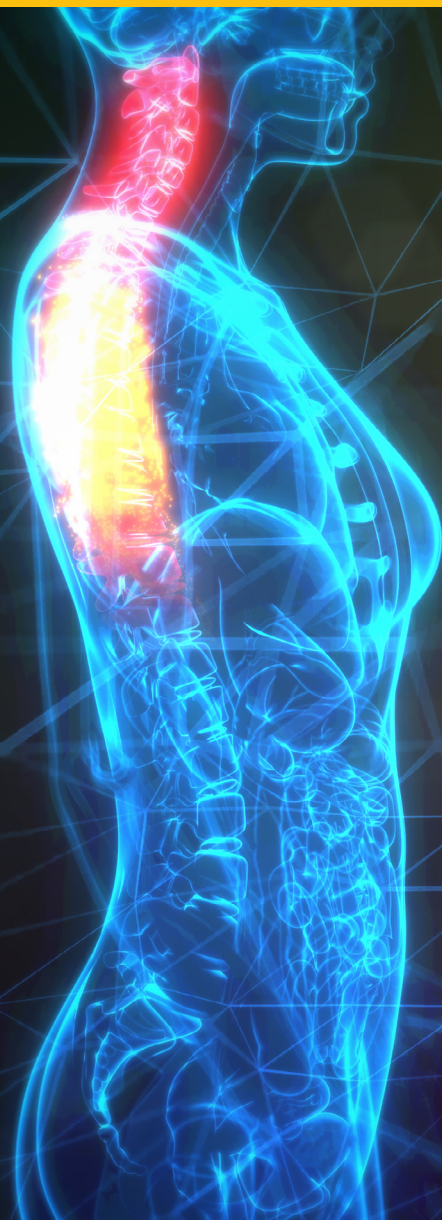


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Division of Workers' Compensation



Back Injury Prevention

for Health Care Workers



**Workplace
Program**

Texas Department of Insurance, Division of Workers' Compensation

www.txsafetyatwork.com

HS22-005A (11-22)



DISCLAIMER

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This guide contains the basic elements to build a safety and health program. It is not meant to supersede OSHA requirements. Employers should review the OSHA standard for each specific worksite and customize the program accordingly.

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INTRODUCTION



This workplace program is designed to provide general guidance for employers and employees about how to prevent back injury as a result of lifting and moving patients and residents. It may be useful in settings such as hospitals, nursing homes, assisted-living facilities, board-and-care homes, and during the provision of home health care.

Some of the benefits of back injury prevention include decreased injuries and costs, as well as increased efficiency and employee morale. The practical suggestions in this workplace program are focused on orderlies, attendants, nurses, nursing assistants, and others who lift and move patients and residents. The information was developed with the help of individuals and institutions in the health care

field who have found effective ways to prevent back injuries.

This workplace program discusses how to:

- understand the scope of the back injury problem;
- analyze the workplace to find work activities, equipment, and related factors that may contribute to the development of back injuries;
- identify and implement improvement options; and
- evaluate the results.

TABLE OF CONTENTS

Back Injury Prevention Workplace Program for Health Care Workers

INTRODUCTION	3
DO LIFTING AND MOVING PATIENTS OR RESIDENTS LEAD TO INJURY?.....	5
LIFTING AND MOVING PATIENTS AND RESIDENTS.....	6
Physical Demands of Work	7
Equipment and Facilities	8
Work Practice and Administrative Issues	9
Personal Factors	10
EVALUATING WORK ACTIVITIES	10
Performing Work Task Evaluations	10
Work Evaluation Tools	11
A CLOSER LOOK AT IMPROVEMENT OPTIONS.....	19
The Good News: Back Injury Prevention Success Stories	19
Identifying Solutions	20
Patient or Resident Assessment.....	21
Assist Equipment and Devices	22
Work Practices	24
Lift Team.....	26
Other Measures	27
RESOURCE INFORMATION	32
Assist Equipment and Devices	32
Design of Institutional Equipment and Facilities	36
Proper Work Practices	38
Body Talk	41
REFERENCES	44

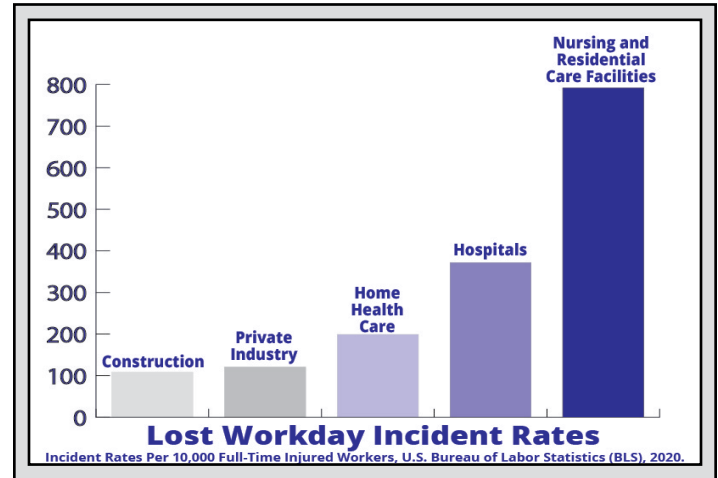
Do Lifting and Moving Patients or Residents Lead to Injury?

The Health Care Industry is facing a big challenge. Nationally, total lost workday injury and illness incidence rates for Hospitals (371.7) are more than three times greater than those for Private Industry (120.7).¹ The rates for Home Health Care (199.1) and Nursing and Residential Care Facilities (791.7) greatly exceed those in more typically hazardous industries, such as Construction (108.6).² (Note: Incident rates represent the number of injuries and illnesses per 10,000 full-time employees.) Nursing assistants, orderlies, and psychiatric aides have a risk of lost workday injuries and illnesses more than eight times greater than the average private industry worker. Why are their rates so high? In part, because of back injuries.³

Nurses and other health care providers have similar percentages. These numbers may not even tell the whole story, since one study found that only one-third of nurses reported work-related back injuries.⁴

Health care workers are hurting their backs while lifting, transferring, and otherwise moving patients or residents. The costs are enormous. The direct costs of workers' compensation, medical treatment, and vocational rehabilitation are high. Claims related to back injuries constitute about 19% of all workers' compensation claims yet are responsible for 41% of the total injury costs, about \$1,800,000 per year.⁵

Additionally, indirect costs such as lost production, retraining, and sick or administrative time can be much more than the direct costs. An indirect cost of particular



concern is the disruption of the professional integrity of services provided. Injured health care workers cannot work up to their full potential or may even leave the profession due to back injuries. Lastly, there is the toll on their personal lives.

These increasing injury costs are occurring at the same time with a national push to reduce health care spending. This pressure to function in a more cost-conscious manner is leading to an emphasis on home health, reorganizations, and downsizing. These trends, along with the traditional aspects of the health care workplace, such as emergencies, long or rotating shifts, night work, or caring for large numbers of acutely ill individuals, make back injury prevention more difficult.

Despite of all of these challenges, many health care institutions have successfully prevented back injuries by using a combination of innovative approaches. There are solutions that work! A first step is to take a closer look at the types of work activities that can contribute to back injuries.

Lifting and Moving Patients and Residents

Caring for people often requires lifting or helping them move. Since these work tasks involve sick or fragile human beings, they are more complicated and risky than handling materials in industrial settings. Compared to objects manually lifted or moved in industrial settings, the body is heavier, more delicate, and awkward to handle. Also, the center of gravity and the distance to the patient or resident can change during the handling activity. This can suddenly put the provider in an awkward posture or position and require them to make more forceful exertions, for example, when stopping a fall.

In addition, patients and residents can have medical, psychological, or other conditions that can complicate lifting or moving them. They may:

- have IVs, monitoring devices, dressings, or other complicating factors;

- not be able to communicate well due to disorientation, deafness, or other factors;
- be uncooperative or actively resisting;
- have widely varied ranges of mobility; or
- be subject to changes in condition due to fatigue or medication.

Lastly, health care workers must often engage in prescribed mobilizations where the goal of strengthening muscles and increasing skills means that the patients or residents are pushed closer to the limits of their abilities. This increases the chance of abrupt movements and falls.

What contributes to back injuries?

Lifting or moving patients or residents requires the interaction of the health care worker, the

Contributing Factors that Complicate Lifting or Moving



individual being moved, the equipment used, and the work environment. There are a great variety of activities involved, including:

- manual lifting;
- laterally transferring between two horizontal surfaces; ambulating;
- repositioning in bed or chairs;
- manipulating extremities;
- transporting patients, residents, and equipment;
- performing activities of daily living;
- stopping falls or transfers from the floor; and
- assisting in surgery.

When lifting or moving patients or residents, there are a number of factors that can lead to the development or aggravation of back injuries, including:

- physical demands of work;
- equipment and facilities;
- work practices or administrative issues; and
- personal factors.

The Physical Demands

The physical demands of work generally include forceful exertions, awkward positions or postures, and repetition.

