

NURSES ROLES IN THE MANAGEMENT OF PRESSURE INJURY

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Abstract:

Pressure injury, also referred to as pressure ulcers or bedsores, are debilitating wounds that develop when prolonged pressure is applied to the skin, resulting in localized tissue damage and compromised blood flow. These injuries often occur in areas where bony prominence come into contact with surfaces such as beds, chairs, or medical devices. The National Pressure Injury Advisory Panel (NPIAP) defines pressure injury as "localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction." This definition highlights the multi-factorial nature of pressure injury development, which can involve not only pressure but also shear forces and friction. The importance of managing pressure injury cannot be overstated, as they pose significant health risks and can lead to serious complications if left untreated. More importantly, pressure injury can impair mobility, hinder rehabilitation efforts, and prolong hospitalization, resulting in increased healthcare costs and diminished quality of life. Pressure injury is the third most expensive disorder after cardiovascular diseases and cancer (Agrawal & Chauhan, 2012 as cited in Nkor M.M., 2022). Objectives : the objectives of this study includes , identification of various risk factors influencing the development of pressure injury, outlining assessment techniques for pressure injury, standardized tools used for pressure injury assessment, stages of pressure injury, nursing interventions for pressure injury and evidence base wound care techniques for various stages. Summary: In summary, pressure injuries remain a significant healthcare challenge, particularly for individuals with limited mobility or underlying health conditions. Effective prevention, assessment, and management of pressure injuries require a multifaceted approach that incorporates evidence-based practices, interdisciplinary collaboration, and patient-centered care.

Keywords: Friction, Immobility, Malnutrition, Nurses roles, pressure injury

INTRODUCTION

Pressure injury, also referred to as pressure ulcers or bedsores, are debilitating wounds that develop when prolonged pressure is applied to the skin, resulting in localized tissue damage and compromised blood flow. These injuries often occur in areas where bony prominence come into contact with surfaces such as beds, chairs, or medical devices. The National Pressure Injury Advisory Panel (NPIAP) defines pressure injury as "localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction." This definition highlights the multi-factorial nature of pressure injury development, which can involve not only pressure but also shear forces and friction.

The importance of managing pressure injury cannot be overstated, as they pose significant health risks and can lead to serious complications if left untreated. Pressure injury not only cause pain and discomfort for affected individuals but also increase their susceptibility to infections, including potentially life-threatening conditions such as sepsis. More importantly, pressure injury can impair mobility, hinder rehabilitation efforts, and prolong hospitalization, resulting in increased healthcare costs and diminished quality of life. Pressure injury is the third most expensive disorder after cardiovascular diseases and cancer (Agrawal & Chauhan ,2012 as cited in Nkor M.M.,2022).

In healthcare settings, nurses play a pivotal role in the prevention and management of pressure injury. Through comprehensive assessment, proactive interventions, and diligent monitoring, nurses can identify individuals at risk for pressure ulcers and implement strategies to mitigate these risks. Nurses play a leading role in pressure injury prevention delivery but require appropriate resources, assistance, and support from other healthcare personnel, patients, and carers for quality care (zhaoyu et al. 2022). Furthermore, nurses collaborate with interdisciplinary teams to develop individualized care plans tailored to each patient's needs, incorporating measures such as regular repositioning, optimized nutrition, and meticulous wound care.

As pressure injury management continues to be a significant concern in healthcare, it is essential for healthcare professionals to stay abreast of evidence-based guidelines and best practices in prevention and treatment. Nurses are well qualified to lead in the prevention of pressure injuries in critical care units, using evidence-based care, repositioning, surface support, and access to expertise (Alshahrani et al., 2021). By prioritizing preventive measures and providing timely interventions, nurses can strive to minimize the incidence and impact of pressure injury, ultimately enhancing patient outcomes and improving overall healthcare delivery.

