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Research paper

## Understanding contextual barriers and enablers to pressure injury prevention practice in an Australian intensive care unit: An exploratory study

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## ABSTRACT

**Background:** Skin integrity management is often a low clinical priority in the intensive care environment, possibly resulting in high pressure injury (PI) prevalence. This article reports the results of the first phase of a multiphased project, "Translating evidence-based pressure injury prevention strategies to the intensive care environment (SUSTAIN study)". The SUSTAIN study used a research translation framework to guide the assessment of research uptake, development, and monitoring of translational strategies to reduce PIs. **Objective:** The objective was to assess the enablers and barriers to research translation of evidence-based skin integrity management in one Australian tertiary referral intensive care unit (ICU).

**Methods:** This exploratory study was conducted in an Australian metropolitan tertiary ICU on a sample of 204 registered nurses. Data were collected using (i) a descriptive cross-sectional cohort survey of barriers, enablers, and attitudes to PI prevention, (ii) a cross-sectional survey of PI knowledge, and (iii) focus groups to understand the local contextual factors impacting registered nurses' PI prevention practice.

**Results:** Participants reported a moderate to high ability to rise above barriers in PI prevention, a positive attitude towards PI prevention, and considered this a priority in their care of patients. High patient acuity emerged as a barrier to implementing timely PI prevention strategies. In the knowledge, test participants with postgraduate qualifications answered more statements correctly. Focus group data revealed four themes: (i) team ICU, (ii) processes of care, (iii) education for consistency, and (iv) the patient.

**Conclusions:** It is essential that evidence-based PI prevention strategies are provided in the intensive care environment. Our findings indicate that despite positive attitudes and sound knowledge levels, high patient acuity is a significant barrier to evidence implementation.

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## 1. Introduction

Loss of skin integrity during illness is a complex phenomenon entailing interactions between immobility, pressure, shear, friction, moisture, and poor nutrition.<sup>1</sup> These variables are endemic in patients admitted to the intensive care unit (ICU). Critically ill patients are commonly immobile, unable to change their position, and, importantly, often unable to sense pressure from prolonged periods in one position because of their underlying pathophysiology, continuous administration of intravenous sedation, and pain relief.<sup>2,3</sup> As such, critically ill ICU patients are a vulnerable population at high risk, or very high risk, of disruption to skin integrity, particularly the development of pressure injuries (PIs).<sup>4</sup>

Most PIs are avoidable, yet rates of PIs reported in Australian ICUs are unacceptably high ranging from 18 to 50%.<sup>2,5</sup> PIs have been shown to extend length of hospital stay by 4.31 days with costs of treating PIs estimated at AU\$983 million per annum.<sup>6,7</sup> A growing body of clinical research examining the mechanics of PI prevention has translated into national and international evidence-based clinical guidelines which provide a framework for quality care.<sup>1</sup> Despite this, skin integrity management that is in practice is often a low clinical priority in the intensive care environment, resulting in high PI prevalence.<sup>8</sup> Further, variation in clinical practice, for example, variations in processes of care among clinicians, or different knowledge levels or commitment of staff is a key variable mediating the delivery of PI prevention strategies.<sup>9</sup> Clinical guidelines are not prescriptive and often lack strategies to achieve and maintain low PI rates.<sup>10</sup> Thus, guidelines alone are not sufficient to reduce PI rates.

In response to unacceptably high PI prevalence, various strategies have been devised to reduce the prevalence and severity of PIs in ICUs.<sup>2,11</sup> One such strategy was the development of the *Interventional patient skin integrity protocol in a high risk environment (InSPiRE)* program, a package of established evidence-based interventions to prevent PI.<sup>2</sup> This “bundled” approach has demonstrated potential to reduce the rate of PIs in the ICU.<sup>11</sup> Coyer et al completed a trial implementation of InSPiRE in a single centre tertiary referral ICU and showed that InSPiRE was effective in reducing PI cumulative incidence to 18% in the intervention group from 30.4% in the control group ( $p = 0.039$ ).<sup>2</sup> Despite achieving promising results during the study period, subsequent monthly incident reports from the same institution show large fluctuations in the number of new PIs reported per month in the ICU.<sup>12</sup> This lack of sustained translation into practice indicated an imperative for change to skin management in this vulnerable patient population and unique clinical environment.

