Optimized healthcare outcomes rely on good patient handoff reports among healthcare providers (Joint Commission, 2017; Joint Commission Center for Transforming Health Care, 2012a), include or involve the patients (Institute of Medicine, 2013), and result in patients who feel empowered to actively engage in their treatment (Agency for Healthcare Research and Quality [AHRQ], 2013). The Joint Commission Center for Transforming Health Care (2012b) estimated that 80% of serious medical errors involved ineffective patient handoff reports that failed to relay pertinent patient information and recommended deliberately designing key care processes consistent with the tenants of high reliability organizations (Chassin & Loeb, 2013) that standardize patient handoffs.

The processes for patient handoffs on the oncology unit at Naval Medical Center Portsmouth in Virginia lacked standardization, occurred away from the bedside (e.g., at a conference table), and often lasted past the end of the scheduled shift. The reports were filled with anecdotal accounts rather than pertinent information. In addition, the pertinent information was frequently outdated by the time the nurse made rounds and assessed the patient. This method of handing off patient care did not optimize the transfer of critical information from the off-going nurse to the oncoming nurse, did not include or involve the patient, and may not have resulted in patients who felt empowered to actively engage in their treatment.

Rationale and Purpose
The concept of patient engagement and its impact on quality health care and readmission rates is complex. Complex clinical problems have successfully been addressed by using multiple strategies guided by the Plan-Do-Study-Act (PDSA) framework (Flannery & Rotondo, 2016; Institute for Healthcare Improvement [IHI], 2016) to improve hand hygiene compliance rates (Al-Dorzi et al., 2014), implement evidence-based fall-prevention guidelines and strategies (Breimaier, Halfens, & Lohrmann, 2015), and improve glycemic and triglyceride control in diabetics (Pillay, Alsous, & Mahomed, 2016). However, no evidence-based projects that combined bedside handoffs, the teach-back method, and discharge bundles have been shown to contribute to empowering patients to actively engage in their treatment.

BACKGROUND: Bedside handoffs, the teach-back method, and discharge bundles have been shown to contribute to empowering patients to actively engage in their treatment.

OBJECTIVES: The objectives were to identify patient activation scores, patient readmission rates, and nursing staff satisfaction before and after implementing bedside handoffs, the teach-back method, and discharge bundles on an inpatient oncology unit at a large military treatment facility.

METHODS: A series of three cycles using the Plan-Do-Study-Act framework guided implementation of the multifaceted approach. Patient activation scores, readmission rates, staff satisfaction, and anecdotal feedback from patients and nursing staff were collected prior to and following implementation.

FINDINGS: The sample of patients with cancer had high patient activation scores. After implementation of the multifaceted approach, readmission rates decreased from 32% to 25%, and staff satisfaction improved.
handoffs, the teach-back method, and discharge bundles using a PDSA framework that implemented a multifaceted approach in patients with cancer were identified in the published literature.

The purpose of this project was to implement a multifaceted approach that included bedside handoff reports, the teach-back method, and discharge bundles guided by the PDSA framework and designed to improve communication and patient activation on an inpatient oncology unit. The specific aims were to describe average self-reported patient activation before and after implementing the approach, the readmission rates before and after implementation, and staff experiences of implementing the multifaceted clinical approach (e.g., staff satisfaction with the process changes, lessons learned).

