Chapter 6 – Developing a No-Lift Policy

❖ Introduction

The attached policy is intended for use on high-risk patient care units. It is considered just one part of a comprehensive approach to preventing musculoskeletal injuries in staff and promoting safe patient care.

The purpose of the policy is **not** punitive, but support of both staff and administration. This policy establishes expectations that staff will use the safest techniques to accomplish patient repositioning and that administration will provide equipment and resources to support staff efforts. If supervisors or peers observe direct care staff not following safe protocols for repositioning, this indicates that the staff member needs retraining. This policy is not to be used to discipline employees but to educate them.

The policy spells out duties of employees, facility directors, supervisors, and engineering maintenance personnel to assist in safe patient handling and movement. The policy is modeled after England's successful effort to reduce manual-handling injuries among direct care staff.

This policy is informally known as a "No-Lift Policy," because it calls for staff to avoid manual handling in virtually all patient care situations. However, this No Lift policy cannot succeed unless other components of a Safe Patient Handling and Movement Program have been put in place.

❖ Implementation of a Safe Patient Handling and Movement Policy

To be successful, the policy MUST have required infrastructure in place before the policy is implemented. This includes:

- Adequate number and variety of patient handling aids and mechanical lifting equipment on each high-risk patient care unit
- Sufficient numbers of staff trained and competent in the use of these aids and equipment
- Staff trained and skilled in applying safe patient handling and movement algorithms
- Administrators and supervisors who support the comprehensive approach.

Attachment 6-1

Template of a Safe Patient Handling and Movement Policy

1. **PURPOSE:** This policy describes ways to ensure that employees use safe patient handling and movement techniques on _____ Unit/s, designated as high-risk for safe patient handling and movement.

2. **POLICY:** _____ Medical Center wants to ensure that its patients are cared for safely, while maintaining a safe work environment for employees. To accomplish this, a *Back Injury Prevention Program for Nurses* will be implemented in order to ensure required infrastructure is in place to comply with components of this safe patient handling and movement policy. This infrastructure includes patient handling and movement equipment, employee training, and a "Culture of Safety" approach to safety in the work environment. Direct patient care staff on high-risk patient care areas should assess high-risk patient handling tasks in advance to determine the safest way to accomplish them. Additionally, mechanical lifting equipment and/or other approved patient handling aids should be used to prevent manual lifting and handling of patients except when absolutely necessary, such as in a medical emergency.

3. **PROCEDURES:**

   A. Compliance: It is the duty of employees to take reasonable care of their own health and safety, as well as that of their co-workers and their patients during patient handling activities by following this policy. Non-compliance will indicate a need for retraining.

   B. Safe Patient Handling and Movement Requirements:

   - Avoid hazardous patient handling and movement tasks whenever possible. If unavoidable, assess them carefully prior to completion.
   - Use mechanical lifting devices and other approved patient handling aids for high-risk patient handling and movement tasks except when absolutely necessary, such as in a medical emergency.
   - Use mechanical lifting devices and other approved patient handling aids in accordance with instructions and training.

   C. Training:

   - Staff will complete and document Safe Patient Handling and Movement training initially, annually, and as required to correct improper use/understanding of safe patient handling and movement. Supervisors should maintain training records for three (3) years.

- Staff will complete and document safe patient handling and movement equipment training initially and as required to correct improper use/understanding of safe patient handling and movement. Supervisors should maintain training records for three (3) years.

D. Mechanical lifting devices and other equipment/aids:

- Mechanical lifting devices and other equipment/aids will be accessible to staff.
- Mechanical lifting devices and other equipment/aids will be maintained regularly and kept in proper working order.
- Mechanical lifting devices and other equipment/aids shall be stored conveniently and safely.

E. Back Injury Prevention Program.

The *Back Injury Prevention Program for Nurses* will be implemented on all high-risk units, including the following key program elements:

- Ergonomic Workplace Assessments
- Use of lifting equipment and devices
- Patient Assessment Criteria and Care Planning for Safe Patient Handling and Movement
- Algorithms for Safe Patient Handling and Movement
- Back Injury Resource Nurses
- After Action Review Process

F. Reporting of Injuries/Incidents.

- Nursing staff shall report all incidents/injuries resulting from patient handling and movement to Occupational Health.
- Supervisors shall maintain Accident Reports and supplemental injury statistics as required by the facility.

4. DEFINITIONS:

A. High-Risk Patient Handling Tasks: Patient handling tasks that have a high-risk of musculoskeletal injury for staff performing the tasks. These include but are not limited to transferring tasks, lifting tasks, repositioning tasks, bathing patients in bed, making occupied beds, dressing patients, turning patients in bed, and tasks with long duration.

B. High-risk Patient Care Areas: Inpatient hospital wards with a high proportion of dependent patients, requiring full assistance with patient handling tasks and activities of daily living. Designation is based on the dependency level of patients and the frequency

with which patients are encouraged to be out of bed. These areas include Spinal Cord Injury Units, Nursing Home Care Units, and other specified areas.

C. Manual Lifting: Lifting, transferring, repositioning, and moving patients using a caregiver's body strength without the use of lifting equipment/aids to reduce forces on the caregiver's musculoskeletal structure.

D. Mechanical Patient Lifting Equipment: Equipment used to lift, transfer, reposition, and move patients. Examples include portable base and ceiling track mounted full body sling lifts, stand assist lifts, and mechanized lateral transfer aids.

E. Patient Handling Aids: Equipment used to assist in the lift or transfer process. Examples include gait belts with handles, stand assist aids, sliding boards, and surface friction-reducing devices.

F. Culture of Safety: Describes the collective attitude of employees taking shared responsibility for safety in a work environment and by doing so, providing a safe environment of care for themselves as well as patients.

5. DELEGATION OF AUTHORITY AND RESPONSIBILITY:

A. FACILITY DIRECTOR shall:

1. Support the implementation of this policy.
2. Support a "Culture of Safety" within this medical center.
3. Furnish sufficient lifting equipment/aids to allow staff to use them when needed for safe patient handling and movement.
4. Furnish acceptable storage locations for lifting equipment/aids.
5. Provide routine maintenance of equipment.
6 Provide staffing levels sufficient to comply with this policy.

B. SUPERVISORS shall:

1. Ensure high-risk patient handling tasks are assessed prior to completion and are completed safely, using mechanical lifting devices and other approved patient handling aids and appropriate techniques.
2. Ensure mechanical lifting devices and other equipment/aids are available, maintained regularly, in proper working order, and stored conveniently and safely.
3. Ensure employees complete initial and annual training, and training as required if employees show non-compliance with safe patient handling and movement or equipment use. Maintain training records for a period of three (3) years.
4. Refer all staff reporting injuries due to patient handling tasks to Occupational Health.

5. Maintain Accident Reports and supplemental injury statistics as required by the facility.
6. Support a "Culture of Safety" within their facility.

C. EMPLOYEES shall:

1. Comply with all parameters of this policy.
2. Use proper techniques, mechanical lifting devices, and other approved equipment/aids during performance of high-risk patient handling tasks.
3. Notify supervisor of any injury sustained while performing patient handling tasks.
4. Notify supervisor of need for re-training in use of mechanical lifting devices, other equipment/aids and lifting/moving techniques.
5. Notify supervisor of mechanical lifting devices in need of repair.
6. Support a "Culture of Safety" within their facility.

D. ENGINEERING SERVICE shall maintain mechanical lifting devices in proper working order.

E. UNION OFFICIALS shall support policy intent and monitor program effectiveness in partnership with administration.

6. REFERENCES:

a) Nelson, A. (1996). Identification of patient handling tasks that contribute to musculoskeletal injuries in SCI nursing practice. JAHVAH Study.

b) Nelson, A., Gross, C., & Lloyd, J. (1997). Preventing musculoskeletal injuries in nurses: Directions for future research. SCI Journal, 14(2), 45-52.

c) Royal Wolverhampton Hospitals NHS Trust. (1996). Health and safety: Manual handling. Policy ref: HS 11.

d) United Kingdom Health and Safety Executive (1992). Manual handling operations regulations.

Chapter 7 – Back Injury Resource Nurses

❖ Background

To be successful, the implementation of any new program necessitates a knowledgeable person with enthusiasm and leadership capabilities to direct the charge. The Back Injury Resource Nurse (BIRN) can take the lead in promoting the elements included in this guide.

Current management philosophy supports the use of peer leaders to effect change and increase staff involvement in management issues (Hammer & Champy, 1993). Similar informal leadership positions can be found elsewhere in the healthcare and other industries. Lead maintenance mechanics, charge nurses, etc. are utilized as peer leaders to increase staff involvement in management and/or assist supervisors in their roles.

❖ Description of Program

BIRNs assist in building a "Culture of Safety" to support clinicians in providing safe patient care and safe working environments. BIRNs' roles and responsibilities include facilitating the implementation of elements selected for inclusion in your Safe Patient Handling and Movement Program. They can help to implement Safe Patient Handling and Movement Policy, Algorithms, and other key interventions. They will train co-workers on the program elements and assist in monitoring and evaluating these program elements. They will act as resources, coaches, and team leaders on their unit. In this role, they will share their knowledge gained with co-workers and with other BIRNs in their facility and in the VHA. Linkage of BIRNs is critical. Minimally, monthly BIRN face-to-face or conference call meetings should be held to share new information gained through After Action Reviews and other BIRN activities. Regular discussions allow for maintenance of a "team" atmosphere, a forum for discussion, and mutual support.

❖ Limitations

The BIRN role is not static. It requires continued exposure to new strategies to maintain safe work environments. Consequently, ongoing training is a must. Additionally, ongoing support is needed. Based on these ongoing needs to maintain an effective BIRN Program, this intervention is probably most applicable for high-risk units.

The degree of success of the BIRN program is limited by the degree of management support. BIRNs must have management backing in order for his/her peers to recognize the BIRN role as an essential one. Also, management must sustain their words of support by offering BIRNs the time needed to fulfill their roles. The BIRN position is a collateral duty assignment. In this time of staffing shortages it may be challenging for management to see

the long-term advantage of endorsing a program that may "appear" to take away from patient care.

It's important that all levels of nursing staff be given the opportunity to fill this role. However, it has been found that RNs with other leadership responsibilities have more flexibility in their schedules, allowing for more consistency in availability and fulfillment of their roles. For BIRNs responsible for direct patient care, management must adjust patient scheduling to ensure they have adequate time to accomplish their roles.

❖ Obtaining Buy-In from Management

By leading staff in creating safer work environments and promoting a "culture of safety" philosophy, the BIRN Program can address the following goals:

- **Injuries:** Reduce the incidence and severity of nursing injuries.
- **Employer of Choice:** Improve job satisfaction, decrease turnover rates, decrease musculoskeletal discomfort, and increase empowerment of nursing staff.
- **Costs:** Reduce direct and indirect costs related to patient handling injuries.
- **Quality of Care:** Increased patient comfort, security, and dignity during transfers. Promotion of patient mobility and independence; Enhance toileting outcomes and increase in continence.
- **Patient Safety:** Decrease in patient falls, skin tears, and abrasions.

❖ Monitoring Progress

The Back Injury Resource Nurse Weekly Process Log (*Attachment 7-1*) can be used to capture specifics of BIRN activities. This data should be collected on initial implementation of the BIRN program for baseline information. To follow BIRN increasing involvement, collect one week of BIRN activity per month until the program is established. One week's worth of information is necessary to accurately capture activities performed. It's best to designate a specific week for this, i.e., first or last week of the month.

❖ Tools and Strategies for Implementation

1. **Selection Criteria:** BIRN selection is not limited to RN's. Any interested staff member has the potential to be selected for this role. They must have an interest in this subject and be considered "informal" leaders on their unit. They must be respected by their co-workers for their nursing skills and based on their personal merit.
2. **Training:** In order to fulfill their role, BIRNS must receive special training in how to train co-workers, how to coach and motivate co-workers, and how to maintain safe work environments. With this knowledge in hand, it is important for BIRNS to be able to share their knowledge and experience. They will be asked to train, act as resources for, and

coach co-workers. Beyond this, they will be asked to share their knowledge with BIRNS in their facility, VISN, and VHA.

3. **Administrative Support:** Large companies like duPont have found that the secret to successful safety compliance lies in educated and motivated supervisors. The National Safety Council has a supervisors' development program that incorporates this concept. Similar to what has been demonstrated in these programs, the BIRN nurse is a key to successful implementation of ergonomic approaches in health care facilities.

Attachment 7-1

Back Injury Resource Nurse
Weekly Process Log

VAMC: _____

Type of Unit: _____

Dates Included in this Report: _____

Part I: Being a BIRN for Your Clinical Unit.

1. Indicate the number of times during the past week…	#
a) One of your co-workers asked you for your advice about patient handling & movement.	_____
b) You met in person with a nurse on a one-to-one basis about patient handling tasks.	_____
c) You met in person with staff in a group setting or meeting about patient handling tasks.	_____
d) You demonstrated the use of patient lifting equipment (Portable or Ceiling Mounted Sling lifts, Stand Assist lift, etc.).	_____
e) You demonstrated the use of other patient handling or movement equipment (lateral transfer aids, stand assist aids, transfer/dependency chairs, transfer/gait belts, etc.).	_____
You were asked to deal with a problem in the operation of a lifting device.	_____

Part II: Other Activities Related to Being a BIRN.

2. Indicate the number of times during the past week…	**#**
a) You demonstrated the use of the Algorithms for Safe Patient Handling & Movement or one of your co-workers asked you for your advice about their use.	_____
b) You were asked to evaluate a potential ergonomic/safety hazard on your unit.	_____
c) You performed an Ergonomic Hazard Evaluation on your unit.	_____
d) You led an AAR.	_____
e) You participated in an AAR led by another.	_____
f) You attended activities related to being a BIRN, other than those above. Meetings with NM, BIRNS, Site Coordinator, or training, etc.)	_____
g) You completed paperwork related to being a BIRN.	_____
h) You asked your Nurse Manager for support/information/help related to being a BIRN.	_____

Part III: Support & Interest.

3. During the past week…	**Yes**	**No**
a) My nurse manager was enthusiastic about the Back Injury Prevention Program and supported my efforts.		
b) Nursing co-workers were enthusiastic about the Back Injury Prevention Program and supported my efforts.		
c) Patients and/or families were enthusiastic about the changes taking place or supported what they knew of my/our efforts.		

Part IV: Program Effectiveness.

4. How effective do you think these have been in preventing musculoskeletal incidents and injuries?

	Not at All Effective	Somewhat Ineffective	No Effect	Somewhat Effective	Extremely Effective	Unsure
Back Injury Resource Nurses	☐	☐	☐	☐	☐	☐
After Action Reviews	☐	☐	☐	☐	☐	☐
Use of Lifting Equipment	☐	☐	☐	☐	☐	☐
Ergonomic Hazard Analyses	☐	☐	☐	☐	☐	☐
Safe Patient Handling & Movement Policy	☐	☐	☐	☐	☐	☐
Algorithms for Safe Patient Handling & Movement	☐	☐	☐	☐	☐	☐

Chapter 8 – Lifting Teams

❖ Background

Manual lifting and transfer activities are the job tasks most frequently associated with back injuries in nursing personnel (Caska, 1998; Cohen-Mansfield, 1996; Fragala, 1998; Garg, 1992; McAbee, 1988; Stobbe, 1988). Factors contributing to back injuries during lifting and transfer tasks might be organizational, environmental or personal. Examples of organizational factors include time pressure to perform the task, lack of available lifting aids, and lack of personnel to assist with the lift. Environmental factors include space restrictions, inconvenient or inaccessible lifting equipment or transfer devices, and poor condition of such devices. The personal factor most often associated with back injury during lifting is history of previous back injury or recurrent back injury (Caska, 1998).

