

Active *vs.* Passive Immunity

Who makes the antibodies? — the single question that unlocks every immunity item on the exam.

CLINICAL JUDGMENT

PHARMACOLOGY

HEALTH PROMOTION

SAFETY

01 Definition & Overview

The core distinction — who produces the antibodies and how long they last

ACTIVE IMMUNITY

The body builds its own army

- ▶ The client's own immune system is **exposed to an antigen** (infection or vaccine) and manufactures antibodies + memory cells.
- ▶ **Slow onset** (days to weeks) but **long-lasting** (years to lifetime).

PASSIVE IMMUNITY

Borrowed protection from someone else

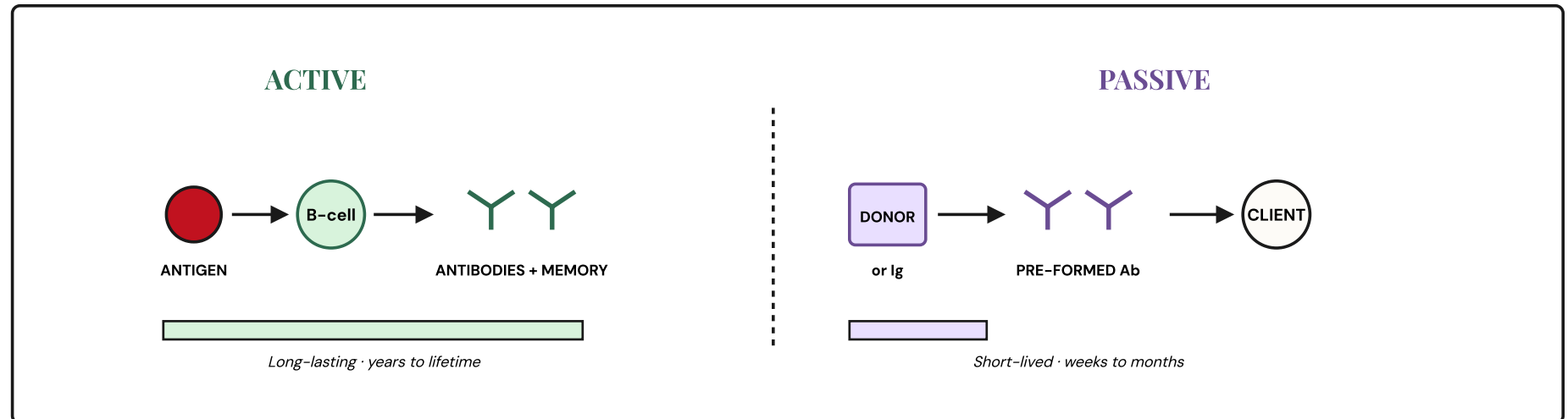
- ▶ Pre-formed antibodies are **transferred** from an outside source (mother, immune globulin, monoclonal antibody).
- ▶ **Immediate onset** but **short-lived** (weeks to a few months) — NO memory cells formed.

- Requires a **functioning immune system** — not reliable in severely immunocompromised clients.

- Used when the client needs **instant protection** — post-exposure, newborns, immunocompromised.

02 Pathophysiology — Simplified Flow

How antibodies get made (active) vs. how they arrive pre-packaged (passive)



Active Pathway

1 Antigen enters body (virus, bacteria, vaccine)



2 B-lymphocytes recognize antigen



Passive Pathway

1 Antibodies made in another host (human/animal)



2 Antibodies transferred (placenta, milk, injection)



3 Plasma cells produce antibodies (IgM → IgG)



4 Memory B-cells stored for rapid future response



5 Long-term immunity established

3 Immediate circulating protection



4 NO memory cells produced



5 Antibodies degrade → immunity fades

03 The Four Subtypes — Natural vs. Artificial

Every immunity question fits into one of these four boxes

NATURAL · ACTIVE

Getting the disease

The body makes its own antibodies after a real infection.

Examples: Recovery from chickenpox, measles, mumps, COVID-19 infection.

ARTIFICIAL · ACTIVE

Vaccination

The body makes antibodies after exposure to a weakened/killed antigen in a vaccine.

Examples: MMR, Varicella, Tdap, Hep B, HPV, Influenza, COVID-19 vaccines.

