Implementing Fall TIPS on a Burn and Trauma Unit

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Abstract

Problem: Despite a national focus on fall prevention, falls remain a significant patient safety issue. In 2020, one adult burn and trauma unit had a fall rate almost double the hospital fall rate despite having a comprehensive fall prevention program.

Purpose: This paper describes the implementation and evaluation of the Fall TIPS bedside poster tool, for nurses. Specifically, the analysis of the education plan, nurses use of the tool, and the effectiveness of the tool to prevent patient falls will be discussed.

Methods: This project was implemented over 16 weeks in Fall 2021. After completing an online training module, nurses were asked to complete the Fall TIPS bedside poster with the patient. The tool was placed on the whiteboard to serve as a reminder to the patient and a communication tool for the interdisciplinary team. Any patient admitted to the unit between 9/20/2021, and 12/15/2021, who was cared for by a nurse that completed training was eligible to participate. Training data was collected through the hospital learning management system. Data on the use of the tool was collected through paper audits and fall rate data was captured via the hospital quality dashboard.

Results: 85% of eligible nurses completed training on the use of the tool before implementation and 100% by week 5. The proportion of nurses using the Fall TIPS poster increased from a baseline mean of 0% pre-implementation to a post-intervention median of 64% at week seven and a mean of 100% at weeks eight through thirteen.

Conclusions: The hospital learning management platform was useful in tracking compliance. The Fall TIPS bedside poster was a usable solution to add to the hospital fall prevention toolbox. Used consistently Fall TIPS shows promise in reducing patient falls in adults on a burn and trauma unit. Leadership support makes compliance more likely.

Introduction

The average fall rate in hospitals across the United States is between 3 and 5 falls per 1000 bed days (AHRQ, 2019). According to the Agency for Healthcare Research and Quality (AHRQ) and the Joint Commission, an estimated 700,000 to 1,000,000 falls occur in the U.S. each year and about 35% of these falls result in patient injury. These injuries result in patients spending an average of six additional days in the hospital. The economic cost associated with falls is estimated to be upwards of 14,000 dollars per patient (AHRQ, 2019; Health Research & Educational Trust, 2016). However, the highest cost comes at the expense of the patient with an estimated 11,000 falls resulting in patient death each year. Despite a national focus on fall prevention, falls remain a significant patient safety issue in U.S. hospitals.

The fall rate on the burn/trauma step-down unit is one of the highest in the hospital. At a fall rate of 3.41 per 1000 bed days in FY 2020 and 3.04 in the first half of FY 2021, the unit fall rate is almost double the hospital fall rate of 1.85 for FY2020 and 1.97 for the first half of FY 2021. A total of 26 patients experienced a fall between July 12th, 2019, and December 23rd, 2020. Five of these patients experienced temporary harm because of the fall.

Several vulnerable populations are cared for on this unit and include patients with altered levels of consciousness, incarcerated persons, and adolescents. These populations will be included as the standard of care will not be altered but rather enhanced by this project and it would be unethical to exclude this segment of the patient population.

The current process for preventing falls at this organization has many components and is illustrated in Figure 1. Unfortunately, despite adopting a hospital-wide comprehensive fall prevention program, falls have consistently remained a patient safety issue that has negatively impacted patient outcomes. Therefore, the purpose of this quality improvement project is to implement and evaluate the effectiveness of the Fall TIPS toolkit in preventing patient falls in patients on an adult burn and trauma unit in an acute care hospital.

The Fall TIPS poster, illustrated in Appendix A, is an evidence-based tool that has been shown to increase patient engagement in the fall prevention plan and reduce patient falls by as much as 25%. In addition, its use has been associated with decreased falls with injury. The tool helps nurses complete the Morse Fall Risk assessment with the patient, thereby increasing patients' understanding of their personal risk factors for falls. The bedside poster also has built-in clinical decision support that links specific risk factors to evidence-based interventions to keep the patient from falling. The poster is then displayed on the patient's whiteboard to communicate the fall prevention plan to the patient and the rest of the interdisciplinary team (Dykes et al., 2010). This QI project is intended to help increase patients' understanding of their fall risk factors and plan of care and to reduce patient falls by 25% on the burn and trauma unit. This is an intervention and analysis of the use of this tool and its effectiveness to prevent patient falls.

Literature Review

Like the Burn and Trauma unit, many in-patient units across the U.S. struggle to prevent falls despite having a multicomponent fall prevention plan in place. In fact, a systematic review, and a large multisite randomized controlled trial, both concluded that many commonly used fall prevention strategies are ineffective in preventing patient falls and falls with injury (Barker, et al., 2015; Cameron, et al., 2012). Study authors suggest that hospitals look for novel and innovative approaches to fall prevention which includes ways of increasing patient engagement in the fall prevention plan. This review will focus on the evidence supporting one such novel approach- The Fall TIPS bedside poster.

Although evidence tells us that many commonly used strategies to prevent falls are ineffective, the use of a multicomponent, patient-centered approach that aims to increase patient engagement is an evidence-based solution to reduce falls. The review of the evidence supporting Fall TIPS will start with a discussion of how the tool increases patient engagement and understanding of their personal fall risk factors and fall prevention plan. The review will then close with a discussion of the evidence that supports the use of the Fall TIPS bedside poster in reducing patient falls and falls with injury.

The evidence presented by Dykes, et al., (2017) Duckworth et al., (2019), and Christiansen, et al., (2020) found the use of Fall TIPS bedside poster was associated with increased patient engagement. However, evidence supporting the tool's ability to increase patients' understanding of the fall prevention plan was mixed. Specifically, in Dykes, et al., (2017) the tool was associated with patients having an increased understanding of their personal fall risk factors in both cohorts of the study ($P=0.031$; $P=0.023$). However, knowledge of the fall prevention plan varied across study sites ($P = 0.264$; $P= 0.001$). Like Dykes, Duckworth, et al., (2019), found that all modalities of the Fall TIPS toolkit were effective in increasing patient engagement across all patient units over 80% of adult hospitalized patients were engaged in the fall prevention plan. Similarly, Christiansen, et al., 2020 found that patients were more willing and engaged in the fall prevention plan after the implementation of the fall TIPS ($P < 0.001$). The studies by Cameron, et al., (2018), Dykes et al., (2010), and Dykes, et al., (2017) looked at intervention effectiveness to prevent falls and falls with injury. First, Cameron's systematic review concluded that multifactorial interventions like Fall TIPS, may reduce fall rates in hospitals. Next, Dykes et al., (2010) use of the Fall TIPS bedside poster was associated with a 25% reduction in the number of falls in hospitalized adult patients over standard care, especially among patients 65 and older. Lastly, Dykes, et al., (2017) found that the use of Fall TIPS had mixed results on fall rates across study sites but that falls with injuries decreased in both cohorts. Refer to table 1 for a full evidence review of the studies that support the use of Fall TIPS for fall prevention. In table 2 the strength of the evidence is presented that supports the use of the Fall TIPS tool in preventing patient falls.

Theoretical Framework

The Expanded Health Belief Model (EHBM) can be used to understand the problem of falls in acute care hospitals. The EHBM states that patient behaviors are strongly influenced by their personal beliefs and attitudes related to a particular health outcome. The first two constructs of the theory are perceived susceptibility and perceived severity. Most patients on the burn and trauma unit have new injuries and physical limitations. Most were able to ambulate independently before their injury. They do not fully perceive how their injury and their medications impact their risk for falls. Most are on opioid pain medication and prophylactic anticoagulants which increase not only their risk for falling but also increase their risk of harm from falls. The next two constructs are also interrelated and are a perceived benefit versus their perceived barriers. When patients understand the benefits of following the fall prevention plan, it is easier to overcome personal beliefs that were previously a barrier. The first four constructs- perceived susceptibility, perceived severity, perceived benefit, and perceived barriers, are all influenced by the construct, call to action. Implementation of the Fall TIPS bedside poster helps patients understand their individual risk factors or susceptibility. The use of the tool also helps patients understand how factors such as medications, equipment, or a new injury can contribute to severe consequences after a fall. In fact, the Fall TIPS bedside poster is an evidence-based tool that has been shown to increase patient engagement around fall prevention measures. Through patient engagement patients are helped to understand how the perceived benefit outweighs any perceived barriers. This understanding empowers patients to prevent their own falls and the last construct of self-efficacy to perform a health behavior is achieved (Butts & Rich, 2015).

The Conceptual Framework of Complex Innovation Implementation can be used to understand the implementation climate of the burn and trauma unit. The implementation climate of the burn and trauma unit is favorable for implementing the Fall TIPs toolkit. At the unit and organizational level, hospital management supports efforts that improve patient safety. Patient safety is a top organizational goal as it strives to be a High-Reliability Organization that promotes a culture of safety among all associates. Therefore, a quality improvement project that aims to decrease patient falls by 25% is a good innovation-values fit. Financial resources at this not-for-profit organization are limited, but the only anticipated cost will be the cost to laminate 24 bedside posters which can be done in the hospital print shop. Contributing to the implementation climate, is the hospital's technological resources. An example is the hospital learning management system, which is a computer-based education platform that is owned by the organization. This platform can be used to educate nursing staff on the use of the Fall TIPS tool. It will also help the implementation team track the number of nurses who have completed the training through its built-in report feature. Another resource is the quality improvement dashboard which reports hospital and unit-level data on falls. This will be used by the implementation team to measure patient outcomes related to falls. Several informal leaders with many years of experience have volunteered to support the project as unit champions. This will enhance adoption and support for the project. Champions will be instrumental in implementation effectiveness and in meeting the goal of 100% adherence to the use of the Fall TIPS bedside poster (Helfrich, Weiner, McKinney, & Minasian, 2007).

Methods

This quality improvement project took place on a 24-bed burn and trauma step-down unit over a 16-week period from August 30, 2021, to December 15, 2021. Data was analyzed weekly by the QI-PL and reported to stakeholders on the unit during unit huddles. This nursing unit is in a large inner-city hospital and is designated as a level one trauma center and a regional burn center. The average daily census is between 22 and 24 patients daily. Patient age ranges from adolescents to older adults. The 27 staff nurses who work on this unit were asked to implement the Fall TIPS bedside poster. The nature of the traumatic injuries and burn mechanisms are varied. Patients who are at increased risk for falling are those who have cognitive deficits from traumatic brain injuries as well as those experiencing severe illness. All patients admitted to the unit during the implementation period were eligible for the Fall TIPS intervention. Special populations including adults with cognitive deficits, adolescents, pregnant women, and prisoners were included in this QI project. The standard of care was not altered by the implementation of the Fall TIPS bedside poster, and it is important to include these populations because they still have risk factors for falls. Excluding these populations from a potentially beneficial intervention would be unethical.

