir · PO

MECHANISM

Prodrug of penciclovir; inhibits viral DNA polymerase

USES

Genital herpes, herpes labialis, shingles

SIDE EFFECTS

HA, nausea, diarrhea — generally well tolerated

⚠ **Dose-adjust in renal impairment. Useful when acyclovir-resistant strains develop.**

CMV ONLY

Ganciclovir / Valganciclovir

Cytovene · Valcyte · IV, PO

MECHANISM

Phosphorylated by CMV kinase → inhibits viral DNA polymerase

USES

CMV retinitis, CMV in transplant & AIDS

SIDE EFFECTS

Severe bone marrow suppression (neutropenia, thrombocytopenia, anemia), nephrotoxicity, teratogenic

⚠ **Monitor CBC weekly. Hazardous drug — chemo precautions for handling. Avoid pregnancy.**

RESISTANT CMV / HSV

Foscarnet

Foscavir · IV only

MECHANISM

Directly inhibits viral DNA polymerase (no kinase needed)

USES

Acyclovir-resistant HSV, ganciclovir-resistant CMV

SIDE EFFECTS

Nephrotoxicity, electrolyte abnormalities (↓Ca, ↓Mg, ↓K, ↓PO4), seizures

⚠ **Monitor electrolytes & renal function closely. Pre-hydrate with NS before infusion.**

VACCINE · PREVENTION

Varicella & Shingles Vaccines

Varivax (live) · Shingrix (recombinant)

VARIVAX

Live attenuated; ages 12 months+; CONTRAINDICATED in pregnancy & immunocompromised

SHINGRIX

Recombinant (non-live); 2-dose series; ages 50+; safe in immunocompromised; ~90% effective

SIDE EFFECTS

Injection site reaction, fatigue, myalgia (Shingrix more reactogenic)

⚠ **No HSV, EBV, CMV, or HHV-8 vaccines exist as of 2026. Prevention = barrier methods + hand hygiene.**

Acyclovir family — 4 nursing essentials

- **Hydrate aggressively** — 2–3 L PO/day to prevent crystalluria & renal failure
- **Start at first prodrome** — most effective when given within 24–72 hours of symptom onset
- **Not a cure** — suppresses outbreaks and reduces transmission, but virus remains latent
- **Wear gloves with topical** — to prevent transfer to fingers (herpetic whitlow) or eyes

7 NCLEX Test Traps ⚠

Wrong-sounding distractors vs the correct nursing priority

DISTRACTOR	CORRECT
"Place the patient with localized shingles in a negative-pressure room with airborne precautions." Localized zoster in an immunocompetent host needs only *standard + contact* precautions with the lesion covered.	**Airborne is for chickenpox & disseminated zoster.** Localized zoster = standard + contact; cover the lesion. Disseminated zoster (>2 dermatomes) or zoster in immunocompromised = airborne + contact.
"Discontinue isolation when the child with chickenpox is afebrile." Resolution of fever does not end contagiousness.	**Maintain isolation until ALL lesions have crusted over.** This is typically 5–7 days after rash onset. New crops of vesicles mean still contagious.
"Administer aspirin for fever in a child with varicella." This causes *Reye syndrome* — fatty liver, encephalopathy, often fatal.	**Give acetaminophen for fever.** NEVER give aspirin to children/teens with VZV or influenza. Tylenol is the safe antipyretic.
"The patient on IV acyclovir should restrict fluids." This will cause renal injury from crystalluria.	**Push fluids — 2 to 3 L/day.** Acyclovir crystallizes in renal tubules without adequate hydration. Monitor BUN, creatinine, urine output.
"Allow the patient with mononucleosis to return to football practice once fever resolves." The spleen is still enlarged and at high rupture risk.	**NO contact sports for a minimum of 4 weeks** , until spleen size is documented normal. Sudden LUQ pain, left shoulder pain, or hypotension = splenic rupture, surgical emergency.
"A pregnant nurse can safely care for the child with chickenpox if she wears a mask." If she is non-immune, risk of fetal varicella syndrome is unacceptable.	**Non-immune pregnant staff should NOT enter the room.** Reassign the assignment. The same rule applies to disseminated zoster and to non-immune immunocompromised caregivers.
"A patient with active genital herpes lesions at the onset of labor can safely deliver vaginally." Risk of neonatal herpes is too high.	**Cesarean delivery is indicated** when active HSV-2 lesions or prodrome are present at the onset of labor or when membranes rupture. Neonatal HSV carries up to 50% mortality untreated.

DISTRACTOR	CORRECT
"The Shingrix vaccine should not be given to immunocompromised patients." This was true of the older Zostavax (live), not Shingrix.	**Shingrix is recombinant (non-live) and IS safe for immunocompromised patients.** Varivax and Zostavax (live) are contraindicated in pregnancy and immunocompromise; Shingrix is not.

