### Alterations in Neurologic Function

The alarm on the monitor alerts staff that the child is having bradycardia or an apneic spell. Equipment should be at bedside in case of respiratory arrest. Bag-valve mask ventilation is recommended as the child’s respiratory secretions contain bacteria. Stimulation may encourage spontaneous respirations; if not, ventilation is necessary. Calling for emergency resuscitation ensures help in managing the child in a timely manner. The apneic child may have bradycardia resulting from cardiac hypoxia. Administration of antibiotics helps eradicate the pathogen and prevent cerebral edema. Administration of corticosteroids diminishes inflammatory response and reduces the chance of neurologic sequelae. Watching for common sequelae such as subdural effusions or septic arthritis ensures prompt treatment. SIADH can be either avoided or quickly managed if early recognition is achieved. Low urine output with a high specific gravity is a sign of fluid retention and SIADH. The child is maintained with lower fluids and provided sodium supplements to reduce the possibility for cerebral edema.

### Nursing Care Plan: The Child with Bacterial Meningitis

<table>
<thead>
<tr>
<th>GOAL</th>
<th>INTERVENTION</th>
<th>RATIONALE</th>
<th>EXPECTED OUTCOME</th>
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<tbody>
<tr>
<td>1. Inability to Sustain Spontaneous Ventilation related to level of consciousness</td>
<td>NIC Priority Intervention: <strong>Respiratory Monitoring</strong>: Collection and analysis of patient data to assure airway patency and adequate gas exchange.</td>
<td>The alarm on the monitor alerts staff that the child is having bradycardia or an apneic spell. Equipment should be at bedside in case of respiratory arrest. Bag-valve mask ventilation is recommended as the child’s respiratory secretions contain bacteria. Stimulation may encourage spontaneous respirations; if not, ventilation is necessary. Calling for emergency resuscitation ensures help in managing the child in a timely manner. The apneic child may have bradycardia resulting from cardiac hypoxia.</td>
<td>The child’s respiratory failure is easily managed with prompt assessment and treatment.</td>
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<td>The child’s respiratory failure does not progress to respiratory arrest.</td>
<td>Place the child on a cardiorespiratory monitor with a 20-second alarm. Have resuscitation equipment, including oxygen, resuscitation bag with mask, and suction apparatus at bedside. Stimulate child if apneic; if no response, begin manual ventilations and call for emergency resuscitation. Monitor heart rate and perform compressions if necessary.</td>
<td>NOC Suggested Outcome: <strong>Vital Sign Status</strong>: Pulse, respiration, and blood pressure are within expected range for age.</td>
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<tr>
<td>2. Risk for Injury related to infection of cerebrospinal fluid and potential sequelae</td>
<td>NIC Priority Intervention: <strong>Complication Monitoring</strong>: Evaluation of fever, shock, and consciousness responses to bacterial infection of the meninges.</td>
<td>Administration of antibiotics helps eradicate the pathogen and prevent cerebral edema. Administration of corticosteroids diminishes inflammatory response and reduces the chance of neurologic sequelae. Watching for common sequelae such as subdural effusions or septic arthritis ensures prompt treatment.</td>
<td>The child’s condition improves significantly within 48–72 hours (fever decreases and no signs of neurologic sequelae are detected).</td>
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<td>The child will suffer minimal CNS injury secondary to infection.</td>
<td>Administer prescribed antibiotics and corticosteroids as scheduled. Note return of fever, nuchal rigidity, or irritability. Monitor vital signs, assess for signs of increased intracranial pressure, measure head circumference once or twice daily, note changes in responsiveness. Notify the physician immediately if any signs are detected. Monitor for syndrome of inappropriate antidiuretic hormone secretion (SIADH) and watch for signs of increased intracranial pressure (ICP). Perform strict intake and output measurements. Determine urine specific gravity. Check electrolytes and osmolality of both serum and urine. Weigh the child daily. Restrict fluids and give sodium chloride as ordered.</td>
<td>NOC Suggested Outcome: <strong>Risk Control</strong>: Actions to eliminate or reduce actual personal and modifiable health threats.</td>
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<td>The child will not develop cerebral edema as a result of water retention.</td>
<td>SIADH can be either avoided or quickly managed if early recognition is achieved. Low urine output with a high specific gravity is a sign of fluid retention and SIADH. The child is maintained with lower fluids and provided sodium supplements to reduce the possibility for cerebral edema.</td>
<td>Cerebral edema does not develop. If SIADH or increased ICP occurs, the condition is treated promptly so effects on the child are minimal.</td>
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</table>
### 2. Risk for Injury related to infection of cerebrospinal fluid and potential sequelae (continued)

