



CLINICAL PRACTICE GUIDELINE  
NEWBORN EMERGENCY TRANSPORT SERVICE (NETS WA)

## Seizures

This document should be read in conjunction with the [Disclaimer](#)

### Aetiology

- Hypoxic Ischaemic Encephalopathy (HIE).
- Metabolic Causes: Hypoglycaemia; urea cycle disorders.
- Electrolyte abnormalities, e.g. hypocalcaemia.
- Intracranial Haemorrhage.
- Intracranial Infections. Consider bacterial, viral (especially HSV).
- Brain Malformations.
- Illicit Drug Withdrawal.
- Benign Familial Neonatal Seizures.

### Presentation

Seizures in the newborn period may be difficult to detect, as they can have different presentations:

- Subtle: staring, eye deviation, chewing, sucking, lip smacking.
- Clonic.
- Tonic.
- Tonic-clonic.
- Myoclonic.
- Apnoea: Should be considered seizure activity until proven otherwise especially in term neonates.

### Investigations

- Full Blood Count, Urea Electrolytes Creatinine, Blood Sugar, Ca, Mg, and LFTs.
- Head Ultrasound.
- EEG.

Where appropriate:

- Septic screen.
- Urine Metabolic screen.
- Plasma AminoAcids.
- Serum lactate, pyruvate,
- Acid/Base status.
- CSF for metabolic studies & infectious aetiology.

- Coagulation profile and thrombophilia screen
- Further neuroimaging with CAT Scan or MRI.
- Despite appropriate investigations in some neonates a cause may not be identified.

## Management

- May require intubation if unsafe airway from recurrent severe apnoeas, recurrent seizures with oral secretions, sedation from medication.
- Correct electrolyte disturbance and metabolic acidaemia if present.
- Start IV antibiotics.
  - Amoxicillin, gentamicin and if meningitis suspected, add cefotaxime.
  - Consider adding acyclovir.

## Antiepileptic Medication

- If neonate is in status or seizure > 5 minutes duration, primary aim is to stop the seizure.
- Generally, the order of medications is as follows:
  - Phenobarbitone 20mg/kg IV loading dose; can have a further 10mg/kg in 2 divided doses.
  - If seizures still uncontrolled, consider phenytoin 20mg/kg over 30-60 minutes.
  - If seizures still uncontrolled, consider midazolam infusion (1-6 micrograms/kg/min).
- With all antiepileptic medications, respiratory and cardiac depression may occur so be prepared for intubation and ventilation.

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