Improving Self-Management in a Complex Population Through Patient-Centered Education and Interdisciplinary Communication

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ABSTRACT

The residual cognitive and physical deficits of traumatic brain injury and stroke create unique challenges during rehabilitation. A microsystem assessment of an inpatient rehabilitation unit serving traumatic brain injury and stroke patients identified areas for improvement in patient satisfaction and timely discharge preparation. Both of these issues were linked to poor communication and late initiation of education of patients and care partners. A literature review revealed that formal education and discharge programs for these populations have little effect on patient and care partner outcomes. As a result, an evidence-based project was undertaken using patient-centered education practices shown to be effective in improving patient and care partner satisfaction and self-management in patients returning to the community with residual deficits. A process improvement plan using the Plan-Do-Study-Act model was designed. A process change in patient and care partner education incorporating patient-centered themes and improved interdisciplinary communication was initiated and the results analyzed.

Key Words: evidence-based practice, patient-centered care, patient satisfaction, Plan-Do-Study-Act, rehabilitation, self-management, stroke, traumatic brain injury

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CHAPTER 1. INTRODUCTION AND PROBLEM SUMMARY

Improving Self-Management in a Complex Population Through Patient-Centered Education and Interdisciplinary Communication

Inpatient rehabilitation of traumatic brain injury (TBI) and stroke patients presents complex challenges. TBI patients have cognitive deficits that impair self-awareness, memory, attention span and internal control (Bay, Blow, & Yan, 2012). Stroke patients have special needs with ischemic or hemorrhagic brain injury causing cognitive and speech deficits which are often compounded by residual physical disability (Eames, Hoffman, & Phillips, 2014). Formalized education and discharge programs developed specifically for these populations and their care partners have failed to improve either patient or care partner physical and emotional outcomes (Eames et al., 2014; Forster et al., 2013, Goncalves-Bradley, Lannin, Clemson, Cameron, & Shepperd, 2016). Current practices in a specialized brain injury rehabilitation unit (BIU) have also failed to improve patient discharge outcomes. Due to the lack of effective formalized programs for these populations, an evidence based practice project was undertaken. This paper outlines the BIU and needed improvements, current applicable research, and an improvement process based on identified needs.

Clinical Practice Problem

A microsystem assessment of the BIU revealed several themes for improvement including increased patient and care partner involvement in education, the rehabilitation process, and discharge planning. Patients and care partners are not regularly included in identification of education and self-care needs resulting in poor preparation for discharge.

Delays in discharge have occurred as a result, increasing the BIU length of stay (see TABLE A1) and percentage of long-stay outliers (see FIGURE A1) above national averages. The lack of patient and family involvement has also been evident by consistently low scores on the following discharge survey categories: attention to individual needs, patient involvement in setting goals, family included in care, and assistance planning for discharge (see TABLE A2).

Patient Population

The population served by the BIU is as diverse as the recognized types of brain injuries. Pre-admission report of severe physical and cognitive impairment, communication difficulties, severe dysphagia, and behavior issues result in BIU placement. Primary diagnoses are traumatic brain injury (TBI), non-traumatic brain injury (NTBI), or stroke. The BIU serves a slightly younger, more seriously injured population than national average due to its emphasis on TBI patients. Specific patient demographics are found in TABLE A1.

Practice Environment

The BIU is a locked, low stimulation 12 bed specialty unit designed to provide comprehensive rehabilitation services to adult patients with severe brain injuries. The registered nurses (RNs) and rehabilitation assistants (RAs) maintain physical care of the BIU and patients 24 hours a day. Therapists providing physical therapy (PT), occupational therapy (OT), and speech language pathology (SLP) provide both bedside and group therapies on and off the BIU. Medical staff (MS) of either a physiatrist, resident or physician extender assesses each patient daily. The BIU is located within a larger free-standing inpatient rehabilitation facility (IRF) that has several specialty focuses as well as attached outpatient clinics for rehabilitation medicine, therapy, and wound healing. Please see TABLE A3 for staff positions and staffing levels on the BIU.

Strengths

1) Core interdisciplinary team (IDT) made up of RNs, therapists (PT, OT, SLP), two brain injury physiatrists and one stroke physiatrist.
2) Certified brain injury specialist (CBIS) certification for some staff.
3) Highest percentage of certified rehabilitation RNs (CRRNs) in the IRF.
4) Daily flash huddles of core IDT.
5) Weekly behavioral rounds of core IDT and neuropsychologists.
6) A monthly BIU program meeting to set goals and refine practices.
7) Monthly peer-led presentations for IRF/BIU staff on BIU specific topics.
8) Weekly presentations for patients and care partners on the clinical basics of brain injury and stroke.

Weaknesses

1) High staff turnover rates, especially RAs.
2) Constant understaffing in both the nursing and therapy departments.
3) Inconsistent and brief orientation and education of new staff.
4) Antiquated equipment and software and a slow server.
5) No structured time for personalized patient and care partner education.
6) Lack of patient and care partner involvement in IDT meetings.

Interdisciplinary Communication

The IRF uses an electronic health record, electronic medication administration record and computerized physician order entry system. The current system does not cross-populate information across disciplines but does allow viewing of each discipline's documentation. Awareness of the system's shortcomings is mitigated by frequent face-to-face and telephone communication among core IDT.

The IRF uses an interdisciplinary team model of care with dedicated interdisciplinary BIU staffing. There is significant lateral communication between the therapists and RNs with inclusion of MS if medical oversight is needed. MS are available through a paging system during the work day as their offices are located in another wing of the IRF. Telephone calls are received at the BIU nursing desk located at one end of the unit with RNs and RAs acting as unit secretaries. This is the only route of telephonic communication for the unit as RNs and RAs are not allowed personal mobile phones and there are no facility mobile phones in the IRF. Patient rooms have no phones and patient cell phones are discouraged to maintain the low stimulation environment.

