

SECOND EDITION

Evidence-Based Pressure Ulcer Prevention

A STUDY GUIDE FOR NURSES



Karen S. Clay, RN, BSN, CWCN

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Background and scope

CHAPTER 1



Background and scope



LEARNING OBJECTIVES

After reading this chapter, the participant should be able to:

- Define “pressure ulcer”
- Explain the role of impaired blood supply in the creation of pressure ulcers
- Identify two influences that may be beyond the caregivers’ control that put patients at risk for pressure ulcers

The Institute for Healthcare Improvement (IHI) estimates that 2.5 million people develop pressure ulcers in acute-care facilities every year.¹ According to The Joint Commission’s 2007 National Patient Safety Goals, an estimated 1.3–3 million U.S. adults currently receive treatment for pressure ulcers.² However, the actual scope of the pressure ulcer problem is unknown because not all healthcare settings are required to report these statistics.

In this context, the prevalence of pressure ulcers indicates the percentage of patients with them—such as those in a hospital, nursing home, or certain hospital unit—at only one point in time in a specific population. In 2001, the National Pressure Ulcer Advisory Panel (NPUAP) estimated that the prevalence of pressure ulcers in acute care ranged from 10.1% to 17%; in long-term care, the prevalence ranged from 2.3% to 28%.³ These data indicate that pressure ulcers are generally less prevalent in acute-care settings.

Incidence rates, however, which indicate the percentage of patients who developed pressure ulcers after admission to that setting, tell a different story. Incidence rates better reflect the effectiveness of a healthcare facility’s pressure ulcer prevention program than do numbers reflecting the prevalence of pressure ulcers. Data from renowned pressure ulcer researcher and professor Courtney Lyder, ND, GNP,

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FAAN, indicate that incidence rates in acute-care facilities ranged from 0.4% to 38%; in long-term care, they ranged from 2.2% to 23.9%.⁴

These data make sense. Acute-care facilities tend to have fewer pressure ulcer cases due to both shorter stays and the physiology of pressure ulcers, including how they reveal themselves. The Wound, Ostomy and Continence Nurses (WOCN) Society's guidelines report that pressure ulcers may take as long as five days to present themselves.⁵ Thus, a patient may not remain in the acute-care setting long enough for a pressure ulcer to become visible.

Of course, this is not always the case. Long-term care facilities or other settings may send to acute-care facilities patients who have pressure ulcers that must be treated. Such care involves expenses that are necessary but difficult to quantify.

The financial cost of pressure ulcers is difficult to determine because reported treatment costs account for many different variables and, therefore, are not comparable. For example, some studies include all costs (i.e., nursing care, physician fees, supplies, and room) whereas others include only direct costs, such as supplies and medications. Despite this lack of consistency in measurement, it is generally agreed that expenses for patients with pressure ulcers are exceptionally higher than expenses for those without. The estimated cost of managing a single full-thickness pressure ulcer is as high as \$70,000, and the total cost for treatment of pressure ulcers is estimated to be \$11 billion per year in the U.S.⁶ In addition to the direct costs of pressure ulcers, patients with them are more likely to develop healthcare-associated infections and other complications, further driving up their cost of care.

