Collegian (2015) xxx, xxx–xxx

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/coll

Predictors of pressure injury prevention strategies in at-risk medical patients: An Australian multi-centre study

Sharon Latimer, RN, MAP [a,*], **Brigid M. Gillespie, RN, PhD, FACORN** [b,1], **Wendy Chaboyer, RN, PhD** [c,1]

[a] *Griffith University, School of Nursing and Midwifery, L05 3.45 Logan Campus, Queensland, Australia*
[b] *Griffith University, NHMRC Research Centre for Excellence in Nursing Interventions (NCREN), G01 2.04 Gold Coast Campus, Queensland, Australia*
[c] *Griffith University, NHMRC Research Centre for Excellence in Nursing Interventions (NCREN), G01 2.03 Gold Coast campus, Queensland, Australia*

Received 24 February 2015; received in revised form 18 November 2015; accepted 21 November 2015

KEYWORDS
Mobility;
Patient education;
Regular repositioning;
Support surface;
Risk assessment

Summary
Background: Pressure injuries impact both patients and healthcare organisations. Implementing pressure injury prevention strategies reflects current clinical practice guidelines, but in Australia, evidence on the factors that predict the implementation of these strategies is lacking.
Aim: To determine the patient, clinical and contextual factors that predict the implementation of pressure injury prevention strategies among acute medical patients with reduced mobility at two Australian hospitals.
Method: An observational study using chart audits and semi-structured observations. A consecutive sample of 241 participants (patients) was recruited from four medical units at two large Australian hospitals. Multiple logistic regression and multiple regression analyses were performed to identify predictors of support surfaces, regular repositioning, patient education and the number of pressure injury prevention strategies.
Results: Only 113 (46.9%) participants had a pressure injury risk assessment undertaken on admission. Regular repositioning was the most frequent, and often the only implemented strategy. Two factors predicted the implementation of support surfaces: participants identified at pressure injury risk during hospitalisation, and their 24-h activity. As a participant's mobility decreased, there was a 6% increase in the implementation of support surfaces ($p = 0.001$) such as pressure-relieving mattresses. Participants identified at pressure injury risk were more likely to receive prevention education.

* Corresponding author. Tel.: +61 07 3382 1082; fax: +61 07 3382 1277.
E-mail address: s.latimer@griffith.edu.au (S. Latimer).
[1] Tel.: +61 07 5552 9718; fax: +61 07 5552 9144.

http://dx.doi.org/10.1016/j.colegn.2015.11.005

Please cite this article in press as: Latimer, S., et al. Predictors of pressure injury prevention strategies in at-risk medical patients: An Australian multi-centre study. *Collegian* (2015), http://dx.doi.org/10.1016/j.colegn.2015.11.005

Conclusion: Participants identified at pressure injury risk were most likely to receive prevention strategies. The low-pressure injury risk assessment rates mean some patients may not receive the recommended preventive care. There seems to be a reliance on a single prevention strategy, rather than a suite of them.

1. Introduction

Pressure injuries (PI), or pressure ulcers are caused by a combination of shear, friction and unrelieved pressure, resulting in localised skin/tissue injury (National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance, 2014). PI are an ongoing patient safety and quality healthcare concern (Moore, Cowman, & Conroy, 2011) resulting in negative physical and emotional sequelae for patients (Latimer, Chaboyer, & Gillespie, 2013) including pain, disfigurement, depression, and sometimes death (Latimer et al., 2013; National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance, 2014). PI are deemed preventable (Moore, 2013), yet prevalence rates remain high. Australian PI prevalence rates range from 5% to 30% (Mulligan et al., 2011). In Western Australia, stage I–IV hospital-acquired pressure injuries (HAPI) rates have remained steady between 2009 (6.3%) and 2011 (7.4%) (Mulligan et al., 2011). Internationally, HAPI rates vary from 3% to 33% (Gunningberg, Stotts, & Idvall, 2011; Vanderwee, Clark, Dealey, Gunningberg, & Defloor, 2007), with a recent Belgian study reporting a 12.1% HAPI rate (Vanderwee et al., 2011). A range of approaches proposed to reduce HAPI includes implementing appropriate pressure injury prevention (PIP) strategies (Moore et al., 2011), and imposing financial penalties on healthcare organisations (Centers for Medicare and Medicaid Services, 2014; Queensland Government, 2013). However, for a rate reduction to occur, the implementation of PIP strategies needs to be central to the healthcare organisation's strategic planning (Moore, 2013), and should involve the patient, clinical leaders and senior managers (Australian Commission on Safety and Quality in Health Care, 2012).

The national safety and quality healthcare standard for the prevention and management of PI (Australian Commission on Safety and Quality in Health Care, 2012), recommends the implementation of PIP clinical practice guideline (National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance, 2014). These strategies include PI risk assessment, a PIP management plan, appropriate support surfaces (e.g. pressure relieving mattress, seating cushion) regular repositioning, skin assessment and protection, continence management, nutritional assessment and supplements, and patient education (National Pressure Ulcer Advisory Panel and European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance, 2014). All accredited Australian hospitals are obliged to implement these best-practice standards with the aim that patients receive nationally consistent, evidence-based care (Australian Commission on Safety and Quality in Health Care, 2011). Much research has been published on the varied uptake of PIP strategies by nurses (Barker et al., 2013; Chaboyer & Gillespie, 2014; Gunningberg, Donaldson, Aydin, & Idvall, 2012), the barriers to PIP (Pancorbo-Hidalgo, García-Fernández, López-Medina, & López-Ortega, 2007) and patients' willingness to participate in PIP (Gillespie, Chaboyer, Sykes, O'Brien, & Brandis, 2014; Latimer et al., 2013). The complexities surrounding PIP suggest that other factors could also play a part in the implementation of PIP strategies.

Some research has been published on the factors that predict the implementation of PIP strategies. Patients' age, race, gender and the Braden Scale were reported predictors for the implementation of support surfaces (Bergstrom, Braden, Kemp, Champagne, & Ruby, 1996). In another study, as patients' Norton scores increased, so too did the use of low-pressure prevention devices (e.g. special mattresses, cushions, and pressure-reducing beds) (Perneger, Héliot, Raë, Borst, & Gaspoz, 1998). One study identified clinical unit (intensive care and geriatric care), length of stay, the result of the Braden Scale, and a patient's activity in bed as predictors of the implementation of pressure-relieving mattresses and regular repositioning (Gunningberg, 2005). While important, these previous European studies were conducted more than 10 years ago, and the different healthcare context means their findings may not translate across the Australian healthcare sector.

2. Methods

2.1. Aim of the study

The aim of the current study was to determine the extent to which patient, clinical and contextual factors predict the implementation of PIP strategies among adult medical patients with reduced mobility at two Australian metropolitan hospitals. In this study, the recruited patients are referred to as participants. The results have the potential to improve patient outcomes by providing contemporary and contextually specific PIP data that may be used to help inform nurses PIP practices, and inform research and policy development.

To address the study aim, we posed the following four hypotheses:

Patient factors (age, gender), clinical factors (hospital length of stay [HLOS] at the time of data collection, number of comorbidities, PI risk assessment undertaken on admission, participant identified at PI risk during hospitalisation, and participant 24-h activity) and a contextual factor (hospital), predict the implementation of:

1. support surfaces in acute medical patients with reduced mobility,

Please cite this article in press as: Latimer, S., et al. Predictors of pressure injury prevention strategies in at-risk medical patients: An Australian multi-centre study. *Collegian* (2015), http://dx.doi.org/10.1016/j.colegn.2015.11.005