★ NGN NCLEX 2026 · INTEGUMENTARY & IMMUNOLOGY

Allergic Contact *Dermatitis*

A delayed (Type IV) hypersensitivity skin reaction triggered by direct contact with a sensitizing allergen — classic NCLEX appearance: linear, vesicular, intensely pruritic rash that appears **24–72 hours** after exposure.

SYSTEM: **INTEGUMENTARY / IMMUNE** REACTION TYPE: **TYPE IV (DELAYED, CELL-MEDIATED)**

ONSET: **24–72 HRS POST-EXPOSURE** NCJMM: **INCLUDED ✓**

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DEFINITION · OVERVIEW

What Is Allergic Contact Dermatitis?

- **Allergic Contact Dermatitis (ACD)** is an inflammatory skin reaction caused by a **Type IV (delayed, cell-mediated)** hypersensitivity response to a specific allergen touching the skin.
- Unlike **Irritant Contact Dermatitis (ICD)** — which is a direct chemical/physical injury (non-immune) — ACD requires **prior sensitization** and re-exposure to the same allergen.
- Reaction is **delayed**: rash appears 24–72 hours after contact (NOT immediate like Type I anaphylaxis).
- Diagnostic gold standard: **patch testing** (NOT skin prick testing — that's for Type I IgE allergies).

✓ ACD (Type IV — Immune)

- Requires sensitization (1st exposure ≠ rash)
- Delayed: 24–72 hrs
- Sharp borders matching allergen pattern
- Vesicles, weeping, intense itch

✗ ICD (Non-Immune)

- Direct chemical/physical damage
- Immediate or rapid onset
- Burning > itching
- Anyone can get it on first exposure

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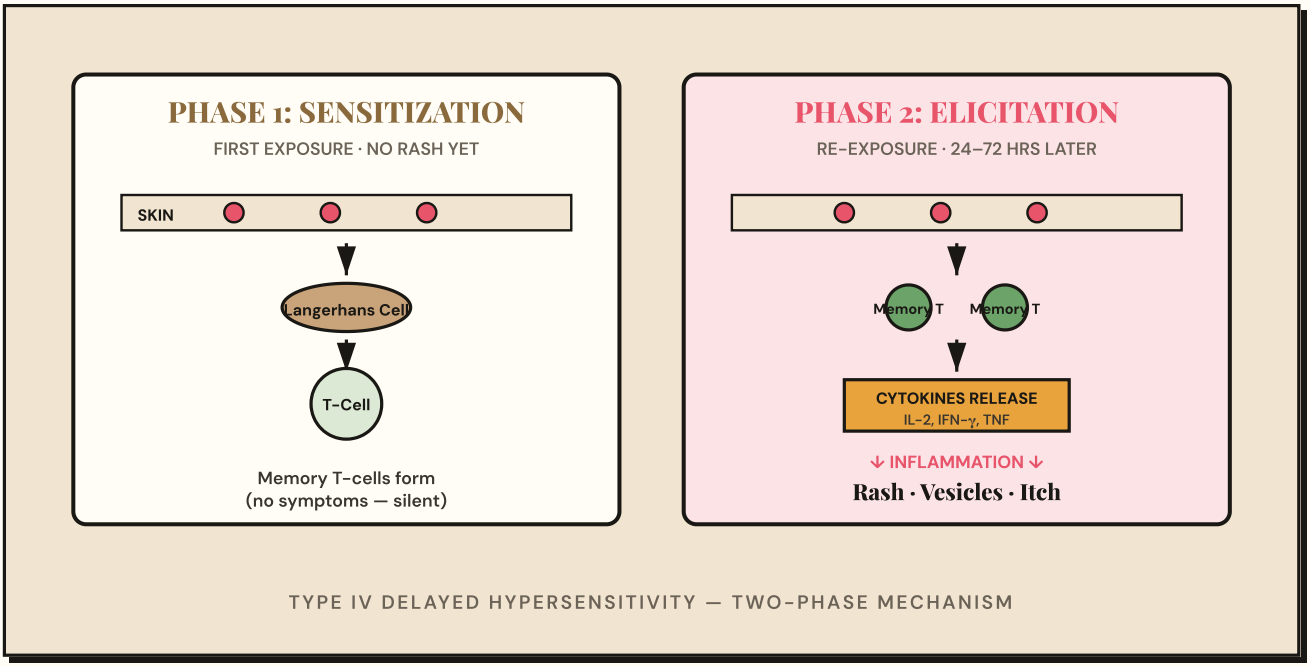
PATHOPHYSIOLOGY

