PRESSURE ULCER PREDICTION & PREVENTION
AN INTEGRATIVE REVIEW

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A Review of the Research Evidence
Narrative or Literature Review: Critical research summary on a topic of interest, often to put a research problem into context. 23

Integrative Review: A systematic review using a detailed search strategy to find relevant evidence to answer a clinical question. Does not use summary statistics. 23

Systematic Review: Comprehensive search strategies and rigorous research appraisal methods surrounding a clinical issue. Used to summarize, appraise, and communicate contradictory results or unmanageable amounts of research. 23
“What is the quality of the evidence concerning Pressure Ulcer (PU) prediction and prevention in a variety of hospital settings and patient populations?”
**Search Terms:** Braden Scale, operating room, pressure ulcer prevention, critical care, intensive care

**Limits:** 1992-2006; 2002-2007

**Databases:** Cochrane, CINAHL, Ovid, Medline, Pub Med

**Web-Based:** AORN website, Yahoo, Google
AN INTEGRATIVE EVIDENCE REVIEW

✶ 2006 review for PU prediction & prevention
  ✪ 83 articles/abstracts; 18 selected as relevant
  ✶ Variety of topics, settings, patient populations
    ✪ Critical Care, Pediatrics, Long Term Care, Rehabilitation, Nursing Homes
    ✪ Operative patient experience evaluated

✶ 2008 review update
  ✪ Critical care environment examined in detail
  ✪ Two WOCN interviewed for expert opinions
  ✪ 282 articles; 14 reviewed, 8 selected as relevant
    ✶ 4 articles from original review eliminated
    ✶ 22 total relevant articles
Strength of individual research articles ranged from “Insufficient” to “Good”.

- Quality of most PU research studies was often “Insufficient” due to deficiencies in research methods.

Final Grade for Body of Research Evidence: “Fair”
Research and other types of evidence allow healthcare providers to base their practice on science, rather than ritual, tradition, and myth.
WHAT IS A MYTH?

- A collectively held belief that has no basis in fact ([www.wikipedia.org](http://www.wikipedia.org))
- A body of traditional beliefs & notions accumulated about a particular subject ([www.answers.com](http://www.answers.com))
- An unproved or false collective belief used to justify a social institution ([www.dictionary.reference.com](http://www.dictionary.reference.com))
Drink 8 glasses of water per day
- Depends on individual & activity level
- Can cause hyponatremia & heart failure

We only use 10% of our brains
- Detailed studies haven’t found the missing 90%

Reading in a dim light ruins eyesight
- Unlikely to cause permanent eye changes

The higher the SPF sunscreen, the better
- SPF 15 blocks 93.3 % UV rays
- SPF 30 blocks 96.7% UV rays
- SPF 60 blocks 98.3 % UV rays

Sunscreen tips:
- Use frequently, with added blocking compounds
EXAMINE 6 MYTHS RELATED TO HOSPITAL ACQUIRED PRESSURE ULCERS

- Confirmed - true
- Plausible - maybe
- Busted - false
Risk assessment scales, such as the Braden Scale:
+ decrease the incidence of pressure ulcers
+ accurately predict which patients are at risk of developing pressure ulcers
MYTH BUSTER

BUSTED!
No evidence that the use of a RAS decreases PU incidence\textsuperscript{17}
Nurses are able to:
+ Identify “no risk” & “high risk” patients

Nurses have difficulty in:
+ Identifying “mild risk” & “moderate risk” patients

One study showed the greatest number of PU occurred in the “mild risk” category
+ Shortened versions of RAS do not ensure its correct use
RAS are useful tools for improving
- The effectiveness of providing pressure-reducing surfaces \(^{17}\)
- Preventive interventions \(^{17}\)

Braden Scale offers the best balance between sensitivity, specificity, and risk estimate \(^{17}\)

Experienced nurses are more likely to: \(^{12}\)
- Consistently assesses the skin
- Identify PU stages
- Use Braden scale correctly
Proper education and training will change a healthcare provider’s behavior.
The presence of knowledge does not guarantee changes in traditional behavior $^{10}$

Behaviors related to PU prevention can be erratic $^{19}$
Intensive staff PU education can initially reduce PU incidence.\(^8\)

Gains are often lost over time.\(^8\)

Nurses will alter practice if change is not: \(^{11}\)
+ Difficult or burdensome
+ Time consuming
+ Adding to the workload

Nurses may not be interested in changing their routines! \(^{10}\)
REPLACING MYTH WITH EVIDENCE

