

# WOUND CARE FOR PEDIATRIC, BURN, BARIATRIC AND CANCER PATIENTS

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Wound care involves many facets of medicine and nursing. Even though chronic wounds can be as varied as the day is long, they all undergo phases of healing, and they all need to be addressed by their characteristics. In general, there are basic principles that apply to most wounds. However, some patient populations can change the way wounds are treated or, at the very least, the way wounds are looked at. Some of these populations include the pediatric patient, the burn patient, the obese or bariatric patient, and finally the cancer patient where the goal is not always wound healing.

### *The Pediatric Patient*

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When selecting a wound care dressing, drug or adjunctive therapy for use in neonatal and pediatric populations, it is important to consider the following:

- Goals of therapy
- The practice environment
- Resource availability
- The patient's age
- Degree of integumentary maturity
- Skin condition
- Product concentration and adherence
- Potential for skin sensitization
- Impact of product absorption and need for avoidance of products containing dyes, fragrances and preservatives
- Knowledge of product safety and the manufacturer's recommended use data in the neonatal/pediatric population

### **Patient Assessment**

A thorough assessment should include the following factors as well as those specific to each patient's needs with a targeted physical exam:

- Current medical issues
- Clinical stability
- Age
- Height and weight
- Medical, surgical, medication, social and nutrition history
- Allergies
- Review of labs and diagnostic tests
- Family support systems
- Pain status
- History of previous wounds, treatment and healing outcomes

- Pressure ulcer risk assessment score (using a valid and reliable tool)

### **Dressing Selection Criteria**

Ideally the dressing should:

- protect the wound,
- be easy to apply,
- not require frequent changes,
- stay in place in a humidified environment, and
- be the correct size, or have the capability to be cut.

### **Dressing/Product Tips**

1. Use an alcohol-free liquid skin barrier on the skin under adhesives in neonates more than 30 days old.
2. Pad splints and use padded Velcro®-like straps over splints and to secure devices.
3. Use tubular latex-free stretch netting instead of tape.
4. Use absorbent diapers and change them frequently.
5. Avoid using commercial diaper wipes on neonates.
6. Avoid products containing dyes and fragrances.
7. If povidone iodine or alcohol-based prep agents are used prior to the insertion of lines, drains or procedures, limit the amount used and rinse the patient immediately with sterile water. Always check under the patient to ensure that they are not lying on linens soaked in prep solution.

### **Pain Assessment and Management in Pediatrics**

An evaluation of pain including behavioral characteristics such as crying, facial expressions, motor response, restlessness or undue quietness should be an integral part of every wound assessment. Analgesics, distraction and guided imagery can be beneficial in pain management. Use a valid and reliable pain assessment scale like one of the following in conjunction with patient assessment:

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- **CRIBS:** Crying, oxygen requirement, increased vital signs, expression, sleeplessness
  - **CHIPPS:** Children's and infants' postoperative pain scale
  - **NIPS:** Neonatal infant pain scale
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## Education

Integral to education in pediatrics is recognition of each child's uniqueness, the developmental characteristics of each age group, and the psychological and psychosocial factors that they face. Some helpful hints follow:

- Involve children in their own care, if possible.
- Use age-appropriate language.
- Assess what the patient, parents or caregiver wants to know.
- Involve the family if it is practical and consistent with their wishes and that of the patient.
- Assess the level of understanding, expectations, coping skills, and access to sources of support of the patient, parents or caregiver.
- Maintain peer-related activities, if reasonable.
- Use play therapy that is age and developmentally appropriate.
- If the child is returning to school, provide resources, education, and contact information for teachers and the nurse.
- Educate teenagers on a one-on-one basis to respect their privacy. Use educational materials that are concise and focused.

### Education Tips

1. Teach staff to remove adhesives gently using the horizontal stretch method. During this method, you gently lift a corner of the dressing and pull it away from the skin horizontally, stretching and breaking the adhesive bonds. Support the area with the other hand.
2. Avoid the use of adhesive removers and bonding agents in the neonatal population because they can increase the risk of epidermal stripping and result in toxic absorption through the skin.
3. Monitor the patient for symptoms of infection and control bacterial bioburden and infection.
4. If *Candida albicans* is present, treat it with an antifungal ointment. Avoid the use of powders in the nursery.
5. In preterm neonates there is the additional concern of toxicity through the skin from alcohol- and povidone iodine-based solutions.
6. Only flat-seamed clothing or clothing that is turned inside out should be used in those with Epidermolysis Bullosa.
7. Decrease humidity and heat because they can cause blistering in infants and children with Epidermolysis Bullosa.