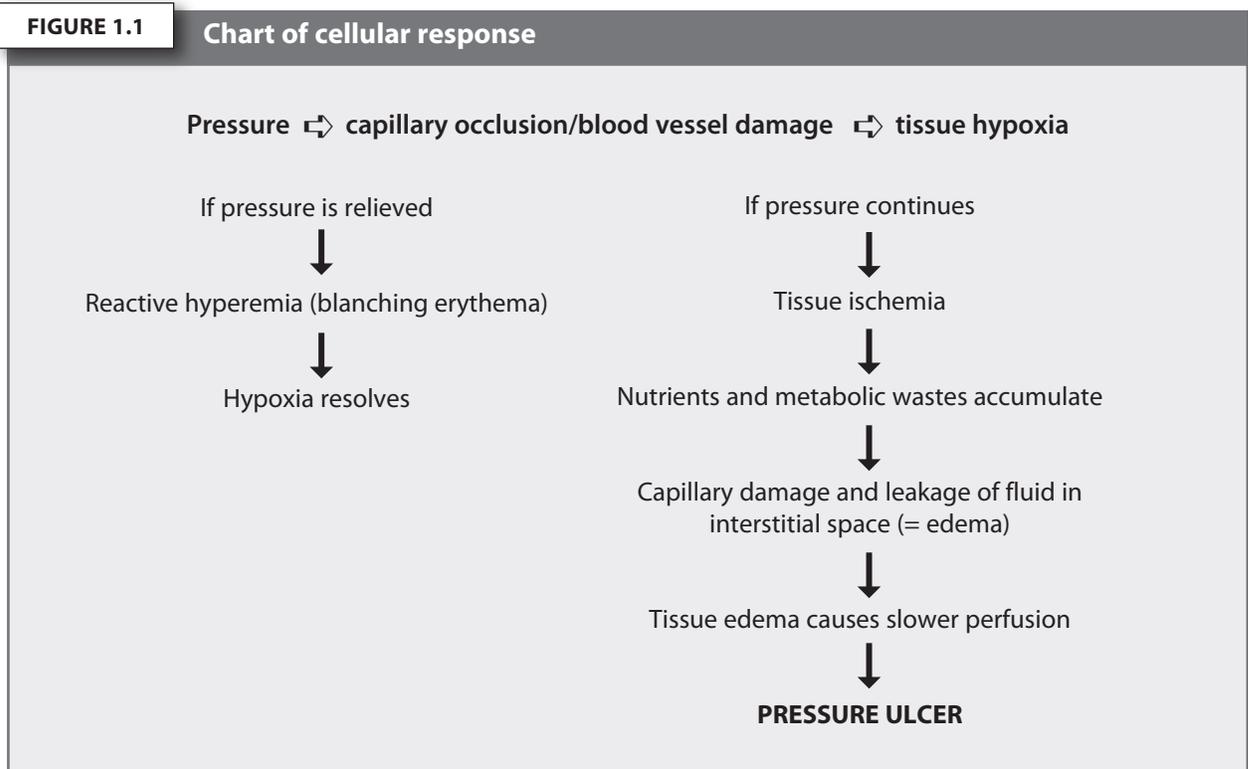
What is a pressure ulcer?

In 2007, the WOCN defined a pressure ulcer as “a 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. A number of contributing or confounding factors are also associated with pressure ulcers; the significance of these factors is yet to be elucidated.”⁵

It is important to understand the role of impaired blood supply in the creation of pressure ulcers. Although the initial insult is indeed pressure, the underlying pathophysiologic changes are related to the impairment of capillary blood flow. Such impairment can cause a cascade of events, including cellular and muscle responses.

Cellular response

At each stage of this cascade, other pathophysiologic changes can occur at the cellular level, including damage to the epithelium, platelet activation, tissue acidosis, and alteration in lymphatic flow. See Figure 1.1 for a chart of cellular response.



Once damage to the skin pathology that produces melanin has occurred, the color of the skin that regenerates is never the same. Thus, a dark-skinned individual will have areas of pink or white skin where the pressure ulcer once was.

Muscle response

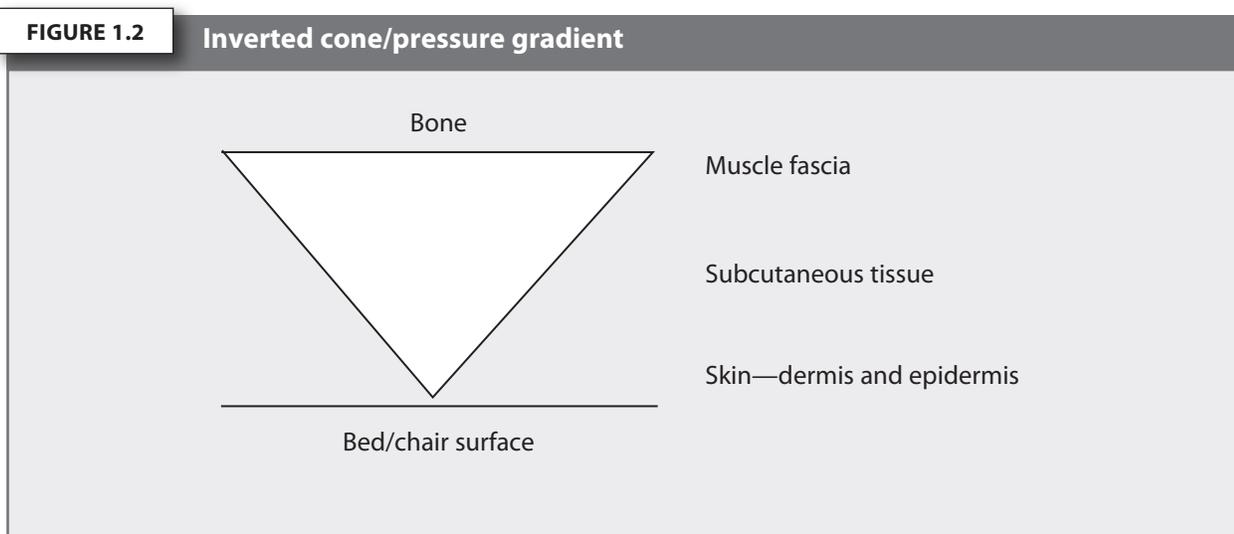
Although the visible damage to the skin's surface is a concern, the real problem is the muscle damage, which is not initially evident. Researchers have long understood that pressure is highest at the point of contact between the bony prominence and the muscle fascia. The deep-tissue damage that such pressure can cause is far more significant than skin impairment, and there is often little external evidence (at the skin-surface level) of the injury that lies beneath. In pressure ulcer development, visible skin damage is only the tip of the iceberg.

