"Manual handling has been a job expectation for caregivers since Florence Nightingale’s time, despite advances in other industries (e.g., manufacturing and shipping) that rely on technology not physical strength to do the heavy lifting. However, some healthcare facilities have been slow to adopt new patient-handling technologies and still rely on old-fashioned manual handling."


**More Risks**
- Rising obesity rates in the U.S. have increased physical demands on caregivers
- Aging workforce: average age of registered nurse in U.S. = 47
- Ongoing shortage of nurses/other caregivers
- Healthcare organizations cutting workforce
- Longer work schedules

**Injury Risk**
- Rates of musculoskeletal (MSD) injuries from overexertion in healthcare occupations are among the highest of all U.S. industries.
- Bureau of Labor Statistics (BLS) on average: rate of overexertion injury across all industries is 38 per 10,000 full time workers.
- Rate for hospital workers twice the average (76 per 10,000); Nursing home workers 3x the average (132 per 10,000); ambulance workers 6x the average (238 per 10,000)
- Single greatest risk factor: manual patient handling

**Some Statistics**
- 52% of Nurses experience chronic back pain
- 12% leave nursing because of back pain
- 20% transfer to a different unit due to back pain
- Back pain is the leading cause of disability to nurses under 45 years of age
More Statistics*

According to national statistics, six of the top ten professions with the greatest risk of back injuries are:

- Registered Nurses,
- Nursing Assistants,
- Licensed practical Nurses,
- Health Aides,
- Radiology Technicians, and
- Physical Therapists.


Moving Patients-Myths vs. Facts

**Myth:** We can train workers to use proper body mechanics and avoid injuries.

**Fact:** More than 30 years of research and experience shows relying on proper body mechanics or manual lifting alone is not effective to reduce back/other MSD’s.

**Myth:** Patients are not as comfortable or safe with manual lifting alone.

**Fact:** Patient education can reinforce that the lift is for the patient’s safety as well as the caregivers. Patient handling equipment can prevent falls, bruises, and skin tears.

Manual Patient Lifting

*Dr. William Marras from Ohio University, who is leading the research on Bio mechanics and lifting states that there is “no safe way to manually lift a patient.”

Musculoskeletal Disorders (MSDs)

Injury or disorder of the:

- Muscles
- Nerves
- Tendons
- Joints
- Cartilage
- Spinal Discs

Joints, Muscles, Tendons, etc.

- Patella
- Femur
- Articular Cartilage
- ACL
- Meniscus
- Collateral Ligaments
- Fibula
- Tibia

Knee in Extension

Knee in Flexion
Musculoskeletal Disorders

MSD’s do not include injuries caused by slips, trips, falls, or other similar accidents.

MSD’s can differ in severity from mild periodic symptoms to severe chronic and debilitating conditions.

Stages of MSD’s

- Early stage – pain may disappear after a rest away from work
- Intermediate stage – body part aches and feels weak soon after starting work and lasts until well after finishing work
- Advanced stage – body part aches and feels weak even at rest, sleep may be affected, light tasks are difficult on days off

MSD’s - Signs & Symptoms

Do not ignore signs & symptoms!

- Aching
- Pain
- Burning
- Swelling
- Cramping
- Stiffness
- Loss of Color
- Tingling
- Numbness
- Weakness

MSD’s - Common Causes of Back Injuries

- Heavy lifting from above the shoulders.
- Heavy lifting from below the knees.
- Twisting while lifting/carrying.
- Bending over at the waist.
- Carrying objects to one side.

Before Patient Handling

- Wear the right clothes: Make sure your clothing and footwear are appropriate – clothes should allow free movement and shoes should be non-slip, supportive and stable.
- Know your limits: Know your own capabilities and don’t exceed them – for instance, if you need training in the technique to be used, tell your supervisor.
- Do one thing at a time: Don’t try to do two things at once – for instance, don’t try to adjust the patient’s clothing during the transfer.
- Prepare for the task: Make sure everything is ready before you start – for instance, check other caregivers are available if needed, equipment is ready and the handling environment is prepared.
- Apply safe principles: Always use safe body mechanics – and use rhythm and timing to aid the task.
**Patient Handling vs. Other Lifting**

- The load is often unstable
- Patients do not have handles
- A patient’s weight is distributed unevenly
- A patient may be combative

**Patient Handling Methods**

Most common taught are body mechanics and the principles of ergonomics

**Important Principles—Body Mechanics**

Apply safe body mechanics and maintain the natural curve of your spine to minimize the force on your joints and discs. Here’s the safe way to hold your body:

- **Stand in a stable position**: Your feet should be shoulder width apart with one leg slightly forward to help you balance — you may need to move your feet to maintain a stable posture.
- **Avoid twisting**: Make sure your shoulders and pelvis stay in line with each other.
- **Bend your knees**: Bend your knees slightly, but maintain your natural spinal curve — avoid stooping by bending slightly at the hips (buttocks out).
- **Elbows in**: Keep your elbows tucked in and avoid reaching — the further away from the body the load is, the greater the potential for harm.
- **Tighten abdominal muscles**: Tighten your abdominal muscles to support your spine.
- **Head up**: Keep your head raised, with your chin tucked in during the movement.
- **Move smoothly**: Move smoothly throughout the technique and avoid fixed holds.