## Integumentary (skin) Milestones

As gestation progresses:

- At 24 weeks preterm babies have an immature epidermis. Their skin is red, wrinkled, translucent and gelatinous in appearance. They lack subcutaneous tissue; therefore, their dermis is lying directly over the muscle. Consequently, skin stripping secondary to adhesive dressing or tape removal can result in full-thickness tissue loss.
- Between 26 to 29 weeks, fat deposition begins and skin wrinkling lessens. The barrier function of the skin remains poor.
- At 30 weeks subcutaneous tissue is evident and the outermost layer of skin is 2 to 3 cell layers thick, compared to 30 layers thick at 40 weeks.
- The premature neonate's skin is considered functionally mature at 33 weeks. The epidermis is fully converted into keratin and the dermal/epidermal junction is stronger, but remains fragile and easily damaged.
- At 36 weeks (full-term), the epidermal and dermal layers are up to 60 percent as thick as an adult's skin, which is structurally similar to fully developed skin.

### Worth remembering ...

#### Skin Milestones

As gestation progresses:

**24 weeks:**  
immature epidermis

**26 to 29 weeks:**  
barrier function remains poor

**30 weeks:** outermost layer is 2 to 3 cell layers thick

**33 weeks:**  
remains fragile

**36 weeks:**  
structurally similar to adult skin

## Wound Etiologies Among Neonates and Children

The most commonly encountered wound types among neonates and children include the following.

### *Epidermal stripping*

**Epidermal stripping** is most common in neonates born before 27 weeks gestation, secondary to tape and adhesive dressing removals. Because of the neonate's immature epidermis, adhesive products typically bond more aggressively to the epidermis than the epidermis does with its connective tissue layer, the dermis.

### *Extravasation injuries*

**Extravasation injuries** occur as a result of inadvertent leakage of potentially harmful drug fluid from a vein or cannula into the surrounding soft tissue. The reported incidence of extravasation injury is 0.1 to 15 percent and occurs most frequently in neonates of less than 26 weeks gestation.

### *Surgical wounds*

In a 2005 prevalence audit of 252 patients:

- 43 percent of hospitalized children were noted to have an open **surgical wound** or closed incision;
- Seventy-one percent required daily nursing observations;

- 22 percent received twice-daily dressings;
- 5 percent received complex dressing care, and
- 2 percent received negative pressure wound therapy.

### *Diaper rash*

The prevalence of **diaper rash** among neonates and children is between 16 and 42 percent. In fact, diaper rash is one of the most common dermatological conditions encountered among neonates and children who wear diapers.

### *Chemical burns*

**Chemical burns** can occur secondary to the application of adhesive removers, bonding agents, povidone iodine and alcohol-based prep solutions.

### *Thermal injuries*

In neonates **thermal injuries** can be secondary to heat from monitoring electrodes or less commonly from use of cold light for the identification of veins and arteries for line insertions. In children the most common cause of thermal injuries is associated with fire.

### *Wounds secondary to congenital conditions*

**Aplasia cutis congenital**, which occurs in 0.03 percent of births, is a defect of the skin manifested by absent areas of the epidermis and subcutaneous tissue. Wounds are partial- or full-thickness with 80 percent occurring on the scalp. Life-threatening bleeding and infection can occur because of this defect.

**Epidermolysis bullosa** is a rare hereditary disorder characterized by skin and mucosal blistering in response to minor friction or trauma.

### *Pressure ulcers*

**Pressure ulcer** rates as high as 27 percent in pediatric intensive care units, 20 percent in neonatal intensive care units, and 20 to 43 percent among outpatients with spina bifida have been reported. Unrelieved pressure and friction or shear-related forces result in microvascular soft tissue damage and resultant partial- to full-thickness pressure ulcers. Stage I through IV, unstageable and suspected deep tissue injuries should be documented in accordance with the National Pressure Ulcer Advisory Panel (NPUAP) definitions. In children, unlike adults, more than 50 percent of pressure ulcers are related to sustained pressure from equipment and devices.

