# Cast Care

MUSCULOSKELETAL · ORTHOPEDIC NURSING

NGN NCLEX 2026

## 1 DEFINITION & OVERVIEW

**What it is:** Rigid external device that immobilizes bone & joints above and below a fracture.

**Purpose:** Maintain alignment, prevent deformity, reduce pain, promote healing.

**Core nursing goal:** Protect skin integrity & preserve neurovascular status distal to cast.

## 2 TYPES OF CAST MATERIAL

### Plaster (POP)

Dries: **24–48 hrs**

Heavy, smooth, NOT waterproof

Handle with **palms** — wet

Leave **uncovered** to dry

### Fiberglass

Dries: **15–30 min**

Lightweight, water-resistant

Durable, colored options

Most common today

## 3 PATHOPHYSIOLOGY — HOW COMPLICATIONS DEVELOP

Injury / swelling → Cast too tight → ↑ Compartment pressure → ↓ Venous return → Ischemia → Compartment syndrome

Moisture + warmth under cast → Skin maceration → Pressure injury → Infection (hot spot, odor, drainage)

## 4 SIGNS & SYMPTOMS — THE 6 P'S OF NEUROVASCULAR ASSESSMENT

| P | P | P | P | P | P |
|---|---|---|---|---|---|
| Pain (disproportionate) | Pallor (pale/cyanotic) | Pulselessness (↓ distal pulse) | Paresthesia (numb / tingling) | Paralysis (can't move) | Poikilothermia (cool / cold) |

### RED FLAGS — REPORT IMMEDIATELY

**Pain unrelieved by opioids** = classic compartment syndrome sign EMERGENCY

**Hot spot** on cast = underlying infection INFECTION

**Foul odor / drainage** through cast = osteomyelitis risk INFECTION

**Cool, pale, pulseless** distal extremity = ischemia ISCHEMIA

## 5 PRIORITY NURSING INTERVENTIONS

### WET CAST (FIRST 24–48 HRS)

**Handle** with palms — never fingertips (prevents indentations that press into skin).

**Leave uncovered** to air dry; turn Q2h for even drying.

**Elevate** on pillow above heart level.

### ONGOING CARE

**Assess neurovascular status** Q1h × 24h, then Q2–4h (6 P's distal to cast).

**Apply ice** on either side of cast × 24h (bagged, no direct water).

**Petal rough edges** with tape to protect skin.

**Reposition** Q2h; encourage isometric & ROM exercises to joints above/below.

**Inspect skin edges** every shift; smell for odor; palpate for hot spots.

## 6 PHARMACOLOGY

### PAIN MANAGEMENT

**Opioids** (morphine, oxycodone) — pain unrelieved by expected dose = **compartment syndrome**, notify HCP.

**NSAIDs** (ibuprofen, ketorolac) — reduce inflammation & swelling.

**Acetaminophen** — mild pain, avoid hepatotoxicity.

### SUPPORTIVE

**Stool softeners** (docusate) — counter opioid-induced constipation.

**DVT prophylaxis** (enoxaparin, heparin) — for prolonged immobility.

**Antibiotics** — only if infection confirmed (odor, drainage, ↑ temp).

**Calcium + vit D** — support bone healing.

## 7 NCLEX TEST TRAPS ⚠

**TRAP 1 — "Pain unrelieved by opioids"**

This is **NOT** a request for more pain medicine. It's compartment syndrome. Notify HCP; prepare for cast bivalve or fasciotomy.

**TRAP 2 — Fingertips on wet plaster**

Fingertips leave indentations → pressure points → skin breakdown. Use **palms** only.

**TRAP 3 — Covering wet plaster**

Covering traps heat & moisture, slows drying, may cause thermal burn. Leave **uncovered** .

**TRAP 4 — Sticking objects inside cast to scratch**

Never. Can cause skin breakdown & infection. Use **cool** hair dryer air instead.

**TRAP 5 — Elevating forever**

Elevate for **first 24–48 hrs only** . After swelling resolves, prolonged elevation decreases arterial flow.

**TRAP 6 — "Hot spot is just the plaster drying"**

A localized hot area **after** the cast is dry = infection. Drying produces only gentle, even warmth.

**TRAP 7 — Weight bearing on leg cast**

No weight bearing until HCP clears — usually **48 hrs minimum** for plaster.

## 8 PATIENT EDUCATION

### KEEP THE CAST SAFE

- **Keep dry.** Cover with plastic bag for showers; plaster casts cannot get wet at all.
- **Do NOT insert objects** (hangers, pencils, coins, back scratchers) into cast — skin damage & infection risk.
- **Itching:** Use **cool** hair dryer air blown into cast opening — never hot.

### ACTIVITY & CIRCULATION

- **Wiggle fingers/toes** frequently — promotes circulation & prevents stiffness.
- **Isometric exercises** (muscle tightening without moving joint) prevent atrophy.
- **Do NOT bear weight** on lower extremity cast until HCP clears.

### WHEN TO CALL PROVIDER 🚨

- ↑ pain, numbness, tingling, cold/blue fingers or toes, foul smell, drainage, fever, or new pain not relieved by meds.

## 9 NCJMM — CLINICAL JUDGMENT FRAMEWORK

**1. RECOGNIZE CUES**
Check the 6 P's distal to cast. Note hot spots, odor, drainage, pain disproportionate to injury.

**2. ANALYZE CUES**
Distinguish expected swelling from **compartment syndrome**. Normal drying ≠ hot spot. Pain unrelieved by opioids is abnormal.

**3. PRIORITIZE HYPOTHESES**
Compartment syndrome > ischemia > infection > skin breakdown. Circulation first (ABC → tissue perfusion).

**4. TAKE ACTION / EVALUATE**
Loosen / bivalve cast per order, elevate <48h, notify HCP for disproportionate pain. Reassess 6 P's; goal = pink, warm, palpable pulses.

## 10 MEMORY BOOSTERS & MNEMONICS

### THE 6 P'S — NEUROVASCULAR CHECK

**Pain · Pallor · Pulselessness · Paresthesia · Paralysis · Poikilothermia**

Check distal to cast Q1h × first 24 hours. Any new P = notify HCP.

### "CAST" — WHAT TO CHECK EVERY SHIFT

**Circulation · Activity (movement) · Skin (edges, hot spots) · Temperature**

### QUICK RECALL PHRASES

**Palms not fingertips** — on a wet plaster cast.

**Hot spot = infection** — cold toes = compromised circulation.

**Pain out of proportion** + paresthesia + ↓ pulse = compartment syndrome triad.

**Elevate 48, then evaluate** — elevation is for early swelling, not forever.