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Once muscle damage has occurred, the strength in the regranulated tissue will never be the same, resulting in a higher risk for pressure destruction in the future.

Indeed, deep-pressure ulcers begin to form at the bone and then extend to the skin—and the pressure at the bone is three to five times higher than it is at the skin.⁷ See Figure 1.2 for an example of an inverted cone/pressure gradient that depicts the more extensive damage at the muscle/bone.

Nurses must understand this pressure gradient when assessing a wound. When damage is present at the skin level, carefully inspect the area for evidence of deeper tissue damage.



Tissue tolerance and the “blame game”

The intensity and duration of pressure are important factors in pressure ulcer development. High-intensity pressure—in this case, the weight of the patient—can cause tissue damage over a short period of time, but low-intensity pressure caused by prolonged immobility, decreased sensory perception, or inadequate nutrition over a long period of time can cause tissue injury as well. Tissue tolerance—that is, how much pressure the skin can tolerate—is another important factor in pressure ulcer development.

In her book *Acute & Chronic Wounds*, Ruth A. Bryant, RN, MS, CWOCN, reports on an experiment that showed that deep-tissue ischemia can occur without any manifestation at the skin level and that subsequent small amounts of pressure may result in breakdown of the skin.⁸ The researcher applied pressure of 100 mm Hg to rat muscle for two hours and found no evidence of trauma. Three days

later, he applied half the pressure (50 mm Hg) to the same tissue for half the time (one hour). The rat muscle then showed evidence of damage. The experiment demonstrated that muscle damage occurred during the second application of pressure, even though the intensity and duration of the pressure were half those of the initial application.

The moral of the story is twofold: Damage is not always evident with the initial insult, and it actually may occur in the midst of properly applied therapeutic interventions at short duration and with pressure reduction. The implication for nursing staff: Stop the “blame game.” It is not uncommon to hear nurses on Monday mornings exclaim, “They must not have repositioned her this weekend, because her skin was fine on Friday and now she has a pressure ulcer.” The reality may be that on Thursday the intensity and duration of pressure were high and that a change occurred on the weekend despite application of care-planned interventions.

The price of pressure ulcer prevention

Interestingly, pressure ulcer prevention programs are estimated to cost \$60,000 at onset, with subsequent annual costs of \$10,000.⁹ These figures include the cost of training and creating policies and procedures, and they vary based on equipment purchases. One implication is clear: It costs less both fiscally and in human suffering to prevent pressure ulcers than it does to treat them.

State, federal, and Joint Commission requirements

According to the Social Security Act §1861, at-risk patients should be identified in the admission assessment, and discharge planning should be started the day of hospital admission. Doing so not only is mandated by law but also provides for continuity of care.

“The hospital must identify, at an early stage of hospitalization, those patients who are likely to suffer adverse health consequences upon discharge in the absence of adequate discharge planning.”¹⁰ Staff should work closely with the patient and the patient’s caregivers to ensure that the protocols initiated as an inpatient (e.g., specific dressing instructions, nutrition, pressure-reducing surface) are continued post-discharge.