**Literature Review**

**Bedside Handoffs**

Bedside handoffs have been shown to facilitate relaying of pertinent information between providers and involvement of the patient and to improve patient engagement (AHRQ, 2013; Mardis et al., 2016). Patient engagement has garnered increased attention from healthcare providers because patients have expressed increasing desire to actively engage in their health care and to understand their health status, medications, and discharge plans (Caligtan, Carroll, Hurley, Gersh-Zaremski, & Dykes, 2012). Implementing bedside handoffs has reportedly resulted in improvements in patients understanding their medical conditions and treatments (Chaboyer et al., 2009; Rush, 2012) and patients feeling engaged in their care (Anderson & Mangino, 2006; Ford, Heyman, & Chapman, 2014; Sand-Jecklin & Sherman, 2013). Anderson and Mangino (2006) reported that nearly all of the patients they studied on a general surgical unit reported feeling informed and included in their treatment decisions following implementation of bedside handoffs as compared to less than 50% of the patients feeling informed and included in treatment decisions prior to implementing bedside handoffs. Similarly, institutions that have adopted bedside handoffs, such as Emory Healthcare System in Atlanta, Georgia, and Anne Arundel Medical Center in Annapolis, Maryland, have reported that 98% of patients were satisfied with the nurses’ abilities to keep them informed and engaged while receiving care (AHRQ, 2013), that the nursing staff did a significantly better job of listening to patients, and that patients felt more respected (Robert Wood Johnson Foundation and IHI, 2007).

Of note, patients have even reported perceptions of improvements in healthcare team functioning following implementation of bedside handoffs, including perceived improvements in communication and collaboration between nurses and involvement of the nursing team in patient care decisions (Burke & McLaughlin, 2013). Nurses involved in implementing bedside handoffs have also reported perceptions of increased accountability (Jeffs et al., 2013; Sand-Jecklin & Sherman, 2013), improved handoff accuracy, improved preparedness to assume patient care (Jukkala, James, Autrey, Azuero, & Miltner, 2012), improved promotion of patient engagement and involvement (Sand-Jecklin & Sherman, 2013), improved patient safety, and reduction of errors (Jeffs et al., 2013). In addition to patients’ (Laws & Amato, 2010) and nurses’ perceived benefits, bedside handoffs have resulted in improved documentation compliance (Kerr, Lu, & McKinlay, 2013), significantly reduced nursing errors (Zou & Zhang, 2016), and reduced readmission rates (Rutherford, Moen, & Taylor, 2009).

**Teach-Back Method**

The teach-back method has been shown to improve relaying of pertinent information between nurses and patients (Ballard & Hill, 2016) and improve patient engagement (AHRQ, 2015). The teach-back method, a type of patient education session, encourages patients to verbally explain the important and pertinent concepts regarding the healthcare plan they have developed with their providers. Patients tell nurses about their healthcare plans themselves (Howie-Esquível, White, Carroll, & Brinker, 2011; Kornburger, Gibson, Sadowski, Maletta, & Klingbeil, 2013; Markley et al., 2013; Tamura-Lis, 2013; White, Garbez, Carroll, Brinker, & Howie-ESquivel, 2013). Nurses who have used the teach-back method have reported considerable improvements in their patients’ understanding of key care concepts (Halm, 2013; Kochevar, 2016; Shermont, Pignataro, Humphrey, & Bukoye, 2016). The teach-back method has also been associated with reduced readmission rates (Jack et al., 2009; Markley et al., 2013; Nielsen et al., 2008; Shermont et al., 2016). Hesselink et al. (2014) systematically explored hospital readmissions and concluded that patients and providers agree that the teach-back method is an effective and necessary component to ensure that patients understand their healthcare plan and are equipped to fully engage in their own care.
Discharge Bundles
Discharge bundles are patient education tools designed to improve patients’ understanding of their illness and treatments (Williams, 2004). Examples of educational tools in discharge bundles include medication reconciliation tools, discharge education, postdischarge continuity checklists (which were not used in this project), and advanced care planning information (California Quality Collaborative, 2012; Hines, Yu, & Randall, 2010; IH, 2017; Williams, 2004). Discharge bundles are designed to be implemented at the time of admission, referenced during the hospital stay, and reviewed at the time of discharge (AHRQ, 2017; Soong et al., 2013). Discharge bundles have been associated with an 80% improvement in patients’ ability to accurately verbalize their treatment plans (Shermont et al., 2016) and reduced readmission rates (Hopkinson et al., 2012; Ospina et al., 2017). Boston University Medical Center in Massachusetts implemented a program entitled Project RED (Re-Engineered Discharge) designed to reduce readmission rates and concluded that the contents commonly used in discharge bundles were a vital part of the program’s success (Jack et al., 2009).