Objectives

The specific objectives of the study is to:

1. Identify risk factors influencing the development of pressure injury.
2. Identify assessment techniques for pressure injury.
3. Identify various standardized tools used for pressure injury assessment.
4. Briefly Discuss the various stages of pressure injury.
5. Discuss various nursing interventions for pressure injury.
6. Evidence base wound care techniques for various stages.

RISK FACTORS

Several risk factors contribute to the development of pressure injuries which includes:

1. **Immobility:** Immobility is a significant risk factor for pressure injuries as it reduces the ability to change positions, leading to prolonged pressure on specific areas of the body
2. **Poor nutrition:** Malnutrition, dehydration, and inadequate intake of essential nutrients can compromise skin integrity and impair the body's ability to repair and regenerate tissue, increasing susceptibility to pressure injuries.
3. **Impaired sensory perception:** Conditions such as spinal cord injuries, neurological disorders, or sensory impairments can diminish the ability to perceive discomfort or pain, leading to prolonged pressure on vulnerable areas of the body.
4. **Moisture and incontinence:** Excessive moisture from perspiration, urine, or feces can soften the skin, making it more susceptible to damage from friction and pressure, especially in combination with incontinence.
5. **Friction and shear:** Friction occurs when the skin rubs against a surface, while shear occurs when layers of tissue slide against each other. Both friction and shear forces can contribute to tissue damage and increase the risk of pressure injuries, especially in individuals with limited mobility.

PATHOPHYSIOLOGY

The primary cause of pressure injuries is prolonged pressure applied to the skin and underlying tissue. This pressure restricts blood flow to the affected area, leading to tissue damage and ultimately resulting in a pressure injury. Other contributing factors include friction, shear forces, moisture, immobility, poor nutrition, and impaired sensory perception. These factors can exacerbate tissue damage and increase the risk of pressure injury development. Effective prevention strategies aim to mitigate these risk factors and alleviate pressure on vulnerable areas

of the body(National Pressure injury Advisory Panel, European Pressure injury Advisory Panel, & Pan Pacific Pressure Injury Alliance, 2019).

ASSESSMENT TECHNIQUES

The assessment techniques for pressure injuries involves a systematic approach to evaluate the skin and underlying tissues for signs of damage or susceptibility to injury includes:

1. **Visual inspection:** Perform a thorough visual assessment of the skin, looking for areas of redness, discoloration, blistering, or breakdown. Pay close attention to bony prominence and areas prone to pressure injury development, such as the sacrum, heels, hips, and elbows.
2. **Palpation:** Gently palpate the skin and surrounding tissues to assess for warmth, tenderness, or hardening. Palpation can help identify areas of tissue damage, swelling, or inflammation not visible to the naked eye.
3. **Use of standardized tools:** Utilize standardized tools such as the Braden Scale or Norton Scale to assess the patient's risk of developing pressure injuries. These tools consider various risk factors such as mobility, sensory perception, moisture, activity level, and nutrition to predict the likelihood of pressure injury development.
4. **Measurement of pressure injury dimensions:** Measure the length, width, and depth of pressure injuries using a sterile ruler or specialized measuring tool. Accurate measurement of pressure injuries helps track wound healing progress and determine appropriate wound care interventions.
5. **Assessment of tissue viability:** Assess tissue viability by observing capillary refill, assessing skin temperature, and evaluating sensation and perfusion in the affected area. Impaired tissue viability may indicate compromised blood flow and increased risk of pressure injury development.
6. **Documentation of risk factors:** Document relevant risk factors for pressure injury development, such as immobility, poor nutrition, incontinence, and sensory impairment. Identifying and addressing these risk factors is essential for developing targeted prevention strategies.

