

M12: Neonatal Neurological

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Introduction

Neonatal neurological emergencies encompass a large variety of conditions including cerebral vascular accidents, developmental conditions, space-occupying lesions, and infectious encephalopathies. The majority of these conditions require advanced imaging to diagnose and will need long-term therapy.

Paramedic and EMR/FR management of the neonatal neurological emergency involves determining the time of onset and management of symptoms created by the condition. These include seizures, hypotonia, apnea, or variations in respiratory pattern, as well as absent or delayed primitive reflexes.

Essentials

- Neurological emergencies in the neonate generally present through altered mental status. This may be the result of:
 - Seizures
 - Hypoglycemia
 - Infection
 - Trauma
- Neonates may present with respiratory compromise from repeated seizures or central apnea.
- The primary treatment is management of symptoms and supportive care in accordance with the appropriate clinical practice guideline. In particular, seizures should be treated if paramedics and EMRs/FRs feel confident in their diagnosis, remembering that seizures can be subtle in neonates (e.g., lip smacking, blinking, and bicycle movement of the legs, are all common signs).

Additional Treatment Information

- The majority of neonates who experience respiratory compromise secondary to a neurological condition are treated as though they have an infectious encephalopathy until blood and cerebrospinal fluid cultures have been completed.
- Patients should be conveyed to a hospital with appropriate pediatric resources if there are multiple clinical pathways to choose from.
- Patients experiencing multiple apneic events may require placement of an advanced airway in order to oxygenation and ventilate effectively.

Interventions

First Responder

- Prevent heat loss
- Provide supplemental oxygen as required
 - → [A07: Oxygen Administration](#)
- Manual airway maneuvers
 - → [B01: Airway Management](#)
- Provide on-going care as per neonatal resuscitation guidelines
 - → [M09: Neonatal Resuscitation](#)

Emergency Medical Responder – All FR interventions, plus:

- Convey urgently to the closest facility
- Consider intercept with additional resources

Primary Care Paramedic – All FR and EMR interventions, plus:

- Consider use of supraglottic airway if unable to oxygenate or ventilate with bag-valve mask alone
 - → [PR08: Supraglottic Airway](#)
- Correct documented hypoglycemia
 - → [E01: Hypoglycemia and Hyperglycemia](#)

Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Advanced airway intervention if unable to oxygenate or ventilate
- [MIDAZOLam](#) for seizure control
- Consider need for vascular access based on clinical scenario
 - → [D03: Vascular Access](#)
- Consider intraosseous access
 - → [PR12: Intraosseous Cannulation](#)

