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Perspectives

Recovery Strategies From the OR to Home

CEs for Nurses

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After completing this activity, the learner will be able to:

1. Describe ways to help manage skin folds in the bariatric population in the hospital
2. Describe different pressure injury risks that affect bariatric patients cared for at home
3. Describe risks associated with alarm fatigue
4. Recognize the role of IV protection in the reduction of false alarms

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Bariatric Pressure Injury: Skin and Wound care in the Home Care Setting

By Vicki Haugen RN, BAN, MPH, CWOCN, OCN

Obesity is an increasingly serious health care issue and health risk in America with more than one third of Americans considered obese (NIH/CDC). An even greater health care concern is the increasing rate of morbid obesity (the bariatric patient) as well as the increasing rate of super obesity. According to the CDC a BMI (body mass index) of >40 is morbid obesity and a BMI >50 is now considered super obesity. The rate of persons with a BMI greater than 40 or 50 is growing in prevalence.[1]

Skin injury to bariatric patients can involve a combination of factors such as pressure injury, moisture or incontinence associated injury, and alteration in skin perfusion. Unique needs in the bariatric population involve problems such as pressure injury from catheters buried deep in skin folds or sides of wheel chairs or other furniture that are too small. Due to their body shape, any point of contact such as the fleshy gluteal part of the buttocks is often at risk for pressure injury, rather than a bony prominence.

Wound and skin care of persons in this bariatric population are of concern for both the prevention of skin injury and the treatment of skin injury as their care often brings different challenges with regard to their body size. It is the scope of this section to highlight the skin care issues of the bariatric patient cared for in their own home by a home care agency specifically as it may differ from acute and long term care.

Overview of Skin Care for the Bariatric Patient at Home

Home care nurses must be vigilant and creative in doing a full body skin assessment at the start of care when opening the case of a bariatric patient in the home. Overcoming physical as well as emotional obstacles present a challenge during the early building of the relationship between the home care staff and the patient. Both the nurse admitting the patient and the patient may experience embarrassment in introducing the need to visually see the entire body for any skin related issues. Using a gentle matter of fact approach by letting the patient know this head-to-toe skin check is warranted in all new care assessment so that the team is aware of current skin injury or areas of risk for skin injury that can be prevented or treated early. The patient may be able to offer ways that they can be turned or moved or that they can move to allow the skin inspection. It is imperative to look at all skin fold areas, such as under abdominal folds, gluteal folds, anywhere skin surfaces rub against each other. The former care facility may have missed or not passed on information about skin issues such intertrigo, fungal rashes, cellulitis, or pressure injury already present at the start of care. The skin assessment is good time to offer education to the patient or family on why these areas are at risk, how to cleanse and care for the skin to prevent skin injury. Telling the patient this information often fits in well in developing care goals as they are transitioning from the more acute care area and now need more assistance at home to prevent returning to an acute care setting.

The following points are useful for skin assessment in the home:

- Introduce and educate the patient and family about the need for head-

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Sounds of Silence: Infusion Pump Alarms

By JoAnne Phillips, MSN, RN, CCRN, CCNS, CPPS

Clinical alarms are generated by many different devices in healthcare, including mechanical ventilators, pulse oximetry monitors, feeding pumps, bed exit devices, sequential compression devices, and infusion pumps. The noise generated by alarms can be disruptive and anxiety producing for staff, patients, and families, resulting in a syndrome referred to as alarm fatigue. Alarm fatigue is the "limited capacity to identify and prioritize alarm signals, which has led to delayed or failed alarm responses and deliberate alarm deactivations."[2] Alarm fatigue is a significant risk to patient safety, and is the most common contributing factor in alarm related sentinel events.[3] Nurses experiencing alarm fatigue may disable, silence, or ignore clinical alarms placing patients at risk.[4] Alarms may also impact on patient satisfaction, reflected in lower scores from Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). These lower scores may in turn result in lower reimbursement from the Centers for Medicare and Medicaid (CMS).[5] In a study conducted by ECRI, 53% of the respondents stated that alarm issues impacted on patient satisfaction scores.[4] Although the majority of alarm emanate from physiologic monitors, nearly 90% of hospitalized patients use infusion pumps, which can therefore play a key role in alarm fatigue.

The noise associated with clinical alarms can affect the patients and family, as well as the staff. Noise can also result in negative physiologic consequences on the patient and family (Table 1). Excessive noise in the clinical environment can lead to clinicians not hearing or cognitively processing critical alarms. Infusion pumps are the vessel for life sustaining medications, which may be inadvertanly stopped if an alarm is not responded to in a timely fashion. There are also potential physiologic consequences for staff as well (Table 2).

