Effectiveness of Team Training on Fall Prevention

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Disclosure

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• Authors had full access to all of the study, take responsibility for data integrity, accuracy of the data analysis, and presentation

Learner Objectives

– To describe effectiveness of TeamSTEPPS® (Team Strategies and Tools to Enhance Performance and Patient Safety) training as a mediator to reduce falls and injuries

– To identify communication strategies learned from training used to improve team performance and patient outcomes
WellStar Health System

- Not-For-Profit 5-Hospital System ~ 1394 Beds
- Integrated Health System: 2 Health Parks, 1 Nursing Home, 2 Hospices, 8 Urgent Care Centers, 16 Imaging Centers, 1 Pediatric Center

- 160 Physician Offices (800+ Medical Group Providers)
- 62,000+ Admissions/year
- 10,000+ Deliveries/year
- 13,500+ Employees
- Revenues > $1 Billion
Background/Significance

• Falls are the most frequently reported safety event among United States hospitalized patients \(^1-^4\)

• Falls are associated with increased risk of mortality and morbidity, estimated annual cost of $34 billion \(^5,^6\)

• Evidence exists on fall risk factors, interventions and prevention guidelines, yet reducing falls in the acute care setting has been challenging \(^7-^12\)
Purpose

To evaluate the effect of a training curriculum based on TeamSTEPPS® with video vignettes focusing on fall prevention for debriefing and reinforcement on team members’ safety culture, teamwork attitude, teamwork perception and communication as a mediator to reduce falls and injuries
Methods

• Design
  – Longitudinal, quasi-experimental, repeated measures, with intervention and comparison groups

• Setting/Sample
  – 2 community acute care hospitals; 4 medical-surgical acute care units
  – Intervention group: 16-bed orthopedic unit and 17-bed neurology unit (received training)
  – Control group: 22-bed orthopedic unit and 30-bed neurology unit (received no training and continued with usual practice)
  – registered nurses, pharmacists, physical therapists and physicians
Measures

- Demographic
- Hospital Survey on Patient Safety (HSOPS) $^{13}$
- TeamSTEPPS® Teamwork Attitudes Questionnaire (T-TAQ) $^{14}$
- TeamSTEPPS® Teamwork Perceptions Questionnaire (T-TPQ) $^{15}$
- Trained observers recorded teamwork communications and behaviors
  - bedside shift report (patient handoff), safety huddle, interdisciplinary care meeting and unit-level observer assessments
- Falls data
Training Intervention

Based on TeamSTEPPS® curriculum, four domains: communication, situational monitoring, mutual support, and leadership\textsuperscript{16}

- Three 30-minute training sessions; held on the units
- Brief didactic lecture
- Custom designed patient video scenarios
- Facilitated debriefing of the content covered
Intervention: Training Content

- **Session I**
  - **Didactic:** purpose of team training and 4 domains
  - **Video:** poor teamwork related to fall prevention
  - **Debriefing:** role teamwork plays in fall prevention

- **Session II**
  - **Didactic:** communication and situational monitoring
  - **Video:** demonstrated optimal bedside shift report, safety huddle, and SBAR related to patient fall risk
  - **Debriefing:** effectiveness of these team strategies
Intervention: Training Content (cont.)

• Session III
  - **Didactic:** mutual support and leadership
  - **Video:** vignette of team briefs, huddles and hand-offs
  - **Debrief:** information sharing fosters mutual support and task assistance; leadership for communication events; knitted all 4 domains from training together
## Study Timeline

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Data Analysis Plan

- **SPSS 18.0**: Statistical methods - descriptive, chi-square ($x^2$), repeated measures analysis of variance (ANOVA), and $t$ tests
- Chi-square ($x^2$) or $t$ tests were used to compare demographic variables of the 2 groups
- NVivo 10 used to code observers’ handwritten notes
  - Descriptive statistics were calculated for patterns
  - Repeated measures conducted to evaluate effects over time
- A $p$ value of $\leq .05$ was considered statistically significant
Findings

• **Demographics**
  - 39.36 ($SD = 10.45$) sample mean age
  - Most were registered nurses (29.4%), female (97.1%), white (64.7%), baccalaureate prepared (41.2%), primarily worked day shift (79.4%)
  - Differences between the two groups for age, gender, education ($P < .001$)
  - 72% of the intervention group sample attended all three training sessions
Questionnaire Findings
Intervention Group Only

• Hospital Survey on Patient Safety Subscales Improved:
  – Feedback and communication about error \( F = 4.95, P = .01 \)
  – Communication openness \( F = 5.46, P = .01 \)
  – Teamwork within hospital units \( F = 4.07, P = .03 \)
  – Teamwork across hospital units’ \( F = 4.81, P = .02 \)

• Teamwork Attitude Improved:
  – Mid \( M = 4.16 \) compared to \( M = 4.55 \) post \( P = .009 \)
• **Teamwork Perception:**
  – Decreased overtime pre \((M = 2.35)\), mid \((M = 2.23)\), post-intervention \((M = 1.66)\) \((F = 3.92, P = .03)\)

• No statistical differences found within control group
  – Scores decreased except teamwork within hospital units and teamwork attitudes increased slightly

• No significant differences in the study variables between the 2 groups
Observation Findings

• Bedside shift report \((n = 154)\): Intervention group improved over time conducting report in patient rooms, discussing patient mobility status, and improving communication between caregivers regarding patient care plan compared to the control group.

• Safety huddles \((n = 16)\) and interdisciplinary meetings \((n = 25)\): Intervention group improved over time expressing less uncertainty about patient care plan and frequently communicated patient fall risk status compared to control group.
Observation Findings (cont.)

• Observer assessments ($N = 57$): Over time intervention group improved communication related to patient fall risk status ($F = 7.48$, $P = .01$)

• Fall related observations included consistent implementation of fall preventative interventions such as signage and visual fall reminders (arm bracelet, yellow socks, door sign), bed alarm usage, ambulation assistance improved in the intervention group ($F = 6.67$, $P = .01$)

• Findings remained consistent seven months post follow-up

• No significant observation findings were noted in the control group
Fall Data Findings

- Intervention group: Falls decreased by 13 (62% reduction) and fall-related injuries by 5 (71% reduction)
- Pre-fall rates were 2.69 ($SD = .12$) and 1.03 ($SD = .43$) post-fall rates ($t = 4.27, P = .15$)
- Pre-injury rates were .97 ($SD = .55$) and .24 ($SD = .34$) post-injury rates ($t = 5.05, P = .122$)
- Control group: Fall and injury rates increased
Limitations

• Training sessions were not always interdisciplinary
• Even though training sessions were short and unit based, staff had difficulty attending and managing care duties
• Local variations in patient volumes and staff turnover impacted study
• Low statistical power may have limited ability to detect certain differences because of small sample size
• Questionnaire length may have resulted in instrument fatigue
Conclusions

• Unique study: control group, self-report survey and observations all over time
• Team training was found to be an effective method to reduce falls and related injuries with steady improvements in perceptions of safety culture and teamwork attitude
• Observed improvements with caregivers implementing fall preventative interventions and use of communication information exchange strategies between caregivers related to a patients’ fall risk status, during bedside shift report, post-fall huddle, and safety huddles
References


