

Reduction of Hospital-Acquired Pressure Injuries in Patients with Dark Skin Tones following the Implementation of Prevention Strategies

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INTRODUCTION

- Hospital-acquired pressure injuries (HAPIs) can occur in patients due to prolonged pressure on the skin and deep tissues.¹
- Clinical studies have shown that individuals with dark skin tones (DST) have higher rates of later stage pressure injuries (PIs) compared to light skin tone (LST) individuals due to lack of early PI stage recognition.^{2,3}
- Proper training and skin assessment are necessary to improve the recognition of earlier stages of PIs in DST to prevent later stages of PI from developing.^{4,5}

PURPOSE

- The goal was to reduce the monthly rate of HAPIs to 1.58 per 1000 patient days/month following hospital staff educational training on DST skin assessment.
- Implement a patient turning/repositioning system (PTRS)* including repositioning sheets, drypads and wedges.

METHODS

- This study was conducted on 85 patients with varying DST at a 495-bed hospital during an 11-month period.
- Hospital staff received training on PTRS, and skin assessment of DST based on the Monk Skin Tone Scale (MSTS) ranging from 1 to 10 with 10 being the darkest.
- The PTRS was used for qualifying patients. (Figure 4)
- HAPIs were staged based on the National Pressure Injury Advisory Panel (NPIAP) including recommendations for identifying HAPIs in individuals with DST.⁶
- Skin Assessment:** The patient's skin was moistened prior to the HAPI evaluation, and a flashlight was used for better visualization of darkly pigmented skin.
- Unaffected areas of the skin adjacent to the HAPIs were compared to assess for changes in the skin.
- Pain and change in sensation was also considered.
- We also included in the training the disadvantage of using extra layers of drypads on the bed from both a financial standpoint and patient safety standpoint
- Increase in the number of drypads used did NOT equal better outcomes.