To address the patient safety risk associated with alarm safety, the Joint Commission released a sentinel event alert in April, 2013, which identified alarm fatigue as the most common contributing factor to alarm-related sentinel events. The sentinel event alert also identified alarm settings, inadequate staff training, inadequate staffing, and equipment malfunctions as factors contributing to alarm fatigue.[2] As a follow up intervention, the Joint Commission released National Patient Safety Goal (NPSF) 06.01.01, "Reduce the harm associated with clinical alarm systems." This NPSG was rolled out in two phases, over a 2-year period, beginning in January 2014. Compliance with the elements of performance (Table 3) were designed to support staff in the safe management of clinical alarms.

> **Alarm fatigue is a significant risk to patient safety, and is the most common contributing factor in alarm related sentinel events.**

Intravenous infusion pumps provide an important safety net for patients. Most importantly, they provide precision for the administration of intravenous fluids and medications.[6] Infusion pumps are involved in 35-60% of the 700,000 adverse drug events that are reported every year.[7] An effective infusion pump alarm needs to be audible within the current practice environment, so it can be responded to by a clinician who can troubleshoot the alarm and resolve the issue.

In a study by Lee, Thompson, and Thimbleby, data were collected over 360,000 hours of intravenous pump use, registering 260,129 alarms.[8] The highest number of alarms occurred in the oncology patient population. It is estimated it takes approximately 5 minutes to respond to and resolve each alarm. Nurses may spend up to 43 minutes per 12 hour shift per IV pump responding to IV pump alarms. Alarms may occur during as much as 6% of the total infusion time.[7] Approximately 30% of infusion alarms occur while the nurse is interacting with the pump. The top occurring alarm in the study by Lee, Thompson, & Thimbleby (2012) was the occlusion alarm, occurring in 37% of the alarm conditions. Occlusion alarms are based on pressure sensors in the chamber. When an occlusion alarm sounds, the patient is not receiving any intravenous fluid or medication. Infusions resumed in 74% of occlusion conditions, meaning that the pressure in the tubing decreased to below the preset alarm limits. Another frequently occurring alarm was no flow (21%), which occurs when an infusion bag is empty, clamps are closed or the bag is below the level of the infusion pump. Air in line was the next most

Table 1 Impact of Noise on Patients and Families

Patient
• Heart rate•
• Blood pressure Dyspnea
• Gastric acid
• Anxiety
• Cardiac dysrhythmias

Hsu, et.al., 2010 and Hsu, Ryherd, Waye, & Ackerman 2012

Table 2 Impact of Noise on Clinicians

Clinician
• Anxiety
• Negative job performance
• Burn out
• Annoyance
• Frustration
• Impatience

Hsu, et.al., 2010 and Hsu, Ryherd, Waye, & Ackerman 2012

Table 3 Elements of Performance NPSG 06.01.01	
Phase I Elements of Performance	Identification of alarm safety as an organization focus. Organizational identification of which alarms to manage.
Phase II Elements of Performance	Development of policies and procedures to support the alarms identified by the organization to cause risk to the patient if not responded to in a timely fashion. By January, 2016, provide education to staff and licensed independent personnel on the purpose and operation of equipment that they are responsible for (The Joint Commission 2016 NPSG).

The Joint Commission, Hospital: 2016 National Patient Safety Goals (2015, November). Retrieved from: https://www.jointcommission.org/assets/1/6/NPSG_Chapter_HAP_Jan2017.pdf

commonly occurring alarm, and represented 7.7% of the alarms. Air in line is detected by an ultrasonic transmitter that senses when air is being pumped across the sensor. Air can be introduced into the tubing by incorrect priming of the IV set, loose connections, inversion of the set during use, or the administration set running dry. Air in line can also be caused by changes in the viscosity of medications.In one hospital, 28% of air in line alarms were caused by amiodarone.[4] Other alarms include door open, low battery, dead battery, and safety clip, such as would occur with set disengagement.[7]

Downstream occlusion alarms occur between the pump and the patient.[9] Hard downstream alarms occur because of increased pressure in the tubing, and are based on the rate of the fluids, elasticity of pathway, and the gauge of the intravenous access, with higher gauge, smaller catheters creating more resistance, thus more occlusions. In addition, closed stopcocks, kinked tubing, and kinked catheters, such as a catheter in the antecubital fossa can result in hard downstream occlusion alarms.

