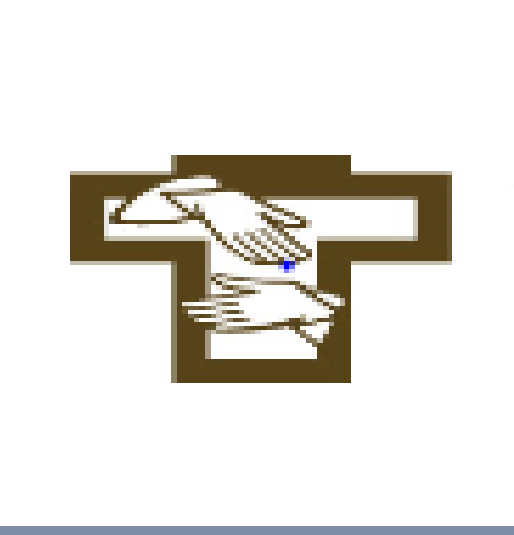


The Influence of Early Mobilization on Pressure Ulcers: A Systematic Review of the Literature

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PRESSURE ULCER PROBLEM

PU = ↑Morbidity, ↑Mortality, ↑LOS, & ↑30 Day Readmission

(Lyder et al., 2012)

2.5 million patients affected by PU annually costing the US ~\$10 billion/year

(Agency for Healthcare Research and Quality, 2014)



86.4% increase in occurrence of PU

(Russo, Steiner, & Spector, 2008)

↓Quality of Life related to PU

(Drolet et al., 2013; Spilsbury et al., 2007)

PURPOSE

1. Determine if the application of early mobilization will decrease the incidence of hospital acquired pressure ulcers over the course of the hospital stay in all adults including older adults.

- Immobility is an independent risk factor for pressure ulcers (Allman, Goode, Patrick, Burst, & Bartolucci, 1995)
- Approximately 72 % of patients hospitalized with a pressure ulcer were aged 65 and older (Russo, Steiner, & Spector, 2010)
- Patients aged 65 and older spent an average of 83% of their hospitalization lying in bed.
- The risk factor of immobility may occur in any population (Brown, Redden, Flood, and Allman, 2009)
- The risk factors of decreased activity and decreased mobility are related to the *main etiologic factor of pressure; Lesions appear in patients with some kind of dependence irrespective of their age or disease states including those with temporary dependence*. (García-Fernandez et al., 2014)
- Early mobilization is an *independent nursing intervention* across all patient populations, with a global trend to move away from the sedated and immobile patient to finding a balance between rest and mobility (Dammeyer et al., 2013)

2. Due to lack of sufficient evidence linking early mobilization to the prevention of pressure ulcer development, a systematic review of literature was performed.

Research Question:

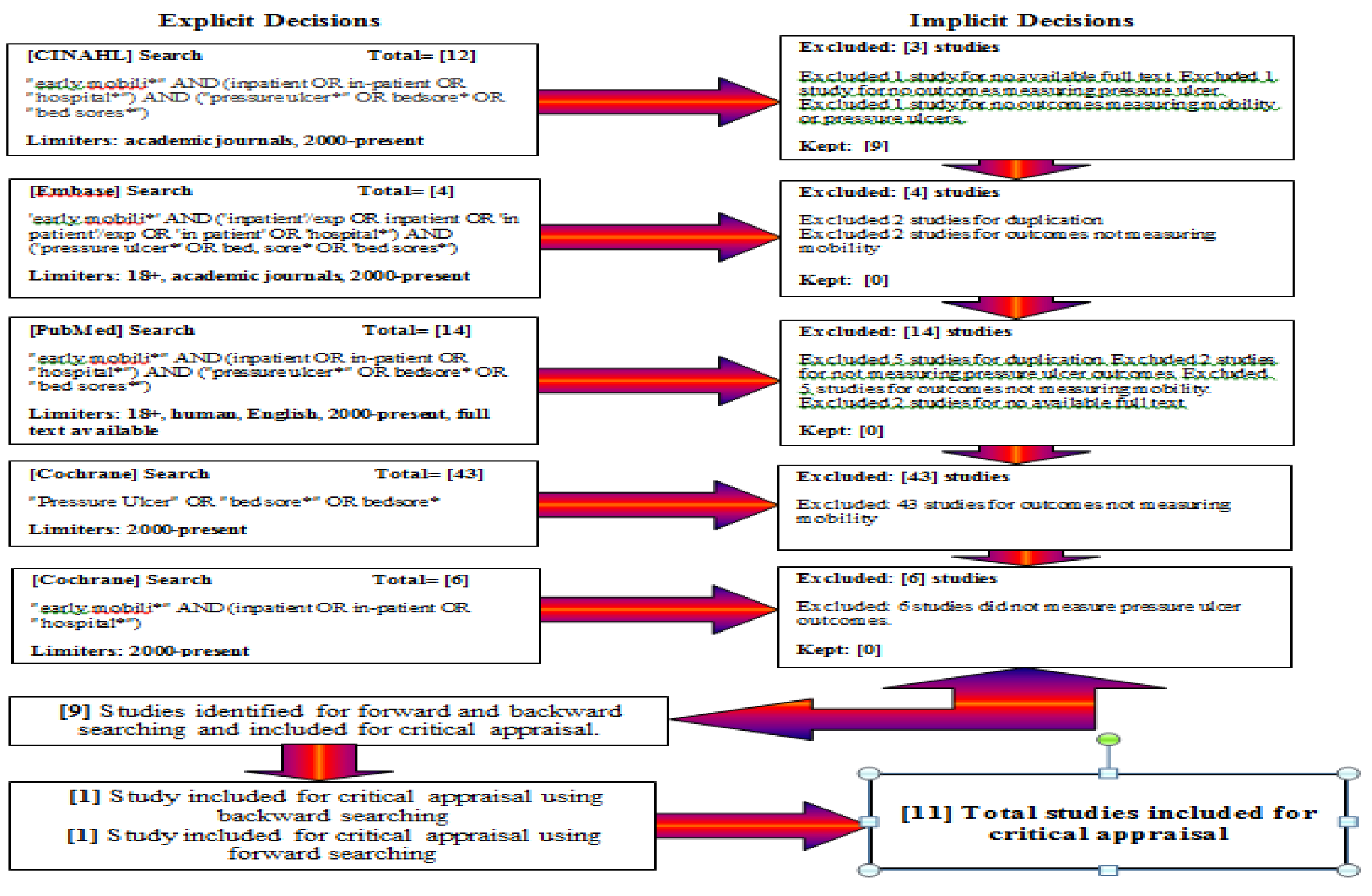
In the hospitalized inpatient, how does early mobilization influence pressure ulcers over the course of hospitalization?

SEARCH STRATEGY

- Databases Searched: Cumulative Index of Nursing and Allied Health Literature (CINAHL), Embase, PubMed, and Cochrane Database of Systematic Review (CDSR)

Inclusion Criteria:	Exclusion Criteria
<ul style="list-style-type: none">Hospitalized Adults > 18 yearsMobility InterventionPeer Reviewed ArticlesWritten in English	<ul style="list-style-type: none">Ambulatory or outpatientsPediatricsStudies lacking the intervention of mobilityStudies lacking the measurement of pressure ulcers

FORWARD & BACKWARD SEARCH



Note: Literature Search Tracking Flowchart – v.5, Randi L. Stocker – IUPUI University Library-October 2013. This work is licensed under a Creative Commons Attribution 3.0 Unported License <http://creativecommons.org/licenses/by/3.0/>

After completing an extensive literature search using backward and forward searching, a total of 11 studies were included for critical appraisal. Of the 11 studies critically appraised, five were excluded. The six remaining studies were included in the literature review.

RESULT OF LITERATURE SEARCH

- Five out of six of the studies included for review found that mobility interventions decreased the incidence of pressure ulcers during hospitalization.
- Kamel and colleagues (2003) found the longer time to ambulation following hip fracture surgery related to the development of pressure ulcers, but were **unable to find statistical significance**.
- Ingeman et al. (2011) **found early mobilization** during the acute phase of stroke was associated with a **lower risk of the medical complication of pressure ulcers** with an **adjusted OR of 0.43 [95% CI, 0.22 to 0.84]**.
- Dickinson et al. (2013) **measured pressure ulcer development and compliance with a mobility protocol**, and **failed to find a significant difference** between the development of pressure ulcers between the pre- and post-intervention groups.
- Wood et al. (2014) found no change in pressure ulcer incidence at three months, but **did find a small decrease in average monthly pressure ulcer incidence** at seven months from **0.33 (SD, 0.58) to 0.28 (SD, 0.49)**.
- Fraser and colleagues (2015) found those patients who received the **mobility intervention** had **significantly fewer pressure ulcers** than the routine care group (***p*<0.001**)
- Klein and colleagues (2015) found the **post-mobility intervention** group had **decreased hospital acquired pressure ulcers** compared to the pre-mobility intervention group (**2.7%, *p*= 0.026**).

