

Documentation of patient repositioning events: Comparison of Electronic Medical Record documentation and accelerometer-based sensors

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BACKGROUND

- Repositioning documentation serves an important function for pressure injury (PrI) root cause analysis¹, PrI prevention and risk management.²
- While many data-points such as vital signs and labs are automatically populated in the electronic medical record (EMR), patient repositioning is still documented manually and often at the end of the shift.
- This study sought to understand differences in repositioning documentation using traditional manual flowsheet documentation vs. automated documentation from accelerometer-based sensors.³

METHODS

- Repositioning documentation was analyzed retrospectively on a random convenience-sample of 30 Telemetry and Surgical patients with a Q2h turn protocol at Hunt Regional Medical Center in Greenville, TX in February 2020.
- Patients with pre-existing PrI, BMI<14, expected stay >48 hours or those unable to turn themselves were assigned a wearable sensor which provides visual turn reminders and automatically documents repositioning events.
- Staff are exempt from documenting turns for patients with sensors but must document turns for all others.
- Documentation was compared for patients with and without sensors.

RESULTS

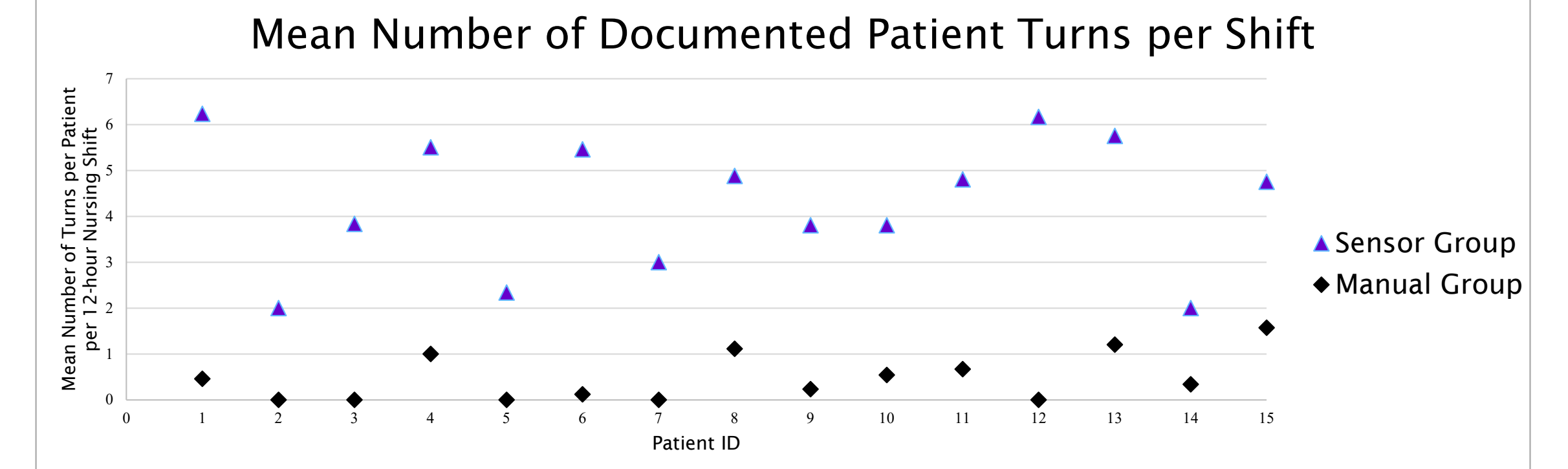
Patient Characteristics	Manual Group (n=15)	Sensor Group (n=15)	Overall
Age, mean (SD), Years	69 (18)	80 (11)	75 (16)
Age, range	17-99	60-94	17-99
Ethnicity			
Non-Hispanic white n (%)	13 (87%)	12 (80%)	25 (83%)
African-American n (%)	2 (13%)	2 (13%)	4 (13%)
Hispanic n (%)		1 (7%)	1 (3%)
Gender			
Male n (%)	8 (53%)	5 (33%)	13 (43%)
Female n (%)	7 (47%)	10 (67%)	17 (56%)
Braden Risk Score on Admission (Mean)	19	15	17
Body Mass Index (BMI)			
Mean	30	27	28
Min	16	15	15
Max	54	47	54
Patients with Pressure Injury Present on Admission	1	4	5
Primary admit diagnoses	Respiratory (26%); Cellulitis (26%)	UTI (26%); Hip Fracture (20%)	Cellulitis (20%); Hip Fracture (10%)
Length of Stay, days			
Mean (SD)	4.7 (3)	6.7 (6)	6 (5)
Min	1	3	1
Max	10	26	26