An innovative technology has been developed to prevent the hard downstream alarms patients often experience from antecubital IVs, when bending or moving their arm. IV-ARMOR is placed over the traditional IV dressing, preventing an extreme bend of the elbow. The device allows the patient the mobility to complete activities of daily living, such as eating and brushing their teeth. The foam pad splint also protects the integrity of the catheter, resulting in a decrease in IV restarts, saving time and money. (Figure 1)

Soft downstream occlusion alarms occur because of a buildup of pressure within the catheter. It may be indicative of and infiltration or extravasation, buildup of precipitate/emboli, or compression of catheter. Because the soft downstream occlusion, or partial occlusion, takes time to build up pressure it presents a restriction to flow, but flow is still able to get by. Soft downstream occlusions take more time to create an alarm.[8]

Approximately 10% of intravenous pump alarms are upstream occlusion alarms that occur between the intravenous solution and the pump.These alarms can occur if there is a clamp between the solution and the pump that has not been released, as the result of a clogged upstream filter, or the failure to open air vents on intravenous bottles.[8]

Although intravenous pump alarms are quite often attributed to the physical intravenous catheter, clinicians must also examine the preparation, storage, and method of administration of intravenous fluids. For example, cold intravenous solutions may be more problematic than room air solutions.[4] Leaders and clinicians must also evaluate how alarm pumps are configured. Vanderveen (2014) reported that in one study in a children's hospital, the "near end of infusion alarm" was identified as a non-value added alarm.[4] By reprogramming the pumps, the hospital was able to eliminate 24,000 alarms over a two week period. Another practice/programming issue to assess is the administration of antibiotics as secondary infusions versus primary infusions. In a case study presented by Vanderveen, a patient was receiving three different antibiotics, one every 12 hours; one every eight hours; and one every six hours.[4] By administering the antibiotics as primary IVs instead of secondary IVs, the nurses needed to respond to and intervene to resolve a minimum of 9 alarms in a 24 hour period. If the antibiotics had been infused as secondary infusions, if there was an alarm at the end of the secondary infusion, it might resolve without intervention, decreasing the need for the nurse to interrupt his/her workflow to respond to a non-value added alarm.

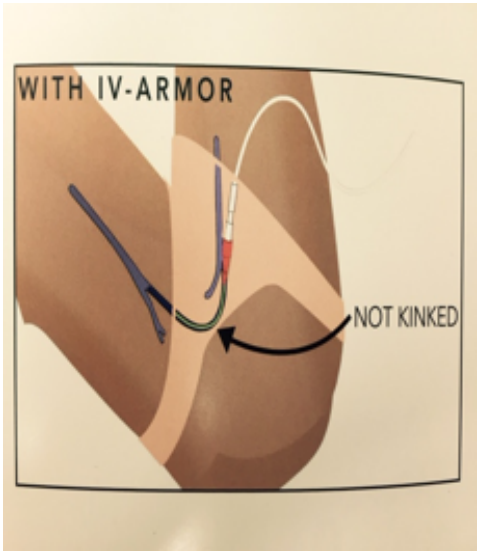

Figure 1. Dale IV-ARMOR®

The following case studies represent examples of infusion pump alarms, their causative factors, and potential interventions to prevent further alarms.

Case 1

Mrs. Barbara Green is a 78-year-old patient admitted with a diagnosis of community acquired pneumonia, who is receiving intravenous fluids at 100 mL/hour and intermittent intravenous antibiotics. Mrs. Green has become more agitated over the past 4 hours. The IV site in her left antecubital is stable, but is not running continuously, as Mrs. Green is constantly bending her arm. The registered nurse (RN) turns down the volume on the pump so that it does not agitate the patient any further.

What type of occlusion is occurring? The alarm that occurs between the patient and the infusion pump is a downstream alarm. In this case, since the patient is bending her arm, she may be creating a kink in the catheter, resulting in a hard occlusion.

Did the RN take the correct action? Turning down the volume on the pump is not the correct action, as the nurse always needs to know when

the IV solution is not infusing. More appropriate actions would have been to relocate the IV site or to prevent the kinking of the catheter with either a splint or IV-ARMOR.

Case 2

Jill is a nurse on a 40-bed oncology unit. She is caring for 4 acutely ill oncology patients. She was covering for Sam, another nurse, who was at lunch. Jill heard a pump alarm from room 7. Since she was rushed, she entered the room, noted that the IV solution needed to be replaced, and quickly replaced it. Shortly after she left the room, she heard the IV pump again. She returned to the room and noticed the message "upstream occlusion" on the pump.