Patient Engagement
Patient engagement is a rapidly emerging theme in the healthcare literature and is defined as the actions or behaviors that sustain patients to manage their health (AHRQ, 2013; Frampton et al., 2017; Gruman et al., 2010). Patient engagement is an essential component to reduce preventable injuries and death in clinical settings (Blanton, 2015) and to optimize clinical outcomes (Soloman, Egorova, Franco, & Bicknell, 2017). For patients to optimally manage their health, they must possess the knowledge, confidence, and skills to activate their desire to be engaged in their health care (Greene, Hibbard, Sacks, Overton, & Parrotta, 2015). In other words, patient activation—the confidence, knowledge, and skills to manage one’s own health care—seems to be a necessary prerequisite to patient engagement (Greene et al., 2015; Hibbard & Cunningham, 2008). Although patient engagement and patient activation have been described as separate but dependently related concepts, both are used to describe the involvement of patients in their own health care as active participants versus passive bystanders.

Methods
The multifaceted approach, including bedside handoff reports, the teach-back method, and discharge bundles, was implemented on a 12-bed adult inpatient oncology unit at Naval Medical Center Portsmouth, a major military treatment facility. The project was conducted from January 2015 to June 2016. Project data were derived from an institutional review board–approved protocol.

Plan-Do-Study-Act Framework
The PDSA framework is an abbreviated scientific model used for action-oriented learning and testing for a change in a real work setting by “planning it, trying it, observing the results, and acting on what is learned” (IHI, 2016, para. 1). A series of three cycles using the PDSA framework, based on the IHI’s (2016) model, was completed during the course of this quality improvement project. The first series focused on transforming the change-of-shift report location from a conference table to the patient’s bedside. The second series focused on creating and distributing discharge bundles to each patient at the time of his or her admission to the hospital (see Figure 1). The third series focused on developing and consistently using the standardized teach-back method as a form of patient education (see Figure 2). Each series, as guided by the PDSA model, continued until the project team agreed that the oncology staff members were using the bedside change-of-shift report, the teach-back method, and the discharge bundles consistently.

Participation Procedures
Patient survey feedback occurred before and after implementation of the multifaceted approach (i.e., bedside handoffs, teach-back method, and discharge bundles). Patients who possessed the capacity to make decisions and who were not being discharged to home hospice services were given a packet within 48 hours of discharge that contained a project information sheet, a demographic survey, and a patient activation survey. Patients who agreed to participate completed the surveys and returned them to a member of the project team.

Staff recruitment occurred before and after initial implementation of the bedside handoffs and again after an institution-wide adoption of a standardized handoff system. All staff members assigned to the oncology unit were given a survey to assess staff satisfaction with bedside handoffs and were instructed to place the completed survey in a secure location.

Measurement
Outcomes measures for this project consisted of patient activation, readmission rates, and staff satisfaction. These measures were obtained prior to and following the implementation of
the multifaceted clinical approach. The inclusion of unsolicited anecdotal feedback received from nursing staff and patients throughout the project was used only to inform the project team of any need for change or action during the PDSA cycle sessions.

**PATIENT ACTIVATION:** The Patient Activation Measure® (PAM®) was used to measure patient activation (Hibbard & Cunningham, 2008; Insignia Health, 2018; Mosen et al., 2007). The PAM is a 13-item self-report measure that asked respondents to rate their level of agreement with a list of items related to knowledge, skill, and confidence for managing their own health. Items were scored on a four-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree), with higher scores indicating greater patient activation. A proprietary spreadsheet from Insignia Health was used to produce a level of activation for each patient by calculating PAM scores. Scores were 1 (believing that physicians manage health care), 2 (possessing some confidence and knowledge to take action to participate in their health care), 3 (taking action to participate in their health care), or 4 (staying the course and participating in their health care even under stress).

**READMISSION RATES:** Readmission rates were calculated based on the total number of patients who experienced an unplanned hospital admission to the oncology unit within 30 days of discharge divided by the total number of admissions. Patients who experienced an admission for a planned procedure (e.g., chemotherapy, interventional radiology) were excluded from the calculations.

