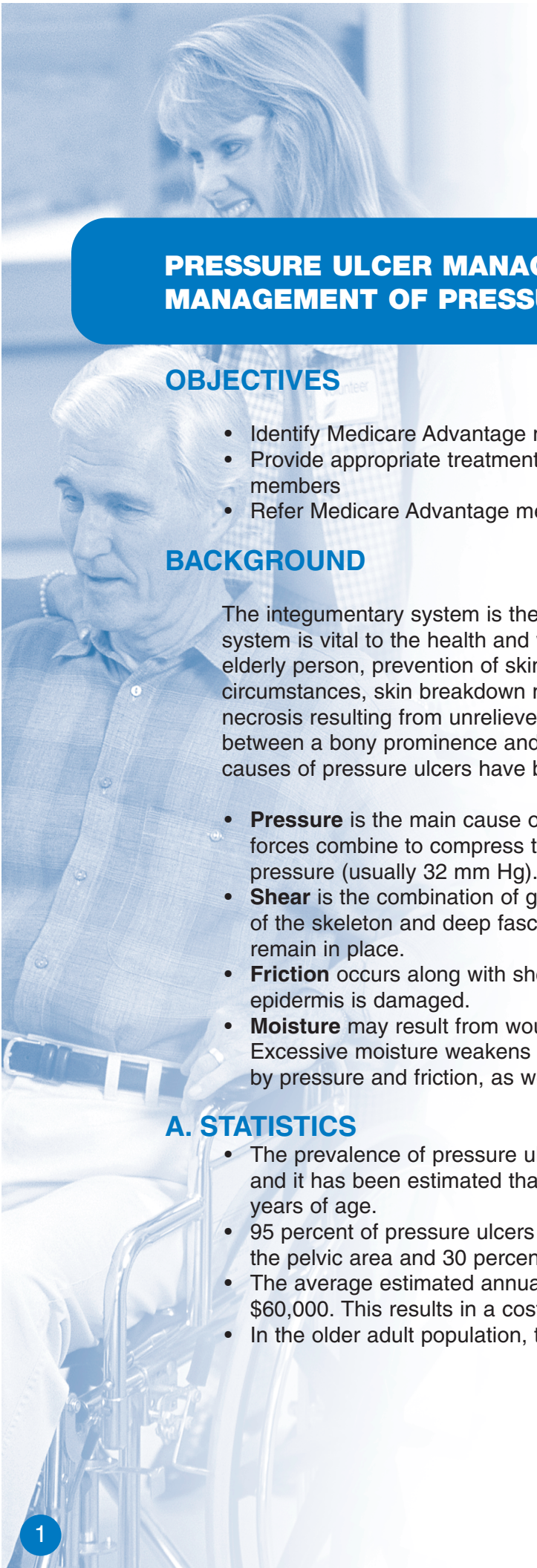

PRESSURE ULCER MANAGEMENT OUTLINE
MANAGEMENT OF PRESSURE ULCERS IN OLDER ADULTS

OBJECTIVES

- Identify Medicare Advantage members who are at risk for developing pressure ulcers
- Provide appropriate treatment of pressure ulcers in identified Medicare Advantage members
- Refer Medicare Advantage members to appropriate resources as indicated

BACKGROUND

The integumentary system is the largest organ of the body, and maintaining integrity of this system is vital to the health and well being of an individual. When caring for the at-risk elderly person, prevention of skin breakdown needs to be a major goal. Given certain circumstances, skin breakdown may occur. A pressure ulcer is a localized area of tissue necrosis resulting from unrelieved pressure of soft tissue that has been compressed between a bony prominence and an external surface for a prolonged time. Four main causes of pressure ulcers have been determined, as follows:

- **Pressure** is the main cause of pressure ulcers and occurs when external and internal forces combine to compress tissues at levels which equal or exceed capillary closing pressure (usually 32 mm Hg).
- **Shear** is the combination of gravity and resistance and damages deep tissue as a result of the skeleton and deep fascia of the body sliding while the superficial fascia and skin remain in place.
- **Friction** occurs along with shear and results when the junction between the dermis and epidermis is damaged.
- **Moisture** may result from wound drainage, perspiration, urine and fecal matter. Excessive moisture weakens the cell wall making it more vulnerable to damage done by pressure and friction, as well as more susceptible to infection.