There is an intranet and email system for the IRF. Since the facility is an affiliation between two health systems, the MS are on a different email system than the RNs and therapists. It is not possible to send secure encrypted email between the two systems.

Collaboration

A good IDT is defined by ten themes (Nancarrow et al., 2013). The BIU IDT exhibits many of these themes including effective oral communication skills, a climate of trust that nurtures consensus, individual members with relevant knowledge and experience, an appropriate skill mix, respect and understanding of each member's role, and a focus on patients' basic needs. Strengths of the BIU's communication and collaboration are outlined above.

Themes for IDT improvement include a clear direction and vision for the unit and program, patient-centered practice, encouraging feedback, and recording and analyzing the effectiveness of care (Nancarrow et al., 2013). Currently, patient and care partner involvement in IDT meetings is needs driven and not part of standard practice. Family and care partner meetings occur when difficulties in discharge or poor improvements are seen after initiation of therapies. Care partner involvement is used to overcome issues not to increase the effectiveness of rehabilitation.

CHAPTER 2. LITERATURE REVIEW

Hospital to Home

Rehabilitation hospitals bridge the gap between acute hospitalization and a patient's home and community. During inpatient rehabilitation patients with chronic medical issues learn to adapt to their physical and cognitive deficits by developing accommodations to successfully reengage outside of a structured facility. Lack of engagement, lack of relevant information and ineffective communication are a few of the barriers that have been found to cause unsatisfactory transitions to home from the rehabilitation setting (Piccenna, Lanning, Gruen, Pattuwage, & Bragge, 2016). These barriers can be broken down when patient-centered care tenets are adopted.

In an attempt to elucidate the patient-centered care concept for the setting under review, a literature search using multiple databases was completed. Key words used were patient engagement, patient-centered and patient-centred, patient education, discharge, and rehabilitation. Multiple permutations of the key words were entered into CINAHL Complete, Cochrane Database of Systematic Reviews, ERIC, MEDLINE with Full Text, and PsycARTICLES. Results were limited by year from 2011 to present to assure research was recent and sources were limited to academic journals. Over 500 articles were screened by title and abstract for applicability to the current paper. Twenty-five articles were then read in entirety for consideration in the literature matrix. The chosen 15 articles are presented in the literature matrix in Appendix B.

Patient-Centered Care

The principles of patient-centered care have been evolving in healthcare for many years. According to Lawrence and Kinn (2012), patient-centered care:

> • Identifies individuals communication skills and utilizes appropriate and effective communication strategies in all interactions between the health-care professional and the individual.
>
> • Identifies outcomes that are valued and prioritized by individuals.
>
> • Identifies outcomes that reflect the desired quality of participation.
>
> • Monitors and measures outcomes at appropriate times and points in the rehabilitation process.
>
> • Uses the resultant information to inform the patient ⁄ health-care professional’s decision-making process. (p. 322).

Incorporating these tenets into the education and discharge process improves patient knowledge and satisfaction (Eames, Hoffman, Worrall, & Read, 2011; Forster et al., 2012; Goncalves-Bradley et al., 2016; Meng et al., 2014; Nagl, Ullrich, & Farin, 2013; Piccenna et al., 2016; Strong & Bettin, 2014). In populations with chronic conditions or residual disabilities care partners should also be included in patient-centered activities to maximize the benefits of care (Boger, Demain, & Latter, 2015; Forster et al., 2012; Munce et al., 2014; Piccenna et al., 2016). The importance of patient centered care cannot be underscored but translating the ideals into practice can be difficult for healthcare providers.

Self-management

Preparation for discharge from the rehabilitation setting includes many pieces. Planning for discharge should begin at admission to provide time to identify needs and complete education to foster skills required for care at home (Forster et al., 2012; Haspeslagh et al., 2013; Horwitz et al., 2013; Piccenna et al., 2016; Strong & Bettin, 2014). These skills are encompassed in the theme of self-management. Self-management is defined as the

> ability to manage the symptoms, treatment, physical, and psychosocial consequences and lifestyle changes inherent in living with a chronic condition. Efficacious self-management encompasses the ability to monitor one's condition and to affect the cognitive, behavioral, and emotional responses necessary to maintain a satisfactory quality of life. (Munce et al., 2016, p. 2)

Self-management skills become integral once a patient leaves an IRF yet understanding of this concept in patients with chronic conditions is just starting to be explored. Recent studies have shown care partner involvement in education and training is imperative to support self-management of disabled patients once they return to the community (Boger et al., 2015; Munce et al., 2014). Health professionals can help develop self-management by explaining what to do and why it needs to be done. This patient-centered approach has been shown to improve engagement and understanding of self-management tasks (Boger et al., 2015; Horton, Howell, Humby, & Ross, 2011; Munce et al., 2014). Rehabilitation interventions co-developed with patients and healthcare staff also increase self-management skills, increasing positive physical and mental health outcomes once the patient moves to a community setting (Munce et al., 2016). Further research on building self-management skills in the inpatient rehabilitation setting and the education and support of care partners is needed (Haspeslagh et al., 2013; Munce et al., 2014).

Patient Education

Education strategies to improve patient outcomes, like the topic of self-management, is beginning to consider the needs of patients with residual cognitive and physical disabilities. Research on formalized education and discharge planning has shown it has no effect on patient outcomes but does have limited effect on patient and family attitudes and can decrease length of stay for older patients with multiple medical needs (Eames et al., 2014; Forster et al., 2012; Forster et al., 2013; Goncalves-Bradley et al., 2016). Forster and colleagues (2013) posit the reason formalized education programs produce no improvements in recovery is that during the initial recovery period the patient and care partners are coming to terms with the new situation.