Forceful Exertions

Force is the amount of physical exertion or muscular effort expended. How much force is used and how long it is sustained are important factors contributing to injuries.



These are influenced by the weight and condition of patients, residents, or equipment. The type of grips, body posture, and number of repetitions can also affect the amount of force required. Examples of excessive force include:

- lifting or transferring heavy patients;
- unexpected or abrupt forceful motions; and
- stopping patient or resident falls or lifting them off the floor after a fall.

Awkward Position or Posture

Repeated bending, twisting, reaching, or holding prolonged fixed positions can contribute to injuries to the neck, shoulder, and back. Bending the back forward when lifting places great loads on the muscles, discs, and ligaments of the lower back. One of the most damaging activities is to bend, reach out, lift, and then twist while raising the trunk. The ligaments of the back do not support twisting movements well, especially when the back is bent forward. As pressures on the discs in the lower back increase, the center or nucleus of the disc is forced backward. If the disc bulges or ruptures, this can damage the surrounding nerves.

Examples of awkward posture are:

Bending, Twisting, or Reaching When:

- attaching gait or transfer belts with handles and the bed or chair is too low or far away;
- providing in-bed medical care and the bed is too low or the side rails are up;
- washing patient's legs and feet in a shower chair when the shower chair is too low and access is limited;
- dressing or undressing patients or residents;
- repositioning or turning patients in bed when the side rails are up or the bed is too low, and the provider reaches across the patient or resident; and
- performing stand-pivot transfers, such as when a wheelchair is too far from the bed and the providers twist their bodies instead of moving their feet in the direction of the transfer.



Assisting in Surgery When Providers:

- stand for long periods with a bent neck and back; or
- hold manual retractors, patient's extremities, or heavy instrument sets for prolonged periods.

Repetition

Repetition means performing the same motion over and over again. If repetitive motions are frequent or sustained, they can contribute to fatigue and injuries. The number and length of rest periods, the associated force, and unfamiliar work activities can all affect the impact of repetition on the body. For example:

- repeated repositioning in bed; or
- numerous transfers to and from beds, chairs, or commodes without rest breaks.

Equipment and Facilities

Equipment Design and Maintenance Issues

Holding, pushing, or handling equipment can cause forceful exertions or awkward body postures. Some of the ways equipment can cause problems include:

- jammed or worn wheels which make it harder to move and steer
- faulty brakes which cause chairs or other equipment to shift during transfers
- hard-to-reach controls or manual cranks on beds, chairs, or equipment. These can discourage providers from making adjustments, and cause



- lifting or moving patients or residents without help from assist equipment and devices or other employees;
- performing unaccustomed physical work experienced by a new hire, an employee returning from a long absence, or other staff covering for absent employees;

them to assume awkward postures or make forceful exertions;

- handles on beds, carts, or other equipment which are either the wrong size or placed at an inappropriate height;
- missing attachable IV and medical poles that can lead to workers awkwardly pushing gurneys or wheelchairs with one hand and holding free-standing poles with the other;
- older mechanical lift devices for patients or residents that are hard to operate, uncomfortable, unstable, or dangerous; and
- high or heavy medical, food, or linen carts, which require bending, reaching, or twisting to load or unload.

Work Practice and Administrative Issues

These issues affect the equipment available to employees, the types of work tasks they perform, and how these activities are accomplished. For example:

- using improper work practices and poor body mechanics;
- having ineffective equipment repair procedures, such as no standard repair tag, or long repair turnaround times;
- not storing, replacing, or distributing equipment so that it is readily available;
- not performing systematic patient or resident assessments;
- purchasing equipment where the selection is limited or there is no end-user review;
- training that is:
 - » limited only to proper body mechanics that does not include use of assist equipment;
 - » not hands-on or reinforced on a systematic basis; and
 - » not demonstrated in a competency, such as a testing or clinical evaluation where health care providers demonstrate proficiency of the skills

necessary for their particular job classification.)

- poorly communicating job demands and expectations; and
- not establishing physical job demands and essential job functions.

Personal Factors

Home and Recreational Activities

Our bodies do not stop functioning when we go home from work. Home and recreational activities involving forceful exertions or awkward postures can also lead to or aggravate back injuries. Some examples include sports and home repair work.

Physiological and Psychological Factors

Physical fitness, weight, diet, exercise, personal habits, and lifestyle may also affect the development of back injuries. Individuals who are not in good physical condition tend to have more injuries. Excessive body weight can place added stress on the spine and is often associated with a higher rate of back injuries. Previous trauma or certain medical conditions involving bones, joints, muscles, tendons, nerves, and blood vessels, including fractures, arthritis, history of disc problems, or other back injuries may predispose individuals to injuries. Psychological factors such as stress may influence the reporting of injuries, pain thresholds, and the speed or degree of healing.

Evaluating Work Activities

The following section is for those who either will evaluate the workplace or be responsible for selecting and testing improvement options. Here are some useful tools to gain insight into where potential problems in the workplace may lie.

Performing Work Task Evaluations

Gathering useful information is one way to start when addressing back injuries that are brought to your attention. First, talk to the affected employees. What is the nature of the problem, and which specific work tasks are associated with it? Are the problems widespread, long-standing, or severe? Is there a history of similar complaints about a job classification, task, unit, or floor? In the process of trying to understand the nature of the problem, use the knowledge and expertise of individuals who can help you, such as nursing personnel, supervisory staff, physical therapists, employee health and union representatives, maintenance, or engineering

departments, and others. Remember that you can accomplish a great deal by:

- involving and communicating with employees;
- relying on in-house knowledge and skills; and
- using the simple tools given in this section.

Besides talking to employees, you can determine the types, numbers, and severity of injuries and the specific work tasks associated with them by analyzing existing written records. This analysis can help identify which work tasks are associated with specific injuries. These records may include:

- OSHA 300, 300-A, and 301 Forms on recordable injuries and illnesses;
- workers' compensation claim records;
- medical or first aid records;
- workplace inspections, maintenance records, and incident or accident reports; and
- employee reports or complaints.

Based on the information you gather, you may decide that the problems you are hearing about are connected to work activities. If this is the case, you can take a closer look at work activities by performing a **work task evaluation**. Work task evaluations are simply a structured way of looking at jobs, workstations, or equipment to identify and analyze what aspects of the work may be contributing to injuries. Work task evaluations can also help clue you into what solutions may work.

Work Evaluation Tools

After identifying where problems are occurring, pick a few areas that you think may be the worst and can be easily addressed. Involve the employees performing the work in evaluating the problems and coming up with potential solutions. Use the following assessment tools to help you conduct the following work task evaluations:

- Patient and Resident Handling Checklist;
- Task Analyzer;
- Equipment Checklist;
- Facility Design Checklist; and
- Administrative Issues Checklist

Tool 1

The Patient and Resident Handling Checklist

How to Use Your Checklist- as Easy as 1, 2, 3

1. Select the portion of the checklist that corresponds to the type of activity being evaluated:
 - transfers;
 - ambulating, repositioning, or manipulating;
 - transporting or moving;
 - medically-related activities; or
 - performing activities of daily living.
2. Fill out the checklist for each type of activity you wish to evaluate. Place a check mark (☐) in the rows and columns. Make additional copies of the checklist when needed. Observers or employees performing the task can fill out the checklist.
3. Make sure that typical work practices and equipment are used as you evaluate the work. Watch individuals long enough to evaluate any changes in work activities. Sample different employees performing the same jobs. Save your results for review when you are considering improvement options.

After your evaluations, review your results and list the five activities you found to be the most frequent or the hardest.

1. _____
2. _____
3. _____
4. _____
5. _____

Tool 1: Patient and Resident Handling Checklist

Tool 1-continued

Activities	How Often		How Hard		Comments
	Often	Sometimes	Hard	Easy	
Transporting or moving					
Beds or gurneys					
Wheelchairs, geri chairs, cardia chairs, etc.					
Room furniture					
Carts (linen, food, surgical, etc.)					
Monitors/equipment (e.g., x-ray & operating tables)					
Other					
Medically-related activities	Often	Sometimes	Hard	Easy	
Weighing					
Replacing oxygen tanks on gurneys					
Changing IV tubes or bags					
Wound care					
Replacing tape (e.g., endotracheal tubes)					
Manually holding retractors					
Handling surgical instrument sets (trays)					
Other (e.g., taking vitals, inserting catheter)					
Performing Daily Living Activities	Often	Sometimes	Hard	Easy	
Handling food trays or feeding					
Showering, Bathing in bed or bathtub					
Performing personal hygiene					
Dressing and undressing, placing and removing prostheses or braces					
Changing diapers					
Making beds with patients or residents in them					
Replacing draw sheets or incontinence pads					
Toileting					
Other					

Evaluator:

Location:

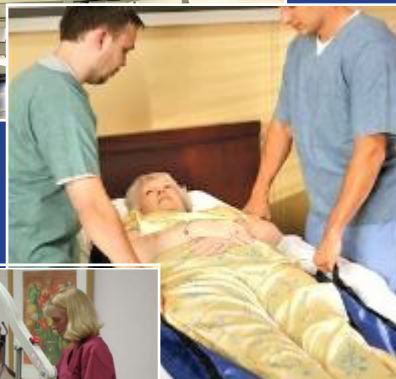
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Tool 2

The Work Task Analyzer

How to Use Your Task Analyzer

1. The purpose of Tool 2 is to evaluate in more detail the work tasks you have already analyzed with Tool 1 -- The Patient and Resident Handling Checklist. You may want to do this if the problem is especially complicated, severe, or widespread. A more in-depth analysis can provide greater insights into the nature of the problem and potential improvement options.
2. Analyze **separately** each of the tasks you previously evaluated using Tool 1 -- The Patient and Resident Handling Checklist. List one specific task in the space provided. For example:
 - *Bed to gurney transfer*
 - *Manipulating extremities for wound care*
 - *Moving room furniture*
 - *Bed-to-chair transfer*
3. As you observe the task, simply place a check mark in the appropriate boxes and fill in your comments. Check as many boxes as may apply. Save your results for review when you are considering improvement options.