## Wound Care Tips

1. Perform risk assessments at least daily, utilizing an age-appropriate, valid and reliable pressure ulcer risk assessment scale.
2. Perform frequent skin assessments under blood pressure cuffs, pulse oximetry devices, tracheostomy plates, oral and nasal gastric tubes, nasal prongs and masks, arm boards, traction boots, plaster cast edges and continuous positive airway pressure (CPAP).
3. In the presence of necrotic tissue a surgical consultation should be obtained, coupled with the use of autolytic debridement.
4. Use special handling techniques to minimize friction and shear forces to the skin.
5. Address pressure redistribution by using support surfaces on cribs, incubators (isolettes) and beds that are age and weight appropriate. Turn and reposition patients at least every two hours as is medically feasible. Unique to the neonatal and infant population, being held by healthcare professionals and parents helps off-load pressure.
6. Minimize friction and shear forces.
7. Maximize nutritional status as is consistent with overall goals of care.

### Worth remembering ...

A burn can be caused by a thermal element, exposure to chemicals, an electrical current or radiation.

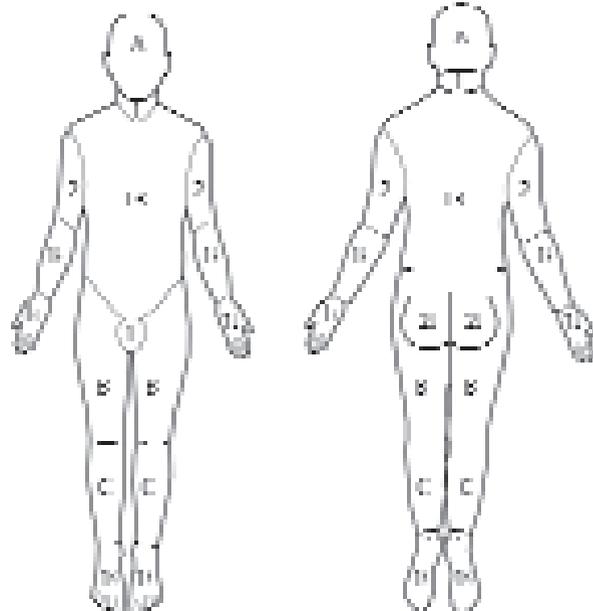
## Burn Care

A **burn** is an acute wound caused by a thermal element, exposure to chemicals, an electrical current or radiation. The patient who suffers a burn, as with any other traumatic injury, requires a thorough evaluation. The quick universal way to determine burn size from the pediatric to adult population is to calculate the damaged area using the “rule of nines.” This is a method used to determine the total body surface area (TBSA) that has been burned. The basic concept is that the body is divided into 11 sections, with each representing 9 percent of the total body. For example, an arm is given 9 percent; the abdomen is given 18 percent. If a burn were to involve both an arm and the abdomen, it is said that 27 percent of the body is covered with the burn. This is often represented as 27 percent TBSA.

### Rule of Nines



### Lund and Browder



Because it is possibly more accurate, the Lund and Browder chart is often used with children to calculate fluid resuscitation. The patient with a significant area of tissue loss, including the epidermis or dermis, is at risk for wound infection as well as numerous complications involving all body systems. The severity of damage and the degree of burn need to be assessed before fluid resuscitation and topical wound management can be instituted.

In **first-degree burns**, only the epidermis is damaged, and the area is initially erythematous (red) due to vasodilatation with pain, heat, swelling and redness. Wounds are typically dry and blanch with pressure. These wounds usually heal in approximately seven days without scarring, pigmentation changes or contractures.

**Second-degree burns** can be either superficial or deep partial-thickness. In partial-thickness the epidermis is destroyed and portions of the dermis are destroyed. The skin is blistering or weepy with moist wounds. The hair follicles, oil and sweat glands are functional. The wounds are very painful and are sensitive to movement and air temperature. After removal or reabsorption of the blister, these wounds usually heal within two to three weeks and there is little residual scarring. The tissue can remain darkly pigmented for months and may be sensitive to sunlight, requiring extra sun protection.

In deep partial-thickness burns the epidermis and the majority of the dermis is destroyed. The wounds typically are drier, can contain blisters with red exposed tissue, or may be white and waxy in appearance. These injuries require a longer healing time and hypertrophic scarring can occur. Alterations in appearance or disruption to the hair, nails, and glands can also occur. These areas must be closely assessed daily because poor blood flow or infection can convert them to a full-thickness injury very quickly.

**Third-degree burns** are full-thickness and involve the death of the epidermis and dermis. There is a chance that an area will heal by epithelialization and contraction. However, it is more likely that healing will occur only at the wound margins and the area will require debridement and skin grafting. Prolonged exposure to a heat source will make the area appear brown or charred and the texture may become leathery.

A measure that is used to determine depth is pain. A true full-thickness burn lacks sensation. Most burns are of mixed depths and the outer edges may be painful. The burns are staged to the deepest area of tissue destruction.