What does the RN need to focus on to troubleshoot the alarm? An upstream alarm is indicative of an occlusion between the IV solution and the pump. It may occur if there is a filter in the tubing that is clogged, an unopened clamp, or a closed vent on a glass IV bottle.

Case 3

Mrs. Roberta Clay is a 42-year-old patient admitted from the emergency room with abdominal pain. She is suspected of having a recurrence of diverticulitis and is receiving IV antibiotics. Her IV pump is alarming every time she bends her wrist. The nurse offers to restart the IV in a new location, but the patient declines. Out of frustration, the nurse shows the patient how to restart the IV pump and silence the alarm.

What would you do in this situation? Explain to the patient the importance of her IV fluids and antibiotics. If that is not successful, use a splint or IV-ARMOR to protect the site to keep the wrist from bending enough to kink the catheter.

Should patients be allowed to control their own pumps? A patient should never been shown how to reset an IV pump, even if the patient or their family are healthcare providers. One of the characteristics of an appropriate infusion alarm is that it needs to be responded to by a person who can address the issue.

Case 4

Tim Meadows is a 36-year-old former college track star who developed cardiomyopathy when he was just 32 years old. He came to the emergency department complaining of syncope. He was found to be experiencing runs of ventricular tachycardia. He was placed on an amiodarone infusion and admitted to the cardiac intermediate care unit. His amiodarone infusion was constantly alarming for "air in line." The nurse responded multiple times, but the pump continued to alarm. The patient became very upset and agitated about the continuous alarm. When the nurse entered the room, she noted that he was resetting the pump himself.

What are some interventions to prevent the infusion from alarming for air in line? After checking the tubing for visible air, and finding none, the nurse can reposition the tubing in the machine, tapping the tubing to ensure that small micro bubbles in the tubing might rise away from the sensor. Another intervention would be to clean the sensor in the pump, following manufacturer's recommendations.

What interventions are imperative to prevent the patient from resetting his own IV pump? There are two imperatives in this situation. First, patient education to ensure that the patient is knowledgeable about the risks associated with him resetting the pump. If the nurse is not confident that the patient will not reset the pump, he/she can lock the pump to prevent any manipulation by the patient or family.

Interventions to prevent infusion alarms should focus on the patient and not the technology. Since 90% of hospitalized patients use IV pumps at some time during their hospital stay, IV pump alarms have the potential to disrupt nurse work flow and distract nurses from important tasks to respond to alarms that are potentially non-value added time. The case studies presented a series of alternative solutions for upstream and downstream alarms. Some organizations have assembled committees to assess the status of IV pump alarms by surveying nurses about infusion pump alarms and integrating first line caregivers in the selection of new pumps. Collection and analysis of data from infusion pumps will inform leaders and clinicians on the frequency and characteristics of infusion pump alarms, allowing the creation of countermeasures to decrease the number of non-value added alarms. The introduction of new technology, such as the IV-ARMOR, a protective overlay placed over a traditional IV dressing to prevent extreme bending or kinking of the IV catheter, may help to decrease non-value added time. Simple interventions, such as cleaning IV sensors may also help to eliminate unnecessary alarms.

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JoAnne Phillips, MSN, RN, CCRN, CCNS, CPPS is currently the Manager, Quality and Patient Safety Penn Home Care and Hospice at University of Pennsylvania Health System. She is the Chair of the National Association of Clinical Nurse Specialists, Alarm Fatigue Task Force. Additionally, she is a member of The National Coalition on Alarm Safety and a member of the task force of the Association for the Advancement of Medical Instrumentation (AAMI). She has published extensively in peer-reviewed journals and has been a contributing chapter editor. A highly-sought after speaker, Ms. Phillips has presented at numerous state and national nursing meetings.

Bariatric Pressure Injury —Continued

to-toe skin assessment and explore how this can become a routine for them in ongoing skin care.

- Be prepared with enough help from agency staff or family to move or turn a bariatric patient that is immobile. Encourage the patient to move as much as they can on their own.
- Check the skin from head-to-toe and front-to-back with care to examine any skin folds in the abdomen, arms, legs, gluteal fold or elsewhere.
- Use devices such as turning sheets or overhead lifts whenever available and use the skin assessment as time to evaluate the need for these devices to aide in safe mobility of the patient at home.
- Ask about any history of skin injury past or current.
- Check to see if all medical devices or clothing are the correct size or if they pose a risk for pressure injury from the device.
- Set up goals for regular skin checks and skin care.

