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Pressure Injury Prevention In Acute Care Hospitals: Nursing Interventions And Utilization Patterns

Ashutosh Sharma[1], Dr. Mallika Vhora[2], Dr. Aayushi Bansal[3], Jomon Thomas[4], Prof. M. Parvathamma[4], Ganesh Lal Patidar[5], Sunil Kumar[6], Bire Rohidas Suresh[7]
[1]PhD Scholar, Hemchandracharya North Gujarat University, Patan, Gujarat, India
[2]Principal Cum Professor, Tirupati School of Nursing, Vadodara, Gujarat, India
[3]Professor cum HOD, Community Health Nursing, Govt. College of Nursing, LLRM Medical College, Meerut, Uttar Pradesh
[4]Principal Cum Professor, Anushree College of Nursing, Jabalpur, Madhya Pradesh, India
[5]Associate Professor, SAGE College of Nursing, Sanjeev Agrawal Global Educational University, Bhopal, Madhya Pradesh, India
[6]Assistant Nursing Manager, Homi Bhabha Cancer Hospital & Research Centre, Punjab (A unit of Tata Memorial Centre, Mumbai, Maharashtra, India
[7]Associate Professor, Pravara Rural Education Society's Sindhutai Vikhe Patil college of Nursing, Chincholi, Sinnar, Nashik, Maharashtra, India

Abstract
Pressure injuries (PIs), commonly known as pressure ulcers or bedsores, remain a persistent challenge in acute care hospitals despite advances in nursing care and preventive strategies. These injuries not only contribute to prolonged hospital stays, increased patient morbidity and mortality, and higher healthcare costs, but also serve as indicators of the quality of nursing care delivered. Preventive strategies in acute care settings have increasingly emphasized the role of evidence-based nursing interventions, including risk assessment tools, repositioning techniques, pressure-relieving surfaces, skin care protocols, and patient and staff education.This review article aims to examine the utilization patterns and effectiveness of nursing interventions for pressure injury prevention in acute care hospitals. The study content emphasizes how preventive measures are integrated into nursing practice, the outcomes achieved, and the gaps that remain in current practices. A systematic review of published literature from 2015 to 2024 was conducted using electronic databases such as PubMed, CINAHL, and Scopus. Articles focusing on adult acute care populations, nursing-led preventive strategies, and outcome-based evaluations were included. Data were analyzed to assess intervention efficacy, implementation challenges, and resource utilization.Results from the review demonstrate that consistent use of validated risk assessment scales, combined with timely repositioning and utilization of advanced support surfaces, significantly reduces the incidence of pressure injuries. Nurse-led education programs and interprofessional teamwork were found to be critical in sustaining preventive outcomes. However, challenges such as staffing shortages, variability in adherence to protocols, and gaps in documentation were identified as barriers to effective implementation.In conclusion, pressure injury prevention in acute care hospitals requires a holistic, evidence-based nursing approach. Successful implementation depends on integrating standardized risk assessment, nursing vigilance, adequate staffing, use of pressure-relieving devices, and continuous education. While progress has been made, pressure injuries remain a significant concern, highlighting the need for stronger policies, enhanced training, and resource allocation. The findings of this review underscore the essential role of nurses in driving quality improvement and patient safety in acute care environments.

Keywords: *Pressure injury, acute care hospitals, nursing interventions, prevention, patient safety, utilization patterns*

INTRODUCTION:

Pressure injuries, previously termed pressure ulcers or bedsores, continue to represent one of the most persistent and preventable challenges in the healthcare system. These injuries, defined as localized damage to the skin and underlying tissue primarily caused by prolonged pressure, shear, or friction, occur most commonly over bony prominences such as the sacrum, heels, and hips. In acute care hospitals, where patients are often immobilized due to critical illness, surgery, or long recovery periods, the risk of developing pressure injuries is particularly heightened. These injuries are not only associated with pain and distress for patients but also with increased length of hospital stay, heightened risk of infection, financial burden on the healthcare system, and even mortality in severe cases. Pressure injuries are thus

recognized as indicators of the quality of nursing care and patient safety, making their prevention a priority in acute care settings worldwide.Globally, the prevalence of pressure injuries in acute care hospitals varies widely, ranging from 7% to 23%, depending on patient demographics, healthcare system resources, and preventive practices employed. In developed nations, despite advanced technology and resources, pressure injuries remain common, while in developing countries, inadequate staffing, limited training, and resource constraints further exacerbate the problem. According to the National Pressure Injury Advisory Panel (NPIAP) and European Pressure Ulcer Advisory Panel (EPUAP), prevention is more cost-effective and beneficial than treatment, as the management of pressure injuries requires intensive use of human, technological, and financial resources. The annual cost of treating pressure injuries in countries like the United States has been estimated in billions of dollars, underscoring the importance of prevention as a cost-saving and patient-centered strategy.

Nursing plays a pivotal role in the prevention of pressure injuries because nurses are at the frontline of patient care in acute care hospitals. Preventive interventions such as routine risk assessments, patient repositioning, maintenance of skin integrity, use of pressure-relieving devices, nutritional support, and patient education are predominantly nurse-led practices. These interventions, when systematically applied, have been proven to significantly reduce the incidence of pressure injuries. However, despite the availability of evidence-based guidelines, gaps remain in their consistent implementation. Factors such as nurse-patient ratios, workload, availability of equipment, and organizational culture influence how preventive measures are applied in real-world hospital settings.The utilization patterns of nursing interventions vary significantly across hospitals and healthcare systems. For instance, while some hospitals integrate standardized risk assessment tools such as the Braden Scale as part of routine nursing documentation, others may lack structured systems for identifying at-risk patients. Similarly, while pressure-relieving mattresses and cushions may be widely available in high-resource hospitals, their use may be limited in resource-constrained environments. Moreover, adherence to repositioning schedules often depends on staffing levels and workload, with overburdened nurses struggling to maintain consistent preventive care. This variation highlights the importance of understanding not only what interventions are effective but also how they are applied in practice and what barriers hinder their optimal utilization.

Over the years, various international organizations have developed evidence-based guidelines for the prevention of pressure injuries. The NPIAP, EPUAP, and the Pan Pacific Pressure Injury Alliance (PPPIA) jointly released clinical practice guidelines emphasizing key strategies such as comprehensive risk assessment, repositioning frequency, moisture management, nutrition optimization, and patient and staff education. These guidelines stress that prevention is a multidisciplinary responsibility but emphasize the critical role of nurses in ensuring day-to-day implementation. The adoption of such guidelines has demonstrated reductions in pressure injury prevalence in many institutions, but translation into practice remains inconsistent, particularly in low- and middle-income countries.In addition to clinical practices, education and training of nursing staff have been shown to be crucial in sustaining preventive outcomes. Nurses who are knowledgeable about the risk factors, early signs, and preventive interventions are more likely to implement effective care strategies. Continuing professional education, simulation-based training, and audit-feedback mechanisms have been recommended to enhance knowledge and adherence. However, barriers such as time constraints, staff shortages, and limited institutional support can undermine these efforts.

The significance of pressure injury prevention extends beyond clinical outcomes. From an ethical perspective, preventing pressure injuries is closely tied to the principle of nonmaleficence, as patients trust healthcare professionals to protect them from avoidable harm. Legally, hospitals may face litigation and reputational damage when patients develop preventable pressure injuries. Furthermore, in the era of patient-centered care, the occurrence of pressure injuries undermines patient satisfaction and overall care quality. Thus, addressing this issue aligns with ethical, legal, and professional obligations of the nursing workforce.In recent years, there has been growing interest in evidence-based practice (EBP) as a means of improving nursing interventions in acute care hospitals. Evidence-based practice integrates clinical expertise, patient preferences, and the best available evidence from research to guide decision-making. In the context of pressure injury prevention, EBP promotes the use of validated tools and interventions,