According to Charney, "…lifting patients is considered a specialized skill performed by expert professional patient movers who have been thoroughly trained in the latest techniques, rather than a hazardous random task required by busy nurses" (1997, p. 300). Efforts to decrease back injuries related to lifting and transferring activities must target organizational, environmental, and personal factors. One such approach with potential to reduce back injuries during lifting and transfer activities in hospital personnel is the lifting team. This approach has been found to be moderately effective in reducing injuries in several studies (Caska, 1998; Charney, 1991, 1992, 1997, 2000; Davis, 2001; Donaldson, 2000; Meittunen et al., 1999).

❖ Description of Program

A lifting team has been defined as " two physically fit people, competent in lifting techniques, working together to accomplish high-risk patient transfers" (Meittunen et al., 1999, p. 311). It has also been referred to as a "lift team", "patient transfer team", or various combinations of these terms. The typical lift team described in the literature consists of two employees responsible for patient transfers within a medical center. Members of the lifting team have been male orderlies (Charney, 1991, 1992, 1997), an existing hospital transport team (Charney, 2000), or nursing staff (Caska, Patnode, & Clickner, 1998, 2000). The lift team members are selected using a variety of screening methods, which have included history (e.g., to determine if previous back injury has occurred), physical exam (e.g., range of motion, musculoskeletal strength), and radiograph of the spine to detect abnormalities.

The team is given training in several areas, including anatomy, body mechanics, and use of mechanical lifting and transfer devices. The lifting team has most often been used on the day shift for transfers scheduled ahead of time and conducted during scheduled rounds, as well as for unscheduled lifts at other times via a pager system for the team. Ideally, the lift team uses mechanical devices for all patient transfers and lifts, except for emergency situations.

There are other necessary components to lift team programs, which include an administrative policy on lifting, mechanical lifting and transfer devices, support of nurse managers, union endorsement, a culture of safety within the facility, and knowledge of the team's existence.

❖ Benefits of Program

From the studies or program evaluations of lifting teams to date, there have been numerous measurable benefits. These benefits can be divided into three categories: 1) those related to injuries and costs of injuries, 2) staff and patient satisfaction, and 3) capacity of the lifting teams.

The first category of benefits includes reduction in lost time back injuries, lost time workdays, restricted workdays, reduction in worker's compensation costs, as well as negligible injuries to lifting team members. In nine program evaluations, there were reductions in lost–time back injuries or injuries related to lifting and transfer of patients. These reductions ranged between 50-100%. Three reports demonstrated reductions in lost workdays due to such injuries; two reports demonstrated reductions in restricted workdays due to patient lift and transfer activities. In seven reports, cost savings from either reduction in back injuries, worker's compensation claims, or medical costs associated with back injuries were demonstrated. Finally, there was only one report of a back injury that occurred in a lifting team member (Charney, 2000).

The second category of benefits is satisfaction of various levels of staff as well as patients, with the lifting teams. In Caska's study (1998), for example, 83% of nursing staff respondents rated lift team members to be available as needed to assist with patient lifts; 91% believed the team should continue to be used in the future. In Charney's study (1997), quality assurance questionnaires were distributed and all ten facilities reported excellent nursing satisfaction with the lifting teams. According to Meittunen et al. (1999), all staff surveyed rated their jobs as physically easier and 100 patients rated high satisfaction with the transfer team.

The third category of lifting team benefits relates to the capacity of lifting teams to perform lifts and transfers. Ideally, the lifting team method "specifies that 95% of all responsibility for lifting will be removed from nursing and performed by a lifting team" (Charney, 1991, p. 232). It is also desirable for the lifting teams to perform the high-risk transfers as identified by each facility (See also *Chapter 3* – "Identify High-Risk Tasks"). Lifting teams have been reported to absorb 88-95% of the nurses' exposure to lifting on the shifts that they operate. The number of scheduled lifts performed by the lifting teams has ranged from 29-70 per day. In one program, 4140 lifts were performed per year when one lift team worked day shift Monday through Friday, 6496 lifts/year when 7-day/week coverage was added on day shift, and increased to 25,987/year with 24-hour/day, 7-day/week coverage was provided (Donaldson, 2000). In reports where this was recorded, response time from call to lift ranged from 5-6 minutes; time to complete the lift ranged from 3-4.5 minutes.

Lift teams can be used for the high-risk lifts as designated by the facilities. Bed-to-chair transfers were the types of lift most frequently reported by the program evaluations on lifting teams.

Different ways to measure capacity include the number of lifts, type of lifts, team response time, and capacity of team to perform lifts (e.g., the percentage of total lifts that the team performs).

❖ Limitations of Program

In the various reports to date, it is clear that there are many benefits to lifting team programs. However, there are several limitations that need to be mentioned. First of all, lifting teams are not successful unless the infrastructure can support them. As previously mentioned, this support must be in the form of administrative and nursing policies regarding lifting in general and lifting teams specifically; adequate type, availability and working condition of lifting devices and equipment; support by team members, union members and nursing staff for the team concept; a culture of safety for patients and employees that is supported by the facility; and an awareness of the team's existence and availability by all staff that use the team. Lack of one or more of these conditions may limit the success of the lifting team program at any given facility.

Lifting teams may not be appropriate for all settings. For example, extended care facilities with many unscheduled lifts and/ or falls may not benefit from such a program. Units with a high volume of lifts that cannot be accommodated by the lifting team may also not benefit from a lifting team.

Staffing issues need to be addressed regarding lifting teams. In reports where a nurse-staffed lifting team was used, when staffing levels were low, nurses could not be devoted to the team by nurse managers (Caska & Patnode, 2000). In such cases, if use of a lifting team in one area short-staffs other areas and lifts are not being performed by lifting teams in these other areas, the overall effectiveness of the lifting team may be questioned. It may be necessary to base lifting team staffing decisions on type of unit, e.g., high-risk units vs. intermediate to lower risk units, in terms of numbers of scheduled and unscheduled lifts.

In several of the program evaluations, back injuries occurred in nurses during the lifting team shift when nurses chose not to call the lifting team. Reasons for this included not wanting to wait for the team because a patient had fallen or another patient needing to get to a scheduled appointment.

Missed lifts are therefore another potential limitation of the lifting team program. If the team's goal is to absorb 95% of nursing lifts and transfers, and this is not being achieved, there may be problems. Reasons for missed lifts must be explored and interventions targeted to improve the lift capacity of the team so that the effectiveness of the program is improved. For example, if scheduled lifts are frequently missed, the lift team schedule may need to be modified, or another team or shift may need to be added.

The lifting team members are an integral component of the program. In one report, (Caska, 1998), it was found that during their eight week trial, lifting team members felt somewhat isolated from their own units and patients. Others stated that the patient transfer focus became monotonous. These limitations may be overcome by rotating team members on a regular basis or training multiple lifters.

As previously mentioned, the lifting team requires adequate numbers, availability, and proper working conditions of devices. The team may be delayed if there are not sufficient numbers of devices on all of the floors that use the teams. Davis (2001) has recommended that a vertical lift be located on every floor, as well as at least one lift capable of dealing with bariatric patients for each facility.

Finally, lifting team members may sustain back and neck injuries related to lifting and transferring patients. In program evaluations to date, there has been only one reported back injury to a lifting team member. This occurred during the transfer of a heavy patient (Charney, 2000). This underscores the importance of careful selection of lifting team members, adequate training, and maintenance of warm-up exercises to maintain a healthy lifting team.

Thus, the lifting team may not be appropriate or practical in every setting. However, where it is used, efforts to overcome the limitations can be accomplished.

❖ Tools and Strategies for Implementation

In order to achieve a successful lifting team program, several key components should be addressed. These include selection of lifting team members, training of the lifting team, and lifting team policy components. Each of these areas is outlined further. In addition, a formula for calculating the required number of lifting/transfer devices is provided.

A. Composition. The facility must determine whether it will use existing or newly hired employees, orderlies, nursing staff, or other job classifications; the number of teams and number of members per team; and the shift(s) to which the team(s) will be assigned.

B. Selection Criteria. Lifting team members ideally will be free from previous or recurrent back injuries; be physically fit; have normal strength and range of motion; be free from spinal abnormalities that would limit ability to use lifting devices and techniques; work well in teams; be able to assume responsibility; possess good verbal and written communication skills; and be supportive of the program.

C. Screening Techniques.

- History (work injuries, back or neck injuries, risk factors for back injury).
- Physical examination with systems review emphasizing neurological and musculoskeletal systems (Meittunen et al., 1999).
- Measurements of range of motion and strength.

D. Training Topics.

- Anatomy and Physiology (relevant to preventing back injury).
- Biomechanics Relative to Lifting and Transfer.
- Principles of Body Mechanics (adapted for lifting persons instead of objects).

- Assessment and Preparation of Patients for Transfer.
- Assessment of the Environment.
- Hospital Lifting and Lift Team Policies.
- Use of Mechanical Transfer and Lifting Devices.
- Team Work.
- Communication.
- Maintenance of Records and Logs.
- Warm-up and Stretching Exercises.

E. Training Techniques.

- Classroom Lecture (e.g., anatomy, biomechanics).
- Hands-on Practice with Lifting Equipment.
- Return Demonstration of Team Lifts and Transfers Using Mechanical Aids and Devices.
- On-site Orientation to Nursing Units where Lifts will occur.
- Discussion.
- Questions/Answers.

F. Length of Training. The length of the training required for the lifting team may range from 1-2 days to 4-5 days, depending upon whether the lifting team members are new to the facility, their previous experience, size of the facility, type and amount of equipment/devices, etc.

G. Additional Training. In addition to lift team members, other departments and job classifications should receive in-service education regarding the availability and utility of the lifting teams. These include administrators, risk managers, nursing managers, and nursing personnel or other caregivers whom will be contacting and utilizing the lifting teams.

❖ Lifting Team Program Policy Components

1. Administrative component supporting team and encouraging that nurses use the team for: e.g., all lifts, all high-risk lifts, all scheduled lifts, etc.; and requiring that sufficient equipment is available for the lifts.
2. Definitions of high-risk lifts to be performed by lifting team:
   - Patient falls
   - Bed-to-cart

- Bed-to-chair
- Obese patient transfer and care activities
- Semi-stand pivot
- Slide-board pivot (Meittunen et al., 1999)

3. Nursing policy should include: not allowing nurses to lift during lifting team shifts, communication with the team (e.g., for scheduled and unscheduled lifts), and how to complete quality assurance reports (Charney, 1997).
4. Lifting team policy including: mandating use of lift equipment, mandated stretching/warm-up exercises prior to start of shift, documentation of activities, and reporting requirements.
5. Policy regarding lifting and transfer devices and equipment availability and required use.

❖ Monitoring Progress

Throughout this chapter, various methods for evaluating both the benefits and limitations of lifting teams have been reported. These methods are briefly summarized below:

1. Indicators Related to Injuries or Costs of Injuries:

- **Work-related injuries.** The number of injuries related to patient lifts and transfers should be measured before and after implementation of the lifting team program. Simple frequencies may be used or rates may be calculated using various formulas.
  - **Incidence rate** = Total # of back injuries x 200,000 person hours (100 employees working 40 hours for 50 weeks) divided by department (e.g., nursing) production hours (actual hours worked by unit measured) (Standardized OSHA formula).
  - **Accident rate =** Total number of back injury cases related to lifting and transferring divided by person years x 1000.
- **Lost time workdays.** The total number of workdays lost due to transfer and lifting.
- **Restricted workdays.** The total number of days where employees had restricted (not full) workloads due to transfer and lifting-related injuries.
- **Lifting team injuries.** Total number of injuries related to transfer and lift activities in lifting team members during lifting team shifts.
- **Unnecessary injuries.** Total numbers of injuries related to lifting and transfer activities that occurred in nurses and other personnel when the lifting team was NOT called to perform a lift. In these cases, reasons for not contacting lifting teams need to be explored.

- **Cost savings.** May include cost of lift team program minus cost of injuries that were reduced, worker's compensation costs that have been reduced, cost saved by preventing injuries, or other measures.

2. **Lifting Team Indicators:**

   - **Scheduled lifts performed.** The number and/or percentage of lifts scheduled to be performed by the lifting team that actually were performed by the team.
   - **Unscheduled lifts performed.** The total number and/or percentage of unscheduled lifts that the team was able to perform.
   - **Missed lifts.** The number of lifts the team was scheduled to perform that were not performed; can also measure the number of times a lift was performed without the lift team. As with unnecessary injuries, reasons for not calling the lift team should be elicited.
   - **Lifting team capacity.** The number of lifts performed by the lifting team divided by the total number of lifts performed by the facility x 100. Can measure this on lifting team shifts only or across all shifts.
   - **Response time of team.** 1) For scheduled lift- time period between scheduled lift and arrival of lift team to perform scheduled lift; 2) for unscheduled lift- period of time between team contact and arrival of team for lift/transfer.
   - **Lift time.** The time it takes for the lift team to perform lift or transfer.
   - **Adverse events during lifts.** These may include catheters dislodged, intravenous lines pulled or disrupted, patient falls, injuries to personnel, or malfunctioning of equipment.
   - **Formula for calculating required number of mechanical lifts.** According to Charney (2000), hospitals could use the following formula for calculating the required number of mechanical lifts necessary:

     # of medical wards x 2 lifts (1 lateral, 1 vertical) = # mechanical lift equipment devices.

3. **Satisfaction Indicators.** Information regarding the satisfaction of nurses and other caregivers who use the lifting teams, patients who are serviced by the team, and the lift team members themselves can be elicited to monitor the team's progress. This information can be elicited by survey, focus groups, or informal one-on-one discussions. For each section below, several examples of information to elicit are presented. This list is not meant to be all-inclusive.

   - **Nurse satisfaction.** How nurses or other caregivers perceive utility of team; how they rate availability, response, effectiveness of team; whether they believe lift team program should be continued, and why they do or do not call the lifting team.

- **Patient satisfaction.** Whether patients are comfortable during lifts/transfers, waiting time for lift team to arrive, perception by patient of expertise of the lifting team, and overall opinion of the lifting team.
- **Lifting team member satisfaction.** How individual lifting team members rate their job satisfaction; any reasons for dissatisfaction; opinions of team effectiveness; whether any injuries have been sustained by team members; and opinions of type; availability and condition of lifting devices/equipment.

Chapter 9 – After Action Review Process

❖ Back*ground*

After Action Review (AAR) is a highly successful method of transferring knowledge that is used in high-performing organizations, such as the United States Army. AAR is a method for transferring knowledge that a team has learned from doing a task in one setting, to the next time that team does the same task in different setting (Dixon, 2000). This process moves unique knowledge that an individual holds into a group setting so that the knowledge can be integrated, understood by the whole team and used when individuals face similar circumstances. Often, knowledge generated in work settings is not shared, and therefore, is not usable by others. AARs provide a structured method for making tacit knowledge explicit among team members; thus usable next time a team member faces a similar task. An AAR functions as a vehicle to *share* information between co-workers in order to decrease the risk of a reoccurrence of an injury/incident or a near miss. A whole team can learn from the experience of a single member through the AAR process.

