

PUP Smart Socks

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Purpose

- To decrease the number of falls at the Birmingham VA Medical Center.
- To minimize false alarms and alarm fatigue.
- Reduce costs related to increased length of stay and falls

Background

- Each patient fall costs a hospital an average of \$14,056.
- The BVMC had 84 falls for FY24.
- The BVMC wanted to focus on decreasing falls for FY25

Method

- The PUP Smart non-skid socks are fitted and placed on any fall-risk patient.
- The RN will add the patient to the PUP sock patient data tablet. Each RN will be getting a PUP system smart badge.
- The PUP Smart Socks will detect when a patient stands.
- The PUP system issues an immediate, real-time alarm to the three nearest nurses and the nursing station.
- The nurses will respond to the patient to prevent a fall. The system will detect a “stand event” and display this notification on the nursing station, in-room tablet, and on smart badges.
- The smart system stores and generates daily reports from the nurse regarding stand events, nurse interventions, and outcomes. This provides a way for managers can identify any patterns that staff may need interventions on.

Results

- PUP Smart socks have led to a 73% reduction in patient falls.
- PUP smart socks have reduced alarm fatigue and false alarms by 40%.
- PUP smart socks lead to reduced falls and lengths of stays which save the hospital thousands of dollars.
- PUP smart socks lead to increased patient satisfaction.

Total Falls	Average Cost Per Fall			Overall Avg. Cost
	No injury	Injury	No injury	
	\$7,234	\$14,000	\$7,234	
	60%	35%	60%	100%
100	\$434,040	\$490,000	\$434,040	\$1,022,000
300	\$1,302,120	\$1,470,000	\$1,302,120	\$3,066,000
500	\$2,170,200	\$2,450,000	\$2,170,200	\$5,110,000
700	\$3,028,280	\$3,430,000	\$3,028,280	\$7,154,000
900	\$3,906,360	\$4,410,000	\$3,906,360	\$9,198,000

Evidence

- The NDNQI fall rate per 1,000 patient days was four falls. A study was conducted in South Carolina and Ohio, where participants wore the PUP socks for 1,694 days. During the study, there were over 6,500 safety events; however, no falls occurred.
- During clinical testing in Warren County, the smart socks reduced falls by 50 to 70% or approximately one fall per 1,000 patient days.

References

Baker, P. A., Roderick, M. W., & Baker, C. J. (2021). PUP® (Patient Is Up) Smart Sock Technology Prevents Falls Among Hospital Patients With High Fall Risk in a Clinical Trial and Observational Study. *Journal of Gerontological Nursing*, 47(10), 37–43. <https://doi.org/10.3928/00989134-20210908-06>

undefined. (2023, December 10). *Warren County company develops “smart socks” technology to address patient falls.* Dayton-Daily-News; Dayton Daily News. <https://www.daytondailynews.com/community/warren-county-company-develops-smart-socks-technology-to-address-patient-falls/AOV3AEHEI5GYHHQ3WCHDPFJPIQ/>