The category of **fourth-degree burns** indicates severe damage that usually results from an electrical source or complete exposure to incineration where the damage extends down through the fascia, muscle, tendon and bone. These burns are often “wait and see” injuries where the total damage may not be initially realized and the wounds are left alone until the boundaries are clear. Amputation or extensive debridement may be necessary. These areas typically require grafts, sometimes muscle and skin or skin flaps, and are at high risk for infection.

## Damage from Burns

<b>Degree of Burn</b>	<b>Level of Damage</b>	<b>Healing Process</b>
First-degree	Damage is limited to the epidermis.	Usually heals in approximately seven days without scarring, pigmentation changes or contractures.
Second-degree	Damage is superficial to partial-thickness. The epidermis is destroyed and portions of the dermis are destroyed.	After removal or reabsorption of the blister, wounds usually heal within two to three weeks and there is little residual scarring.
	Damage is deep partial-thickness. The epidermis and majority of the dermis is destroyed.	Requires a longer healing time and hypertrophic scarring can occur. Alterations in appearance or disruption to the hair, nails, and glands can also occur. These areas must be closely assessed daily because poor blood flow or infection can convert them to a full-thickness injury very quickly.
Third-degree	Damage is full-thickness and involves the death of the epidermis and dermis.	It may heal by epithelialization and contraction. However, it is more likely that healing will occur only at the wound margins and the area will require debridement and skin grafting.
Fourth-degree	Severe damage that usually results from an electrical source or complete exposure to incineration. The damage extends down through the fascia, muscle, tendon and bone.	The total damage may not be initially realized and the wounds are left alone until the boundaries are clear. Amputation or extensive debridement may be necessary. These areas typically require grafts, sometimes flaps, and are at high risk for infection.

As swelling occurs, circumferential deep partial- or full-thickness burns may occlude arterial perfusion and require an escharotomy. Escharotomy is an incision into a burn eschar in order to lessen its pull on the surrounding tissue. Since wounds are often of mixed degrees, the patient should be premedicated to decrease anxiety and discomfort. The procedure is usually done with a scalpel or electrocautery to help control the bleeding. The smell of burning flesh may be alarming for the patient; thus, placing a scented mask on them may help. When the burn is deep, and it extends to the muscle layer and tissue edema is severe, surgical intervention may be necessary. Tissue ischemia and nerve damage are suspected and can precipitate arterial compression and decreased blood supply, also known as compartment syndrome. Burn wounds present a great risk for infection and infection control measures must be implemented as quickly as possible. Wounds must be dressed so that frequent observation of circumferential burn areas that have a potential to fail quickly may be easily assessed. Observation of a change in color, temperature, or delayed capillary refill and pliability of the tissue are emergent situations.

**Worth remembering ...**

The smell of burning flesh may be alarming for the patient. Placing a scented mask on them may help.

### **The Emergent Phase**

Burn management usually begins in the critical care unit with the **emergent phase**, which is considered to be the first 24 to 72 hours following the burn. The main objectives in the emergent phase are to:

- Stabilize all systems (especially pulmonary and renal)
- Replace key fluids and electrolytes
- Assess nutritional status and metabolic loss
- Manage pain
- Ascertain depth of the wounds
- Clean and remove debris

These patients are at risk for hypothermia so the room and water should be warmed. Pain control with small frequent doses of analgesics is necessary, even for small burn areas.

### **The Acute Phase**

The **acute phase** begins when the patient is stabilized and the focus is on healing the wounds and infection control. Additional serial debridement may be necessary as well as grafting. Preserving mobility and supporting nutritional needs are important during this phase.

Nonviable and injured tissue is a source for microorganism growth. As a result, cleansing and debriding may be necessary for both partial- and full-thickness burn injuries. Care and strategy is based on the location of the injury, age, functional mobility of the patient and the pain level.

Wound care initially may be performed daily, usually in the hydrotherapy room. Use nonirritating cleansers and rinse with warm water. Gently remove non-viable tissue with forceps and a scalpel or sterile scissors and assess the wound. The patient is usually heavily medicated for hydrotherapy and the physical and occupational therapist may be performing range of motion (ROM) activities and functional evaluations at the same time.

### **Wound Care for Burns**

The purpose of dressing superficial burns is to maintain a moist environment and absorb drainage, provide protection and insulation of the wound, and decrease pain and exposure to bacteria. Splinting and early immobilization are important for injuries to the fingers and hands.