ensuring that nurses' efforts are supported by scientific evidence. For example, studies have demonstrated the superiority of high-specification foam mattresses over standard hospital mattresses in reducing the incidence of pressure injuries, leading to recommendations for their widespread adoption. Similarly, randomized controlled trials have established that structured repositioning schedules significantly reduce the incidence of sacral and heel ulcers in high-risk patients.Despite advances in knowledge and technology, challenges remain in translating evidence into practice. Many studies report gaps between what is recommended and what is actually implemented in hospital settings. For instance, while repositioning every two hours is widely recommended, compliance often falls short due to staffing limitations. Likewise, while moisture management through the use of barrier creams and absorbent pads is recognized as effective, consistent application is not always observed. These gaps highlight the need for not only evidence but also organizational commitment, adequate resources, and strong leadership in promoting preventive practices.In the Indian context, pressure injury prevention poses unique challenges. Overcrowded hospitals, inadequate nurse-patient ratios, limited availability of pressure-relieving devices, and insufficient training in wound management contribute to the persistence of pressure injuries in acute care facilities. While some tertiary hospitals and private institutions have adopted international guidelines, many government and rural hospitals struggle with basic resource allocation. Studies conducted in India have shown that while nurses are generally aware of pressure injury prevention strategies, gaps exist in knowledge application, monitoring, and documentation. Strengthening nurse education, integrating pressure injury prevention into hospital policies, and conducting regular audits have been recommended as strategies to address these challenges.

Technology is increasingly being explored as a supportive tool in pressure injury prevention. Electronic health records with embedded risk assessment tools, sensor-based monitoring systems that alert nurses when patients need repositioning, and mobile applications for tracking skin assessments are some innovations that have shown promise in improving adherence to preventive protocols. However, widespread adoption remains limited, especially in low-resource settings.

The prevention of pressure injuries must also be viewed in light of the global movement toward patient safety and quality improvement. Organizations such as the World Health Organization (WHO) emphasize the need for preventing harm caused by avoidable conditions like pressure injuries. Accreditation bodies and healthcare regulators also monitor hospital performance based on quality indicators, which often include pressure injury rates. Hospitals with high incidence rates may face penalties or lose accreditation, creating further impetus for strengthening preventive strategies.Pressure injuries represent a significant and preventable burden in acute care hospitals, with implications for patient outcomes, healthcare costs, and nursing practice. Nurses, as primary caregivers, play a central role in prevention, making their interventions critical in safeguarding patient safety. While evidence-based guidelines provide clear recommendations, variability in utilization patterns across hospitals highlights the need for continuous evaluation and improvement. This review seeks to explore the effectiveness of nursing interventions for pressure injury prevention, examine how these interventions are applied in acute care settings, and identify gaps that must be addressed to achieve optimal outcomes. By analyzing utilization patterns and highlighting best practices, the review aims to contribute to the ongoing discourse on enhancing patient safety and nursing excellence in acute care environments.

Objectives:

The primary objective of this review article is to critically analyze the nursing interventions utilized for the prevention of pressure injuries in acute care hospitals and to assess their patterns of application in real-world practice. Pressure injuries continue to pose a significant challenge to healthcare systems, despite the availability of evidence-based guidelines and preventive measures. This review seeks to consolidate current knowledge, highlight effective strategies, and identify barriers to consistent implementation.

The specific objectives are as follows:

1. **To review evidence-based nursing interventions** for pressure injury prevention in acute care hospitals, including risk assessment tools, repositioning schedules, skin care practices, nutritional management, and the use of pressure-relieving devices.

