



NEWBORN EMERGENCIES

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Program Objectives

- Identify common neonatal emergencies
- Apply Neonatal Resuscitation Guidelines
- Master initial stabilization and differential diagnosis in the first "Golden Minute".



**What “newborn emergency” can
you think of?**

What “newborn emergency” can you think of?

- Preterm birth
 - Hypoxemia
 - Hypovolemia
 - Hyperbilirubinemia
 - Necrotizing enterocolitis
- Asphyxia
 - seizures
- Sepsis
- Birth trauma
 - Clavicle fx
 - Humerus fx
 - Brachial plexus injury



The First Minute – Stabilization

- **Warmth:** Use preheated radiant warmer.
- **Position:** "Sniffing" position to open airway.
- **Dry & Stimulate:** Remove wet linens immediately.
- **Airway:** Suction only if visible obstruction exists.

The Pediatric Assessment Triangle (PAT)

- **Appearance:** Tone, interactiveness, consolability, gaze, cry.
- **Work of Breathing:** Grunting, flaring, retracting.
- **Circulation to Skin:** Pallor, mottling, cyanosis.

Respiratory Distress – Diagnosis

- **Signs:** Tachypnea (RR >60), grunting, nasal flaring, intercostal retractions.
- **Differential:** RDS, Transient Tachypnea (TTN), Meconium Aspiration, Pneumonia.
- **Pulse Oximetry:** Maintain saturation >90% but <95% in preterms to avoid eye damage.

Neonatal Resuscitation – Ventilation (NRP)

- **Priority:** Lung ventilation is the most critical step.
- **Rate:** Now 30–60 inflations/min (expanded from 40–60).
- **Indicators:** A rising heart rate is the primary indicator of effective ventilation.



Respiratory Distress – Treatment

- **Non-invasive:** CPAP is recommended for spontaneously breathing preterm infants.
- **Advanced:** Intubation if positive-pressure ventilation (PPV) fails or for surfactant delivery.
- **Oxygen:** Start with 21% for term; 21–30% for preterm infants.

Neonatal Resuscitation – Circulation

- **Chest Compressions:** Indicated if HR <60 bpm after 30s of effective PPV.
- **Ratio:** 3:1 (90 compressions and 30 breaths per minute).
- **Technique:** Use the two-thumb encircling technique.



Medications – Epinephrine

- **Indication:** HR remains <60 bpm after 45–60s of effective CPR.
- **Route:** IV/IO is preferred over ETT administration.
- **Considerations:** Dosage is determined by the route of administration.



What is Preterm Birth?



Killer of 900,000 children per year

What is Preterm Birth?

- **Definition:** Delivery occurring before 37 completed weeks of gestation.
- **Impact:** Leading cause of death under 5, and of long-term morbidity (e.g., respiratory distress, cerebral palsy).
- 3 of 4 could be saved with low cost intervention
- **Global Burden:** Approx. 15 million babies born preterm annually.

Risk Factors and Causes

- **Prior Preterm Birth:** The strongest predictor of future preterm birth.
- **Clinical/Anatomical:** Short cervix (<25mm), multiple gestation (twins/triplets), uterine abnormalities.
- **Infection/Inflammation:** Urinary tract infections, periodontal disease, amniotic fluid infection.
- **Lifestyle/Environmental:** Smoking, alcohol, drug use, stress, poor nutrition.
- **Demographic:** Age (under 17 or over 35), racial/ethnic disparities.

Primary Prevention: Before Pregnancy (Preconception)

- **Spacing Pregnancies:** Wait at least 12–18 months between births.
- **Health Optimization:** Manage chronic conditions (diabetes, hypertension).
- **Lifestyle Adjustments:** Smoking cessation, avoiding drugs, achieving healthy BMI.
- **Reproductive Care:** Adequate pre conception and prenatal care.

Secondary Prevention: During Pregnancy

- **Early Prenatal Care:** Identify risk factors early.
- **Cervical Length Screening:** Transvaginal ultrasound between 16–24 weeks.
- **Progesterone Supplementation:** Vaginal progesterone for women with a short cervix or previous preterm birth.
- **Cervical Cerclage:** Surgical stitch for cervical insufficiency.



Recognizing Preterm Labor Symptoms



- **Signs to Watch For:**

- Uterine contractions (regularly, 6 or more in 1 hour).
- Pelvic pressure or backache.
- Change in vaginal discharge (watery, mucus, or bloody).
- Mild abdominal cramps (with or without diarrhea).

- **Action Plan:** Call healthcare provider immediately if symptoms occur.