Knowledge management has gained popularity among managers and applied researchers, even though there is no single definition upon which all agree (Shin, et al. 2000; Hackett 2000) or definitive procedure (Pfeffer & Sutton 2000). Put simply, "Knowledge management is a conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organizational performance" (O'Dell & Grayson, 1988, pg. 6). In this chapter we will present one knowledge management technique, that is, after action review. After action review is a conscious strategy for getting practical knowledge about safe patient handling and movement to other clinicians during the context of the work environment. After action review will help clinicians share knowledge about safe patient handling and movement and put this information into action to reduce subsequent musculoskeletal injuries among staff.

Knowledge management is based on the premise that the most fundamental need of an organization is knowledge; it is the prerequisite to an organization being able to fulfill its mission and to meet operational and strategic goals. In this case knowledge management is directed toward creating and maintaining safe working environments for direct care providers by reducing occupational injuries. Systematic techniques, such as after action review, help clinicians to gather data about safe patient handling and movement in an ongoing and systematic way so that information can be used effectively by others. After action review helps to contextualize data, that is, transform facts about safe patient handling and movement into knowledge that is relevant and useful (Cooke, 1994; Pfeffer & Sutton 2000; Shin, et al., 2001).

❖ Description of Program

AAR offers an effective means for learning from both safety mishaps and near misses. It is an informal process in which there are no recriminations, reports are not forwarded to supervisors, and meetings are facilitated locally. In AARs, staff should feel free to share knowledge without fear of embarrassment or recrimination. AAR is compatible with established mechanisms for dealing with errors and near misses such as incident-reporting and root cause analysis. The advantage to AAR is that it becomes part of the routine way that a work team goes about its business. Patient safety improvement thus becomes part of usual work routines.

❖ Guidelines for After Action Reviews

A. When should AARs be conducted?

The more frequently a team conducts AARs the more comfortable they will become with learning from errors and near misses without blame. Teams may find that routine meetings held frequently may result in brief and highly focused meetings. Meeting times will vary across work units, but they should fit in with the routine of the unit and be at a convenient time so that staff can attend. For example, a medical/surgical unit may decide to conduct AARs once a week after the shift report is given to the oncoming shift. Alternatively, another unit may decide to hold AARs immediately after every patient or staff safety near miss. Whatever timing is decided, the decision should be what is best for the work group.

AARs are most effective when meetings are kept brief. They may be accomplished in as little as 15 minutes.

B. What is the structure of an AAR?

Any team member who has good communication and group process skills and who is well respected by team members is qualified to be a facilitator. During the meeting, the facilitator asks team members:

1. What happened to threaten patient or staff safety?
2. What should have happened?
3. What accounted for the difference?
4. What corrective actions should be taken?
5. What is the follow-up plan and who will take responsibility for implementing corrective actions?

The discussion should be open and based on objective facts without blaming individuals. Often corrective actions will be internal to how the team does it's work, however, a skilled facilitator will be able to help the team members recognize systems problems that require action outside of the team.

Recording formal minutes of AARs is not recommended. Team members should feel freer to explore all the circumstances of an error or near miss when they know that their statements are not being recorded and they do not have to risk being blamed or reprisal. Do not formalize notes, nor send them to supervisors. Informal notes can be recorded and made available to other staff if notes will help them to avoid similar patient safety errors and staff injuries. Keep in mind that the focus of AARs is to help the team members learn from their own experiences and mistakes.

All members of a work team should be involved in AAR meetings. Each person's information and ideas are necessary to obtain a complete picture of what happened and to generate ideas and incorporate what were learned into future actions. Poor attendance or limited participation from individuals will undermine group process and ownership and ultimately the success of corrective actions.

❖ Benefits and Limitations of Program

The AAR process provides many positive opportunities and benefits for employees. A very important benefit is that front line staff are given the opportunity to effect changes in their work environment when they are involved in identifying problems and solutions. As importantly, an AAR can provide a means to implement changes quickly, thus having a real effect on injury prevention. Another advantage of AAR is that it is an *informal* process. No official minutes are recorded so no reports are forwarded to management. There is no recrimination or blame resulting from this process. AAR can take the embarrassment out of mistakes and near misses. Also, facilitating an AAR requires little training and simply involves discussions, brainstorming, and similar modes of communication. And beyond staff benefits, the AAR process is compatible with other more formal processes, such as root cause analysis.

The benefits of AAR are great, but to succeed, there must be respect and trust among team members. Also, all members must be given the opportunity to have their voice heard as well as assume leadership if appropriate. For greatest success, the entire work team must be involved. Group process may be hindered if a dominant person tries to take over the process, the team members do not recognize the value of participation nor see positive changes happening in the work setting due to AARs, or management does not give staff the resources or encouragement to conduct AARs.

As previously mentioned, AARs are consistent with formal reporting processes, and AAR should not replace the formal processes. Obviously in situations resulting in injury staff must follow the correct reporting procedures, with or without AAR. One challenge for successful implementation is how to motivate busy staff to perform AARs on a regular basis. Managers should give consideration to using incentives that staff identifies. Additionally, staff may be intrinsically motivated because through AAR they will be contributing to improving patient care and decreasing injury rates.

❖ Tools and Strategies for Implementation

The following case study can be used in training teams in the after action review process. After each scene, questions are suggested to stimulate group discussion and analyze key points of the case study.

Scene 1: The Situation

- A nurse manager of a long-term care unit decides to implement after action reviews after she notices an increase in musculoskeletal injuries among the nursing staff. After the nurse manager explains the process to the staff, the team decides to schedule meetings on Monday, Wednesday, and Friday at 11:00 am. This time was selected because most of the morning care is completed by 11:00 and it is before the busy time of care around lunchtime. The team also thought that that after action reviews after morning care would help them to prevent injuries likely to occur during morning care, a high-risk time for injury because of the lifting, moving and turning of patients that is required for bathing, getting patients out of bed and feeding.
- ***Point of Discussion:*** For musculoskeletal injury prevention, what might be other good times to conduct After Action Reviews? How might the times vary with respect to the type of unit, skill mix of staff, and other considerations? What makes these good times? Is the content of the After Action Reviews well defined?

Scene 2.

- The following day the patient care team assembles after morning care and a facilitator asks the usual questions of an AAR. She begins with, "What happened during morning care this morning related to staff injuries that everyone could learn from?
- Sue, a LPN, begins. "I had to get Mr. Walker up because he was lying in a wet bed. You know the problem we've had with his skin...I was late with my meds and the nurse manager was breathing down my neck about getting to an in-service. I *know* I was supposed to use the lift to get him up, but I didn't *see* the sling nearby, so I just got him up myself. While I was lifting him I was thinking…I am not supposed to be doing this. I guess I was lucky I didn't hurt myself."
- ***Point of Discussion*:** What other information might be useful in gaining a systems perspective on the problem?

Scene 3: The facilitator then asks, "What should have happened in this situation?"

- Sue responds, "I know I should have looked around for the sling and used the lift, but I was in such a hurry."
- Nancy concurs, "It is so frustrating to have all of these new lifts but not having the slings where you need them, when you need them. I know I have had trouble finding slings, too."
- Others discuss their experiences related to the lifts and slings. They agree that they "like using the lifts, but that finding slings is a problem."

- ***Point of Discussion****:* Was Nancy's comment supportive? How else could you imagine staff responding to Sue's observation?

Scene 4: Facilitator, "What accounts for the discrepancy?"

- Nancy begins, "For starters, the sling should have been on the bedside stand, where we agreed to keep them."
- Ron replies, "Uh, oh...I might have taken Mr. Walker's sling to use for Mrs. Thomas when I got her up. I could not find *her* sling. I must have forgotten to put it back."
- After more discussion, the group decides that the problems of "disappearing slings" is caused when slings are sent to the laundry and not replaced.
- ***Point of Discussion:*** Why is Ron likely to "confess" his mistake? What do you think Nancy's response to him would be/should be?

Scene 5: The facilitator asks, "How can the problem of disappearing slings be fixed?"

- The charge nurse, Rose, replies, "You know, we always run around looking for slings. Why don't I talk to the supervisor in the laundry and work out a solution. Maybe we can label our slings so we can get back the ones we send. In the meantime, I will order more for the unit."
- Sue says, "Then, maybe we can all agree to keep the slings in a consistent place so we know where to look, like in the top drawer of the bedside stand. Then everyone has to agree to replace the sling when we put it in the laundry."
- Nancy replies, "Those are good ideas. Rose, if you order 10 slings I will make sure everyone gets the message about storing them."
- Ron offers, "And I will see to it that the process gets into the unit orientation packet for new employees."

Scene 6: The facilitator asks, "What is the follow-up plan?"

- Charge Nurse: "OK, then, I will order the slings and figure out a unit coding system with the laundry. Nancy, you send out an e-mail to all the staff about storage of slings. And Ron, you write up an addition to the orientation packet and I will make sure it gets in the next printing of materials. At next month staff meeting I'll poll everyone to find out if all staff got the message and if anyone is still having the problem with missing slings…Thanks for another successful After Action Review!"
- ***Point of Discussion:*** How likely is it that these changes will be put into effect? Could the charge nurse do anything else to ensure implementation of these actions?

❖ Monitoring Progress

We are collecting evaluations from clinical staff in the frequency they conduct AARs, when AARs are conducted, as well as their perceptions of the process and outcomes of AARs, or effective safety practices that are implemented as a result of AARs. We are interested in knowing others' successes and failures in using this technique in the context of patient safety with different types of teams in different settings. Let us know how you implemented AAR and your successes and failures [e-mail gail.powell-cope@med.va.gov]. We will post your feedback on our web site with your permission. The web site address is patientsafetycenter.com

Chapter 10 – Competency Program to Prevent Musculoskeletal Injuries in Caregivers

❖ Why Training Alone is not Effective

Although traditional education and training programs are widely believed to have prophylactic value, there is scientific evidence that they are not effective in reducing the frequency or severity of back pain, especially in nursing practice (Brown 1972, Buckle 1982, Dehlin et al. 1976, Snook et al., 1978, Stubbs et al., 1983b, Wood 1987; Owen & Garg, 1991; Venning, 1988; Stubbs, et.al., 1983; Hayne, 1994; Shaw, 1981). Regardless, body mechanics education and training in "proper" lifting techniques remains the most common intervention. There is no evidence supporting the use of one lifting technique over another; therefore, there is no preventive curriculum to prescribe for training. We need a new approach to training, an approach that will be effective.

❖ Designing an Effective Training Program

There are four issues to consider in designing an effective training program: 1) training goals, 2) course content, 3) methods of delivery, and 4) evaluation. To begin, identify the goals of training. Write the outcomes in behavioral objectives that can be measured to determine the success of training. For example, if a goal is to promote the widespread use of the safe patient handling and movement algorithms, a behavioral objective would be: "At the conclusion of this training, attendees will use the appropriate algorithm whenever moving a patient." Then you can measure the effectiveness of the training by observing staff members when they are moving patients.

The content should be based on scientific evidence that the material presented is effective in achieving the desired goals. In the above example, the safe patient handling and movement algorithms have been scientifically tested and found to be effective in reducing risk of injury to both caregiver and patient.

Now that you've identified goals and content of the training, you must determine the most effective way of delivering the content so that the adult learner achieves the goal. Adults learn in a variety of ways; some are visual learners (think pictures), others auditory (think sound). Some learn best by doing (think demonstration/return demonstration). Therefore, it's best to use a variety of formats to reach the largest percent. The least effective format is lecture because it is not active learning; it does not involve the learner. Most effective methods involve the learner in the process, such as discussions or demonstrations/return demonstrations. Self-study guides (including computer based ones) are effective as well because they allow the learner to progress at his or her own pace and return to areas needing clarification. However, you must establish that the learner is literate in English at least at the

8th grade level. Administering a pre-test of knowledge is one way to determine literacy before offering self-study programs.

Finally, you must evaluate the effectiveness of training. It is possible to give a short quiz (post-test) following training to determine whether the learner has mastered the content. However, if you are measuring an applied skill, such as the use of algorithms, you must go beyond a paper and pencil quiz to observation of practice or to identifying an expected outcome, such as a reduction in the number of musculoskeletal injuries among staff. If training is not having the expected outcome, it's time to adjust goals, content, or delivery methods.

❖ Prevention of Injuries in Floats or Students

Up to this point we have been discussing an ideal situation for prevention of musculoskeletal injuries in staff regularly assigned to high-risk units (one with many dependent patients and a history of high numbers of musculoskeletal injuries and illnesses among staff). Under ideal circumstances, there is time allotted for training staff in the proper use of algorithms and lifting equipment. However, there may be situations when an untrained caregiver is assigned to a high-risk unit unexpectedly; e.g., when a nurse from an outside agency or a low risk unit is assigned to cover for a staff shortage or when a student nurse is assigned to care for a patient on a high-risk unit. These situations should be a red flag for other staff members on the high-risk unit.

The team approach to safety, wherein a culture of safety is inculcated in all team members, should prompt someone who is properly trained to orient the temporary worker about the special procedures used for safe patient handling and movement, which could range from advice to heeding the instructions at the bedside for moving the patient to inquiries as to the temporary worker's familiarity with specialized equipment in use, such as overhead lifting devices. If a Back Injury Resource Nurse (BIRN) is assigned to the unit and on duty, this responsibility would be his or hers. Next in line of responsibility would be the charge nurse. In the rare situation when the untrained caregiver is the charge nurse, then the responsibility would fall on other team members. The temporary worker also has a responsibility to seek out advice and guidance about the special movement and handling equipment and procedures used on the unit with which he or she may be unfamiliar.

❖ Tool Kit

Annual Competency Evaluation Checklist for Safe Use of Equipment.

In a recent NIOSH study, the most successful training included a return demonstration on a range of patients (Communication, Jim Collins). The VA uses annual competency evaluations for a variety of skills and abilities. One column from the VA's "Competency Assessment – High Performance Model – Core Competencies" checklist labeled "Competency" has the category "Demonstrates use, set-up, and care of procedures/equipment according to unit policies and procedures." Under the column "Behaviors" are listed the equipment and procedures specific to a particular position and applicable to the specialty of the unit, if any. As a result, listed behaviors for a Registered

Nurse working on an intensive care unit differ from those listed for a nursing assistant working in a nursing home care unit. However, when assessing competency in safe patient handling and movement, all staff members in all high-risk units should have the same behaviors evaluated. *Attachment 10-1*, Competence Assessment, is a suggested way to expand existing checklists

Attachment 10-1

COMPETENCE ASSESSMENT

October 1, _____ – September 30, _____

HIGH PERFORMANCE MODEL – CORE COMPETENCIES

Position Specific Competencies including TECHNICAL SKILLS

COMPETENCY	**BEHAVIORS**	**SELF ASSESSMENT**		**COMP LEVEL**			**Validation Method/Comments** **Supervisor's Initials & Date**
		I feel I have the knowledge and ability to perform these functions.	I request additional education and/or experience.	E	S	C	
Demonstrates use, set-up, and care of procedures/ equipment according to unit policies and procedures.	a) Uses assessment criteria and care plan for safe patient handling and movement appropriately.						
	b) Appropriately uses algorithms for safe patient handling and movement.						
	c) Selects and correctly operates lifting and moving equipment, including overhead lifts, sit-stand lifts, friction-reducing devices, and gait belts.						

