# Immune disorders, HIV and anaphylaxis

**Anaphylaxis, drug, latex and food allergies, HIV and PEP, lupus, hypersensitivity, transplant rejection**

ON THIS SHEET 1 At a glance 2 Priority and safety calls 3 Exam anchors 4 Self-quiz 5 Sources ★ high yield

## 1 AT A GLANCE

The immune system can be destroyed, as in HIV, or turn on the body, as in lupus and allergy. Anaphylaxis can kill in minutes.

### Anaphylaxis

| | What to know |
|---|---|
| ★ **Signs** | A sense of doom, itching and hives, swelling of the eyes, lips and throat. Then wheezing, a tight throat, an airway that may close, and a sudden drop in blood pressure |
| ★ **First** | Stop the trigger if you can, like an infusing drug. Call for help and stay with the client. **Epinephrine is the first-line drug: give it right away** |
| ★ **Epinephrine** | Check it's clear and colorless. Adults and children 30 kg or more: **0.3 to 0.5 mg (1 mg/mL) IM into the outer thigh**, up to 0.5 mg per dose. Children under 30 kg: 0.01 mg/kg, up to 0.3 mg. It can go through clothing; repeat every 5 to 10 minutes, in a new spot |
| **Then** | Support the airway and give oxygen. Then antihistamines, a bronchodilator like albuterol, and steroids, as ordered. Monitor continuously; IV fluids ready if blood pressure falls |
| **Antihistamines** | Ease itching and hives, but **don't replace epinephrine**: never wait for them first |
| **Teach** | Triggers, an emergency action plan, the auto-injector. Tell every provider about the allergy; wear a medical alert bracelet |

### The allergy history

- Before every drug, check for a documented allergy to it.
- Ask what happened, and when. Hives, swelling or trouble breathing suggest a true allergy; an upset stomach usually doesn't.
- ★ Record the reaction, not just the drug name. **An order matches a documented allergy: hold it and call the prescriber.**
- Penicillin: about 1 in 10 people say they're allergic, but most aren't when tested. A wrong label means broader antibiotics, more resistance and side effects.
- After a severe skin reaction, like Stevens-Johnson syndrome, penicillin and other beta-lactams are avoided for good, however long ago. Otherwise, cross-reactivity depends on the specific drug, so report the history accurately; the prescriber decides.

### Latex reactions

| Reaction | What you see |
|---|---|
| **Irritant contact dermatitis** | Not an allergy, and the most common: dry, itchy, irritated hands |
| **Allergic contact dermatitis** | Delayed: a poison-ivy-like rash 1 to 4 days after contact |
| ★ **Latex allergy** | **Immediate**: hives, a runny nose, wheezing, rarely shock. Milder symptoms usually come first: take them seriously |

**Prevent:** Non-latex gloves when contact with infectious material is unlikely; latex gloves powder-free and reduced-protein, no oil-based lotion. Allergic client: a latex-free environment and vial stopper, a medical alert bracelet.

### HIV

| | What to know |
|---|---|
| ★ **Spread** | Blood, semen, vaginal and rectal fluids, breast milk: shared needles, needlesticks, sex, pregnancy, birth or breastfeeding. **Not** by hugging, shaking hands, sharing dishes or toilet seats, air, water or insects |
| **Testing** | Recommended for everyone 13 to 64 as routine care, more often with higher risk. An opportunistic infection may be the first sign |
| ★ **Treatment** | Antiretroviral therapy for everyone with HIV, started as soon as possible: daily pills, or injections every 1 or 2 months. It doesn't cure; the viral load falls and the CD4 count recovers. **Take it exactly as prescribed** to prevent resistance; call the provider before stopping for side effects |
| **Undetectable** | An undetectable viral load means effectively no risk of sexual transmission |
| **Infections** | Thrush, salmonella, toxoplasmosis, TB; latent TB can reactivate. Best protection: the medicines. Avoid undercooked eggs, unpasteurized dairy or juice, raw sprouts, untreated lake or river water |
| ★ **PEP** | After a possible exposure: a 28-day course, started **within 72 hours**, and the sooner the better. Report a needlestick at once. It doesn't replace pre-exposure prophylaxis or condoms |

### Transplant rejection

| | What to know |
|---|---|
| **Timing** | Hyperacute: within minutes, from a mismatched blood type; the organ must be removed. Acute: first week to 3 months. Chronic: damages the organ over years |
| ★ **Signs** | By organ: **less urine with a kidney**, high glucose with a pancreas, breathlessness with a heart or lung, jaundice and bleeding with a liver. Flu-like aches and chills; fever and pain over the organ are rare. A biopsy confirms it |
| **Drugs** | Lifelong immunosuppression. Tacrolimus: trough levels; infection and cancer risk; no grapefruit or live vaccines; watch kidney function, glucose and tremor. Adalimumab: a TB test before starting, no live vaccines |

**Educational use only.** Not a substitute for clinical judgment, your facility's policy or the provider's orders. Where practice varies, follow facility policy and state law. No patient information.