All unit staff nurses were asked to complete a training module on the use of the tool between August 30, 2121, and September 19, 2021. Education was offered to 27 eligible nurses through an online training module designed by the quality improvement project lead (QI-PL). The lesson plan is seen in Appendix B. These nurses were asked to implement the tool on September 20, 2021, on every patient admitted to the unit and on every new admission that occurred from 9/20/21 to 12/15/21. There were 24 patients on the first day and approximately 14-28 new patients each subsequent week of the project. Any patient who was cared for by a nurse who was not trained in the use of the tool on the day of the audit was excluded. Also, any patient discharged before being audited was excluded.

The structure outcome measured for this quality improvement project was the percentage of burn/trauma unit nursing staff that completed training on the use of the tool, before implementation. Specifically, the number of staff nurses trained on the use of the Fall TIPS bedside poster, divided by the number of nurses eligible to complete the training. Data was analyzed using Excel and reported as a percentage and illustrated in the pie chart seen in Figure 2. Tactics used to get nurses to complete the training included making the training available as an online learning module. This allowed staff the flexibility to complete the training at a time that would be convenient and not disrupt workflow. The QI project lead and unit champions garnered enthusiasm for the project and encouraged staff participation through one-to-one discussions and group huddles. Real-time support was offered to staff nurses during implementation by the QI project lead. In addition, a paper job aid (Appendix C) was distributed to nursing staff to reinforce important aspects of implementing the tool. In addition, a patient handout (Appendix D) was available on the unit to aid nurses in explaining the purpose of the Fall TIPS bedside poster.

The process measure for this QI project is the number of patients screened weekly using the Fall TIPS tool, out of the number of patients who should have been screened weekly. The data was analyzed using Excel and reported as the percent of nursing staff using the tool each week. A run chart was used to analyze nurses use of the tool over the twelve-week implementation period and is depicted in Figure 3. The process change for this quality improvement project is depicted in the process change maps seen in Figure 1. The success of this process change is dependent on the consistent use of the Fall TIPS poster. Therefore, the QI-PL worked to address barriers to implementation through frequent open and collaborative communications with all stakeholders during shift huddles, formal meetings, and one to one discussions. In addition, the QI-PL worked with stakeholders to adapt the periphery of the implementation plan to meet the contextual and workflow needs of the burn and trauma unit.

The outcome measure for this QI project is the fall rate per month calculated by dividing the number of falls per month by the number of patient bed days for the month and multiplying by 1,000. Data was captured using the hospital quality improvement dashboard seen in Appendix E. This is a long-term goal.

Staff and patient confidentiality were protected throughout the project using assigned codes. A log that records the patient's medical record numbers and corresponding coded identifiers were recorded on the data collection tool seen in Appendix F. A log that lists the names of the unit staff nurses and their corresponding coded identifiers is seen in Appendix G. These logs were kept in a locked box, in a locked locker, in the staff locker room which also has a combination lock. These documents were destroyed at the end of implementation by placing them in a shredder box on the unit. The hospital learning management system reports feature was used to collect data on the number of nurses who completed training and was downloaded twice weekly. This data was then recorded on the Excel spreadsheet illustrated in Appendix H using the assigned code to protect the privacy of nursing staff. To measure nurses' adherence to the use of the tool, audits were performed weekly using only coded patient and staff identifiers. This audit tool can be seen in Appendix I. On the evening of the first day of implementation, the QI-PL used this tool to audit every patient on the unit. After that, only new admissions were audited. Although the goal was to audit all new admissions, outliers such as missed audits, and patients meeting exclusion criteria were tracked using this tool. This coded audit data was compiled on a password-protected computer with fingerprint recognition using an Excel spreadsheet for data analysis Appendix J.

Results

As seen in Figure 2, eighty-five percent of nurses completed training on the use of the tool before implementation go live. By week five of implementation, 100% of eligible nurses completed training. The proportion of nurses using the Fall TIPS poster increased from a baseline mean of 0% pre-implementation to a post-intervention median of 64% at week seven. Through open dialog with end-users, it was discovered that many nurses believed that the tool was only intended to be used for high-risk patients. This allowed the QI project an opportunity to do some re-education on the use of the tool. In addition, nursing leadership on the unit formally voiced their commitment to sustain the use of the tool after the implementation period. Nursing leadership support had an immediate positive effect on the use of the tool and tool usage increased in the weeks following that announcement. Therefore, at week 8 there was an astronomical data point showing the use of the tool increased by 36 data points with a median use of 100%. This was sustained until week sixteen when data collection ended, as seen in Figure 3. The overall fall rate was reduced during the implementation period. As seen in Figure 4, the use of Fall TIPS was associated with a decreased incidence of falls during October (1.56), November (1.69), and the first 15 days of December (1.66). Data collection ended December 15, 2021. Unfortunately, four patient falls occurred during the implementation period. The circumstances surrounding each fall was discussed in the unit safety huddle. In one instance the patient was unwilling to discuss his fall prevention risk factors or plan with the nursing staff. In addition, the staff caring for the patient at the time of the fall did not follow the fall prevention plan. In the second instance, the patient was unable to be an active participant in his fall prevention plan due to a traumatic brain injury.

Discussion

The hospital learning management platform was a useful tool to track compliance. The reports feature helped identify those who had not completed the training module. This enabled the QI-PL to have one-on-one discussions with those individuals to overcome barriers to completing training. However, 15% of nurses did not complete the training before go-live using this method despite weekly meetings with stakeholders. In addition, after go-live, many nurses reported that they did not understand that the tool should be implemented on low-risk patients. Many falsely believed that the tool only needed to be implemented on patients deemed to be at high risk for falls. Therefore, re-education was done face to face on an individual basis and during unit huddles. Similar to the findings of Dykes et al., (2010), the Fall TIPS bedside poster was a usable solution to add to the hospital fall prevention toolbox with most nurses finding it easy to incorporate into their daily care of patients. The initial data suggest that used consistently, the intervention will have a positive impact on reducing falls in this patient population.

Limitations

This quality improvement project was limited by its short length of data collection, as well as by high staff and leadership turnover. In the early weeks of the project, there was a complete turnover of the leadership team. During this time the QI-PL relied heavily on unit champions to garner support. Fortunately, the new leadership team was in place by week 6 and was fully engaged in the project. Another limitation was that after the QI-PL stopped performing weekly audits, there was a spike in the unit fall rate ending the month of December with a fall rate of 6.67. This was attributed to several factors. First, the QI-PL was not visible on the unit performing audits on the use of the tool and was also not attending unit huddles reminding stakeholders to use the tool. Secondly, there was a surge in the Covid 19 pandemic in December and many staff nurses were out sick requiring increased use of agency and float staff. Lastly, staff reported that they felt burnt out due to the pandemic and due to the high acuity on the unit.

Conclusion

Used consistently, the Fall TIPS bedside poster shows promise in reducing patient falls in adults on a burn and trauma unit. In addition, nursing leadership support makes compliance with the use of the tool more likely. Therefore, ongoing audits on the use of the tool will be needed to help sustain its continued use. In addition, ongoing staff education will be needed to reinforce the use of the tool and to educate new staff nurses as they are onboarded. The learning management module made for this project can be used or adapted as needed by the unit leadership team.

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Duckworth, M., Adelman, J., Belategui, K., Feliciano, Z., Jackson, E., Khasnabish, S., . . . Westfall Bates. (2019). Assessing the effectiveness of engaging patients and their families in the three-step fall prevention process across modalities of an evidence-based fall prevention toolkit: An implementation science study. *Journal of Medial Internet Research, 21*(1), 1-11 . https://doi.org//10.2196/10008.

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Table 1

Evidence Review Table

Citation: Dykes, P. C., Carroll, D. L., Hurley, A., Lipsiz, S., Benoit, A., Chang, F., . . . Middleton, B. (2010). Fall prevention in acute care hospitals; a randomized trial. *JAMA:Journal of the American Medical Association, 304*(17), 1912-1918. https://doi-org.proxy-hs.researchport.umd.edu/10.1001/jama.2010.1567					**Level** (Melnyk) II
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"To investigate whether a fall prevention tool kit (FPTK) using health information technology (HIT) decreases patient falls in hospitals" (Dykes et al., 2010, p.1912).	Stratified, cluster randomized trial.	**Sampling Technique**: Stratified random sampling. **# Eligible:** 16 medical units at 4 hospitals were examined for eligibility. Any patient admitted to selected units between 1/1/09 – 6/30/09 would be eligible. **# Accepted**: 8 medical units; 2 from each hospital. **# Control:** 4 units; 1 in each hospital randomized to usual care. Total number of patients participating (n=5104). **# Intervention:** 4 units; 1 in each hospital randomized to FPTK. Total number of patients participating (n=5160).	**Control group:** The nurses on the control group units received education on fall risk assessment and prevention. **Intervention group:** Nurses on intervention units used fall prevention software to calculate Morse Fall risk scores (MFS) and provide evidence-based fall prevention interventions. Software was used to print out display a bedside poster. Posters displayed patient specific fall risk factors and a evidence-based fall prevention plan of care. A smaller plan of care handout was also provided to each patient.	**Dependent Variable**: The primary outcome was patient falls per 1000 patient-days. Falls were defined using the Joint Commissions definition of any unplanned descent to the floor during the course of the hospital stay. The secondary outcome was patient falls with injury. Injury is not defined in the study. Staff caring for the patient are required to report all falls and injuries from falls in the patient safety event reporting system. Unit managers and nurse from quality improvement verified and validated information placed in the reporting system.	**Statistical Procedures(s) and Results:** Statistical analyses were performed using SAS software. Generalized estimating equations Poisson regression with fixed effects for hospital and medical units. The Wilcoxon test and fixed effect multinomial logistic regression was performed to check for continuous and categorical confounding variables. Differences in patient characteristics between the intervention and control groups were done using means, proportions, standard deviations, and medians with interquartile