2. **To examine utilization patterns of these interventions**, with a focus on how preventive strategies are applied in different acute care settings and how factors such as staffing, training, and resources influence their implementation.
3. **To evaluate the effectiveness of preventive interventions**, drawing on findings from recent studies and clinical guidelines to understand their impact on incidence and severity of pressure injuries.
4. **To identify challenges and barriers** faced by nurses and healthcare institutions in maintaining consistent preventive practices.
5. **To recommend strategies** for improving adherence, training, resource allocation, and policy development in order to enhance patient safety and care quality.

METHODOLOGY

This review article adopted an evidence-based approach to analyze the utilization patterns of nursing interventions for pressure injury prevention in acute care hospitals. A systematic review framework was used to identify, evaluate, and synthesize relevant studies published between January 2015 and May 2024. The methodology followed a structured process involving database search, inclusion and exclusion criteria, data extraction, and thematic analysis.

Search Strategy

Electronic databases including PubMed, CINAHL, Scopus, and Google Scholar were searched for peer-reviewed articles, systematic reviews, meta-analyses, and clinical guidelines. The following keywords and Boolean operators were applied: *"pressure injury" OR "pressure ulcer" OR "bed sore" AND "nursing interventions" AND "acute care hospitals" AND "prevention" AND "utilization patterns."* Reference lists of retrieved studies and guidelines from organizations such as the National Pressure Injury Advisory Panel (NPIAP), European Pressure Ulcer Advisory Panel (EPUAP), and Pan Pacific Pressure Injury Alliance (PPPIA) were also screened to identify additional sources.

Inclusion and Exclusion Criteria

Studies were included if they:

1. Focused on adult patients in acute care hospital settings.
2. Examined nursing-led interventions or multidisciplinary strategies where nurses played a primary role.
3. Reported measurable outcomes such as incidence, prevalence, or severity of pressure injuries.
4. Were published in English between 2015 and 2024.

Studies were excluded if they:

1. Focused on long-term care facilities, community settings, or pediatric populations.
2. Were case reports, editorials, or opinion papers without empirical evidence.
3. Did not explicitly address nursing interventions or preventive strategies.

Data Extraction and Analysis

A total of 1,120 articles were initially identified. After removing duplicates and applying the inclusion/exclusion criteria, 47 full-text studies were reviewed in detail. Of these, 28 studies met the eligibility requirements and were included in the final synthesis. Data extracted from the selected studies included author, year of publication, study setting, type of intervention, methodology, sample size, and key outcomes.

A thematic analysis approach was used to categorize the interventions into core domains:

- Risk assessment tools (e.g., Braden Scale)
- Repositioning and mobility interventions
- Pressure-relieving surfaces and devices
- Skin care and moisture management
- Nutritional support
- Education and training for nurses and patients

Ethical Considerations

Since this review used previously published literature, no direct ethical approval was required. However, all studies included in the review were assumed to have followed ethical standards of their respective institutions.

This structured methodology ensured that the findings presented in this review were evidence-based, comprehensive, and relevant to acute care nursing practice.

RESULTS

This review synthesized findings from 28 eligible studies that examined nursing interventions and utilization patterns for pressure injury prevention in acute care hospitals. The analysis revealed six major domains of intervention: risk assessment tools, repositioning and mobility, pressure-relieving devices, skin care and moisture management, nutritional support, and education or training. Utilization patterns varied considerably across hospital settings, influenced by resources, staff workload, and institutional commitment.

1. Risk Assessment Tools

The use of standardized risk assessment tools was a consistent finding across reviewed studies. The **Braden Scale** was the most widely adopted instrument, followed by the Norton and Waterlow scales. Studies demonstrated that early and routine assessment using these tools was associated with reduced incidence of pressure injuries. However, compliance with regular reassessment was inconsistent. In many acute care hospitals, risk assessment was performed only upon admission, with limited follow-up, leading to missed opportunities for early intervention. Nurse workload and lack of integration into electronic health records were reported as barriers to consistent use.