A. STATISTICS

- The prevalence of pressure ulcer development is highest among the older adult population and it has been estimated that 70 percent of pressure ulcers occur in patients older than 70 years of age.
- 95 percent of pressure ulcers develop on the lower part of the body; 65 percent develop in the pelvic area and 30 percent develop on the lower limbs.
- The average estimated annual cost of treating a pressure ulcer ranges from $5000 to $60,000. This results in a cost to the U.S. health care system of about $8.5 billion annually.
- In the older adult population, the risk of death from a pressure ulcer increases fourfold.

B. RISK FACTORS

- Age
- Medications
- Comorbid medical conditions (i.e., diabetes, CHF, renal failure)
- Circulatory disturbances
- Dehydration
- Dementia
- Dry skin
- Fractures
- Incontinence
- Malnutrition
- Poor self-assessed health status
- Prolonged immobilization
- Race
- Sensory deficit
- Smoking
- Support surfaces especially if repositioning is not done

C. CLINICAL ASSESSMENT-HISTORY AND PHYSICAL

History-interview patient and family/significant other about:

- Existence of comorbid conditions, such as:
  - Cardiovascular disease – may cause hypotension and tissue hypoperfusion
  - Peripheral vascular disease – increases the risk of microcirculatory failure
  - Neurological diseases – increase the risk of pressure injuries by decreasing sensation and lack of appropriate response to pressure pain
- Medication history (Refer to section on Risk Factors)
- Nutritional intake – poor nutrition/hydration can predispose a patient to the development of pressure ulcers
- Risk factors (Refer to section on Risk Factors)

Physical Examination

- Complete a thorough physical exam with special attention paid to skin integrity and bony prominences
- Order a dietary consult to assess nutritional status
- Based on outcome of physical examination, order laboratory tests as indicated
  - Serum albumin (or prealbumin)
  - CBC

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Functional Assessment-consider the use of an assessment tool such as:

- Braden Scale

Braden Scale for Predicting Pressure Sore Risk

1. Sensory Perception (ability to respond meaningfully to pressure related discomfort			**Score**	
1. Completely limited; unresponsive to painful stimuli (does not moan, flinch, grasp) due to unconsciousness or sedation OR Limited ability to feel pain over most of body surface	2. Very limited; responds only to painful stimuli; cannot communicate discomfort except by moaning or restlessness OR Has a sensory impairment that limits ability to feel pain or discomfort over half of the body	3. Slightly limited; responds to verbal commands but can't always communicate discomfort or need to be turned OR Has some sensory impairment that limits ability to feel pain or discomfort in 1-2 extremities	4. No impairment; responds to verbal commands; has no sensory deficit that would limit ability to feel or voice pain or discomfort	
2. Activity (degree of physical activity) 1. Bedfast; confined to bed	2. Chairfast; severely limited to nonexistent ability to walk; cannot bear own weight and/or must be helped into chair/wheelchair	3. Walks occasionally; walks sometimes but for very short distances, with or without assistance; spends most of each shift in bed or chair	4. Walks often; walks outside the room at least once every 2 hours during waking hours	
3. Mobility (ability to change and control body position) 1. Completely immobile; does not make even slight change in body or extremity position without assistance	2. Very limited; makes occasional changes in body or extremity but cannot make frequent or significant changes independently	3. Slightly limited; makes frequent though slight changes in body or extremity position independently	4. No limitation; makes major and frequent changes in position with no assistance	
4. Moisture (degree to which skin is exposed to moisture) 1. Constantly moist; skin is kept moist almost constantly by perspiration, urine, etc.; dampness is found every time the patient is moved or turned	2. Very moist; skin is often but not always moist; linen must be changed at least once each shift	3. Occasionally moist; skin is sometimes moist requiring an extra linen change about once a day	4. Rarely moist; skin is usually dry; linen needs changing at routine intervals	

