Preventing a Decline in ADLs: Mobility Enhancement and Restorative Nursing Programs

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Great 8 Webinar

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Quality Improvement Organizations
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Provide Compassionate Clinical Care That Treats the Whole Person

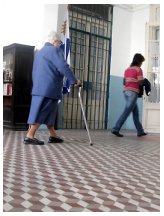
- Strive to prevent problems and treat when necessary
- Change Bundle: To Encourage Nursing Home Residents' Mobility

https://www.lsqin.org/wp-content/uploads/2015/03/NH-ChangePackage-032615-Final-508.pdf

Objectives:

- Describe the impact of immobility
- Identify exercise programs and restorative nursing interventions that help residents maintain or improve their mobility, strength, and balance
- Demonstrate how to document a mobility enhancement and restorative nursing program

Keeping Residents Mobile



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Clinical Foundation

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Humans Are Meant to Be Upright & Mobile

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Optimal Body Function:

Upright for 16 hours/day

Source: Knight J, et al. Nurse Times. 2009; 105(21): 16-20

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Immobility: Potential Root Cause of the Following:

- Falls – balance, strength and endurance issue
- Skin breakdown
- Incontinence & UTIs
- Development of diseases – diabetes, cardiac, etc.
- Weight loss – muscle wasting
- Depression
- Delirium/confusion
- Respiratory Infections
- Constipation
- Staff injuries

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The Causes of Immobility

- Fractures
- Stroke
- Obesity
- Paraplegia & quadriplegia
- Multiple sclerosis
- Depression
- Cognitive impairment – Alzheimer's/dementia
- Parkinson's

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The Causes of Immobility

- Cardiac disease
- Vertigo
- Weakness
- Medications
- Respiratory disease
- Amputation

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The Causes of Immobility

- Visual Impairments
- Gait deficit
- Balance deficit
- Arthritis
- Peripheral neuropathy
- Arterial and/or venous insufficiency of lower extremities
- History of falls and/or fear of falling

The Causes of Immobility

- Moving too slow or taking too long
  - Be Patient!!!!!

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The Effects of Immobility

- Loss of Independence & Psychosocial effects

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The Effects of Immobility – Muscles

- There is a 12% rate of loss of muscle strength and muscle atrophy (wasting away) in one week
- In as little as 3-5 weeks of immobility, almost half the normal strength of a muscle is lost

The Effects of Immobility – Muscles

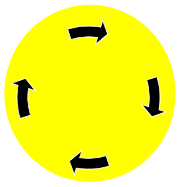
- First muscles to become weak are in the lower limbs
- Keeping a muscle in a contracted position will significantly increase atrophy
- In stroke paralysis or immobility due to splinting, muscles atrophy around 30-40%

The Effects of Immobility – Muscles

- It takes 4 weeks to recover from atrophy with exercise
- Totally degenerated muscles are permanently replaced by fat and connective tissue
- Disuse of the muscle will also effect the neuromuscular function – essentially, the body forgets how to properly coordinate motor function

The Effects of Immobility – Muscles

- Complete rest will decrease endurance levels
- Causing fatigue, affecting motivation
- Then leading to a cycle of greater inactivity



The Effects of Immobility – Connective Tissue

- Connective tissue consists of:
  - Tendons
  - Ligaments
  - Articular cartilage (covers joints)
- In 4-6 days after immobility changes in the structure and function of connective tissue become apparent
- These changes remain even after normal activity has been resumed!!

The Effects of Immobility – Contractures

- Contracture:

  A decrease from the normal range in parts of the body responsible for motion (joints, ligaments, tendons and related muscles)
- In 2-3 weeks of immobilization a firm contracture can develop
- After 2-3 months of immobility, surgical correction may be needed.

