

# Clinical Decision Support for Fall Risk Assessment and Plan of Care



Kay Lytle, DNP, RN-BC; Nancy Short, DrPH, RN; Rachel Richesson, PhD, MHA; Monica Horvath, PhD

Duke University School of Nursing and Duke University Health System



## Background

- Falls most frequently reported adverse event
- LOS: 6.3 days higher per patient fall
- Mortality: 50% higher
- Morbidity: injury and increased costs
- Fall rate is nurse-sensitive indicator
- EHRs provide opportunities to implement alerts and reminders to reduce falls

## Objectives

1. Improve documentation of fall risk assessment on admission and every 12 hour work shift
2. Improve documentation of fall prevention plan of care for high risk patients
3. Assess nursing staff satisfaction to determine acceptance of computerized fall risk program
4. Improve clinical outcomes by reducing patient falls and falls with injury

## Methods

- Setting: 16 adult medical/surgical units at Duke University Hospital
- Clinical decision support (CDS) intervention: 1) admission fall risk assessment reminder, 2) shift fall risk assessment reminder, 3) fall plan of care alert for high-risk patients
- Design: pre/post quasi experimental

## Results

Data Source	Time Period	Measure	Units	Compliance	Test	P
Quarterly audits	Pre-CDS: Oct 2012, Jan 2013, April 2013	Fall risk assessment	16	1.95% ↑	Mann-Whitney U	.05*
		Fall plan of care	16	.25% ↑	Mann-Whitney U	.18
	Post-CDS: Aug 2013, Oct 2013, Jan 2014	Fall risk assessment	2	9.32% ↑	Mann-Whitney U	.03*
		Fall plan of care	2	11.1% ↑	Mann-Whitney U	.09
Retrospective chart review	Pre-CDS: April and May 2013	Admission fall risk assessment	2	6.13% ↑	$\chi^2(1, N=143) = 3.77$	.05*
		Admission fall plan of care	2	15.6% ↓	$\chi^2(1, N=100) = 2.51$	.11
	Admission fall plan of care	Medical	42.9% ↓	$\chi^2(1, N=48) = 8.57$	.00*	
	Post-CDS: Nov and Dec 2013	Shift fall risk assessment	2	1.44% ↑	Mann-Whitney U	.23
		Shift fall plan of care	2	14.87% ↓	Mann-Whitney U	.01*
Safety reports	Pre-CDS: Dec 2012 – May 2013	Time since last fall risk assessment	16	NA	$\chi^2(2, N=84) = 1.78$	.41
	Post-CDS: Aug 2013 – Jan 2014	Fall plan of care	16	3.1% ↑	$\chi^2(1, N=66) = 1.08$	.30
Fall reports	Pre-CDS: Dec 2012 – May 2013	Falls per 1000 patient days	16	NA	Mann-Whitney U	.54
		Falls with injury per 1000 patient days	16	NA	Mann-Whitney U	.33

\*Significant

Alert action data: 2 units, plan of care alert

- Alert triggered 3653 times in 2 months
- Alert action taken 2.3% of time

Focus groups: 2 units

- Shift reminder most helpful & admission somewhat
- Several staff had not seen plan of care alert
- Medical unit RNs confused about definition of “high risk”
- Recommendations for changes to CDS tools and EHR given

## Discussion & Conclusions

- Improved documentation of fall risk assessment but no change in documentation of admission plan of care
- Decreased documentation of shift plan of care - could be related to changes from paper care plans to electronic care plans
- Satisfaction with tools was adequate
- No change in patient falls/falls with injury rates
- Another study found EHR and no change in fall rates<sup>1</sup> and other reports higher rate of falls in year one of EHR implementation (4.6% to 6.3%,  $p < .001$ ) and injury falls increased by 16.4% ( $p < .05$ )<sup>2</sup>
- Fall risk assessment had flowsheet row to indicate if plan of care implemented changed to patient at high risk with yes/no
- Fall plan of care alert in admission navigator but not in flowsheets where shift assessment charted – pop-up alert added

## References

1. Dowding, D. W., Turley, M., & Garrido, T. (2012). The impact of an electronic health record on nurse sensitive patient outcomes: An interrupted time series analysis. *Journal of the American Medical Informatics Association, 19*(4), 615-620.
2. Furukawa, M. F., Raghu, T. S., & Shao, B. B. (2011). Electronic medical records, nurse staffing, and nurse-sensitive patient outcomes: evidence from the national database of nursing quality indicators. *Medical Care Research and Review, 68*(3), 311-331.