		Power analysis: 5100 patients in each group (1275 patients in each of the 8 units) to provide 80% power (a=.05) to detect a change in fall rate. **Group Homogeneity**: Data on unit census, length of stay (LOS), and fall rates were examined at four hospitals in the Partners Health Care System. Medical units with the highest fall rates were then compared for homogeneity in fall rates and patient days. Units were then matched based on data homogeneity.	**Independent variable & intervention fidelity:** Fall Prevention Toolkit software was developed to allow nurses to calculate patient's MFS at the bedside with the patient. The software contained a clinical decision support tool that linked patient risk factors to evidence-based fall prevention interventions. The Institute for Healthcare Improvements Framework for Spread was used to enhance buy-in among stakeholders. A dashboard and monitoring checklist was also created to monitor and collect data on staff adherence to the use of the tool.		ranges. Patient characteristics were similar in the control and intervention group except for the control group having a higher number of patients who were younger, white and who have insurance. Although this was not statistically significant the study adjusted for this potential confounder. Fall score on admission, length of stay and sex were similar between groups. P values are 2 sided and P < .05 is statistically significant 10,264 patients participated in the study over 48,250 patient days. No medical units dropped out of the study. There were fewer patient falls in the intervention units (n=67) than in the control units (n=87). Intervention units had a lower adjusted fall rate 3.15 with 95% CI

					[2.54-3.90] per 1000 patient days than control units 4.18 with 95 % CI [3.45-5.06] per 1000 patient days. Older patients benefitted more from the intervention than younger patients. 2.08 with 95% CI [0.61-3.56] per 1000 patient days. Based on results the FPTK can prevent 1 fall per 862 days with a number needed to treat of 287 patients during a three day stay. The FPTK could potentially prevent 1 fall every 4 days or 90 falls a year in the studied patient population. There was no statistical difference in falls with injury between the intervention and control unit. Adherence to study protocols in the intervention and control groups was performed through random audits using a standardized tool. **Adherence**

					Control = 81% Intervention = 94%
Citation: Christiansen, T. L., Lipsitz, S., Scanlan, M., Yu, S. P., Lindros, M., Leung, W., . . . Dykes, P. (2020). Patient activation related to fall prevention: A multisite study. *The Joint Commission Journal on Quality and Patient Safety*, 129-135. https://doi.org/10.1016/j.jcjq.2019.11.010					**Level** III
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"The purpose of this study was to examine the impact of the fall TIPS program on patient activation related to fall prevention" (Christiansen, et al., 2020, p. 1).	**Design:** A multisite quasi-experimental study that used a pretest, posttest control design.	**Sampling Technique:** convenience sampling **Eligibility:** Adult patients who were admitted to one of Six medical units at Brigham and Women's Hospital (BWH), one medical unit at Montefiore Medical Center (MMC), one medical unit at New York Presbyterian Columbia University Medical Center (NYP), were randomly selected to participate in the study. Any adult patient over the age of 18 who was admitted to one of the participating units during the study for longer than 24 hours was eligible to participate. **Inclusion/Exclusion criteria:** All participants were English speaking. Patients unable to participate due to severity of illness or	**Control:** Pretest survey using the Patient Activation Measure (PAM 13) **Intervention:** Posttest survey using the Patient Activation Measure (PAM 13) **Independent Variable & Intervention fidelity:** The short form of the Patient Activation Measure (PAM-13) survey was used to measure patient engagement in fall prevention measures before and after implementing the Fall TIPS program. This tool has been tested for reliability and validity in use. In addition, Cronbach's alpha was used to test the reliability of the scale items. The survey focused specifically on the three-step fall	**Dependent Variable:** The level of patient engagement is the primary outcome in this study. Patient engagement was measured in terms of four different levels. From level one- the lowest level of engagement to level 4 the highest level of engagement. Survey responses were converted to engagement score from 1 to 100 using the Insignia Health's scoring algorithm.	Cronbach's alpha analysis showed that the PAM 13 scale was reliable at Pre: Alpha=0.870 Post: Alpha=0.870 The PAM scores showed *increased patient engagement* score after the Fall TIPS intervention 80.88 (SD +/- 17.48) $p<0.0001$ compared to a preintervention engagement score of 63.82 (SD +/- 17.35) *Patient engagement improved at all sites*. BWH $p < 0.001$ NYP $p = 0.037$ MMC $p < 0.001$

		limitations in mental status were excluded in the study. Patients included in the study were selected at random. **Total Enrolled:** n=350 **Final Sample Size:** n=343 **Intervention Sample Size:** n=185 **Control Group Sample Size:** n=158 **Group Homogeneity:** Patient gender, age, and length of stay were similar in the pre-test and post-test groups. Education level was higher among the patients at BWH (p= 0.001). There was also a significant difference in the racial/ethnic characteristics of the patients surveyed at MMC (p= 0.02). However, pre and post PAM scores showed no significant difference when pre and posttest groups were compared based on education level and ethnicity.	prevention process and the patients understanding of their individualized fall prevention plan. The PAM-13 uses a 4-point Likert scale to rate items from 1=strongly disagree to 4=strongly agree. Content validity index testing was done to ensure that the PAM constructs were preserved.		
Citation: Dykes, P. C., Duckworth , M., Cunningham, S., Dubois, S., Driscoll, M., Feliciano, Z., . . . Lindros, M. (2017). Pilot testing fall TIPS (tailoring interventions for patient safety): a patient-centered fall prevention toolkit. *the joint commission Journal on Quality and Patient Safety*, *43*, 403-413. https://doi.org//10.1016/j.jcjq.2017.05.0					**Level** VI

Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"In this article, we describe the process that our team used for pilot testing and for then promoting adoption and spread of fall TIPS" (Dykes, et al., 2017, p. 404).	Descriptive	**Sampling Technique:** Consecutive sampling **Eligibility:** From January 2016 to June 2016 the paper Fall TIPS tool was implemented at two acute care hospitals. BWH 2 oncology units 3 neurology units 2 medical units MMC 1 large medical unit A total of, 63 patients answered pre-intervention surveys. 63 patients answered post-intervention surveys. BWH 31 patients answered pre survey questions 33 patients answered post survey questions MMC 32 patients answered pre-survey questions 30 patients answered post -survey question	**Intervention:** The Institute for healthcare Improvement's (IHI) framework was used to spread adoption of the tool. Practice council members and fall prevention committee members identified as champions to assist in education roll out. Training module developed and rolled out to staff prior to go live. Patients were surveyed pre- and post-implementation regarding their perceived ability to identify their fall risk and their personal knowledge of the fall prevention plan. The survey questions responses were measured using a 4-point Likert scale (1 = strongly disagree to 5 = strongly agree) Survey questions:	**Dependent variable:** The primary outcomes described in this study were: 1. Patients understanding of their personal risk factors and fall prevention plan; 2. protocol adherence; and 3. number of falls and falls with injury. **Measures:** Mann Whitney U test was used to compare patient survey responses pre- and post-intervention. Protocol Adherence: Weekly spot checks to observe the presence of Fall TIPS poster completed at the bedside. The rate of adherence to study protocol was expressed as a percentage from zero to one hundred. Fall rates and falls with injury were measured in the number of falls per	**Patient Surveys:** Patients understanding of their personal fall risks and their fall prevention plan improved after implementation of the fall TIPS toolkit. BWH Perceived ability of patients to identify fall risk Pre:3.7 Post: 4.5 P=0.031 Knowledge of fall prevention plan Pre: 3.7 Post: 4.4 P= 0.264 MMC Perceived ability of patients to identify fall risk Pre:4.0 Post: 4.6 P=0.023 Knowledge of fall prevention plan Pre: 3.6 Post: 4.7 P= 0.001 **Protocol Adherence:**

			1. I am able to identify my risk for falling. 2. I know what I need to do to prevent myself from falling. **Intervention fidelity:** Protocol for monitoring adherence, patient fall and fall related injury data was established. Adherence was measured weekly via spot checks on each unit. Fall rates and falls with injury were secured through data collected by the quality department.	1000 patient days as reported by the Hospital safety occurrence reporting system.	Staff at both hospitals adhered to the implementation of the Falls TIPS toolkit. MMC = 90.5% BWH = 82% **Fall rates and falls with injury:** although fall rates increased at MMC, the fall rate with injury decreased. MMC fall rate *increased* Pre: 3.04 per 1000 days Post: 3.10 per 1000 days Falls with injury decreased from 0.47 pre to 0.31post per 1000 patient days. BWH fall rate decreased Pre: 3.28 per 1000 days Post: 2.80 per 1000 days Falls with injury decreased From 1.00 pre to 0.54 post per 1000 patient days. Run charts that compared fall data to adherence showed a correlation between

					protocol adherence and fall rates and falls with injury. More adherence was associated with less falls and less falls with injury.
Citation: Duckworth, M., Adelman, J., Belategui, K., Feliciano, Z., Jackson, E., Khasnabish, S., . . . Westfall Bates. (2019). Assessing the effectiveness of engaging pateints and their families in the three-step fall prevention process across modalities of an evidence-based fall prevention toolkit: An implementation science study. *Journal of Medial Internet Research, 21*(1), 1-11. https://doi.org//10.2196/10008					**Level** VI
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"This study aims to examine if the Fall TIPS modality impacts patient engagement in the 3-step fall prevention process and thus Fall TPS efficacy" (Duckworth, et al., 2019, p. 1).	Descriptive	**Sampling Technique:** Quota sampling was used to select patient care units at each of the three hospitals participating in the study. This was done to ensure that all three Fall TIPS modalities were represented in the sample. **Eligibility:** Only medical/surgical and neurology units were selected for homogeneity in patient characteristic. Modality 1- electronic Fall TIPS Toolkit n= 3 units Modality 2 – laminated Fall TIPS Toolkit n= 5 units Modality 3 – electronic bedside display	**Independent variables:** Random audits were conducted at BWH, MMC, and NYP to measure adherence with using the various modalities of Fall TIPS bedside tools. Audits looked at the presence of the tool at the bedside and being completed. In addition, audits were conducted to see patients understood their fall prevention plan. **Intervention fidelity:** Fall prevention champions on each unit randomly selected patients for weekly audits at random days and times.	**Dependent variables:** The primary outcome of this study was the percentage of patients and family members who could verbalize their fall risk factors and personal fall risk plan and if there was any difference among modalities. A secondary aim of the study was to determine staff adherence to the Fall TIPS protocol and if there was any difference in adherence based on modality used. **Measures:** Percentages of positive dichotomous variables on audit tool. • % Yes- understands fall prevention plan	Little difference was noted in patient engagement and tool adherence among sites and tool modalities. All units and sites reached over 80% patient engagement and adherence to tool use. **End study adherence by modality:** Modality 1- 86% BWH, 100% NYP Modality 2 – 100% MMC, 98% NYP Modality 3- 100% BWH **Patient engagement by modality:** Modality 1 BWH