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The Effects of Immobility – Bone

- Disuse osteoporosis
- Bones most susceptible:
  - Vertebra
  - Long bones of the legs
  - Heels
  - Wrists

The Effects of Immobility – Bone

- Within 3 weeks of immobilization calcium clearance is 4-6 times higher then normal and hypocalcaemia can occur. This can lead to:
  - Formation of calcium-containing kidney stones
  - Anorexia
  - Nausea
  - vomiting

The Effects of Immobility – Skin

- Normally we continually shift our weight, even during sleep
- Immobility or decreased sensation prevents shifting in weight leading to prolonged pressure on skin capillaries, ultimately resulting in death of skin tissue
- Formation of pressure ulcers

The Effects of Immobility – Skin

- The ONLY area of the body designed to bear weight are the soles of the feet
- Immobility leads to large surface areas of the skin bearing weight
- Areas where skin is stretched tautly over bony prominences are at the highest risk for breakdown

Image source: Free via morguefile.com

Nigam Y, et al. Nurse Times. 2009; 105:18-22

The Effects of Immobility – Skin

- Repositioning a totally dependent resident can cause additional forces of shear and friction
- Skin next to the bed sheets can cause moisture and lead to moisture related skin conditions

Nigam Y, et al. Nurse Times. 2009; 105:18-22

The Effects of Immobility – Cardiac System

- When an individual is confined to bed, there is a shift of fluids away from the legs towards the abdomen, thorax and head.
- In as little as 24 hours, a shift of 1 liter of fluid from the legs to the chest
- Increases venous return to the heart and elevated intracardial pressure

Hodgkin J, et al. Nurse Times. 2008; 104(21): 16-20

The Effects of Immobility – Cardiac System

- Increases in blood volume and venous return stretch the right atrium in the heart
  - Stimulates the release of atrial natriuretic peptide (ANP), a powerful diuretic
    - Increase in urine output
    - Decreases in blood volume
- Leads to dehydration

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Knight J, et al. Nurse Times. 2008; 104(21): 18-20

The Effects of Immobility – Cardiac System

- Immobility leads to atrophy and loss of muscle mass in the legs
- This impairs the muscle pump action which reduces venous return
- Lower extremity edema
  - Ulceration
  - Venous dermatitis
  - Cellulitis

Knight J, et al. Nurse Times. 2008; 104(21): 18-20

The Effects of Immobility – Cardiac System

- The heart is a muscle and too needs activity to stay healthy
- Immobility can lead to atrophy of the heart muscle

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Knight J, et al. Nurse Times. 2008; 104(21): 18-20

The Effects of Immobility – Cardiac System

- Postural hypotension (drop in blood pressure upon standing) can be noted in little as 20 hours of immobility
- This can lead to dizziness, anxiety and falls
- Postural hypotension, even in fit, healthy adults can take several weeks to fully recover once they start moving

The Effects of Immobility – Respiratory System

- Development of fixed contractures of the costovertebral joints, leading to inability to expand the lungs
- Risk of lung collapsing

The Effects of Immobility – Respiratory System

- Pooling of mucus in the lower airways
- Increased risk of respiratory infections
  - Stroke patients confined to bed for 13 days or more are 2-3 times more likely to develop a respiratory infection then mobile people

•The Effects of Immobility – Hematological

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- Decrease in oxygen saturation
- Increase in carbon dioxide concentrations
- Leads to Hypoxia
  - Acute confusion
  - Can develop quickly over a number of hours
  - Symptoms can fluctuate during the day and worsen at night

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Knight J, et al. Nurse Times. 2009;105(21):16-20

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The Effects of Immobility – Hematological

- 13% of patients in bed for long periods may develop deep vein thrombosis (DVT)
- Increases risk for emboli
  - In the lungs - pulmonary embolism
  - Cerebral circulation within the brain – stroke
  - Coronary circulation of the heart – myocardial infarction

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The Effects of Immobility – Gastrointestinal

- Reduced sense of taste, smell and loss of appetite
- Difficulty swallowing
- Constipation
- Fecal impaction

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Knight J, et al. Nurse Times. 2009;(22):24-27

