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Research paper

Pressure injury prevalence in intensive care versus non-intensive care patients: A state-wide comparison

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At the conclusion of this article a Continuing Professional Development activity is attached

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ABSTRACT

Background: Hospital-acquired pressure injury is associated with increased morbidity and mortality and considered to be largely preventable. Pressure injury prevalence is regarded as a marker of health care quality.
Objective: To compare the state-wide prevalence, severity and location of pressure injuries of intensive care unit patients compared to patients in non-intensive care wards.
Method: The study employed a secondary data analysis design to extract and analyse de-identified pressure injury data from all Queensland Health hospitals with level I–III intensive care facilities that participated in Queensland Bedside Audits between 2012–2014. The sample included all adult ICU and non-ICU patients that provided consent for the Queensland Bedside Audits, excluding those in mental health units.
Results: Excluding Stage I, overall hospital-acquired pressure injury prevalence from 2012 to 2014 was 11% for intensive care patients and 3% for non-intensive care patients. Intensive care patients were 3.8 times more likely (RR 2.7–5.4, 95% CI) than non-intensive care patients to develop a pressure injury whilst in hospital. The sacrum/coccyx was the most common site of hospital-acquired pressure injury in all patients (intensive care patients 22%; non-intensive care patients 35%) however, mucosal pressure injury proportion was significantly higher in intensive care patients (22%) than in non-intensive care patients (2%). Stage II HAPI prevalence was the most common stage reported, 53% for intensive care patients compared to 63% for non-intensive care patients.

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Conclusion: There are significant differences in hospital-acquired pressure injury prevalence by stage and location between intensive care and non-intensive care patients reflecting the possible impact of critical illness on the development of skin injury. This has implications for resource funding for pressure injury prevention and the imposition of government initiated financial penalties for hospital-acquired pressure injury. For future comparisons to be effective between intensive care units, benchmarking partners should share similar characteristics and relevant targets.

1. Introduction

A pressure injury (PI) is defined as "localised damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device. . .as a result of intense and/or prolonged pressure, or pressure in combination with shear" (p.1).[1] Prolonged compression of skin tissue causes reduction or occlusion of microcirculation to the localised area, resulting in tissue hypoxia and consequent ischaemia. Pressure injuries to skin over bony prominences are divided into several categories which identify the stage of tissue disruption from superficial injury to full thickness skin loss or injury with an unknown depth (Table 1).[2] In contrast, mucosal membrane PI, "is found on mucous membranes with a history of a medical device in use at the location of the injury" (p.2) and cannot be staged due to the anatomy of the involved tissue.[1]

Pressure injuries are a significant healthcare issue, with hospitals currently facing growing scrutiny over increasing PI rates; PI prevalence is considered to be a marker of quality of health care, particularly nursing care.[2] Further, hospital-acquired PI (HAPI) has significant associations with morbidity and mortality rates, infection rates, increased length of stay and financial costs.[3] While most PI are argued to be preventable[4] and overall prevalence is decreasing,[5] prevalence in intensive care units (ICU) is usually higher than that of general ward settings.[6–9]

Despite an abundance of evidence and guidelines available to assist healthcare teams in the implementation of interventions to prevent PI development, especially for high risk intensive care patients,[1,2,10] a discrepancy continues to exist between knowledge of recommended care and translating this into practice.[11] Benchmarking, or comparison of performance data, can be used to create transparency of patient outcomes at regional, hospital and unit level. Benchmarking in healthcare is a relatively recent process that measures actual outcomes of current practice, whether or not they are influenced by best practice.[12] It has its origins in competitive industrial analysis, but has evolved over time in healthcare to include continuous quality improvement.[12,13] Unlike other forms of benchmarking that are determined by acknowledged leaders in their field, clinical practice benchmarking seeks to meet the identified expectations of a high quality health service as the standard of excellence is driven by patient expectations. A key problem is fluid processes leading to benchmarking data quickly becoming outdated, with today's standard of excellence becoming tomorrow's expected performance.[12–14] This paper aims to highlight the discrepancy between current ICU and non-ICU PI prevalence requiring realistic future benchmarking targets, tailored to settings and used to inform intensive care nursing practice for example, early PI risk assessment and intervention of PI prevention strategies.

1.1. The Queensland Bedside Audit

State-wide prevalence audits have been conducted since 2003 in Queensland public hospitals and health care facilities, but initially only PI prevalence was measured.[15] Since 2008, measures of prevention processes have also been collected including: PI risk assessment, risk status, nutrition risk, mobility, and pressure redistribution and support surfaces and devices in situ. Prevalence benchmarks for HAPI were set as less than 10%[16]; however, significant overall reduction in HAPI prevalence has occurred since the introduction of these audits and, since 2013, state-wide targets have not been set. Nevertheless, local benchmarks are in place in individual Queensland Health Hospital Health Service (HHS) districts yet are open to variation.[17]

In 2011, the Patient Safety Bedside Audit was introduced, which incorporated other elements relating to safer patient care. The following year, the process was renamed the Queensland Bedside Audit (QBA), and it became, and remains, a significant collaborative annual clinical benchmarking process within Queensland Health HHS. The QBA audit measures clinical practice within health care facilities against elements of the National Safety Quality Health Service Standards which can be compared between and within facilities of the HHS and benchmarked. Data collection tools were developed for the HHS in response to the National Safety and Quality Health Service Standards.[18] Clinical data collation, analysis, comparative performance benchmarking, and feedback of information to local facilities occurs within a safety and quality framework.[17] Not withstanding this objective, there have been no studies conducted at the state-wide level to consolidate the data and present it from an ICU perspective. Therefore we aimed to compare state-wide PI prevalence of ICU patients versus non-ICU patients, using QBA annual audit data.

2. Methods

This study employed a secondary data analysis design to investigate PI prevalence in Queensland public hospitals with Level I–III ICU between the years 2012–2014. This timeframe was selected as the Australian Wound Management Association (AWMA) Pan Pacific clinical practice guideline was released in 2012 and the QBA had adopted this PI staging system for the years 2012–2014.[2]

2.1. Research questions

1. What was the PI prevalence of ICU versus non-ICU patients?
2. What was the PI prevalence by PI stage of ICU versus non-ICU patients?
3. What was the PI prevalence by anatomical site of ICU versus non-ICU patients?

2.2. Setting and sample

For the purpose of this prevalence study, QBA data (2012–2014) were retrieved only from hospitals with Level I–III ICU facilities. Nationally, intensive care facilities are stratified using a three level framework.[19] A level I ICU service, the lowest acuity, is capable of providing immediate resuscitation and short-term cardiorespiratory support for critically ill patients. A Level II ICU service provides general intensive care, including complex multisystem life support for a period of at least seven days or for longer periods in remote areas. A Level III ICU, the highest acuity level, is a referral unit for