Safe Patient Handling and Movement

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Lisa Spruce, DNP, RN, CNS-CP, CNOR, ACNS, ACNP, FAAN

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PURPOSE/GOAL

To provide the learner with knowledge of best practices for safe patient handling and movement.

OBJECTIVES

1. Discuss common areas of concern that relate to perioperative best practices.
2. Discuss best practices that could enhance safety in the perioperative area.
3. Describe implementation of evidence-based practice in relation to perioperative nursing care.

ACCREDITATION

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Lisa Spruce, DNP, RN, CNS-CP, CNOR, ACNS, ACNP, FAAN, has no declared affiliation that could be perceived as posing a potential conflict of interest in the publication of this article.

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BACK TO BASICS 2.0

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PODCAST

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Lisa Spruce, DNP, RN, CNS-CP, CNOR, ACNS, ACNP, FAAN

After completing a systematic review of the literature, AORN guideline authors published the revised "Guideline for safe patient handling and movement [SPHM]" in 2018. The existing published evidence indicates that because of perioperative occupational hazards, perioperative nurses and other team members are at risk for personal injury.[1]

Occupational injuries associated with nursing frequently involve the musculoskeletal system; these injuries typically involve the lower back, shoulders, and upper extremities.[2] Many of these injuries are a result of overuse and repetitive movements,[1] including various physical stressors (eg, manual lifting,[2] pulling,[1] pushing,[2] awkward,[3-6] or static[7] postures). The nature of the perioperative environment increases the possibility that health care workers will experience physical stressors. When patients are anesthetized or cannot move because of regional anesthesia, perioperative team members move them and protect them from injury.[1] In addition, surgeons require a variety of heavy equipment, instruments, and supplies to complete procedures, and perioperative personnel may become injured when moving these items.

In 2013, a workgroup for the American Nurses Association developed and published the following eight core standards related to SPHM:

- Standard 1. Establish a Culture of Safety;
- Standard 2. Implement and Sustain a Safe Patient Handling and Mobility (SPHM) Program;
- Standard 3. Incorporate Ergonomic Design Principles to Provide a Safe Environment of Care;
- Standard 4. Select, Install, and Maintain SPHM Technology;
- Standard 5. Establish a System for Education, Training, and Maintaining Competence;

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- Standard 6. Integrate Patient-Centered SPHM Assessment, Plan of Care, and Use of SPHM Technology;
- Standard 7. Include SPHM in Reasonable Accommodation and Post-Injury Return to Work; and
- Standard 8. Establish a Comprehensive Evaluation System.[8]

AORN's "Guideline for safe patient handling and movement"[1] addresses all eight standards as they apply to the perioperative setting and includes a variety of ergonomic tools to facilitate completing patient care tasks and maintaining staff member safety. The guideline also describes the Revised National Institute for Occupational Safety and Health (NIOSH) Lifting Equation (RNLE), a tool that facilitates calculation of the recommended weight limit for objects that can be lifted with two hands.[9] To promote patient and staff member safety, perioperative leaders and staff members should review the entire guideline and the ergonomic tools. This column addresses some key components required to establish a safe environment in which patients and perioperative team members are protected from injuries.

PRACTICE POINT: Culture of Safety

To improve the quality of patient care and maintain perioperative team member safety, leaders of every health care organization should collaboratively establish a sustainable culture of safety that includes patient safety principles and SPHM.[1] When creating a culture of safety, the organization's leaders should create a written statement that includes executive leader commitment and provides direction for establishing priorities, resources, policies, and procedures. In addition, the organization's leaders should ensure that there are enough team members and equipment available to transfer and position patients safely and assist during surgical skin antisepsis activities to maintain the patient's body alignment and airway.[1]