❖ CD-ROM Based, Interactive Training

Attached to this manual is a CD-ROM based, interactive multimedia educational course addressing the subject of Safe Patient Handling and Movement. The purpose of this training is to provide direct patient care staff training in safe patient handling and movement equipment and techniques. In addition, this Computer Based Training (CBT) serves as a review for health care providers, administrators, risk managers, occupational health providers, safety managers, educators, and others interested in improving patient transfer/movement processes. This training resource tool is intended to develop and refresh their knowledge as a readily available, self-study exercise. The course uses an interactive multimedia approach to present a brief, concise overview of safe patient handling and movement. The program focused on how staff can identify hazards, use algorithms, apply engineering solutions (equipment), and create a culture of safety for staff and patients. The topics covered in the training include the following: a brief background on why this is needed, brief background on the safe patient handling and movement program, use of the clinical assessment protocol and algorithms for high risk patient handling tasks, use of an ergonomic evaluation process in health care environments, and use of after action reviews in health care. This program was coordinated by the EES, Little Rock Employee Education Resource Center in cooperation with Department of Veterans Affairs, VHA Office of Occupational Health Programs (VHA/136).

This training program is designed for participants to develop a better understanding of the proper equipment and ergonomic techniques to use for patient lifting and moving. The goals of this training program are to enable participants to: 1) understand the rationale for this training program and become familiar with background information on patient handling and movement issues; 2) understand why nursing is high risk for injuries; 3) acquire an overview of ergonomics as related to safe patient handling and movement; and 4) demonstrate the application of safe patient handling and movement program elements.

Chapter 11 – Program Evaluation and Outcome Measures

❖ Introduction

Evaluating the effectiveness of a program or intervention in achieving the desired outcomes is essential for successful quality improvement, program evaluation, and dissemination of research. Evaluation consists of the application of a systematic process for the purpose of determining whether or not the intervention or program achieved the intended effects or outcomes (Braden, 1998). Outcomes are the consequences or effects of an intervention, action, policy, or program under study. In order to properly measure an outcome, it needs to first be clearly defined. In addition, outcomes should be directly related to the study objectives and are typically expressed as a percentage, rate, or ratio. Only through the measurement of predetermined outcomes can the success or failure of a program be assessed. The purpose of this chapter is to present in a straightforward manner a brief description of the methodology and instruments used to evaluate the effectiveness of a program designed to reduce the incidence and severity of job-related injuries related to patient handling and movement tasks. These methods and tools are appropriate for evaluations across all clinical settings and populations.

❖ Evaluation Design

An evaluation design is simply a plan stating what will be measured, when it will be measured, and with what groups. The first step is deciding what groups to measure. The experimental group is the group that receives the program or intervention and the control group is the group that continues on with the norm or that does not receive the intervention or program (Last, 1995). An evaluation can either measure the experimental group alone or compare the experimental group with the control group. However, an evaluation where only the experimental group is measured makes the interpretation difficult and unconvincing. Without a comparison group, it is hard to tell if the program was "as good" as what was already being done. It is highly recommended that a control group be used for comparison purposes. A good overview of selection of appropriate control groups is covered in Weis (1996).

An alternative is a pre/post design, which allows you to evaluate differences before and after an intervention. To minimize threats to validity and biases of this type of design a time series design can be used. The time series approach involves data collection at a series of data points before and after the intervention. For example, you may track injuries quarterly for one year before and one year after the intervention.

The timing of the measurements is of great importance to an evaluation. Pre-tests (given before an intervention is in place) have two purposes: 1) to ensure the comparability of the

intervention and control groups and 2) to attest that any changes are the result of the program and not due to natural fluctuations in other conditions or variables. A pre-test is not required for an outcome that can only be measured after the program has been initiated such as measuring the adherence to a program.

All outcomes, if possible, should be measured in both the intervention and control group before a program is fully implemented. A post-test takes place after the program and all of its components have been implemented. In order to detect change in an outcome via a post-test, enough time must have passed to allow the desired change to occur. In addition, measuring the outcomes midway through the program is an excellent way to measure the impact of the program across time. With proper timing, changes in outcome measures can be said to be due to the program itself.

❖ Measuring Outcomes

Though not an exhaustive list, the following are possible outcomes for such a musculoskeletal injury prevention program evaluation: a) intensity, duration and frequency of musculoskeletal discomfort, b) job satisfaction, c) adherence to program components, d) health care utilization for occupational musculoskeletal disorders, e) acceptance of program components, f) competency, g) incidence and severity of musculoskeletal injuries, and h) cost and cost savings of a program. Evaluating all of these outcomes in one program may be difficult, therefore, choosing one or two main outcomes based on the objectives are most recommended.

Different methodologies can be used to measure outcomes. The simplest, most economical and prevalent is through the use of surveys or "paper and pencil tests" where the participants select answers from various choices. Surveys can be mailed, given over the Internet, or accomplished through an interview. Focus group methodology provides qualitative data versus the quantitative data retained from surveys. Focus groups are helpful when surveys cannot address the questions being asked. Kingry (1990) and Esposito and Powell-Cope (1997) provide an excellent overview of focus groups for nursing research.

Another methodology to use when a large amount of diverse data is being gathered is a data log. Logs provide a set of information provided by the participant regarding activities, opinions, or actions for a determined length of time (daily, weekly, or monthly). An example most often used in other research is dietary logs to record a participant's eating habits. In a musculoskeletal injury program a log can be used to track activities of a back injury resource nurse. Lastly, performance indicators measure the participants' achievement of a task or understanding of a concept in order to assess if they are completing a skill or task correctly, such as the use of a lifting device (Fitz-Gibbon, 1987).

If survey methodology is to be utilized, appropriate selection of evaluation tools is an important next step. In the best of situations, the optimum way to assess outcomes is to select a pre-made tool with strong psychometric properties (e.g., validity and reliability) designed specifically for the needs of your program. However, finding such a tool that measures the outcome desired from your particular program or intervention may be problematic. In those cases one might develop a customized tool. Care and consideration should be put into the

construction of any new tool. The tool should be constructed by a consensus of people familiar with the subject content and pilot tested with a comparable population to the population under study. Lu Ann Aday provides a comprehensive dialogue on the designing of health surveys (1996).

This chapter will cover the most salient outcomes for musculoskeletal prevention programs:

a. Incidence and severity of injuries.

b. Musculoskeletal pain/discomfort.

c. Job satisfaction.

d. Acceptance of program.

e. Adherence of program.

f. Cost and cost savings.

❖ Evaluation Tools

1. **Incidence/Severity of Injuries.** The cornerstone of any musculoskeletal injury prevention program evaluation is the measurement of injury incidence and severity. Before data collection begins, a definition including appropriate inclusion and exclusion criteria should be formed that denotes a reportable injury for a specific program evaluation. All injuries should not be included in a program evaluation, only the type of injury that your program is trying to reduce, such as musculoskeletal injuries related to patient handling and movement.

   Data collected should ideally include a description of the incident (including equipment used and task being performed), time and date of incident, unit and where on unit incident occurred, body part affected (primary and secondary), days of work lost, modified (light or restricted) duty days, information on nurse injured (position, number of hours normally worked), staffing variance or staffing level, any personal sick or annual days taken, and medical care received as a result of the injury both within the hospital and outside of the hospital. This type of data may be located in several different databases within one facility, incompletely recorded or not recorded at all.

   While there are several methods available for collecting data of this nature such as retrospective review of incident reports, OSHA logs, and interviews with nurse managers and prospective independent data collection, some have merits above and beyond the others. For example, using past incident reports may not include critical information about staffing levels, whether equipment was being used, and other contributing factors. Also, minor differences may exist between and within VISNs as to how this data is recorded and stored. Below is a review of the databases that should hold such data, the limitations of each, and other possible ways to measure such an outcome.

   The Automated Safety Incident Surveillance Tracking System (ASISTS) package stores data on accidents that caused injuries or illnesses that are reported in the VA via the

Report of Accident (Form 2162), the Notice of Traumatic Injury and Claim for Continuation of Pay (Form CA-1) and the Notice of Occupational Disease and Claim for Compensation (Form CA-2). After an incident occurs, the staff member goes to their supervisor to report the incident. The supervisor gathers information on the incident and completes a Report of Accident (Form 2162). Every injury in a facility will have a 2162 form filed, however, it is up to the person injured as to whether or not either a CA-1 or CA-2 form will be filed. Therefore, examining the 2162 form gives a better overall picture of the injuries that occurred on a unit or within a facility. However, the CA-1 or CA-2 forms record more extensive data on the injury than does the 2162 form.

The following data points are stored in the 2162 database: personnel status (employee or volunteer), name of person involved, SSN, home address, home phone number, injury or illness, date and time of injury/incidence, type of incident (assault, needle stick, etc.), supervisor, general setting of incident, location of injury, brief description of incident, characterization of injury, body part most affected, additional body part affected, side of body, status of duty returned to (full or light), lost time, corrective action taken (ASISTS, 1998).

Usually, the majority of your data needs can come solely from the 2162 form or the CA-1/CA-2 form via the ASISTS program. However, the ASISTS program does not record extensive data on medical action taken either at the facility or outside of the facility. Also, these forms are not updated as the injured person's lost time and light duty days change in relation to the injury. In conclusion, while the majority of data is available in the ASISTS program, reliable measures of lost time and restricted duty days are not.

In order to get the most accurate data on lost and restricted time, use of the OSHA 200 log is suggested. The OSHA 200 log is a federally mandated record of work-related injuries or illnesses that required medical treatment or resulted in lost time or restricted time (McGrail, 1995). Injuries that do not result in lost time or restricted time are not included in the OSHA 200 log. Verifying injury data collected using the ASISTS package with the OSHA log is an excellent way to verify lost time and restricted time. For the calculation of injury rates, many different sources of denominator data can be used; for example, number of assigned full time employee equivalents (FTEE) to a unit can be collected from a Human Resource Department. In addition, various standard injury rate statistics exist to aid in summarizing injury data (Goldman, 2000). These are summarized in *Attachment 11-1*.

NOTE: This form is due to be replaced by OSHA on January 1, 2002, with the OSHA 300. It has different recordability requirements.

Lastly, a comprehensive injury data collection tool can be developed to collect all of the items needed directly from the injured person. This may save time and be more efficient than using several different databases. Such a tool was developed and is included in *Attachment 11-2*.

2. **Musculoskeletal Pain/Discomfort.** Pain is an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage (International Association for the Study of Pain, 1979). Because of the complex nature of pain, its measurement is difficult. Components of pain that may be of interest are the intensity of the pain, the location of the pain, the length of time the pain was felt, and the consequences of pain, such as decreased quality of life and functioning, and lost time from work. Assessment of pain should be simple, quick, valid, and reliable. It should include as many components as desired that relate to program objectives.

   Many tools exist that accurately evaluate pain/discomfort such as the Visual Analog Scale (VAS) (Carr, 1992), Wisconsin Brief Pain Inventory (BPI) (Cleeland, 1994), and the McGill Pain Questionnaire (MPQ) (Melzack, 1975). Deciding on a single pain tool can be overwhelming. Focusing on why pain is included as an outcome and what components of pain are to be included will aid in the selection. Other things to keep in mind are the goals of the project, financial constraints, time constraints and burden on the participant. Many of the pain tools have a fee associated with them and still others require any data collected with their tool be included in the author's data bank.

   Another popular musculoskeletal discomfort questionnaire is the Cornell Musculoskeletal Discomfort Questionnaire. Developed by Dr. Alan Hedge at Cornell University the questionnaire is based on previous published research studies of musculoskeletal discomfort among office workers (Hedge, 1999; Hedge, 1995). The instrument is constructed whereby the human body is pictured on the left and the participant is asked to report on several different components of the pain they are feeling. They are asked about the frequency of the pain in the respective area during the preceding week, how uncomfortable the pain was, and did the pain interfere with their ability to work. This tool appropriately evaluates a variety of pain components and is short and easy for the participant to complete. This survey can be accessed at: http://ergo.human.cornell.edu/ahmsquest.html.

3. **Job Satisfaction.** Several studies have shown that job satisfaction can discriminate between injured and non-injured nurses and that low perceived control and lack of social support are correlated with having a musculoskeletal injury (Ready, 1993; Bongers, 1993). Examining job satisfaction in conjunction with other outcomes begins to show a full picture of the impact of the program. Immediate changes in outcomes such as injury incidence may not be apparent early in a program evaluation. A change in an outcome such as job satisfaction may be an important first step in decreasing injuries.

   Job satisfaction is a complex outcome, derived from attitudes and perceptions of various elements of work such as degree of enjoyment, perceptions of the work environment, reward system, autonomy, and professional status (Shader, 2001). Job satisfaction is comprised of both intrinsic (personal achievement, sense of accomplishment) and extrinsic factors (pay and benefits, working conditions). As with the measurement of musculoskeletal pain/discomfort many tools exist that evaluate job satisfaction and choosing the correct tool for a study involves thoroughly examining the previously published tools.

An excellent tool in which to measure the satisfaction nurses specifically feel towards their job and job tasks is the Stamps and Piedmont Index of Work Satisfaction Instrument (IWS) (Stamps, 1997). This instrument assesses six components of a nurse's work satisfaction: pay, autonomy, task requirements, organizational policies, professional status, nurse/nurse interaction, and physician/nurse interaction. Participants are asked to rate their level of satisfaction of these areas identified with 44 survey items using a scale ranging from one to seven (agree to disagree). This tool has demonstrated reliability, validity and sensitivity. A copy of this survey can be found in *Attachment 11-3*.

4. **Provider Acceptance.** For a program to be successful, it has to reduce injuries, save money, increase job satisfaction, and be feasible. However, none of these can occur if the staff does not accept the program's components. Measuring the staff's acceptance of a program may be the most difficult outcome to measure, as an evaluator will have to use many different methodologies through the entire length of the program to get an accurate picture of this outcome. Measuring acceptance of a program should occur during the length of the program in order to assess the changes with time. The use of both survey tools and focus groups should be used here. It is also imperative to not only measure the acceptance of the program but to find out what is not working and why. An excellent way to do this is through the use of logs.

   Development of such logs must be carefully overseen. Each component of the program being studied must be included. Pilot testing with a comparable population is a necessity. Monthly logs completed by the unit BIRN could evaluate the duties of being a BIRN and the associated workload (how often are they being used by staff), how effective the BIRN feels each component of the program is in preventing musculoskeletal injuries. Monthly logs completed by a different source such as a nurse administrator or site coordinator could evaluate the use and acceptance of algorithms, success of the ergonomic hazard evaluations, and timing of the after-action reviews. Examples of such logs can be found in *Attachments 11-4 and 7-1*.

5. **Patient Acceptance.** In addition to measuring the provider's acceptance, the attitudes and beliefs of the patients must also be examined. While this is a measurable outcome, specific areas of patient acceptance are more meaningful than others such as dignity, comfort and security. Like provider's acceptance, patient acceptance is a difficult outcome to measure, using different methodologies through the entire length of the program. In addition, the cognitive ability of patients must be taken into consideration when choosing or developing tools and conducting focus groups. It is also imperative to not only measure the acceptance of the program but to find out what is not working and why. Any time new lifting technology is introduced or even new lifting methods such as the use of lifting teams, the dignity and comfort of the patient must be addressed.

6. **Adherence.** Measuring the participant's adherence to a program or intervention is an important outcome. If the program is showing positive outcomes and the staff is not adhering to the program components, the evaluator can not be sure what is making the positive changes in the program or a deviation of the program. Also, if multiple components make up a single program, it is likely that some pieces of the program are working better than others. If the staff is not using certain components, it is possible that

those components are not reducing the injuries, that other components are having the real effect. Usually a tool will have to be developed that will measure the adherence to the components of the particular program.