This study therefore used a research translation framework, the Ottawa Model for Research Use,<sup>13,14</sup> to guide sustained uptake of evidence-based interventions into the clinical practice domain. The Ottawa Model for Research Use requires that input, process, and output elements be systematically assessed, monitored, and evaluated to facilitate effective research translation into practice. The assessed, monitored, and evaluated structure identifies the nature of barriers and supports possible enablers to research use associated with the practice environment (the ICU), adopter characteristics (specialist nurses), and the clinical innovation (the bundle of the best available evidence to improve skin integrity). Strategies to transfer the intervention are based on the situational assessment.

In this article we report on the results of the first phase of a comprehensive multiphased project, translating evidence-based pressure injury prevention strategies to the intensive care environment (SUSTAIN study). The SUSTAIN study consisted of three phases (Fig. 1). Phase 1 of the study identified the nature of existing barriers and supports, both tangible and intangible, evidence-based PI prevention practices.

### 1.1. Research objective and aim

The objective of this study was to systematically assess the enablers and barriers to research translation of evidence-based skin integrity management and PI injury prevention in the intensive care environment. Hence, the aim of this study was to explore registered nurse (RN) attitudes towards, and knowledge of, PI prevention strategies in one Australian tertiary referral ICU.

## 2. Materials and methods

### 2.1. Design

Phase 1 entailed a multiple methods exploratory design comprising of (i) a descriptive cross-sectional cohort survey of attitudes, barriers, and enablers to PI prevention, (ii) cross-sectional survey of knowledge of PI staging and prevention, and (iii) focus groups to understand local contextual factors impacting RNs' PI prevention practice.

The study received ethical approval from the respective hospital (HREC/15/QRBW/24) and university human research ethics committees (QUT1500000139).

### 2.2. Setting

The study was conducted in the ICU of a major metropolitan public hospital in Queensland, Australia which admits over 2400 patients per annum. Patients admitted to this ICU have high acuity, and common medical diagnoses include: acute neurological disorders, respiratory diseases, renal dysfunction, burns, sepsis, and multi-trauma injuries. The ICU is a 36-bed unit operationally and physically divided into four “pods,” each of nine beds. Each pod is staffed independently. The ICU is currently funded for 22 high acuity beds. The unit is staffed with approximately 200 RNs who deliver and are responsible for complete patient care in a ratio of one RN to one mechanically ventilated patient.

### 2.3. Population and study sample

At the time of the study, 204 RNs were employed in the ICU study site comprising of seven senior RNs (three clinical nurse consultants, two nurse managers [one staffing and one equipment], and two nurse educators) and 197 RNs responsible for delivery of clinical care. All 204 RNs were included in this study. A convenience sampling method was used for the focus groups where those RNs who were working at the time the scheduled focus groups were invited to participate in the test.

### 2.4. Instruments

#### 2.4.1. Survey

The survey comprised three sections: (i) demographic information, (ii) RNs' attitudes to PI care and prevention in the ICU, and (iii) potential barriers and enablers to optimal PI prevention. Thirteen items were taken from the attitudes towards pressure ulcer prevention (APuP) instrument,<sup>15</sup> and 23 items were taken from the barriers and facilitators for pressure ulcer prevention in the paediatric ICU instrument.<sup>16</sup> Both instruments were used with permission from the respective authors.

The APuP instrument consists of 13 items and covers five dimensions of RNs' attitude towards (i) personal competency to prevent PIs; (ii) the priority of PI prevention; (iii) the impact of PIs (for the patient and society); (iv) personal responsibility for PI prevention; and (v) confidence in the effectiveness of prevention strategies. All items were rated on a forced choice four-point Likert scale (1 strongly disagree to 4 strongly agree). The maximum total

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