Research on patient and family members’ feedback to both formalized and personalized education programs for a variety of chronic conditions has helped clarify what patient-centered communication and education should include during hospitalization. Repetition of relevant information is necessary for comprehension and retention (Forster et al., 2012; Haspeslagh et al., 2013; Horwitz et al., 2013; Meng et al., 2014; Piccenna et al., 2016; Strong & Bettin, 2014). Use of repetition also creates more opportunities for patients and care partners to ask questions and identify personal needs (Piccenna et al., 2016). Practical tips relevant to the patient’s specific situation as well as simple language improves comprehension (Haspeslagh et al., 2013; Horwitz et al., 2013; Lawrence & Kinn, 2012). Topics covered should consider the patient’s and interests and needs post-discharge (Haspeslagh et al., 2013; Nagl et al., 2013; Piccenna et al., 2016).

Rehabilitation staff provide a significant amount of education throughout daily activities yet it is often not recognized as such by patients and care partners. Strong and Bettin (2014) recommend identifying the educational aspects of activities to bridge this disconnect. Using a combination of face-to-face discussion, talking through written information, didactic instruction, and telephone support maximizes the personalization and communication of information for patients and their care partners (Eames et al., 2011).

CHAPTER 3. PROJECT PLAN

Project Aim, Objectives, and Desired Outcomes

Using the template designed by Nelson, Batalden and Godfrey (2007), the following global aim statement was developed. We aim to improve patient and care partner self-management skills in the BIU. The process begins with identifying patient and care partner education needs on a daily basis and communicating these needs to the IDT. The process ends with the appropriate discipline providing education to the patient and care partner to increase their knowledge and skills.

By working on this process, we expect improvement in several outcomes. First, an increase in self-management skills by the patient and care partner providing for a smoother transition to the home setting with fewer long stay outliers. Second, improved communication between family and the IDT to address issues as they arise decreasing overall length of stays. Finally, the incorporation of the patient and care partner in the interdisciplinary process improving discharge survey scores in the categories: attention to individual needs, patient involvement in setting goals, family included in care, and assistance planning for discharge. It is important to work on this now because changes in the Centers for Medicare & Medicaid Services (CMS) repayment schemes are linking quality and efficiency of health care delivery to reimbursement rates (CMS, 2015). Quality goals being considered in repayment schemes include effectiveness, efficiency, patient-centeredness, safety, and timely care (CMS, 2016).

The fishbone diagram in Figure 1.1 outlines many of the causes of poor preparation for discharge from the BIU. Review of the issues under the heading “Process” and data from the microsystem assessment has identified a communication gap between the professional IDT and the patient/care partner dyad. Also, there is formalized diagnoses education provided weekly but it does not meet patient-centered care themes. Correction of these issues has been targeted in this evidence-based project.

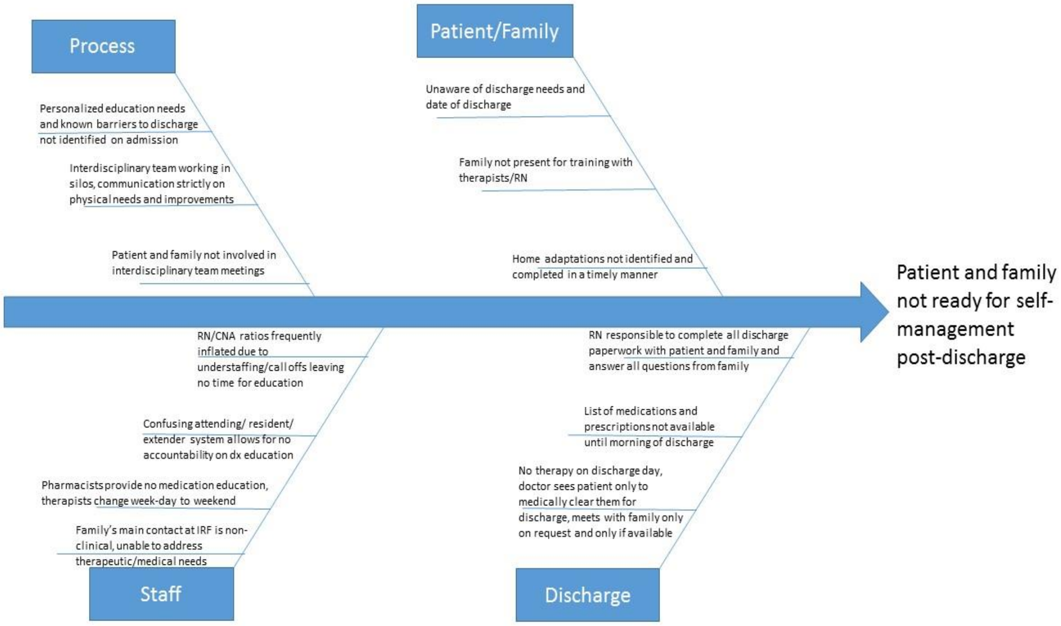
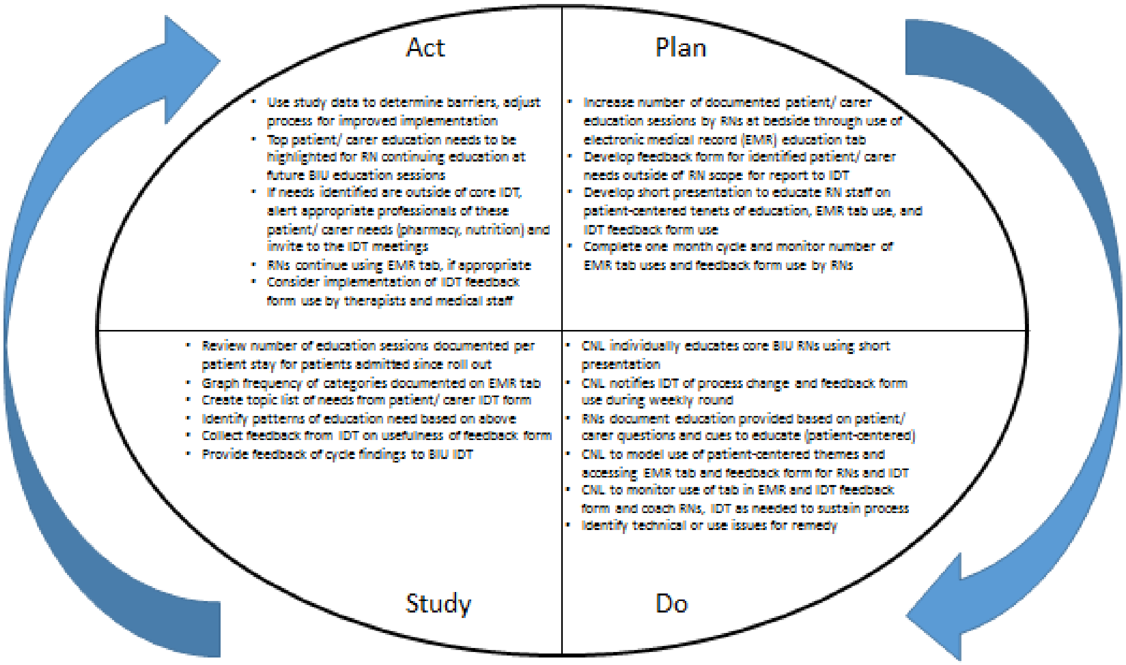