A copy of the survey developed to assess participant's adherence is included in *Attachment 11-5*. This one-page survey inquires about the use of patient care equipment. Eleven different types of equipment were named and the participants are asked how many times in a typical day would they use such equipment. An increase in the number of times a participant used the equipment would indicate adherence to the no-lift policy as well as frequent usage of the equipment.

In addition to the use of the surveys, the monthly logs address such issues as use and acceptance of the algorithms, use and acceptance of the after-action review process, and detailed examination of the activities of the BIRN nurses. In conjunction with the monthly logs and survey tool, focus groups can be performed with nursing staff and administrators.

7. **Cost Effectiveness of Safe Patient Handling and Movement Technology.** A study can be designed to determine whether introduction of technology such as lifts is cost-effective in reducing injuries to caregivers in handling patients. The design of the study should include a facility where the intervention will be conducted and similar facilities to be used as control sites. Care should be exercised to ensure that similarity exists at the experimental and control facilities in patient mix, staffing levels, staffing mix (Nursing Assistants, Licensed Practical Nurses, Registered Nurses) and experience among caregivers.

   Over a period of time technology such as ceiling lifts and other devices to enable patient handling can be introduced with adequate training at the intervention site and the injury rate carefully monitored at both facilities. At the end of the trial the cost effectiveness ratio can be calculated to determine the efficacy of introducing technology to reduce injury rates among caregivers. Some of the costs and associated outcomes can be summarized as follows:

   a. **Direct costs of installing and operating lifting devices (intervention site):**

      1) Capital expenditures (costs of lifts and associated installation and maintenance costs). Accounting methodology, using depreciation, should be used to provide the direct costs of purchasing and installing the lifting devices to be allocated to the period of study.

      2) Costs associated with training caregivers at each of the sites. Training costs to be amortized over the period of study.

      3) Cost of consultants (wages and salaries).

   b. **Outcomes:** Changes in injury rates and associated cost patterns (recorded as the difference in pre- and post-intervention costs of injury to caregivers at the intervention and control site):

1) Changes in the cost of lost productivity due to injured caregivers in restricted activity category and absenteeism. Wages of caregivers can be used as a proxy and measure of productivity.
2) Changes in worker's compensation paid to injured caregivers on sick leave.
3) Changes in employee turnover rates and associated cost savings realized in training new hires.
4) Changes in the direct costs of treating injured employees on site or external facilities.

The net outcome effect (NET) of the intervention is the total change (reduction) in costs due to the introduction of technology at the intervention site. NET should be adjusted, using statistical techniques, for exogenous factors as observed by the change in costs at the control site. The ratio of the direct costs as mentioned in 11.4.7 subparagraph 1 divided by the NET provides us with the cost-per-dollar of cost savings achieved through the incorporation of ceiling lifts to prevent injury.

Note: If the evaluation is to be completed over several years, the annual inflation rate of medical care and wages may need to be considered in the analysis. For example, a medical procedure that cost $100 in 1997 may cost $150 in 2000.

8. Intangible Benefits. Non-quantifiable, intangible benefits not included in the calculations can be described as higher morale, job satisfaction and lower employee turnover.

Attachment 11-1

Standard Injury Rate Statistics

Total Injury Report Rate (TIRR) – Number of injury reports/100 FTEE:

TIRR = (Number of reports filed/area/year) x (200,000 hours worked/100 FTEE)

Number of hours worked/area/year

Compensation Case Rate (CCR) – Number of workmen's compensation cases/100 FTEE:

CCR = (Number of WC Cases/area/yr) x (200,000 hours worked/100 FTEE)

Number of hours worked/area/year

Compensation Severity Rate (CSR): Number of days lost/100 FTEE

CSR = (Number of WC lost days/area/yr) x (200,000 hours worked/100 FTEE)

Number of hours worked/area/year

Cost Rate: Dollars actually spent/100 FTEE:

Cost Rate = ($$ spent/area/yr) x (200,000 hours worked/100 FTEE)

Number of hours worked/area/year

Composite Risk Indicator (CRI):

CRI = square root of (TIRR x CCR x SR x Cost Rate)/1,000,000

Average Relative Risk (ARR):

ARR= (TIRR/TIRR goal) * (CCR/CCR goal) * (CSR/CSR goal) * (Cost Rate/Cost Rate goal)

4

OSHA Formula:

Total number of back injuries X 200,000 person hrs.
Actual hours worked by unit measure.

Attachment 11-2

Injury Data Collection

Please complete for EACH RECORDABLE injury. (Write in information and/or circle/highlight your selection.)

Variable	Description	Response
Position	Position of the nurse	*RN* *LPN* *NA* *Nurse Manager* *CNS* *Nurse Practitioner* *Student* *Health Care Tech*
Hrs/Week	Hrs NORMALLY worked per week	
Date	Date of injury	
Time	Time of the injury in non-military time	
Unit	Unit where injury occurred	
Staffing Variance	Staffing Variance	

Variable	Description	Response			
Location	Location of injury	*Patient Room* *Bathroom* *Hall* *Dayroom* *Other Location on Unit* *Laboratory* *Procedure Room* *Public Area (ex: Waiting Room)* *Elevator* *Grounds* *Elsewhere in Hospital (off the Unit)* *Other:*			
Type of Injury	Medical type of injury	*Abrasions* *Contusion/ Bruise* *Cumulative Trauma* *Dislocation* *Exhaustion/ Overexertion* *Fracture* *General Muscle Pain* *Hernia* *Joint Pain* *Laceration/Cut* *Puncture Wound* *Tingling/Numbness* *Slipped Disk* *Dislocation* *Other:*	919.0 924.9* 924.9 831.00 780.79 829.0* 729.1 553.9 719.40 879.8 879.8 782.0 839.8*	*Sprain/Strain* *Neck* *Shoulder/Arm* *Thoracic* *Upper Back* *Mid Back* *Low Back* *Leg* *Knee* *Ankle*	847.0 840.8 847.1 847.9 847.2 847.9 847.9 844.9 845.00 847.1

Variable	Description	Response
Patient Care Activity	Activity being performed when injured.	*Pulling Patient up to Head of Bed* *Repositioning Patient in Bed (Side-to-Side)* *Pulling Patient up in Chair/WC/Geri, etc* *Repositioning Patient in Chair/WC/Geri, etc.* *Transferring Patient to and from Chair-to-Chair/Geri Chair* *Transferring Patient to and from Chair- to-Car* *Transferring Patient to and from Chair-to-Toilet* *Transferring Patient to and from Chair-to-Bed* *Transferring Patient to and from Bed-to-Stretcher/Surgi-Lift* *Bathing Patient in Bed* *Bathing Patient in Bathroom* *Feeding Patient* *Dressing Patient in Bed* *Dressing Patient other than in Bed* *Diapering Patient* *Making Occupied Bed* *Making Unoccupied Bed* *Applying TED Hose* *Picking Patient up from Floor* *Managing Aggressive Behavior* *Moving Patient Care Equipment – No Patient* *Transporting Patient in Wheelchair* *Transporting Patient by Stretcher, Trolley, etc.* *Other:*

Variable	Description	Response
Secondary cause of Injury	The secondary cause of the injury (use same list as for primary cause)	*(Use same list as for primary cause of the injury.)*
#1 Body Part	The single body part **most** affected by the injury	*Whole Body* *Head/Skull/Face* *Neck* *Shoulders* *Left Arm (Upper or Lower)* *Right Arm (Upper or Lower)* *Left Wrist* *Right Wrist* *Left Hand/Fingers* *Right Hand/Fingers* *Chest* *Abdomen* *Hips/Pelvis* *Back – Lower* *Back – Middle* *Back – Upper* *Buttocks* *Knees* *Right Leg (Upper or Lower)* *Left Leg (Upper or Lower)* *Right Ankle* *Left Ankle* *Right Foot/Toes* *Left Foot/Toes*

Variable	Description	Response			
#2 Body Part	The #2 body part most affected – Use same list as for #1 Body Part				
Restricted Days	How many TOTAL restricted days resulted from injury?	*INITIAL SUBMISSION*	*FOLLOW-UP SUBMISSIONS*		
		Total #____ Date:_____	Total #____ Date:_____	Total # ____ Date: _____	Total # ____ Date:_____
Lost days	How many TOTAL lost days resulted from injury. (Count lost days the day AFTER the injury occurred.)	*INITIAL SUBMISSION*	*FOLLOW-UP SUBMISSIONS*		
		Total # ____ Date:_____	Total # ____ Date: _____	Total # ____ Date: _____	Total # _____ Date: _____
Full Duty Status	If on Lost Time or Restricted Duty, has injured employee returned to Full Duty Status?	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO	❑ YES ❑ NO
Sick/Annual days taken	How many TOTAL sick or ANNUAL days were taken due to the injury?	*INITIAL SUBMISSION*	*FOLLOW-UP SUBMISSIONS*		
		Total # ____ Date:_____	Total # ____ Date: _____	Total # ____ Date: _____	Total # _____ Date: _____

Index of Caregivers' Satisfaction

Total Score

Nursing Satisfaction Survey

Instructions (Part I):

Listed and briefly defined on this sheet of paper are six terms or factors that are involved in how people feel about their work situation. Each factor has something to do with "work satisfaction". We are interested in determining which of these is most important to you in relation to the others. Please carefully read the definitions for each factor as given below.

1. **Pay:** Dollar remuneration and fringe benefits received for work done.

2. **Autonomy:** Amount of job-related independence, initiative, and freedom, either permitted or required in daily work activities.

3. **Task Requirements:** Tasks or activities that must be done as a regular part of the job.

4. **Organizational Policies:** Management policies and procedures put forward by the hospital and nursing administration of this hospital.

5. **Interaction:** Opportunities presented for both formal and informal social and professional contact during working hours.

6. **Professional Status:** Overall importance or significance felt about your job, both in your view and in the view of others.

Each of the above terms are listed below. For each term, decide how significant it is for your job satisfaction or morale. Please fill in the bubble that most closely indicates how you feel with "5" being a highly significant factor and a "1" being not significant at all. For example, if pay is a highly significant factor in your job satisfaction, then you would mark "5".

	Not Significant				**Highly Significant**
1. Pay	1 ○	2 ○	3 ○	4 ○	5 ○
2. Autonomy	1 ○	2 ○	3 ○	4 ○	5 ○
3. Task Requirements	1 ○	2 ○	3 ○	4 ○	5 ○
4. Organizational	1 ○	2 ○	3 ○	4 ○	5 ○
5. Interaction	1 ○	2 ○	3 ○	4 ○	5 ○
6. Professional Status	1 ○	2 ○	3 ○	4 ○	5 ○

Part II: The following items represent statements about how satisfied you are with your current nursing job. Please respond to each item. It may be difficult to fit your responses into the seven categories; in that case, select the category that **comes closest** to your response to the statement. It is very important that you give your **honest** opinion. Please do not go back and change any of your answers.

Instructions: Please fill in the bubble that most closely indicates how you feel about each statement. The **left** set of numbers indicate degrees of **agreement**. If you strongly agree with the first statement, circle **1**; if you agree with it, circle **2**; if you mildly or somewhat agree, circle **3**. The **right** set of numbers indicates degrees of **disagreement**. If you strongly disagree with the first statement, circle **7**; if you disagree, circle **6**; if you mildly or somewhat disagree, circle **5**. The center number **4** means "undecided". Please use it as little as possible.

Remember: The more strongly you feel about the statement, the further from the center you should circle, with agreement to the **left** and disagreement to the **right**.

	AGREE				DISAGREE		
1. My present salary is satisfactory.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○
2. Nursing is not widely recognized as being an important profession.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○
3. The nursing personnel on my service pitch in and help one another out when things get in a rush.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○
4. There is too much clerical and "paperwork" required of nursing personnel in this hospital.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○
5. The nursing staff has sufficient control over scheduling their own shifts in this hospital.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○
6. Physicians in general cooperate with nursing staff on my unit.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○
7. I feel that I am supervised more closely than is necessary.	1 ○	2 ○	3 ○	4 ○	5 ○	6 ○	7 ○

	1	2	3	4	5	6	7
8. It is my impression that a lot of nursing personnel at this hospital are dissatisfied.	○	○	○	○	○	○	○
9. Most people appreciate the importance of nursing care to hospital patients.	○	○	○	○	○	○	○
10. It is hard for new nurses to feel "at home" in my unit.	○	○	○	○	○	○	○
11. There is no doubt whatever in my mind that what I do on my job is really important.	○	○	○	○	○	○	○
12. There is a great gap between the administration of this hospital and the daily problems of the nursing service.	○	○	○	○	○	○	○
13. I feel I have sufficient input into the program of care for each of my patients.	○	○	○	○	○	○	○
14. Considering what is expected of nursing service personnel at this hospital, the pay we get is reasonable.	○	○	○	○	○	○	○
15. I think I could do a better job if I did not have so much to do all of the time.	○	○	○	○	○	○	○
16. There is a good deal of teamwork and cooperation between various levels of nursing personnel on my service.	○	○	○	○	○	○	○
17. I have too much responsibility and not enough authority.	○	○	○	○	○	○	○
18. There are not enough opportunities for advancement of nursing personnel at this hospital.	○	○	○	○	○	○	○
19. There is a lot of teamwork between nurses and doctors on my own unit.	○	○	○	○	○	○	○
20. On my service, my supervisors make all of the decisions. I have little direct control over my own work.	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
21. The present rate of increase in pay for nursing service personnel at this hospital is not satisfactory.	○	○	○	○	○	○	○
22. I am satisfied with the types of activities that I do on my job.	○	○	○	○	○	○	○
23. The nursing personnel on my service are not as friendly and outgoing as I would like.	○	○	○	○	○	○	○
24. I have plenty of time and opportunity to discuss patient care problems with other nursing service personnel.	○	○	○	○	○	○	○
25. There is ample opportunity for nursing staff to participate in the administrative decision-making process.	○	○	○	○	○	○	○
26. A great deal of independence is permitted, if not required, of me.	○	○	○	○	○	○	○
27. What I do on my job does not add up to anything really significant.	○	○	○	○	○	○	○
28. There is a lot of "rank consciousness" on my unit: nurses seldom mingle with those with less experience or different types of educational preparation.	○	○	○	○	○	○	○
29. I have sufficient time for direct-patient care.	○	○	○	○	○	○	○
30. I am sometimes frustrated because all of my activities seem programmed for me.	○	○	○	○	○	○	○
31. I am sometimes required to do things on my job that are against my better professional nursing judgment.	○	○	○	○	○	○	○
32. From what I hear about nursing service personnel at other hospitals, we at this hospital are being fairly paid.	○	○	○	○	○	○	○
33. Administrative decisions at this hospital interfere too much with patient care.	○	○	○	○	○	○	○

