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# Barriers and enablers to implementation of pressure injury prevention in hospitalized adults: a mixed methods systematic review protocol

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## ABSTRACT

**Objective:** The objective of the proposed systematic review is to determine the barriers and enablers (or facilitators) to the implementation of pressure injury prevention among adults receiving care in the hospital setting.

**Introduction:** Hospital-acquired pressure injuries are preventable; however, they remain an ongoing safety and quality health care concern in many countries. There are various evidence-based preventative interventions for pressure injuries, but their implementation in clinical practice is limited. An understanding of the different factors that support (enablers or facilitators) and inhibit (barriers) the implementation of these interventions from different perspectives is important, so that targeted strategies can be incorporated into implementation plans.

**Inclusion criteria:** This review will include quantitative, qualitative, and mixed methods studies that investigate barriers and/or enablers in relation to hospital-acquired pressure injury prevention in hospitalized adults. Only English publications will be considered, with no publication date restrictions.

**Methods:** The systematic review will be conducted in accordance with the JBI methodology for mixed methods systematic review. Published studies will be searched in PubMed, CINAHL, Embase, PsycINFO and Scopus. Gray literature will also be considered. Critical appraisal and data extraction will be performed using standardized tools, followed by data transformation. Data synthesis will follow the convergent integrated approach.

**Keywords** barriers; enablers; facilitators; mixed methods; pressure injury

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## Introduction

Hospital-acquired pressure injuries (HAPI), also known as pressure ulcers, are localized areas of

damage to the skin and/or underlying tissue, usually over a bony prominence, secondary to sustained pressure and/or friction and shear during an inpatient hospital stay.<sup>1,2</sup> Pressure injuries are classified using a staging system developed by the National Pressure Ulcer Advisory Panel and the European Pressure Ulcer Advisory Panel; the classification includes stage 1 (non-blanchable erythema), stage 2 (partial-thickness skin loss), stage 3 (full-thickness skin loss), stage 4 (full-thickness tissue loss), unstageable (depth unknown), and suspected deep tissue injury (depth unknown).<sup>3</sup> There are a number of factors that predispose hospitalized patients to develop pressure injuries including advanced age, immobility, poor

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nutritional status, presence of diabetes, urinary or fecal incontinence, impaired sensation, and altered hematological measures.<sup>1-3</sup> Pressure injuries are associated with pain, discomfort, infection, and decreased level of function, which can lead to longer hospital stay. Although they are considered preventable, HAPI remain an ongoing safety and quality health care concern in many Western countries.<sup>4,5</sup> In Australia, the rate of HAPI in 2015–16 was 9.7 injuries per 10,000 hospitalizations. Globally, HAPI rates range from 3% to 33%.<sup>6,7</sup> The management of HAPI places a significant economic burden on the health care system. An economic study reported an estimated cost of AU\$983 million in 2012–13 for the treatment of pressure injury across Australian public hospitals, which was approximately 1.9% of all public hospital expenditure.<sup>8</sup> Internationally, the financial burden associated with pressure injuries was an estimated US\$9.1 to US\$11.6 billion per year in the US,<sup>9</sup> and the mean cost of treatment per patient varied between £1214 (Stage 1) and £14,108 (Stage 4) in the UK.<sup>10</sup> Preventative strategies can potentially reduce the cost associated with the treatment of HAPI.

Clinical practice guidelines containing recommendations for pressure injury prevention, which are informed by high-quality research and expert consensus, have been published for more than two decades now, and yet the implementation of these recommendations to clinical practice remains limited.<sup>4,11</sup> Pressure injury prevention consists of risk identification and risk mitigation.<sup>1</sup> A range of validated risk assessment tools, such as Waterlow, Norton and Braden scales,<sup>1,3</sup> are available and can be used to identify an individual patient's needs. Following assessment, tailored interventions such as skin inspection, nutrition and education, frequent repositioning, and use of special support surfaces and equipment can then be implemented to mitigate the risk.<sup>1,12,13</sup> The implementation of these strategies require a complex interaction that involves the health organization, health practitioners, and patients and their caregivers, and also depends on a number of contextual and organizational factors such as leadership, culture, teamwork, and communication.<sup>14-16</sup> For example, in a quality improvement program aiming to reduce pressure injuries in an acute hospital setting in England, the approach was multifaceted and involved high-level support from the hospital board and nursing director. The

program required engaging with key change agents, teamwork and a collaborative approach, setting up data collection and communication mechanisms, continuous training and education for relevant staff, using real patient stories, establishing an implementation team, developing resources, and organizing events to promote awareness and commitment to practice changes.<sup>15</sup> Because of the complexity involved in the process, it is not surprising that despite substantial research on effective preventative interventions and quality improvement initiatives for “zero incidence,” pressure injury outcomes remain less than ideal.