Figure 0-1. **Fishbone Diagram**

Plan, Do, Study, ACT (PDSA Cycle)

The model for improvement takes an overarching aim and breaks it down into measurable steps with a structured change plan so that the impact of change can be measured and determined to be beneficial or detrimental to the overall aim (Nelson et al., 2007). The Plan-Do-Study-Act (PDSA) cycle is designed to test these changes in a rapid and structured way so their impact on the overall aim can be studied, measured and improved with each cycle. The following PDSA cycle is part of the global aim of improving patient and care partner self-management skills in preparation for discharge from a rehabilitation hospital. Figure 1.2 illustrates the PDSA cycle steps for the project.



Act

- Use study data to determine barriers, adjust process for improved implementation
- Top patient/ carer education needs to be highlighted for RN continuing education at future BIU education sessions
- If needs identified are outside of core IDT, alert appropriate professionals of these patient/ carer needs (pharmacy, nutrition) and invite to the IDT meetings
- RNs continue using EMR tab, if appropriate
- Consider implementation of IDT feedback form use by therapists and medical staff

Plan

- Increase number of documented patient/ carer education sessions by RNs at bedside through use of electronic medical record (EMR) education tab
- Develop feedback form for identified patient/ carer needs outside of RN scope for report to IDT
- Develop short presentation to educate RN staff on patient-centered tenets of education, EMR tab use, and IDT feedback form use
- Complete one month cycle and monitor number of EMR tab uses and feedback form use by RNs

Study

- Review number of education sessions documented per patient stay for patients admitted since roll out
- Graph frequency of categories documented on EMR tab
- Create topic list of needs from patient/ carer IDT form
- Identify patterns of education need based on above
- Collect feedback from IDT on usefulness of feedback form
- Provide feedback of cycle findings to BIU IDT

Do

- CNL individually educates core BIU RNs using short presentation
- CNL notifies IDT of process change and feedback form use during weekly round
- RNs document education provided based on patient/ carer questions and cues to educate (patient-centered)
- CNL to model use of patient-centered themes and accessing EMR tab and feedback form for RNs and IDT
- CNL to monitor use of tab in EMR and IDT feedback form and coach RNs, IDT as needed to sustain process
- Identify technical or use issues for remedy

Figure 0-2. Project planning model based on PDSA Cycle

Plan

Patient-centered education research recommends the inclusion of care partners, repetition, opportunities to ask questions, identification of patient and care partner interests and needs, clinical as well as practical tips relevant to the situation, and explaining why as well as how when completing education. The plan is to incorporate these themes into the BIU. This will be done by changing the process RNs use to identify and document the education of patients and care partners. Changing patient and care partner education to a daily expectation with formalized and categorized documentation will create repetition, increased opportunity for questions, and identification of patient and care partner needs. Education topics and needs outside of the RN’s scope will be communicated to the IDT on a form that will be reviewed by the IDT during the daily flash huddle the next morning. The objective of increasing documented patient education sessions will be measured using a run chart. Figure 1-3 is a projection.