	1	2	3	4	5	6	7
34. It makes me proud to talk to other people about what I do on my job.	○	○	○	○	○	○	○
35. I wish the physicians here would show more respect for the skill and knowledge of the nursing staff.	○	○	○	○	○	○	○
36. I could deliver much better care if I had more time with each patient.	○	○	○	○	○	○	○
37. Physicians at this hospital generally understand and appreciate what the nursing staff does.	○	○	○	○	○	○	○
38. If I had the decision to make all over again, I would still go into nursing.	○	○	○	○	○	○	○
39. The physicians at this hospital look down too much on the nursing staff.	○	○	○	○	○	○	○
40. I have all the voice in planning policies and procedures for this hospital and my unit that I want.	○	○	○	○	○	○	○
41. My particular job really doesn't require much skill and "know-how".	○	○	○	○	○	○	○
42. The nursing administrators generally consult with the staff on daily problems and procedures.	○	○	○	○	○	○	○
43. I have the freedom in my work to make important decisions as I see fit, and can count on my supervisors to back me up.	○	○	○	○	○	○	○
44. An upgrading of pay schedules for nursing personnel is needed at this hospital.	○	○	○	○	○	○	○

1. Do you hold any professional nursing certificates?

   - ○ No
   - ○ Yes

2. What is your highest educational nursing degree?

   - ○ Diploma
   - ○ AND
   - ○ BSN
   - ○ MSN
   - ○ PhD

3. How long have you been employed in the nursing of the VA?

   - ○ Less than one year
   - ○ One year to three years
   - ○ Three years to 10 years
   - ○ 10 years to 20 years
   - ○ More than 20 years

Site Coordinator Monthly Log

VAMCs:	☐ (Name of City)	☐ (Name of City)	☐ (Name of City)
	☐ (Name of City)	☐ (Name of City)	☐ (Name of City)
	☐ (Name of City)	☐ (Name of City)	☐ (Name of City)
TYPE OF UNIT:	☐ Nursing Home Care Unit		☐ Spinal Cord Injury
BIRN:	**Unit:**	**Month/Yr of this Report:**	

A. Safe Patient Handling & Movement Source Book: Use of Algorithms/Care Plan

1. Were the Algorithms/Care Plans used this month? ☐ Yes ☐ No

2. What was the acceptance of the Algorithms/Care Plan by the staff during this month?

☐ Not Used ☐ Strong Acceptance ☐ Acceptance ☐ Neutral ☐ Rejection ☐ Strong Rejection

3. How effective are the Algorithms/Care Plan?

☐ Not Used ☐ Very Effective ☐ Effective ☐ Neutral ☐ Ineffective ☐ Very Ineffective

4. Are the Algorithms easy to use?

☐ Not Used ☐ Very Easy ☐ Easy ☐ Neutral ☐ Difficult ☐ Very Difficult

B. Ergonomic Hazard Evaluations

1. How successfully were ergonomic hazard evaluations completed this month?

☐ None Completed ☐ Very Successful ☐ Successful ☐ Neutral ☐ Unsuccessful ☐ Very Unsuccessful

C. After Action Reviews

1. How many Injury AARs took place during this month? (For ALL Injuries, not just patient care.)

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ More than 5

2. How many "Near Miss" AARs took place during this month?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ More than 5

3. When were After Action Reviews held during this month?

☐ None Held ☐ Immediately after injury ☐ During Special staff meetings
☐ During Regular weekly/monthly staff meetings ☐ Varies
☐ Other, please explain:

4. What types of staff attended After Action Reviews during this month?

☐ None Held ☐ All Staff ☐ Nurse Managers/RN only
☐ LPNs/NAs only ☐ Attended by all

D. Lifting Equipment Purchases

1. List all Patient Care Equipment (lifting, transfer, etc.) that was purchased during this month.
(Please include make and model information.)

a)
b)

Attachment 11-5

Total Daily Use

Patient-Care Equipment-Use Survey

[Note: You may want to add definitions of the equipment and/or use facility-specific brand names to clarify which piece of equipment you want the staff to evaluate.]

How many times in a typical day would you say you use the following patient care aids?

a) Powered Full Body Sling Lifts Ceiling Mounted.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

b) Powered Full Body Sling Lifts Portable Base.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

c) Mechanical Lateral Transfer Aids.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

d) Friction Reducing Lateral Aids.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

e) Air Assisted Lateral Aids.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

f) Transfer Chairs.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

g) Dependency/Geri Chairs.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

h) Powered Standing Assist & Repositioning Lifts.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

i) Standing Assist and Repositionong Aids.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

j) Gait Belts.

○ 0/None ○ 1 ○ 2 ○ 3–4 ○ 5–6 ○ 7–8 ○ 9–10 ○ Greater than 10 ○ N/A

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Chapter 12—Special Handling and Movement Challenges Related to Bariatrics

❖ PURPOSE

These guidelines were designed to offer various technological solutions that can greatly assist in the care of obese patients, also called bariatric patients. Weight, combined with atypical body mass contributes to an increased risk of injury to the caregiver and patient during patient handling and movement tasks. It is evident that there is a lack of knowledge across the healthcare environment about how to safely manage the unique needs of bariatric patients. Managing obese patients provides special challenges to healthcare professionals, e.g., turning and repositioning a patient in bed, transferring in/out of bed, holding a limb while performing patient care tasks, and other activities of daily living. Additionally, environmental concerns, such as doorway clearance, weight capacity of scales and must be addressed.

❖ DEFINING OBESITY

Defining the term "bariatric" poses a challenge as there are many classification systems. Internationally, bariatrics is defined as a body mass index (BMI) greater than 30. The BMI is calculated by dividing patient weight (kg) by height squared (m^2)[1]. This classification system is internationally accepted:

Table 12-1: Definition of Bariatrics by BMI

International Standards	BMI
Underweight	<18.5
Normal	18.5-24.9
Overweight	25-29.9
Obese (1)	30-34.9
Obese (2)	35-39.9
Obese (3)	>40

[1] For Online calculators, see
http:www.kci1.com/body_mass_index_calculator.html or
http:www.sizewiserentals.com/bmicalculator.htm
http://www.nhlbisupport.com/bmi/bmicalc.htm

❖ BARIATRIC ALGORITHMS

This chapter provides assessment criteria to assist health care providers in planning the safe handling and movement of bariatric patients. The following algorithms should be used as guides when planning patient transfer and repositioning tasks. These algorithms are targeted for registered nurses, licensed practical nurses, nursing assistants, orderlies, physical/occupational therapists, radiology technicians, patient care technicians, as well as caregivers in the home.

The algorithms are designed to assist health care caregivers in selecting the safest equipment and techniques based on specific patient characteristics. These guidelines are prepared based on the scientific and professional information available in January 2003. We recommend that users of this guideline periodically review the material to ensure guidelines are consistent with current, reasonable clinical practice. As with any guideline, this content provides general direction and professional judgment is needed to assure safety of patients and caregivers.

Bariatric Algorithm #1:
Bariatric Transfer to and from: Bed to Chair, Chair to Toilet, or Chair to Chair

Bariatric Algorithm #2:
Bariatric Lateral Transfer to and from: Bed/Stretcher, Trolley

Bariatric Algorithm #3:
Bariatric Reposition in Bed: Side-to-Side, Up in Bed

Bariatric Algorithm #4:
Bariatric Reposition in Chair: Wheelchair, Chair, or Dependency Chair

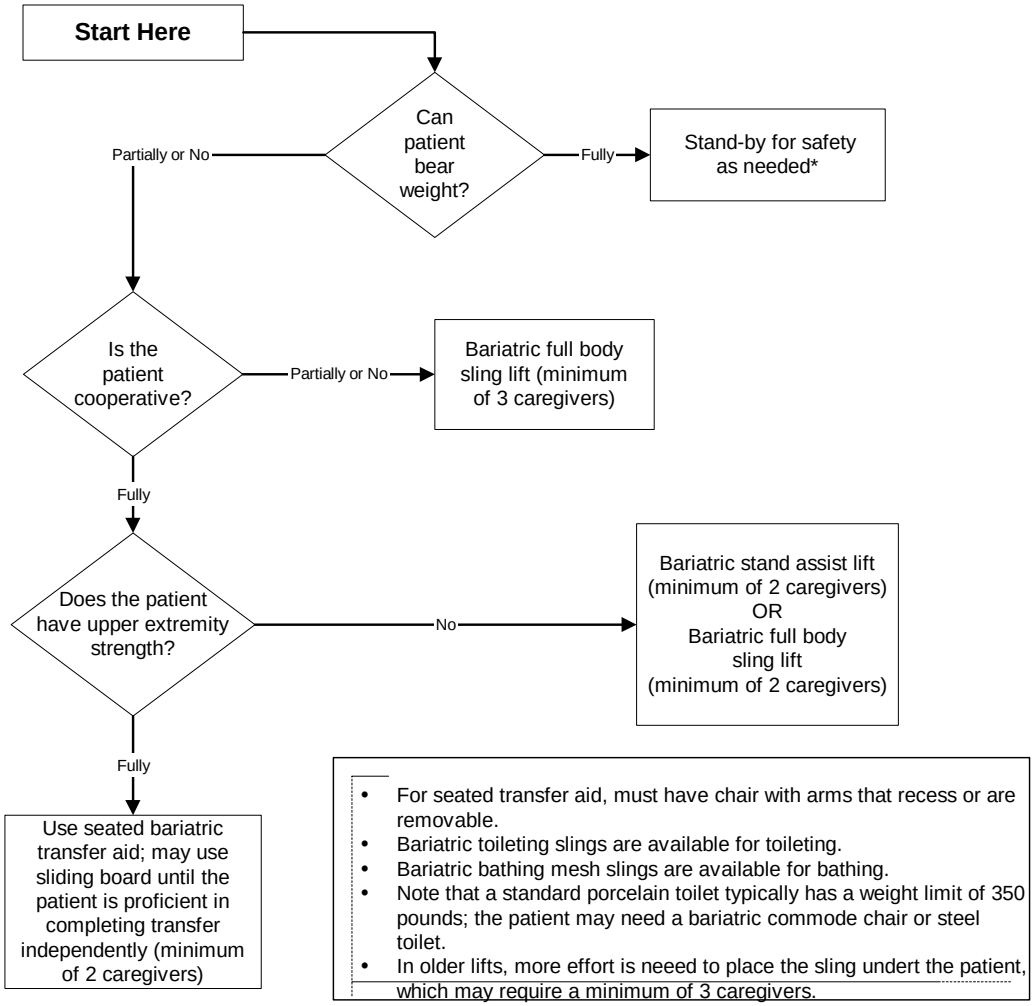
Bariatric Algorithm #5:
Patient Handling Tasks Requiring Access to Body Parts (Limb, Abdominal Mass, Gluteal Area.

Bariatric Algorithm #6:
Bariatric Transporting (stretcher)

Bariatric Algorithm #7:
Toileting Tasks for the Bariatric Patient

Bariatric Algorithm 1: Bariatric Transfer To and From: Bed/Chair, Chair/Toilet, or Chair/ Chair

rev. 5/1/05



* "Stand-by for safety." In most cases, if a bariatric patient is about to fall, there is very little that the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor and seek assistance as needed once the person has fallen.

- If patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if the patient's abdomen impairs a patient handling task.
- Assure equipment used meets weight requirements. Standard equipment is generally limited to 250-350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC"(for expanded capabity) and a space for the manufacturer's rated weight capabity for that particular equipment model.
- Identify a leader when performing tasks with multiple caregivers. This will assure that the task is synchronized for increased safety of the healthcare provider and the patient.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 2: Bariatric Lateral Transfer To and From: Bed/Stretcher/ Trolley

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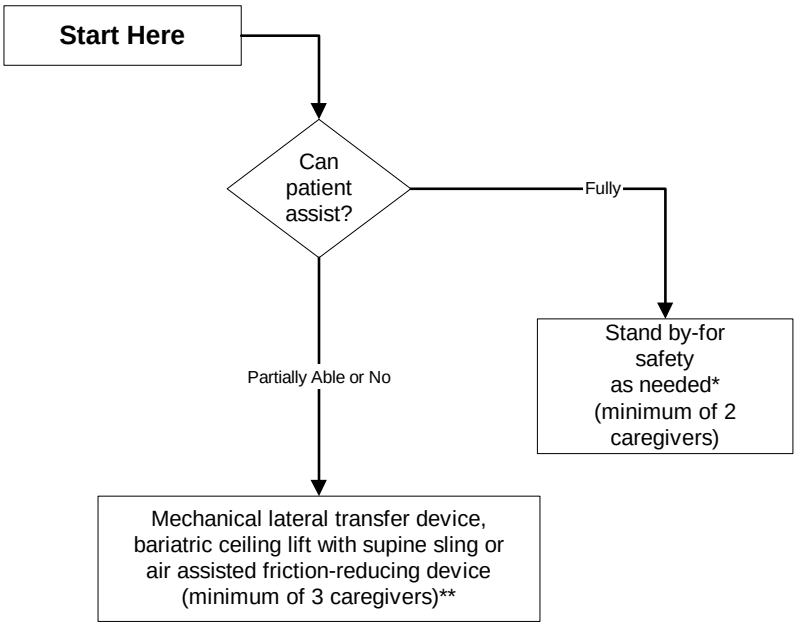

- The destination surface should be about 1/2" lower for all lateral patient moves.
- Avoid shearing force.
- Make sure bed is the right width, so excessive reaching by caregiver is not required.
- Lateral transfers should not be used with speciality beds that interfere with the transfer. In this case, use a bariatric ceiling lift with supine sling.
- Ensure bed or stretcher doesn't move with the weight of the patient transferring.

** Use a bariatric stretcher or trolley if patient exceeds weight capacity of traditional equipment.

* "Stand-by for safety." In most cases, if a bariatric patient is about to fall, there is very little that the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor and seek assistance as needed once the person has fallen.

* Assure equipment used meets weight requirements. Standard equipment is generally limited to 250-350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC"(for expanded capabity) and a space for the manufacturer's rated weight capabity for that particular equipment model.

