Module E-1: Application of the Nursing Process in Caring for Pediatric Patients with Common Health Problems of the Musculoskeletal System

1. Statement of Purpose

The functions of the musculoskeletal system include protection, support, locomotion, mineral storage, hemopoiesis, and heat production. It is the largest system in the body and its well being and functions are interdependent with the rest of the body systems. Health problems can be caused by a variety of factors from congenital malformations to infections and trauma. Nurses play an important role in detecting congenital anomalies in the infant and in providing psychological support to parents and families. Therefore it is important that the nurse be familiar with abnormal conditions and proficient in making assessments. This module concentrates on common musculoskeletal problems in the infant, child and adolescent and emphasizes the importance of the nurse’s role in health promotion of the child and support for the family.

2. Terminology

<table>
<thead>
<tr>
<th>Traction</th>
<th>Open Reduction</th>
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<tbody>
<tr>
<td>Russell</td>
<td>Internal Fixation (ORIF)</td>
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<tr>
<td>Bryant’s</td>
<td>Closed Reduction</td>
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<tr>
<td>Buck’s</td>
<td>Compartment Syndrome</td>
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<tr>
<td>Ninety-degree-90-degree</td>
<td>Capillary Refill</td>
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<tr>
<td>Dunlop</td>
<td>Slit Catheter</td>
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<td>Balanced Suspension</td>
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<tr>
<td>Epiphysis</td>
<td>Meniscectomy</td>
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<tr>
<td>Diaphysis</td>
<td>Fasciotomy</td>
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<tr>
<td>Osteomyelitis</td>
<td>Prosthesis</td>
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<tr>
<td>Scoliosis</td>
<td>Periosteum</td>
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<td>Osteogenic</td>
<td>Callus</td>
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<tr>
<td>Pott’s Disease</td>
<td>Sprain</td>
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<tr>
<td>Muscular Dystrophy</td>
<td>Strain</td>
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<td>Torticollis</td>
<td>Articular</td>
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<td>Legg-Calve-Perthes</td>
<td>Talipes Equinovarus</td>
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<tr>
<td>Osteosarcoma</td>
<td>Denis-Browne Splint</td>
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<tr>
<td>Ewing Sarcoma</td>
<td>Juvenile Rheumatoid Arthritis</td>
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<td>Systemic Lupus Erythematosus</td>
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(JRA)
3. **Classroom Objectives**

3.1

a. Identify common congenital anomalies of the musculoskeletal system.

b. Discuss medical and surgical treatment modalities used for common musculoskeletal disorders.

c. Describe a plan of care for a child who is being treated medically for a musculoskeletal disorder which includes consideration of the families needs.

Include:

1) Pathophysiology
2) Diagnostic tests
3) Pharmacologic agents
4) Nutritional requirements
5) Teaching/learning needs
6) Nursing interventions
7) Growth and developmental needs
8) Coping mechanisms
9) Legal/ethical issues
10) Cultural aspects
11) Psychosocial needs
d. Describe common surgical intervention and appropriate nursing care for the child with common bone and joint problems.
e. Identify common infectious processes which result in musculoskeletal disorders.
f. Discuss cultural considerations when caring for a child with a musculoskeletal disorder.
g. Describe types of traction equipment used for the child with a structural abnormality.
h. Identify types of fractures and discuss nursing principles involved in cast care, correctional devices and traction.
i. Describe nursing assessment of the musculoskeletal system.

j. Describe the significance of early assessment to the diagnosis of musculoskeletal dysfunction.

k. Specify the diagnostic tests used for assessment of the musculoskeletal system specific to the pediatric patient.

l. Specify common diagnostic tests and nursing responsibilities related to diagnostic procedures used in evaluation of the pediatric patient.

m. List the bone cancers found primarily in children and the related treatment modalities.

n. Discuss nursing interventions in children with bone cancer including the physical, emotional and financial needs.

o. Discuss nursing measures to prevent complications of immobility.

3.2 Learning Activities

a. Review anatomy and physiology and normal human growth & development of the musculoskeletal system.

b. Know terminology.

c. Review assigned audio-visual material and computer programs on the musculoskeletal system specific to the pediatric patient.

d. Read current articles as assigned by instructors.

e. Review common congenital malformations, diagnostic assessments, treatments, medical and surgical management, and nursing interventions.

f. Discuss in class the medical and surgical management of a patient with scoliosis; include medical and nursing interventions.

3.3 References

a. Current textbooks

b. Anatomy & Physiology text

4. Clinical Objectives

a. Provide nursing care to an infant or child with a musculoskeletal problem.

b. Prepare a child and the family for a diagnostic procedure; observe when possible.

c. Provide pre and postoperative nursing care for a pediatric patient with a musculoskeletal disorder.

d. Observe a patient receiving physical therapy for a musculoskeletal disorder.
e. Assist and observe the therapist applying traction to a pediatric patient. Provide nursing care for the patient in traction.

f. Contribute to a nursing care plan for a pediatric patient with a musculoskeletal disorder.

g. Administer medications (oral and parenteral) to a patient with a musculoskeletal disorder.

h. Contribute to a teaching plan for a patient and/or the family of a person with a long term or chronic musculoskeletal condition (i.e. scoliosis, CHD, muscular dystrophy).

i. Visit the physical therapy department of the hospital; observe treatments when possible.

5. **Skills Laboratory Requirements**

   a. Demonstrate musculoskeletal assessment.
   
b. Verbalize knowledge of skeletal and skin traction.
   
c. Verbalize knowledge of:
      1) Thomas splint
      2) Hoffman Colles frame
      3) Buck's extension

**References**

Current texts