First-degree or very superficial second-degree burns are usually treated with creams, ointments, and soothing lotions and may be left open to the air.

Partial-thickness burns often form blisters. Wounds are usually dressed with a topical antimicrobial agent. Since these patients can quickly develop antibiotic resistance, systemic antibiotics are not routinely used until the patient begins to show signs of infection and specific organisms can be identified.

Deep partial-thickness burns extend deep into the dermal layer and slower healing is expected. Synthetic or biologic dressings may be used on smaller areas, but larger areas require care with topical antimicrobial dressings. Larger areas are usually excised and grafted often requiring several surgeries. The patient's area of exposed tissue may increase due to donor sites that are created to treat the wound.

Full-thickness burns extend into the subcutaneous tissue and almost always require surgical removal of non-viable tissue and closure with grafts. They are treated with antimicrobial dressings until closure can be accomplished.

## Bariatrics

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### TIPS!

A bariatric patient is more than 100 pounds above ideal body weight. They have either a BMI of at least 40, or a BMI of 35 with one or more obesity-related health conditions.

A bariatric patient is more than 100 pounds above ideal body weight. They have either a body mass index (BMI) of at least 40, or a BMI of 35 with one or more obesity-related health conditions. Caregivers may have difficulty properly treating obese patients without the correct supplies, equipment and attitude. Healthcare professionals can work as advocates to develop a culture of understanding and acceptance for the obese patient. In addition to being difficult to reposition in bed, overweight and obese individuals have a much higher risk for cardiopulmonary disease, stroke, diabetes and cancer.

### Decreased Cellular Perfusion

Decreased cellular perfusion and oxygenation due to the avascularity (without blood supply) of adipose tissue may have a significant effect on the obese patient's skin. Avascular adipose tissue has a decreased ability to combat infection and is less tolerant of ischemia and hypoxia, which can impede healing. Often mistaken for "padding," the weight of adipose tissue actually increases the effects of pressure, friction and shear injury. The obese patient may also have various types of skin injuries directly related to their increased fat mass. These skin problems can be especially difficult to heal if the cause is not promptly addressed and corrected.

### The Obesity Epidemic

The incidence of obesity has risen at epidemic rates in the past 20 years. The rate of adolescent obesity is rising more rapidly than any other. According to the Centers for Disease Control and Prevention (CDC), 38.8 million Americans met the criteria for obesity in 2000, with 19.8 percent of U.S. adults identified as morbidly obese. This is an increase of 61 percent since 1991.

Obese individuals are at increased risk for other health issues. Studies show that the longer the duration of obesity, the higher the risk of cardiovascular disease, diabetes, stroke and cancer. Many of these overweight and obese people will be admitted to hospitals, long-term care nursing facilities, and home-care agencies, increasing the strain on both healthcare personnel and equipment.

Obese individuals also have an increased length of stay in hospitals and other inpatient facilities. The costs to care for obese patients are about 38 percent higher than the costs of



### DID YOU KNOW

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caring for non-obese patients. Obesity is associated with five of the ten leading causes of death and is the second most common cause of preventable death in the U.S. after smoking. Approximately 300,000 deaths per year are attributed to obesity and the morbidly obese die 10 to 15 years earlier than average-weight persons.

### **Patient Admissions**

Consider this scenario:

Joe B., a 38-year-old man who lives by himself, fell and broke his arm. Due to his morbid obesity (BMI 72), he is unable to prepare his own food or perform any personal care for himself. After his arm was pinned, case managers at the hospital had a difficult time locating a facility that was able to admit him because of his need for special equipment. Joe requires a special bed that is wide enough to accommodate his 50-inch girth. The beds at most long-term care facilities are 36-inches wide. He is barely able to move himself in bed, so he also requires a special pressure-reducing mattress to help prevent pressure ulcer development. The pressure-reducing mattresses in most facilities have a weight limit of 500 pounds. Placing a patient who exceeds the weight limit on a bed can quickly burn out the motor or put excessive strain on the cranking mechanism. When it is time for Joe to sit in a chair, is there a chair that will accommodate his size? Is there a walker in an appropriate size that can handle Joe's weight? Can Joe fit on a standard commode? Does your facility have appropriate-size patient gowns? What about pajama pants? After two weeks in bed because of postoperative cardiopulmonary problems, do you have enough staff members available to assist Joe to move safely with his walker? Development of a bariatrics admission policy and procedure will ensure that your facility has appropriate equipment and supplies for a safe and short admission.