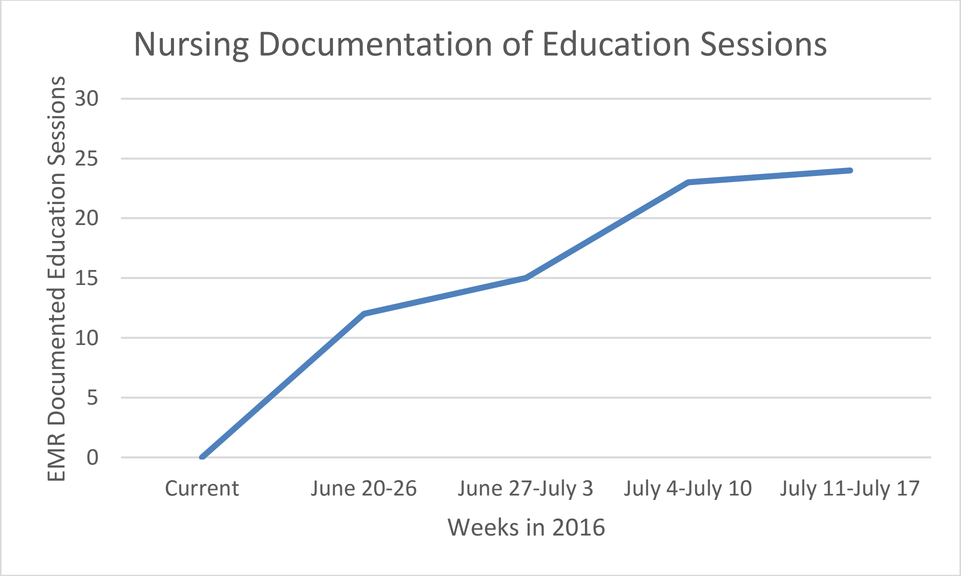


Figure 1-3. Run Chart of Nursing Documentation of Education Sessions

Do

The BIU has a dedicated RN staff of eight nurses who will be provided education on patient-centered care themes, the EMR education tab, and IDT feedback form. It is anticipated it will take one week to meet with each RN. The use of the EMR tab and feedback form will go live once all RNs have been educated. This will be communicated to the IDT by email and reinforced during face-to-face communication. The IDT will be informed of the process change and use of the feedback form during a weekly IDT behavioral round prior to implementation. The aim, objectives and outcomes will be delineated during the behavioral round, in the notification email to the IDT, and reinforced during face-to-face communications throughout this process cycle. Figure 1-4 is an action plan of this step of the PDSA cycle.

Task	Who	When
Develop feedback form for use between patient/care partner and the IDT.	Clinical Nurse Leader (CNL)	June 2016
Develop short educational program on patient-centered education skills for RNs	CNL	June 2016
Coach nurses on completion of patient-centered daily education, documentation, and what information to place on feedback form to IDT	CNL	June-July 2016
RNs complete daily education contacts and use form prn	RNs	June-July 2016
New form used in the daily flash huddle	IDT	June-July 2016
Get feedback on usefulness of IDT feedback form from team members. Consider use for treatment planning	CNL/IDT	July 2016

Figure 1-4. Action Plan

Currently the RNs complete free-text notes after patient and care partner education sessions. Many of the RNs already complete daily education sessions, this process change will formalize the current informal process. Use of the EMR education tab is expected to decrease time spent documenting, quantify the number of education sessions, and breakdown the topics covered into pre-set categories for easy review by other RNs and the IDT.

Inclusion of the IDT feedback form will help close the communication gap between the IDT, patients and care partners. Currently no formal communication path from patients and care partners to the IDT is in place. As RNs are staffed 24 hours a day, it has fallen on them to relay information obtained in the evenings or on weekends. Information is often informally passed through shift reports or sticky notes. Creation of the feedback form and use at an existing IDT meeting will formalize the communication process without creating additional work or time constraints for the IDT.

Study

Data and feedback from the Do cycle will be studied. A run chart will be generated to determine EMR education tab use. The pre-set topics in the EMR education tab will be counted and the frequency of topic coverage will be graphed. The IDT feedback forms will be reviewed for both amount of usage and the categories of needs reported. IDT member feedback will be elicited on the use of the IDT feedback form, its purpose and ease of use. Information generated will be presented to the BIU IDT.

Determination of successful process implementation will be accomplished by referencing the generated data. The run chart indicates if education sessions were completed and documented. Use of the feedback form indicates increased patient and care partner to IDT communication. It is expected that as the RNs and IDT become more familiar with the process, increased use of the feedback form will be seen. Success will also be seen if use is sustained through the cycle period.

Act

The analysis of data will be used to improve BIU practices. If analysis indicates poor use of the EMR tab or feedback form, the implementation process can be examined and further PDSA cycles developed. If analysis indicates frequent use of the EMR tab and feedback form, further process changes focusing on improved patient and care partner self-management can be undertaken. Changes could include highlighting topics frequently covered by RNs for staff education during the existing peer-lead staff education sessions. Analysis may show a need to broaden membership of the core BIU IDT to other disciplines such as pharmacy and nutrition. Finally, if analysis indicates success and generates improvement in patient-centered education and communication within the BIU, the process may be systematically rolled out throughout the IRF.

CHAPTER 4. FINDINGS AND EVALUATION

Findings

Data generated during the four week Do cycle were collected and analyzed. Objectives being measured included the frequency of use and topics covered in the EMR education tab and the IDT feedback form as well as the inclusion of patient-centered tenets and care partners. Data generated from these sources were then analyzed to determine the success of the current PDSA cycle, areas in need of continued improvement, and patterns of need for education of staff as well as patients and care partners.

During the run cycle 77 individualized education sessions were provided by BIU RNs to 15 patients. Care partners were included in education sessions for 11 of the patients. Care partners included spouses, parents, adult children, siblings and close friends. Four of the patients did not have care partners to be included in the education process.

Daily sessions for each patient did not occur but use of the EMR education tab remained consistent through the cycle. A run chart of documented patient education sessions is found in Figure 1.5. The number of patients located in the BIU during the cycle was included for perspective.

