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An Analysis of Skin Integrity Alerts Used to Monitor Nursing Home Residents

by

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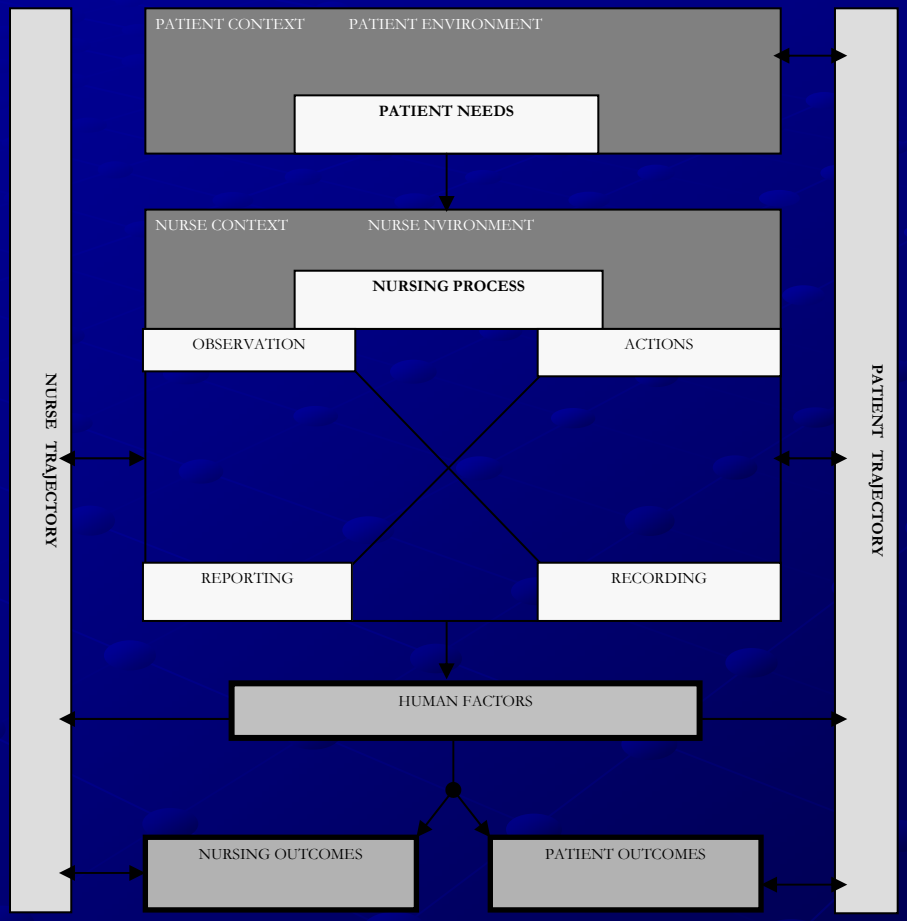
Study Objectives

The objectives are twofold:

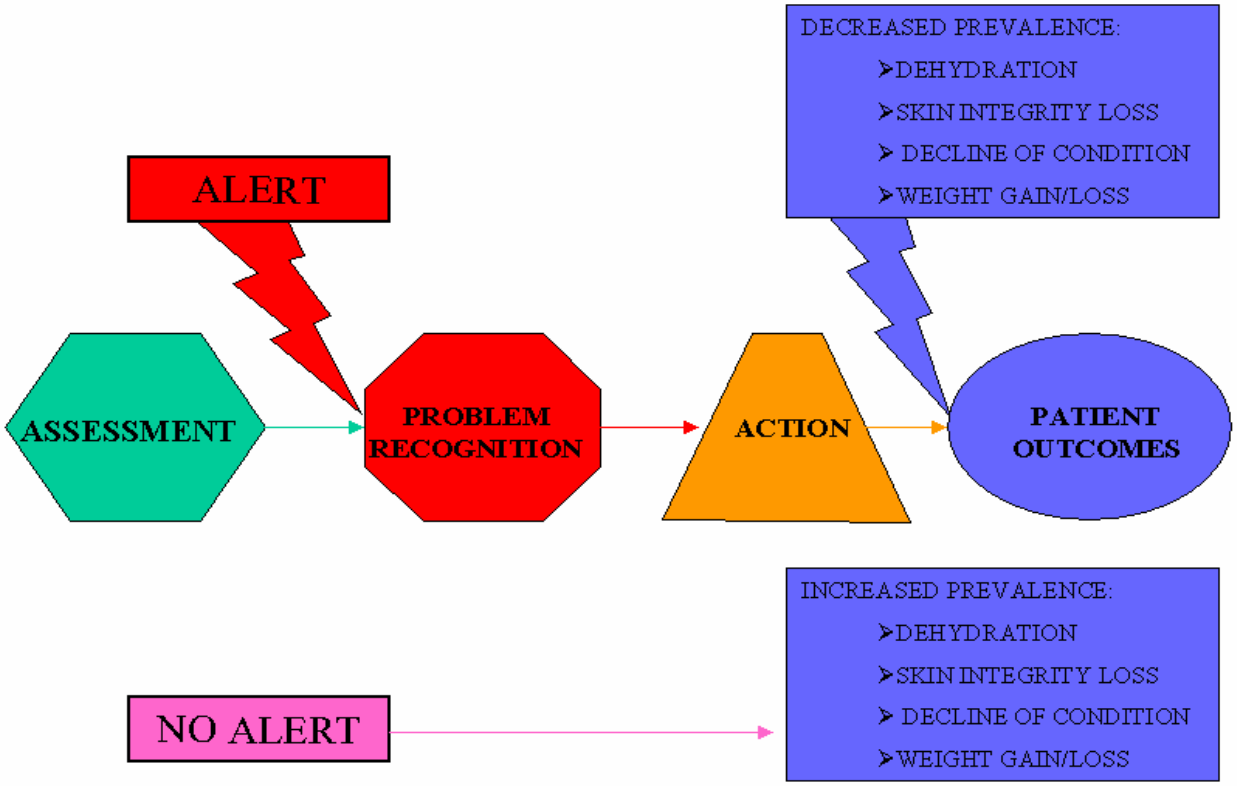
1) Assess the frequency of active skin integrity alerts occurring in two nursing homes implementing an electronic health record (EHR)
2) Determine if clinical responses of health care workers are different when a clinical skin integrity alert is active versus not active.

The Nurse-Patient Trajectory Framework



Alexander, GL (2007)

A Model for Clinical Decision Support Systems in EHR



Automated Clinical Decision Support in Nursing Homes

- Information systems using automation to direct nursing home staff are absent in most nursing homes
- There is limited research that considers electronic medical records (EMR) and clinical decision support in nursing homes.

(Schnelle, Bates-Jensen, Chu, & Simmons, 2004)

Background and Definitions

Clinical Decision Support System: Automated system that supports clinical decision making

Clinical Alert System: System that monitors a continuous stream of data and automatically generates a message (alert) in response to patterns that may require action

Clinical Alert: A decision support mechanism which serves as a part of an alert system that automatically detects changes in critical assessment data and notifies the healthcare provider