		n= 5 units Audits were performed using convenience sampling. N= 1209 audits of patient engagement N= 1401 audits of presence of Fall TIPS poster at the bedside **Inclusion /exclusion criteria:** Patients admitted to one of 6 neurology units or 7 medical units at Brigham and Women's Hospital (BWH), Montefiore Medical Center (MMC) or New York-Presbyterian Hospital (NYP) that are over 18 years old with a length of stay greater than 24 hours who speak English or Spanish and is alert and oriented or who have family present at the bedside.		• % yes adherence to protocol	April- 30/39 (77%) May- 29/36 (81%) June- 35/36 (97%) NYP April-38/40 (95%) May- 34/40 (85%) June- 40/40 (100%) Modality 2 MMC April- 206/206 (100%) May- 197/197 (100%) June- 212/212 (100%) NYP April- 43/44 (98%) May- 47/47 (100%) June- 40/45 (89%) Modality 3 BWH April- 67/77 (87%) May- 66/80 (83%) June- 68/74 (92%) There is not a clinically significant difference in patient outcomes between the various modalities of the tool.
Citation: Cameron, I. D., Dyer, S. M., Panagoda, C. E., Murray, G. R., Hill, K. D., Cumming, R. G., & Kerse, N. (2018). Interventions for preventing falls in older people in care facilities and hospitals. *Cochrane Database of Systematic Reviews*(9), 1-333. https://doi.org/10.1002/14651858.CD005465.pub4					**Level** I
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results

"To assess the effects of interventions designed to reduce the incidence of falls in older people in care facilities and hospitals" (Cameron, et al., 2018, p. 19).	Systematic Review with meta-analyses of randomized control trials examining interventions to reduce falls in older adults in subacute and acute care hospitals.	**Search Strategy:** The Cochrane Bone, Joint and Muscle Trauma Group Specialized Register; Cochrane Central Register of Controlled Trials; and MEDLINE, Embase, CINAHL and trial registers up to August 2017 was searched for RCT with interventions for preventing falls in older adults in subacute and acute care hospitals. **Eligibility inclusion/exclusion criteria:** All randomized trials on falls in subacute or acute care hospitals were included that examined specified outcomes were included. Studies that did not included raw statistical data on fall rates, fall risk and falls with injury were excluded. Total of 95 trials (138,164 participants) presented in this review.	**Independent variables:** Any intervention designed to reduce falls in older adults compared with usual care in care facilities and hospitals that met inclusion criteria. Pooled groups or subdivisions were made based on level care and type of intervention. *One subgroup studied were multifactorial interventions compared to usual care in hospitalized patients.* Multifactorial interventions varied by study. The study conducted by Hill in 2015 implemented individualized fall prevention education using multimedia tools. Education focused on prevention and was designed to increase patient engagement. Patients in the control group were screened and assessed for fall risks and staff	**Dependent variables:** Primary outcomes: • Fall rates- measured as falls per person year. A rate ratio was calculated to compare the rate of falls between the control and intervention group • Risk of falling- The number of fallers in each group were calculated at a risk ratio between the groups. Secondary outcomes: • Risk of fracture or adverse events- risk ratio between the control group and intervention group was calculated based on the number of events in each group. **Measures:**	Pooled results from multifactorial interventions in hospitals showed a borderline reduction in falls. Point estimate of reduction = 20% 95% CI (0.64-1.01). Estimate of effect showed a reduced fall rate up to 36% or increased fall rate of 1%. Heterogeneity across studies (I^2 =52%) In the study by Hill 2015 that specifically looked at multimedia patient education and *increased patient engagement*, fall rates were reduced in cognitively intact patients with a rate ratio (RaR) of 0.53, 95% CI (0.36 -0.77), P <0.001 Multifactorial interventions in hospitals may reduce fall rate. RaR 0.80 95% CI (0.64 – 1.01) N= 44,664 5 studies Heterogeneity- $I_{2} =$ 52%

		24 studies in hospital setting (97,790 participants). 13 trials tested **multifactorial fall interventions compared to usual care** (4,226 participants). 11 trials - cluster randomized control trials (3470 participants). 2 trials- single randomized control trials (756 participants). • *6 trials - acute care (45,416 participants)* • 5- cluster randomized trial (44,790 participants) *One cluster randomized trial performed in eight hospitals compared the use of patient education and patient engagement around fall prevention to usual care (1930 subgroup of cognitively intact patients were included)*	implemented an individualized plan of care. **Control:** Usual care was defined differently by each study. **Intervention fidelity:** Multiple reviewers were used for abstract screening, full text article screening for inclusion, study selection, assessing risk of bias and collecting data. GRADE methodology for use to assessing the quality of evidence presented in each study.	The Chi^2 test with P< 0.10 and the I^2 statistic was used to assess for heterogeneity within pooled groups. Rate ratios (RaR) were calculated using a 95% confidence interval (CI). Results were pooled for subgroups.	The pooled evidence was unclear as to if multifactorial interventions reduce the risk of falling RR 0.82 95% CI (0.62- 1.09) N= 39,889 3 studies Heterogeneity- I^2 = 0% Very low-quality evidence Effect on risk of injury is uncertain due to very low quality of evidence.

Table 2

Quality of the Evidence

Evidence Based Practice Question (PICO): Does implementing the Fall TIPS toolkit reduce unit fall rates more than standard care over three months in adult hospitalized patients?			
Level of Evidence	# of Studies	Summary of Findings	Overall Quality
I	1	1. Cameron, et al., (2018) found that multifactorial intervention effects on fall rates and risk of falling is mixed. In hospitals, multifactorial interventions may reduce fall rates especially in subacute care but its effect on risk of falling is less clear and remains uncertain.	B/ The search of the literature was detailed and exhaustive and there were multiple reviewers who independently searched the literature limiting bias. However, the overall quality of the individual studies presented in this systematic review were mostly low to very low quality apart from the studies on vitamin D supplementation which was rated as moderate. Based on GRADE criteria the risk of bias was considered high in most of the studies in this review due to lack of blinding which is difficult to achieve in falls research. These two factors reduced the overall quality of the evidence. The statistics used was appropriate for a systematic review and meta-analysis. The extensive search of the literature and the large number of studies included in the meta-analysis adds to the reliability of its findings and therefore the generalizability of the findings. Unfortunately, most conclusions were uncertain and only vitamin D supplementation and multifactorial interventions had an effect on reducing fall rates with no effect on fall risk. (Melnyk & Fineout-Overholt, 2015; Polit & Beck, 2017)
II	1	1. Like Cameron, et al., (2018), Dykes, et al., 2010 found that the use of a multicomponent intervention called Fall TIPS reduced the number of falls in hospitalized adult patients over standard care especially among patients 65 and older.	B/ This study used a cluster randomized control design and had a sample size that gave it 80% power to detect a change in fall rate. This design and power analysis adds to the internal validity and statistical conclusion validity of the study findings. Patient characteristics that could be potentially seen as confounding was adjusted for in the statistical analysis. There were also no patient care units that dropped out of the study. Both these study attributes add to its internal validity. Study conclusions were definitive in that the toolkit significantly reduced the rate of falls over standard care.

			The main weakness of the study was the literature review. The literature on the use of the toolkit was limited since this is the first study of its type. However, the study did examine some of the literature surrounding fall prevention and how current literature supports components of the fall prevention toolkit (Melnyk & Fineout-Overholt, 2015; Polit & Beck, 2017).
III	1	1. Christiansen, et al., 2020 found that patients were more willing and engaged in the fall prevention plan after implementation of the fall TIPS toolkit than before implementation.	B/ This quasi-experimental study had a large sample size, and a patient population that was homogeneous adding to the statistical validity of the study. In addition, the study was conducted at multiple sites and patient care units which added to the external validity of the study findings. However, there was no power analysis reported which weakens the statistical conclusion of the study (Polit & Beck, 2017). Although the study stated that participants were selected at random, there was no explanation of how that was achieved weakening the internal validity and overall quality of the study. Patient engagement was measured using a validated tool that was adapted to the context of the study and then retested for reliability using Cronbach's alpha which showed the tool was reliable pre- and post-intervention. This added to the internal validity of the study. The pretest PAM-13 served as an adequate control in the study. PAM-13 scores were then used to calculate the robust t-test at each study site and robust linear regression across all study sites. These were appropriate tests to use for a pre- and post-intervention design (Kellar & Kelvin, 2013). Both the individual t-test and the linear regression from across study sites concluded that patient engagement increased post intervention which added to the reliability and generalizability of study findings. The study gives clear conclusions based on its findings and is additionally supported by a literature review that supports the use of health information technology to increase patient engagement.
VI	2	1. Similar to the findings of Christiansen, et al. (2020), Duckworth, et al., 2019, found that all modalities of the Fall TIPS toolkit were effective in increasing patient engagement in the three-step process of preventing patient falls. Across all patient units over 80% of adult hospitalized patients were engaged in the fall prevention plan. Additionally, the study found that all three modalities provide a usable solution to	B/ In this study, Duckworth, et al., 2019 used quota sampling to ensure that each Fall TIPS modality was represented in the sample. Use of multiple sites increased the generalizability and external validity of the study. Only neurology and medical surgical units were selected for homogeneity in the sample to limit confounding variables. Although the homogeneity of the sample increases the ability to accurately infer relationships- patient engagement and adherence, it also diminished the external validity