Prevention of pressure injury: Incontinence care of the bariatric patient at home

Often the home health aide is sent into the home setting to assist a bariatric patient in bathing in the shower. The nurse must set up a safe plan of care, and work with OT and PT to determine if the patient can be showered with just the assistance of one aide, or if the patient needs to be bathed in bed until they are stronger and able to assist in transfers. A transfer or lift device can be brought in to assist the home health aide the patient with a shower. When doing a bed bath the aide must be able to turn the patient without injury to themselves or the patient. Turning assist devices or lifts can be useful in this regard also. Correct sizing of these devices can prevent medical device pressure injury from an inappropriately small piece of equipment. Creating safe and respectful conditions for care is of primary importance.

Many persons of larger size experience urinary incontinence and use pads or undergarments to contain urine. But if they have difficulty cleansing or changing these garments they are at risk for moisture-associated or incontinence-associated skin damage. They may need instruction in the use of products that protect the skin or assistance to provide incontinence skin care more frequently. At home the patient may have become used to remaining too long in wet undergarments or wet, unwashed clothing due to their inability to physically reach body areas or to do their own laundry. Checking for large amounts of unclean clothing or urine odor can provide information that the patient needs more help with both hygiene and laundry. Any skin injury from moisture puts the patient at greater risk for pressure injury.

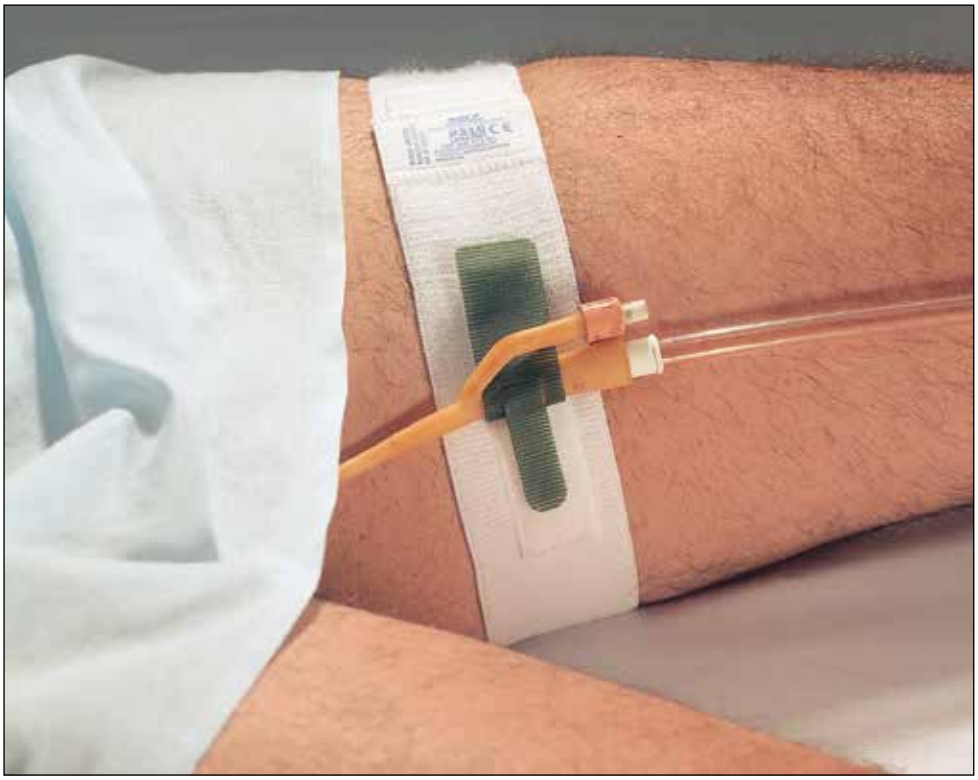

Figure 1. Foley Catheter Legband (courtesy of Dale Medical)

Prevention of pressure injury: Skin fold care of the bariatric patient at home

Recurring skin fold skin injury such as intertrigo, fungal rash, cellulitis or pressure injury between skin folds can keep a patient from gaining independence in the home. Patients may find themselves in a revolving cycle with the need for re-admittance to the home care agency. There is often shame on the part of the patient and/or frustration on the part of the home agency staff due to the difficulty of maintaining a resolved condition. Basic cleansing and thorough drying of the skin with the use of preventive barrier products must be made available at reasonable rates. For example patients may utilize a certain barrier cream or linen skin fold towel during the home care intervention when the products are provided by the home care agency, but when discharged, the patient may not be able to afford the products they preferred or which were successful. Thus, exploring financial ability and less costly options may be necessary before discharging the patient from the home care agency.

