

Isolation *Precautions*

Standard · Contact · Droplet · Airborne — the four-tier system every nurse must master to prevent transmission, protect patients, and pass NCLEX safety items.

● STANDARD

● CONTACT

● DROPLET

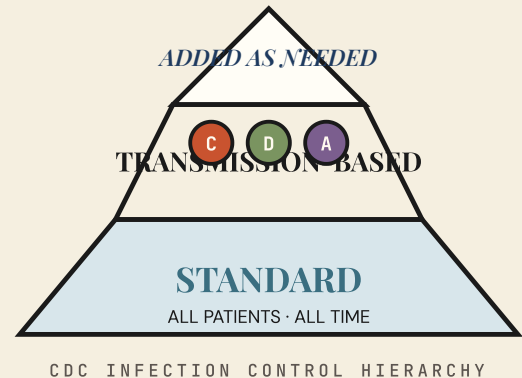
● AIRBORNE

● PPE SEQUENCING

1 Definition & Overview

- **Tiered system** developed by the CDC to interrupt the chain of infection and prevent transmission of pathogens between patients, staff, and visitors.
- **Standard Precautions** are the foundation — applied to *every patient, every time*, regardless of diagnosis or suspected infection status.
- **Transmission-Based Precautions** (Contact, Droplet, Airborne) are *added on top* of Standard when a specific route of transmission is known or suspected.
- Choosing the correct level is a **safety priority** on NGN questions — wrong PPE = exposure event.

The Two-Tier Framework

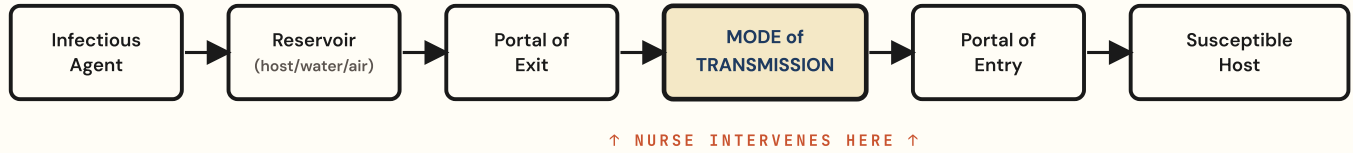


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Pathophysiology — *How Pathogens Travel*

The Chain of Infection

Isolation precautions break the chain at "Mode of Transmission" — the link nurses can directly control



DIRECT OR INDIRECT TOUCH

Contact Route

Pathogen spreads via **skin-to-skin contact** with the patient (direct) or via **contaminated equipment, surfaces, or hands** (indirect). No air travel needed.

PARTICLES > 5 MICRONS

Droplet Route

Large respiratory droplets from coughing, sneezing, or talking. Travel ≤ **3–6 feet** then fall — do NOT remain suspended in air.

PARTICLES ≤ 5 MICRONS

Airborne Route

Tiny droplet nuclei **remain suspended** in air and travel on air currents over long distances. Requires special ventilation and respirators.

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The Four *Precautions* — *Side by Side*



Standard

FOUNDATION • EVERY PATIENT

USED WHEN

- ▶ ALL patient encounters — assume all blood & body fluids are infectious
- ▶ Before any contact, even if no diagnosis is known

KEY PRACTICES

- ▶ **Hand hygiene** before & after every contact
- ▶ Gloves with any blood, body fluid, mucous membrane, or non-intact skin
- ▶ Gown, mask, & eye protection if splash/spray anticipated
- ▶ Safe injection practices — no recapping needles
- ▶ Respiratory hygiene / cough etiquette
- ▶ Proper disposal of sharps in puncture-resistant container

ROOM

- ▶ No special room — any patient room



Contact

TOUCH • MDROS • WOUNDS

DISEASES (MRS WEE)

- ▶ **MRSA** / multi-drug-resistant organisms (VRE, ESBL)
- ▶ **RSV** (also droplet for some protocols)
- ▶ **Skin infections** — impetigo, scabies, lice, HSV
- ▶ **Wound infections**, draining wounds
- ▶ Enteric — **C. difficile**, rotavirus, norovirus, Hep A
- ▶ Eye — conjunctivitis