Two-Phase Immune Cascade



- **Phase 1 (Sensitization):** Allergen penetrates skin → Langerhans cells capture & present antigen → naïve T-cells become sensitized memory T-cells. *No visible rash on first exposure.*
- **Phase 2 (Elicitation):** Re-exposure → sensitized memory T-cells release cytokines (IL-2, IFN-γ, TNF) → inflammation, vasodilation, edema → rash 24–72 hrs later.
- **Why delayed?** Cell-mediated immunity takes longer than antibody-mediated (IgE) reactions. This is the cardinal NCLEX distinction.

⚠ Top NCLEX Allergens

- Nickel (jewelry, belt buckles, snaps)
- Poison Ivy / Oak / Sumac (urushiol)
- Latex
- Fragrances / Cosmetics
- Topical Neomycin / Bacitracin
- Hair Dye (PPD)
- Adhesives / Rubber
- Preservatives (formaldehyde)

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SIGNS & SYMPTOMS

Early vs. Late Findings

Early (Acute · 24–72 hrs)

- **Pruritus** (often intense — the #1 complaint)
- **Erythema** (red, inflamed skin)
- **Edema** (localized swelling)
- **Sharp, well-defined borders** matching contact area
- **Linear streaks** (classic for poison ivy)
- Burning, tingling, warmth

Late (Subacute · Chronic)

- **Vesicles & bullae** (fluid-filled blisters)
- **Weeping & oozing** serous fluid
- **Crusting** as vesicles rupture
- **Lichenification** (thickened, leathery skin)
- **Hyperpigmentation** or scaling
- Secondary bacterial infection (impetigo-like)

⚠ RED FLAGS — Escalate Immediately

- **Facial / periorbital swelling** — risk of eye involvement
- **Airway involvement, wheezing, stridor** — possible latex/anaphylaxis crossover (Type I)
- **Widespread rash >20% BSA** or systemic symptoms (fever)
- **Purulent drainage, increasing pain, fever** — secondary bacterial infection
- **Stevens-Johnson Syndrome features** — mucosal involvement, skin sloughing (medical emergency)

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PRIORITY NURSING INTERVENTIONS

ABCs · Safety · NCLEX Prioritization

- **1. ASSESS Airway FIRST** if facial/neck involvement or known latex exposure — rule out Type I anaphylaxis (immediate bronchospasm = priority over rash).
- **2. IDENTIFY & REMOVE the allergen** — this is the #1 priority intervention once airway is secured. Without removal, the reaction cannot resolve.
- **3. WASH the affected skin** with soap and **cool** water immediately (within 10 min of poison ivy exposure ideally). Cool water — never hot (hot worsens inflammation).
- **4. APPLY cool compresses** 15–30 min several times daily to reduce itching and weeping.
- **5. ADMINISTER topical corticosteroids** as prescribed (hydrocortisone, triamcinolone, clobetasol) — first-line treatment.
- **6. ADMINISTER oral antihistamines** (diphenhydramine, hydroxyzine, cetirizine) for pruritus — diphenhydramine is sedating, good for nighttime itch.
- **7. ADMINISTER oral/IV corticosteroids** (prednisone taper) for severe/widespread reactions — taper to prevent rebound.
- **8. PREVENT scratching** — keep nails short, use cotton gloves at night, distract — prevents excoriation and secondary infection.
- **9. MONITOR for secondary infection** — increased redness, warmth, purulent drainage, fever.
- **10. DOCUMENT allergen** on the chart and notify all team members — apply allergy band.