Often with large abdominal skin folds, the patient cannot reach the area to do independent cleansing and protective product usage. They may or may not have family to assist. It may take two persons to lift and cleanse a large abdominal pannus presenting a challenge for ongoing care. Pressure injury occurs between the skin folds of a large or heaving pannus and immobile or bedridden patients may need their pannus repositioned to avoid the injury of pressure occurring. Also, intertrigo can progress to skin erosion with bacterial or fungal infection or cellulitis.[3] Once the skin issue is resolved and the patient is discharged it is not uncommon for them to be re- admitted with the same skin fold diagnosis. Individual family systems must continue to be explored for resources. At times patients may qualify for in home bathing assistance from a social service agency

even though they do not have a current skilled nursing need the meets regular payer requirements.

Pressure injury prevention for the bariatric patient at home

Many larger persons sustain pressure injury from beds and chairs and other devices or furniture that is too small for their body habitus. At home the larger patient who has become more immobile may be found living and sleeping in a recliner due to their difficulty with mobility. Lack of mobility and or an ill-fitting chair can cause pressure and shear injury to both the hips and gluteal coccygeal areas. Patients have been found to be totally unable to get up from their chair and have found a way to order out for food supplies or have family and friends who bring them supplies. Some are incontinent in the chair while others may just be able get to a commode as their only activity during the day. Finding creative ways to obtain beds or larger furniture, as well as assisting with cleansing and resolution of skin injuries make home care both a rewarding and frustrating challenge. Physical therapy may be able to work with a patient to gain enough strength to stand from the chair using arm strength to push up from the chair. This can prevent further shear injury often incurred when patients slide forward to get out of a chair or bed. Sometimes admission to the hospital to stabilize the medical issues, and a stay in a post hospital rehab unit, may be necessary to get the patient into a more appropriate housing or life style. Some patients may have indwelling catheters. It is important to reposition Foley catheters away from large thigh skin folds to prevent pressure injury. Besides moving the catheter with each patient repositioning, pad the catheter away from the skin if needed. Commercially available bariatric sized Foley catheter holders provide securement away from skin folds and are available with longer legs straps or can be used as a waist band. (Figure 1)

Looking for pressure injury at bony areas such as heels can be similar to any patient. But the bariatric patient needs to be closely inspected for pressure injury in skin folds on the abdomen or posterior thighs and in the gluteal cleft. The pressure and friction of the skin surfaces alone can cause pressure injury. A workable turning schedule for immobile patients at home where the only help is the family must be realistic in regards to the strength and availability of the family. And decreased perfusion to a large pannus or other body part can increase risk for pressure injury as well as delay healing. Repositioning a large abdominal pannus on a regular schedule can prevent pressure injury from the weight of the pannus. Aligning with physical and occupational therapy is imperative to developing a safe plan of care using all the creative and available products and devices appropriate to each patient.

Lower extremity edema

Entire textbooks exist on this topic but it is necessary to address briefly as the bariatric patient will be more likely to have acute or chronic lower extremity edema from venous or lymphatic disease. And the patient needs expert wound care specialists to prescribe appropriate skin and wound care and lower extremity compression wraps. However, inappropriately sized or badly applied lower extremity wrap or stockings can cause device-related pressure injury.

Scenario

An independent 76-year old female is primarily wheelchair bound due to her bariatric size and chronic pain. She can stand briefly with a walker to transfer to the chair from her bed, but finds is difficult to transfer to the toilet in a timely manner due to her pain, her size, her overall lack of strength, as well as her urinary urgency. She is at ongoing risk for skin injury. She has chronic recurring pressure injury on her sacrum and posterior thighs from incontinence moisture, from shearing and pressure forces as she both sits for lengthy periods in her wheel chair, and from her sliding forward as she works to stand up to her walker. Having correctly sized equipment is imperative for pressure injury prevention. Having assistance for bathing and incontinence care reduces her risk for skin injury. Physical therapy worked with her on strengthening to reduce her difficulty coming to standing position. Occupational therapy worked with her to use assistive devices to for dressing and working more safely in her kitchen. And wound care nurses developed a plan of care with her physician for the nurses to treat her pressure injury.

Team coordination and communication is imperative for safe and respectful care of the bariatric patient utilizing all members of the team to develop and carry out an individual plan of care executing safe physical care for patient and caregivers with a compassionate focus.