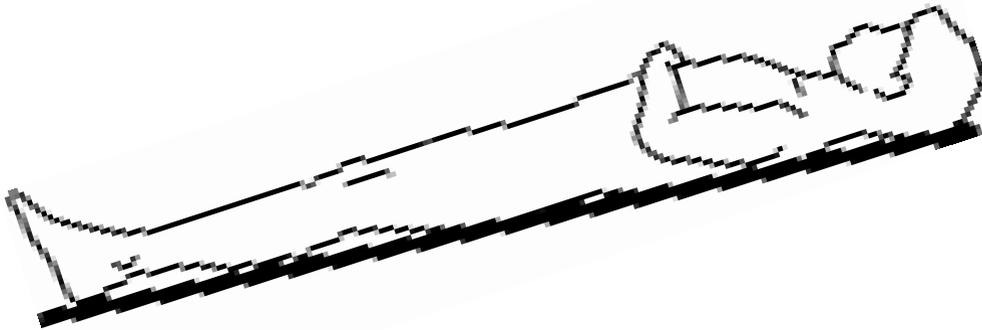
### **Tips for Nursing Care of the Obese**

The deep layer of fat over the chest on obese individuals can make heart and lung sound-assessments difficult. Minimize unnecessary sounds in the room by lowering the TV volume and keeping the door closed. Obese individuals are at high risk for developing deep vein thrombosis (DVT). The excessive weight of a large abdominal skin fold may slow blood flow to the legs while in the sitting position. Avoid using the semi-Fowler position for this reason. Instead, the reverse Trendelenburg position is preferred while resting in bed.

### Semi-Fowler Position



### Reverse Trendelenburg Position



Accurate blood pressure measurements may be difficult to obtain unless properly sized cuffs are available. A selection of cuff sizes should be available at all times. Equipment such as walkers, scales, commodes, wheelchairs, beds, and specialty beds need to be ready at a moment's notice. Bariatric-sized equipment will not only be safer and more comfortable for your patients, but it will also be safer for your staff.

### **Is There a Fungus Among Us?**

Overweight and obese individuals have an abundance of fat tissue, particularly in the abdomen, breasts, arms, thighs, groin, legs, and feet. Between this fat tissue, moisture, bacteria and debris accumulate, encouraging fungal growth. Reddened areas with a characteristic border of small red pustules are signs of fungal infection. Prevention of fungal infection is possible, using an antimicrobial cleanser and a cornstarch-based antifungal powder of 2 percent miconazole nitrate (an antifungal agent). If antifungal creams are used, the product should be gently and completely rubbed into the skin to prevent additional moisture. In some cases, a systemic antifungal medication may be necessary.

### **Intertrigo is in the Fold**

Any areas of skin fold may be involved with the development of intertrigo. Intertrigo is chafing caused by friction between two skin surfaces that are in contact such as in the armpit or between the thighs. It is frequently seen in warm, moist weather and is more common in the obese. Large layers of fat tissue and skin can push against each other, preventing airflow. Sometimes intertrigo is referred to as “prickly heat.” If pustules or severe cellulitis develop, the patient should be further evaluated. Many times, treatment of intertrigo will be similar to treatment for a fungal infection. It starts with keeping the area clean and dry. If there is a fungal component, antifungal powders are again a treatment option.

### **Lymphedema**

Lymphedema can be a problem for the obese patient in any body part but is particularly problematic in the abdomen and lower extremities. Lymphedema is the accumulation of lymphatic fluid in the small, narrow spaces between tissue, causing swelling and eventually causing firm, fibrotic, thickened skin and tissues. Arterial blood flow is also slowed, causing poor arterial perfusion to the tissues. Lymphedema can develop when lymphatic vessels are impaired. For example, when the excessive weight of a fat apron or a large skin fold exerts excessive pressure on the lower abdomen and congests the lymph and blood vessels. In the legs, chronic venous edema can eventually lead to lymphedema. Patients will note swelling, darkened or discolored skin, hardening and thickened abdominal or leg tissue, dryness, fissures, itching, pain, and development of warty growths or papillomas. They may note development of ulcers in the skin folds and in trauma-

tized areas. Prevention includes weight loss and gentle handling of body tissue. Good preventive skin care is essential in all stages of lymphedema, using dimethicone or silicone-based moisturizing lotions. Treatment of lymphedema consists of manual lymphatic drainage (MLD), a massage-like therapy to the lymphatic channels, and compression using short stretch compression wraps. Wound care is essential to any open areas, using the principles of wound healing. Elevation of the affected body part is often recommended but many times is not possible.