NATURAL · PASSIVE

Mother to baby

Antibodies transferred across the placenta (IgG) or through breast milk/colostrum (IgA).

ARTIFICIAL · PASSIVE

Immune globulin injection

Pre-formed antibodies given by injection for immediate protection.

Examples: RhoGAM, IVIG, HBIG, HRIG (rabies), TIG (tetanus), monoclonal antibodies.

Examples: Maternal IgG protecting newborn for ~6 months; colostrum immunity in breastfeeding.

04 Side-by-Side Comparison

The table you want in your head on test day

Feature	ACTIVE	PASSIVE
Antibody source	Client's own immune system	Transferred from outside source
Onset	Slow — days to weeks	Immediate
Duration	Long-lasting — years to lifetime	Short — weeks to a few months
Memory cells?	YES ✓	NO ✗
Booster needed?	Sometimes (for sustained titers)	Must re-dose each exposure
Used for	Long-term prevention	Emergency / post-exposure / newborns
Works in immunocompromised?	Unreliable (live vaccines contraindicated)	YES — antibodies are pre-made

05 Priority Nursing Interventions

ABCs framework — what the nurse does before, during, and after administration

A

Airway / Allergy HIGH

- Screen for **egg allergy** (influenza, MMR, yellow fever) and **neomycin/gelatin** allergies
- Keep client **15–30 min post-injection** to monitor for anaphylaxis
- Have **epinephrine 1:1000 + airway kit** at bedside
- Assess lung sounds before/after IVIG — risk of fluid overload

B

Baseline Assessment SAFETY

- Vital signs + temperature before administration
- Review **contraindications**: pregnancy, immunocompromise, active febrile illness (for live vaccines)
- Verify **informed consent** — benefits, risks, alternatives
- Check expiration, appearance, correct route

C

Correct Administration HIGH

- **IM vaccines**: deltoid (adult), vastus lateralis (<3 yrs)
- **SubQ**: MMR, Varicella — 45° angle
- **Aspirate?** NO — not required for vaccines
- Document: lot #, site, expiration, VIS given to client
- Report adverse events to **VAERS**

06 Pharmacology — Agents to Know

Vaccines (active) and immune globulins (passive) high-yield for NCLEX

Active Immunity Agents — Vaccines

Live Attenuated

MMR, Varicella, Rotavirus, Yellow Fever, BCG, Nasal Flu (LAIV), Zostavax.
Contraindicated: pregnancy, immunocompromised, active TB, high-dose steroids.

Inactivated / Killed

Hepatitis A, IPV (polio), Rabies, Flu shot (IIV).
Safe in pregnancy & immunocompromised; may need boosters.

Toxoid

Tetanus, Diphtheria (DTaP, Tdap, Td).
Targets toxins, not pathogen itself. Boosters every 10 years.

Subunit / mRNA / Conjugate

Hep B, HPV, Pneumococcal, Meningococcal, COVID-19 mRNA.
Made from protein fragments or genetic code — cannot cause infection.

Passive Immunity Agents — Immune Globulins

RhoGAM

Rho(D) immune globulin

Rh-negative mom carrying Rh-positive fetus. Give at **28 weeks** gestation and **within 72 hours** postpartum; also after any bleeding event, amniocentesis, or miscarriage. Prevents maternal sensitization.

IVIG

IV immune globulin

Pooled human IgG. Used for primary immunodeficiency, ITP, Kawasaki, Guillain-Barré. Monitor for renal dysfunction, aseptic meningitis, fluid overload. Infuse slowly.

HBIG

Hepatitis B Ig

Post-exposure prophylaxis (needle stick, infant of HBsAg+ mom). Give within **24 hours**, ideally with first dose of Hep B vaccine at a different site.

HRIG

Rabies Ig

After animal bite. Infiltrate **around the wound**; give remainder IM at site **distant from the rabies vaccine**. Never mix in same syringe.

TIG

Tetanus Ig

Dirty/contaminated wound in client with unknown or incomplete tetanus history. Give with Tdap at a different site.

Monoclonal antibodies

e.g., palivizumab, nirsevimab

Targeted antibodies for specific pathogens — palivizumab/nirsevimab protects high-risk infants from RSV during season. Monthly dosing.

07 NCLEX Test Traps

The exact confusions that sink students on immunity items

TRAP 01

Is breast milk active or passive?