PPE ON ENTRY

- ▶ Gown + gloves *before* entering room
- ▶ Remove PPE at doorway before exit

ROOM & EQUIPMENT

- ▶ Private room — or cohort with same organism
- ▶ Dedicated equipment (BP cuff, stethoscope, thermometer)

C. diff exception: Soap & water for hand hygiene — alcohol-based rub does NOT kill spores.



Droplet

≤ 6 FT • SNEEZE • COUGH

DISEASES (SPIDERMAN)

- ▶ **Sepsis** • **Scarlet fever** • **Strep pharyngitis**
- ▶ **Parvovirus B19** • **Pertussis** • **Pneumonia**
- ▶ **Influenza**
- ▶ **Diphtheria**
- ▶ **Epiglottitis**
- ▶ **Rubella**
- ▶ **Meningitis** (Neisseria, H. influenzae) • **Mumps**
- ▶ **Adenovirus** • **Newborn group B strep**

PPE ON ENTRY

- ▶ **Surgical mask** within 3–6 ft (institution may require on entry)
- ▶ Eye protection if splash risk

ROOM & TRANSPORT

- ▶ Private room (or cohort, ≥ 3 ft separation, curtain drawn)



Airborne

SUSPENDED • LONG-RANGE

DISEASES (MTV)

- ▶ **Measles** (rubeola)
- ▶ **Tuberculosis** (pulmonary/laryngeal)
- ▶ **Varicella** (chickenpox) & disseminated zoster (shingles)
- ▶ **SARS, COVID-19** (per facility protocol)

PPE ON ENTRY

- ▶ **N95 respirator** (fit-tested) — for TB, measles, varicella
- ▶ HCWs who are immune may forgo mask for measles/varicella per policy

ROOM & TRANSPORT

- ▶ **Negative-pressure (AIIR) room** — 6–12 air exchanges/hr, HEPA-filtered
- ▶ **Door must remain CLOSED**
- ▶ Patient wears *surgical mask* (NOT N95) during transport

- ▶ Door may remain open
- ▶ Patient wears **surgical mask** during transport

🚫 Door open + airborne pathogen = active exposure event.
Close the door first.

🟢 Donning PPE — "Get My Gear, Go"

- 1 Hand hygiene →
- 2 Gown →
- 3 Mask or Respirator (N95) →
- 4 Goggles / Face shield →
- 5 Gloves (over gown cuff)

🔴 Doffing PPE — Reverse with a Twist

- 1 Gloves →
- 2 Goggles / Face shield →
- 3 Gown →
- 4 Mask / Respirator (last — outside room for N95) →
- 5 Hand hygiene

4 Priority Nursing *Interventions*

PRIORITY 1 • SAFETY

Identify & Initiate the Correct Precaution Early

- ✓ Assess for risk on admission — cough, fever, recent travel, MDRO history, draining wound
- ✓ Place patient in appropriate room *before* exposure occurs
- ✓ Post precaution signage outside the room — door, chart, EHR alert
- ✓ Notify environmental services & transport for special cleaning

PRIORITY 2 • PPE

Don & Doff in Correct Sequence

- ✓ Hand hygiene before & after PPE — non-negotiable
- ✓ Don gown → mask/N95 → goggles → gloves
- ✓ Doff gloves → goggles → gown → mask (mask last)
- ✓ Remove N95 outside the room with door closed

PRIORITY 3 • ENVIRONMENT

Control the Room & Equipment

- ✓ Dedicate equipment to patient — disinfect with bleach for C. diff
- ✓ Airborne: confirm negative pressure & keep door closed
- ✓ Limit visitors; instruct them in PPE use
- ✓ Cluster care to minimize entries (especially Airborne)

PRIORITY 4 • TRANSPORT

Minimize Movement Out of Room

- ✓ Only transport when medically necessary
- ✓ Place a **surgical mask on the patient** for droplet & airborne
- ✓ Cover wounds, contain secretions for contact
- ✓ Notify receiving department & transport team in advance

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Pharmacology & Prophylaxis Highlights