8 Patient Education

Self-care, transmission prevention, when to call the provider

Lifelong virus

- Herpes is incurable but manageable
- Antivirals reduce outbreaks, severity, and transmission risk
- Start medication at first prodrome (tingling, burning)
- Keep antivirals on hand for early use

Stop transmission

- No kissing/sharing utensils with active cold sore
- Use condoms — even between outbreaks (asymptomatic shedding)
- Disclose HSV status to sexual partners
- Wash hands after touching lesions
- Don't pop or scratch vesicles

Identify triggers

- Track outbreaks in a journal
- Common triggers: stress, sun, fever, menstruation, fatigue, trauma
- Use SPF lip balm to prevent HSV-1 reactivation
- Manage stress: sleep, exercise, mindfulness

Pregnancy & herpes

- Tell OB if you or partner have HSV history
- Daily suppressive antivirals in 3rd trimester
- C-section if active lesions or prodrome at labor
- If non-immune to VZV — avoid chickenpox & shingles exposure

Vaccination

- Varivax: 2 doses for children & non-immune adults
- Shingrix: 2 doses for everyone 50+, even prior shingles
- No vaccines for HSV, EBV, CMV, HHV-8
- VariZIG within 10 days of exposure for high-risk

Call the provider

- Lesions near the eye → emergency (herpes keratitis)
- Severe pain after shingles rash heals (PHN)
- Fever, headache, confusion (encephalitis)
- Pregnancy with new outbreak
- Outbreaks > 6 times/year — consider suppressive therapy

9 Memory Boosters

Mnemonics & pattern recognition for high-yield recall

HERPES

- **H** — Highly contagious via direct contact
- **E** — Eruptive vesicles in clusters
- **R** — Recurrent; latent in ganglia for life
- **P** — Painful (prodrome → ulcer → crust)
- **E** — Encephalitis is the feared complication
- **S** — Stress, sun, sickness trigger reactivation

SHINGLES

- **S** — Single dermatome, never crosses midline
- **H** — Hurts severely (burn before rash)
- **I** — Immunosuppression triggers it
- **N** — Neuralgia (PHN) lingers after
- **G** — Gabapentin for nerve pain
- **L** — Lesions = contact precautions
- **E** — Eyes — CN V1 zoster threatens vision
- **S** — Shingrix vaccine after age 50

KISS

- **K** — Kissing disease (EBV in saliva)
- **I** — Inflamed lymph nodes (posterior cervical)
- **S** — Spleen enlarged — rupture risk
- **S** — Stop contact sports × 4+ weeks

VARY

- **V** — Vesicles in *varied* stages (varicella hallmark)
- **A** — Airborne + contact precautions
- **R** — Refrain from aspirin → Reye syndrome
- **Y** — Yield isolation until ALL lesions crusted

Quick associations to lock in

- **Acyclovir → "A-cycle-OVER"** — cuts the viral replication cycle short. Push fluids to protect kidneys.
- **HSV-1 above the waist · HSV-2 below the waist** — classic teaching, but oral-genital crossover is now common
- **Chickenpox: airborne. Localized shingles: contact only.** Memorize the difference — it's a frequent NCLEX question.
- **Cesium-implant patients & chickenpox patients** — both require pregnant staff to stay out of the room
- **"Pizza-pie fundus" = CMV retinitis** in AIDS — sight-threatening, needs ganciclovir

10

NCJMM Clinical Judgment Scenario

Six-step Next Generation NCLEX clinical judgment walkthrough

The Scenario

A 68-year-old woman arrives at the clinic reporting 3 days of burning, stabbing pain along the **right side of her chest and back**. Today she noticed a rash of *clustered vesicles in a band* on the right T5 dermatome that does not cross the midline. Her past medical history includes chemotherapy for breast cancer (completed 6 weeks ago). Vital signs: T 99.4°F, HR 92, RR 18, BP 138/82, SpO_2 97%. She lives with her daughter, who is 26 weeks pregnant and has never had chickenpox.

1	2	3	4	5	6
Recognize Cues	**Analyze Cues**	**Prioritize Hypotheses**	**Generate Solutions**	**Take Action**	**Evaluate Outcomes**
Unilateral dermatomal vesicular rash · severe prodromal pain · recent chemo (immunocompromised) · non-immune pregnant household member.	Pattern fits **herpes zoster (shingles)**. Immunocompromised status raises risk of dissemination → may require airborne + contact, not just contact.	#1: Herpes zoster with risk of dissemination. #2: Exposure risk to pregnant non-immune daughter (fetal varicella syndrome). #3: Post-herpetic neuralgia developing.	Initiate antivirals within 72 hours · airborne + contact isolation (immunocompromised host) · separate from pregnant daughter · pain management · monitor for ophthalmic or disseminated spread · educate on Shingrix for future.	Administer valacyclovir 1 g PO TID × 7 days · gabapentin for neuropathic pain · cover lesions · instruct patient to stay away from pregnant daughter and seek post-exposure plan (VariZIG within 10 days) · refer for ophthalmic exam if any facial involvement.	Lesions crust within 7–10 days · pain controlled to ≤ 4/10 · no new dermatomes involved · daughter remains symptom-free at 21 days post-exposure · patient verbalizes plan for Shingrix after acute episode resolves.