

## Neonatal Meningitis/encephalitis and Seizures



Coastal Simulation Program  
Scenario Name:

### **Learning Objectives:**

By the end of the debriefing the participants should be able to:

*Knowledge & Skills:* - antibiotics/antivirals for neonatal meningitis/encephalitis

- airway management for an apneic neonate
- DOPE pneumonic for an intubated patient
- anticonvulsants for neonatal seizures

*Attitudes and Judgement:*

*Patient Safety:*

### **Patient Description:**

**Name: Baby Boy**

Age: 3 weeks

Weight: 4.1 kg

Immunizations: nil

*Hx of current condition:* poor breast feeding for 24 hours, fever today, hard to wake up today

Social Hx: lives with mom and dad, no social concerns

Diagnosis: meningitis/encephalitis

### **Skills required prior to simulation/learner assessment:**

Psychomotor: - IV /IO

- IPPV by bag and mask or advanced airway

Cognitive: - treatment for meningitis/encephalitis

- need to take over the airway
- DOPE pneumonic
- anticonvulsants

Teamwork: - multiple jobs to be done at the same time

Who are my learners? - nurses, residents, pediatricians, respiratory therapists

### **Monitors: 3 lead cardiorespiratory monitor, O2 saturation monitor**

**Physical Props/Equipment:** IV and IO needles

**References, Resources, Protocols, Algorithms, or Evidence Informed Practice Guidelines:**

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<b>Equipment available in room:</b>				
<b>Room set up:</b>	<b>Medications &amp; Fluids:</b> N/S, D10W 2 IV's/IO's	<b>Diagnostics:</b> CBC, electrolytes, urea, creatinine CRP, glucometer	<b>Documentation forms:</b>	<b>Confederates</b> mom
<b>Mannequin:</b> SIM baby				
<b>Personnel:</b> - nurses, RT's, resident, pediatrician				

<b>Scenario Transitions / Patient Parameters</b>	<b>Effective Management</b>	<b>Consequences of Ineffective Management</b>	<b>Notes</b>
<b>phase 1</b>	<b>Setting:</b> - pediatric floor		
HR 160, RR 30, T 39.0, BP 75/45 O2 sats 95% on R/A, sinus rhythm - irritable cry when stimulated, hypotonic and shallow respirations when not stimulated - no eye opening - pink, normal perfusion - full fontanelle - no focal neurologic findings	<ul style="list-style-type: none"> <li>- monitors</li> <li>- IV access</li> <li>- bloodwork, consider LP</li> <li>- antibiotics</li> <li>- prepare for airway management as the baby has shallow respirations</li> </ul>		<ul style="list-style-type: none"> <li>- consider CBC, blood culture, glucometer, electrolytes, urea, creatinine</li> <li>- successful peripheral IV</li> <li>- amp/gent or amp/cefotaxime and acyclovir</li> </ul>

<b>phase 2</b>			
<ul style="list-style-type: none"> <li>- seizure</li> <li>- HR 160, RR 10, O2 sats 60% on R/A, 75 % on 100% O2, BP 75/45</li> <li>- with successful IPPV HR 160, O2 sats 92% on R/A, O2 sats 98% with 30 % O2</li> </ul>	<ul style="list-style-type: none"> <li>- anticonvulsants</li> <li>- IPPV by bag and mask or advanced airway</li> <li>- consider 2nd IV accesss</li> </ul>	<ul style="list-style-type: none"> <li>- if poor IPPV, RR 0 and HR 40 and O2 sats stay at 60 % regardless of O2</li> <li>- ongoing seizure if no anticonvulsants</li> </ul>	<ul style="list-style-type: none"> <li>- phenobarb, dilantin, consider benzodiazipine</li> <li>- consider RSI</li> <li>- if 2nd IV access requested, peripheral IV unsuccessful and need to do IO</li> </ul>
<b>phase 3</b>			
<ul style="list-style-type: none"> <li>- seizure stops after 5 minutes of starting anticonvulsant administration</li> <li>- HR 160, RR 0, BP 75/45, O2 sats 92% on R/A, 98% on 30% O2</li> </ul>	<ul style="list-style-type: none"> <li>- continue IPPV</li> </ul>	<ul style="list-style-type: none"> <li>- if poor IPPV O2 sats keep decreasing to 70%</li> </ul>	
<b>phase 4</b>			
<ul style="list-style-type: none"> <li>- obstruction of ET tube causing O2 sats to drop suddenly to 70%</li> <li>- HR 160, RR 0, BP 75/45</li> <li>- O2 sats 98% was ETT is suctioned</li> </ul>	<ul style="list-style-type: none"> <li>- suction (consider DOPE mnemonic)</li> </ul>		<ul style="list-style-type: none"> <li>- phase 4 is optional</li> </ul>

<p>Possible debrief points:</p> <ul style="list-style-type: none"> <li>- meningitis/encephalitis management</li> <li>- IPPV</li> <li>- seizure management</li> <li>- RSI</li> <li>- DOPE pneumonic</li> <li>- communication</li> </ul>	<p>Debrief notes</p> <p>antibiotics/antivirals</p> <p>IPPV</p> <p>anticonvulsants</p> <p>DOPE pneumonic</p> <p>communication</p> <p>other</p>
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