5. Nutrition (usual food intake pattern)			**Score**
1. Very poor; never eats a complete meal; rarely eats more than a third of any food offered; eats 2 servings or less of protein (meat or dairy product) per day; takes fluids poorly; does not take a dietary supplement	2. Probably inadequate; rarely eats a complete meal and generally eats only about half of any food offered; protein intake includes only 3 servings a day; will occasionally take a dietary supplement OR Receives less than optimum amount of liquid diet or tube feeding	3. Adequate; eats more than half of most meals; eats 4 servings of protein each day; will sometimes refuse a meal but usually take a supplement if offered OR Is on a tube feeding or TPN regimen that probably meets most nutritional needs	4. Excellent; eats most of every meal; never refuses a meal; usually eats 4 or more servings of meat and dairy products; sometimes eats in between meals; does not require supplementation	
6. Friction and Shear 1. Problem; requires moderate to maximum assistance in moving; complete lifting without sliding against sheets is impossible; often slides down in bed/chair requiring repositioning with maximum assistance; spasticity, agitation or contractures lead to almost constant friction	2. Potential problem; moves feebly or needs minimum assistance; during a move, skin probably slides to some extent against sheets/chair/restraints or other devices; usually maintains relatively good position in chair/bed but occasionally slides down	3. No apparent problem; moves in bed/chair independently and has sufficient muscle strength to lift up completely during move; maintains good position in bed/chair at all times		

Scoring: Total score of 16 or less indicates risk for pressure ulcer development
Adapted from: Kanj, K.F.,Wilking, S.V., Phillips, T.J. Pressure ulcers; Dermatology.1998;38 (4): 517-536.

- Norton Scale

Norton Scale

Physical Condition	**Mental Condition**	**Activity**	**Mobility**	**Incontinent**	**Total Score**
Good (4)	Alert (4)	Ambulant (4)	Full (4)	Not (4)	
Fair (3)	Apathetic (3)	Work/help (3)	Slightly limited (3)	Occasional (3)	
Poor (2)	Confused (2)	Chairbound (2)	Very limited (2)	Usually/Urine (2)	
Very bad (1)	Stupor (1)	Stupor (1)	Immobile (1)	Doubly (1)	

Scoring: Total score of 14 or below indicates risk for pressure ulcer development.
Adapted from: Kanj, L.F., Wilking, S.B., Phillips, T.J. Pressure ulcers; Dermatology. 1998; 38 (4); 517-536.

- Pressure ulcers are staged as follows:
  - Stage I—the first sign of skin breakdown is nonblanchable erythema of intact skin
  - Stage II—partial-thickness skin loss that involves the epidermis, dermis or both; ulcer is superficial and presents clinically as an abrasion, blister or shallow center; bulla and fissure are also presenting signs
  - Stage III—full-thickness skin loss that involves damage or necrosis of subcutaneous tissue and may extend down to but not through underlying fascia; ulcer presents clinically as a deep crater with or without undermining of adjacent tissue
  - Stage IV—full-thickness skin loss with extensive destruction, tissue necrosis or damage to muscle, bone or support structures such as deep fascia, tendon, joint, capsule, etc.

D. MANAGEMENT AND TREATMENT

- Treat underlying medical condition(s)
- Provide appropriate pressure-relieving support surfaces
- Keep wound clean and free from infection
- Wound debridement by means of: Autolytic debridement; Surgical debridement; Enzymatic debridement; Mechanical debridement; Wet-to-dry dressings; Wound irrigation that may include but is not limited to cleansing, pulse vacuum therapy or whirlpool therapy
- Electrical stimulation
- Dressings

Dressing Options Guide

Dressing	Description	Indications	Usage	Contraindications
Alginates (e.g. Sorbsan)	Naturally occurring polymer derived from brown seaweed; absorbent; gel formed by fibers interacting with exudate; insoluble in aqueous solutions; available in ropes, pads or freeze-dried packets	Moderately to heavily exudating ulcers; moist wound healing; Stage II, III, or IV ulcers	Refer to manufacturer's instructions as some forms must be cut to wound size while others may overlap onto skin; dressing change varies from every 8 hours to every 3-4 days as indicated by the product and amount of exudate	Light exudate; dry eschar; Stage I ulcers
Collagens (e.g. Fibracol)	Fibrous insoluble protein produced by fibroblasts	Minimally to heavily exudating ulcers	Same as above	Necrotic ulcers; allergy to biomaterial source (bovine, porcine)