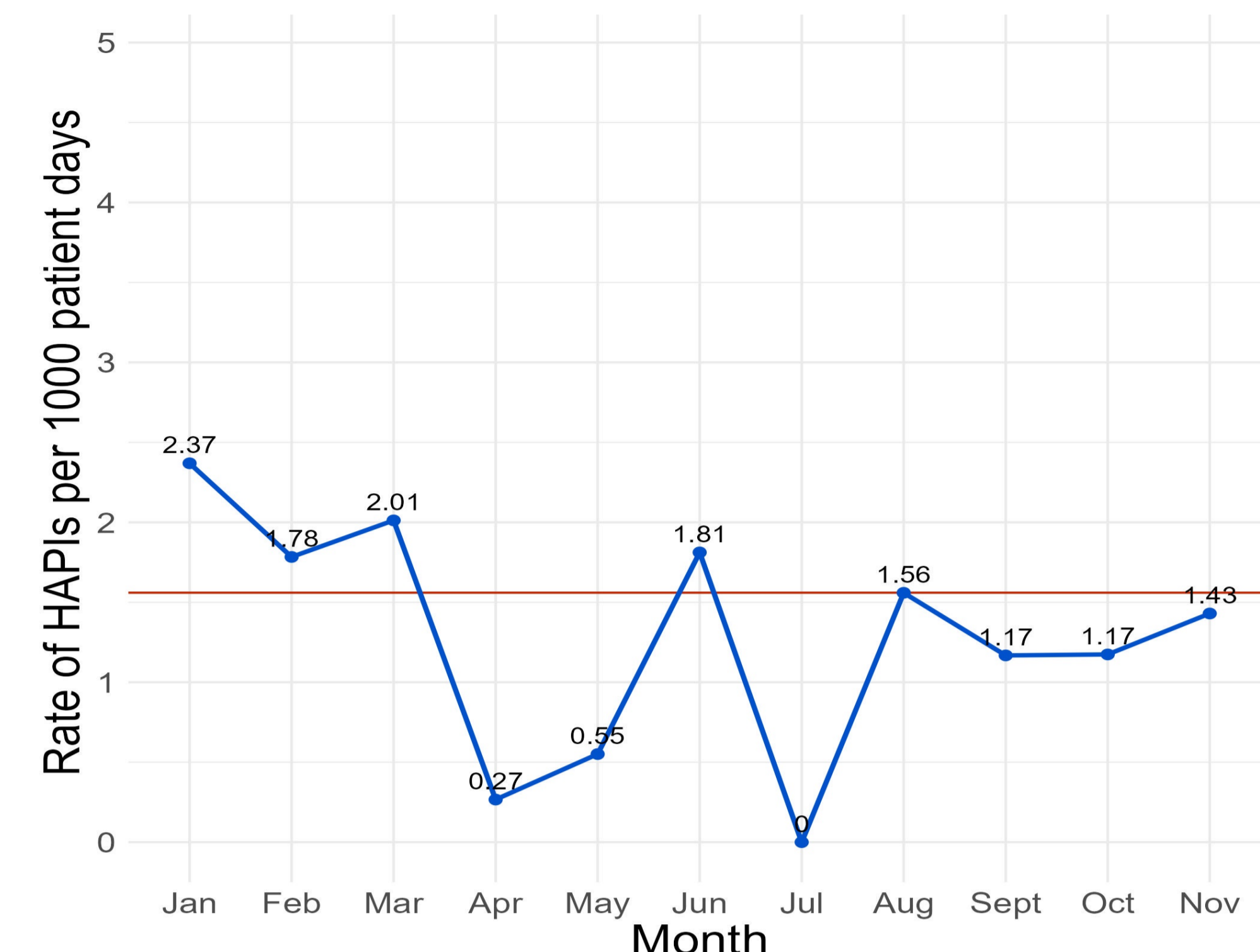


Figure 1. The rate of ≥Stage 2 HAPIs per 1000 patient days/month from January to November. Out of 110 events, most of the HAPIs occurred in January (n=19, 17.27%), while no HAPI events were reported in July. Redline indicates the targeted goal of 1.58.

Table 1. Percentage of HAPI Staging Events Based on Monk Scale Scoring

HAPI Staging	Monk Scale Scoring							
	2	3	4	5	6	7	8	9
Stage 2	0.00	14.29	0.00	14.29	0.00	14.29	42.86	14.29
Stage 3	0.00	16.67	25.00	25.00	0.00	8.33	25.00	0.00
DTI	5.63	11.27	7.04	22.54	9.86	18.31	18.31	7.04
Unstageable	0.00	5.26	5.26	15.79	5.26	21.05	26.32	21.05

Table 1 shows the HAPI Staging Event Percentage based on the Monk Scale Scoring. In general, as the severity of HAPI Staging increased to Unstageable or DTI there was a higher percentage of darkly toned skin with 5 and 8 being the highest.



Figure 3. DTI of the Left or Right Extremity showing lightly toned skin (upper panel) and darkly toned skin (lower panel) with varying degrees of HAPI detectability. Higher severity stages were associated with darkly toned skin, indicating potential disparities in detection or progression.