The National Safety and Quality Health Service Standards were developed by the Australian Commission on Safety and Quality in Health Care to improve the quality of health service provision in Australia. A key component of these standards is the implementation of systems and processes for preventing hospitalized patients from developing pressure injuries and effectively managing them when they occur.<sup>17</sup> Internationally, pressure injury prevention has also been identified as an important health care quality indicator and similar initiatives for implementation of pressure injury prevention programs have been reported.<sup>4,6,10</sup> Numerous studies have been undertaken to describe strategies for HAPI prevention,<sup>12,14,15</sup> the varied uptake of these strategies by health practitioners,<sup>5</sup> the role and influence of senior or executive staff,<sup>18</sup> and patients' readiness for and compliance with prevention practices.<sup>5</sup> A study conducted by Coyer *et al.* revealed that nurses have a positive attitude towards HAPI prevention; however, high patient acuity and competing work demands emerged as significant barriers to implementing appropriate and timely prevention strategies, particularly in the intensive care unit.<sup>19</sup> In another study, patients' cognitive impairment, patients' attitudes (ie, taking a passive approach to health care), and undervaluing of prevention strategies were described as barriers to patient engagement in HAPI prevention programs.<sup>20</sup> Good leadership, effective communication, knowledge of prevention strategies, and simple and easy-to-deliver interventions were identified as likely to facilitate implementation of HAPI prevention.<sup>20</sup> Experts in the field of evidence implementation suggest that planned initiatives for improving the quality and safety of health care are likely to be successful if

they are informed by an assessment of barriers and enablers that exist at various levels of health care (ie, consumer, health professional, social context, organizational context, economic context).<sup>21,22</sup> It is therefore important to understand the different factors that support (enablers or facilitators) and inhibit (barriers) the implementation of HAPI prevention from different perspectives (eg, patients, health practitioners, managers) so that targeted strategies can be incorporated into implementation plans.

A preliminary search of PubMed, *JBI Database of Systematic Reviews and Implementation Reports*, and the Cochrane Database of Systematic Reviews failed to identify a systematic review pertaining to barriers and enablers to the implementation of HAPI prevention. Stadnyk *et al.* published a critical literature review, rather than a systematic review, to identify factors that facilitated pressure injury prevention among older adults in different health care facilities.<sup>4</sup> The review focused only on components of organizational culture associated with pressure injury prevention. Although the review described a number of factors that can assist in understanding culture change, it did not provide a comprehensive picture of factors affecting the adoption of HAPI prevention practices. Therefore the objective of this systematic review is to synthesize the quantitative, qualitative, and mixed methods evidence on barriers and enablers to HAPI prevention from different perspectives and at both individual and organizational levels. The use of different types of evidence for this systematic review allows a more comprehensive and in-depth exploration of the different factors associated with HAPI prevention than could be offered by only one type of evidence.<sup>23</sup>

### Review question

What are the barriers and enablers (or facilitators) to the implementation of pressure injury prevention among hospitalized adults?

### Inclusion criteria

#### Participants

The review will consider studies that include hospitalized adult patients (at least 18 years old) with any condition and/or their family or unpaid caregivers, health care practitioners (ie, doctors,

nurses, or allied health professionals), hospital managers or any senior/executive personnel, or health policy-makers.

#### Phenomena of interest

The review will consider studies that investigate barriers and/or enablers in relation to HAPI prevention. Barriers and enablers (or facilitators) are individual, organizational, or contextual factors that impede or facilitate the implementation of strategies for the prevention of pressure injuries.