Tool 2: Work Task Analyzer

Specific Work Task	Yes	No
Contributing Factors		
Bending or twisting		
Reaching out or up		
Prolonged holding, sitting, standing, or stooping		
Too much force (e.g., heavy patients, holding retractors, restraining patients)		
Abrupt motions (e.g., stopping falls)		
Equipment Used		
None		
Mechanical lift-assist equipment		
Gait or transfer belt with handles		
Slide board		
Draw sheets or incontinence pads		
Low-friction mattress covers		
Slippery sheets or plastic bags		
Transfer mats		
Rollerboards or mats		
Transfer or pivot discs		
Shower or toilet chair		
Shower cart or gurney		
Pelvic lift device		
Other		
Assessment		
Patient or resident assessment before handling		
Methods and Activities		
Working alone		
Help used (number of people:)		
Manual lifting		
Manual repositioning/scooting up/sitting up/other		
Log rolling		
Turning		
Sliding		
Stand-Pivot		
Assisted walking		
Manipulating extremities		
Other		
Comments		
Equipment Facts		
Work Space		

Evaluator:

Location:

Date:

Tool 3: Equipment Checklist

Place a check mark (✓) in the appropriate row or column to help identify problems with your equipment.

Factor	Beds (or rails)	Gurneys (or rails)	Carts				Medical Equipment			Comments
			Medicine	Surgery	Food	Laundry	Monitor	X-ray	Other	
Faulty brakes										
Too long or too hard to adjust										
Casters or wheels do not roll easily										
Too low or high										
Too heavy, wide, big, or unstable										
Controls or handles in an awkward position										
Handles missing										
Storage of items too low, high, awkward, far away, hard to find										
Hard to steer										
Design is not appropriate for patient condition										
Armrests and foot pads are not removable or adjustable										
Items missing (e.g., slings, IV and med poles)										
Factor	Lift Devices	IV/Med Poles	Chairs					Other Equipment	Comments	
			Geri	Cardiac	Wheel	Shower	Toilet			Other
Faulty brakes										
Takes too long or hard to adjust										
Casters or wheels do not roll easily										
Too low or high										
Too heavy, wide, big, or unstable										
Controls or handles in an awkward position										
Handles missing										
Storage of items too low, high, awkward, far away, hard to find										
Hard to steer										
Design is not appropriate for patient's condition										
Armrests and foot pads are not removable or adjustable										
Items missing (e.g., slings, IV and med poles)										

Tool 4: Facility Design Checklist

Place a check mark (✓) in the space next to each item you feel may be a problem in your facility.

Factor	Problem	Location
1. High threshold or obstructions in entryways of bathrooms, showers, hallways, etc., prevent assist equipment access.		
2. Steep ramp(s) (greater than 10 degrees).		
3. Small or cluttered rooms, bathrooms, hallways, or other spaces.		
4. Door handles catch on beds, gurneys, etc.		
5. Floors are slippery, uneven, or cluttered.		
6. Storage areas are too high, low, or awkward to reach.		
7. Bedside medical and electrical outlets too low or only on one side.		
8. Inadequate storage space.		
9. No grab rails by toilets, bathtubs, or showers.		
10. Toilet seats are too low.		
11. Other		

Evaluator:

Location:

Date:

Tool 5: Administrative Checklist

Based on observations in your facility, place a check mark (✓) in the "No" column to help identify areas that may need a closer look.

Factor	Yes	No	Comments
1. Systematic patient or resident assessment.			
2. Formal policy or criteria for: <ul style="list-style-type: none"> • getting help or using assist devices; • early reporting of problems; and • guiding instead of stopping falls. 			
3. Equipment maintenance: <ul style="list-style-type: none"> • standardized tags; • short turnaround time; and • effective tracking systems. 			
4. Equipment purchasing and distribution: <ul style="list-style-type: none"> • flexible contracts; • systematic end-user reviews; • sufficient quantities ordered; and • adequate storage. 			
5. Communication with employees by: <ul style="list-style-type: none"> • meetings; • bulletin boards or memos; • in-service or training sessions; and • other (please specify) 			
6. Job expectations are clearly communicated.			
7. Training: <ul style="list-style-type: none"> • all employees trained; • hands-on practice; • opportunity for feedback; • content is comprehensive (e.g., equipment, policies, etc.); • demonstrated competency; • systematically reinforced; and • other (please specify) 			
8. Where possible, physically hard work tasks are distributed equally among employees or shifts.			
9. Where possible, avoid scheduling employees to perform unaccustomed physical work.			

Evaluator:

Location:

Date:

A Closer Look at Improvement Options

Health care institutions with success in preventing back injuries have employed a multi-faceted approach involving:

- systematic patient or resident assessment;
- assist equipment and devices;
- safer work practices;
- lift teams;
- other measures (e.g., proper equipment maintenance); and
- comprehensive training.

The Good News: Back Injury Prevention Success Stories

Here are a few stories showing the success at some institution:

San Francisco General Hospital (CA), 275 beds

Problem: Many back injuries and high employee turnover due to lifting and moving of patients.

Solutions: No lifting by nursing staff. Specially trained lifting team performs almost all patient lifting or moving of patients on the day shift. Policy of the lift team was to use mechanical lifting devices for all total body transfers.

Results: In the first year of implementation, lost-time back injuries dropped from 16 to 1 and lost days from 215 to 6. By the second year, the nursing staff did not have a single back



injury during the lift team's shift. In the six years after the program began, workers' compensation costs dropped approximately 90%. The lift team's cost was \$70,000 per year.

Camden Nursing Home (ME), 260 employees and 200 beds

Problem: High incidence of low-back pain and pulled muscles resulting from lifting or moving of residents.

Solutions: Lift assist equipment is required for all lifts (total cost of equipment was approximately \$35,000); two employees are required (using gait or transfer belt with handles) for all ambulations where residents are unstable; and training from equipment manufacturers.

Results: Workers' compensation premium reduced from \$750,000 to \$184,000.

Kennebec Long-Term Care (ME), 250 employees and 300 beds

Problem: Low back strains, herniated discs, and shoulder strains from lifting; poor body mechanics; resident falls; and combative Alzheimer patients.

Solutions: An employee committee of Certified Nursing Assistants formed to evaluate mechanical lift assist equipment; systematic resident assessment instituted; use of gait belts required; full body and stand-assist lifts required for lifting or moving residents; comprehensive employee training; safety rewards and newsletters; and modified duty programs instituted.

Results: Workers' compensation premiums dropped from \$1.5 million to \$770,000 in four years. The number of lost work days dropped from 573 to 12 in five years.

In addition to workers' compensation savings and reduced injuries, some institutions experienced other significant benefits from implementing a combination of improvement options. These include:

- reduced absenteeism, turnover, and retraining;
- lower administrative costs;
- maximized efficiency and productivity;
- improved employee morale;
- improved employee-management problem solving
- increased patient or resident comfort.

Identifying Solutions

Once problem work activities are identified and evaluated, decide which ones to address first and what changes are appropriate. Review the information you have gathered up to this point to guide your choices. Talk to the affected employees to get their ideas on how to improve their work activities. Coordinate the knowledge and expertise of in-house staff to identify and try out solutions. Depending on the nature and severity of the problems, it may be useful to consult with:

- Nursing Administration and Supervision;
- Health and Safety Committees;
- Purchasing;
- Maintenance;
- Quality Assurance;
- Human Resources;
- Union Representatives;
- Physical and Occupational Therapy;
- Employee Health;
- Workers' Compensation;
- Risk Management; and
- Finance.

Also, you can contact others in the health care industry, equipment vendors, and private consultants.



Selecting Specific Improvement Options

Do you have the responsibility and authority to implement improvement measures? Securing management commitment is essential to bring about positive change. Persuade the decision makers in your organization by presenting the direct and indirect costs of the problems and pointing out the injury reduction and cost-saving benefits. Keep in mind that the benefits of improved employee morale, patient comfort, and better employee relations are not easily measured.