STANDARDIZED TOOLS USED FOR ASSESSMENT

Braden Scale

The Braden Scale for Predicting Pressure injury Risk is a widely used tool for assessing an individual's risk of developing pressure injuries. It evaluates six key risk factors associated with pressure injury development:

1. **Sensory perception:** This factor assesses the individual's ability to perceive discomfort or pain. Patients with impaired sensory perception, such as those with spinal cord injuries or neurological disorders, are at increased risk of pressure injuries as they may not be able to sense pressure and discomfort.
2. **Moisture:** Moisture from perspiration, incontinence, or wound drainage can soften the skin and increase susceptibility to pressure injury development. This factor evaluates the degree of moisture exposure and its impact on skin integrity.
3. **Activity:** Activity level refers to the individual's ability to independently change positions or move. Patients who are immobile or have limited mobility due to illness, injury, or surgery are at higher risk of pressure injuries due to prolonged pressure on specific areas of the body.
4. **Mobility:** Mobility assesses the individual's ability to independently change and control body position. Patients with limited mobility or who require assistance with movement are at increased risk of pressure injuries, particularly if they are unable to reposition themselves regularly.
5. **Nutrition:** Adequate nutrition is essential for maintaining skin integrity and supporting tissue repair. Malnutrition, dehydration, or poor dietary intake can impair wound healing and increase the risk of pressure injury development.
6. **Friction and shear:** Friction occurs when the skin rubs against a surface, while shear occurs when layers of tissue slide against each other. Both friction and shear forces can contribute to tissue damage and increase the risk of pressure injuries, especially in individuals with limited mobility.

Each of these risk factors is assigned a score on the Braden Scale, with lower scores indicating higher risk of pressure injury development. The scores for each factor are then totaled to calculate an overall risk score, ranging from 6 to 23. Patients with lower overall scores are considered to be at higher risk of pressure injuries and may require more intensive preventive interventions.

Norton Scale

The Norton Pressure Sore Risk Assessment Scale is another widely used tool for assessing an individual's risk of developing pressure injuries. Developed by Dorothy Norton and colleagues in 1962, this scale evaluates five key risk factors associated with pressure injury development:

1. **Physical condition:** This factor assesses the overall physical health and condition of the individual, including factors such as age, general health status, and presence of comorbidities. Patients with poor overall physical health are at increased risk of pressure injuries due to compromised tissue integrity and reduced healing capacity.
2. **Mental condition:** Mental status refers to the individual's cognitive function, emotional well-being, and ability to understand and participate in their care. Patients with cognitive impairment, confusion, or psychiatric disorders may be less able to recognize or communicate discomfort, increasing their risk of pressure injuries.
3. **Activity:** Activity level evaluates the individual's ability to independently change positions, move, or participate in activities of daily living. Patients who are bedridden, sedentary, or immobile due to illness, injury, or disability are at higher risk of pressure injuries due to prolonged pressure on specific areas of the body.
4. **Mobility:** Mobility assesses the individual's ability to independently move and control body position. Patients with limited mobility, muscle weakness, or paralysis are at increased risk of pressure injuries, particularly if they are unable to reposition themselves regularly or require assistance with movement.
5. **Incontinence:** Incontinence refers to the inability to control bladder or bowel function, leading to moisture exposure and skin breakdown. Patients with urinary or fecal incontinence are at higher risk of pressure injuries due to prolonged exposure to moisture and potential chemical irritation of the skin.

Each of these risk factors is assigned a numerical score on the Norton Scale, with lower scores indicating higher risk of pressure injury development. The scores for each factor are then totaled to calculate an overall risk score, ranging from 5 to 20. Patients with lower overall scores are considered to be at higher risk of pressure injuries and may require more intensive preventive interventions.