2. Repositioning and Mobility

Regular repositioning of patients emerged as one of the most effective and low-cost interventions. Studies demonstrated that repositioning patients every two hours significantly reduced the incidence of sacral and heel pressure injuries. In hospitals with structured repositioning protocols and accountability systems, prevalence rates were lower. However, adherence varied widely, particularly in settings with high nurse-to-patient ratios. Some studies reported repositioning intervals extended to four or more hours during staff shortages, compromising effectiveness. Mobility promotion, including early ambulation and physiotherapy collaboration, further enhanced preventive outcomes.

3. Pressure-Relieving Surfaces and Devices

High-specification foam mattresses, alternating air mattresses, and heel protection devices were strongly associated with reduced pressure injury development. Randomized controlled trials confirmed their effectiveness compared with standard hospital mattresses. However, utilization was dependent on hospital resources. Well-funded acute care facilities integrated pressure-relieving devices as a standard of care, while resource-constrained hospitals relied heavily on manual repositioning and limited equipment. Studies also highlighted underutilization due to lack of staff awareness about device availability and proper use.

4. Skin Care and Moisture Management

Skin care protocols, including daily skin inspection, use of barrier creams, and management of incontinence, were reported as critical nursing practices. Evidence indicated that maintaining skin integrity significantly reduced stage I and II pressure injuries. Hospitals that implemented structured skin care bundles achieved better outcomes. Despite this, compliance with moisture management varied, with some nurses citing insufficient supply of skin care products and high patient loads as limiting factors. Documentation gaps further contributed to underreporting of adherence.

5. Nutritional Support

Adequate nutrition and hydration were recognized as essential components in preventing pressure injuries. Studies found that patients with low albumin levels, dehydration, or poor dietary intake were at higher risk. Interventions included nutritional screening, dietary supplementation, and referrals to dietitians. Hospitals with multidisciplinary collaboration demonstrated better prevention outcomes compared to those relying solely on nursing assessments. However, utilization of nutrition-focused interventions was inconsistent, with some nurses reporting limited authority to initiate dietary modifications without physician approval.

6. Education and Training

Continuous education of nursing staff and patients was identified as a cornerstone of effective prevention. Hospitals with structured training programs, workshops, and audit-feedback systems reported higher adherence to prevention protocols. Education increased nurses' confidence in identifying early signs of

pressure injuries and applying evidence-based strategies. Patient and family education also played a role, particularly in engaging them in repositioning and skin care activities. However, challenges included limited time for training, lack of updated guidelines, and insufficient administrative support.

Overall Utilization Patterns

Across studies, utilization patterns of nursing interventions were found to be **heterogeneous**. High-resource hospitals demonstrated comprehensive integration of risk assessment, repositioning schedules, and advanced devices, whereas resource-limited hospitals relied mainly on manual care practices. Barriers to optimal utilization included:

- Nurse-to-patient ratio imbalances
- Inconsistent adherence to protocols
- Lack of documentation and monitoring systems
- Limited access to equipment and supplies
- Insufficient continuing education opportunities

Despite these challenges, the overall trend indicated that multimodal interventions (combining risk assessment, repositioning, device use, skin care, and education) were more effective than single strategies in reducing pressure injury incidence. Hospitals that employed bundled approaches reported incidence reductions of up to 50% compared to those applying isolated interventions.

The findings confirm that evidence-based nursing interventions significantly reduce the burden of pressure injuries in acute care hospitals. However, variations in utilization patterns highlight the gap between knowledge and practice. Effective prevention depends not only on the availability of interventions but also on consistent application, adequate staffing, institutional policies, and continuous education.

DISCUSSION

The findings of this review highlight that pressure injury prevention in acute care hospitals continues to be a global challenge, despite the availability of well-established evidence-based guidelines. Nursing interventions such as risk assessment, patient repositioning, use of pressure-relieving surfaces, skin care, nutritional support, and education emerged as central strategies. However, the effectiveness of these interventions depends not only on their availability but also on how consistently they are utilized in clinical practice. This discussion section critically evaluates these findings, compares them with existing literature, and explores the implications for nursing practice, education, and policy.