First, recognize what is working well and try to key in on specific changes. Keep in mind that many problems once identified can be solved by quick fixes or simple, commonsense improvements. Remember, start small and pick options you can realistically put into place. As you progress, build on your early successes. Talk to the affected employees to get suggestions on how to modify improvements.

Some institutions have found the following improvement options to be effective at reducing or preventing back injuries:

- patient or resident assessments;
- assist equipment and devices;
- proper work practices;
- lift teams;
- other measures:
 - » institutional equipment and facilities;
 - » maintenance;
 - » administrative measures;
 - » exercise; and
 - » safety gear.

Patient or Resident Assessment

Systematic patient or resident assessment, which is **focused on the lifting or moving of the patient or resident**, is essential to protect against injury. Unexpected movements, especially falls, can hurt both the employee and the patient or resident.

What information should the assessment include?

Many aspects of the patient's or resident's condition can affect how they are lifted or moved. In addition to their weight, consider the following:

Aspects Affecting How Patients or Residents Are Moved or Lifted



Medical Condition.

What could make them vulnerable to further injury?: Dizziness, confusion, deafness, medication, muscle spasms, recent surgery, sensitive skin, or total hip replacement.



Behavior.

What might they do?: Combative, cooperative, or unpredictable.



Acuity.

How well do they follow instructions?: General understanding or language problems.



Physical Ability.

How well can they sit up, stand, or walk on their own? What is their endurance?: Ambulatory, stroke (weak on one side), weight-bearing, and upper-body strength.

Use the assessment to decide the appropriate type of assist equipment or devices, the techniques and number of people needed, and other relevant considerations. Always check the condition of the patient or resident each time before you begin and during the activity. Their medical condition can change from day-to-day for better or worse, during the day from fatigue, medication, or other factors, and even during the activity.

How to communicate the results of the assessment to all who need to know

Before lifting or moving patients or residents, encourage employees to systematically review information relevant to the transfer activity. Make this information readily available. Clearly state the facts. Labels or signs can simply communicate the essential points. If there is a need to preserve confidentiality, you can use color-coded stickers that summarize information. Another way to communicate the information is to have brief daily meetings. Finally, remember that patients' or residents' medical conditions can change rapidly. Assessments may need to be updated and the new information shared among providers.

Assist Equipment and Devices

There are many types of equipment and devices designed to make lifting or moving patients or residents easier. Remember, it is important to use proper work practices and body mechanics in combination with equipment and devices. The following discussion categorizes assist equipment and devices by the type of work activity in which they are used.

Lifting

Mechanical assist devices such as lifts help reduce injury by avoiding unnecessary manual transfers, awkward postures, forceful exertions



Lifting off the floor

and repetitive motions. Although these devices may appear to take longer to perform the lift or move, they may save staff time by reducing the number of employees needed on a given transfer.

Based on your evaluations, mechanical assist devices should be used for the most potentially dangerous lifting or moving tasks.

Mechanical lifting devices eliminate the need to manually lift or move patients or residents:

- to and from beds, chairs, gurneys, etc.;
- off of the floor;
- to a standing position;
- up or over in bed;
- during ambulation;
- in and out of vehicles; and
- into or out of bathtubs or showers.

General categories of mechanical lifts include:

- total-body;
- stand-assist;
- compact (total-body or stand-assist)

- ambulation; and
- bath and shower.

Lifting devices have different features. When evaluating these devices look for those that:

- lift from the floor up to the highest bed;
- allow the employee to operate the equipment in an upright, neutral posture;
- steer and operate easily;
- are stable and comfortable for the patient or resident;
- have effective and easy-to-adjust brakes;
- fit easily into rooms, bathrooms, or small spaces;
- can go under beds and around equipment;
- lift the heaviest, biggest, or smallest patient or resident;
- have a bump sensor or emergency stop switch;
- do not catch or pinch the body or the feet;



- are easy to clean and maintain;
- have rechargeable batteries with sufficient capacity and fast charging times; and
- have slings that:
 - » attach with minimal lifting or pulling;
 - » come in a variety of sizes; and
 - » provide patient or resident comfort (e.g., support the head, arms, and legs).

Lateral Transfers (Sliding)

Lateral transfers or sliding can be used to move patients and residents between two horizontal surfaces such as from a bed to a gurney or bed to a cardiac chair. Helpful equipment and devices include slide boards, transfer mats, slippery sheets, draw sheets and incontinence pads.

Ambulating, Repositioning, and Manipulating

This category of lifting includes gait belts, transfer belts with handles, slippery sheets, plastic bags, draw sheets, incontinence pads, pivot discs, range of motion machines, fixtures, and other equipment.

Performing Activities of Daily Living (ADL)

These activities include showering, bathing, toileting, dressing or undressing, and personal hygiene-related activities. Equipment and devices include shower-toilet combination chairs, extension hand tools, shower carts, gurneys, and pelvic lift devices.

For more information on these and other lifting devices, as well as the proper work practices associated with them, see pages 32-41.

Useful Tips

Encourage health care workers to use assist equipment and devices when they are appropriate. To facilitate use, equipment should be:

- purchased in sufficient quantities;
- stored so they are visible and readily available;
- evaluated and selected by the users;
- accompanied by effective training;
- equipped with sufficient replacement accessories such as slings; and
- maintained in good working order.



A lift-assist suit



Proper Work Practices

Health care providers can be injured when manually lifting or moving patients, residents, or equipment. Manual handling can also be uncomfortable for the patients or residents. Consulting a physical therapist or reference texts on proper body mechanics can also help in evaluating lifting or other manual activities. Whenever manual handling of patients or residents is performed, employees must be thoroughly trained, including “hands-on” practice sessions under supervision.

Even when performed properly, manual lifting or moving of patients or residents involving awkward positions and posture or forceful exertions (e.g., lifting extremely heavy individuals) can still result in employee injury. In these situations, consideration should be given to the use of mechanical lifting devices or other assist equipment. Before using mechanical lifting devices or other assist equipment, employees need to be thoroughly trained on how to use the equipment and on proper work practices.

The discussion which follows describes the general principles of manually lifting and moving patients and residents. See the Resources Information section on pages 35-38 for more detailed information on the following:

- lifting and lateral transfers;
- ambulating, repositioning, and manipulating;
- transporting patients, residents, and equipment;
- performing activities of daily living;
- transferring from the floor; and
- assisting in surgery.

General Guidelines for Lifting and Moving Patients or Residents

Assess the patient or resident before lifting or moving them.

Eliminate or reduce manual lifting and moving of patients or residents whenever possible. Use assist devices or equipment when available and appropriate for the activity.

Get patients or residents to help as much as possible by giving them clear, simple instructions with adequate time for response.

Know your limits and do not exceed them.

Get help whenever possible.

Use teamwork. Try to choose team members who:

- are adequately trained and
- have a similar understanding of proper techniques and timing

Mentally plan and prepare (e.g., consider routes of travel and obstructions; clear out paths).

Use (or modify) chairs, beds, or other surfaces to keep work tasks, equipment, and supplies close and at a height between the waist and shoulders).

Make sure brakes hold properly and apply them firmly on beds, gurneys, and chairs.

Use upright, neutral working postures and proper body mechanics:

- bend your legs, not your back, let your legs do the work;
- when lifting or moving the patient or resident always face them; and
- do not twist when turning but pick up your feet and pivot your whole body in the direction of the move.

The following photos, courtesy of Cal/OSHA and Emi Manning, University of California, Davis Medical Center, illustrate proper work practices for some typical activities involving lifting and moving patients and residents.



Lateral transfer—working together, good posture, straight back, and minimal reach.

Repositioning—good body mechanics with a straight back, patient close, and bed at waist height.



Performing an ADL—good posture with a straight back and bent knees.

Transporting a patient—with adequate help.



Transfer from the floor—using a slide board, enough help, and a coordinated effort.

Guiding and Slowing Falls

Reviewing patient or resident assessments and watching for signs of weakness are effective ways of preventing falls. If falls do occur, make no attempt to stop them abruptly. Stopping falls often results in injury. The safest method involves guiding, slowing, and lowering the patient or resident to the floor while trying to maintain a neutral body posture. Regulatory reporting requirements may cause employees to try stopping a fall. Reporting of falls should not lead to fault-finding or negative consequences.

Providing Home Health Care

This is a difficult situation for health care workers. Facilities and equipment are not under their control, and they cannot get help from other employees. However, there are a few helpful strategies that can be followed:

- ask for help from the patient's family or friends;
- provide suggestions for the layout of bedrooms and other areas;
- follow correct body mechanics;



- maintain clear spaces to avoid trip or slip hazards; and
- provide suggestions for desirable equipment such as gait belts, transfer devices appropriate for the home, shower-toilet chair combinations, extension hand tools for showering, and adjustable beds. If medical supply companies do not stock these items, discuss other alternatives.

Lift Teams

Even with the availability of the appropriate assist equipment, injuries can still occur because of a variety of factors, including:

- limited equipment usage;
- not asking for help from coworkers;
- training that “doesn’t stick”;
- loss of patient or resident handling skills;
- employee turnover;

- inconsistent policies for lifting or moving patients or residents; and
- other factors such as cramped rooms, bathrooms, or facilities.