Students often say "active" because it's natural.

~~Natural-active~~ → Natural · PASSIVE

Baby is receiving ready-made maternal antibodies (IgA). Baby's body didn't make them.

TRAP 02

Live vaccines + pregnancy

MMR, Varicella, LAIV, Yellow Fever are **live**.

~~"Give MMR now, catch up later"~~ → Defer until postpartum; avoid pregnancy for 4 weeks after

TRAP 03

IVIG interferes with vaccines

Passive antibodies neutralize live vaccine antigens.

~~Give MMR right after IVIG~~ → Wait at least 3 months after IVIG before live vaccines

TRAP 04

RhoGAM timing

A classic NCLEX stem.

~~"Give within 1 week postpartum"~~ → Within 72 hours postpartum (and at 28 weeks antepartum)

TRAP 05

Soreness ≠ infection

Normal post-vaccine: low-grade fever, local soreness, mild fatigue × 1–2 days.

~~Report to HCP immediately~~ → Reassure — use cool compress + acetaminophen

TRAP 06

Egg allergy + flu vaccine

Current guidance is more permissive than older rules.

~~Absolute contraindication~~ → Most clients can receive; severe egg allergy = observe in supervised setting

08 NCJMM Clinical Judgment Framework

Think like the NGN expects — Recognize → Analyze → Prioritize → Evaluate

01

Recognize Cues

Identify exposure history, immunization status, pregnancy, immunocompromise, age, Rh status, recent IVIG/blood products.

02

Analyze Cues

Does the client need *immediate* protection (passive) or *long-term* prevention (active)? Are live vaccines safe for this client?

03

Prioritize & Act

Post-exposure bite = HRIG + rabies vaccine NOW. Rh-neg postpartum = RhoGAM within 72 hrs. Pregnant + unimmunized = defer live vaccines.

04

Evaluate Outcomes

Confirm seroconversion (titers) after active vaccination; monitor for reactions; document & report adverse events to VAERS.

09 Patient & Family Education

What to teach before discharge or at the clinic visit



Records & Schedule

- ✓ Keep an up-to-date immunization record
- ✓ Follow CDC age-based schedule
- ✓ Bring record to every visit & school enrollment



Normal vs. Concerning

- ✓ Expected: soreness, redness, low-grade fever 1–2 days
- ✓ Call HCP: high fever >103°F, seizure, persistent crying in infants
- ✓ Call 911: difficulty breathing, throat swelling, facial edema



Pregnancy Timing

- ✓ Avoid live vaccines in pregnancy
- ✓ Avoid becoming pregnant for 4 weeks after live vaccine
- ✓ Tdap + flu vaccine are SAFE and recommended in pregnancy



Newborn Protection

- ✓ Breast milk/colostrum provides natural passive immunity (IgA)
- ✓ Maternal IgG protects infant ~6 months
- ✓ Infant vaccines begin this window of susceptibility



After Exposure

- ✓ Animal bite → wash wound, seek HRIG + rabies vaccine immediately
- ✓ Needle-stick with Hep B source → HBIG + Hep B vaccine within 24 hours
- ✓ Dirty wound + unknown tetanus status → TIG + Tdap



Herd Immunity

- ✓ Protects those who CAN'T be vaccinated (infants, immunocompromised)
- ✓ Requires high community vaccination rates
- ✓ Declining rates → outbreaks of preventable disease

10 Memory Boosters

Mnemonics and pattern recognition that stick under exam pressure

Active = "A" for Antigen

ANTIGEN
ANTIBODY
A long time

The body is ACTIVELY exposed to an ANTIGEN and builds its own ANTIBODIES that last A long time.

Passive = "PASS" it along

Pre-formed
Antibodies
Someone else's
Short-lived

Antibodies are PASSED from one person to another — the client doesn't do the work, so protection is short.

Live Vaccine "MR. VY"

RhoGAM "28 and 72"

MMR
Varicella / Yellow fever
Rotavirus
You can't give in pregnancy

MMR · Varicella · Rotavirus · Yellow fever · LAIV — all LIVE, all contraindicated in pregnancy and immunocompromise.

28 weeks antepartum
72 hours postpartum

Rh-negative mom with Rh-positive baby: give RhoGAM at 28 weeks and within 72 hours of delivery. Also after any bleed, amnio, or miscarriage.