



NMNEC Concept: **Mobility**

Mega Concept: Health and Illness

Category: Protection and Movement

Concept: Mobility

Concept Definition:

Mechanisms involved with movement and problems that affect strength, gait or balance.

Scope and Categories:

Scope:

“Mobility refers to purposeful physical movement, including gross simple movements, fine complex movements, and coordination” (Giddens, 2017, p. 252). Functional mobility is deemed adequate when maximum movement independence is achieved in order to meet the person’s activities of daily living. Mobility may be considered under the spectrum of a part of the body or the whole body. Mobility problems may include or encompass sub-concepts and/or complications such as pain, joint restriction, malnutrition, impaired balance, activity intolerance, cardiac insufficiency, neurologic dysfunction, etc.

Categories:

- Impaired mobility may be a result of multiple health complications and/or interactions as identified in the scope.
- Impairment may proceed from physiologic dysfunction.
- Impairment may proceed from psychosocial maladaptation e.g. depression or anxiety
- Impairment may proceed from interactions between physiologic and psychosocial issues

Risk Factors:

Although the risk factors contributing to and associated with mobility impairment are increased with advancing age, impaired functional mobility may affect all individuals regardless of age, gender, race, or socioeconomic status in keeping with comorbidities.

- **Populations at High Risk:**

- Age: Increasing age
- Military
- Socioeconomic status: Factors can affect the external forces involved in access to mobility aids or resources.

- **Individuals at High Risk:**



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- Culture: Personal choices and cultural factors can influence activity levels and mobility, e.g. expectations that seniors should avoid strenuous activities.
- Lifestyle factors: An individual's interpersonal relationships, learned coping mechanisms, and alterations in mood can affect mobility.
- Medical disorders: A patient with a mobility problem may have one or multiple risk factors and/or concurrent disease processes in play.
 - Musculoskeletal: Trauma or musculoskeletal tissue damage
 - Neurological: Central or peripheral nervous system damage
 - Cardiopulmonary: Perfusion and gas exchange impairment
 - Congenital deformities: may affect multiple systems
 - Multiple Comorbidities: individuals with greater numbers of health issues
 - Treatments: Adverse effects that affect mobility.

Physiologic Processes and Consequences:

- **Physiologic Processes:**
 - Tissue trauma or damage: destruction of bones, skin, or connective tissue may result in musculoskeletal instability.
 - Neurologic dysfunction: abnormal nervous system function or conduction may lead to mobility impairment.
 - Metabolic dysfunction: impaired nutritional or energy delivery systems within the body may lead to mobility impairment.
- **Physiologic Consequences:**
 - Cardiovascular: A lack of physical activity leads to impairment of both central and peripheral perfusion, including reduced cardiac capacity, orthostatic hypotension, and venous stasis.
 - Respiratory: Reduced lung expansion leads to atelectasis and reduced gas exchange. Pooling of respiratory secretions and reduced cough effort may cause stasis pneumonia.
 - Musculoskeletal: Immobility causes significant reductions in muscle mass and bone mineralization as well as joint contractures.
 - Integumentary: Sustained pressure on the skin reduces perfusion which leads to tissue hypoxemia and increases the risk for breakdown.
 - Gastrointestinal: Constipation is frequently reported due to reduced intestinal peristalsis and the inability to maintain an upright position for defecation.
 - Urinary: Common problems include renal calculi from bone demineralization and urinary tract infections due to incomplete bladder emptying.
 - Psychologic: Across the lifespan, complications may include social isolation from lack of communication and mood disturbances, such as depression.

Assessment:



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Subjective:

- History of activity level, nervous or musculoskeletal trauma, and social/cultural factors.
 - History of medical conditions, medications, and treatments.

Objective:

- General observation of the patient's ability to function independently based upon movement or movement impairment.
- Assessment of musculoskeletal system (loss of mass and/or weakness, trauma), and central nervous system (coordination, strength, etc.).
- Anthropometric measurements (body mass index and skinfold thickness).
- Balance and gait testing (Giddens, 2017)

Diagnostic Tests:

- **Lab tests:** (related to comorbidities; none specific to mobility itself)
 - Proteins (serum albumin, prealbumin, and transferrin)
 - Red blood cells (total count and hemoglobin)
 - Electrolytes (potassium and calcium)
 - Glucose (capillary/serum glucose and Hemoglobin A1c)
 - Lipids (cholesterol and triglycerides)
- **Scans:** dual energy x-ray absorptiometry (DXA) scan of bone integrity (Lewis, et al, 2017).

Clinical Management:

Primary Prevention: Health Promotion

- Education to promote an active lifestyle and prevent injuries.