How can these complex variables be addressed to effectively reduce injuries? Some institutions have chosen to create a special lift team dedicated to performing the majority of the lifting or moving of patients or residents. This can reduce the risks by relying on only a few thoroughly trained employees.



- It may be difficult to cover all lifting or moving activities such as dispersed facilities, medical emergencies, or night or weekend shifts.
- There may be organizational constraints such as no centralized staff that functions across departments, wards, or units.

Other Measures

The team's policy is to use assist equipment and not perform manual lifting or moving activities unless necessary. The lift team coordinates with the nurses and other medical personnel responsible for the patient or resident. They perform both scheduled and unscheduled moves and should be readily available upon request.

In one study, the response time from one lifting or moving activity to the next was five minutes.⁶ A two-person lift team handled the load for a hospital with a census of 350 to 400 patients, of whom 8% to 12% were handled from 9 am to 5 pm.⁷

The lift team dramatically reduced back injuries and their associated costs. There were also significant savings on administrative and equipment costs. The study further suggested that the use of the lift team was beneficial to patients since it allowed them to be moved or transferred more frequently in a safer, easier manner.

When considering the use of a lift team, keep the following in mind:

Institutional Equipment and Facilities

Well-designed and maintained institutional equipment and facilities are important in reducing or preventing back injuries. Institutional equipment should be designed to allow the user to maintain neutral body postures and reduce forceful motions. For example, using:

- beds, wheelchairs, cardiac chairs, and other equipment that are easy to adjust and move; and
- equipment with wheels that roll and steer easily to decrease the force and number of people needed.

Facilities should be designed to allow easy operation and movement of equipment. During lifting or moving activities, there should be enough room for staff to avoid awkward postures and for other employees to help. For example, provide:

- patient, resident, shower, and bath rooms with adequate workspace; and

- low thresholds on entryways to allow the use of equipment with wheels such as on rolling shower chairs which eliminate an extra transfer.

- maintaining equipment instruction manuals.

Maintenance

Maintenance personnel have an important role to play in back injury prevention programs. A regular program of maintenance can help ensure sufficient quantities of equipment in all units or floors and avoid shortages and breakdowns.

Maintaining facilities properly can allow easy equipment movement and reduce tripping or slipping. For example:

Systematic preventative maintenance should include:

- keep floors free of holes, clutter, broken tiles, or slippery conditions; and
- adjusting doors to open easily.

- checking brakes for their ability to lock and hold;
- oiling and adjusting mechanisms to work easily to prevent stuck cranks or rails;
- leaning or replacing casters or wheels so they roll easily and smoothly;
- replacing and securing attachments such as slings, bed controls, or footboards;
- using standardized tags that have the name of the person reporting the problem, their department, the date, and the problem description;
- instituting tracking systems to ensure prompt turnaround times; and

Equipment Purchase, Storage, and Distribution

Some basic administrative considerations include:

- conducting a review that evaluates if the equipment is appropriate for the specific lifting or moving activity;
- ensuring the review involves onsite testing of a variety of equipment by the end-users;
- ordering a sufficient quantity of equipment and attachments to allow





Employees who are new, returning after long absences, or members of a float pool may perform physical work tasks they are not accustomed to, such as lifting, pushing, or being on one's feet all day. Performing unaccustomed physical work can increase the risk of back injuries. Where possible, new or returning employees should be encouraged to increase gradually the pace or difficulty of their work activities.

the equipment to be readily available at all locations where it is needed, including enough lifts or IV/Med poles that are permanently attached to gurneys;

- providing for the convenient storage of assist and institutional equipment to ensure it is easy to find and use; and
- using flexible purchasing procedures that allow for the evaluation and purchase of up-to-date equipment with the most appropriate features.

Remember that many equipment manufacturers or distributors are happy to provide samples of equipment for in-house demonstrations or evaluations.

Work Coordinating Tips

Certain work tasks may be especially hard to perform. Try to:

- break up tasks with rest breaks or lighter work;
- schedule hard tasks for early in the work shift;
- share tasks more equally among shifts; and
- specify criteria for getting help.

Other Administrative Measures

Other administrative measures to reduce or prevent back injuries can include:

- return-to-work and light-duty programs;
- job descriptions that establish the appropriate physical requirements; and
- early reporting and treatment.

Encourage employees to report physical problems or other work-related issues as early as possible. This is particularly important with back injuries, which are less costly and serious at first, and more expensive and severe in later stages.

Exercise

A combination of the appropriate equipment, proper work practices, and exercise programs can be effective at injury prevention. Physically fit individuals tend to have fewer and less severe injuries. They also recover faster if they are hurt. Other potential benefits from long-term, sensible exercise programs include:

- increased balance, coordination, strength, and flexibility;
- weight reduction; and
- reduced fatigue, stress, and tension.

Encourage employees to:

- warm up and stretch before engaging in work activities; and
- participate in long-term, sensible exercise programs involving aerobic conditioning and other appropriate activities.

Remember to consult with a physician or physical therapist about which aerobic, strength, and flexibility exercises are right for the employee. This is especially important for those individuals who have pre-existing injuries or medical conditions.

Safety Gear

Safety gear includes items worn or attached to the body. Some considerations when selecting safety gear are discussed below:

- **Footwear**
The appropriate footwear can provide good traction to help prevent slips or falls and cushioning when standing or walking for long periods on hard surfaces.
- **Back Belts**
Back belts may help maintain the proper curvature of the spine during lifting or physical exertion by applying intra-abdominal compression on the lumbar section of the spine.

However, the use of back belts in preventing injuries remains a question that requires further analysis. Studies have not produced a conclusive body of evidence supporting the effectiveness of back belts as an injury reduction tool.⁸

One study conducted in an industrial setting suggests that back belts when accompanied by other measures may reduce low back injuries.⁹ However, some concerns related to the use of back belts are that these devices:

- » provide a false sense of security and lead employees to lift loads beyond their capabilities;
- » are used instead of other more proven options;
- » may lead to decreased abdominal muscle strength with prolonged use; and

» might not be worn properly.

- **Training**
To effectively implement the improvement options selected, it is helpful to set a schedule, provide training, and get feedback on how changes are working.



- Effective training is an important part of trying to reduce or prevent injuries. You have gathered a lot of good information. Look back at your notes. Review the Work Evaluation Tools, the improvement options, and the information in this workplace program. All of these sources provide good information on the nature and causes of back injuries, as well as measures to help reduce or prevent them. You can now use the information and experiences you have accumulated in combination with your in-house expertise to help with the training. Keep in mind that training is not effective at reducing injuries unless it:

- » includes classroom education and hands-on practice;
- » allows feedback;
- » requires employees to demonstrate the skills learned in a competency evaluation; and
- » is systematically reinforced by retraining.

Some areas to consider in your training program are:

- » anatomy and physiology related to back injuries;
- » proper work practices and administrative measures;
- » patient or resident assessment;



- » assist equipment and devices; and
- » reporting of injuries, equipment, and facility problems.

Finally, remember that for training to be successful at reducing employee injuries, management must provide firm support and workers must practice the skills daily during work activities.

Getting Feedback

Open lines of communication allow you to find out if improvements are working and to respond quickly to new problems. It is important to track the progress of all improvements you try out. Look to see if injuries and symptoms associated with problem work activities are decreasing over time. Are the improvements reducing costs and working from a productivity and organizational standpoint? When evaluating improvements, talk to your employees and ask what suggestions they may have to refine the changes. Remember to give the changes time to work and allow employees to get used to them.

Resource Information

This section is intended to provide supplemental information on improvement options. Included are descriptions of a variety of assist equipment and devices, design considerations, and work practices that may be effective in reducing or preventing back injuries. The options listed are only a sampling of those available and may or may not work for your particular situation or problem. Consult equipment manufacturers for details on specific products.

Assist Equipment and Devices

Lifts



Total-Body

These devices are designed to lift or move individuals who are dependent by supporting their entire body weight during the transfer. The best devices are battery-operated. Typically, they can lift an individual from the floor to the highest bed or gurney. Some devices can lift individuals up to 500 pounds or more. There is a large number of different types of lifts available with a variety of features.

Stand-Assist

These lifts are for moving patients and residents to and from chairs, toilets, beds, or into and out of showers. Stand-assist type lifts are appropriate for patients or residents who are weight-bearing and have some upper-body strength and control. The best devices are battery operated.



Compact

These are a smaller version of a total-body or stand-assist lift. They are appropriate for use in the provision of home care, where space or storage is limited, or in moving individuals into and out of cars.

Ambulation Lifts

These lifts support a patient or resident during ambulation. The individual pushes the lift along as they walk. A strap in the back prevents them from falling backward.





Bathtub and Shower Lifts

These lifts are designed for transfers directly from the bed or chair to a bathtub or shower, without removing the patient or resident from the lift. They can be portable or fixed devices that operate on batteries or power from the facility. The patient or resident can stay on the lift during the bathing or showering activity and any related activities. Other types include bathtubs that have built-in lift devices to lower the patient or resident directly into the tub.