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Dressing	Description	Indications	Usage	Contraindications
Enzymatic Debriding Agents (e.g. Santyl)	Supplements the natural process for removal of nonviable tissue at the wound site by catalyzing the breakdown of collagen	Non-surgical treatment of chronic dermal ulcers; Stage II and III ulcers	Ulcer should be cleansed of debris and digested material prior to application; apply once daily or more often if the dressing becomes soiled by direct application to a sterile gauze pad that is then applied to the ulcer; discontinue usage when debridement of necrotic tissue is complete and granulation tissue is well established	Local or systemic hypersensitivity to collagenase
Foam (e.g. Allevyn)	Modified polyurethane foam; absorbent; nonadherent layer that provides nontraumatic removal	Minimal to heavily exudating ulcers; Stage II and III ulcers	Use some type of skin barrier film (skin sealant) wipe on surrounding intact skin; change dressing every 1-5 days depending on the product and amount of exudate	Dry eschar; Stage I ulcers
Gauze (e.g. Kerlix; woven and unwoven)	Enables debridement when applied as a “wet-to-dry dressing”; acts as moisture retentive when applied as a “wet-to-moist” dressing	Protects ulcer from trauma and infection; wick exudate from ulcer	Pack loosely into wound when used for this purpose; protect surrounding skin with some type of moisture barrier ointment or skin barrier; frequency of dressing change depends on amount of exudate	Inhibits wound contraction when packed too tightly

* Per the Geriatric Specialty Advisory Board, a wet-to-dry dressing can damage the “healing process” (i.e. fibrolytic disruption.) The Board recommends use of a wet-to-moist dressing for debribement.

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Dressing	Description	Indications	Usage	Contraindications
Hydrocolloids (e.g. Duoderm)	Occlusive or semi-occlusive dressing composed of gelatin, pectin and carboxymethycellulose; available in various size wafers, wraps; thin or standard thickness	Minimal to moderately exudating ulcers; primary or secondary dressing for Stage I and II pressure ulcers and occasional Stage III shallow ulcer	Use some type of barrier film (skin sealant) wipe prior to application; allow 1 to 1 and 1/2 inch margin of intact skin around ulcer edges for dressing placement	Heavy exudate, infected ulcers, undermining ulcers
Hydrogels (e.g. IntraSite)	Water or glycerin based, amorphous gels, impregnated gauze or sheet dressings	Ulcers with necrosis or slough, tissue damaged by radiation; Stage II, III, and IV ulcers	Use some type of barrier film (skin sealant) wipe on surrounding intact skin; sheet/wafer forms work better on superficial wounds; frequency of dressing change varies from every 8 to 72 hours depending on product and amount of exudate	Heavily exudating ulcers; Stage I ulcers
Transparent Adhesive Film (e.g. Tegaderm)	Adhesive, semipermeable polyurethane membrane dressings	Granular or necrotic shallow ulcers; Stage I, II or shallow III ulcers	Shave surrounding hair and use some type of barrier film (skin sealant) wipe prior to application; allow 1-2 inch margin of intact skin around ulcer edges for dressing placement; dressing change depends on site and characteristics but should be done at least every 7 days	Infected ulcers; moderate to heavy exudate; fragile skin; Stage IV ulcers
Wound Fillers (e.g. DermaSORB)	Usually composed of dextranomer polysaccharides starch, natural polymers and colloidal particles; variety of forms such as pastes, granules, powders, beads, gels	Minimally to moderately exudating ulcers; infected and noninfected ulcers; used in combination with other wound care products; Stage II and III ulcers	Gauze or hydrocolloid may be used as secondary dressing; frequency of dressing change depends on amount of exudate; protect surrounding skin	Dry ulcer; deep tunneling or undermining ulcers; Stage I ulcers

Adapted from Andrychuk, M.A. Pressure ulcers: causes, risk factors, assessment and intervention; Orthopaedic Essentials. 1998; July/August; 65-81 and Ratliff, C.R. Pressure ulcer assessment and management; Lippincott's Primary Care Practice. 1999; 3 (2); 242-258.

E. SUMMARY

- Pressure relief is the most important factor in preventing pressure ulcers.
- Preventive measures in persons at risk can significantly reduce the incidence of pressure ulcers.
- If a pressure ulcer does occur, promotion of an environment that facilitates healing and/or prevention of further breakdown and complications should take priority in treatment of the patient.
- The patient, family/significant other and all involved health care providers must be educated about preventive measures in addition to the early signs of pressure ulcer formation.

References

U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research, Pressure ulcers in adults: prediction and prevention; No. 3, Publication No. 92-0050, May 1992.

Web Sites

www.npuap.org

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