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PHARMACOLOGY

Drug Comparison Table

DRUG / CLASS	MECHANISM	KEY SIDE EFFECTS	NURSING CONSIDERATIONS
Hydrocortisone *(Low-potency topical steroid)*	Anti-inflammatory; suppresses cytokines & T-cell activity locally.	Skin atrophy, telangiectasia, hypopigmentation with prolonged use.	Use on face/groin (thin skin). Avoid occlusive dressings unless ordered. Short-term only.
Triamcinolone / Clobetasol *(Mid–high potency topical steroid)*	Stronger anti-inflammatory; deeper penetration.	HPA axis suppression with extensive use; skin thinning.	Reserve for trunk/extremities. **Never use on face** (clobetasol). Limit duration.
Prednisone *(Oral corticosteroid)*	Systemic immunosuppression for severe/widespread ACD.	Hyperglycemia, mood changes, weight gain, immunosuppression, ↑BP, osteoporosis.	**Taper dose** — do not stop abruptly (Addisonian crisis risk). Take with food. Monitor glucose.
Diphenhydramine *(1st-gen H1 antihistamine)*	Blocks H1 receptors → reduces pruritus.	**Sedation**, anticholinergic effects (dry mouth, urinary retention), confusion in elderly.	Best for nighttime itch. Caution in elderly & BPH. No driving.
Cetirizine / Loratadine *(2nd-gen H1 antihistamine)*	Selective H1 blockade — less CNS crossover.	Minimal sedation, occasional headache.	Preferred for daytime use. Safe for chronic itch.
Calamine lotion *(Topical soothing agent)*	Astringent; cools and dries weeping lesions.	Skin dryness with overuse.	Best for poison ivy weeping phase. Pat on gently.
Tacrolimus / Pimecrolimus *(Topical calcineurin inhibitors)*	Inhibit T-cell activation locally — steroid-sparing.	Burning at application site. **Black box warning**: theoretical lymphoma risk.	Good for facial/eyelid ACD where steroids are risky. Avoid sun exposure on treated areas.

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NCLEX TEST TRAPS

Wrong vs. Right Reasoning

✗ Common Wrong Answers

- "Type I hypersensitivity" — wrong; ACD is Type **IV**.
- "Reaction occurs immediately" — wrong; **24–72 hour** delay.
- "Skin prick test confirms diagnosis" — wrong; that's for Type I. Use **patch testing**.
- "Apply warm compresses for comfort" — wrong; heat worsens inflammation. Use **cool**.
- "First exposure causes the rash" — wrong; first exposure = silent sensitization.
- "Stop prednisone when symptoms resolve" — wrong; **taper** always.
- "Anyone exposed will react" — wrong; only sensitized individuals (vs. ICD where anyone reacts).

✓ Correct NCLEX Reasoning

- Type IV delayed cell-mediated reaction (T-cell driven).
- Rash appears **24–72 hours** after re-exposure.
- **Patch testing** identifies the allergen.
- **Cool** compresses; **cool** water; never hot.
- Prior sensitization is required — first exposure is silent.
- Always **taper** systemic steroids.
- Priority: **airway → remove allergen → wash → cool → meds**.

⊙ ACD vs. ICD vs. Atopic Dermatitis (Eczema) — Don't Confuse!

- **ACD:** Immune (Type IV); requires sensitization; sharp borders matching allergen; delayed.
- **ICD:** Non-immune; chemical/physical injury; immediate; anyone can get it.
- **Atopic Dermatitis:** Chronic, genetic; flexural areas (antecubital, popliteal); associated with asthma/allergic rhinitis (atopic triad).

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PATIENT & FAMILY EDUCATION

Prevention & Self-Care

- **Identify and AVOID your specific allergen** — get patch tested if the trigger is unclear.
- **Read all product labels** — cosmetics, soaps, laundry detergents, jewelry metal content.
- **Patch-test new products** on a small area (inner forearm) for 48–72 hrs before full use.
- **Wear protective clothing/gloves** for occupational or outdoor exposures (gardening, cleaning, healthcare).
- **For poison ivy:** "Leaves of three, let it be." Wash skin AND clothing within 10 min of exposure with soap and water.
- **Latex allergy:** Wear medical alert bracelet; carry epinephrine if anaphylaxis risk; use non-latex gloves; avoid balloons, condoms, certain fruits (banana, kiwi, avocado — cross-reactivity).
- **Nickel allergy:** Choose stainless steel, titanium, or coated jewelry; avoid contact with belt buckles, snaps, watches.
- **Don't scratch** — leads to secondary infection. Use cool compresses, antihistamines, or trim nails.
- **Take prednisone with food**; do not stop abruptly; report mood changes, blurred vision, increased thirst.
- **Notify HCP** if rash spreads, develops pus, fever, facial swelling, or trouble breathing.
- **Moisturize** the affected area after the acute phase resolves — restores barrier function.