Responding to Preterm Labor: Medical Interventions

- **Tocolytics:** Medications to temporarily delay labor (e.g., nifedipine, indomethacin).
- **Corticosteroids:** Accelerate fetal lung maturity (e.g., betamethasone).
- **Magnesium Sulfate:** Neuroprotection for the fetus (if <32 weeks).
- **Antibiotics:** To treat infection or in case of PPRM (Preterm Premature Rupture of Membranes).
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Post-Birth: Caring for the Preterm Infant

- **Kangaroo Mother Care (Skin-to-Skin):** Reduces mortality and improves bonding.
- **NICU Care:** Respiratory support (CPAP), specialized nutrition, and infection prevention.
- **Early Breastfeeding/Breast Milk:** Essential for immunity and development.
- **Developmental Follow-up:** Long-term monitoring for neurological and physical development.



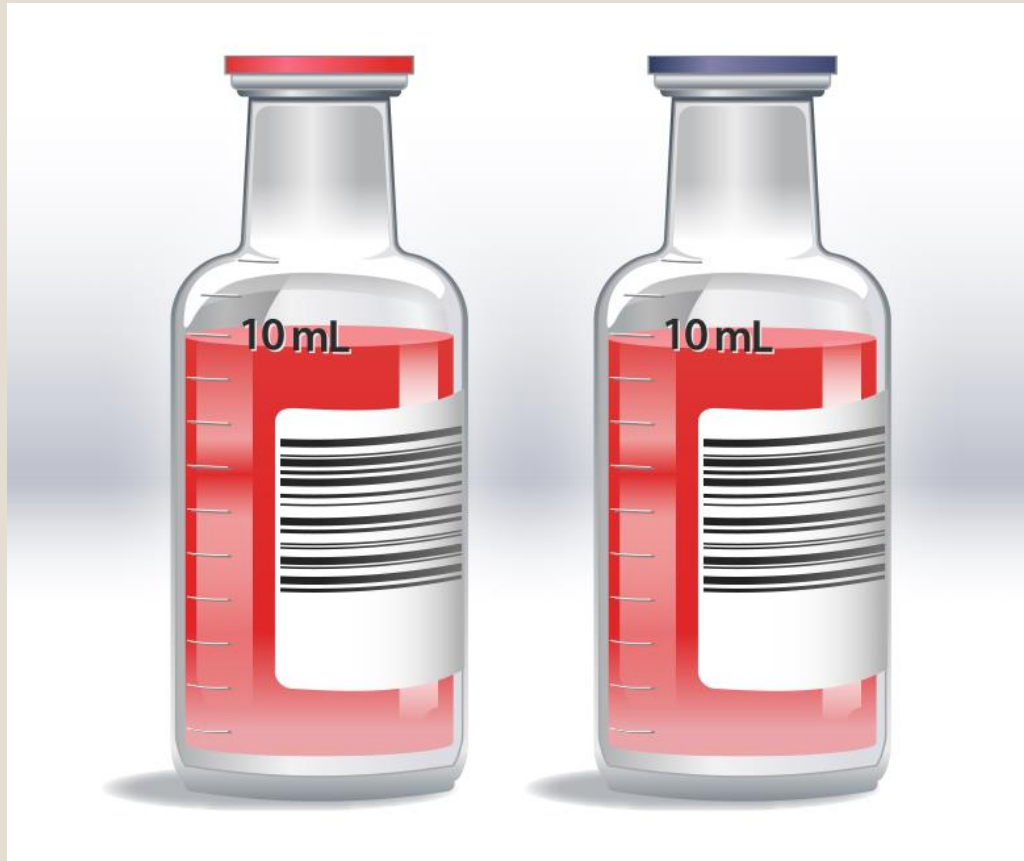
Conclusion and Key Takeaways

- Preterm birth is a major, complex public health issue requiring proactive, personalized care.
- Early detection via screening and timely intervention (progesterone, cerclage) are critical for prevention.
- Prompt recognition of symptoms and rapid, evidence-based hospital response improves survival.
- **Goal:** Ensure every baby has the best chance to grow to full term.

The Misfits

- **T - Trauma:** Includes birth injuries and non-accidental trauma (child abuse).
- **H - Heart Disease/Hypovolemia:** Covers congenital heart disease and low blood volume.
- **E - Endocrine:** Congenital adrenal hyperplasia (CAH), thyroid dysfunction.
- **M - Metabolic:** Electrolyte imbalances, such as hypo- or hypernatremia, and hypoglycemia.
- **I - Inborn Errors of Metabolism:** Inherited metabolic disorders that can present in the first few days of life.
- **S - Sepsis:** Bacterial infections, including meningitis, pneumonia, or urinary tract infections.
- **F - Formula Mishaps:** Incorrectly mixed formula (under- or over-dilution), causing severe electrolyte issues.
- **I - Intestinal Catastrophes:** Conditions like necrotizing enterocolitis (NEC) or volvulus.
- **T - Toxins:** Exposure to toxic substances, sometimes from home remedies.
- **S - Seizures:** Neurological events that may be the primary issue or secondary to the above causes.