- If patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if the patient's abdomen impairs a patient handling task.
- Identify a leader when performing tasks with multiple caregivers. This will assure that the task is synchronized for increased safety of the healthcare provider and the patient.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 3: Bariatric Reposition in Bed: Side-to-Side, Up in Bed
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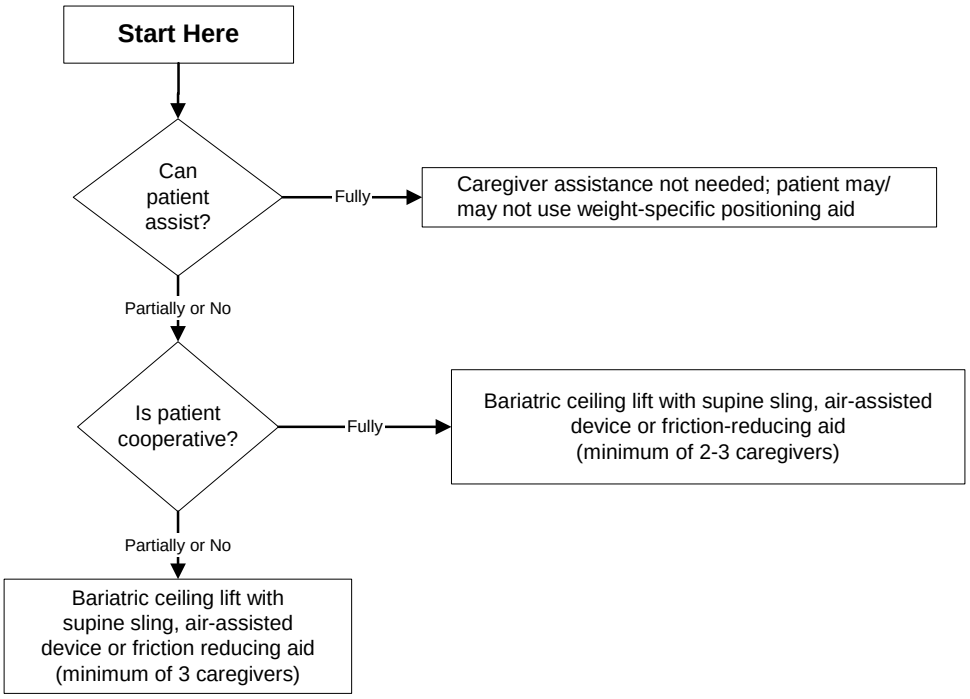
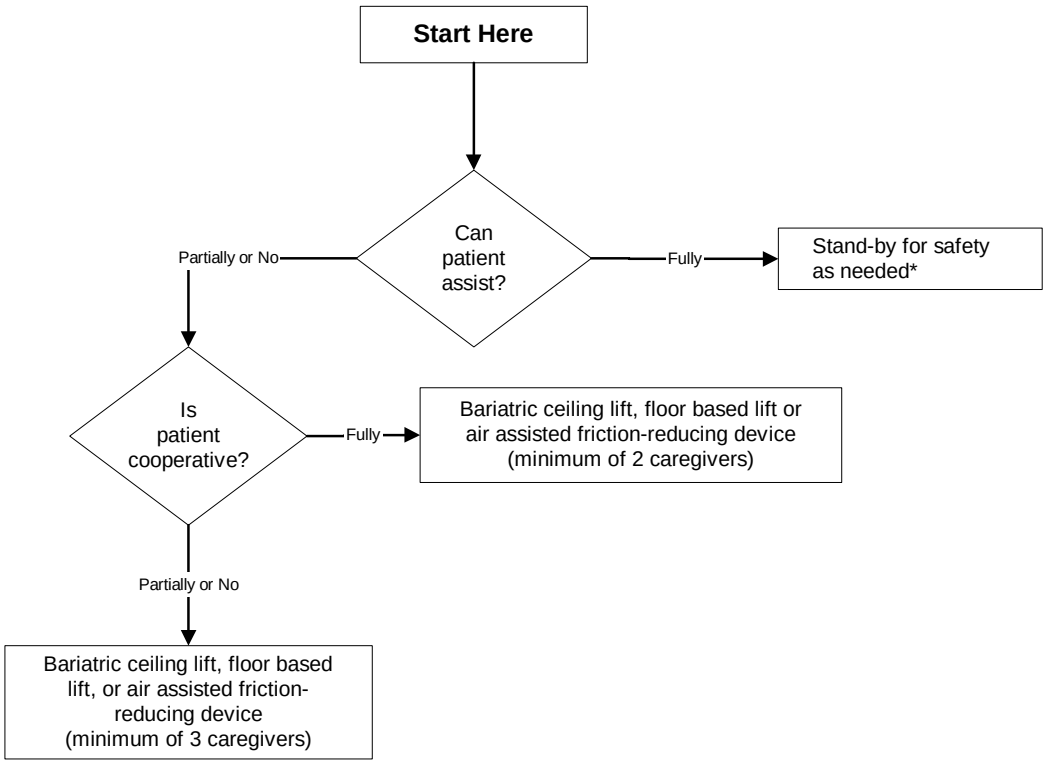


- When pulling a patient up in bed, place the bed flat or in a Trendelenburg position (if tolerated and not medically contraindicated) to aid in gravity; the side rail should be down.
- Avoid shearing force.
- Adjust the height of the bed to elbow height.
- Mobilize the patient as early as possible to avoid weakness resulting from bed rest. This will promote patient independence and reduce the number of high risk tasks caregivers will provide.
- Consider leaving a friction-reducing device covered with drawsheet, under patient at all times to minimize risk to staff during transfers as long as it doesn't negate the pressure relief qualities of the mattress/overlay.
- Use a sealed, high-density, foam wedge to firmy reposition patient on side. Skid-resistant texture materials vary and come in set shapes and cut-your-own rolls. Examples include:
  - Dycem (TM)
  - Scoot-Guard (TM): antimicrobial; clean with soap and water, air dry.
  - Posey-Grip (TM): Posey Grip does not hold when wet. Washable, reusable, air dry.

- If patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if the patient's abdomen impairs a patient handling task.
- Assure equipment used meets weight requirements. Standard equipment is generally limited to 250-350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC"(for expanded capabity) and a space for the manufacturer's
  rated weight capabity for that particular equipment model.
- Identify a leader when performing tasks with multiple caregivers. This will assure that the task is synchronized for increased safety of the healthcare provider and the patient.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 4: Bariatric Reposition in Chair: Wheelchair, Chair, or Dependency Chair
rev. 4/1/05



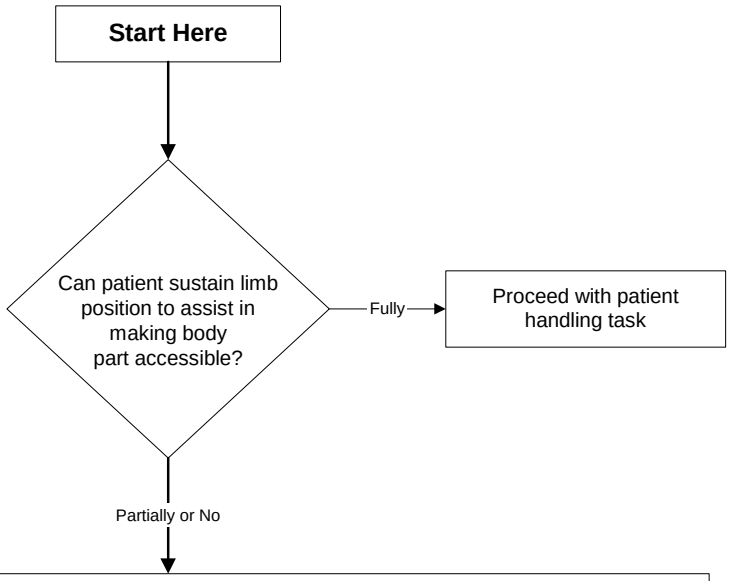
- Take full advantage of chair functions, e.g., chair that reclines, or use an arm rest of chair to facilitate repositioning.
- Make sure the chair wheels are locked.
- Consider leaving the sling under the patient at all times to minimize risk to staff during transfers after carefully considering skin risk to patient and the risk of removing/replacing the sling for subsequent moves.

* "Stand-by for safety." In most cases, if a bariatric patient is about to fall, there is very little that the caregiver can do to prevent the fall. The caregiver should be prepared to move any items out of the way that could cause injury, try to protect the patient's head from striking any objects or the floor and seek assistance as needed once the person has fallen.

- If patient has partial weight-bearing capability, transfer toward stronger side.
- Consider using an abdominal binder if the patient's abdomen impairs a patient handling task.
- Assure equipment used meets weight requirements. Standard equipment is generally limited to 250-350 lbs. Facilities should apply a sticker to all bariatric equipment with "EC" (for expanded capabity) and a space for the manufacturer's rated weight capabity for that particular equipment model.
- Identify a leader when performing tasks with multiple caregivers. This will assure that the task is synchronized for increased safety of the healthcare provider and the patient.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 5: Patient Handling Tasks Requiring Access to Body Parts (Limb, Abdominal Mass, Gluteal Area)

rev. 4/1/05



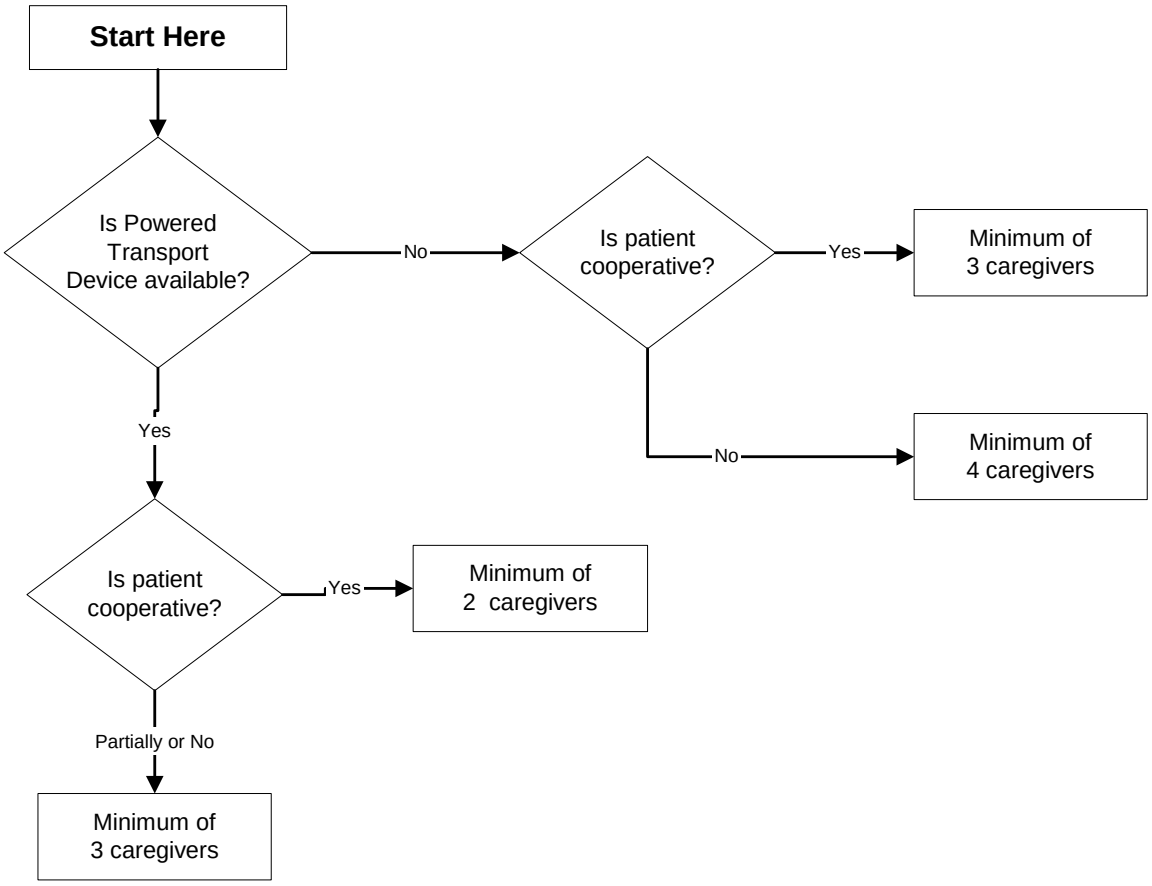
Assemble multidisciplinary team to develop creative solutions that are safe for patient and caregiver.

Examples:

- Modify use of a full body sling lift to elevate limbs for bathing or wound care (i.e. bariatric limb sling).
- Use draw sheet with handles for 2 caregivers (one per side) to elevate abdominal mass to access the perineal area (e.g., catheterization, wound care).
- To facilitate drying a patient between skin folds, use the air assisted lateral transfer aid to blow air or use a hair dryer on a cool setting.
- Use sealed high-density foam wedge to firmly reposition patient on side. Skid-resistant texture materials vary and come in set shapes and cut-your-own rolls. Examples include:
  - Dycem(TM)
  - Scoot-Guard(TM): antimicrobial; clean with soap and water, air dry.
  - Posey-Grip(TM): Posey Grip does not hold when wet. Washable, reusable, air dry.

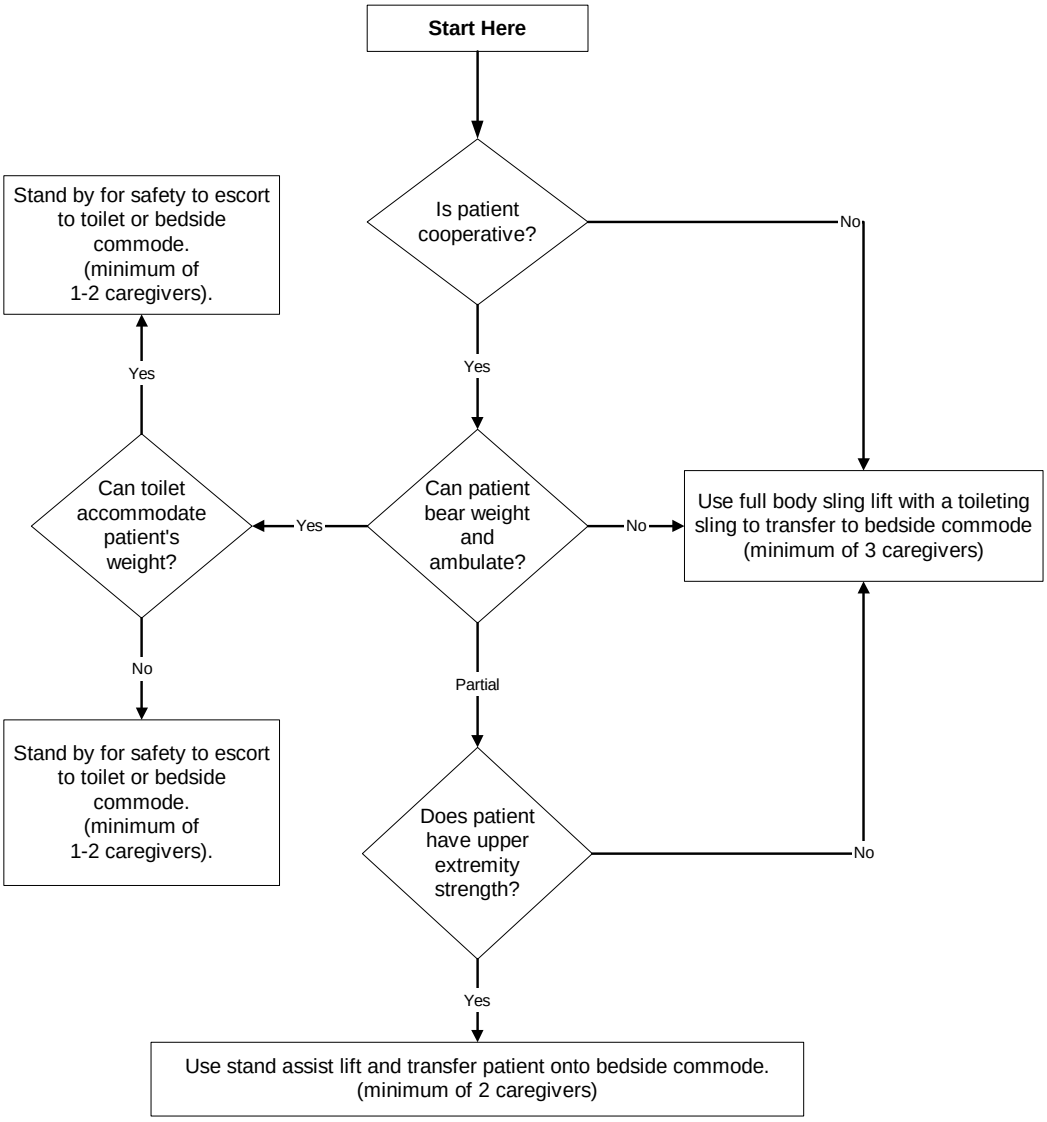
- A multidisciplinary team needs to problem solve these tasks, communicate to all caregivers, refine as needed and perform consistently.
- Consider using an abdominal binder if the patient's abdomen impairs a patient handling task.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 6: Bariatric Transporting (Stretcher)
rev. 5/1/05



- If the patient has respiratory distress, the stretcher must have the capability of maintaining a high Fowler's position.
- Newer equipment often is easier to propel.
- If patient is uncooperative, secure patient in stretcher.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

Bariatric Algorithm 7: Toileting Tasks for the Bariatric Patient
rev. 4/1/05



Considerations:
- Is bathroom doorway wide enough to accommote entry of mechanical lift device and patient?
- Assure equipment used meets weight requirements and is appropriately sized for patient.
- Typically, standard toilets are rated to 350 lbs. maximum capacity.
- During any patient transferring task, if any caregiver is required to lift more than 35 lbs. of a patient's weight, then the patient should be considered to be fully dependent and assistive devices should be used for the transfer.

