Utility of Pressure Ulcer Risk Assessment as an Indicator of Repositioning Among Nursing Home Residents

Susan M. Kennerly, PhD, RN, WCC, CNE, FAAN
Tracey L. Yap, PhD, RN, WCC, CNE, FAAN
Kao Ly, DNP, RN
(1) College of Nursing, East Carolina University, Greenville, NC, USA
(2) School of Nursing, Duke University, Durham, NC, USA

Purpose: The existing standard-of-care for pressure ulcer (PrU) prevention is resident repositioning every 2 hours (q2h). This universally accepted approach currently focuses on technical aspects of care by minimizing pressure exposure through nursing staff’s encouraging or assisting residents with frequent repositioning. Typically, priority setting for those most in need of repositioning assistance is guided by clinical assessment of the resident’s at-risk status using the Braden Scale for Pressure Sore Risk© (BS) score (≤ 18). Much remains to be learned about repositioning patterns among those at-risk for PrUs. Staff documentation of repositioning is relied upon as evidence that a position change occurred, despite longstanding concerns about compliance with documentation of PrU prevention in nursing home (NH) facilities and staff inconsistency in implementing the q2h standard-of-care. New wearable repositioning sensor and tracking technology provides an accurate real-time mechanism for observing repositioning patterns while also facilitating the workflow of repositioning activities. The purpose of this secondary analysis of data drawn from a PrU prevention study using a triaxial accelerometer patient monitoring system to monitor repositioning of NH residents was to determine whether the elements assessed via the BS (subscale and total scores) and nursing’s assigned risk category (mild-high) are indicators of a resident’s subsequent repositioning pattern (% on-time repositioning q 2-hr, overall frequency of repositioning, time in position).

Methods: Secondary data analysis from a 21-day repositioning intervention using a patient monitoring system was used to evaluate the utility of the BS score, subscale ratings, and risk category as indicators of repositioning patterns (% on-time repositioning, frequency of repositioning, time in position). A wireless system with triaxial accelerometer sensor was worn by each resident for monitoring repositioning and a networked computer display at the nursing station cued staff with a resident’s repositioning history and current positional status making them aware when staff assisted repositioning actions were becoming necessary or were overdue. Immediately prior to beginning use the technology, staff were trained in system use and reminded of appropriate repositioning techniques. BS assessment was conducted 1 week prior to intervention start to determine resident eligibility according to at-risk status. Routine daily NH skin assessments monitored for PrU development throughout the intervention. Descriptive analyses of repositioning, BS, risk data, and resident age and gender included examination of frequencies, range, and means. Correlations were examined between BS scores and subscale ratings and within risk categories according to study measures. Analysis of variance was conducted to ascertain differences in repositioning patterns by clinical unit and 3 time periods for nursing staff shifts.

Results: Study residents (n=44) ranged in age from 27 to 105 years (Mean= 79), were predominantly female (Female=33, Male=11), and were nearly equally distributed across 2 clinical units. Actual sensor monitoring time periods ranged from 2 to 21 days (Mean=12.23 days) with no participants developing a new PrU during the intervention. Overall mean % on-time repositioning improved from a baseline of 60.85% to 96.3% during monitoring system use. Of the BS subscale ratings, Sensory Perception was the exclusive correlate (r=.37, p<.05) with total number of repositioning episodes. Mild PrU risk was associated with higher repositioning frequency (r=.41, p<.05), and greater risk was associated with higher total minutes spent on the back lying down (r=.49, p<.01) and left (r=.37, p<.05) or right (r=.44, p<.01) body position lying down. Significant differences were observed in total number of repositioning episodes between residents assessed as being mild, moderate, and high risk residents (F=3.32, p=.049).
Conclusion: Findings support the importance of the Braden Scale’s use as a preliminary clinical screening method of risk for PrU development. Selected subscale scores and nursing’s assigned risk category may provide nursing staff with an indicator of the frequency of resident repositioning that can be expected and/or facilitated as part of PrU prevention practices. Additional study with larger sample and real-time repositioning monitoring is merited to investigate the relationship repositioning pattern and PrU incidence.

Title: Utility of Pressure Ulcer Risk Assessment as an Indicator of Repositioning Among Nursing Home Residents

Keywords: Braden Scale, Pressure Ulcer Prevention and Repositioning

References:


Abstract Summary: Secondary data analysis from a 21-day repositioning intervention using a triaxial accelerometer patient monitoring system was used to evaluate the utility of the Braden Scale and subscale scores, and risk category as indicators of repositioning patterns among nursing home residents.

Content Outline:

Learning Objectives: The learner will be able

1. Explain the importance of repositioning and risk assessment as factors influencing care practices for pressure ulcer prevention.

1. Introduction and purpose of the study.

2. Review of current evidence regarding the role of repositioning and Braden Scale Risk Assessment in pressure ulcer prevention.
2. Identify ways in which risk assessment results may serve as an indicator of resident repositioning patterns.

3. Discuss the contribution of this research to nursing practice aimed at pressure ulcer prevention.

1. Overview of the study design, including the clinical repositioning intervention and the focus of secondary data analyses.

2. Explore how Braden Scale pressure ulcer risk screening may provide clinical insights into subsequent repositioning patterns.

3. Understand how new monitoring technology can facilitate monitoring of repositioning.

1. Examine conclusions along with implications for using the Braden screening results to facilitate pressure ulcer prevention care practices.

2. Identify ways in which risk assessment results may serve as an indicator of resident repositioning patterns.

First Primary Presenting Author

**Primary Presenting Author**

Susan M. Kennerly, PhD, RN, WCC, CNE, FAAN
East Carolina University
College of Nursing
Professor
Greenville NC
USA

**Author Summary**: Dr. Susan Kennerly’s program of research is focused on understanding and improving processes that facilitate nursing staff implementation of best practices related to pressure ulcer prevention. Prior investigations include cueing staff to reposition residents and examination of nursing culture in order to positively impact outcomes of older adults in long-term care settings.

**Any relevant financial relationships?** Yes

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Description of Potential Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member, Clinical Advisory Board, Leaf Healthcare</td>
<td>Member, Clinical Advisory Board, Leaf Healthcare</td>
</tr>
</tbody>
</table>

Signed on 11/12/2018 by Susan Kennerly

Second Secondary Presenting Author

**Corresponding Secondary Presenting Author**

Tracey L. Yap, PhD, RN, WCC, CNE, FAAN
Duke University
School of Nursing
Associate Professor
Durham NC
USA
Author Summary: Dr. Yap’s scholarship broadly focuses on understanding/improving the processes that facilitate nursing staff implementation of best practices for common, yet seemingly intractable geriatric syndromes, such as facility-acquired pressure ulcers, in order to positively impact the outcomes of older adults primarily in long-term care settings.

Any relevant financial relationships? Yes

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Description of Potential Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member, Clinical Advisory Board, Leaf Healthcare</td>
<td>Member, Clinical Advisory Board, Leaf Healthcare</td>
</tr>
</tbody>
</table>

Signed on 11/12/2018 by Tracey Yap

Third Author
Kao Ly, DNP, RN
Duke University
School of Nursing
DNP Program Graduate
Durham NC
USA

Author Summary: Ms. Ly is a DNP prepared family nurse practitioner. She is experienced in working with older adults and in the use and interpretation of the Braden Scale in the clinical setting.