Example: dehydration

Trigger: Established criteria for when an alert will become active

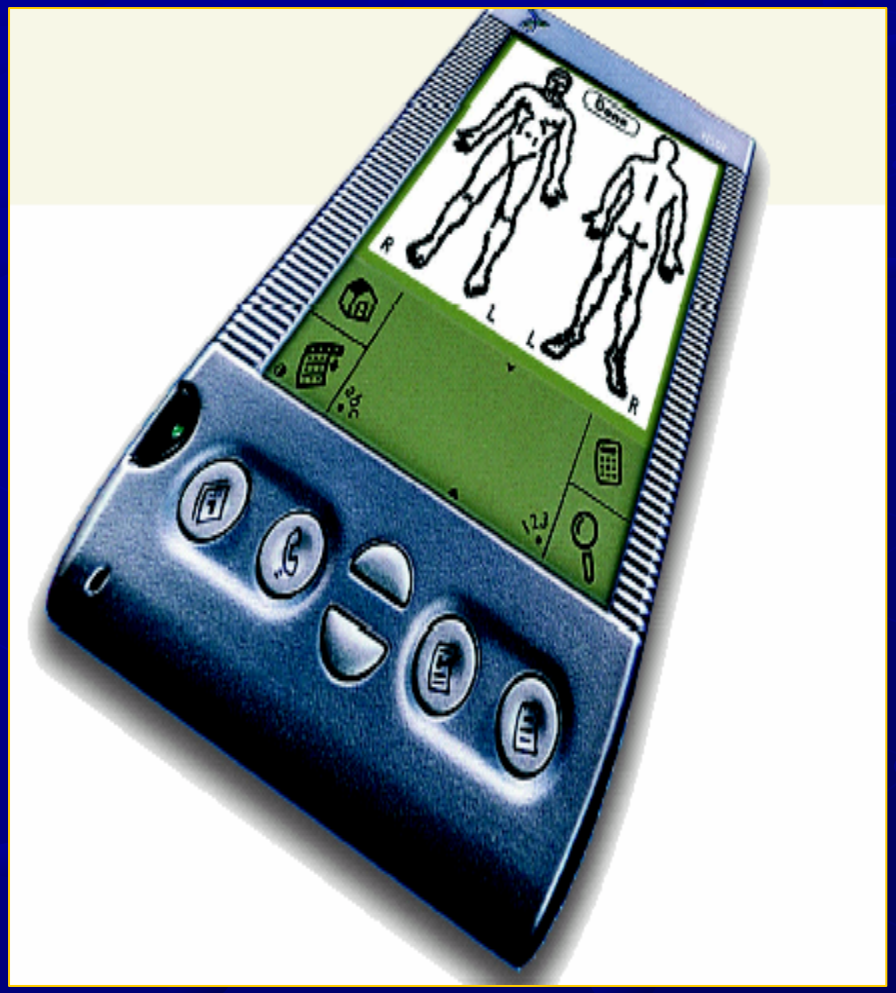
Example: Fever reported in last 24 hours

Description of Study

- Design: Descriptive analysis of 6 months of clinical alert data (beginning 6 month post implementation of OneTouch Technology)
- Setting: Two nursing homes
- Participants: Midwestern nursing homes where administrative staff had committed to implementing OneTouch clinical decision support system.

Partnerships in Nursing Home Technology

OneTouch Systems



- Bedside data collection using handheld and wireless devices
- Electronic charting and reporting
- Automated Minimum Data Set and Risk Assessment Protocols
- Accountability for caregiver activities and risk management
- Automated clinical alerts and triggers
- Electronic Medication Administration Record (eMAR) using wireless touchscreens on medication carts.

Results Objective 1

Table 1. Frequency of active skin integrity alerts

Facility	Ave. Number of Residents	Ave. Frequency of Active Skin Integrity Alerts/day	Range of Active Skin Integrity Alerts/day
A	136	21	11 – 34
B	225	93	68 – 118

Table 2: Length of time in consecutive days skin integrity alerts were active

Facility	Ave Number of residents	Total Number of Days in month	No Active Alerts	1-3 Days	4-9 Days	10-19 Days	20 or > Days
A	136	31	44	293	18	3	1
B	225	31	17	834	137	31	13

Results Objective 2
Clinical Responsiveness to Active Skin Integrity Alerts

		Alert Active		Number of residents	††Exact sig. *P*
		Clinical Response Absent	Clinical Response Present		
Alert Not Active	Clinical Response Absent	1	6	7	*1.00*
	Clinical Response Present	6	46	52	
Number of residents		7	52	59	

††McNemar's Test

Discussion

- There is substantial differences in average daily frequencies of active alerts in NH (Facility B had more than Facility A.)
- The frequent change of status in the alerting mechanism from active to not active could not be explained by the clinical responses documented by staff in the EHR.

Application

- Widespread adoption of CDSSs in NH will largely depend on how much they contribute to effectiveness and efficiency of nursing care.
- CDSSs have potential to contribute to effectiveness in care by identifying and alerting nurses to patterns in EHR data that indicate possible resident problems, thus facilitating earlier interventions.
- CDSS information, including alerts and associated responses, can potentially enhance a facilities quality assurance oversight and quality improvement analyses.
- CDSSs may contribute to research-based knowledge of nursing home performance.

References

Alexander, G.L. (2007) The nurse patient trajectory framework. Proceedings of Medinfo, Brisbane Australia.

Acknowledgements

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