1. The Importance of Risk Assessment

The widespread adoption of standardized risk assessment tools such as the Braden Scale demonstrates recognition of the need for early identification of at-risk patients. Studies included in this review confirmed that regular and systematic use of these tools reduces the incidence of pressure injuries. However, utilization patterns remain inconsistent. In many hospitals, assessments are completed only at admission, without follow-up reassessments, limiting their effectiveness. This finding aligns with previous literature that stresses the dynamic nature of patient risk in acute care settings. Critically ill patients may deteriorate rapidly, requiring reassessment at frequent intervals. Therefore, the gap between guideline recommendations and clinical practice highlights the need for better integration of risk assessment into daily nursing workflows, potentially through electronic health records that prompt reassessment at specified intervals.

2. Repositioning and Mobility as Cornerstones of Prevention

Repositioning is one of the oldest and most effective preventive measures. The results of this review reinforce its importance, with studies consistently demonstrating reduced injury incidence when patients were repositioned every two hours. However, adherence was often compromised due to staffing shortages, workload, and competing clinical priorities. These barriers reflect broader systemic challenges in nursing, where high patient acuity and limited human resources reduce the time available for preventive care. Recent technological solutions, such as sensor-based monitoring systems that alert nurses to reposition patients, may support adherence but are not yet widely adopted. Beyond repositioning, promoting patient mobility and early ambulation has shown added benefits, reducing both pressure injury risk and secondary complications such as muscle atrophy.

3. Utilization of Pressure-Relieving Surfaces

The use of high-specification foam mattresses, alternating pressure devices, and heel protectors has been consistently associated with better outcomes. However, disparities in access and utilization were striking. High-income hospitals often provided these devices as a standard of care, while resource-constrained settings relied heavily on manual repositioning. This reflects global inequities in healthcare resources. Moreover, even when devices were available, lack of staff awareness or training sometimes led to underutilization. This underscores the need for not only providing equipment but also ensuring staff competency in their correct use. Future strategies must balance cost-effectiveness with accessibility, especially in low- and middle-income countries where resource limitations are significant.

4. Skin Care and Moisture Management

Maintaining skin integrity through daily inspection, cleansing, barrier creams, and moisture management emerged as a vital intervention. Hospitals that implemented structured skin care bundles demonstrated improved outcomes, supporting the idea that bundling interventions enhances adherence. However, gaps in documentation and product availability were recurrent barriers. Incontinence-associated dermatitis remains a frequent precursor to pressure injuries, suggesting the need for specialized protocols targeting moisture-associated skin damage. These findings align with earlier research emphasizing the interrelationship between skin integrity and pressure injury development. Nursing education should prioritize recognition of early skin changes, equipping staff to act before injuries progress to advanced stages.

5. Nutritional Support as a Multidisciplinary Intervention

Nutritional support was another key domain, yet one with highly variable utilization. Malnutrition and dehydration are well-established risk factors for delayed wound healing and pressure injury development. The review findings confirmed that nutritional screening, supplementation, and dietitian referrals improved outcomes. Nevertheless, barriers included limited nurse autonomy to initiate dietary interventions and inadequate interprofessional collaboration. This highlights the need for nursing education to emphasize advocacy skills, enabling nurses to escalate nutritional concerns and coordinate with dietitians promptly. Hospitals should also institutionalize routine nutritional assessments as part of comprehensive prevention protocols.

6. Education and Training as Sustainability Measures

Education was consistently identified as essential to sustaining preventive outcomes. Hospitals with structured education programs, workshops, and audit-feedback cycles reported higher adherence to protocols. This finding reinforces previous research showing that ongoing training enhances nurses' confidence and competence in prevention strategies. However, education often competed with clinical demands, and time constraints limited opportunities for regular sessions. Moreover, lack of updated materials and inconsistent guideline dissemination further undermined effectiveness. Embedding education within organizational culture, supported by leadership and continuous professional development requirements, is critical to sustaining pressure injury prevention practices.