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•The Effects of Immobility – Endocrine System

- Decrease in metabolic rate
  - In as little as 10 hours
- Insulin resistance, impaired glucose tolerance and the subsequent development of type 2 diabetes

Knight J, et al. Nurse Times. 2009;(22):24-27

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•The Effects of Immobility – Renal System

- Kidney stones
- Urinary retention (overflow)
- Urinary tract infection
- Urosepsis

Knight J, et al. Nurse Times. 2009;(22):24-27

The Effects of Immobility – Nervous System

- Sensory deprivation
- Depression
- Disorientation
- Confusion
- Restlessness
- Agitation/aggression
- Anxiety
- Reduced pain threshold
- Difficulty problem solving
- Loss of motivation

Knight J, et al. Nurse Times. 2009;(22):24-27

The Effects of Immobility – Nervous System

- Insomnia
- For normal function we need:
  - 16 hours of activity
  - 7-8 hours of sleep
- Consistently sleeping for more then 9 hours or fewer than eight hours has a negative impact on physiological, psychological and cognitive functions

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Knight J, et al. Nurse Times. 2009;(21):16-20

PREVENT THE EFFECTS OF IMMOBILITY

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Governance & Leadership

Administrator, DON, and Management Must Fully Support the Program and Be Actively Involved

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Assess Your Current Programs to Identify a Starting Point

- What is the mind set of the staff?
- How many of your Residents depend on wheelchairs for mobility?
- What is the relationship between Nursing, Therapy and Activities?
- Do you currently have a Restorative Nursing Program and what does that provide?
- What types of activities do you have during the day and in the evenings?
- Do you have a sleep hygiene program?

•Get ALL Staff On Board

- **Initial Training on WHY???**

Aim Toward Independence

"How to"

Rather than

"Doing for"

You are the coach!!

Assemble Your Team:

- Therapy
- Restorative Nursing – Lead Nurses and Lead Nursing Assistants
- Nursing assistants – All shifts
- Floor nurses all shifts
- Nurse Managers/Supervisors
- Physicians/Nurse Practitioners
- Activities
- Dietary
- Maintenance
- Housekeeping

Coordination of the Program:

- Therapy to do the initial assessment and setting up of the individual resident's program for Nursing/Designee
- Therapy to competency test Nursing/Designee implementing the individual resident's program
- Nursing to refer back to Therapy when a resident needs adjustment of the program (i.e., decline, plateau, need for more aggressive exercises, pain, or change in ability to perform exercises)
- Physician must approve and order the exercise program
- Dietary to ensure proper calories and protein intake for level of exercises

What Will Be Your Facility's Benchmarking Data?

- **Quality Measures**
  - **Long Stay:**
    - Percent of Residents Experiencing One or More Falls with Major Injury
    - Falls
    - Activities of Daily Living Has Increased

Individual Resident Benchmarks/Goal Setting

- Needed for Starting Point & to Measure Progress
  - **Short Physical Performance Battery (SPPB)**
    - Chair rise test
    - Balance test
    - Usual gait speed
  - **Short Physical Performance Battery (range = 0 to 12)**
    - 0-5: At high risk for adverse outcomes
    - 6-8: Approaching higher risk for adverse outcomes
    - 9-11: Acceptable
    - 12: Desirable

Individual Resident Benchmarks/Goal Setting

- Gait Speed from the SPPB
  - Below 1 m/s: At risk of poor health and function
  - Below 0.6 m/s: Highest risk of poor health and function
  - Below 0.8 m/s: Higher risk of poor health and function
  - Over 1 m/s: Desirable

Individual Resident Benchmarks/Goal Setting

- **The Balance Test from the SPPB can assist in starting points for capabilities for**
  - Standing exercises
  - Standing exercise with stand assistive devices
  - Sitting exercises
  - Supine exercises