Neonatal Sepsis – Early Detection



- **Risk Factors:** Maternal fever, positive Group B Streptococcus (GBS) status, prolonged rupture of membranes.
- **Symptoms:** Temperature instability, lethargy, poor feeding, apnea.
- **Diagnosis:** Blood cultures, complete blood count (CBC), C-reactive protein (CRP); consider Lumbar Puncture (LP).

Neonatal Sepsis – Management

- **Empiric Antibiotics:** Initial treatment often involves a combination of antibiotics.
- **Fluids:** Initial management may include an isotonic saline bolus.
- **Glucose:** Monitor closely; sepsis can lead to hypoglycemia.

Metabolic Emergencies – Hypoglycemia

- **Definition:** Low blood glucose level.
- **Signs:** May include jitteriness, lethargy, seizures, or be asymptomatic.
- **Treatment:** Treatment typically involves intravenous or oral glucose administration.

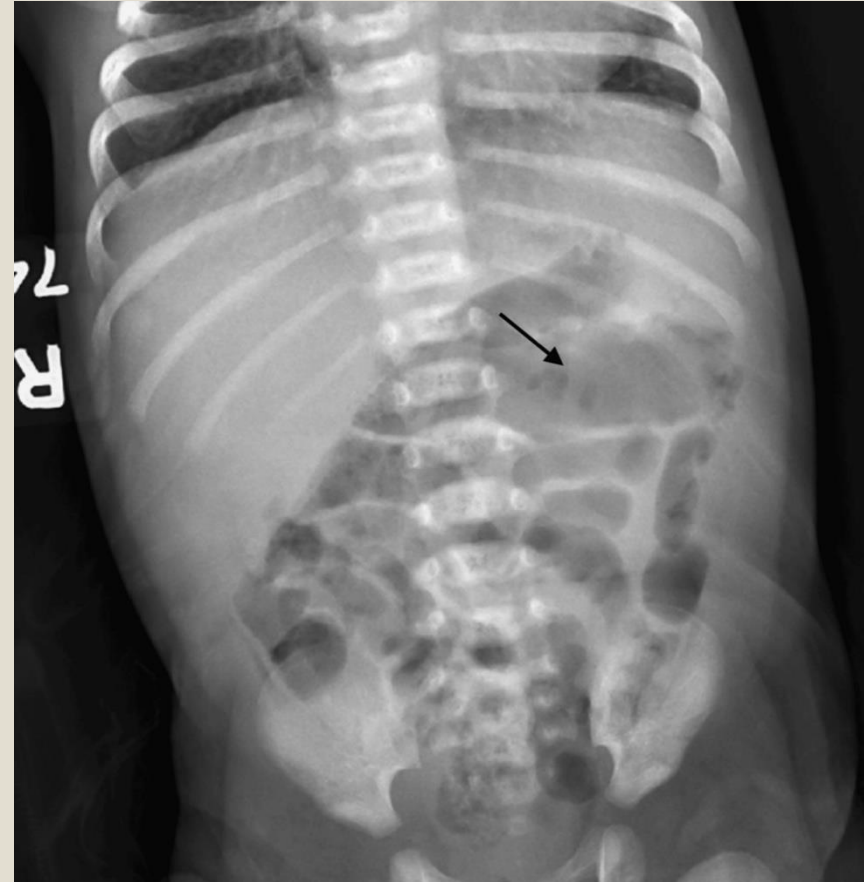


Neonatal Seizures

- **Etiology:** Hypoxic-ischemic encephalopathy (HIE) is the most common cause, followed by hypoglycemia, intracranial hemorrhage, and electrolyte imbalance.
- **Management:**
 - Assess ABCs (Airway, Breathing, Circulation) and check glucose.
 - Anticonvulsant medication may be administered as a first-line treatment.
 - Maintain temperature within a target range.

Surgical Emergencies – Abdominal

- **Necrotizing Enterocolitis (NEC):** Characterized by abdominal distension, bloody stools, and pneumatosis on X-ray.
- **Malrotation/Volvulus:** Presents with bilious vomiting and is a surgical emergency.
- **Immediate Care:** Withhold oral feeds (NPO), perform gastric decompression, administer IV fluids, and consult surgery.



Vascular Access in Emergencies

- **Umbilical Venous Catheter (UVC):** Often preferred for newborns in the first two weeks of life.
- **Intraosseous (IO):** Can be used in full-term infants if IV access cannot be established.
- **Peripheral IV:** Utilize a 24G or 22G catheter; scalp veins are a potential site.
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Communication and Team Dynamics

- **Team Leader:** Assign roles for optimal resuscitation efforts (e.g., Airway, Circulation, Recorder).
- **Parental Support:** Provide clear and empathetic communication to parents during emergencies.
- **Debriefing:** Crucial for team learning and improvement after resuscitation events.

Summary and Resources

- **Key Takeaway:** Effective ventilation is a priority in neonatal resuscitation; adhere to the latest guidelines.
- **Emergency Contacts:** Have readily available contact information for NICU, Surgery, and Transport Team.
- **Q&A Session.**
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