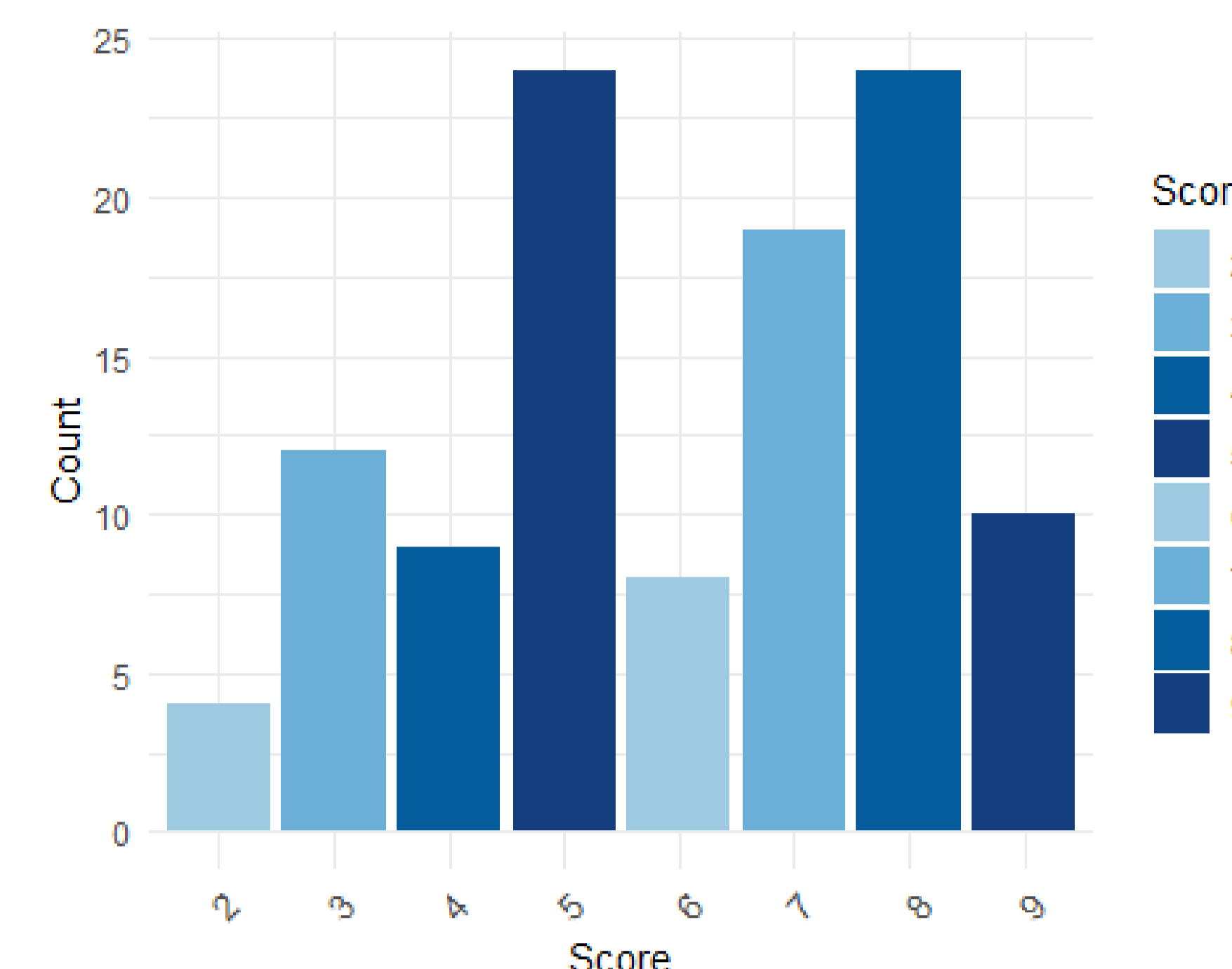


Figure 2. Shows the Monk Scale Scoring counts for 110 HAPI events. Out of 110 events most of the events had a score of 5 and 8 (n= 24 each, 21.82%).



Figure 4. Implementation of Patient Turning/Repositioning System

Table 2. Distribution of Monk Scale Scoring by Body Location

Body Location	Monk Scale Scoring								Total
	2	3	4	5	6	7	8	9	
Sacroccocygeal	1	4	2	10	3	6	10	4	40
Left Lower Extremity		5	2	3	4	3	6	1	24
Right Lower Extremity	2	2	1	3	1	7	3	2	21
Right Gluteus				1	1		2	1	5
Left Gluteus				1	2		1		4
Left Ishium		1		1			1	1	4
Right Ishium				1	1				2
Spinous Process					2				2
Left Iliac						1	1		2
Left Upper Extremity	1					1			2
Right Upper Extremity						1			1
Right Scapular				1					1
Occiput								1	1
Device Related					1				1
Total	4	12	9	24	8	19	24	10	110

Table 2. Out of 110 events, the majority of HAPI events occurred in the Sacroccocygeal (n= 40, 36.36%) followed by the Left Lower Extremity (n=24, 21.81%), and then the Right Lower Extremity (n=21, 19.09%). The Monk Scale scoring for 5 and 8 was highest for HAPI events at the Sacroccocygeal (n= 10, 9.09%)

RESULTS

- The rate of ≥Stage 2 HAPIs per 1000 patient days per month declined during the 11-month period from 2.36 in January to 1.43 in November, representing a 40% reduction. (Figure 1)
- A total of 110 HAPI events occurred with a MSTs ranging from 2 to 9. Greater than 40% of patients ranked among the darkly toned skin with a MSTs of 5 and 8. (Figure 2)
- Out of 110 HAPI events the majority were DTIs (n= 71, 64.54%), Unstageable (n=19, 17.27%), Stage 2 (n= 7, 6.36%), and Stage 3 (n= 12, 10.91%) There were no Stage 1 and only one Stage 4 HAPI events. (Figure 3)
- Overall, the highest percentage of HAPIs was associated with a Monk Scale Score of 5 and 8. The higher DTI and Unstageable stages also indicated possible disparities in detection with darkly toned skin. (Table 1)
- The majority of HAPI events (n=40, 36.36%) were in the Sacroccocygeal with a Monk Scale Score of 5 and 8. (Table 2)

CONCLUSIONS

- The DST Assessment, Monk Skin Tone Scale, staff training, and PTRS that were used in this study were associated with a 40% reduction in HAPI events thereby achieving the targeted goal of 1.58 per 1000 patient days per month.
- This strategic approach is an essential component of skin assessment aimed at preventing later-stage HAPIs from developing in patients with DST.
- The higher DTI and Unstageable stages of HAPIs in patients with DST could indicate possible disparities in detection of HAPIs during the earlier stages of skin assessment.

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