Wearable sensors automatically documented patient turns 9x more frequently than manual EHR flowsheet documentation.

Sensor-based documentation may offer a more complete history of patient's mobility and nursing care.



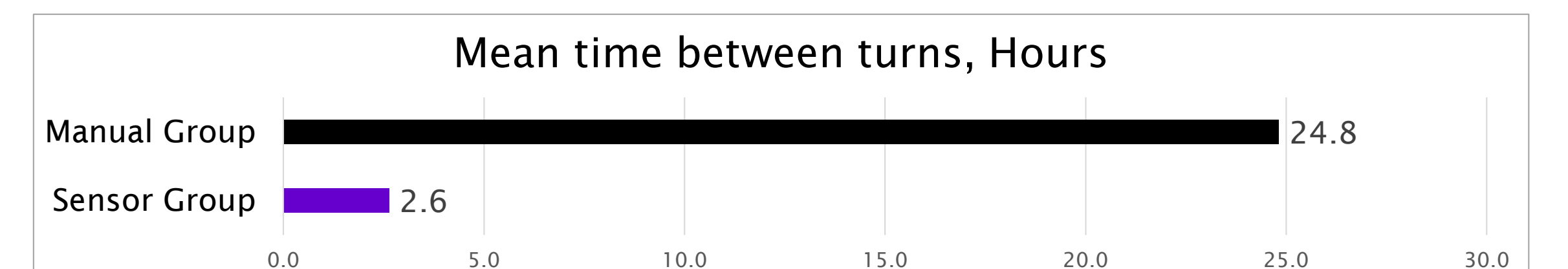
RESULTS



- Patient records in the Sensor Group reported 9 times more repositioning events per shift than in the Manual Group.
- Five out of the 15 records in the Manual Group had no repositioning history documented at all.

Analysis of Patient Turning Documentation	Manual Group (n=15)	Sensor Group (n=15)
Total number of documented patient repositioning events	59	470
Number of patient repositioning events per patient, per nursing shift		
Mean (SD)	0.5 (0.5)	4.6 (1.5)
Min	0	3
Max	5	11
Median	0.0	2.4
Mean time between turns, (SD), hours	24.8 (28.9)	2.6 (1.4)
Min	0	3
Max	5	11
Number of patients with no documented turns	5	0
Patient turns with at least one documented position/orientation (%)	0%	100%

- Patient records for the Sensor Group indicated a repositioning event on average every 2.6 hours.
- Records for the Manual Group indicated a repositioning event on average every 24.8 hours.



REFERENCES

1. National Pressure Injury Advisory Panel. Root Cause Analysis Toolkit. 2020. <https://npiap.com/page/RCAToolkit>
 2. Genesio, J. Pressure Ulcers Are Easy Pickings For Lawsuits. A long-term care center should regularly train and re-train staff on wound care, emphasizing the importance of documentation. Provider Long Term Care & Post-Acute Care. April 2016
 3. Leaf Patient Monitoring System, Smith + Nephew, Pleasanton CA.
- Disclosures: Angelia Rose is a paid consultant of Smith+Nephew; Annemari Cooley is an employee of Smith+Nephew. Author contact: Angelia2@aol.com