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Standard Treatment Workflow (STW)

NEONATAL EMERGENCY TRIAGE ASSESSMENT AND MANAGEMENT

SICK OR AT-RISK NEONATE PRESENTING TO HEALTH FACILITY

- Place under radiant warmer
- Attach temperature probe and pulse oximeter
- Assess for emergency signs using TABCD
  - **T**emperature
  - **A**irway and **B**reathing
  - **C**irculation (CFT, pulse, BP)
  - **C**oma/**C**onvulsions
  - **D**ehydration

EMERGENCY SIGNS

- Apnea or gasping
- Severe respiratory distress (severe retractions, grunt, RR>70)
- Central cyanosis/oxygen satuation <91%
- Shock (Cold peripheries, mottled/grey skin, CFT>3 sec, weak & fast pulse, low BP)
- HR > 200/min
- Coma or convulsions
- Severe dehydration(in cases of diarrhoea)
- Severe Hypothermia (< 32°C)

PRIORITY SIGNS

- Weight < 1800 g or > 3.8 kg
- Respiratory distress(RR>60, no retractions)
- Severe jaundice (onset < 24 h /palm or sole staining/ duration > 2 weeks)
- Severe pallor
- Bleeding
- Major malformation (tracheo-esophageal fistula, meningomyelocele, gastroschisis, anorectal malformation)
- Abdominal distension
- Irritable/Restless
- Refusal to feed
- Moderate (32-35.9°C) or mild (36-36.4°C) hypothermia

NON-URGENT SIGNS

- Jaundice
- Transitional stools
- Minor birth trauma
- Minor malformations
- Superficial infections
- Breastfeeding difficulty
- Regurgitation

INITIATE EMERGENCY TREATMENT AND STABILIZE

- Resuscitation as per NRP
- Maintain TABC
- Check SpO_2 and start oxygen if < 91%
- Start CPAP if respiratory distress
- Start IV fluids as per weight and postnatal age (Refer to STW on Feeds & Fluids)
- Check blood glucose, draw CBC and blood culture, and give first dose of antibiotics(Refer to STW on Sepsis in neonates)

ASSESS AND ACT RAPIDLY

- Maintain TABC
- Check SpO_2 and start oxygen if < 91%
- Check blood glucose
- Start IV fluids (if abdominal distension/GI malformation) or gavage feeds (Refer to STW on Feeds & Fluids)
- Elicit perinatal risk factors for sepsis and evaluate if sepsis workup is needed (refer to STW on Sepsis in neonates)
- Investigations as per clinical findings

ASSESS AND COUNSEL

- Assessment and treatment as per requirement
- Explain danger signs
- Counsel for breastfeeding

Follow specific STWs
A neonate may have more than one condition

SPECIFIC MANAGEMENT WORKFLOWS

SHOCK

- Provide warmth
- IV NS 10mL/kg bolus over 30-60 min
- May repeat bolus if evidence of volume deficit
- Consider inotropes

HR> 200/MIN

- Urgent ECG-look for p waves
- If SVT, consider ice-pack and IV adenosine
- Check for and correct hyperthermia if present

SEVERE DEHYDRATION (Diarrhoea plus any two of lethargy, very slow skin pinch and sunken eyes)

- Provide warmth
- IV 30 mL/kg of RL or NS in 1 hour followed by 70 mL/kg in next 5 hours (WHO plan C)
- If IV not possible, give ORS at 20 mL/kg/h for 6 hours
- Assess 1-2 hourly and titrate the volume of fluids

HYPOTHERMIA (Refer to STW on thermal care of newborn)

- Mild (36-36.4°C): Warm environment, skin-to-skin contact, breastfeeding
- Moderate (32-35.9°C): Place under servo-controlled warmer; skin-to-skin contact till arranged
- Severe(< 32°C): As for moderate hypothermia plus IV fluids and inj. vitamin K

HYPOGLYCEMIA (Refer to STW on neonatal hypoglycemia)

- Blood glucose < 45mg/dL and asymptomatic : supervised breastfeeding or EBM
- Blood glucose < 20 mg/dL OR symptomatic : 2mL/kg 10% dextrose IV followed by infusion @ 6mg/kg/min

JAUNDICE (Refer to STW on neonatal jaundice)

- Serious jaundice (onset at < 24 h of age, palm or sole staining, or signs of acute bilirubin encephalopathy): Intensive phototherapy, consider IV fluids if suspicion of dehydration, prepare for exchange blood transfusion

SEIZURES (Refer to STW on neonatal seizures)

- Maintain TABC
- Check blood glucose by glucometer: If < 45 mg/dL, 2mL/kg 10% dextrose IV followed by infusion @ 6mg/kg/min
- If not controlled, 2 mL/kg 10% calcium gluconate IV, diluted 1:1 with D5, D10 or DW, over 10 min under cardiac monitoring
- If not controlled, Inj. Phenobarbitone 20 mg/kg IV over 15 mins. If seizures persist after 15 min. consider another bolus of 10mg/kg phenobarbitone over 10 min

SURGICAL

- Cover any skin defects with warm saline sterile gauze
- Maintain hydration
- Consult surgeon

BREASTFEEDING DIFFICULTY

- Observe and look for proper positioning and attachment of baby during breastfeeding
- Counsel mother

ABBREVIATIONS

CFT: Capillary filling time
CPAP: Continuous positive airway pressure
ECG: Electrocardiogram
EBM: Expressed breastmilk
NRP: Neonatal resuscitation protocol
NS: Normal saline
RL: Ringer lactate
SpO_2: Pulse oxygen saturation
SVT: Supraventricular tachycardia
STW: Standard treatment workflow
TABC: Temperature, airway, breathing, circulation

REFERENCE

1. Guideline for Paediatric emergency triage, assessment and treatment. World Health Organization 2016. Available at https://apps.who.int

☛ IDENTIFICATION AND PROMPT TREATMENT OF EMERGENCY AND PRIORITY SIGNS IS THE KEY TO PREVENT MORTALITY

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the website of DHR for more information: (**stw.icmr.org.in**) for more information.