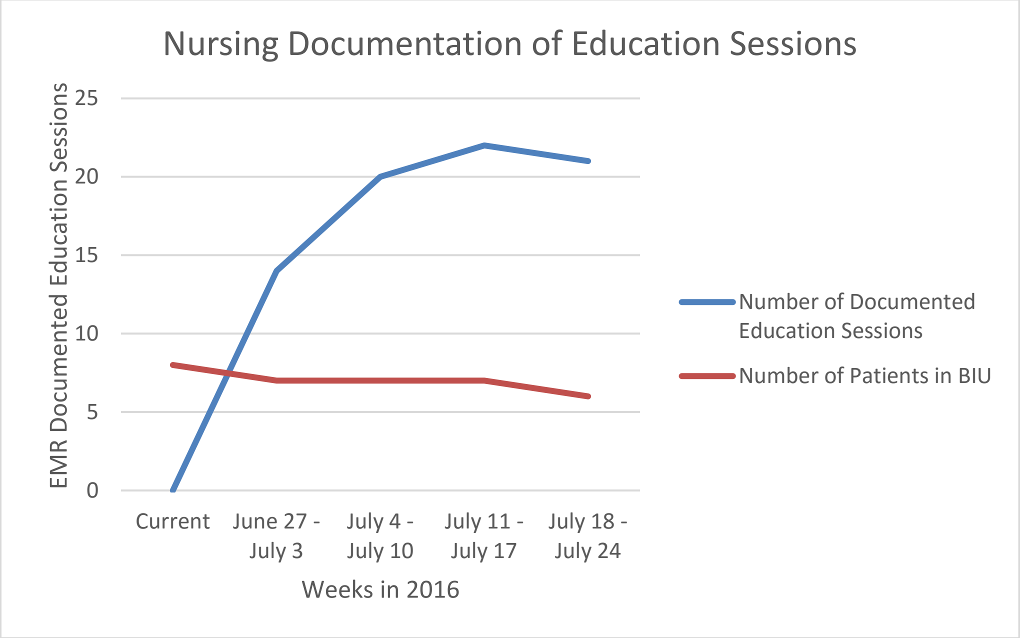


Figure 1.5 Run Chart of Nursing Documentation of Education Sessions

The topics covered during the 77 discrete education sessions were counted and graphed to determine the most frequent education needs. The EMR education tab covers nine distinct topics and includes an area for free text. Please see Appendix C for the education tab topics. Another 14 topics were covered and documented in the free text section indicating inclusion of patients and care partners specific needs. Analysis shows that repetition was used, especially for the topics of medications (75 documentations), safety (63 documentations), and bowel and bladder management (47 documentations). Figure 1.6 visualizes the frequency of topics covered during education sessions using a word cloud.

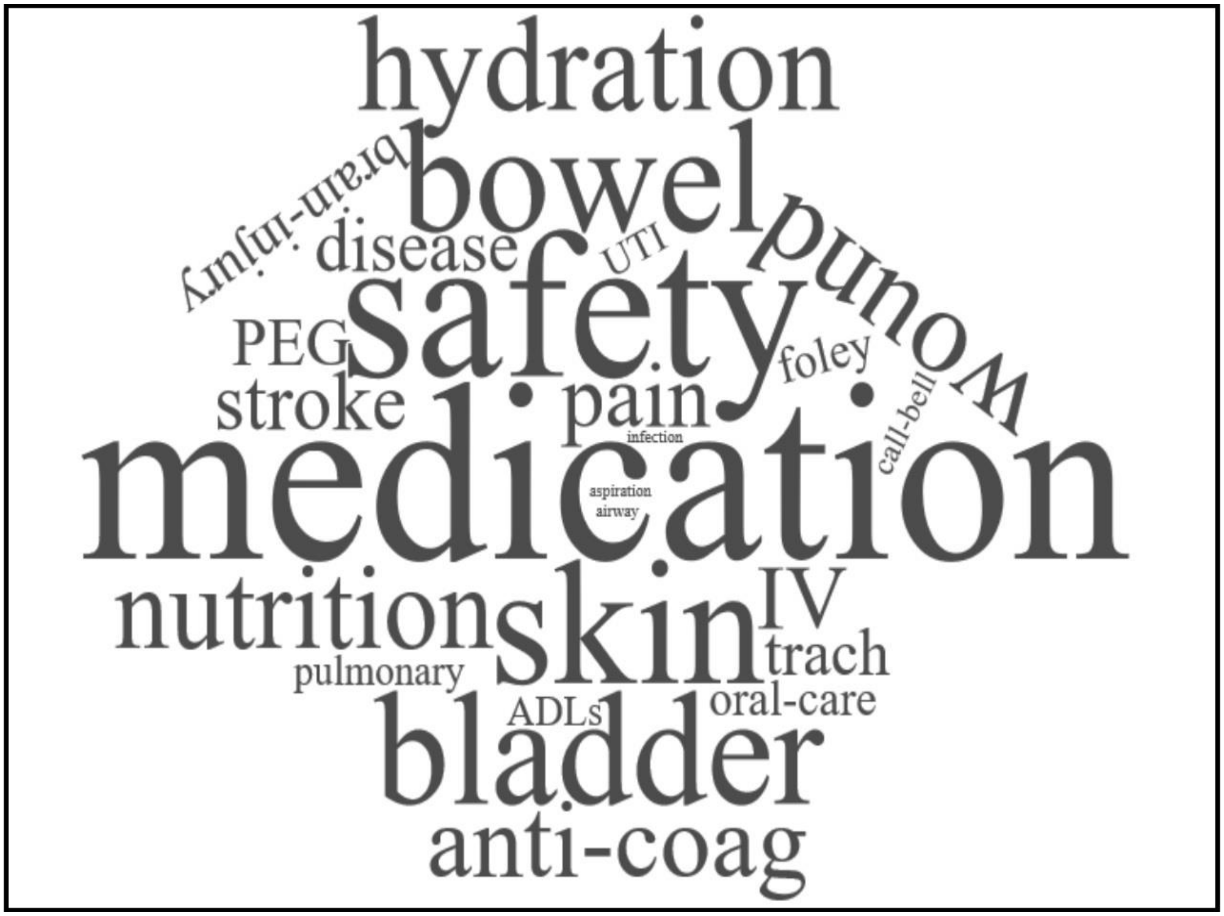


Figure 1.6 Word Cloud of Educational Topics

The IDT feedback form usage was reviewed throughout the Do cycle with email and verbal prompting to incorporate the form into daily practice. Two entries were made during the cycle. The entries were barriers to discharge identified by the RNs during education sessions. The form was not used by the RNs as anticipated but when used the IDT feedback form was effective in communicating needs to the IDT. Review of the feedback occurred at the next scheduled flash huddle as designed and the appropriate IDT members completed follow-up as needed.