Waterlow scale

The Waterlow Pressure Ulcer Risk Assessment Tool is a comprehensive tool used to assess an individual's risk of developing pressure injuries. Developed by Judy Waterlow in 1985, this scale evaluates various risk factors and assigns scores to each factor to calculate an overall risk score. Here is an elaboration on the components of the Waterlow Scale:

1. **Age:** Older age is associated with increased susceptibility to pressure injuries due to changes in skin integrity, reduced tissue elasticity, and decreased mobility. Higher scores are assigned to older individuals, reflecting their increased risk.
2. **Sex:** Females may have a higher risk of pressure injuries due to factors such as hormonal changes, thinner skin, and differences in fat distribution. The Waterlow Scale typically assigns higher scores to females to account for this increased risk.
3. **Weight:** Low body weight or malnutrition can compromise skin integrity and increase susceptibility to pressure injuries. Individuals with lower body weight or signs of malnutrition may receive higher scores on the Waterlow Scale.
4. **Height:** Taller individuals may have a higher risk of pressure injuries due to increased pressure on vulnerable areas of the body, such as the sacrum and heels. The Waterlow Scale considers height as a risk factor and assigns scores accordingly.
5. **Build:** Body build refers to the individual's body composition, including factors such as muscle mass, fat distribution, and overall body size. Individuals with a frail or slender build may have reduced tissue padding and increased susceptibility to pressure injuries, resulting in higher scores on the Waterlow Scale.
6. **Skin type:** Skin type assesses the individual's skin condition, including factors such as moisture, elasticity, and presence of edema. Dry, fragile skin or skin with signs of edema may be more prone to pressure injuries, warranting higher scores on the Waterlow Scale.
7. **Continence:** Incontinence, whether urinary or fecal, can contribute to moisture-related skin damage and increase the risk of pressure injuries. The Waterlow Scale considers incontinence as a risk factor and assigns scores based on the severity and frequency of incontinence episodes.
8. **Mobility:** Mobility evaluates the individual's ability to change positions, move independently, or participate in activities of daily living. Limited mobility or immobility increases the risk of pressure injuries due to prolonged pressure on specific areas of the body. The Waterlow Scale accounts for mobility status and assigns scores accordingly.
9. **Neurological deficit:** Neurological deficits, such as paralysis, sensory impairment, or cognitive impairment, can impair the individual's ability to perceive discomfort or reposition themselves, increasing the risk of pressure injuries. The Waterlow Scale considers neurological deficits as a risk factor and assigns scores based on the severity of impairment.

10. Circulatory status: Circulatory status assesses the individual's vascular health and perfusion to the skin and underlying tissues. Poor circulation or compromised vascular function can impair tissue oxygenation and increase susceptibility to pressure injuries. The Waterlow Scale considers circulatory status as a risk factor and assigns scores based on the presence of peripheral vascular disease, edema, or other circulatory disorders.

Each of these components is assigned a numerical score on the Waterlow Scale, with higher scores indicating increased risk of pressure injuries. The scores for each component are then totaled to calculate an overall risk score, which helps healthcare providers identify individuals at increased risk and implement appropriate preventive measures.

Stop Pressure Ulcer Risk Assessment Tool

The STOP Pressure Ulcer Risk Assessment Tool is a structured approach to assessing an individual's risk of developing pressure injuries. Developed by the Registered Nurses' Association of Ontario (RNAO), this tool evaluates four key risk factors and provides guidance for implementing preventive measures.

- 1. Surface:** The "Surface" component assesses the support surface used for the individual's bed or chair. Factors evaluated include the type of mattress or cushion, pressure redistribution capabilities, and the individual's tolerance of the surface. Healthcare providers are prompted to select the most appropriate support surface based on the individual's risk factors and mobility status.
- 2. Tissue:** The "Tissue" component evaluates the individual's skin integrity and tissue tolerance to pressure. Factors assessed include skin condition, presence of existing wounds or pressure injuries, and susceptibility to skin breakdown. Healthcare providers are prompted to perform a thorough skin assessment and implement preventive measures based on the individual's tissue tolerance and risk factors.
- 3. Oxygenation:** The "Oxygenation" component considers factors that may affect tissue oxygenation and perfusion. Factors evaluated include respiratory status, oxygen saturation levels, and circulation to the skin and underlying tissues. Healthcare providers are prompted to assess oxygenation status and implement interventions to optimize tissue oxygenation and perfusion.
- 4. Patient:** The "Patient" component assesses individual characteristics and behaviors that may increase the risk of pressure injuries. Factors evaluated include mobility status, nutritional status, sensory perception, and moisture exposure. Healthcare providers are prompted to address individual risk factors and implement tailored preventive measures to reduce the risk of pressure injuries.