Overview of Skin Care for the Bariatric Patient in the Hospital

By Julie Kula, RN, BSN, CWOCN

When patients are admitted to the hospital is important to do a thorough head-to-toe skin assessment on admission and on an ongoing basis on all patients to identify anything that was present on admission and for early intervention and treatment. Bariatric patients should be assessed for common skin complications, including candidiasis and intertrigo in skin folds and perineal area, incontinence associated dermatitis, pressure injury on bony prominence and on sites other than bony prominences, venous stasis ulcers and/or lymphedema.[4] Pressure injury occurs as blood supply to the tissues is diminished, resulting in ischemia, which can lead to necrosis. The three main causes are pressure, shear and friction, which frequently occur with the treatment of bariatric patients. Pressure injury typically develops over bony prominence such has the coccyx and heels, where the blood supply to the tissue is compromised by external pressure. However, pressure ulcers may also develop from pressure across other areas where there is high adipose tissue concentration. With bariatric patients atypical pressure injury can occur within skin folds and other areas where devices such has tubes have been compressed between the skin folds.[5]

Prevention of pressure injury: Skin fold care for the bariatric patient in the hospital

Skin folds can be problematic due to skin on skin friction that initially leads to mild erythema and may progress to more severe inflammation with erosion, oozing, maceration and crusting. Intertrigo is facilitated by trapped moisture in the skin folds. When skin rests on skin it creates a warm, moist and dark environment that can lead to skin breakdown. If intertrigo is not well managed, the

plethora of bacteria present on damaged skin increases the risk for serous soft tissue infections such has cellulitis and/or panniculitis.[6] This can often be associated with poor hygiene, although some morbidly obese patients are not able to adequately reach their skin folds to provide self-care.

All skin folds need to be assessed and the base of the skin folds needs to be inspected. With bariatric patients this can be difficult due to the weight of the skin folds. It is often beneficial to have a second person assist with the skin inspection. This helps to minimize any excess traction on the skin that can lead to fissure formation in the base of the skin fold. Patient education has become an important focus with skin fold management. Patients often use a number of different techniques to manage skin folds that can be effective, ineffective or sometimes harmful strategies at home.[7]

When cleansing skin folds a pH-balanced cleanser with minimal friction should be used to cleanse the skin. Dry skin after cleansing skin folds by padding the area vs wiping to minimize friction will help to minimizing moisture in skin folds and prevent skin breakdown in skin folds. Using absorptive pad or moisture wicking material in skin folds to help keep skin off of skin can help keep skin folds dry and manage microclimate. The use of a barrier is also helpful in protecting the skin from moisture. The proper use of topical antifungal when a fungal infection is present is necessary. Emollient use on dry skin will help to keep the skin supple and may reduce the risk of skin damage.[8]

Many facilities lack specific equipment or sufficient staff to properly care for morbidly obese patients. Right-sized devices—such as larger blood pressure cuffs, abdominal binders, compression stockings and leg wraps can help prevent skin injury. When possible, consideration should be given to selection of medical devices and equipment especially designed for the bariatric patient (Figure 2). For example, narrow cloth tracheostomy tube ties can burrow into the neck skin folds among patients with thicker necks causing pressure-related skin injury. Tracheostomy tube holders that are wider and longer than standard tracheostomy ties are available for use when indicated.

Figure 2. Tracheostomy Tube Holder (Courtesy of Dale Medical)

Prevention of pressure injury: Incontinence-associated dermatitis in the bariatric patient

Incontinence-associated dermatitis (IAD) is a form of irritant dermatitis that develops from chronic exposure to urine or liquid stool. Existing research suggests that moisture-injured skin has an impaired tolerance to friction or pressure, resulting in a higher risk for pressure injury. Prevention and treatment of IAD is prompt removal of irritants from the skin, combined with application of a skin protectant. Evidence does not support any given product or method, but supports the use of a defined skin care program and quality products. The perineal skin should be gently cleansed with a pH balanced cleanser and scrubbing of the area should be avoided. With bariatric patients special care needs to be given to the skin folds to ensure that all irritants are removed from these areas. An emollient should also be applied. This can be done in a separate step or incorporated in a perineal cleanser. A skin protectant serves as a moisture barrier for the skin and protects against exposure to irritants.[6] Diversion devices have such has indwelling catheters and fecal management systems have been shown to prevent IAD, but have risk associated with them that also must be considered. Tube holders keep tubes from burrowing into soft tissue that can lead to pressure-related skin injury. One solution is commercially available bariatric sized Foley catheter holders provide securement away from skin folds and are available with longer legs straps or can be used as a waist band. (Figure 1) Incontinence pads can be used to contain the urine or stool, but care is required to ensure that the use of underpads does not interfere with the pressure redistribution or microclimate management properties of any support surface in use. Use of breathable pads is recommended to allow transmission of moisture vapour.[9] The use of wrap-around absorbent briefs is an option and maybe recommended when patient is going for procedures or therapy, but can trap in moisture and should be avoided when the patient is in bed.