PATHOGEN / SETTING	AGENT / CLASS	MECHANISM	KEY NURSING CONSIDERATIONS
TB (active)	RIPE — Rifampin, Isoniazid (INH), Pyrazinamide, Ethambutol	Bactericidal vs. <i>M. tuberculosis</i> ; 6–9 mo combo therapy	Monitor LFTs (hepatotoxic). INH → pyridoxine (B6) to prevent neuropathy. Rifampin turns secretions orange. Ethambutol → optic neuritis (check vision).
TB exposure (latent)	Isoniazid (INH) ×6–9 mo	Prevents conversion to active disease	Give on empty stomach. Avoid alcohol. Watch for hepatotoxicity (RUQ pain, jaundice).
MRSA	Vancomycin IV · Linezolid	Inhibit cell wall / protein synthesis	Vanco: trough levels 15–20, infuse over ≥ 60 min to avoid Red Man Syndrome. Nephro- & ototoxic.
C. difficile	Oral vancomycin · Fidaxomicin · Metronidazole	Suppresses toxin-producing <i>C. diff</i> in gut	Stop offending antibiotic if possible. Soap & water hand hygiene. Bleach to clean. Monitor stool frequency.
Meningococcal exposure	Rifampin · Ciprofloxacin · Ceftriaxone	Post-exposure prophylaxis for close contacts	Give to household contacts & HCWs with unprotected exposure to secretions. Droplet precautions × 24 hr after antibiotics started.
Influenza	Oseltamivir (Tamiflu) · Zanamivir	Neuraminidase inhibitor — shortens illness	Most effective within 48 hr of symptom onset. Droplet precautions × 7 days or until 24 hr afebrile.
Varicella / measles exposure	VZIG · MMR or varicella vaccine	Passive/active immunization	Verify HCW immunity (titers). Live vaccines contraindicated in pregnancy & immunocompromise.

6 NCLEX Test Traps ⚠️

✗ WRONG THINKING

"Use alcohol-based hand rub after caring for a patient with *C. difficile*."

✓ NCLEX-CORRECT

Soap and water only. Alcohol does not kill *C. diff* spores. Same applies to norovirus and *Bacillus anthracis*.

✗ WRONG THINKING

"Give the patient with TB an N95 mask before transport."

✓ NCLEX-CORRECT

Patient wears a surgical mask during transport — N95 is for the nurse/HCW. The patient's mask contains droplets at the source.

✗ WRONG THINKING

"Remove gloves last when doffing PPE."

✓ NCLEX-CORRECT

Gloves FIRST (most contaminated), **mask LAST** (protects airway longest). Hand hygiene between steps.

✗ WRONG THINKING

"Keep the door open so I can monitor the patient with TB easily."

✓ NCLEX-CORRECT

Door MUST stay closed for all Airborne precautions. Negative pressure only works when sealed.

✗ WRONG THINKING

"Pertussis is airborne — wear an N95."

✓ NCLEX-CORRECT

Pertussis (whooping cough) = Droplet, not airborne. Surgical mask is sufficient. Same for influenza, meningococcus, mumps, rubella.

✗ WRONG THINKING

"Shingles is always contact precautions."

✓ NCLEX-CORRECT

Localized zoster in an immunocompetent patient = Contact + cover lesions.
Disseminated zoster or in an immunocompromised host = Airborne + Contact.

✗ WRONG THINKING

"Wear standard precautions only — the patient looks fine."

✓ NCLEX-CORRECT

Standard precautions are **always** in effect. Add transmission-based on top — not instead of.

✗ WRONG THINKING

"Use the same BP cuff between the MRSA patient and the next patient."

✓ NCLEX-CORRECT

Dedicate equipment to the contact-precaution patient. If shared, fully disinfect before reuse.

7 Patient & Family Education

Why the Precautions?