**STAFF SATISFACTION:** Staff satisfaction was measured using the Nurse Satisfaction Survey (Tidwell et al., 2011). This survey is an 11-item self-report questionnaire designed to measure the effectiveness and efficiency of the change-of-shift report system. Respondents were asked to rate their level of agreement with 10 questions related to the unit report process on a four-point Likert-type scale ranging from 1 (strongly disagree) to 4 (strongly agree) and to respond to one open-ended question. Item 11, the open-ended question, was modified from “Please describe, in three words or less, the current report system” to “Please describe anything you would like to share with the project team related to the current nursing change-of-shift report system.”

**STAFF AND PATIENT ANECDOTAL FEEDBACK:** A log of lessons learned was kept to document anecdotal feedback from the staff members and patients throughout the entire project, which informed the project investigators during the PDSA cycles of needed actions to consider or implement. Feedback regarding the project’s implementation strategies (bedside report, teach-back method, and distribution and documentation of discharge bundles) was obtained through observations made by the clinical nurse specialists during conversations with oncology unit patients, weekly huddles with the oncology unit staff personnel to discuss progress and lessons learned, and oncology unit patient comments submitted through the facility’s electronic customer feedback system.

**Results**

Forty-nine patients with cancer completed the patient activation surveys before implementation, and 71 completed the patient activation surveys after implementation of the multifaceted approach. Thirty-three nursing staff personnel completed the nursing satisfaction survey before implementation of the bedside change-of-shift report, and 32 nursing staff personnel completed it after implementation.

**Patient Activation, Staff Satisfaction, and Readmissions**

The mean patient activation scores before (73.2) and after (68.35) implementation of the multifaceted approach were not significantly different (z-score = 0.7818, p = 0.4354), and both represented level 4 activation (staying the course and participating in their health care even under stress). Staff satisfaction trended toward improvement on all 10 satisfaction items after implementing the bedside change-of-shift report system (see Table 1). A statistically significant improvement was seen in the staff’s ability to focus on listening to the information that was being passed on to them without distraction after implementing the bedside change-of-shift report. The readmission rate decreased from 32% (88 readmissions divided by 273 admissions) for the six-month period (July to December 2014) before implementing...
the multifaceted approach to 25% (49 readmissions divided by 196 admissions) for the six-month period (July to December 2015) after implementation of the multifaceted approach.

Staff and Patient Anecdotal Feedback
Patients who were newly diagnosed with solid tumors (e.g., gynecologic cancer) shared unsolicited statements reflecting their appreciation for participating in bedside handoffs, whereas patients with prolonged (greater than 96 hours) admissions (e.g., acute leukemia) shared statements suggesting a greater appreciation for sleep versus their participation in the bedside handoffs. Nursing staff also shared unsolicited feedback demonstrating that they learned to be mindful of the number of people who participated in bedside handoffs because too many staff members participating during bedside handoffs seemed to overwhelm some of the patients.

Discussion
A multifaceted, evidence-based approach guided by the PDSA framework was successfully implemented on the authors’ oncology unit. This approach included bedside handoffs, the teach-back method, and discharge bundles. The staff and patients expressed high levels of satisfaction with the multifaceted approach, and readmission rates declined when comparing the six-month period before implementation to the six-month period after implementation of the approach. The 25% postimplementation readmission rates may be the best healthcare providers can expect in this patient population (Bell et al., 2017; Granda-Cameron, Behta, Hovinga, Rundio, & Mintzer, 2015; Manzano et al., 2015; Saunders et al., 2015; Soloman et al., 2017) without employing new strategies that have been shown to reduce oncology readmissions, such as symptom management clinics run by advanced practice nurses (Terzo et al., 2017) or using standardized criteria (e.g., triggers) (Adelson et al., 2017) that lead to palliative medicine consultations (Enguidanos, Vesper, & Lorenz, 2012; O’Connor, Moyer, Behta, & Casarett, 2015).

Some of the challenges experienced in implementing this multifaceted approach included high staff turnover and prolonged staff absences because of military deployments, which necessitated staff from other units to augment the oncology unit staffing. These factors may have indirectly influenced readmission rates.