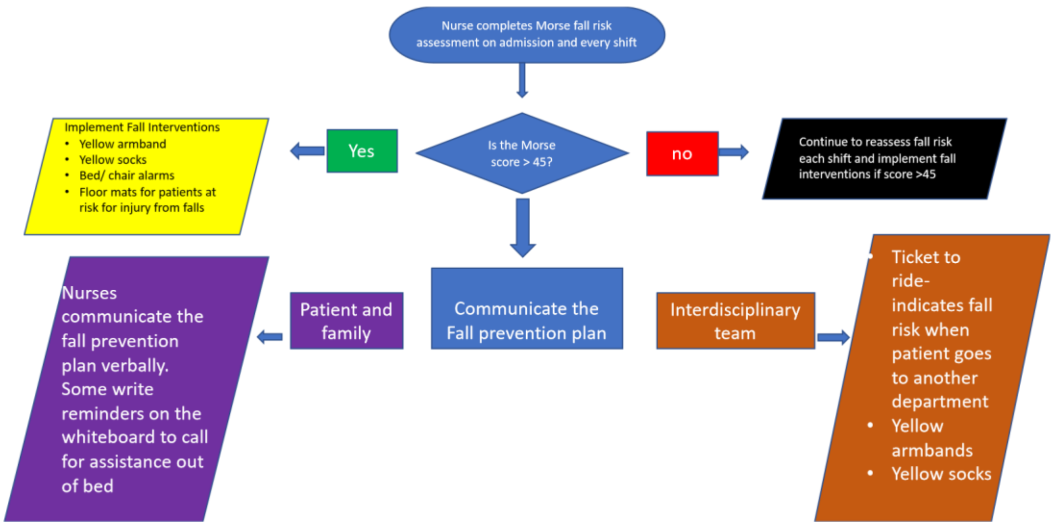
		fall prevention with all patient units achieving over 80% compliance with selected Fall TIPS modality.	or generalizability of findings. No randomization or power analysis was reported. The descriptive statistics were appropriate to describe rates of tool use and patient engagement scores (Kellar & Kelvin, 2013; Polit & Beck, 2017). However, the tools used to measure patient engagement were not validated tools which diminished internal validity and study quality. In addition, although the study has clear conclusions supported by data that all three modalities are equally usable for increasing patient engagement, there is no literature review presented to support study findings to link findings to practice which diminished the overall quality of the study (Melnyk & Fineout-Overholt, 2015).
		2. Dykes, et al., 2017 used a univariate descriptive design to describe adherence to the Fall TIPs protocol and an observational prospective cohort design to describe the relationship between the use of the Fall TIPS toolkit and patients understanding of their personal fall risk factors and fall prevention plan. The study also examined the relationship between the use of the toolkit and fall rates and falls with injury. Just as in Cameron, et al., (2018), the effect of this multicomponent intervention on fall rates was mixed. However, falls with injuries decreased in both cohorts which is consistent with Dykes earlier study. In addition, patient's perception of their personal fall risk improved but understanding of the fall prevention plan had mixed results.	C/ In this study, Dykes, et al., 2017 used consecutive sampling to collect data on the variables on several cohorts of nursing units at two hospitals. Collecting data on more than one patient population adds to the generalizability and external validity of study findings. Although the number of beds and the specialties differed among units the sample size of patient surveyed were equivalent. No randomization or power analysis was reported. Pretest posttest design in cohort groups served as a control. The study described how patient characteristics differed at each hospital but did not make statistical corrections for these confounding variables. This can potentially diminish the validity of study findings. The sample size of the audits performed to check for adherence to the protocol was not disclosed which also reduced the study quality and internal validity. The instrument used to collect information on patients understanding of fall risk factors and the fall prevention plan is an unvalidated tool also diminishing the internal validity of the study and overall quality. The study uses appropriate statistics to describe study findings. The study does not state what alpha is set out but does point out any P values >0.05 which it considers not statistically significant. This increases the validity of study findings. The study concludes that successful adoption of the Fall TIPs protocol can help hospitals with consistent implementation of evidence-based fall prevention practices designed to reduce falls. Even though the study data did not fully support this claim, the authors supported their conclusions with evidence from other studies done on the tool as well as evidence that supports the importance of a well-designed implementation plan. However, the

			lack of data surrounding protocol adherence sample size, use of non-validated tools and inconsistent results surrounding rates of falls makes it difficult for the reader to draw conclusions making this a low-quality study (Melnyk & Fineout-Overholt, 2015; Polit & Beck, 2017).

Kellar, S. P., & Kelvin, E. A. (2013). *Munro's statistical methods for healthcare research.* New York , NY : Wolters Kluwer.
Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing & healthcare.* Philadelphia: Wolters Kluwer.
Polit, D. F., & Beck, C. T. (2017). *Nursing research generating and assessing evidence for nursing practice.* Philadelphia, PA: Wolters Kluwer.

Figure 1

The Processes in Place Before Implementation



The New Process

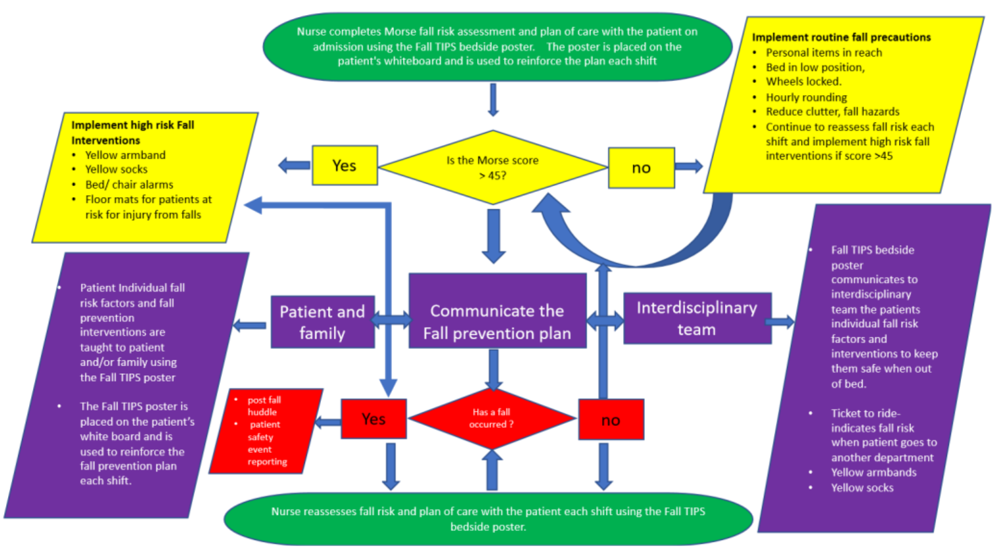


Figure 2

Pie Chart Depicting the Percentage of Nurses Who Completed Training Prior to Go-Live