Pressure Ulcer Scale for Healing (PUSH) Tool

The Pressure Ulcer Scale for Healing (PUSH) Tool is a validated instrument used to assess the healing progress of existing pressure injuries. Developed by the National Pressure Injury Advisory Panel (NPIAP), the PUSH Tool evaluates three parameters: surface area, exudate amount, and tissue type.

1. **Surface area:** The surface area component assesses the size of the pressure injury. Healthcare providers measure the length and width of the wound using a sterile ruler or measuring device and calculate the total surface area in square centimeters. The size of the pressure injury is categorized into one of six size categories, ranging from "none" (no observable pressure injury) to "greater than 24 square centimeters."

2. **Exudate amount:** The exudate amount component evaluates the amount of fluid drainage from the pressure injury. Healthcare providers assess the level of exudate present in the wound bed and surrounding tissue using standardized descriptors, such as "none," "light," "moderate," or "heavy." The amount of exudate is categorized into one of four categories based on the level of drainage observed.

3. **Tissue type:** The tissue type component assesses the composition of the wound bed and surrounding tissue. Healthcare providers evaluate the appearance of the wound bed, including the presence of granulation tissue, slough (nonviable tissue), and eschar (necrotic tissue). The tissue type is categorized into one of four categories based on the predominant tissue observed in the wound bed.

Each parameter is assigned a numerical score based on the categories selected, with higher scores indicating more severe wound characteristics. The scores for surface area, exudate amount, and tissue type are then totaled to calculate an overall PUSH score, which ranges from 0 to 17. Higher PUSH scores indicate larger, more exudative and more complex pressure injuries.

STAGES OF PRESSURE INJURY

Pressure injuries are classified into several stages based on the extent of tissue damage. The staging system commonly used to classify pressure injuries is defined by the National Pressure Ulcer Advisory Panel (NPIAP). Here are the stages of pressure injuries according to the NPIAP:

1. **Stage 1:** Non-blanchable erythema of intact skin. The skin appears red, typically over a bony prominence, and does not blanch (turn white) when pressed. The affected area may be warmer or cooler than surrounding skin.

2. **Stage 2:** Partial-thickness skin loss with exposed dermis. The injury involves the epidermis and extends into the dermis. The wound bed is pink or red, moist, and may present as an intact or ruptured blister. There may be some shallow ulceration.

3. **Stage 3:** Full-thickness skin loss involving damage to or necrosis of subcutaneous tissue. The injury extends through the dermis and into the subcutaneous tissue, but not through the underlying fascia. The wound bed may appear crater-like, and there may be visible fat tissue. Slough (yellow, tan, gray, green, or brown tissue) may be present.

