Under Pressure: Reducing Hospital-Acquired Pressure Ulcers in the MICU

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Project Goals and Objectives

The primary goal was to decrease hospital-acquired pressure ulcer (HAPU) prevalence in the MICU by 40%-50%

Additional Goals:

- Educate 80% of staff
- Increase compliance with the pressure ulcer prevention bundle
The Scope of the Problem

Brigham and Women’s Hospital HAPU prevalence rates reported to the Massachusetts Hospital Association (MHA), Patient CareLink were 2-3 standard deviations above comparable hospitals for the critical care population.¹
Impact on Patients

- 2.5 million people develop pressure ulcers annually in the United States\(^2\)
- Increased length of stay (LOS)\(^3\)
- Decreased quality of life and functional status\(^4\)
- Pain\(^4\)
- 60,000 deaths annually are a direct result of pressure ulcers\(^2\)
Impact on the Health Care System

- Pressure ulcers cost $9.1 billion-$11.6 billion annually in the US\(^2\)
- Centers for Medicare and Medicaid estimates a pressure ulcer added $43,180 to a hospital stay in 2007\(^2\)
- HAPU prevalence rate is a nursing quality indicator\(^5\)
- More than 17,000 annual lawsuits are related to pressure ulcers\(^2\)
  - The second most common lawsuit after wrongful death\(^2\)
Breaking Down the Problem in the MICU

Head-to-Toe Skin Assessments
- Conducted on 168 patients over a 19-week period
- 36 patients developed 67 HAPUs
  - 21.42% overall prevalence rate
  - 37 of 67 (55%) device related
  - 15 sacrum/coccyx/gluteal cleft (SCG)
  - 7 heel
  - 5 buttock/ischium
  - 3 other (1 spine, 1 hip, 1 foot)
Specific Activities - Key Dates

- March 2012: 4-person champion group formed
- April 2012: Skin tip of the month
- August 2012: Changed incontinence pads to dry flow from plastic-backed quilted pads
- June 2013-Present: Weekly interdisciplinary rounds, prevalence surveys, and chart reviews
- June 2013: Incontinence pad trial
- October 2013: Under Pressure Education Blitz
- October 2013: Implemented “4 Eyes on Admission”
- October-December 2013: Mepiliex Sacrum Border Dressing Trial
Education Blitz

Focus

- Took ownership of this patient safety and nursing quality issue
- Reviewed pressure ulcer prevention bundle with emphasis on:
  - Offloading and other strategies to increase frequency
  - Maximizing low air loss beds through proper settings
  - Linen minimization
  - Offloading/padding/rotating/minimizing tubes, lines, and devices
  - Heel elevation with pillows/Prevalon boots
- Introduced Mepilex dressing
- Introduced “4 Eyes on Admission”
Education Blitz

- 100% attendance by staff scheduled during 3-day blitz
- 84% attendance of all staff
Mepilex Border Sacrum Dressing Trial

Applied to all patients with intact skin who did not meet the following exclusion criteria:

- Suspected deep tissue injury
- Ambulatory
- Expected discharge within 24 hours
Mepilex Border Sacrum Dressing Trial

Results:

- 19 weeks before 8-week Mepilex trial
  - 14 SCG-HAPUs

- 8-week trial of Mepilex
  - 3 SCG HAPUs (2 under Mepilex)

- 8 weeks after Mepilex trial
  - 8 SCG HAPUs
Mepilex Border Sacrum Dressing Trial

Staff Evaluations

n=10

- Light blue: Recommend
- Dark red: Not Recommend
Mepilex Border Sacrum Dressing Trial

HAPU
June 2013-February 2014

Bar chart showing:
- 19 Weeks Pre Trial: 14
- 8 Weeks Trial: 3
- 8 Weeks Post Trial: 8
Potential Monetary Savings

- There were 5 fewer SCG HAPUs during the 8-week trial vs the 8 weeks post-trial.
- The standard HAPU cost of treatment is $43,180, according to CMS.
- 5 fewer HAPUs = $215,900 in 8 weeks
  - $26,987.50/week
- $26,987.50 x 52 = $1,403,350 yearly savings
  - Minus the cost of dressings
4 Eyes on Admission

Implemented guidelines requiring 2 licensed practitioners to conduct and cosign the admission skin assessment

- 60% adherence with this process
- Compliance has increased with implementation of a stamp for the second signature
Increasing Offloading Frequency

Introduced offloading and repositioning vs full turn. Made recommendations on how to put them into practice and increase frequency

- Pre-education audit revealed an average of 7 patient position changes in 24 hours
- Post-education audit revealed an average of 8 position changes in 24 hours, which was below our goal of 10
Prevalence Outcomes

MHA reported MICU Quarterly Prevalence Rates

- 3/10/11: 22.22%
- 9/22/11: 37.50%
- 3/22/12: 33.33%
- 9/20/12: 35.29%
- 3/20/13: 0%
- 6/18/13: 5.56%
- 9/18/13: 10.53%
- 12/17/13: 10.53%
Prevalence Outcomes

- MHA Patient CareLink HAPU quarterly unit data
  - 33.3% (March 2012) to 10.5% (December 2013)\(^1\)
  - 68% decrease
### Weekly Prevalence Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Pre-Education</th>
<th>Post-Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients</td>
<td>168</td>
<td>172</td>
</tr>
<tr>
<td>Number of Weeks</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Number of Patients With HAPU</td>
<td>36</td>
<td>31</td>
</tr>
<tr>
<td>Mean Prevalence</td>
<td>21.42%</td>
<td>18.02%</td>
</tr>
</tbody>
</table>
Potential Monetary Savings

- There were 5 fewer HAPUs in the 19 weeks post-education blitz and after 4 Eyes on Admission.
- The standard HAPU cost of treatment is $43,180, according to CMS².
- 5 fewer HAPUs in 19 weeks = $215,900 savings
  - $11,363.16/week
- $11,363.16 x 52 = $590,884 yearly savings
  - Minus the cost of 1 week’s pay for 4 full time employees.
Key Challenges Going Forward

- Maintain nursing competence in pressure ulcer prevention
  - Continue biweekly skin rounds focusing on education
- Further decrease our device-related HAPUs
  - Endotracheal tube holder product change
  - Biweekly skin rounds
- Increase Patient Offloading
  - Continue to champion best practices, and examine process changes to promote adoption
Thank You

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References