Lateral Transfers (Sliding)

Transfer Boards

Transfer boards are a board between two horizontal surfaces that the patient or resident slides across. They may be unstable when transferring to or from surfaces of unequal height. They may be uncomfortable for very large patients.

Draw Sheets or Incontinence Pads

Commonly used to slide patients or residents between horizontal surfaces, or for repositioning in beds or chairs. To ensure an adequate grip, the provider should roll up the edges. This will reduce forceful exertions and awkward upper-body postures. The sheets or pads should be used in combination with friction-reducing devices such as slide boards, slippery sheets, plastic bags, or low-friction mattress covers.

Gurneys with Transfer Devices

These height-adjustable gurneys have built-in slide boards or mechanical means such as hand or motorized cranks to laterally move patients.

Cots

Often used are strong fabric cots with handles to improve the grip. They can be used in combination with friction-reducing devices such as slide boards or slippery sheets.

Slide Boards (Smooth Movers or Plastic Transfer Boards)

These large plastic boards reduce friction.



Some slide boards have hand-holds. The patient or resident is slid or rolled onto the board and the board is then pushed or pulled to accomplish the transfer. In another common practice, the board goes under the patient or resident who is pulled over the board by use of a draw sheet or incontinence pad.

Roller Boards or Mats

These boards or mats have vinyl coverings and rollers. They are placed between the transfer points. The patient or resident is placed on the board or mat and rolled to the new position.

Slippery Sheets, Low-Friction Mattress Covers, or Plastic Bags

These can be used under draw sheets or incontinence pads to reduce friction on lateral transfers. Slippery sheets or plastic bags can also be used instead of draw sheets or incontinence pads.

Transfer Mats

Transfer mats are two low-friction mats placed under and strapped onto the patient or resident (i.e., one under the head, one under the hips). The mats are then pulled to accomplish the transfer.

Ambulations, Repositions, and Manipulations

Fixtures and Stands

These devices hold arms, legs, and extremities when providing medical care, assisting with surgical procedures, or performing related services.

Gait Belts

These devices are simple canvas belts without handles, which are traditionally used to support patients or residents during ambulation. They may also be used to sit up, reposition, or gradually lower individuals to the floor during a fall. The belts are fastened securely around the patient's or resident's waist. The care provider grips the belt. When attaching, removing, or using gait belts you should avoid bending, twisting, or reaching. When using gait belts, ensure the following precautions are taken:

- ensure the belts do not slide up causing scrapes, skin tears, and rib injuries;
- do not use for ambulations of heavy or non-weight-bearing patients or residents;
- do not set the belt too tight, which can cause the care providers' knuckles to dig into the patient or resident;
- avoid using the belts on patients with recent abdominal or back surgery, abdominal aneurysm, or similar injuries; and

Transfer Slings

Transfer slings have cut-outs or rings for handholds. The slings are tucked securely around the patient or resident and help move the individual between various surfaces. Caution is needed because these slings may dig into or slip off the patient or resident.



- use only when there is a layer of clothing between the skin and the belt.

Transfer Belts with Handles

These devices are a wider version of a gait belt, but with buckles. They have padded handles on each side that are easier to grip and allow better control in case of a fall. The same considerations and precautions apply as for gait belts.

Hand Blocks

Hand blocks enable the patient or resident to raise and reposition themselves in a bed.

Lift Chairs

These chairs are equipped with a lift that slowly raises upward and tilts forward. This helps the patient or resident stand up.



Lift Cushions

These are spring-acted lift cushions that raise patients or residents.

Activities of Daily Living

Hand Tools for Showering, Bathing, and Cleaning

These devices include long-handled extension tools on hand-held shower heads, wash-and-scrub brushes, and other items. These tools can reduce the amount of bending, reaching, and twisting required when washing the legs, feet, and trunk of patients or residents.

Shower-Toileting Chairs

These are shower chairs that have wheels and are high enough to fit over the toilet. These save unnecessary transfer to and from wheelchairs, toilets, portable commodes, or toileting chairs. Use these instead of low toilet or shower chairs that do not have wheels. The heavier metal ones tend to be more stable. On all shower-toileting chairs, make sure the brakes hold tightly.

Shower Carts or Gurneys

These gurneys or carts have waterproof tops so that patients or residents can be undressed, showered, dried, and dressed on the cart or gurney.

Pivot Discs

These discs resemble a Lazy Susan. They are placed on the floor and used to rotate the patient or resident 90° to a bed or a chair. When used properly, they can help providers perform transfers without twisting.

Push-up Bars

Push-up bars are on the bedside. They allow patients or residents to reposition themselves.

Range of Motion Machines

These machines automatically move or manipulate arms, legs, or extremities.

Trapeze Bar

This is a bar suspended from an overhead frame. The patient or resident grasps the bar and assists in repositioning themselves in the bed.

Ramp or Bed Scales

Eliminate unnecessary transfers by weighing patients or residents in wheelchairs or beds. Built-in bed scales will increase the weight of the bed and may prevent it from lowering to appropriate work heights.

Bath Boards

These boards are leveled between the shower seat or the bathtub. The patient or resident slides or is assisted from a chair or wheelchair into the bathtub or shower. To reduce friction, make sure there is either clothing or other material between the person's skin and the board. These boards are appropriate for non or partially weight-bearing individuals with upper body strength and control.

Pelvic Lift Devices (Hip Lifters)

These inflatable lifts are positioned under the hips. They inflate like a pillow and lift the hips so a special bed pan can be readily inserted and removed. These devices may eliminate the need for an additional transfer for toileting.

Design of Institutional Equipment and Facilities

The following information suggests some desirable design characteristics for equipment and facilities. For exact design specifications or product line availability, consult with equipment suppliers or manufacturers.

Equipment

Beds

➔ **Adjustability:**

- easily adjustable (e.g., rails lower or raise easily, short cycle time);
- height ranges that allow upright working postures, use of lifts, and facilitate patient or resident mobility; and
- brakes, controls, and handholds are positioned to allow upright working postures (i.e., easy to reach without bending or twisting).

➔ **Size and weight:**

- able to fit into rooms, down hallways or other spaces; and
- easy to move (e.g., not excessively heavy, large, or bulky).

➔ **Brakes that hold.**

➔ **Secure footboards.**

Carts

These may include laundry, food, medicine, crash, and case carts.

➔ **Moves easily.**

➔ **Not too high or wide to see over or around.**

➔ **Handles are at or near waist height.**

➔ **Storage or retrieval of items does not require bending too low or reaching too high or far.**



Shower and Toilet Chair Combinations

➔ **Wheels roll easily and smoothly.**

➔ **Height will fit over a toilet.**

➔ **Brakes lock and hold effectively on at least two wheels.**

➔ **Removable commode bucket is available for toileting.**

➔ **Commode seat is comfortable.**

➔ **Safety belt is attached and functional.**

➔ **Adjustable or removable arm and footrests are standard.**

➔ **Device is heavy enough to be stable.**

Room or Hallway Furniture

➔ **Furniture is light enough to move easily.**

➔ **Wheels or casters roll easily and have good brakes.**

➔ **Furniture is not too big or bulky.**



Cardiac or Geri Chairs

- ➔ *Chair is easy to adjust, move, and steer.*
- ➔ *Coverings are not too slippery, which can require continued patient or resident repositioning.*

Gurneys

- ➔ *Gurney is easy to steer with a fifth wheel or by other means.*
- ➔ *Gurney is easy to adjust when raising or lowering it or the side rails.*

Facilities

Patient or Resident Rooms and Bathrooms

- ➔ *Areas are large enough for easy access of furniture, equipment, and staff.*
- ➔ *Bedside power, suction, and equipment outlets are easy to reach on both sides of the bed and are positioned between the waist and the shoulders.*
- ➔ *Grab rails are installed by toilets, bathtubs, and showers.*

- ➔ *Controls and handholds allow upright neutral working postures (e.g., easy to reach without bending).*
- ➔ *IV/Med poles are permanently attached.*
- ➔ *Gurney provides multiple attachment points for IV/Med poles.*

IV/Med Poles (with wheels)

- ➔ *Base is wide enough to ensure stability without hitting the feet of staff, patients, or residents.*
- ➔ *Wheels or casters roll easily.*

Medical Equipment

This may include devices such as X-ray equipment, monitors, microscopes, etc.

