Using Turn Cueing Technology to Reduce HAPIs in LTACH: Pilot Results

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BACKGROUND

- Long-term Acute Care Hospitals (LTACH) manage critically ill patients after their critical care hospitalization has ended.
- Medical complexity and prolonged immobility increase risk for developing a hospital-acquired pressure injury (HAPI)[1].
- HAPIs add over 9 days to patient's hospitalization[2], increase the risk of serious infections, are a major cause of hospital mortality[3] and cost more than $38,000 to treat.[4]
- New International Clinical Practice Guidelines[5] recommend using wearable sensors to help improve patient repositioning to prevent hospital-acquired pressure injuries (HAPI)
- In 2019, CSH had 17 non-device related HAPIs. Goal of this pilot was to reduce HAPIs by 50%.

METHODS

- Wearable patient sensor system (LEAF◊ Patient Monitoring System, Smith+Nephew) was implemented in the hospital.
- Patients were considered eligible for monitoring if they met two out of the following conditions:
  - Estimated length of stay >2 weeks; moderate or high-risk Braden score; non-ambulatory; assigned Q2 protocol; total care; mechanically ventilated or pre-existing pressure injury.

Patient Identification
Room Number and Patient Initials are clearly displayed for easy patient identification and tracking.

Turn Status Indicator
A simple color bar is recognizable at a glance. Green is all-good, Yellow means an action is coming up, and Red indicates an action is overdue.

Qualifying Information
Upright (in bed or in a chair) and Prone positional qualifiers are displayed when warranted. System status and notices display as well.

Room	Patient	Time Until Next Turn	Position	Information
2301	M.S.	1:57	L [B] R	Upright
2302	C.M.	0:14	[L] B R	
2303	S.S.	Turn Due 0:03 Over	L B [R]	
2304	M.L.	1:51	(L) B R	Prone

Turn Priority
The digital timer counts down to a turn being due, and then begins to count up after a turn due alert to help prioritize and coordinate necessary actions within workflow.

Patient Position
Accurately displays the real-time position of each patient. If desired, any patient specific position can be set to alert in order to avoid pressure to a known high risk area.

Using wearable sensors to cue patient repositioning reduced HAPI incidence by 94%

The four-month pilot provided an estimated ROI of more than $370,000

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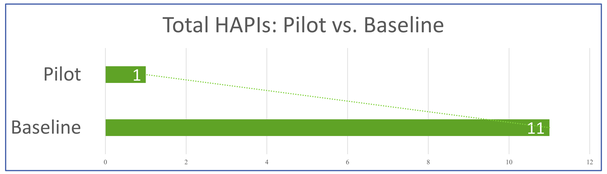
RESULTS

Pilot Results	Baseline	Pilot
Total number of patients	69	82
# Patients monitored	N/A	79
Mean Turn Protocol Adherence	32%	91%
Increase	**190%**	
# Total HAPIs	11	1
# Total Sacrococcygeal HAPIs	7	1
Number of HAPIs Reduced	**91%**	
HAPI incidence	16%	1%
HAPI Incidence Reduced	**94%**	



- Compared to the baseline period, turn protocol adherence increased by 190%
- Total number of HAPIs were reduced by 91%; HAPI incidence was reduced by 94%. The results were statistically significant (p<.003)
- The pilot provided an estimated ROI of more than $370,000

Estimated Return on Investment	
HAPI Treatment cost (NDNQI)	$38,700
No. HAPIs avoided	10
HAPI treatment cost avoidance	$387,000
Total Sensor Cost	$ (15,800)
Return On Investment	$371,200

REFERENCES

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