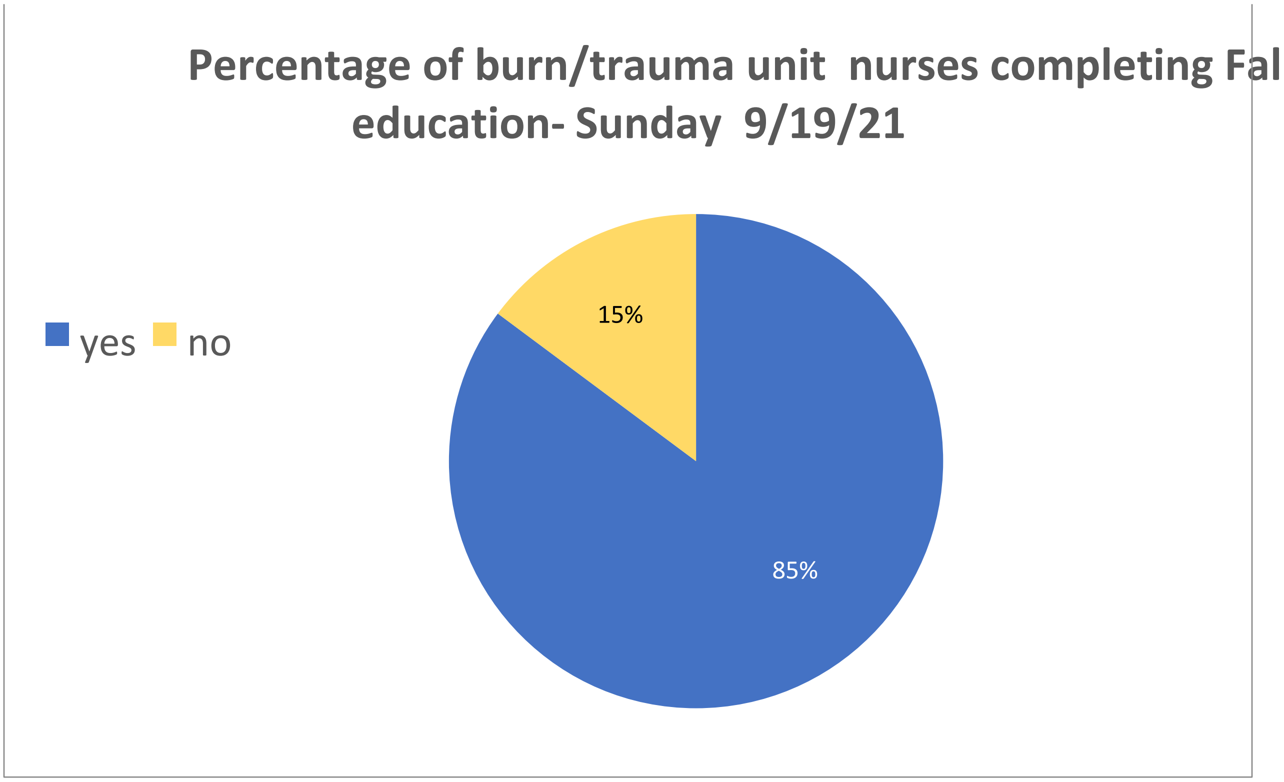


Figure 3

Run Chart Depicting Nurses Use of Fall TIIPS Over Time

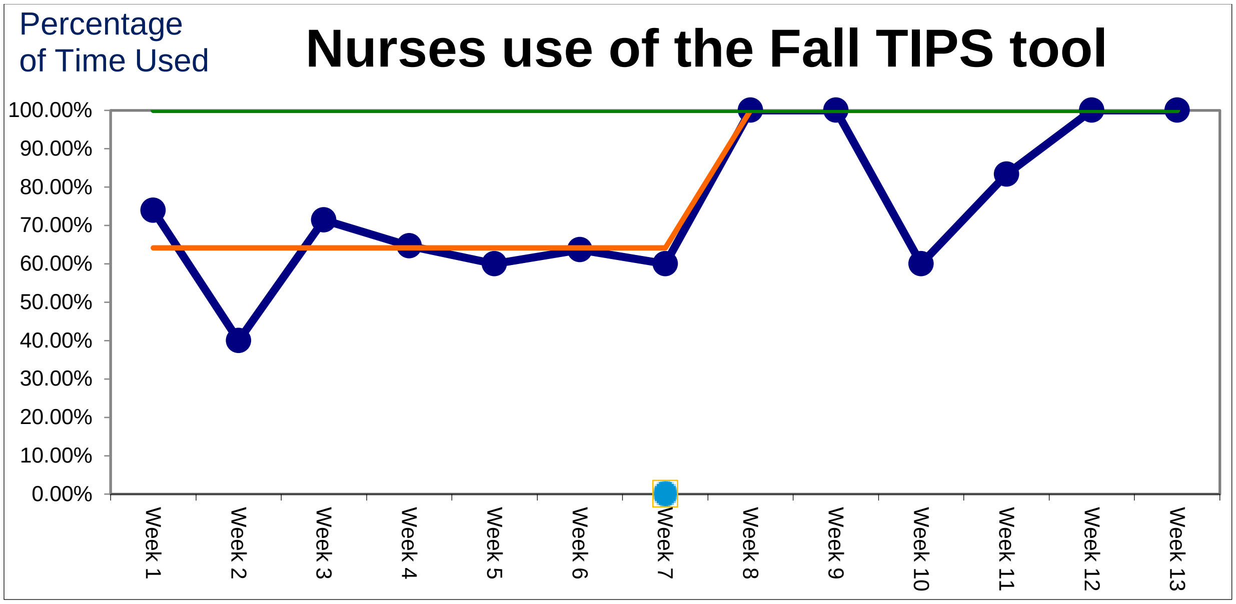
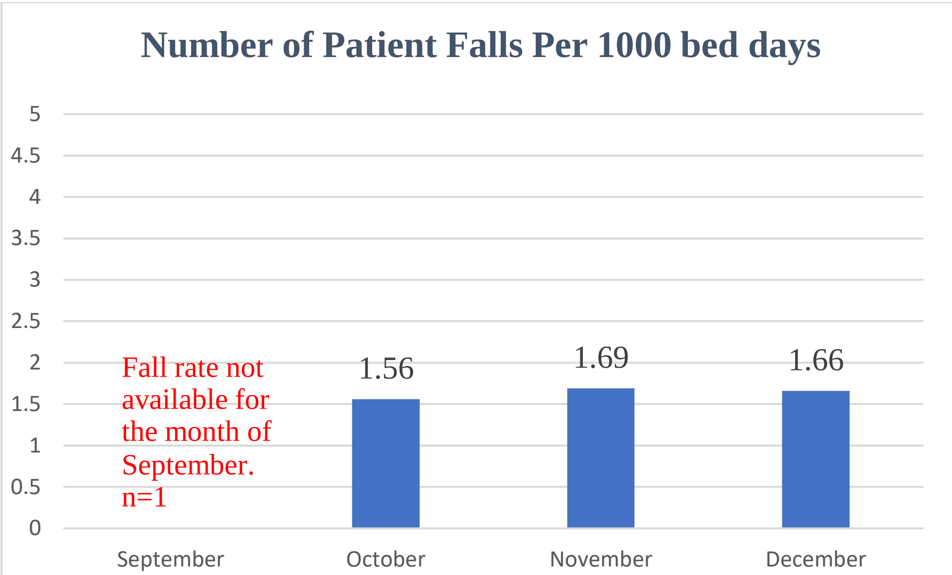


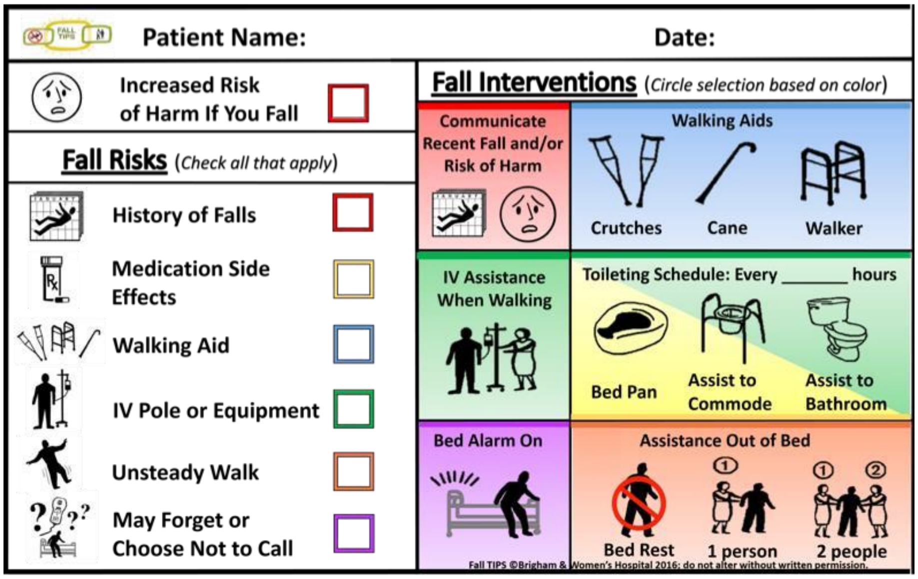
Figure 4

Bar chart depicting fall rate



Appendix A

Fall TIPS Bedside Poster Tool



Appendix B

Fall TIPS Lesson Plan for Nurses

<table>
<tr><th colspan="5">Fall TIPS Lesson Plan</th></tr>
<tr><td colspan="2">Topic: Implementing Fall TIPS into practice</td><td colspan="3">Start Date: September 1st 2021</td></tr>
<tr><td colspan="5">Instructor: Shelley Martin RN BSN</td></tr>
<tr><td colspan="5">Goal: All staff nurses will implement the use of the Fall TIPS bedside poster when performing the Morse Fall Risk Assessment and use it to communicate an evidence-based fall prevention plan to all patients.

Context: This class is the training module for the DNP project titled “Implementing Fall TIPS on an adult burn and trauma unit”. This training is intended for the thirty-five staff nurses who work on this unit.</td></tr>
<tr><td colspan="5">Total Time for Class: 26 minutes</td></tr>
<tr><th>Objectives</th><th>Content Outline and Time</th><th>Teaching Strategy</th><th>Instructional Technology</th><th>Method of Evaluation/Assessment</th></tr>
<tr><td>By the end of the learning activity, the staff nurse will:

1. describe the significance of the problem of falls;</td><td>I. Significance of the problem of patient falls.
A. AHRQ estimates that 700,000 to 1,000,000 falls occur each year.
B. 35% result in patient injury
1. Approximately 11,000 patients die due to injury.
2. Hospitals incur 14,000 dollars in expenses related to additional</td><td>1. Introductory Fall TIPS video embedded in on-line learning module</td><td>• On-line learning module</td><td>1. True/ False</td></tr>
</table>

	medical care and extended patient stays. 3. The Fall rate on 3E is twice the hospital fall rate. This drives up the overall hospital fall rate which is a national metric of nursing care quality and is publicly reported data. C. A systematic review conducted by Cameron, et al., (2012) and the findings from a large multisite randomized control trial, (Barker, et al., 2015) found that many commonly used fall prevention strategies are not effective in preventing falls. D. According to study authors, novel approaches are needed. Increasing engagement through the use of the Fall TIPS tool is one novel approach. 1. Patient 2. Family 3. Interdisciplinary - Communication related to fall risk status inconsistent and not patient centered. Stakeholders must work as a team to prevent patient falls. (3 minutes) II. Overview of the Fall TIPS toolkit A. Fall prevention is a 3-step process.			

2. state the four major components of an evidence-based fall prevention program that uses Fall TIPS;	1. Fall risk screening/assessment using a validated tool. 2. Tailored/personalized and evidence-based plan of care based on identified risk factors. 3. Implement evidence-based interventions consistently a. Universal precautions- The corner stone of fall prevention. (nonskid socks, clear path to the bathroom, clean up spills, call bell within reach etc). b. Tailored interventions to address patient specific areas of risk c. Post fall management strategy- post fall huddle 4. Patient engagement is essential (3 minutes) III. More Fall Risk Assessment & IV. Evidence based interventions A. Identifies patients at risk for falling, aids in clinical decision making and informs a personalized care plan. Based on the patients medical history and through direct observation of the patient. B. Completed on admission and updated each shift. C. Score may fluctuate between day and night shift. D. Risk factors are broken down into 6 catagories 1. History of falls in the last 3 months	**2. Introductory Fall TIPS video**		**2. True / False**

3. demonstrate use of the Fall TIPS bedside poster when performing the Morse Fall Risk assessment with the patient; 4. select evidence-based interventions to reduce patient falls using the clinical decision support tool on the Fall TIPS bedside poster;		a. Use safety precautions b. Communicate risk status via plan of care, change of shift, report and sinage c. Document circumstances of previous fall 2. Secondary diagnosis- The presence of more than 1 active medical diagnosis during the current admission increases risk for falls. May be due to the nature of the illness such as epilepsy, CVA, anemia, or vision problems in someone with diabetes or the elderly. Also could be related to multiple medications side effects such as unsteadiness, dizziness, for frequent urination. a. Consider implementing a toileting and rounding schedule b. Review medication list 3. Ambulation aids- Patients who require crutches, or a walker are at increased risk. However, the highest risk comes from those who ambulate without the proper aid and use furniture instead. The patient needs help but does not or cannot ask for it.	**3. Lecture & Case study demonstration** **4. Lecture & Case study demonstration**		**3. Case Study** **4. Case Study**

		a. Ambulatory aid at bedside- assess ability to use correctly b. Educate patient on the dangers of using furniture c. PT consult as needed 4. Intravenous access a. Implement toileting/ rounding schedule b. Advise patient to call for assistance OOB c. Review side effects or increased risk of injury associated with IV medications 5. Gait- Patients who have a *weak gait* are at increased risk. These patients may have a stooped posture and use a light touch on furniture to guide movement. Steps are short. May or may not be shuffling. Those at most risk are those with an *impaired* gait. These patients have difficulty rising from a sitting position and cannot walk without assistance. Gait is short and shuffling. a. Assist OOB b. Consider PT consult 6. Mental Status- Ask the patient if they are able to walk to the bathroom alone or do they need assistance. A patient who overestimates their ability			

	or forgets their limitations is at increased risk for falling. a. Use bed/chair alarm or virtual monitoring b. Place patient in visible location c. Encourage family presence d. Do frequent rounding e. Identify patients unwilling or unable to call for assistance in the safety huddle at change of shift. Note this also on the Fall TIPS tool. 7. ABCs of harm AGE- 85 years or older/frailty Bones- osteoporosis, risk/history of fracture Coagulation- risk of bleeding due to thrombocytopenia, or a prothombotic state. a. Communicate that the patient is at an increased risk for injury on the Fall TIPS poster and during change of shift report. b. Emphasize increased risk factors to the patient. Advise the patient on the importance of consistently adhering to the fall prevention			