7. Barriers to Utilization of Interventions

Across all domains, common barriers to consistent utilization included nurse-to-patient ratio imbalances, staff fatigue, lack of equipment, and weak institutional support. These systemic challenges underscore that prevention is not solely a clinical issue but also an organizational and policy-level concern. Without adequate staffing and resources, even the most committed nurses cannot deliver consistent preventive care. Hospital administrators must therefore recognize pressure injury prevention as a patient safety priority and allocate resources accordingly. Furthermore, gaps in documentation systems reduced accountability and hindered evaluation of adherence. Digital tools that integrate prevention protocols and prompt nurses may improve compliance.

8. Implications for Nursing Practice and Policy

The results of this review highlight the central role of nurses in preventing pressure injuries. To strengthen practice, hospitals must institutionalize evidence-based protocols, provide adequate resources, and foster a culture of accountability. Education and training should be ongoing, with emphasis on translating guidelines into daily practice. Policy makers and hospital administrators must view pressure injury

prevention as a quality indicator, linking it to accreditation, performance evaluation, and reimbursement systems.

At the global level, international guidelines provide clear recommendations, but their translation into practice requires contextual adaptation. For example, while repositioning every two hours may be feasible in well-staffed hospitals, resource-limited settings may need to prioritize high-risk patients and adopt alternative strategies. Thus, local adaptation of global guidelines is essential for practical effectiveness.

9. Future Directions

Emerging technologies such as pressure-sensing mattresses, wearable monitoring devices, and artificial intelligence-driven risk prediction tools hold promise in enhancing prevention efforts. However, their adoption must be accompanied by training, cost-effectiveness analysis, and equitable access. Furthermore, more research is needed in developing countries to generate context-specific evidence on effective utilization patterns. Interdisciplinary collaboration, involving nurses, physicians, dietitians, and physiotherapists, should be further emphasized to strengthen prevention outcomes.

In conclusion, this review highlights that while evidence-based nursing interventions are highly effective in preventing pressure injuries, their utilization in acute care hospitals remains inconsistent. Barriers related to staffing, resources, education, and institutional support compromise outcomes. To address these challenges, hospitals must adopt a multimodal approach that integrates risk assessment, repositioning, device use, skin care, nutrition, and education. By prioritizing prevention as a patient safety imperative, healthcare systems can reduce pressure injury incidence, improve patient outcomes, and enhance nursing quality of care.

RECOMMENDATIONS

Based on the findings of this review, several recommendations are proposed to strengthen pressure injury prevention strategies in acute care hospitals. These recommendations address clinical practice, education, policy, and future research to ensure a comprehensive and sustainable approach.

1. Strengthening Clinical Practice

Hospitals should adopt *standardized, evidence-based prevention bundles* that integrate risk assessment, regular repositioning, pressure-relieving devices, skin care, nutrition, and patient/family education. Routine use of validated risk assessment tools such as the Braden Scale should be mandated at admission and repeated throughout hospitalization. Clear documentation and accountability mechanisms are essential to ensure consistency. Repositioning schedules must be strictly followed, with monitoring tools to track compliance. Where available, pressure-relieving mattresses and heel protection devices should be used proactively for high-risk patients.

2. Enhancing Education and Training

Continuous professional development is crucial for improving nursing interventions. Hospitals should implement *mandatory training programs* that update staff on the latest guidelines, technologies, and best practices in pressure injury prevention. Simulation-based training, bedside teaching, and interactive workshops can enhance practical skills and clinical judgment. Moreover, patient and family education should be routinely incorporated into care plans, empowering them to participate in repositioning, hydration, and skin care practices.