**Ergonomics**

**Ergonomics**: The science of fitting jobs to people. Encompasses the body of knowledge about physical abilities and limitations as well as other human characteristics relevant to job design.

**Ergonomic design**: The application of this body of knowledge to the design of the workplace (tasks, equipment, environment) for safe and efficient worker use.

**Good ergonomic design**: Makes the most efficient use of worker capabilities while ensuring job demands do not exceed those capabilities.

**Ergonomic Risk Factors**

In patient care occupations:

- Forceful and Heavy Exertions
- High Frequency/Repetitive Tasks
- Awkward Postures
- Work Duration
- Uneven work floors
- Unpredictable patients
- Dependence level of patients

**When handling/moving patients:**

1) Maintain a wide, stable base with your feet
2) Put the bed at the correct height (waist level when providing care; hip level when moving a patient)
3) Try to keep the work directly in front of you to avoid rotating the spine
4) Keep the patient as close to your body as possible to minimize reaching

**CAUTION**: Body mechanics alone is not sufficient!
When & Why to Use Lifting Devices

Patient Benefits:
- Patient comfort
- Respects a patient’s sense of dignity
- Promotes patient independence and rehabilitation

Prepare for Safe Patient Handling
- Know what equipment is available and how it works
- Assess the patient and the environment
- Gather appropriate equipment and staff needed
- Coach Patient

Use Caution
There are lifting tasks that are so stressful to the body even if proper body mechanics and ergonomics are used a person can still suffer an injury!

Team Lifting
- More than one person required to lift a load: team of folks; one person “calls” directions and lifting steps so everyone will move at the same pace.
- Can be used when the patient is very large or overly obese.
- Team members must still use caution to ensure proper body mechanics and ergonomic issues are addressed.

Risk Factors-Awkward Postures
Two Types:
- Static = non-moving
- Dynamic = body in motion

Factors include:
- Time
- Repetition
- Body condition
- Health
- Range of motion

Ergonomic Risk Factors
In patient care occupations:
- Lifting heavy loads
- Excessive pushing/pulling
- Reaching
**Economic Benefits of Lifting Devices**

Decreases occupational injuries and indirect costs including:
- Employee replacement
- Additional training
- Loss of productivity
- Liability

**When to Use a Lift**

For most patient-lifting tasks – maximum weight limit is 35 pounds.*

Patient characteristics that add risk:
- Height
- Weight
- Body Shape
- Dependency


**Employee Responsibility**

- Know the characteristics of an unsafe lift
- Know the help that is available – both coworkers and equipment
- Know your employer’s lift policies
- If unsure about the safety of a lift, ask your instructor/director

**Risk Factors**

What do you see?

- Patient may have difficulty supporting full weight

- If patient begins to fall what will the nurse do?

- Can nurse support full weight of patient by herself?

- Is the patient wearing non-slip footwear; floor slippery?

**Sitting a Patient Up in Bed**

- If the person is not strong enough to push up with his or her hands to a sitting position, place one of your arms under the person’s legs and your other arm under his or her back.

- Move the person’s legs over the edge of the bed while pivoting his or her body so the person ends up sitting on the edge of the bed.

- Keep your feet shoulder-width apart, your knees bent and your back in a natural straight position.
To Assist with Standing up
- Position the person's feet on the floor and slightly apart.
- The patient's hands should be on the bed or on your shoulders.
- Place your arms around the person's back and clasp your hands together.
- If the patient is wearing a lifting belt make sure it is fastened around their waist.
- Grasp the belt when lifting the patient.
- Hold the person close to you, lean back and shift your weight.

To Assist with Sitting Down
- Into a chair, wheelchair, on a bed:
  - Pivot toward the chair, bend your knees, and lower the person into the chair.
  - The person should have both hands on the arms of the chair before lowering him/her down.

Types of Transfers
- Bed
- Chair
- Commode/toilet
- Lateral transfers
- Floor
- Vehicle

Transfers from a Vehicle
- Place the wheelchair at an angle in front of the car door and as close to the car as possible.
- Open the car door.
- Make sure the brakes on the chair are locked before attempting a transfer and double check the brake locks on the wheelchair before attempting a vehicle transfer.
- Apply a "gape/safety belt" before any other steps are completed.
- Belt should be applied to the hip area of the individual to allow a safe way to lift the user from the chair.
- To allow a clean transfer from wheelchair to a car, you should if possible, swing away or remove the footrests to enable a clear path of transfer.
- Slide the car seat as far back as possible to allow optimal room to engage the transfer.