5. Communicate the fall prevention plan to the patient, family and the interdisciplinary team using the Fall TIPS bedside poster.	plan in order to prevent serious injury. (15 minutes) V. Interdisciplinary communication and teamwork for consistent implementation of the fall prevention plan A. Communicate the fall prevention plan to all staff who interact with the patient. B. Patient engagement is key 1. Engaging patients and family in the 3 step fall prevention process ensures they understand their fall risk factors and helps them play a role in consistently following the fall prevention plan. 2. Consistently conduct the fall risk assessment and individualized fall prevention plan with the patient 3. Reinforce/remind the patient about the fall prevention plan each shift. (5 minutes)	**5. Lecture & Case study demonstration**		**5. Case Study**

Appendix C

Nurses Job Aid

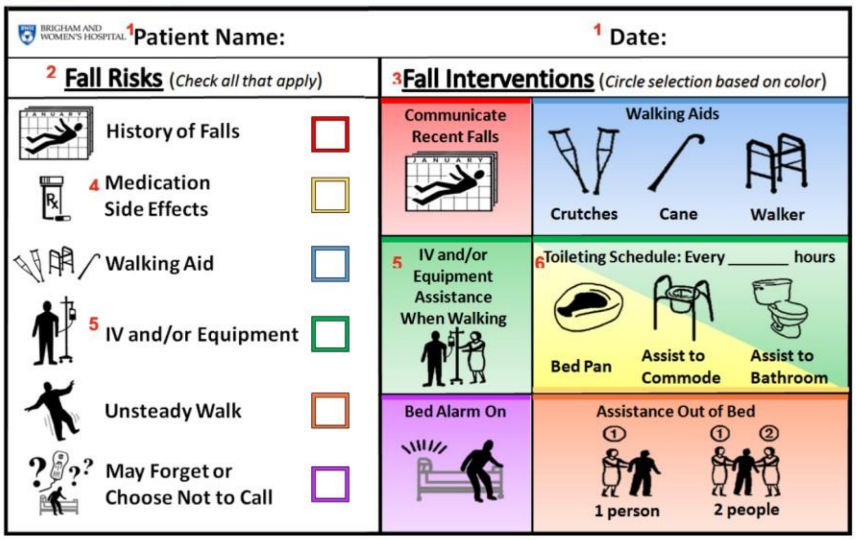
BRIGHAM AND WOMEN'S HOSPITAL

Patient-Centered Fall Prevention Toolkit
Paper Fall TIPS Instruction Sheet for Nurses

Overview

Preventing falls is a three step process*: 1) identifying risk factors; 2) developing a tailored or personalized plan to decrease risk; and 3) consistently carrying out the plan. The paper Fall TIPS tool is designed to support nurses in partnering with patients and their family members **in the 3-step fall prevention process**.

How To Use:



1. **Write the patient's first name and last updated date.** Erase all information when patient is discharged
2. **Left column lists all fall risk factors** from the Morse Falls Scale (MFS). Go through assessment with the patient and check off any risks that apply to patient. These risk factors should match your MFS documentation completed in the EHR and be updated at all times.
3. **Right column lists all evidence-based interventions** and matches them by color to the appropriate risks. Selecting the interventions that match the color associated with each risk factor will result in a plan that is most likely to prevent a fall for a patient with that particular risk profile. However, you should also use your clinical judgment to tailor the interventions to your patient. Based on individual patient differences, you may choose more interventions or you may choose not to select a recommended intervention.
4. Corresponding MFS item refers to multiple co-morbidities. Patient with multiple co-morbidities are often on many medications that can increase the risk for falls. Some of these medications may increase the need for frequent toileting.
5. If patient **has a heplock and does not have equipment attached,** check off the risk factor *"IV and/or Equipment"* without circling the corresponding intervention *"IV Assistance When Walking"*. As always, use your clinical judgment.
6. Both the "Medication Side Effects" and the "IV and/or Equipment" risk factors have the **"Toileting Schedule"** as a recommended intervention. **Toileting schedule should be ordered for every 1 or 2 hours based on your clinical judgment.**

For any questions, please contact Patricia Dykes RN PhD via pdykes@partners.org

* Dykes, P.C., et al., *Fall prevention in acute care hospitals: a randomized trial.* JAMA, 2010. 304(17): p. 1912-8.

Appendix D

Patient Handout Job Aid

FALL PREVENTION

ASK YOUR NURSE ABOUT YOUR PERSONALIZED FALL PREVENTION PLAN

On **admission**, your nurse will meet with you to assess your risk for falling while you are in the hospital. The nurse and your care team will use this assessment to create a **personalized fall prevention plan** to keep you safe in the hospital.

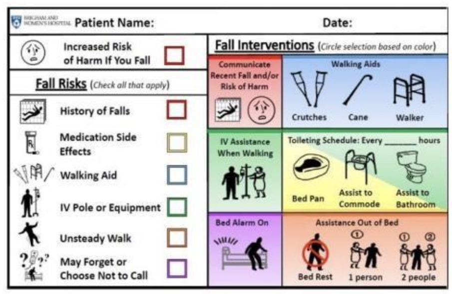
Once the nurse enters your responses into your electronic health record, he/she can circle your personal fall risks and fall interventions on the colored Fall TIPS poster. This poster will be placed at your bedside to communicate your individual risks for falling and the interventions to prevent you from falling. It will be updated throughout your stay at the hospital.

Why is fall prevention important?

Being in the hospital increases your risk of falling:

- 3% of hospitalized patients fall
- 30% of these falls results in injury

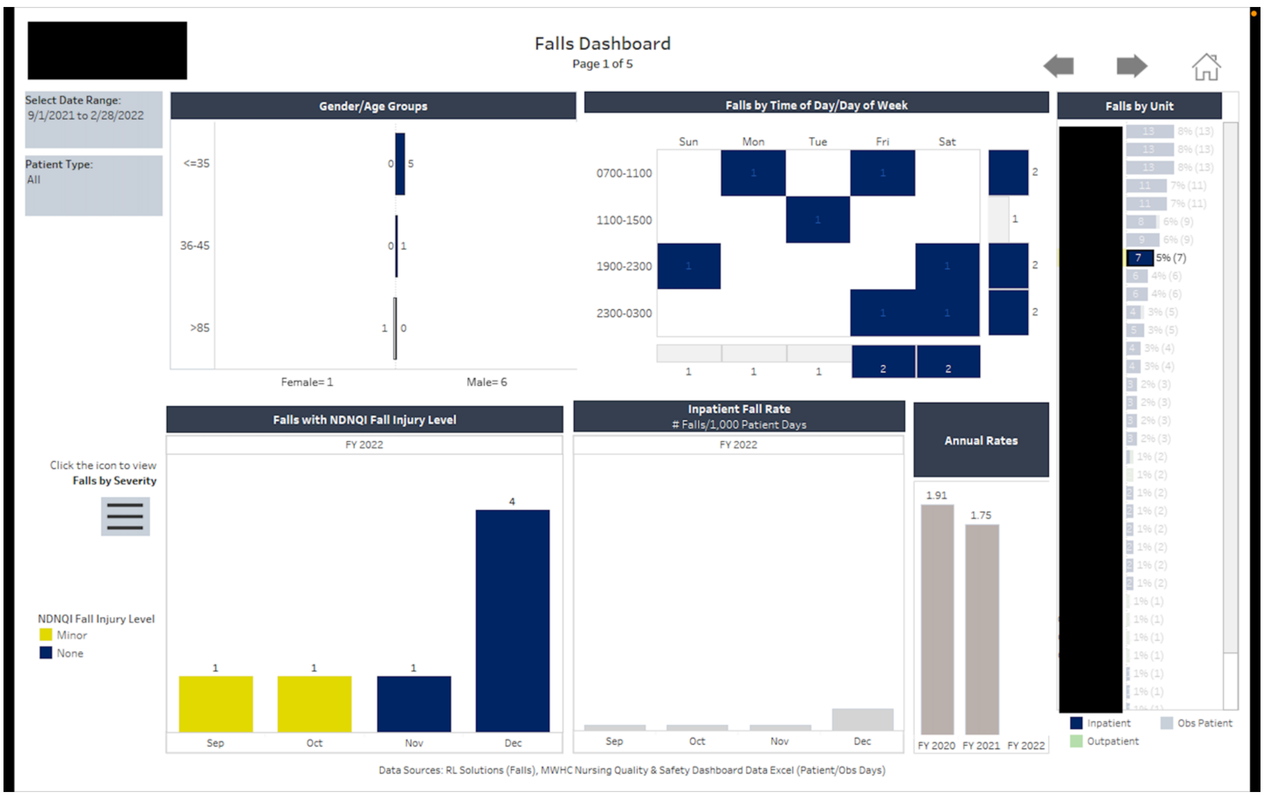
Falling at the hospital could delay the course of your treatment and prolong the length of your stay at the hospital.



<u>Ask your nurse about your fall risk factors and personalized fall prevention plan so we can work together to keep you safe.</u>