- Explain in plain language — isolation prevents spread, not punishment
- Reassure: most patients can leave isolation once cleared or treated
- Acknowledge psychosocial impact — loneliness, anxiety
- Teach visitors how to don/doff PPE before they enter

Hand Hygiene at Home

- Wash hands with soap & water ≥ 20 seconds, especially after toileting
- Cover coughs/sneezes with elbow or tissue — discard tissue immediately
- Do not share personal items (towels, razors, drinking cups)
- Disinfect high-touch surfaces daily (doorknobs, phones, remotes)

Disease-Specific Pearls

- **TB:** Take all meds for full 6–9 months even when feeling better
- **C. diff:** Bleach for cleaning at home, NOT just spray cleaner
- **MRSA:** Cover wounds, do not share towels/clothing
- **Influenza/COVID:** Stay home ≥ 24 hr after fever resolves without meds

8 Memory Boosters

AIRBORNE

MTV

- M** Measles (rubeola)
- T** Tuberculosis
- V** Varicella / disseminated zoster

DROPLET

SPIDERMAN

- S** Sepsis · Scarlet fever · Strep
- P** Pertussis · Pneumonia · Parvo B19
- I** Influenza
- D** Diphtheria
- E** Epiglottitis
- R** Rubella
- M** Meningitis · Mumps
- A** Adenovirus
- N** Newborn group B strep

CONTACT

MRS WEE

- M** MRSA / MDROs
- R** RSV
- S** Skin: scabies, lice, HSV, impetigo
- W** Wound infections
- E** Enteric: C. diff, rotavirus, Hep A
- E** Eye: conjunctivitis

DONNING

G·M·G·G

- 1 Gown
- 2 Mask / Respirator
- 3 Goggles
- 4 Gloves (over gown cuff)

DOFFING

G·G·G·M

- 1 Gloves (most contaminated)
- 2 Goggles
- 3 Gown
- 4 Mask LAST — protects airway longest

C. DIFF

"SOAP UP"

- S** Soap & water — NOT alcohol
- O** Own equipment (dedicated)
- A** Anti-infectives: PO vanco/fidaxomicin
- P** Private room + contact precautions
- U** Use bleach for cleaning
- P** Probiotics may help recovery

9 Clinical Judgment Scenario

NCJMM

Scenario: A 34-year-old male is admitted from the ED with a 3-week history of productive cough, night sweats, fever (101.4 °F), unintentional 12-lb weight loss, and hemoptysis. He recently emigrated from a country with high TB prevalence and is unhoused. Chest X-ray shows an upper-lobe cavitory lesion. Sputum AFB smear is pending. The patient is currently in a standard medical-surgical room with the door open. The nurse just received report and is about to enter the room.

1 Recognize Cues

Productive cough + night sweats + fever + hemoptysis + weight loss + cavitory upper-lobe lesion + high-prevalence country = **classic active pulmonary TB presentation**. Current placement (standard room, door open) is a critical safety gap.

2 Analyze Cues

TB spreads via **airborne droplet nuclei** ≤ 5 microns that remain suspended. An open door in a standard-pressure room means active environmental contamination of the unit. Risk to other patients, staff, and visitors is escalating each minute. Standard precautions alone are insufficient.

3 Prioritize Hypotheses

Highest priority: **active pulmonary TB requiring Airborne Precautions** immediately. Secondary concerns: rule out coexisting HIV (often paired with TB), nutritional deficit, social-determinant needs (housing, follow-up). Safety & transmission control come *first*.

4 Generate Solutions

① Don N95 respirator (fit-tested) before entering. ② Place a **surgical mask on the patient**. ③ Close the door. ④ Request transfer to a negative-pressure (AIIR) room ASAP. ⑤ Initiate Airborne Precautions order set; notify provider, infection control, and house supervisor. ⑥ Collect 3 sputum AFB samples per protocol. ⑦ Begin RIPE therapy when ordered. ⑧ Screen close contacts.

5 Take Action

Apply N95 → enter room → mask the patient → close door → call charge nurse to expedite AIIR transfer → post Airborne signage → notify infection control → document time of precaution initiation → educate patient on mask, cough etiquette, and reason for isolation in language he understands.

6 Evaluate Outcomes

Patient is in AIIR with door closed and negative pressure verified within 1 hr. Patient demonstrates correct mask use during transport. Three AFB sputum cultures collected. No new staff exposures documented. Patient verbalizes understanding of why precautions are necessary and adheres to mask use. Follow-up: monitor for adverse effects of TB meds (hepatotoxicity, optic neuritis) and assess for resolution of symptoms.