Feedback from the IDT on the process and form was also obtained per the study objectives. The RNs provided positive comments about the EMR education tab use and incorporation of the simple patient-centered care tenets outlined in the educational power-point created for this project. The applicable slides are found in Appendix D. RNs reported the time needed for documentation of education sessions was shorter and education sessions more stream-lined and personalized using the simple prompts provided.

It is anticipated the long term aim to improve patient and care partner self-management skills in the BIU will be aided by early and frequent patient and care partner education. Feedback from discharging patients and families has been positive with care partners expressing their confidence to care for their loved one after receiving education and hands on training. Anecdotal evidence shows the process positively impacted patient and care partner self-management skills and preparation for discharge to the community. Two patients discharged at the end of the Do cycle were able to be safely discharged home with significant physical deficits instead of to sub-acute care as initially projected by the IDT.

Due to the short cycle length, data on long term outcomes such as decreasing lengths of stay, decreasing long stay outliers, and increasing patient satisfaction discharge survey scores has not been generated and collected at this time.

Evaluation

Both improvements in the education process as well as failure to initiate new communication channels occurred during this PDSA cycle. The PDSA cycle is outlined in Figure 1.2. The Plan section was implemented smoothly with nursing and IDT education provided by the CNL in anticipation of the Do cycle. A power-point presentation was developed to educate staff on the patient-centered care themes identified in the literature review as well as how to access and use the new EMR education tab and feedback form.

Patient education and documentation were initiated and sustained through the Do cycle while use of the IDT feedback form failed. The reasoning provided for not using the feedback form was that other mechanisms were already in place for communication among the IDT members. The extra step to document on the IDT feedback form was determined to have no added value by the IDT and the form was discarded. Information on patient and care partner needs and barriers continue to be collected during RN education sessions and passed through previously established communication channels to the IDT.

The Study section outlined what data would be reviewed and how it would be used. This outline was easy to follow and allowed for clear measurement of the short-term objectives. Using the generated information, the possibilities outlined in the Act section are coming to fruition. The outcomes of the PDSA cycle were not 100 percent effective but the data and analysis allowed areas of need and success to be identified in keeping with the purpose of a PDSA cycle. Overall, the PDSA cycle clearly outlined the steps needed and was able to be implemented without issue.

The PDSA cycle has made the IDT more aware of their interactions with patients, care partners, and each other. Using the stages of Roger’s change theory, the PDSA cycle has brought awareness to the current patient education process and has developed an interest and trial for change through the completion of individualized repetitive bedside education sessions and incorporation of care partners (Mitchell, 2013). Adoption of the new process is being supported from the administrative level of the IRF. The educational power-point developed during the Plan section was presented at the mandatory monthly nursing department staff meetings. RN bedside education, incorporating patient-centered care tenets and EMR documentation as practice, has been initiated throughout the IRF. Nursing administration reinforcement of the education and charting expectations is occurring to set the new practice as standard practice.

Analysis of the data generated indicates a strong need for education on the topic of medications. Medication education was the most requested and provided patient and care partner topic. A future step towards improvement is the incorporation of a pharmacist in patient and care partner education. The need has been presented to the appropriate administrative positions with supporting data. This change in practice would require the involvement of multiple departments and should be addressed through a new PDSA cycle.

CHAPTER 5. CONCLUSION AND IMPLICATIONS

Project Impact on Quality Care and Cost

The rehabilitation of patients with self-care deficits due to residual physical and cognitive disabilities is a complex problem. In populations with chronic conditions or residual disabilities care partners should be included in patient-centered activities to maximize the benefits of care (Boger et al., 2015; Forster et al., 2012; Munce et al., 2014; Piccenna et al., 2016). Yet, formalized education and discharge programs developed specifically for these populations and their care partners have failed to improve either patient or care partner physical and emotional outcomes (Eames et al., 2014; Forster et al., 2013; Goncalves-Bradley et al., 2016).

The development of self-management skills has shown promise for improving outcomes. Research on this link began several years ago and only initial findings have been published. Further research on building self-management skills in the inpatient rehabilitation setting and the education and support of care partners is needed and being conducted (Haspeslagh et al., 2013; Munce et al., 2014; Munce et al., 2016).

The gap between research and translation into practice can take over 15 years. Evidence-based practice (EBP) is designed to bring research findings to the bedside in a formalized and timely manner (Melnyk & Fineout-Overholt, 2011). EBP is based on three inputs. External evidence is collated from rigorous research that can be generalized to a variety of settings. Internal evidence is generated during practice initiatives in the clinical care setting being studied through quality improvement projects or outcomes management. The third input of EBP is patient preferences and values (Melnyk & Fineout-Overholt, 2011).

External evidence was gathered through the capstone’s literature review. Findings included:

- Patient-centered communication and education should include repetition of relevant information to improve comprehension and retention,
- Use of repetition creates more opportunities for patients and care partners to ask questions and identify personal needs,
- Practical tips relevant to the patient’s specific situation as well as simple language improves comprehension, and
- Topics covered should consider the patient’s interests and needs post-discharge. (Forster et al., 2012; Haspeslagh et al., 2013; Horwitz et al., 2013; Lawrence & Kinn, 2012; Meng et al., 2014; Nagl et al., 2013; Piccenna et al., 2016; Strong & Bettin, 2014)

The PDSA cycle was designed to generate internal evidence, identify individual needs and respect individual patient and care partner values and preferences during education and discharge planning. Data was generated by the RNs during individualized education sessions with patients and care partners. Frequently covered topics have been identified to better tailor education provided to and by the IDT. The breadth of topics and number of education sessions provided show that patient-centered care tenets of meeting patient specific needs and the use of repetition were incorporated into the education process.

Improved patient knowledge and earlier onset of skill building should improve self-management skills leading to smoother and quicker discharges from the acute rehabilitation setting. The incorporation of care partners, seen in 11 out of the 15 patients involved in the run cycle, increased involvement of the home support system in both the education of the patient as well as planning for discharge. Simultaneous rehabilitation of patients and preparation of care partners should also lead to smoother and quicker discharges and improved patient involvement and satisfaction with care.