### **Healthcare Provider Issues**

“Fat, lazy, stupid, worthless, undisciplined, poor self-control, poor eating habits, noncompliant” are some of the words healthcare providers often associate with obesity (Barclay). In colonial America, those who were obese were considered prosperous. Being obese meant that you were able to afford plentiful meals. In fact, it was not until the early 1900s that obesity became a trait that drew public disdain. Anti-fat bias exists in many settings, including education, employment, benefits and even medical care. In a Journal of Family Medicine survey, one-third of the 400 physicians surveyed listed obesity as a patient characteristic that aroused feelings of discomfort, reluctance or dislike.

Sensitivity training for the staff should be a part of policy, procedure and protocol development. Caregivers must personally examine their own opinions and beliefs in order to determine if they are contributing to the social bias. Training for the staff should include education on obesity in order to gain a better understanding and help eliminate the “it's your own fault” mentality. Be mindful of jokes, innuendos, and fat-biased statements, and anticipate the patient's needs because they may be too embarrassed to ask.

#### **Worth remembering ...**

Many times the goal of wound care in the cancer patient is palliative.

### *Cancer*

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For the patient in the oncology setting, wound care can be very complex. As cancer becomes a major health problem in the world, wound care will continue to represent a complex problem for healthcare professionals. The goal of wound care may be healing, but many times the goal of wound care in the cancer patient is palliative.

### **External Malignant Tumors**

A review of literature provides little information about the treatment of external malignant tumors. The effective management of odor, exudate, and periwound skin strongly impacts the oncology patient's quality of life. The care of cancer patients with external malignant tumors is a challenge. Patients can present with these tumors either at the initial diagnosis or at any time during their care as a direct extension from the original tumor or from metastatic lesions. Patients with external malignant tumors suffer from multiple symptoms such as pain, odor, body image disturbance and impaired mobility.

The goal of therapy is to alleviate as many of these symptoms as possible because many of these tumors cannot be surgically excised. Care for these patients includes managing drainage and odor, adequately controlling pain, and developing dressings that will enable the patient to live as normal a life as possible. Many of these patients are at the end of their lives and require emotional support.

### **Surgical Wounds in the Oncology Patient**

Numerous cancer patients require surgery at some point in their treatment. Many of these patients have previously received chemotherapy or radiation therapy. Both of these treatments significantly slow down the healing process. Oftentimes patients have to undergo drastic surgical procedures with reconstruction, and due to their immunocompromised status the patients suffer from recurrent wound infections.

### **Lab Values for the Oncology Patient**

All pertinent labs should be monitored, especially the white blood cell count (WBC), platelets, albumin and prealbumin, and glucose. In the hematology patient (leukemia, lymphoma, myeloma, bone marrow transplant (BMT)), looking at these lab values is crucial.

### **End-of-Life Issues**

This patient population has a chronic disease state often encompassing many years of treatment. The resulting immunosuppression and dermal changes can predispose the patient to skin conditions not usually seen in the general population. Progression of the disease often requires adjustments in the patient's therapy. Goals of care may range from healing to palliation. Palliative wound care at the end-of-life should focus on patient comfort and quality of life. Support surfaces may be required to prevent or treat skin breakdown.

## **Skin Manifestation of Cancer Therapy and Treatment-Related Problems**

Chemotherapeutic agents are widely used as a treatment modality for cancer. Side effects range from the very common to unusual and may be confused with other tumor-treatment aftereffects.

- Alopecia: The most common adverse skin manifestation is drug-induced hair loss. Measures to decrease hair loss have met with only limited success. Support and psychological care are most important.
- Stomatitis: Oral mucositis, which is painful inflammation and ulceration of mucous membranes, is a major cause of morbidity in cancer treatment. This can also include fungal infections caused by *Candida albicans*. Preventive measures including oral hygiene are most effective.
- Extravasation: Toxic agents “escaping” from the blood vessel during chemotherapy administration can cause very complicated wounds, often requiring surgical debridement and skin grafts. A more conservative approach is to include enzymatic debridement, provide an optimal moist wound healing environment and prevention of infection.
- Palmar-Plantar Erythrodysesthesia: This is a redness and peeling of the hands and feet in response to certain types of chemotherapies. The treatment depends on the severity and can include anything from application of soothing emulsions to conservative sharp debridement.
- Graft Versus Host Disease (GVHD): This is seen in bone marrow and stem-cell transplant patients. The closer the match between the donor and the patient, the fewer symptoms the patient will have. Many times, the GVHD is so severe that they require plasma pheresis, mechanical debridement in a whirlpool, and topical creams and dressings.
- Radiation Recall: This is a phenomenon where the administration of chemotherapy induces an inflammatory reaction in a previously irradiated site. Treatment is usually symptomatic; however, systemic corticosteroids along with the discontinuation of the drug will produce improvement.