Secondary Prevention: Screening

- Early identification of risk factors (advancing age, weakness, malnutrition, neurologic or musculoskeletal dysfunction) presents the opportunity for intervention(s) known to promote maximal mobility and independence.
- Routine nursing assessment includes gross analysis of gait, balance, coordination, and fall risk. Screening tests may be used such as the Timed Get Up and Go test (Giddens, 2017).
- Specific assessment areas for focused assessment include musculoskeletal strength, neurologic function, and cognitive status.
- Screening for osteoporosis (DXA).

Tertiary Prevention: Treatment

- Factors that facilitate and/or impair the processes of functional and purposeful movement and using them to maintain and promote independence and well-being.

Nursing Interventions:



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- Implement measures to maintain optimal joint mobility, neurologic, and muscle function during period of immobility
- Reinforce instructions, activities, and exercise plan recommended by physical and occupational therapists
- Encourage participation in self-care as allowed
- Promote a safe environment to decrease risk of traumatic injury or fall
- Perform actions to maintain an adequate nutritional status in order to help maintain muscle mass, tone, and strength
- Encourage the support of significant others, allowing them to assist with range of motion exercises and positioning if desired
- Consult members of the interdisciplinary team (e.g. physician, physical therapist, dietician). (Ackley, Ladwig, Makic, Martinez-Kratz, & Zanotti, 2020).
- Proper use of assistive devices and patient handling equipment.

Interrelated Concepts:

- **Metabolism:** Changes in level of activity related to decreased mobility can affect the chemical and hormonal processes that occur in the body.
- **Elimination:** Impaired elimination, especially urge incontinence, can increase risk of falls and injury as related to impaired functional mobility.
- **Nutrition:** The ability to ingest and digest nutrients as well as the nutritional needs vary across the lifespan. Problems with nutrition will affect the amount of energy available for movement.
- **Mood and Affect:** Problems with mobility can have significant negative influences on a person's body image and sense of personal worth.

Model Case:

Lydia Ocampo is a 70 year old Filipina widow who currently lives in a long term care facility. She has Alzheimer's disease (AD) and her health has steadily declined in the past year. She is non-ambulatory. She is placed in a wheelchair for mobility purposes such as being taken to the dining room for meals. Throughout the day she either sits in a wheelchair in the hall or lies in bed in her room. Lydia has become progressively less responsive and has developed a pressure ulcer over her sacrum (Giddens, 2010). The nurse has consulted with a Physical Therapist, Occupational Therapist, and dietician to assist in addressing Ms. Ocampo's mobility issues.

*Neighborhood (NBH) character ©

Exemplars:

New Mexico Nursing Education Consortium (NMNEC) Required Exemplars:

- Spinal cord injury
"Neurologic level of injury: An injury to one of the spinal cords eight cervical segments causes quadriplegia (tetraplegia)—loss of all or most function in all four limbs. Injury to the spinal cord's



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thoracic, lumbar, or sacral regions causes paraplegia (loss of function of the legs). Complete paralysis means that the person has no voluntary use of the affected limbs; incomplete paralysis means that the person has some voluntary use of the affected limbs. Most spinal cord injuries from violence are due to gunshot wounds. The percentage of spinal cord injuries from violence has declined since a peak of 24.8% during the decade ending in 1999. Injuries due to sports have declined over time, while spinal cord injuries due to falls have increased” (BrainandSpinalCord.org, 2019).

- **Fractures:**

“In the United States, hip fracture rates and subsequent mortality among persons 65 years and older are declining, and comorbidities among patients with hip fractures have increased. Over time, patients with hip fracture have had an increase in all comorbidities recorded except paralysis. The incidence decrease is coincident with increased use of bisphosphonates” (Brauer et al, 2009, p. 1573).

“The greatest annual occurrence of fractures was in the age group 10 to 14 years (15.23 per 1000 children). The annual occurrence for the entire study population (0 to 19 y) was 9.47 per 1000 children. Fractures of the lower arm (forearm) were the most common among the entire study population, accounting for 17.8% of all fractures, whereas finger and wrist fractures were the second and third most common, respectively.” ((Naranje, Erali, Warner, Sawyer, & Kelly, 2016, p.e46)

Optional Exemplars:

- **Parkinson’s Disease** “Nearly one million will be living with Parkinson's disease (PD) in the U.S. by 2020, which is more than the combined number of people diagnosed with multiple sclerosis, muscular dystrophy and Lou Gehrig's disease (or Amyotrophic Lateral Sclerosis), Approximately 60,000 Americans are diagnosed with PD each year. More than 10 million people worldwide are living with PD.” (Parkinson’s Foundation, 2019)
- **Multiple Sclerosis** “Worldwide, more than 2.3 million people have a diagnosis of MS. In the United States a recently completed prevalence study, funded by the National MS Society, has estimated that nearly 1 million people over the age of 18 live with a diagnosis of MS.” (National Multiple Sclerosis Society, 2019)



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