❖ BARIATRIC EQUIPMENT

There is a common misconception that bariatric patients can be accommodated by simply asking for equipment designed for a "large size". Most of the attention focuses on a bed and lift to accommodate the patient. In fact, there are many aspects related to equipment that need to be considered. Knowing the weight capacity of existing equipment is critical for safety. Bariatric equipment may be indicated by using a label indicating "EC" (expanded capacity) and weight limits. In addition to patient handling/movement equipment, the weight capacity of bedside recliner chairs or toilets must be considered. A standard commode, in most hospitals, is limited to 350 pounds. Key categories of equipment that need to be evaluated and available for bariatric patients are outlined below.

HOSPITAL BED

- Weight capacity of bed frame and mattress
- Weight capacity of side rail support
- Weight capacity of bed scale
- Width of bed (Some bariatric beds have width adjustment)
- Length of bed (Beds are available for very tall patients)
- Mattress type: Pressure relief ___Pressure reduction__ Alternating__ Rotational Other_____

WHEELCHAIR

- Weight capacity
- Width of chair
- Seat height
- Handle width
- Armrest
- Powered non non-powered

STRETCHER

- Weight capacity
- Width
- Length
- Weight capacity of side rail support
- Powered non non-powered

BEDSIDE COMMODE/SHOWER CHAIR

- Weight capacity
- Skin care protection
- Adjustable height
- Foot rests
- Arm rests

SCALES

- Weight capacity
- Width

WALKER

- Weight capacity
- Width

BATHROOM

- Doorframe width
- Shower door width
- Toilet weight bearing (commercial toilet typically limited to 350 pounds)
- Weight capacity of wall mounted grab bars

PATIENT CARE ENVIRONMENT

- Patient/room or visitor chair weight capacity
- Geri/Cardiac chair weight capacity
- Doorframe width (Some bariatric beds are expandable, allowing caregiver to narrow the width for moving in and out of doorways).
- Elevator door width

TRANSFER DEVICES

- Lateral transfer device weight capacity
- Full body sling lift weight capacity
- Over bed/ceiling lift weight capacity
- Stand assist lift weight capacity

ANCILLARY DEPARTMENTS

- Door widths
- X-ray table (weight capacity, width, length)
- CT Scan/MRI (weight capacity, width, length)
- OR table (weight capacity, width, length)
- Emergency room equipment
- Waiting room furniture (weight capacity, width, length)
- Exam room table (weight capacity, width, length)

OTHER PATIENT CARE DEVICES

- All patient care supplies need to be evaluated for appropriateness in bariatric care.
- Abdominal binders may be useful in lifting the abdominal girth out of the way when providing care, e.g., catheterization, skin care and dressing changes.

❖ DECISION TO BUY OR RENT BARIATRIC EQUIPMENT

Specialized equipment is required to move, transport, and care for the bariatric patient. As facility's deal with bariatric patients on a more frequent basis, determinations about how to acquire the necessary equipment will be a common task for many caregivers. Each facility will need to decide whether to purchase or rent necessary equipment. The following chart offers some assistance in making this decision.

Factors Affecting Decision to Buy or Rent Bariatric Equipment

Key Factors	Rent	Purchase
Need for Clinical Support/Care Process Improvement	High	Moderate
Distribution of Patients	Scattered	Concentrated
Design or Clinical or Production Costs	High	Moderate
Complexity of Cleaning/Maintenance	High	Moderate
Consistency of Need	Sporadic	Predictable
Applicability of the Therapy/Mix Shift	Specific	Broad
Patient Acuity	Super Acute	High to low
Use of Therapy	Treatment	Prevention
Complexity of Product	High	Moderate
Access to Capital	Difficult	Accessible

❖ HELPFUL HINTS IN SELECTING BARIATRIC EQUIPMENT

- Empower staff nurses to lease or procure necessary equipment as soon as possible either prior to or immediately after patient admission. This option needs to e available 24 hours a day/ seven days a week. Delays in accessing appropriate equipment could result in patient discomfort and serious injury to the patient or caregiver. For units with bariatric patient services, equipment may be purchased; for others, leasing may be a better option.

- Contact vendors that offer bariatric equipment (A list of vendors can be obtained through the following web site: patientsafetycenter.com).

- Know and mark weight capacities on existing equipment to assure appropriate use. This should be done in an unobtrusive manner, such as delineating

"expanded capacity". This protects the dignity of the patient. Use of terms such as "big boy beds" or the "lift for huge people" provide unnecessary dignity assaults to the patient and their family.

- Body dimension is critical for determining the bed width needed. Patients experience discomfort and increased risk for skin lesions when the bed is ***too narrow*.** Staff injuries increase when the bed is ***too wide***, necessitating staff to reach excessively when providing patient care. Several bariatric beds have capability to contract to allow the bed to go through a doorframe. Appropriate width beds also make it easier for the patient to assist in their own care. Height can also be a key factor in selecting a bed. If the patient's height exceeds 6'5", a longer than usual bed will be required for comfort and skin protection.

- The right equipment can facilitate patient function and independence and eliminate some high risk nursing tasks.

- Position equipment at a height appropriate to the caregiver when providing care.

- Consider motorized transportation assistance devices.

- Empower staff nurses to lease or procure necessary equipment as soon as possible (see protocol). For units with bariatric patient services, this may be purchased; for others, leasing may be a better option.

- See list of vendors that offer bariatric equipment.

- Know weight capacities of existing equipment; so that the weight limits are not exceeded.

- Body dimension is critical for determining the width needed. Staff injuries occur when too wide a bed is ordered, necessitating staff to reach excessively for patient. It is also easier for the patient to assist. Length is also an issue, and particularly (over 6'5") may need extended lengths for comfort and skin protection.

- The right equipment can facilitate patient function and independence, eliminating some high-risk nursing task when the patient can perform the task independently.

- Consider dimensions of elevator doors and size of equipment

- Position all equipment at a vertical height, suitable to the height of the caregiver

- Consider motorized transportation assistance devices

❖ BARIATRIC EQUIPMENT OPTIONS

These guidelines provide information on existing bariatric technologies and manufacturers. However, they do not include bariatric accessories such as blood pressure cuffs, scales, surgical tables, linen/gowns, and abdominal binders. We have included the following categories:

- Ambulation/Mobility Aids
- Bathing Equipment
- Beds/Mattresses/Transportation
- Ceiling Lifts
- Commode/Shower Chairs
- Lateral Transfer Aids
- Multi-Use/Portable Lifts
- Powered Lifts
- Stand Assist Aids
- Transfer/Geri Chairs and Cushions
- Wheelchairs
- Transport Devices

Safe Patient Handling and Movement Equipment for the Bariatric Population
See the following web site (patientsafetycenter.com) for up to date descriptions of bariatric equipment by category and vendor. An ***example*** of this information is depicted below.

PRODUCT/MANUFACTURER	DESCRIPTION	KEY ADVANTAGE
9000 XDT Wheelchair Medical Supplies & Medical Equipment Co.	Manual wheelchair for patient transport	Urethane casters for better ride and lighter weight
Adult Wide wheelchair Medical Supplies & Medical Equipment Co	transport	Accommodates various leg positions and patients up to 350 lbs.
Excel Extra Wide wheelchair Medical Supplies & Medical Equipment Co	transport	Swing-away footrest and swing-away elevating legrest models feature quad-release mechanism
Split Spring Bed Medical Supplies & Medical Equipment Co	Semi-electric bed for home use	Weight capacity of 500 lbs.
Tuffy Extra wide Hemi 352 Wheelchair	Patient transport	For shorter, wider patients who weigh up to 500 lbs.

Medical Supplies & Medical Equipment Co		
Medi-Lifter III Plus Medi-Man	Floor based lift	Ergonomic foot control for base opening
Medi- SSL Plus Medi-Man	Sit to stand patient transfer system	Compact design facilitates seat-to-seat and toileting transfers in confined areas
Medi-Tilt Vertical Lift Medi-Man	Lift for optimal patient positioning and transfers	Power tilt with no manual assistance
Saturn Ceiling Lift Medi-Man	Ceiling lift that accommodates patients up to 800 lbs.	Appropriate for both new construction and retrofit installation
Patient transfer system Medi-Man	Lateral transfers and repositioning of patients	Repositioning aid with reduced friction
Summit walker Lift Medi-Man	Combination walker/total lift system	400 lb. capacity

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Glossary

After-Action Review (AAR)	A method for transferring knowledge that a team has learned from doing a task in one setting to the next time that team does the same task in a different setting.
Algorithm	A standardized process or set of rules by which a provider makes decisions about a complex process, e.g., which equipment and techniques to use when performing high risk patient handling and movement tasks.
Automated Safety Incident Surveillance Tracking System (ASISTS)	Software package to track and store data on accidents that caused injuries or illnesses that are reported in the VA via the Report of Accident (Form 2162), the Notice of Traumatic Injury and Claim for Continuation of Pay (Form CA-1) and the Notice of Occupational Disease and Claim for Compensation (Form CA-2).
Back Belts	Belts that are specifically engineered and crafted to provide back support when lifting.
Back Injury Resource Nurse (BIRN)	Peer-leader selected for each high-risk unit who receives special training in workplace hazard identification, safe patient handling and movement assessment criteria and algorithms. The role includes, but is not limited to, unit based training and competency assessment of peers in safe use of equipment.
Body Mass Index (BMI)	Dividing patient body weight in kg by height in meters squared (m^2).
Body Mechanics	The application of mechanical laws to the human body with specific regard to normal locomotion and includes the mechanical laws governing the structure, function, and position of the human body.
Ceiling-Mounted Patient Lift	Patient transfer device that is installed on a track system in the ceiling, directly over the patient bed or patient-care area. The patient is lifted using a full-body sling.
Clinical Trials	Operational trials of products for patient handling and movement tasks.
Compensation Care Rate (CCR)	CCR = (Number of Worker's Compensation Cases per area per year) x (200,000 hours worked/100 FTEE)/Number of hours worked per area per year.

Compensation Severity Rate (CSR)	CSR = (Number of Worker's Compensation lost days per area per year) x (200,000 hours worked/100 FTEE)/Number of hours worked per area per year.
Composite Risk Indicator (CRI)	CRI = square root of (TIRR x CCR x SR x Cost Rate)/1,000,000.
Compressive Force	Mechanical force directed along the Y (vertical) axis, brought about by the combined effect of internal and external load bearing.
Cost Benefit Analysis	A methodology frequently employed by decision makers to determine optimal allocation of resources among competing projects.
Cost Effective Analysis	A methodology frequently employed by decision-makers to determine optimal allocation of resources among competing projects.
Direct Cost	In relation to cost analysis generally refers to the changes in resource use attributable to the intervention for the period of intervention.
Dissemination	To spread abroad; transfer knowledge to others; promulgate: *disseminate information.*
Engineering Controls	Physical changes to the equipment, workstation or environment.
Ergonomics	Design for human use. Matching job tasks to workers' capabilities.
Ergonomist	A practitioner in the field of ergonomics.
Evaluation Design	A plan stating what will be measured, when it will be measured, and with what groups.
Friction Reducing Devices (FRD)	Low friction material assistive aids used for lateral transfer of patients.
Gait Belts	Installed on patients or residents, usually around the area of the waist providing handles for a worker to grasp when assisting or transferring a partially dependent patient or resident. Also known as Transfer Belts.
Geriatric	Relating to the aged or to characteristics of the aging process.

Incidence Rate	Number of new cases of a given population divided by the whole population at risk.
Lateral Transfer	Movement of a patient on a horizontal plane, such as transferring a patient from a bed to a stretcher.
Lifting Team	Two or more persons, competent in lifting techniques, working together to accomplish high-risk patient transfers using assistive devices.
Mechanical Lift	Freestanding patient transfer device that uses a sling and mechanical lift to move patients from a bed or seated position.
Musculoskeletal	Relating to or involving the muscles and the skeleton.
OSHA Back Injury Incidence Rate	(Total number of new back injuries per year x 200,000 work hours)/Number of hours worked at facility in the year.
Postural Hypotension	A decrease of more than 20 mm Hg systolic BP and an increase of more than 20 beats in the pulse.
Prospective Data Collection	Starting from current day, into the future.
Psychometrics	The branch of psychology that deals with the design, administration, and interpretation of quantitative tests for the measurement of psychological variables such as intelligence, aptitude, and personality traits.
Restricted Work Days	Days where employees had weight-restricted limitations on their patient-care assignments secondary to a work-related injury.
Risk Assessment	The qualitative or quantitative estimation of the likelihood of adverse effects that may result from exposure to specified health hazards or from the absence of beneficial influences.
Shearless Pivot	Reduces the need to constantly reposition a patient in the bed by minimizing the amount of slippage down to the foot of the bed experienced by the patient when raising the head of the bed.
Spinal Compression	Forces acting along the length of the spine.
Spine Loading	Overall mechanical force acting on the spine. Calculated as root-mean-square value of compressive, lateral and anterior-posterior components.

Stand Assist Lift	Freestanding, powered lifting device used to raise patient from prone to standing position.
Total Injury Report Rate (TIRR)	TIRR = (Number of reports filed per area per year) x (200,000 hours worked/100 FTEE)/ Number of hours worked per area per year.
Transfer Belt	*See Gait Belt*
Trendelenburg Position	Body position whereby the head of the bed is lower than the foot of the bed.

Acronyms

A	
AAR	After-Action Review
ARR	Average Relative Risk
ADC	Average Daily Census
ADL	Activities of Daily Living
ASISTS	Automated Safety Incident Surveillance Tracking System
B	
BIRN	Back Injury Resource Nurse (peer safety leader)
BMI	Body Mass Index
BPI	Brief Pain Inventory (Wisconsin)
C	
CBA	Cost Benefit Analysis
CBT	Computer-Based Training
CCR	Compensation Care Rate
CEA	Cost Effective Analysis
CRI	Composite Risk Indicator
CSR	Compensation Severity Rate
F	
FDA	Food and Drug Administration
FRD	Friction Reducing Devices
FTEE	Full Time Equivalent Employee
H	
HCFA	Health Care Finance Association
I	
ICU	Intensive Care Unit
IRB	Institutional Review Board
L	
LPN	Licensed Practical Nurse

M	
MPQ	McGill Pain Questionnaire
N	
NIOSH	National Institute for Occupational Safety and Health
NM	Nurse Manager
O	
OSHA	Occupational Safety and Health Administration
OWCP	Office of Workers Compensation Programs
R	
RFI	Request for Information
RN	Registered Nurse
S	
SCI	Spinal Cord Injury
T	
TAG	Technical Advisory Group
TIRR	Total Injury Report Rate
V	
VA	Veterans Affairs
VAMC	Veterans Affairs Medical Center
VAS	Visual Analog Scale
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network

Annex Topic Index