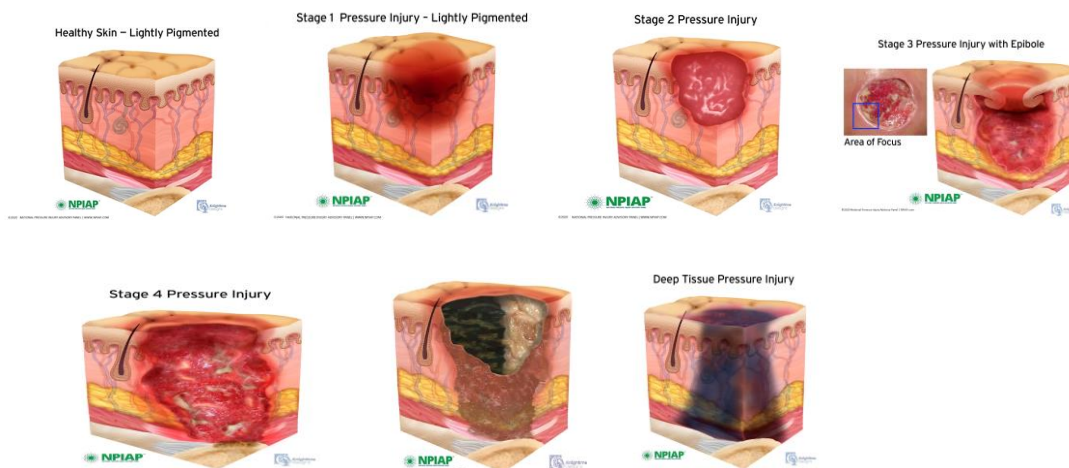
4. **Stage 4:** Full-thickness skin loss with extensive tissue damage involving muscle, bone, or supporting structures. The injury extends through all layers of the skin, exposing muscle, tendon, or bone. There may be extensive tissue damage and necrosis. Slough or eschar (hard, black, dry, necrotic tissue) may be present.

UNSTAGEABLE

In addition to these stages, unstageable and suspected deep tissue injuries are also recognized:

1. **Unstageable Pressure Injury:** The depth of the tissue damage cannot be determined because the wound bed is covered by eschar or slough. The true extent of tissue damage is unknown until the eschar or slough is removed.

2. **Deep Tissue Injury:** A purple or maroon localized area of discolored intact skin or a blood-filled blister may be present. The injury may be preceded by tissue that is painful, firm, mushy, or boggy. The depth of tissue damage is unknown.



Nursing Interventions Using Nursing Goals

Nursing interventions for pressure injury prevention and management are aimed at reducing the risk of pressure injury development, promoting wound healing, and preventing complications. Here are some elaborations on common nursing interventions:

1. Pressure redistribution:

- Implement frequent repositioning schedules to relieve pressure on vulnerable areas of the body, especially bony prominence.
- Utilize pressure-relieving devices such as specialized mattresses, cushions, and overlays to distribute pressure more evenly and reduce the risk of tissue damage.

2. Skin care:

- Perform regular skin assessments to monitor for signs of pressure injury development, such as redness, discoloration, or skin breakdown.
- Keep the skin clean, dry, and moisturized to maintain skin integrity and reduce the risk of friction and shear injuries.
- Use gentle cleansing techniques to minimize skin irritation and damage.

3. Nutrition optimization:

- Assess nutritional status and implement interventions to address malnutrition or inadequate dietary intake, which can impair wound healing and increase susceptibility to pressure injuries.
- Provide a balanced diet rich in protein, vitamins, and minerals to support tissue repair and regeneration.

4. Hydration management:

- Ensure adequate hydration to maintain skin elasticity and integrity.
- Monitor fluid intake and output, especially in individuals at risk of dehydration or fluid overload.

5. Mobility promotion:

- Encourage and assist with regular movement and repositioning for individuals with limited mobility or immobility at least every 2 hours
- Implement mobility aids and assistive devices to facilitate safe and independent movement.

6. Wound care:

- Assess pressure injuries regularly and document wound characteristics, including size, depth, and tissue type.
- Cleanse pressure injuries with appropriate wound care solutions and techniques to remove debris and promote a clean wound bed.
- Apply appropriate dressings and topical treatments to promote moist wound healing and protect the wound from further trauma or infection.

7. Pain management:

- Assess and manage pain associated with pressure injuries using pharmacological and non-pharmacological interventions.
- Monitor pain levels regularly and adjust pain management strategies as needed to ensure adequate pain relief and comfort.

8. Education and support:

- Provide education to patients, caregivers, and healthcare staff on pressure injury prevention strategies, skin care techniques, and the importance of early detection and treatment.
- Offer emotional support and counseling to patients and caregivers coping with the physical and emotional challenges of pressure injury management.