The organization's leaders should implement safety huddles to evaluate any patient or SPHM equipment concerns that may contribute to near misses and safety events.[1] These brief (ie, less than 15-minute) meetings allow time for staff members to share their unique knowledge and learn from past incidents to help prevent future safety events. When a safety event occurs, all perioperative team members who were involved should participate in a huddle immediately after the event.[1] The leader of the safety huddle should guide the discussion to determine the facts about the incident and ask questions related to the following:

- the event itself,
- the relationship between the facts of the event and the expectations,
- why the event or near miss occurred, and
- the actions team members can take to prevent a recurrence.[10]

An open discussion that avoids placing blame and focuses on human and process errors should encourage perioperative team members to suggest improvements to the work environment based on problem and solution identification.[1]

KNOWLEDGE CHECK

Perioperative team members move a patient who is scheduled to undergo a total hip replacement from the transport cart to the OR bed. Karen, the RN circulator, ensures there are enough team members to move the patient safely. Before the procedure begins, Karen requests an additional team member to support the patient's leg during the skin preparation. Diana, the charge nurse, assigns Kelly to assist Karen. When Kelly arrives, she notices that her friend Julie is the scrub person. She tells Karen, "I think you can hold the leg yourself; Julie needs some assistance." Because Kelly assists Julie rather than holding the leg, Karen struggles with the prepping process, but eventually finishes. During the procedure, Karen notifies Diana

of the difficulty during the skin preparation. At the end of the procedure, Karen asks Diana for additional team member assistance to move the patient. After the patient is transported out of the room, Diana holds a brief safety huddle to address patient handling and movement issues related to the procedure.

1. In this scenario, who did not follow the recommended practice point?
   a. Diana
   b. Karen
   c. Julie
   d. Kelly

PRACTICE POINT: SPHM Technology

Safe patient handling and movement technology includes equipment and devices that facilitate SPHM and decrease the risk of injury to patients and team members.[1] To evaluate SPHM equipment and devices, the organization's leaders should collaborate and include frontline caregivers. When considering SPHM technology, perioperative leaders and staff members should tour the perioperative areas of their facility and discuss the specific locations and activities that may require additional equipment. In addition, they should evaluate possible technological solutions to address identified concerns, with a focus on decreasing staff member and patient injury. The leaders also should analyze any available data related to patient and staff member injuries that additional technology might have prevented.[1]

Based on this analysis and the organization's procedure for evaluating new products, the team should select appropriate equipment for SPHM, such as mechanical lifting equipment and lateral transfer devices, to assist personnel with moving patients horizontally from one flat surface to another (eg, from the OR bed to a stretcher).[1] Such devices include air-assisted lateral transfer devices (AALTDs) or mattresses, mechanical devices, and friction-reducing sheets that minimize friction and decrease the pulling force required when moving patients. Air-assisted lateral transfer devices require a pump to maintain continuous air pressure in the mattress; the air flows through numerous small holes on the bottom surface. The layer of air under the mattress allows it to float or hover with the patient while team members guide it from one surface to another. Mechanical devices (eg, transfer boards) and friction-reducing sheets are placed directly underneath the patient to facilitate patient movement from one surface to another.[1]

Mechanical lifting equipment usually includes a sling that should be compatible with the lifting equipment and the patient's characteristics (eg, weight) to prevent patient or staff member injury.[1] A support sling may be used under a patient's limb to maintain a position; for example, a supine sling maintains the patient in a supine position and staff members also can use it to lift or suspend a body part temporarily, facilitate patient care (eg, placing a tourniquet, performing skin antisepsis, repositioning a patient), or transfer a patient. In addition, perioperative personnel may benefit from the purchase of motorized equipment to help push heavy objects (eg, patients on stretchers or beds) and reduce pushing and turning forces. These devices are battery powered and attach to the stretcher, the head of a bed, or equipment.[1]

KNOWLEDGE CHECK

Tonya works as an RN circulator at a bariatric center of excellence in which SPHM protocols include the use of an AALTD when moving patients between the hospital bed and the OR bed. The facility has two AALTD inflation pumps, and Tonya ensures one is available for use in the OR before her next scheduled procedure.