Appendix E

Outcome Measure Patient Fall Rate



Appendix F

Key Code Patient Identifiers

Key Code for Patient Identifiers

Patient Code	**Patient Medical Record #**	**Audit Date**

Appendix G

Key Code Nurse Identifiers

Key Code for Nurse Identifiers

Key Code - Nursing Staff	
Nurse Code	**Nurse Name**
01	
02	
03	
04	
05	
06	
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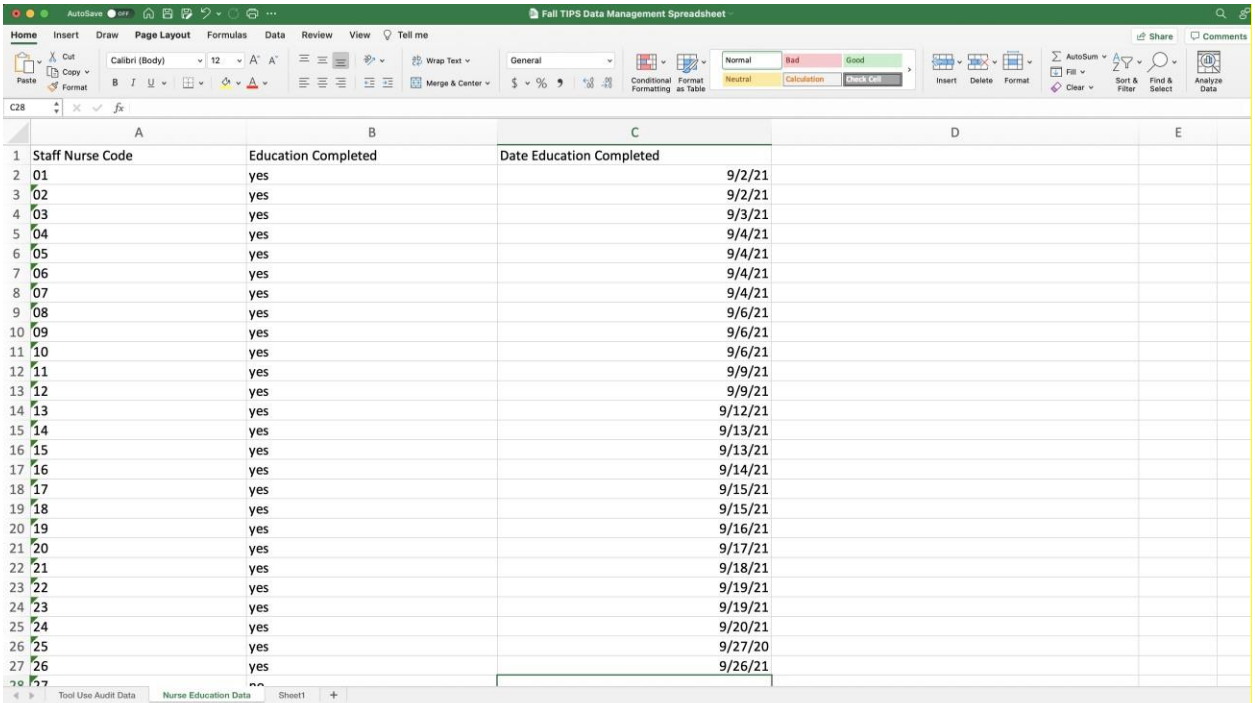
Appendix H

Nurse Education Data Analysis Spreadsheet



Staff Nurse Code	Education Completed	Date Education Completed
01	yes	9/2/21
02	yes	9/2/21
03	yes	9/3/21
04	yes	9/4/21
05	yes	9/4/21
06	yes	9/4/21
07	yes	9/4/21
08	yes	9/6/21
09	yes	9/6/21
10	yes	9/6/21
11	yes	9/9/21
12	yes	9/9/21
13	yes	9/12/21
14	yes	9/13/21
15	yes	9/13/21
16	yes	9/14/21
17	yes	9/15/21
18	yes	9/15/21
19	yes	9/16/21
20	yes	9/17/21
21	yes	9/18/21
22	yes	9/19/21
23	yes	9/19/21
24	yes	9/20/21
25	yes	9/27/20
26	yes	9/26/21
27	no	

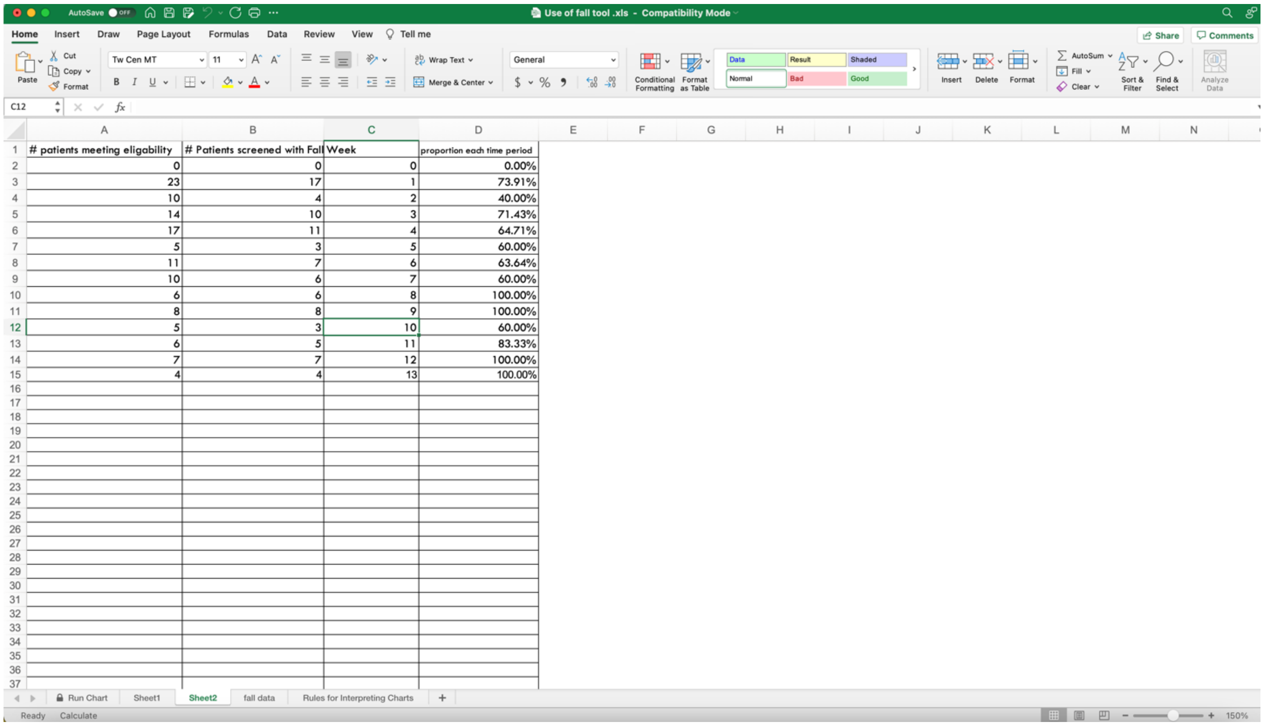
Appendix I

Fall TIPS Audit Form

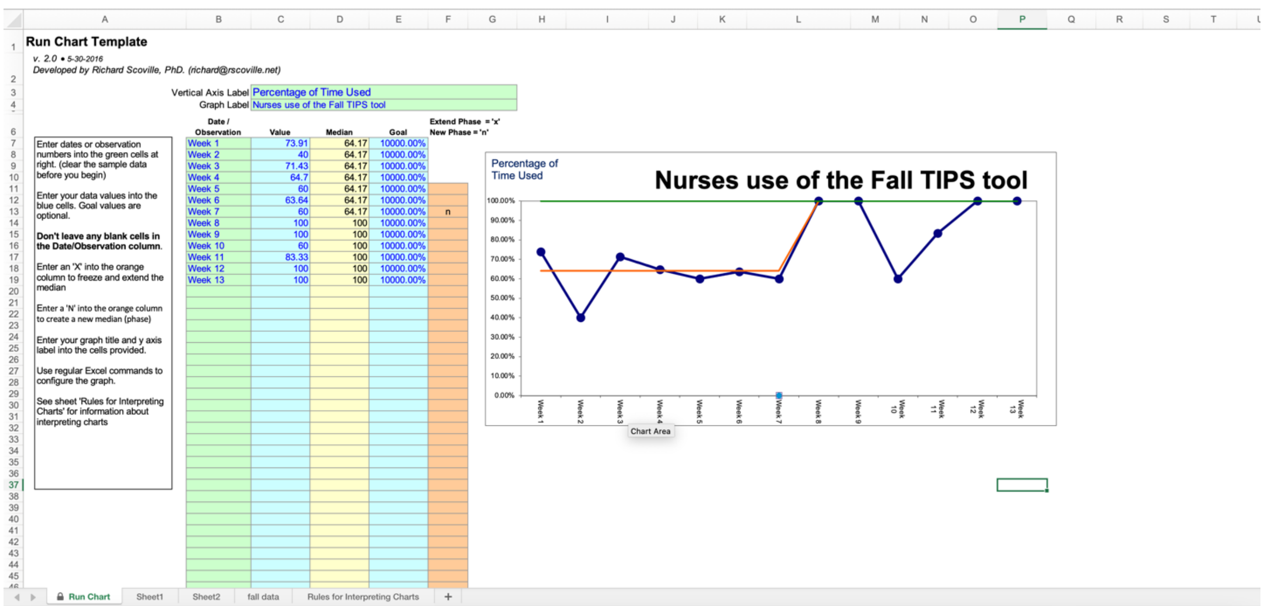
Patient Code	**Is the Fall TIPS poster hanging in the patient's room and completed?** **No = 0** **Yes = 1**	**Nurse Code at time of audit**	**Is the poster updated?** **No = 0** **Yes = 1**	**Audit Date**	**Nurse non-staff or not trained in use of tool?** **No = 0** **Yes = 1**	**Data Gap/ Discharged prior to audit?** **No = 0** **Yes = 1**

Appendix J

Data Management Spreadsheets



# patients meeting eligability	# Patients screened with Fall	Week	proportion each time period
0	0	0	0.00%
23	17	1	73.91%
10	4	2	40.00%
14	10	3	71.43%
17	11	4	64.71%
5	3	5	60.00%
11	7	6	63.64%
10	6	7	60.00%
6	6	8	100.00%
8	8	9	100.00%
5	3	10	60.00%
6	5	11	83.33%
7	7	12	100.00%
4	4	13	100.00%



Run Chart Template

v. 2.0 • 5-30-2016

Developed by Richard Scoville, PhD. (richard@rscoville.net)

Vertical Axis Label: Percentage of Time Used

Graph Label: Nurses use of the Fall TIPS tool

Enter dates or observation numbers into the green cells at right. (clear the sample data before you begin)

Enter your data values into the blue cells. Goal values are optional.

Don't leave any blank cells in the Date/Observation column.

Enter an 'X' into the orange column to freeze and extend the median

Enter a 'N' into the orange column to create a new median (phase)

Enter your graph title and y axis label into the cells provided.

Use regular Excel commands to configure the graph.

See sheet 'Rules for Interpreting Charts' for information about interpreting charts

Date / Observation	Value	Median	Goal	Extend Phase = 'x' New Phase = 'n'
Week 1	73.91	64.17	10000.00%	
Week 2	40	64.17	10000.00%	
Week 3	71.43	64.17	10000.00%	
Week 4	64.7	64.17	10000.00%	
Week 5	60	64.17	10000.00%	
Week 6	63.64	64.17	10000.00%	
Week 7	60	64.17	10000.00%	n
Week 8	100	100	10000.00%	
Week 9	100	100	10000.00%	
Week 10	60	100	10000.00%	
Week 11	83.33	100	10000.00%	
Week 12	100	100	10000.00%	
Week 13	100	100	10000.00%	