Individual Resident Benchmarks/Goal Setting

- **Hand grip strength (Dynamometer)**
  - **Men**
    - Below 26 kg: Weak
    - 26 to 32 kg: Intermediate weakness
    - Over 32 kg: Desirable
  - **Women**
    - Below 16 kg: Weak
    - 16 - 20 kg: Intermediate weakness
    - Over 20 kg: Desirable

Individual Resident Benchmarks/Goal Setting

- **Body Mass Index**
  - Below 18.5: Underweight
  - 18.5 - 24.9: Healthy
  - 25.0 - 29.9: Overweight
  - 30.0 - 39.9: Obese
  - Over 40: Extreme or high risk obesity

Individual Resident Benchmarks/Goal Setting

- **Muscle Quality Index**
  - MQI (Muscle Quality Index) = ((**leg length** - 0.4) x (**body weight** x 9.81 x 10) ÷ **Time sit-stand (from chair rise test)**
    - Classifications of Muscle Quality Index (MQI) have not yet been determined through research
    - However, this assessment has been shown to be best able to detect sensitive changes in a person's functional status
    - This assessment should be used to track changes based on the resident's baseline test
    - It is desirable to see MQI increase. Increases in MQI are indicative of improvements in muscle's ability to function and generate power

Individual Resident Benchmarks/Goal Setting

- **Physical Activity (Steps per day)**
  - Public health recommendations of achieving 10,000 steps per da
  - While the physical activity assessment is designed to be a gauge for the resident's physical activity status in the form of ambulation, targets of the following have been associated with higher health related quality of life outcomes:
  - Men: 5,500 steps/day
  - Women: 4,500 steps/day

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Individual Resident Benchmarks/Goal Setting

- **Physical Activity (Steps per day)**
  - Residents who are able should be encouraged to achieve 4,500 to 5,500 steps per day by incrementally adding physical activity to his/her mobility enhancement plan
  - A 10-minute walk is approximately comparable to 1,000 steps, depending on walking speed and stepping cadence. Adding 100 to 1,000 steps per day or week may enable residents to achieve recommendations
  - Those residents who are capable may work up to the 10,000 steps per day recommendations

Train the Team on Reimbursement and MDS Coding

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Restorative & Mobility Programs

- Restorative Nursing Program-MDS Requirements
  - Technique, training or skill practice was performed for a total of at least 15 minutes per 24 hours
  - The 15 minutes can be broken up (i.e. remove & clean splint and skin, inspect skin and perform ROM for a total of 5 minutes 3x/day)
  - Need 2 or more 15 minute restorative programs for 6-7 days/week
  - Restorative nursing does not include groups with more than four residents per supervising helper or caregiver

Restorative & Mobility Programs

- **Restorative Nursing Program-MDS Requirements**
  - H0200C, H0500 **Urinary toileting program and/or bowel toileting program
  - O0500A,B **Passive and/or active ROM
  - O0500C Splint or brace assistance
  - O0500D,F **Bed mobility and/or walking training
  - O0500E Transfer training
  - O0500G Dressing and/or grooming training
  - O0500H Eating and/or swallowing training
  - O0500I Amputation/prostheses care
  - O0500J Communication training

**Count as one service even if both provided

Restorative & Mobility Programs

- **Restorative Nursing Program-MDS Requirements**

O0500B, Range of Motion (Active) Code exercises performed by the resident, with cueing, supervision, or physical assist by staff that are individualized to the resident's needs, planned, monitored, evaluated, and documented in the resident's medical record. Include active ROM and active-assisted ROM

Restorative & Mobility Programs

- Restorative Nursing Program-MDS Requirements – Example of 2 programs
  - Active ROM exercises

    AND
  - Walking

Restorative & Mobility Programs

- Restorative Nursing Program-MDS Requirements
  - The care plan & medical record must document measurable objectives and interventions
  - The medical record must reflect periodic evaluation by a licensed nurse
  - Nursing assistants/aides must be trained in the techniques that promote resident involvement in the activity
  - A registered nurse or licensed practical (vocational) nurse must supervise the activities in a restorative nursing program