The perioperative team uses the AALTD to position the patient on the OR bed. During the procedure, Jan, another RN circulator, asks Tonya if she can borrow the pump for her patient. Tonya replies affirmatively but indicates that she will need the device again at the end of the procedure in her OR. Rob, another RN circulator, relieves Tonya for lunch near the end of the procedure. In her hand-over report, she tells Rob that Jan has the pump in another OR. When the procedure is complete, Dr H, the anesthesia professional, asks Rob to obtain the AALTD pump to help move the patient. Rob tells her, "I never use the pump; we can move the patient without it." The team struggles to move the patient to the postoperative bed.

2. In this scenario, who did not follow the recommended practice point?
   a. Tonya b. Rob
   c. Dr H d. Jan

PRACTICE POINT: Developing an SPHM Plan

Perioperative nurses should evaluate each patient's individual needs and establish an SPHM plan of care.[1] Perioperative team members should use assistive technology when lifting more than 35 pounds of a patient's weight.[9] The weight limit is lower when the perioperative team member's arms are outstretched or raised above midchest, the lifting is occurring near the floor, or the team member is in an awkward body position.

Positioning or repositioning a patient on an OR bed requires team members to use high levels of force when pushing, pulling, and lifting the patient, which increases the risk of musculoskeletal injury in the lower back and shoulders.[1] The AORN guideline provides information and tools to assist perioperative personnel with determining the weight of a patient's body parts, detailed as follows.

When transferring the patient from the supine to prone position,

- *if the patient's weight is 48.5 lb (22 kg) or less, two perioperative team members and the anesthesia professional supporting the head should be able to position the patient;*
- *if the patient's weight is between 48.5 lb (22 kg) and 73 lb (33 kg), three perioperative team members and the anesthesia professional should be able to position the patient;*
- *if the patient's weight exceeds 73 lb (33 kg), three or four perioperative team members should use assistive technology to position the patient.*[1(p826)]

When positioning the patient into or from a semi-Fowler position (ie, semi-sitting position, beach chair position),

- *if the patient's weight is less than 68 lb (30.5 kg), a minimum of three perioperative team members should be able to manually position the patient;*
- *if the patient's weight exceeds 68 lb (30.5 kg), a minimum of three perioperative team members should position the patient using the automatic semi-Fowler positioning feature of the powered OR bed.*[1(p827)]

Positioning a patient in the lateral position requires pushing and pulling forces rather than lifting forces.[1]

When transferring the patient into and from the lateral position,

- *if the patient's weight is 76 lb (34.5 kg) or less, two perioperative team members and an anesthesia professional maintaining the patient's airway should be able to position the patient;*
- *if the patient's weight is between 76 lb (34.5 kg) and 115 lb (52 kg), three perioperative team members and an anesthesia professional should be able to position the patient;*
- *if the patient's weight exceeds 115 lb (52 kg), a lateral positioning device should be used. The number of team members needed to transfer the patient is dependent on the type of technology used.*[1(p827)]

When positioning the patient to or from the lithotomy position,

- *if the patient's weight is less than 141 lb (64 kg), two perioperative team members should each hold a leg with a two-handed lift to place the legs in the leg holders;*
- *if the patient's weight is 141 lb (64 kg) or more, four perioperative team members (ie, two for each leg) should place the legs in the leg holders or use assistive technology; or*
- *a mechanical device, such as a support sling, may be used to lift the legs to and from the lithotomy position.*[1(p827-828)]

KNOWLEDGE CHECK

Debbie, an RN circulator, is preparing her OR for a gynecological oncology procedure with Dr R. As she is obtaining the required positioning supplies, she realizes her patient's weight is 165 lb (74.8 kg). She ensures the boot-type stirrups for the lithotomy position are present and then informs

Sharon, the CRNA, and Dr C, the surgical resident, of the patient's weight and positioning plan. When the team is ready to position the patient, Debbie uses the intercom to request additional assistance; Jerry and Tony, the patient care assistants, and Terri, another RN, arrive soon after. Jerry and Debbie hold the patient's right leg; Dr C declines Tony's offer of assistance and holds the patient's left leg; and Terri, Sharon, and Dr R move the patient to the end of the OR bed.