#### Context

The review will only consider studies that focus on pressure prevention in the inpatient hospital setting including wards, acute-care units, or critical-care units, conducted in any country. Studies in which pressure prevention was examined in the community setting or assisted living facilities (eg, nursing homes) will not be included.

#### Types of studies

This review will consider quantitative, qualitative, and mixed-methods studies. Quantitative studies will include analytical or descriptive observational study designs. Qualitative studies will include, but not be limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, and action research.

Studies published in the English language will be included, with no publication date restrictions.

### Methods

The proposed systematic review will be conducted in accordance with the JBI methodology for mixed methods systematic reviews.<sup>23</sup>

#### Search strategy

The search strategy will aim to find both published and unpublished studies. An initial limited search of PubMed (National Library of Medicine [NLM]) and CINAHL (EBSCOhost) was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles, were used to develop a full search strategy for PubMed (see Appendix I). The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference lists

of all studies selected for critical appraisal will be screened for additional studies.

### Information sources

The databases to be searched include PubMed (NLM), CINAHL (EBSCOhost), Embase (Elsevier), PsycINFO (Ovid) and Scopus (Elsevier).

The search for unpublished studies and gray literature will include Trove, The Networked Digital Library of Theses and Dissertations (NDLTD), and Proquest Dissertations and Theses (Global).

### Study selection

Following the search, all identified citations will be loaded into EndNote X8.2 (Clarivate Analytics, PA, USA) and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant studies will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI; JBI, Adelaide, Australia).<sup>24</sup> The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full-text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion, or with a third reviewer. The results of the search will be reported in full in the final review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.<sup>25</sup>

### Assessment of methodological quality

Quantitative papers (and the quantitative component of mixed methods papers) selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review, using standardized critical appraisal instruments from JBI SUMARI.<sup>24</sup>

Qualitative papers (and the qualitative component of mixed methods papers) selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review, using the standardized critical appraisal instrument from JBI SUMARI.<sup>24</sup>

Any disagreements that arise between the reviewers will be resolved through discussion, or

with a third reviewer. The results of the critical appraisal will be reported in narrative form and in a table.

All studies, regardless of the results of their methodological quality, will undergo data extraction and synthesis (where possible) and the impact of methodological quality will be considered when developing conclusions and recommendations for practice.

### Data extraction

Quantitative and qualitative data will be extracted from studies included in the review by two independent reviewers using the standardized JBI data extraction tools.<sup>23</sup> The data extracted will include specific details about the populations, study methods, phenomena of interest, context, and outcomes of relevance to the review question. Specifically, quantitative data will comprise data-based outcomes of descriptive and/or inferential statistical tests. In addition, qualitative data will comprise themes or subthemes with corresponding illustrations, and will be assigned a level of credibility.<sup>23</sup>

Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required.

### Data transformation

Extracted quantitative data will be converted into qualitized data. This will involve transformation into textual descriptions or narrative interpretation of the quantitative results in a way that answers the review question.

### Data synthesis and integration

This review will follow a convergent integrated approach according to the JBI methodology for mixed methods systematic reviews.<sup>23</sup> This will involve assembling the qualitized data with the qualitative data. Assembled data are categorized and pooled together based on similarity in meaning to produce a set of integrated findings in the form of line of action statements.

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## Appendix I: Search strategy

### PubMed (NLM)

Search	Query
#1	pressure ulcer [mh] OR pressure ulcer* [tw] OR decubitus ulcer [mh] OR decubitus ulcer [tw] OR bed sore* [tw] or pressure sore* [tw] OR pressure injur* [tw]
#2	barrier* [tw] OR obstacle* [tw] OR hurdle* [tw] OR hindrance* [tw] OR impediment* [tw] OR preventer* [tw] OR challenge* [tw] OR disincentive* [tw] OR incentive* [tw] OR motivation [mh] OR motivat* [tw] OR enabler* [tw] OR facilitator* [tw] OR belief* [tw] OR perception* [tw] OR perception [mh] OR perspective* [tw] OR view* [tw] OR attitude* [tw] OR attitude [mh]
#3	Prevent*[tw] OR Primary prevention [mh]
#4	#1 AND #2 AND #3

Search retrieved 985 records on 15/07/2019.