Restorative & Mobility Programs

- Restorative Nursing Program
  - Skilled Care-Medicare A
    - Rehabilitation nursing: 2 activities, 15 minutes each per day for 6-7 days per week.
    - Must be in conjunction with therapy, 45 minutes, 3 days per week

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Restorative & Mobility Programs

- Restorative Nursing Program
  - Restorative Nursing Programs
    - Therapy set up functional maintenance and do periodic updates (Part B)
    - Restorative Nursing provides the activities

Restorative & Mobility Programs

- Restorative Nursing Program
  - Restorative Nursing Programs – maintenance
    - Restorative Nursing provides the activities

Restorative & Mobility Programs

- Restorative Nursing Program-MDS Requirements
  - If the resident does not meet MDS requirements for reimbursement, the program should still be implemented – Payment shouldn't drive the program
  - Example: Resident can perform exercise program 3 days a week or can only perform one 15 minute program per day

Develop Exercises That:

- Are specifically designed for older adults that can be done individually or in groups of 4 in 15 minute increments
- Utilize full body exercise to promote:
  - Strength
  - Range of Motion / Flexibility
  - Cardiac output
  - Blood flow
  - Positional awareness
  - Balance

Develop Exercises That Can Be Performed While:

- Supine Position
- Sitting Position
- Standing in an assistive device
- Standing

Develop Exercises That:

- **Can be done during activities**
  - Treasure hunts
  - Obstacle courses
  - Video exercise games
  - Throwing a ball
  - Tai Chi
  - Yoga
  - Dancing
  - Walking Courses
  - Do activities while standing (i.e., cooking or arts and crafts)
- **Offer programs during the day and evening**

Train ALL Staff On How to Perform the Exercises:

- Ensure competency of performing the exercises and benchmarking tests
- Ensure proper understanding of documentation of exercises
- Involve both day and evening shifts

Environment

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Environment

- Floor surfaces: shiny, slippery, or do the surfaces change in areas (going from carpet to tile)
- Grab bars and hand rails in good condition and throughout the entire building
- Lighting
- Clear walkways
- Contrasting colors

Environment

- Devices to promote self repositioning or mobility in resident rooms
  - Proper egress height of the bed & mattress – knees slightly above a 90 degree angle
  - Grab bars or trapeze
  - Transfer poles
  - Walkers
  - Canes

Environment

- Devices to promote self repositioning or mobility in resident rooms
  - Clear path into the bathroom
  - Lighting
  - Bathroom environment

Environment

- Stand Assist Devices to promote early mobility and exercise in a standing position dedicated to Therapy & Restorative Nursing

Sufficient Resources

- Accessible Exercise Equipment
- Enough for groups of 4

Sufficient Resources

- **Recommended Exercise Equipment**
  - Resistance bands with handles
  - Resistance band loops
  - Light weights with straps
  - Ankle weights
  - Foam roller

Sufficient Resources

- **Recommended Exercise Equipment**
  - Towels
  - Glide discs
  - Handheld weights
  - Rope Ladder
  - Step platform

Sufficient Resources

- **Recommended Exercise Equipment**
  - Sturdy chair
  - Sturdy chair with narrow arms
  - Ball
  - Medicine Ball

Sufficient Resources

- **Recommended Exercise Equipment**
  - Balance Bar
  - Equipment cart
  - Disinfectant

Sufficient Resources

- Protective/appropriate footwear

Sufficient Resources

- **Supplies to protect the skin while exercising/movement**
  - Lotions
  - Protective garments

Input on the program from residents and family members

Promoting of Sleep Hygiene

- Appropriate lighting (amber tones)
- No Noise
- Appropriate bed surface to prevent pressure ulcers
- Heel floating or heel lift devices
- Appropriate overnight incontinence products
- Allowing at least 4 hours or more of sleep

Overall End Goal

- Keep residents active during the day
- Promote sleep at night

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Thanks for your participation!!!

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