3. In this scenario, who did not follow the recommended practice point?
   a. Dr C
   b. Jerry
   c. Dr R
   d. Sharon

PRACTICE POINT: Perioperative Staff Member Safety

Perioperative team members often are at risk for injury when they care for patients. Perioperative team members may stand for two hours or longer, which can cause lower extremity discomfort or pain, swelling, and venous disorders.[1] Prolonged standing also is associated with fatigue, cardiovascular issues, and lower back pain.[1] During these periods of prolonged standing, perioperative team members should incorporate fatigue-reducing strategies, including

- *using anti-fatigue mats*,
- *adjusting the height of the OR bed*,
- *determining ergonomic monitor placement*,
- *using a sit-stand stool*,
- *wearing supportive footwear, and*
- *alternating propping of one foot on a footstool.*[1(p830-831)]

In addition to prolonged standing, some perioperative team members may be required to hold retractors for a long period. The staff member's height relative to the height of the surgical field can increase the risk of musculoskeletal injury, especially if the staff member must hold his or her arms higher than chest-level. Self-retaining retractors allow staff members to complete other tasks; however, surgeons usually determine which retractor to use. When surgeons require manual retraction, some strategies to minimize staff member injury include

- holding the retractor as close to the body as possible while maintaining good posture,
- holding the retractor with the palm facing down when retracting toward the body and with the palm facing up and the arm flexed at the elbow when retracting laterally, and
- gripping the retractor only as firmly as necessary for surgical exposure.[1]

When performing patient skin antisepsis, sometimes perioperative team members must hold the patient's body parts, such as the legs, arms, or head. In these instances, risk factors for staff member injury include

> *the size of the body part, length of holding time, posture required to hold the body part without contaminating the surgical prep, and the physical ability of the team member holding the body part.*[1(p829)]

Additionally, when a perioperative team member extends his or her arms to hold a limb during the surgical skin preparation, he or she experiences strong forces on the muscles of the shoulders, arms, and back. The risk of staff member injury increases in direct proportion to the length of time holding the limb.[1] Perioperative team members can minimize their risk of injury by assessing the need for additional team members or an assistive device to hold the body part, detailed as follows.

- *If the patient's weight is less than 40 lb (18 kg), one perioperative team member should be able to perform the skin antisepsis and hold the limb.*
- *If the patient's weight exceeds 40 lb (18 kg), one perioperative team member should perform the skin antisepsis while another team member holds the limb, or the limb is suspended by a holding device.*[1(p830)]
- When performing surgical skin antisepsis for an abdominal procedure, additional team members may be required to hold the panniculus because it is sometimes difficult to perform an adequate skin preparation without assistance.[1]

When perioperative team members move heavy instruments and equipment, the factors that contribute to the risk of injury include the object's weight, the distance required to access and lift the object, and the length of time and the frequency of the lifting activity.[1] The 2005 AORN Workplace Safety Task Force identified a series of typical perioperative lifting tasks and then evaluated them using the RNLE.[11] The task force determined that the total weight of an instrument tray should not exceed 25 pounds because weights greater than that contribute to ergonomic injury.[1]

In addition to lifting objects, perioperative team members push and pull wheeled equipment. Research evidence shows that muscle activity is lower during pushing than pulling;[2] therefore, perioperative team members should push wheeled equipment rather than pull it. To decrease risk of injury when moving wheeled equipment, perioperative staff members also should ensure