- ➔ *Equipment is easily moved manually or self-propelled if very heavy.*
- ➔ *Equipment is not too high or wide to see over or around.*
- ➔ *Handles are at waist height and positioned to allow a neutral posture.*

Wheelchairs

- ➔ *Wheelchairs are stable and do not tip backward.*
- ➔ *Footpads and armrests are removable.*

Floors

- ➔ *Entryways do not have high thresholds, which could interfere with easy movement of beds, gurneys, shower chairs, and other wheeled equipment.*
- ➔ *Non-slip surface mats are in wet areas.*

- ➔ **Anti-fatigue mats help employees stand comfortably for long periods.**
- ➔ **There are no rough surfaces.**
- ➔ **Ramps are less than a 10° slope.**

- ➔ **Automatic doors are installed.**
- ➔ **Convex mirrors are mounted to prevent collisions and abrupt stops.**

Hallways

- ➔ **Halls are large enough to provide easy access for equipment, staff, and furniture.**

Other

- ➔ **Storage shelves are located between waist and shoulder height.**
- ➔ **Sufficient and accessible storage is available for hoists and other devices.**

Proper Work Practices

In general, eliminate lifting and moving patients or residents manually whenever possible by using assist equipment and devices. Get help from other staff. Tell patients or residents what they can do to help you. Give them clear, simple instructions with adequate time for response.

Guidelines for Manual Lifting and Lateral Transfers

Lifting

- ➔ **Use upright, neutral working postures and proper body mechanics:**
 - bend your legs, not your back, and let your legs do the work;
 - always face people when lifting or moving them; and
 - do not twist when turning but pick up your feet and pivot your whole body in the direction of the move.
- ➔ **Try to keep the patient or resident, equipment, and supplies close to the body.**
- ➔ **Keep handholds between your waist and shoulders.**
- ➔ **Move the person towards you, not away from you.**
- ➔ **Use slides and lateral transfers instead of manual lifting.**
- ➔ **Use a wide, balanced stance with one foot slightly ahead of the other**

- ➔ **Lower the person slowly by bending your legs, not your back, and returning to an erect position as soon as possible.**
- ➔ **Use smooth, never jerky, movements when lifting.**
- ➔ **When lifting with others, coordinate lifts by counting down and synchronizing the lift.**

Lateral Transfers

- ➔ **Position the surfaces of beds, gurneys, and chairs as close as possible to each other, at about waist height, with the receiving surface slightly lower to take advantage of gravity.**
- ➔ **Lower the rails on both bed and gurney surfaces.**
- ➔ **Use draw sheets or incontinence pads in combination with friction-reducing devices such as slide boards, slippery sheets, plastic bags, and low-friction mattress covers.**

- ➔ **Get a good hand-hold by rolling up draw sheets and incontinence pads or use other assist equipment such as slippery sheets with handles.**
- ➔ **Kneel on the bed or gurney to avoid extended reaches and bending of the back.**

- ➔ **Station teams on both sides of the bed or other surfaces, count down and synchronize the lift.**
- ➔ **Use a smooth, coordinated push-pull motion.**
- ➔ **Do not reach across the person you are moving.**

Guidelines for Ambulating, Repositioning, and Manipulating

In general, eliminate lifting and moving patients or residents manually whenever possible by using assist equipment and devices. Get help from other staff. Tell patients or residents what they can do to help you. Give them clear, simple instructions with adequate time for response.

Using Gait or Transfer Belts with Handles

- ➔ **Keep the individual as close as possible.**
- ➔ **Avoid bending, reaching, or twisting your back when:**
 - attaching or removing belts and raising or lowering beds;
 - lowering the individual; and
 - assisting with ambulation.
- ➔ **Pivot with your feet to turn.**
- ➔ **Use a gentle rocking motion to take advantage of momentum.**

Performing Stand-Pivot Type Transfers

Used for transferring from bed to chair, etc., or to help an individual get up from a sitting position.

- ➔ **Use transfer discs or other assists when available.**
- ➔ **Keep feet at least a shoulder width apart.**
- ➔ **If the patient or resident is on a bed, lower the bed so that he or she can place their feet on the floor to stand.**
- ➔ **Place the receiving surface, such as a wheelchair, on the individual's strong side (e.g., for stroke or semi-paralysis**

conditions) so they can help in the transfer.

- ➔ **Get the person closer to the edge of the bed or chair and ask them to lean forward as they stand (if medically appropriate).**
- ➔ **Block the individual's weak leg with your legs or knees. (This may place your leg in an awkward, unstable position. An alternative is to use a transfer belt with handles and straddle your legs around the weak leg of the patient or resident.**
- ➔ **Bend your legs, not your back.**
- ➔ **Pivot with your feet to turn.**
- ➔ **Use a gentle, rocking motion to take advantage of momentum.**

Lifting or Moving Tasks with the Patient or Resident in a Bed

Some common methods include scooting up or repositioning individuals using draw sheets and incontinence pads in combination with a log roll or other techniques.

- ➔ **Adjust beds, gurneys, or other surfaces to waist height, as close to you as possible.**
- ➔ **Lower the rails on the bed and work on the side where the individual is closest.**

Guidelines for Transporting Patients, Residents, and Equipment

It is often necessary to transport people in gurneys, wheelchairs, or beds or handle various types of carts, monitors, instrument sets, and other medical equipment.

- ➔ **Decrease the load or weight of carts and instrument trays.**
- ➔ **Store items and equipment between waist and shoulder height.**
- ➔ **Use sliding motions or lateral transfers instead of lifting.**

- ➔ **Push don't pull.**
- ➔ **Keep loads close to your body.**
- ➔ **Use an upright, neutral posture and push with your whole body, not just your arms.**
- ➔ **Move down the center of corridors to prevent collisions.**
- ➔ **Watch out for door handles and high thresholds, which can cause abrupt stops.**

Guidelines for Transporting from the Floor

When it is medically appropriate, use a mechanical assist device to lift people from the floor. If assist devices are not readily available or appropriate, you may have to perform a manual lift. When placing slings, blankets, draw sheets, or cots under the person:

- ➔ **Position at least two providers on each side of the person.**
- ➔ **Get additional help for large patients or residents.**

- ➔ **Bend at your knees, not your back. Do not twist.**
- ➔ **Roll the person onto their side without reaching across them.**
- ➔ **If using hoists, lower the hoist enough to attach the slings without strain.**

If manually lifting, kneel on one knee, grasp the blanket, draw sheet or cot, and count down to synchronize the lift. Perform a smooth lift with your legs as you stand. Do not bend your back.

Guidelines for Assisting in Surgery

- ➔ **Use retractor rings instead of prolonged manual holding of retractors.**
- ➔ **Position operating tables or other surfaces at waist height.**
- ➔ **Stand on lifts or stools to reduce reaching.**
- ➔ **Frequently shift position or stretch during long operations.**
- ➔ **Avoid prolonged or repeated bending of the neck or the waist.**
- ➔ **Stand with one foot on a lift and frequently alternate feet to reduce pressure on the back.**

- ➔ **Reduce the number of instrument sets (trays) on a case cart.**
- ➔ **Store instrument sets (trays) in racks between the waist and shoulders.**
- ➔ **Use stands or fixtures to hold extremities.**
- ➔ **Get help from coworkers as needed to:**
 - position legs or extremities in stirrups; and
 - move heavy carts, microscopes, monitors, alternate operating tables, equipment, or fixtures.

Body Talk

How We Are Put Together

Back, neck, and shoulder injuries are the most frequent and costly types of injuries among health care workers. Some basic information on the structure and function of the body can help provide an understanding on how these injuries occur and how we can prevent them.

The Neck

The first seven vertebrae are called cervical vertebrae and form the neck. Areas of the spine such as the neck, where flexible and inflexible sections join, are particularly susceptible to strains, sprains, and injuries.

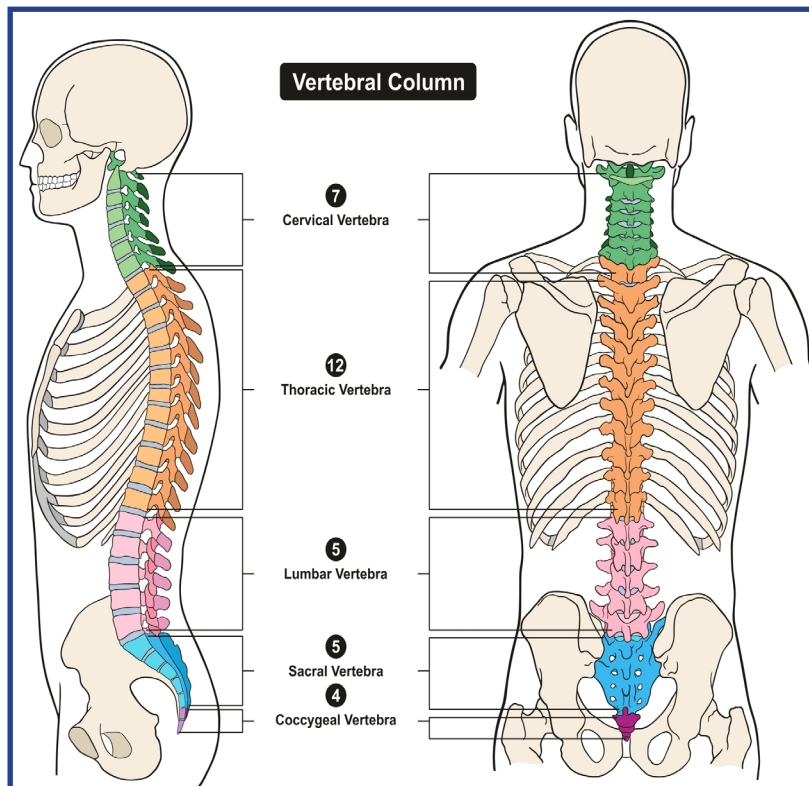
The Shoulder

The shoulder is an example of a ball and socket joint where the ball of one bone fits into a hollow crevice of another. The shoulder joint allows movement and rotation of the arms inward, outward, forward, or backward. There are several different tendons attached to bones in the shoulder. Bursae reduce friction and cushion the tendons as they slide back and forth.