Transfer from Wheelchair to Toilet
1. Starting Transfer From Wheelchair To Toilet:
When the patient is ready, make sure the brakes are engaged on both sides of the chair before attempting a transfer.

2. Remove Footrests & Clearing a Path To Transfer:
Remove any type of components of the chair that are in the way of an easy transfer including footrests (if they are removable), leg rests, and/or any extra accessories or components that are removable.
Transfer from Wheelchair to Toilet

4. Wheelchair User Shifting:
The patient should be positioned at the edge of the wheelchair seat with some minimal momentum building towards the front of the chair. When patient is at the edge of chair ensure their legs are level with the ground and feet positioned straight underneath the seat so they are ready to stand up.

5. Standing & Transfer
When the patient is in position and ready to stand, the caregiver’s hands should be on patient’s hip area with patient’s arms positioned on top of the armrests to provide stability and support. Patient should lean towards the front of the chair and push themselves upward and out of the chair with their arms positioned on the armrests, and their feet level with the ground.

Repositioning

- Chair
- Bed
- Gurney
- Diagnostic tables

Transfer & Repositioning Factors

- Patient
- Personnel
- Equipment
- Environment

Patient

- Medical condition – history
- Mental status – cooperative, follows directions etc.
- Functional status - strength, balance, coordination & stamina

Combative Patients*

- Speak softer than you think is necessary. You want to be heard, but you can talk softer than you want to and still communicate just fine. When we want to be heard, our instinct is to talk louder. However, when we drop our voice people tend to become quiet and focus on our words more intently. Speak softly and the volume of all communication on scene will like follow suit.
- Use the patient’s name. If you know the patient’s name, use it. And explain what you are doing. Bob, we need to lay still. Help us take care of you Bob. The more personal you can make it the better. Using the patient’s name sends an unspoken message to the patient that their identity is important to us. It also reminds everyone involved in the encounter that there is a real human being on the opposite end of all of this conflict.
- Use the jury test. Now that we have a calm person speaking softly and using the patient’s name. What should they say? Imagine that your care for this patient was called into question and a jury was allowed to watch a video of you wrestling with your patient. Their job is to decide if your care was appropriate. Imagine that the volume on the video were turned down and you were allowed to explain to the jury what you were doing and why. What would you say?

*"How to Deal with Combative“ by Gilbert Guide, www.caring.com
Types of Patient Care Slings*

- **Standing slings** assist healthcare workers with toileting or dressing patients, as well as for vertical transfers.
- **Supine slings** assist healthcare workers in performing lateral transfers (transfer in a supine position from bed to stretcher), making occupied beds, bathing patients, repositioning patients in bed, or assisting patients who have fallen on floor.
- **Seated slings** enable healthcare workers to transfer and lift patients in a sitting position, or reposition patients in a chair.
- **Hygiene slings** are made of mesh fabric and can be used for showering patients.

*Walker, et al. 2009*
Safety Tips

If standing for an extended period:
- Stand with feet shoulder width apart
- Place one foot slightly behind other
- Shift weight from foot to foot
- Re-position your body if possible

If bending over for a long period of time:
- Stand upright
- Place your hands on your lower back
- Bend backward slowly
- Come back to upright position

Stretching Exercises

- Sit or stand with arms hanging loosely at your sides
- Turn head to one side, then the other
- Hold for 5 seconds, each side
- Repeat 1 to 3 times

Note: Before doing any exercises check with your physician to ensure you’re able to do them safely!

- Stand or sit and place right hand on left elbow
- With left hand, pull right elbow across chest toward left shoulder and hold 10 to 15 seconds
- Repeat on other side

Note: Before doing any exercises check with your physician to ensure you’re able to do them safely!

- Keep knees slightly flexed
- Stand or sit with arms overhead
- Hold elbow with hand of opposite arm
- Pull elbow behind head gently as you slowly lean to side until mild stretch is felt
- Hold 10 to 15 sec
- Repeat on other side

Note: Before doing any exercises check with your physician to ensure you’re able to do them safely!

Summary

- Health care workers have very high injury rates due to musculoskeletal disorders caused by the overexertion of patient handling.
- Always use proper body mechanics if you have to handle a patient and get help if necessary.
- Use a patient lifting device where possible/practical.
- Use a “lifting team” in the event the patient is very large or overly obese.
- Never put yourself in a position where you and your patient could be injured if you move/lift the patient incorrectly.
Contact Information

To contact a Health & Safety Training Specialist:

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Questions