Payment is another issue affected by your hospital’s pressure ulcer prevention efforts. For instance, the Medicare payment system for hospitals was set by Section 1886(d) of the Social Security Act. Under this act, payments to hospitals for Medicare-eligible patients fall under Medicare Part A (hospital insurance), and individual cases are placed in categories such as diagnosis-related groups (DRGs). Each DRG has a payment assigned to it based on the average cost to treat a patient in that group.

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Therefore, with fixed DRG payment, it makes sense to diligently focus efforts on assessment and prevention of pressure ulcers before they ever begin.

Furthermore, as of August 2007, the Centers for Medicare & Medicaid Services (CMS) released its final ruling on the revised hospital inpatient prospective payment system (IPPS) for operating- and capital-related costs. Effective October 1, 2008, cases with pressure ulcers will not be assigned a higher-paying DRG unless they were present on admission. According to the CMS, pressure ulcers are an important hospital-acquired complication that is both high-cost and high-volume. By selecting this condition as part of the final 2008 IPPS rule for hospitals, CMS aims to encourage careful examination of patients' skin on admission to identify decubitus ulcers.¹¹

The NPUAP reports that pressure ulcers present on admission will qualify for a higher reimbursement as long as the presence of a Stage III or IV ulcer is noted in the record within two days. Pressure ulcers occurring after that time will not be eligible for additional money.¹²

Lawsuits are another reason to actively practice pressure ulcer prevention. If you deviate from state and federal requirements and thus place the patient at risk of pressure ulcer development, you also put the organization (and individual practitioners) at risk of being sued for negligence. Negligence is failure to act as a reasonable, prudent person in the protection and care of another. It is also failure to meet the standards of care, which are the norm for practice and may stem from usual and customary practice, federal and state law, professional associations, and policies of the organization.

Healthcare providers can prevail under this scrutiny when clinical records show that they consistently adhered to the standard of care for pressure ulcers and that disease processes or complications made pressure ulcer development more likely. In addition, the hospital must show that it has a comprehensive staff education program on the prevention and treatment of pressure ulcers.

For accredited hospitals, such as those certified by The Joint Commission—which measures health-care organizations against national standards set by health professionals—there is flexibility in pressure ulcer care practices as long as standards of care and regulations are being met. Pressure ulcer rates receive high priority from The Joint Commission, and its National Patient Safety Goal #7 calls for healthcare organizations to reduce the risk of healthcare-associated infections.

In addition, the IHI recently added pressure ulcers to its targeted interventions for patient safety campaign, 5 Million Lives, calling for hospitals to prevent pressure ulcers by using science-based guidelines.

Organizational policy and procedures

Along with following state, federal, and Joint Commission requirements regarding pressure ulcer prevention and management, you must also adhere to the policies and procedures of your hospital. These policies and procedures are the foundation of pressure ulcer prevention, and management programs serve as a blueprint for the interdisciplinary team. If your organization's policies are solid and based on accepted standards, they provide a good framework for nursing practice and interdisciplinary involvement; they also provide the opportunity to establish team goals and to document the organizational commitment and philosophy. Therefore, it is vital to adhere to your hospital's policies and procedures if your main goal is to administer effective, appropriate care to your patients who have or are at risk for developing pressure ulcers.

Views on pressure ulcer prevention

Some experts believe all pressure ulcers are preventable, but not all share this belief—others believe there can be influences beyond the caregivers' control. These influences can range from patient non-compliance to end-of-life directives that require a different goal of care. For example, if a patient refuses to participate in range-of-motion exercises, physical therapy assistance with ambulation, or repositioning activities, you may not be able to prevent pressure ulcers from forming. Some patients refuse repositioning and will not allow pressure-relief mattresses or wheelchair cushions, despite caregiver education. Thus, your hands may be tied, regardless of your best efforts.

In the case of terminal care, your patient may not accept any food or may have advance directives that prohibit artificial feeding. Perhaps pain limits repositioning—and with comfort as the primary goal, a frequent repositioning schedule may be inappropriate. Both the absence of proper nutrition and less frequent repositioning increase a patient's likelihood of developing a pressure ulcer. Although these influences are the exception rather than the rule, they nonetheless are part of the equation. Documentation of the patient's and or family members' wishes is also important to prevent future miscommunication.

Pressure ulcer prevention is a complex task that requires the critical thinking and coordinated activities of an interdisciplinary team. In many cases, pressure ulcer development is related to the quality of care provided, and we need to embrace this reality.

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