Application of Evidence-Based Wound Care Techniques for Nurses

Evidence-based wound care techniques for nurses evolve as new research and clinical evidence emerge.

1. **Moist wound healing:** Keeping wounds moist has been shown to promote faster healing and reduce scarring. Nurses should use appropriate wound dressings that maintain a moist wound environment while managing excess exudate.
2. **Regular wound assessment:** Nurses should perform systematic wound assessments to monitor healing progress, identify complications, and adjust treatment plans accordingly. Assessment should include wound size, depth, appearance, and signs of infection.
3. **Offloading And Pressure Redistribution:** Nurses should implement strategies to offload pressure from vulnerable areas, such as using pressure-relieving surfaces, repositioning patients regularly, and providing adequate support to reduce pressure injuries.
4. **Debridement:** Debridement, the removal of non-viable tissue from the wound bed, promotes healing by facilitating the growth of healthy tissue. Nurses should use appropriate methods of debridement, such as sharp, mechanical, enzymatic, or autolytic debridement, based on the wound characteristics and patient's condition.
5. **Infection Control:** Nurses should adhere to strict infection control practices to prevent wound infections and complications. This includes proper hand hygiene, sterile technique during dressing changes, and appropriate use of antimicrobial dressings or agents when indicated.

6. **Stay updated:** Nurses should stay informed about the latest evidence-based practices and guidelines in wound care through continuing education, professional development opportunities, and participation in research and quality improvement initiatives.

Summary

In summary, pressure injuries remain a significant healthcare challenge, particularly for individuals with limited mobility or underlying health conditions. Effective prevention, assessment, and management of pressure injuries require a multifaceted approach that incorporates evidence-based practices, interdisciplinary collaboration, and patient-centered care. Through the use of standardized risk assessment tools, regular skin assessments, and targeted preventive interventions, healthcare providers can identify individuals at risk of pressure injuries and implement appropriate measures to mitigate these risks. Additionally, prompt and comprehensive wound care interventions, including maintenance of a moist wound environment, debridement of non-viable tissue, infection control measures, and patient education, are essential for promoting optimal wound healing and preventing complications. Interdisciplinary collaboration among healthcare professionals from various disciplines, along with active involvement of patients and caregivers in the care process, is crucial for delivering comprehensive and patient-centered wound care. Furthermore, ongoing education, research, and quality improvement initiatives are essential for advancing evidence-based practices, improving patient outcomes, and reducing the burden of pressure injuries in healthcare settings. Implementation of holistic care approach to pressure injury prevention and management, healthcare organizations can enhance the quality of care provided to patients with wounds, improve patient outcomes and ultimately reduce the incidence and impact of pressure injuries in the community

Recommendations

1. Healthcare providers should receive regular education and training on pressure injury prevention, assessment, and management to ensure proficiency in evidence-based practices.
2. Implement standardized risk assessment tools for consistent identification of individuals at risk of pressure injuries and tailoring preventive interventions based on their needs.
3. Foster collaboration among healthcare professionals from various disciplines to provide holistic care for patients with wounds, incorporating input from wound care specialists, dietitians, physical therapists, and pharmacists.
4. Patients and caregivers should be involved in treatment decisions, provide education and support, and respect their preferences and values in the management of pressure injuries.

5. Nurses should perform routine skin assessments for all patients, especially those at risk of pressure injuries, to detect early signs of skin breakdown and intervene promptly.
6. Ensure accurate and detailed documentation of wound assessments, interventions, and outcomes to facilitate communication among healthcare team members and ensure continuity of care.
7. Support of research initiatives and quality improvement projects focused on pressure injury prevention and management to advance evidence-based practices and enhance patient outcomes.
8. Implement processes for continuous monitoring and evaluation of pressure injury prevention and management practices to identify areas for improvement and optimize care delivery.

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