# Immune disorders, HIV and anaphylaxis

## 1 AT A GLANCE, CONTINUED

### Hypersensitivity types

| Type | What happens | Examples |
|---|---|---|
| I | Immediate allergy, through IgE, up to anaphylaxis | Pollen, foods, drugs, venom, latex |
| II | Cytotoxic: antibodies destroy cells | Hemolytic transfusion reaction |
| III | Immune complexes lodge in tissue | Lupus, rheumatoid arthritis |
| IV | Delayed, through T cells | Contact dermatitis, the TB skin test, graft rejection |

**Food allergens:** Nine major in the US: milk, eggs, fish, shellfish, tree nuts, peanuts, wheat, soy, sesame. Teach clients to read every label.

### Lupus (SLE)

- Chronic autoimmune disease that flares and settles. Most common in women 15 to 40; flares follow stress, infection, sunlight or some drugs.
- ★ **Butterfly rash** across the cheeks and nose, sun sensitivity, joint pain, fatigue. Can inflame the heart lining, lung lining and kidneys.
- No single test: an ANA, low complement and inflammation markers support it.
- Hydroxychloroquine helps the joints, rash and fatigue, and prevents flares. Steroids, immunosuppressants for severe disease.
- Teach **sun protection**. On immunosuppressants: wash hands well, avoid sick people.

## 2 PRIORITY AND SAFETY CALLS

★ Ten minutes into an IV antibiotic: a tight throat, hives and wheezing. **Stop the infusion first**, then epinephrine, help and the airway.

★ Hives, swollen lips and wheezing after a bee sting: **IM epinephrine first**. Antihistamines, bronchodilators and steroids follow; they don't replace it.

Documented anaphylaxis to penicillin and a new amoxicillin order: amoxicillin is a penicillin. Hold it and call the prescriber.

A client says she's "allergic to penicillin": ask what happened when she took it, and how long ago.

A client with a latex allergy: a latex-free environment and latex-free vial stoppers for injections. Before a procedure, the team plans ahead.

A nurse's needlestick from a client with HIV: report it at once; PEP starts as soon as possible, within 72 hours.

Two weeks after a kidney transplant, less urine and feeling achy: report it now as possible rejection. Holding tacrolimus isn't the nurse's call.

## 3 EXAM ANCHORS

1. Traps: an antihistamine before epinephrine, the wrong site, and dismissing an allergy history.
2. Adult epinephrine: 0.3 to 0.5 mg IM into the outer thigh, repeated in a new spot if needed. Not 1 mg IV push.
3. HIV spreads through body fluids, not casual contact: isolating for casual contact is a trap.
4. Start PEP within 72 hours; waiting days is a trap.
5. Lupus: butterfly rash, sun sensitivity, flares. Protect from sun and infection.
6. In order: immediate allergy, cell destruction, immune complexes, delayed reactions.
7. Falling urine output after a kidney transplant can mean rejection.

## 4 SELF-QUIZ

1. HIV destroys the _____ cells that fight infection.
2. Post-exposure prophylaxis is a _____-day course of medicines.
3. A positive TB skin test is a type _____ (delayed) reaction.
4. Clients on tacrolimus avoid _____.
5. In anaphylaxis, give epinephrine IM into the outer _____.
6. Allergic contact dermatitis to latex appears 1 to _____ days after contact.
7. There are _____ major food allergens in the United States.

**ANSWER KEY** 1. CD4 · 2. 28 · 3. 4 · 4. grapefruit · 5. thigh · 6. 4 · 7. 9

## 5 SOURCES


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**Built from RN PocketPal course lessons:** Immune disorders, HIV and hypersensitivity (c14-l03); Allergies and anaphylaxis (c02-l06). Every line on this sheet comes from those lesson scripts.



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