- **Regular & ongoing** educational programs

- Reframe PU Programs from a leadership & management viewpoint
  - Create positive PU experiences
  - Role modeling by respected colleagues
  - Staff input regarding attitudes & beliefs surrounding PU assessment & prevention

- Provide staff with weapons for PU prevention
  - Resources, checklists, guidelines, RAS
Turning regimes (i.e. turning a patient every 2 hours) are a key strategy to pressure ulcer prevention
There is insufficient evidence to recommend specific turning regimes \(^4,5,21\)
Anecdotally linked to Florence Nightingale: took her 2 hours to reposition every injured soldier on her ward (Crimean War, 1853-1856)  
Attributed to a 1961 research study by Koziak which examined a 2 hour turning schedule  
More frequent repositioning on a pressure reducing mattress does not necessarily lead to fewer PU
REPLACING MYTH WITH EVIDENCE

- Individualize care for at-risk patients
  - Combine nursing judgment with PU tools and interventions
  - Utilize the Braden Scale subscales to target specific PU prevention interventions
    - Nutrition, Fiction & Shear, Moisture, Mobility, Activity, Sensory Perception
  - Apply intensive PU prevention measures for patients for whom turning protocols are not effective
  - Optimize patient’s nutritional status
MYTH 4

Patients in critical care areas are more prone to developing PU
No single valid or discriminatory risk factor can be identified for PU development in the critically ill population \(^{20}\)

Research data specific to the ICU is difficult to find \(^{20}\)
Use daily Braden scores from ICU admission to discharge ²⁰

- One study reported 55% of patients with PU developed them within 2 weeks of admission ²⁰

Target specific ICU-related Braden subscales ²⁰,²²

- Mobility
- Nutrition
- Moisture
Sedative effects on patient mobility may have an impact on PU development. Patients most at PU risk were on sedatives, either alone or in combination with other vasopressor drugs. Most critically ill patients are not routinely repositioned.
REPLACING MYTH WITH EVIDENCE

ICU Specific Equipment*

- Rotational beds do not reduce PU ⁴
- Higher-specification foam mattress preferred ²¹
- Cushioned surface facemasks may prevent facial PU ²¹
- Bowel Management Programs (i.e. Zassi, Flexi-Seal), may reduce moisture & decrease PU ²²
  + Paired with aggressive PU prevention program ²²

*No studies documenting a superior device in PU prevention in critically ill patients ²¹
MYTH 5

- All surgical patients are at high risk of developing PU
MYTH BUSTER

CONFIRMED!
ALL surgical patients should be considered at risk of PU development because of uncontrollable factors: \(^{6,16}\)

- Age
- Ethnicity
- Gender
- Body size
- OR time
- Hemodynamic state
- Vasoactive Medications
- Comorbid conditions
- Nutritional status
- Pre-operative hypotension
- ASA scores
- Albumin levels
REPLACING MYTH WITH EVIDENCE

- RAS can identify surgical patients at risk for PU development \(^{16}\)
- Pre-operative Braden Scale scores may be a predictor of PU formation \(^{2}\)
- Nutrition & mobility subscales may be predictive for OR acquired PU \(^{18}\)
REPLACING MYTH WITH EVIDENCE

Monitor the Controllable Factors

- Pooled Prep Solutions
- Shearing & Friction
- Surgical Position
- OR Surface

- Warming Blankets
  - OR patients placed on warming blankets are at higher risk for PU
MYTH 6

- PU prevention is a staff nurse responsibility
PU prevention needs a multidisciplinary team effort to achieve the best outcome. Nursing, Physicians, OT/PT, and Nutritional Services.

Nursing leadership and nursing management play a key role in supporting evidence-based PU initiatives.

Example: Management rounding of daily Braden Scores.
REPLACING MYTH WITH EVIDENCE

- Sustained commitment by leaders is necessary to make a change in philosophy stick and become embedded \(^1\)
  - Organizations tend to underestimate the time needed to adopt the use of evidence to change nursing practice \(^1\)
  - Complex healthcare environments
  - Large groups of nurses
Question long-standing routines & protocols
- What are they based on – ritual, tradition, myth?

Learn computer skills to find the best evidence
- Data base searches
- Organizational websites
- Web-based search engines

Change nursing practice in a systematic fashion, based on the best research evidence
- Not just one journal article that you like
“For us who nurse, our nursing is a thing which, unless we are making progress every year, every month, every week, take my word for it, we are going back.”
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REFERENCES