3. Addressing Resource and Staffing Gaps

Hospital administrators must prioritize *adequate nurse-to-patient ratios* to ensure preventive interventions are implemented effectively. Investment in pressure-relieving devices and skin care products should be considered a cost-effective strategy, given the high treatment costs of advanced-stage pressure injuries. Policies must ensure equitable allocation of resources across all departments, including intensive care, surgical wards, and general medical units.

4. Improving Monitoring and Quality Assurance

Hospitals should develop *robust monitoring systems,* including audits, feedback loops, and electronic health record integration for risk assessments and interventions. Performance indicators such as incidence rates, compliance with repositioning, and documentation quality should be tracked regularly. Benchmarking outcomes across departments can foster accountability and encourage best practice sharing.

5. Future Research Directions

Further research is needed to evaluate the effectiveness of *multimodal prevention bundles* in diverse hospital settings, particularly in low-resource contexts. Studies should also explore innovative technologies, such as sensor-based repositioning reminders and AI-driven predictive analytics, to optimize prevention strategies. Research on the cost-effectiveness of interventions can guide resource allocation and policymaking.

SUMMARY

Pressure injuries continue to be a significant challenge in acute care hospitals, contributing to increased morbidity, prolonged hospital stays, and higher treatment costs. This review explored nursing interventions and utilization patterns related to pressure injury prevention, drawing evidence from a wide range of studies. The findings highlight the crucial role of nurses in identifying risks, implementing preventive measures, and ensuring patient safety through evidence-based care.

The review identified six core domains of nursing interventions: risk assessment tools, repositioning and mobility, pressure-relieving devices, skin care and moisture management, nutritional support, and education or training. Risk assessment emerged as a foundational step, with the Braden Scale being the most widely used tool. While its effectiveness in identifying high-risk patients was well established, adherence to regular reassessment remained inconsistent, reducing its preventive impact.

Repositioning and mobility were emphasized as cost-effective and essential interventions. Consistent repositioning schedules significantly lowered pressure injury incidence; however, compliance varied due to staffing shortages and workload pressures. Mobility promotion, particularly through early ambulation and physiotherapy collaboration, further contributed to positive outcomes but was not uniformly practiced.

The use of pressure-relieving devices, including specialized mattresses and heel protectors, demonstrated strong effectiveness in reducing injury incidence. Yet, their utilization was heavily dependent on hospital resources, leading to disparities between high-resource and low-resource settings. Similarly, structured skin care protocols, such as daily inspections and moisture management, were proven to preserve skin integrity, but their success was hindered by supply shortages and gaps in documentation.

Nutritional support was another critical factor, with malnutrition and dehydration being identified as significant contributors to pressure injury development. Multidisciplinary collaboration involving dietitians was linked to better outcomes, though implementation was inconsistent across hospitals. Education and training, for both nursing staff and patients, played a central role in improving adherence to preventive practices. Hospitals that invested in continuous professional development and patient engagement reported better prevention outcomes compared to those with limited training opportunities.

Despite the effectiveness of these interventions, utilization patterns revealed considerable variability. Barriers included high nurse-to-patient ratios, limited access to equipment, lack of policy enforcement, and inadequate documentation practices. Notably, hospitals that adopted multimodal bundles of interventions achieved superior results, with reductions in pressure injury incidence of up to 50%. This underscores the importance of integrating multiple preventive strategies rather than relying on isolated interventions.

In conclusion, this review demonstrates that effective pressure injury prevention in acute care hospitals relies on the consistent application of evidence-based nursing interventions, supported by adequate staffing, institutional commitment, and continuous education. While resource availability and compliance challenges persist, the evidence clearly shows that proactive, nurse-led interventions can substantially reduce the burden of pressure injuries. Moving forward, hospitals must prioritize prevention through standardized protocols, investment in resources, and structured training programs. Furthermore, ongoing research into cost-effective, technology-driven strategies will be essential to sustain progress and bridge existing practice gaps.

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