<table>
<thead>
<tr>
<th>TABLE 1. NURSE SATISFACTION COMPARISONS FOR THREE REPORTING TECHNIQUES</th>
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<tbody>
<tr>
<td>STATEMENT</td>
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<tr>
<td>I am satisfied with the current system of nursing change-of-shift report.</td>
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<tr>
<td>Information given in report is relevant to the care of my patients.</td>
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<tr>
<td>I feel comfortable asking questions during report.</td>
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<tr>
<td>I am able to focus on listening to the information regarding my patient that is being passed on to me during nursing change-of-shift report without distraction.</td>
</tr>
<tr>
<td>The nurses I follow from the previous shift complete their job responsibilities.</td>
</tr>
<tr>
<td>The current system of report is a learning opportunity for me.</td>
</tr>
<tr>
<td>The length of report is an effective use of my time.</td>
</tr>
<tr>
<td>Interpersonal relationships between shifts are good.</td>
</tr>
<tr>
<td>The patient’s condition matches what I get in report.</td>
</tr>
<tr>
<td>The current system of report fosters a partnership among nurses, patients, and their caregivers.</td>
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</tbody>
</table>

* p < 0.05 (Kruskal–Wallis test)
I-PASS—Illness severity, Patient summary, Action items, Situation awareness and contingency planning, and Synthesis by receiver
Note. Based on information from Starmer et al., 2012, 2013, 2014.
Note. Scores ranged from 1 (strongly disagree) to 4 (strongly agree) on a Likert-type scale.

IMPLICATIONS FOR PRACTICE
- Involve patients and their families in change-of-shift communication, and use this time to perform safety checks.
- Provide clear patient education material at the time of admission, refer to this material throughout the hospitalization, and encourage patients to teach back the information that they learn to nursing staff to demonstrate understanding.
- Implement coordinated efforts to reduce readmissions in the oncology setting.
The lessons learned conducting this type of a project in a military treatment facility were primarily related to project team membership. The project team leader was unexpectedly deployed during implementation, along with two other members of the team. One of the remaining team members that did not deploy was then required to function as the project team leader. In addition, this new project team leader was also required to divide her time and function in a leadership role at the same time. Fortunately, hospital leadership was supportive, and the nursing research department was able to provide some assistance to sustain the project. Sustaining projects in military treatment facilities like the current authors’, which have a highly transient workforce, would most likely benefit from including civilian nurses on the project team. The authors’ experience with team member deployments is not unique to the current project. As a result, the facility has begun assigning civilian quality management nurses to function as team members for these types of projects. Project implementation would also likely have been smoother by using a more robust project status-tracking document to facilitate communication when team members were asked to assume new project roles quickly, unexpectedly, and with little turnover.

The very high patient activation scores in the current sample prior to implementation of the multifaceted approach were encouraging. However, they represented a ceiling effect and limited the assessment of the effectiveness of the approach. The patient activation scores in this sample were consistent with what others have reported in the oncology population (Jerozefke, Weiss, & Yakusheva, 2014; Mazanec, Sattar, Delaney, & Daly, 2016). The scores either reflect the highly activating characteristics of this population or suggest that other more sensitive or population-specific measures of patient activation and/or patient engagement should be developed and tested (Volp & Mohta, 2016). The effect of the project’s small sample size and ceiling effect from PAM scores combined to limit interpretation of the results, making it difficult to conclude if implementation of the multifaceted, evidence-based approach was inconsistent with the published literature or if the oncology population is a unique group that would benefit from further investigation.

Conclusion
Implementing a multifaceted, evidence-based approach that includes bedside handoffs, the teach-back method, and discharge bundles can lead to improvements in readmission rates, staff satisfaction, and anecdotal reports of improved patient engagement. However, demonstrating that this type of a multifaceted process improvement approach conclusively leads to improved patient engagement may necessitate future research aimed at developing more robust patient engagement measures.

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REFERENCES


PATIENT HANDOFF PROCESSES


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