The Back

Spinal Column

The spine is a column of approximately 30 bones called vertebrae that run from the neck



to the tailbone. These vertebrae are stacked on top of one another in an S-shaped column and form spinal joints that move independently. In the healthy spine, there are three natural curves: a forward curve in the neck, a backward curve in the chest area, and another forward curve in the lower back. The back's three natural curves are correctly aligned when ears,

shoulders, and hips are in a straight line. At the end of the spine, the vertebrae are fused to form the sacrum and the tailbone.

The lower back or lumbar area is the workhorse of the back. It carries most of the weight and load of the body. Aligning and supporting the lumbar curve properly helps prevent injury to vertebrae, discs, and other parts of the spine.

The spine also has various types of associated soft tissues like the spinal cord, nerves, discs, ligaments, muscles, and blood vessels.

Discs

Discs are soft, shock-absorbing cushions located between vertebrae. They allow vertebral joints to move smoothly and absorb shock as you move. Each disc has a spongy center (i.e., the nucleus pulposus) and tough outer rings (i.e., the annulus fibrosis).

Muscles and Ligaments Affecting the Back

The vertebrae are connected by a complex system of ligaments that “knit” them together. Strong flexible muscles maintain the three natural spinal curves and help in movement. The most important muscles that affect the spine are the stomach, hip flexors, hamstrings, buttocks, and back muscles.

Spinal Cord and Nerves

The spinal cord is a delicate cylinder of nerve fibers running the length of the spine inside a hollow tunnel formed by the vertebrae. Spinal nerves branch off of the spinal cord and exit through openings between vertebrae. These nerves then travel to all parts of the body.

Tendons

Tendons are tough, connective tissue that attach muscles to bones. They help move the hands, arms, legs, and other body parts by acting as pulleys.

Bursae

Bursae are small sacs filled with fluid. They serve as soft, slippery cushions between bony projections and muscle-tendon units.

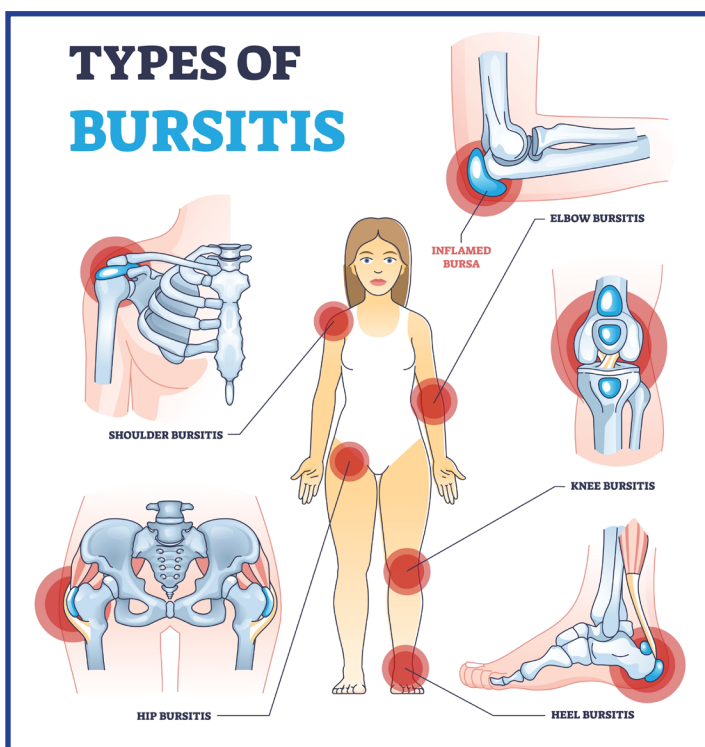
Types of Injuries

Muscle Pain, Sprains, and Strains

Pain in the muscles is extremely common. When muscles contract repetitively without sufficient rest, they can become sore and painful. This can happen without movement (e.g., when holding objects or fixed body postures) or when we move repetitively. A sprain is damage to ligament fibers caused by moving or twisting a joint beyond its normal range. A strain occurs when a muscle or a muscle-tendon unit is overused.

Bursitis

Bursitis is an irritation and inflammation of bursae in the shoulders and other areas caused by their rubbing on adjacent tendons.



Tendinitis and Tenosynovitis

When a tendon is overused, it can become inflamed and irritated causing tendinitis. When the tendon sheath is also involved, the condition is called tenosynovitis.

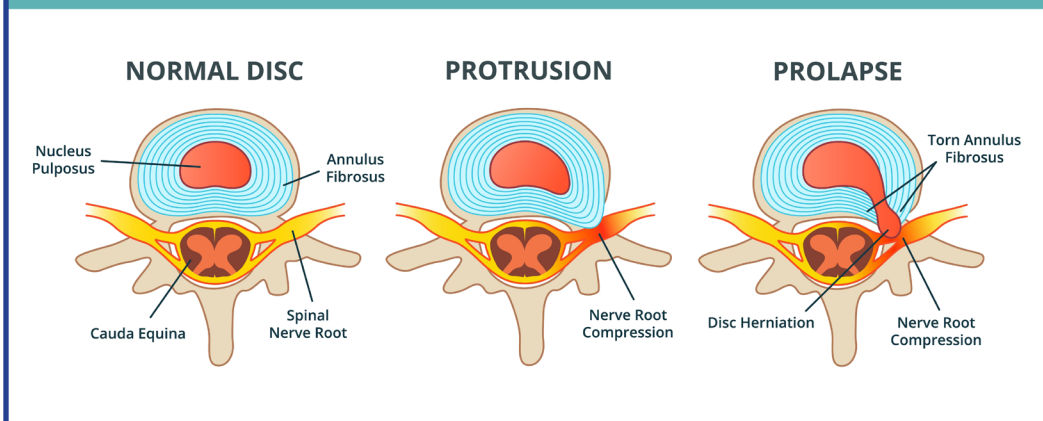
Neck Tension Syndrome

The joint where the last neck vertebra meets the first mid-back vertebra is a major site of acute back pain, muscle tension, and other injuries. Common symptoms include muscle tightness, soreness, restricted movement, headaches, numbness, and tingling in the hands, wrists, arms, or upper back.

Shoulder Tendinitis, Bursitis, and Impingement

Shoulder tendinitis is common in people who lift continuously or who work at levels above their shoulders. Several different tendons attach to bones in the shoulder region and produce different types of tendinitis, including rotator cuff and bicipital tendinitis. Shoulder bursitis inhibits the free movement of the tendons in the crowded shoulder girdle and limits the mobility of the shoulder. Shoulder

Stages of Disc Herniation



Wear and Tear Arthritis (Degenerative or Osteoarthritis)

Degenerative or “osteo” (bone) arthritis simply means the wearing out of joints, vertebrae, discs, facets, or other structures over time. Osteoarthritis is associated with loads put on the spine over long periods.

impingement occurs when enlarged or inflamed bursae or tendons get caught between structures in the shoulder.

Degenerated, Bulging, or Ruptured (Herniated) Discs

Over time, discs wear out or degenerate from natural aging. The discs dry out and become stiffer and less elastic. The outer fibrous rings can crack and the disc narrows. They become less able to handle the loads put on them. If the inner jelly-like center bulges into the outer rings (i.e., the annulus), it may compress nearby nerves or blood vessels. If the inner jelly-like center breaks through the outer rings, the condition is called a ruptured or herniated disc. The discs in the lower back are more susceptible to damage than other discs because they bear most of the load in lifting, bending, and twisting.

Sciatica

Sciatica occurs when bulging or ruptured discs constrict the sciatic nerve or nearby blood vessels causing pain down the hips, buttocks, or legs.

As the discs dry out and narrow, they lose their shock-absorbing ability. The vertebrae become closer together, irritated, and may produce bony outgrowths.

Facet Joint Syndrome

The facets interlock with the vertebrae above and below to form joints in the spine. The facets can become misaligned from bending, lifting, and twisting while working.

“Slipped” Vertebrae (Spondylolisthesis)

Vertebrae in the lower back are pushed forward so they do not line up with other vertebrae. This condition disrupts the proper natural curves of the spine and causes joints, ligaments, and muscles to be overburdened.

Spinal Canal Narrowing (Spinal Stenosis)

Stenosis, or narrowing, in the spine can occur in the canal that the spinal cord runs through or in the gap at the sides of vertebrae where nerves exit.

Vertebrae Fractures

Events like slips, trips, and falls can generate severe forces on the spine and cause compression fractures of the vertebrae.

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