- at least two perioperative team members are available to move heavy objects (eg, patient bed, OR bed) if a powered transfer device is not available, and
- the height of available handles is approximately 3 ft above the floor. Handle height influences staff members' ease of movement and can affect the amount of strength required and stress on the spine and shoulders.[1]

KNOWLEDGE CHECK

Elaine, an RN, is assigned to scrub for an open abdominal procedure with Dr S. Because Elaine is approximately 1 ft shorter than Dr S, she positions standing stools under the OR bed for easy access during the procedure. She also changes her position frequently and requests additional standing stools as needed. At one point during the procedure, Dr S notices Elaine is reaching at an awkward angle to secure a retractor, and he suggests that she move to his side of the OR bed to decrease the possibility for an ergonomic injury.

At the end of the procedure, Jane, the RN circulator, helps move the patient to the transport cart and notices that it is set at its lowest position. She asks Mark, the CRNA, if she should raise the cart, and he tells her no. Mark announces that he is ready to transport the patient to the postanesthesia care unit, but Jane is still finishing her patient documentation and is not ready to leave the room. Mark tells Jane not to worry and that he will transport the patient by himself. He pushes the patient transport cart out of the OR without changing the height of the bed.

Resources

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4. In this scenario, who did not follow the recommended practice point?
   a. Elaine b. Jane
   c. Mark d. Dr S

CONCLUSION

Health care organization leaders should establish a culture of safety for patients and perioperative team members. Perioperative team members who focus on patient safety also should consider implementing tools and techniques to prevent occupational injuries related to moving patients and equipment. The revised SPHM guideline provides recommendations based on current literature and includes the RNLE and ergonomic tools. Perioperative leaders and team members should refer to these resources when establishing a formal SPHM program to help reduce the risk of perioperative team member and patient injury and improve the quality of patient care.

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Lisa Spruce, DNP, RN, CNS-CP, CNOR, ACNS, ACNP, FAAN, is the director of Evidence-Based Perioperative Practice at AORN, Inc, Denver, CO. *Dr Spruce has no declared affiliation that could be perceived as posing a potential conflict of interest in the publication of this article.*

Knowledge Check Answers:

1. In this scenario, Kelly did not follow the recommended practice point.
2. In this scenario, Rob did not follow the recommended practice point.
3. In this scenario, Dr C did not follow the recommended practice point.
4. In this scenario, Mark did not follow the recommended practice point.

Continuing Education
Safe Patient Handling and Movement

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PURPOSE/GOAL

To provide the learner with knowledge of best practices for safe patient handling and movement.

OBJECTIVES

To what extent were the following objectives of this continuing education program achieved?

1. Discuss common areas of concern that relate to perioperative best practices.
   Low 1. 2. 3. 4. 5. High
2. Discuss best practices that could enhance safety in the perioperative area.
   Low 1. 2. 3. 4. 5. High
3. Describe implementation of evidence-based practice in relation to perioperative nursing care.
   Low 1. 2. 3. 4. 5. High

CONTENT

4. To what extent did this article increase your knowledge of the subject matter?
   Low 1. 2. 3. 4. 5. High
5. To what extent were your individual objectives met?
   Low 1. 2. 3. 4. 5. High
6. Will you be able to use the information from this article in your work setting?
   1. Yes 2. No
7. Will you change your practice as a result of reading this article? (If yes, answer question #7A. If no, answer question #7B.)

7A. How will you change your practice? (*Select all that apply.*)
   1. I will provide education to my team regarding why change is needed.
   2. I will work with management to change/implement a policy and procedure.
   3. I will plan an informational meeting with physicians to seek their input and acceptance of the need for change.
   4. I will implement change and evaluate the effect of the change at regular intervals until the change is incorporated as best practice.
   5. Other: _____

7B. If you will not change your practice as a result of reading this article, why not? (*Select all that apply.*)
   1. The content of the article is not relevant to my practice.
   2. I do not have enough time to teach others about the purpose of the needed change.
   3. I do not have management support to make a change.
   4. Other: _____

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