

Respiratory Distress Syndrome (RDS)



NEWBORN · RESPIRATORY SYSTEM

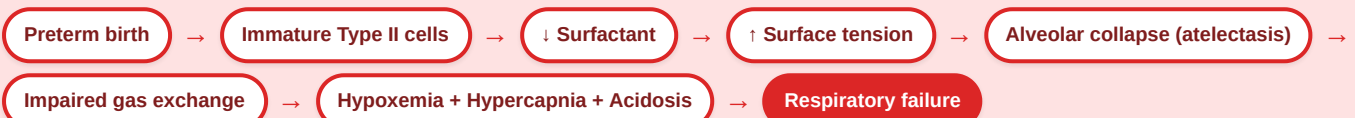


1. DEFINITION / OVERVIEW

- ▶ A life-threatening lung disorder in newborns caused by **insufficient surfactant** production by immature Type II alveolar cells.
- ▶ Primarily affects **preterm infants <34–36 weeks gestation** ; risk ↑ as gestational age ↓.
- ▶ **Why it matters:** Leading cause of respiratory morbidity & mortality in premature neonates — early recognition saves lives.



2. PATHOPHYSIOLOGY (SIMPLIFIED)



Key concept: Surfactant keeps alveoli open. No surfactant = alveoli collapse on every exhale = baby must work harder with each breath.



3. SIGNS & SYMPTOMS



EARLY / MILD

- ▶ Tachypnea (RR >60/min)
- ▶ Nasal flaring
- ▶ Expiratory **grunting**
- ▶ Mild retractions
- ▶ Cyanosis (acrocyanosis → central)
- ▶ Fine crackles on auscultation



LATE / SEVERE — RED FLAGS

- ▶ Severe retractions (sub/intercostal) **RED FLAG**
- ▶ Apnea / seesaw breathing **RED FLAG**
- ▶ Pale, mottled, dusky skin
- ▶ Bradycardia + hypotension **RED FLAG**
- ▶ Decreased / absent breath sounds
- ▶ ↓ Oxygen saturation despite O₂



4. PRIORITY NURSING INTERVENTIONS (ABCS FIRST!)

- ▶ **AIRWAY:** Suction PRN (mouth before nose); position in **neutral "sniffing" position** — slight neck extension.
- ▶ **BREATHING:** Administer O₂ / CPAP / mechanical ventilation as ordered; target SpO₂ **90–95%**.
- ▶ **CIRCULATION:** Monitor HR, BP, perfusion, capillary refill; watch for bradycardia.
- ▶ **Administer surfactant** via ETT as ordered (priority medication).
- ▶ **Thermoregulation:** Maintain neutral thermal environment (radiant warmer/isolette) — cold stress ↑ O₂ demand.
- ▶ **Monitor:** VS q1–2h, ABGs, blood glucose, I&O, daily weights.
- ▶ **Minimal handling / cluster care** — stimulation ↑ O₂ consumption.
- ▶ **NPO** initially; gavage feedings or TPN until stable.
- ▶ **IV access** for fluids, medications, labs.
- ▶ **Family support** — encourage kangaroo care when stable.

5. PHARMACOLOGY

Surfactant Replacement Therapy

Drugs: Beractant (Survanta), Poractant (Curosurf), Calfactant (Infasurf)

MOA: Replaces deficient surfactant → ↓ surface tension → prevents alveolar collapse → improves oxygenation.

Side effects: Transient bradycardia, O₂ desaturation during administration, pulmonary hemorrhage.

★ Nursing considerations:

- ▶ Given via ETT — confirm placement first
- ▶ **Suction BEFORE — NOT after** administration
- ▶ **Do NOT suction for 1–2 hours** post-dose (removes drug!)
- ▶ Monitor VS & SpO₂ continuously during instillation
- ▶ Reposition infant during dosing for even distribution

Antenatal Corticosteroids (Prevention)

Drugs: Betamethasone, Dexamethasone

MOA: Given to mother at **24–34 weeks** risk of preterm birth → accelerates fetal lung maturity & surfactant production.

Optimal timing: 24–48 hours before delivery for maximum effect.

★ **Nursing considerations:** Administer IM to mother; monitor maternal blood glucose (may ↑); educate on importance of full course.

6. NCLEX TEST TRAPS

- ▶ **Don't suction after surfactant!** Wait 1–2 hrs — suctioning removes the drug.
- ▶ **RDS ≠ TTN:** TTN is full-term/late preterm, self-resolves in 24–72 hrs. RDS = preterm & worsening.
- ▶ **Grunting is NOT comfort** — baby creates own PEEP to keep alveoli open. It's a **sign of distress**.
- ▶ **Oxygenation BEFORE feeding** — never feed a baby in respiratory distress; retractions = ↑ work of breathing, never "normal."
- ▶ **Airway/Breathing before labs or family updates** — ABCs always win.
- ▶ **Target SpO₂ 90–95%**, not 100% — hyperoxia → ROP & BPD; also maintain neutral thermal environment (cold stress worsens RDS).

7. PATIENT & FAMILY EDUCATION

- ▶ Explain disease process simply — surfactant deficiency causing breathing problems; teach home warning signs (grunting, retractions, color change, poor feeding).
- ▶ Promote **kangaroo (skin-to-skin) care** once stable — improves bonding, temperature, oxygenation.
- ▶ Encourage breastfeeding / expressed breast milk — protective against infection & BPD.
- ▶ Stress **long-term follow-up:** developmental, pulmonary, eye screening for ROP.
- ▶ **RSV prophylaxis** (Palivizumab/Synagis) in first RSV season for high-risk infants; keep vaccines up to date.
- ▶ Avoid smoke exposure & crowds; emphasize hand hygiene; call provider for fever, apnea, or cyanosis.

8. MEMORY BOOSTERS

"GRUNT" — Classic RDS Signs

- G** — Grunting (expiratory)
- R** — Retractions
- U** — Unstable breathing
- N** — Nasal flaring
- T** — Tachypnea (RR >60)

Risk Factors "PMS-C"

- P** — Prematurity (biggest!)
- M** — Maternal diabetes
- S** — Second-born twin
- C** — C-section (no labor stress)

Quick Associations & Pattern Recognition

- ▶ **"Preterm + Respiratory Distress = RDS"** until proven otherwise.
- ▶ **Surfactant = soap bubble analogy** — keeps alveoli (bubbles) from collapsing.
- ▶ **Rule of timing:** RDS peaks at 48–72 hrs; improves by day 5–7 with treatment.
- ▶ **"SUCK before STICK"** — Suction BEFORE surfactant (stick) administration.