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MEMORY BOOSTERS

Mnemonics & Pattern Recognition

I-T-C-H

ACD MANAGEMENT

Identify allergen
Take cool compresses
Corticosteroids (topical)
Histamine blockers (antihistamines)

4 = 4-EVA

TYPE IV TIMING

Type **4** = takes "**4**-eva" to appear — **24 to 72 hours** delayed reaction. (Contrast Type I = immediate.)

3 = Be

POISON IVY RULE

"**Leaves of three, let it be**." Poison ivy/oak have 3-leaflet clusters. Avoid & recognize.

PATCH

DIAGNOSIS

PATCH testing for ACD
PRICK testing for Type I IgE (food, pollen, latex anaphylaxis)

COOL

COMFORT RULE

COOL compresses, **COOL** water, **COOL** environment. Heat & sweat worsen the itch.

SHARP

ACD PATTERN CLUE

SHARP borders that match the shape of the allergen contact (watchband, jewelry outline, glove edge) = ACD signature.

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NCJMM CLINICAL JUDGMENT MODEL

Six-Step Scenario Walkthrough

SCENARIO: *A 35-year-old male hiker presents to the urgent care clinic 48 hours after a weekend camping trip. He reports a bilateral, intensely pruritic, linear rash with clusters of fluid-filled vesicles on his forearms, lower legs, and right cheek. He denies fever, shortness of breath, or facial swelling. He recalls "brushing through some bushes" off-trail. Vital signs: T 98.6°F, HR 88, BP 124/78, RR 16, SpO_2 99% on RA.*

1 Recognize Cues

Relevant cues: 48-hour delay post-exposure; bilateral *linear* distribution; vesicular rash; intense pruritus; outdoor brush exposure; afebrile; stable airway. **Irrelevant cues:** none significant. The pattern (linear streaks + outdoor exposure) is highly suggestive.

2 Analyze Cues

The 24–72 hour delay points to **Type IV delayed hypersensitivity**. Linear streaks are pathognomonic for plant urushiol exposure (poison ivy/oak/sumac). Bilateral involvement matches arms brushing through foliage. No airway compromise rules out Type I anaphylaxis. No fever rules out systemic infection.

3 Prioritize Hypotheses

#1 Most likely: Allergic Contact Dermatitis (poison ivy / urushiol). Less likely: irritant contact dermatitis (no chemical exposure), atopic dermatitis flare (no history, wrong distribution), cellulitis (no fever, no warmth, no spreading erythema with sharp advancing border).

4 Generate Solutions

Expected interventions: (a) Verify airway/ABCs — stable. (b) Wash all exposed skin with soap & cool water; launder clothing. (c) Apply cool compresses. (d) Administer topical mid-potency corticosteroid (triamcinolone) to body; low-potency (hydrocortisone) to face. (e) Oral antihistamine (diphenhydramine for night). (f) Consider oral prednisone taper if >20% BSA or worsening. (g) Educate on allergen avoidance.

5 Take Action

Administer prescribed topical triamcinolone 0.1% BID to arms/legs, hydrocortisone 1% to face. Give diphenhydramine 25 mg PO at HS for itch. Provide cool compresses now. Educate on "leaves of three, let it be," washing within 10 min of future exposure, and avoiding scratching to prevent secondary infection. Document allergen.

6 Evaluate Outcomes

Expected within 48–72 hrs: decreased erythema and pruritus; no new vesicle formation; intact skin without purulent drainage; patient verbalizes plan to avoid plant contact. **Reassess if:** spreading rash, fever, purulent drainage, facial swelling worsens, or airway changes — escalate to provider immediately.