<table>
<thead>
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</table>
| The child will be free of injury resulting from disseminated intravascular coagulation (DIC). | ■ Be aware of needle sticks that continue to bleed and lesions that continue to ooze. Monitor clotting times.  
■ Administer blood products, vitamin K, or heparin as ordered.  
■ Monitor vital signs including pulse, respirations, and blood pressure. Note perfusion (capillary refill, central versus proximal pulses). Check level of consciousness. Note urine output.  
■ Begin fluid resuscitation as ordered.  
■ Administer inotropes if ordered. | ■ Prompt recognition leads to management of the coagulopathy.  
■ Prompt recognition allows for early initial treatment of DIC. The child may bleed to death if treatment is delayed.  
■ Monitoring allows for prompt diagnosis of shock based on clinical signs.  
■ Intravenous fluid bolus may improve perfusion.  
■ Inotropes enhance perfusion when response to fluid challenge is minimal. | The child does not sustain injury from DIC.  
The child recovers from shock quickly with no complications. Prompt management of shock can enhance the child’s recovery, since it prevents complications associated with poor perfusion (tissue acidosis and ischemia). |

### 3. Impaired Social Interaction related to decreased level of consciousness, hospitalization, and isolation

<table>
<thead>
<tr>
<th>NIC Priority Intervention: Socialization Enhancement: Facilitation of the child’s ability to interact with others.</th>
<th>RATIONALE</th>
<th>EXPECTED OUTCOME</th>
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</table>
| Educate parents and other visitors to use proper infection control techniques.  
Encourage parents to help with daily activities such as feeding and bathing.  
Have age-appropriate games and toys in the room. Play with the child. When the child is feeling better, encourage watching television/videotape or listening to the radio/audiotape.  
Arrange for hearing assessment prior to discharge. | ■ Family members help fulfill the emotional and social needs of the ill and contagious child.  
■ Parental involvement in the child’s care provides the child with a sense of security and emotional well-being. Parents have a sense of control and a feeling that they are doing something to enhance the child’s recovery.  
■ Providing the child with toys and games as well as sensory stimulation helps the child achieve a sense of well-being.  
■ Hearing loss is a common complication. Early intervention is needed to promote growth and development. | The child’s social and developmental needs are met by family members despite the child’s illness and hospitalization.  
The child with any degree of hearing loss will be identified.  
The child with identified hearing loss is referred to appropriate specialist or program for intervention. |

### 4. Pain related to meningeal irritation

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<tr>
<th>NIC Priority Intervention: Pain Management: Alleviation of pain or reduction in pain to a level of comfort that is acceptable to patient.</th>
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<th>EXPECTED OUTCOME</th>
</tr>
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</table>
| Minimize tactile stimulation.  
Sensory stimulation increases discomfort. | ■ Sensory stimulation increases discomfort. | The child is calm and expresses increased comfort.  
The child will be as comfortable as possible.  
The child with any degree of hearing loss will be identified.  
The child with identified hearing loss is referred to appropriate specialist or program for intervention. |
**Discharge Planning and Home Care Teaching**

Home care needs should be identified and addressed well in advance of discharge. Follow-up visits are important to monitor for complications and sequelae. Help parents deal with any physical requirements resulting from the child’s illness and any emotional, social, and financial repercussions of the child’s condition. Teach parents what to do if the child has a seizure.

Infants and toddlers with neurologic sequelae should be referred to an early intervention program. If the child has had a hearing loss, referral to an otolaryngologist and speech and language specialist should be made. Early identification of other neurologic sequelae, such as learning problems, should be encouraged.

**Evaluation**

Expected outcomes of nursing care are provided on the nursing care plan.

**Viral (Aseptic) Meningitis**

Viral meningitis is an inflammatory response of the meninges characterized by an increased number of blood cells and protein in the cerebrospinal fluid. In the United States, an enterovirus is often the cause of aseptic meningitis (Cherry, 1999).

Generally, the child with aseptic meningitis does not appear to be as ill as the child with bacterial meningitis. The child may be irritable or lethargic and usually has a fever. Other symptoms include general malaise, headache, photophobia, gastrointestinal distress, upper respiratory symptoms, and a maculopapular rash. The child may also show signs of meningeal irritation such as stiff neck, back pain, and positive Kernig and Brudzinski signs (see Figures 20-8 and 20-9). The infant may have a tense anterior fontanel. Seizures are rare. Symptoms usually resolve spontaneously within 3 to 10 days.

The child with fever and meningeal signs is hospitalized. Blood, urine, and cerebrospinal fluid analyses are performed. Until the diagnosis of aseptic meningitis is confirmed, the child is treated aggressively, as if he or she has bacterial meningitis.

**Nursing Management**

Initial nursing care focuses on providing supportive care as described for the child with bacterial meningitis. Give acetaminophen as ordered to reduce fever, headache, and muscle or