Pressure injury prevention for the bariatric patient in the hospital.

The role of repositioning is crucial for all patients with limited mobility to relieve pressure over bony prominences and to manage microclimate. The standard of care requires repositioning every 2 hours for patients with limited mobility, and the heels should be floated off the bed with the use of pillows or heel lift boots. Turning bariatric patients safely and adequately requires adequate staff and equipment. Attempting to lift, turn, or reposition patients without proper equipment can cause injury to the patient and staff. The HOB should be limited to 30 degrees or less unless medically indicated. Pressure injury peaks when the HOB is raised to 45 degrees and pressure is not relieved.[9] Patients' microclimate is also something that should be considered, excessive moisture can significantly increase the skin's coefficient of friction. The skin-surface interface becomes hot and humid very quickly in patients with extreme obesity because they must perspire to maintain their body temperature. Increased perspiration is particularly relevant to pressure ulcer risk because moisture on the skin surface can reduce the skin's resilience and increase the coefficient of friction of skin, making it more prone to pressure, shear stresses and friction. In addition, the standard mattress cover does not "breathe," so heat and moisture can build up between the skin and the mattress, which produces and increased risk of shear injury and pressure injury.[8,9]

Prevent of pressure injury: Resources/equipment for the bariatric patient in the hospital

It is crucial that equipment be properly labeled with weight limits and available for bariatric patients. Equipment should be labeled in a way that renders it easy for staff to understand

the weight restrictions, while avoiding labels that stigmatize the equipment has bariatric.[7] A standard bed frame may not be wide enough to allow for adequate turning and repositioning of patients even if the frame is able to accommodate the weight of the patient. In addition, patients may fit the bed frame, but the mattress may not be able to support the weight of patient, where the weight of the patient compresses the mattress and the patient is resting on the frame of the bed. Bariatric beds need to be able to fit through door frames for patient transfers and if the bed needs to be collapsed before it can fit through door frames, staff need to be able to do this in a timely manner in cases of emergencies and can this be done without compromising the pressure ulcer prevention surface that the patient is on.

Providing care for the bariatric patient with impaired mobility require extra staff and environmental support including patient repositioning, dressing changes, daily hygiene, patient transfers or procedural interventions. Thirty years of data analysis confirm that body mechanics alone is not enough to prevent staff or patient injury. Appropriate lift equipment and consistent use have been confirmed methods for reducing staff injuries.[7] Knowing how to properly use the equipment and having it available when needed is imperative. Staff need to be well versed in how to use the equipment. Many bariatric patients fear breaking the equipment, being injured or causing injury to others, which can interfere with treatment.[4]

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Vicki Haugen RN, BAN, MPH, CWOCN, OCN, FCN is a Wound, Ostomy, Continence Nurse. She has several positions, including CHANS Home Care WOC Nurse and WebWOC faculty. Ms. Haugen has been employed at Fairview Southdale Hospital, Edina, Minn since 1989 and currently holds the position of Clinical Nurse Leader, Wound, Ostomy, Continence Nurse. A highly sought-after speaker, Ms. Haugen has spoken at several nursing meetings on the topic of ostomy care and perineal dermatitis. Ms. Haugen has coauthored 8 scientific publications and has delivered several podium and poster presentations in recent years.

Julie Kula, RN, BSN, CWOCN is a Wound, Ostomy & Continence Nurse Clinician at the Park Nicollet Hospital in St. Louis Park, MN. At this facility, she has developed the skin care program which has contributed to decreased hospital acquired pressure ulcers. Ms. Kula is one of the principal authors and researchers for SAFE SKIN call-to-action. She has published in the Journal of Wound, Ostomy & Continence and has presented a several regional and national WOCN conferences. Ms. Kula serves on the Minnesota Hospital Association Pressure Ulcer Panel.

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Saxe Healthcare Communications
P.O. Box 1282, Burlington, VT 05402
info@saxecommunications.com

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Learning Objectives

After completing this activity, the learner will be able to:

1. Describe ways to help manage skin folds in the bariatric population in the hospital.
2. Describe different pressure injury risks that affect bariatric patients cared for at home.
3. Describe risks associated with alarm fatigue
4. Recognize the role of IV protection in the reduction of false alarms

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