SYNTHESIS OF EVIDENCE

Study	Mobilization Interventions					Outcome		
	Mobilization Type	Frequency	Duration	Intervener	Receiver	Outcomes	Measures	Results
Kamel et al., 2003	Time to ambulate (walk) based on the day the order was written to ambulate	Not Discussed	Not Discussed	Not Discussed	Pt w/ hip FX SX	Incidence of PU	Development of PU acquired during hospitalization	Time to ambulation significantly related to the development of PU
Ingema n et al., 2011	Early mobilization and out-of-bed (sitting, standing or walking) on first day of hospitalization	Not Discussed	Not Discussed	RN or PT/OT team	Pt w/ stroke	PU – any skin break or necrosis	PU documented in the medical record as symptoms resulting from pressure	Early mobilization was associated with a substantially lower risk for PU
Dickinson et al., 2013	3 phases of mobility from 0 (active and/or passive ROM, elevated head of bed, CLRT, and repositioning) to 1 (chair, dangle) to 2 (weight bearing and ambulation).	3 times/day 10 repetitions	Per patient tolerance	RN trained by a CNS & PT	Patients in Surgical ICU	Incidence of PU	PU: any ulcer documented as stage I or greater defined by PU staging guidelines developed by NPUAP. Visual inspection of PU validated once/month by wound/ostomy team	No significant differences in PU rates
Wood et al., 2014	EM program: 2 tier level for non-ambulatory (tier 1) and ambulatory (tier 2) patients	Goal: To complete 3 activity sessions/ day. 87.7 % completed 2 sessions/ day	Not Discussed	Mobility Aid	Patients on a general medical unit	Incidence of unit acquired PU	Measures for PU incidence are not discussed	No Change at 3 mos. 7 months post-intervention mean PU incidence was slightly ↓ from pre-intervention and 3 months post-intervention
Fraser et al., 2015	4 successive phases: PROM and repositioning to sitting on edge of bed, transferring, and ambulation.	Once/day, Monday through Friday	35-40 minutes	Dedicated ICU mobility team: RN, PT/OT and mobility aide	Patients in ICU units.	Incidence of hospital acquired PU	PU measured by the NDQNI	Mobility group had significantly ↓ PU
Klein et al., 2015	16 progressive mobility levels beginning on day of admission with (4) milestones: bedrest with passive/active ROM (1) → dangle at bedside (2) → stand at bedside (3) → walking (4)	Patient readiness assessed every 12 hours	Highest level of mobility achieved each day for up to 13 days	Nursing Staff or PT/OT w/ assistance from lift team	Patients in Neuro ICU	Hospital Acquired PU	Hospital acquired PU data was based on the National Quality Forum definition	Prevalence of hospital acquired PU ↓ 2.7%

IMPLICATIONS FOR PRACTICE

- The findings from this systematic review of the literature highlight the need for further research on mobilization's impact on decreasing or preventing pressure ulcer incidence in hospitalized adult patients. This work demonstrates there is research exhibiting the benefits of mobilization for the decreased incidence of pressure ulcers but it is not generalizable and is primarily of lower research quality.
- Despite the limitations in current research, it is still very apparent that early mobility decreases pressure ulcers. Current research also indicates that the best approach to patient mobility is an interdisciplinary team method. Patient assessments should include not only nursing but physicians, physical therapy, and support staff. The use of a dedicated mobility “team” or “aide” was a recurrent theme in the literature. A team dedicated to the cause of patient mobility is related to improved patient outcomes.
- Further evidence is needed in order to determine if mobility interventions are feasible and effective tools to decrease pressure ulcers across all adult populations. The authors recommend future research to focus on high risk populations, such as elderly, patients with vascular compromise and in patients with darker skin pigmentation, who may demonstrate significant benefit to skin integrity from early mobilization interventions.