References:

3M® Health Care. 3M Cavilon® No-Sting Barrier Film. [Brochure]. St. Paul, Minn: 2000.

Association of Women's Health, Obstetric and Neonatal Nurses. Neonatal skin care. Evidence-based clinical practice guideline. *AWHONN*. 2001:54.

Baharestani MM, Pope E. Chronic wounds in neonates and children. In: Krasner D, Rodeheaver GT, Sibbald GT, eds. *Chronic Wound Care: A Clinical Source Book for Healthcare Professionals*. 4th Edition. Malvern, Pa: HMP Communications;2007:679–693.

Baharestani MM, eds. *Pressure ulcers in special populations: neonates and pediatrics*. *Wound Care Essentials: Practice Principles*. 2nd ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2007.

Baharestani MM, Ratliff C. Pressure ulcers in neonates & children: NPUAP [White Paper]. *Advances in Skin & Wound Care*. 2007.

Baharestani M, Vertichio R., Higgins MB, Kurot M, May B. A neonatal & pediatric evidence-linked pressure ulcer & skin care performance improvement initiative. [Poster abstract]. Presented at the Symposium on Advanced Wound Care and Medical Research Forum on Wound Repair. San Diego, Calif: April 21-24, 2005.

Campbell JM, Banta-Wright SA. Neonatal skin disorders: a review of selected dermatologic abnormalities. *J Perinat Neonat Nurs*. 2000;14(1):63-83.

Curley MAQ, Razmus IS, Roberts KE, Wypij D. Predicting pressure ulcer risk in pediatric patients-the braden Q scale. *Nursing Research*. 2003;52(1)22-31.

Eichenfield L, Hardaway C. Neonatology dermatology. *Current Opinion in Pediatrics*. 1999;11(5):471-479.

Hickey K, et al. Pressure ulcers in pediatric spinal cord injury. *Topics in Spinal Cord Injury Rehabilitation*. 2000;6(Suppl):S85-S90.

Hoath SB, Narendran V. Adhesives and emollients in the preterm infant. *Semin Neonatol*. 2000;5(4):289-296.

Irving V. Caring for and protecting the skin of pre-term neonates. *J Wound Care*. 2001;10(7):253-256.

Irving V, Bethell E, Burton F, on behalf of a Neonatal Advisory Group. Neonatal wound care: minimizing trauma and pain. *Wounds UK*. 2006;2(1):33-41.

Irving V. Wound care for preterm neonates. *Infant*. 2006;2(3):102-106.

Malloy-McDonald MB. Skin care for high risk neonates. *JWOCN*. 1995;22:177-182.

McLane KM, Bookout K, McCord S, McCain J, Jefferson LS. The 2003 national pediatric pressure ulcer and skin breakdown prevalence survey. *J WOCN*. 2004;31(4):168-178.

National Pressure Ulcer Advisory Panel (NPUAP). [www.npuap.org](http://www.npuap.org)

Noonan C, Quigley S, Curley MAQ. Skin integrity in hospitalized infants and children- a prevalence survey. *J Ped Nursing*. 2006;21(6):445-453.

Okamoto GN, Lamers JV, Shurtleff DB. Skin breakdown in patients with myelomeningocele. *Archives in Physical Med & Rehab*. 1983; 64:20-23.

Royal College of Nursing. Clinical practice guidelines: the recognition and assessment of acute pain in children: technical report. London. RCN. 2002.

Samaniego I. Developing a skin care pathway for pediatrics. *Derm Nursing*. 2002;14(6):393-396.

Shenaq SM, Abbase EH, Friedman JD. Soft-tissue reconstruction following extravasation of chemotherapeutic agents. *Surg Oncol Clin N Am*. 1996;5:825-45.

Suraseranivongse S, et al. A comparison of postoperative pain scales in neonates. *Br J Anaesth*. 2006 Aug 1. Epub 2003 Aug.

Wilkins C, Emmerson A. Extravasation injuries on regional neonatal units. *Arch Dis Child Fetal ed*. 2004;89:F274-275.

Willock J, Hughes J, et al. Pressure sores in children - the acute hospital perspective. *Tissue Viability Society*. 2000;10(2):59-62.