Cost savings can be found in shortened lengths of stay (decreasing costs to insurers and shared costs for patients) and full reimbursements to the IRF. Changes in the Centers for Medicare & Medicaid Services (CMS) repayment schemes link quality and efficiency of health care delivery to reimbursement rates (CMS, 2015). Quality goals being considered in repayment schemes include effectiveness, efficiency, patient-centeredness, safety, and timely care (CMS, 2016). For IRF reimbursement, functional independence measures (FIMs) and community discharge rates are also considered (Medicare Payment Advisory Committee, 2014). The PDSA showed during the brief Do cycle that it has a positive effect on community discharge rates and the new education practice using patient-centered care tenets is anticipated to improve patient satisfaction scores thereby impacting CMS reimbursement rates for the IRF.

Significance

The PDSA cycle outlined in this capstone may seem simple but its development and implementation were the culmination of years of education to become a clinical nurse leader (CNL). The CNL certification was created to address needed changes in the current fractured healthcare system as identified by the Institute of Medicine’s 1999 report *To Err Is Human: Building a Safer Health System* (Long, 2008). Less than a decade old, the CNL certification is still finding its feet within the healthcare system. New CNLs are creating their roles in microsystems throughout the country and blazing a path towards improved patient care using a tool box filled with specific knowledge, skills and attitudes. The competencies specific to the CNL role encompass a variety of themes including evidence-based practice, teamwork, collaboration, quality improvement, safety, informatics and most importantly, patient-centered care (AACN, 2013). The small scale focus on specific patient populations makes the CNL role unique (Spross et al., 2004). CNLs identify and define their microsystem of interest. This allows a CNL to provide personalized, evidence-based care to underserved and overlooked populations in a variety of healthcare settings and also to change focus or populations as dictated by need (Spross et al., 2004).

CNLs work at the microsystem level where values, EBP and policies are put into direct practice to deliver safe, quality patient care (Nelson et al., 2007). Using EBP to develop, implement and evaluate plans of care, a “CNL assumes accountability for patient care trends and outcomes...The CNL designs, implements and evaluates patient care by coordinating, delegating, and supervising the care provided by the healthcare team” (Harris, Roussel, & Thomas, 2014, p. 10). Being able to critically evaluate and incorporate fresh research as well as determine patient needs and preferences guides a CNL's improvement practices.

CNLs are expected to be leaders within the identified microsystem (AACN, 2013). Collaborative skills within an interdisciplinary team are needed to develop and implement improvements. Shared ownership of an identified population with other healthcare professionals and the use of systems theory, knowledge of economic principles, and implementation of evidence-based care allows CNLs to evaluate the quality and cost-effectiveness of care delivery (AACN, 2013). CNLs must have the ability to coach, delegate and oversee the care team while focusing and guiding care safely and competently.

The CNL's purpose for examining a microsystem, identifying areas of needed change, and leading process improvements is to improve the quality of healthcare for the identified population (AACN, 2013). The CNL is a quality driver with the goal of delivering higher-value care using evidence-based outcomes and systematic change theories. Through the use of just culture principles and the construction of a continuous quality improvement atmosphere, CNLs drive improvements in safety for both patients and professionals (AACN, 2013).

The CNL uses informatics and technology to gather data, generate knowledge, examine patterns of care and identify gaps. The increasing complexity and ubiquitous nature of technology in the healthcare field requires ongoing evaluation of its place in direct patient care and its use by frontline staff. CNLs evaluate current use, examine the impact and feasibility of new technology as well as use technology to provide healthcare information to diverse populations (AACN, 2013).

The CNL skills outlined above were used in creation of the PDSA cycle and its successful implementation. The BIU microsystem was identified, defined and analyzed using the 5 P's process outlined by Nelson, Batalden, and Godfrey (2007). Issues within the microsystem were defined with consideration of both quality for the patient and cost-effectiveness to the micro-system. A literature search was completed. The literature was appraised for strength and validity using skills developed in an EBP focused education. A PDSA cycle was developed to address the identified issues requiring critical thinking, analysis, planning, collaboration with other members of the interdisciplinary team, and the incorporation of patient-centered care to drive quality improvement. Implementation of the PDSA required leadership, education skills, coaching and a sense of accountability to both the patients and the IDT. Informatics and technology were used throughout the process to gather data, modify processes, and assess outcomes. The use of CNL skills resulted in a PDSA cycle developed and implemented to improve patient centered care, the quality of education provided to patients and care partners, the development of self-management skills, and ultimately to create safer and more timely discharges from acute rehabilitation.

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APPENDIX A.

Unit Profile Data

TABLE A1

BIU Patient Demographics for 2015	Q1 2015	Q2 2015	Q3 2015	Q4 2015	2015 Total	2015 National Benchmark
Discharges	100	103	109	109	421	71809
TBI Diagnosis	14%	26%	16%	23%	20%	12%
NTBI Diagnosis	30%	21%	29%	22%	25%	20%
Stroke Diagnosis	56%	53%	55%	55%	55%	68%
Male / Female	56%/44%	56%/44%	52%/48%	63%/37%	57%/43%	55%/45%
Average Age	63	64	64	61	63	66
CMI - Burden of Care	1.34	1.35	1.45	1.44	1.4	1.38
Average Admission FIM	57	56	51	51	54	54
Average Discharge FIM	80	85	81	82	82	79
Length of Stay in Days	19	15	16	18	17	15
Discharge to Home	70%	75%	76%	75%	74%	69%
Discharge to SNF/Subacute	13%	11%	13%	9%	12%	18%
Discharge to Acute Care	17%	14%	11%	16%	15%	13%

FIGURE A1

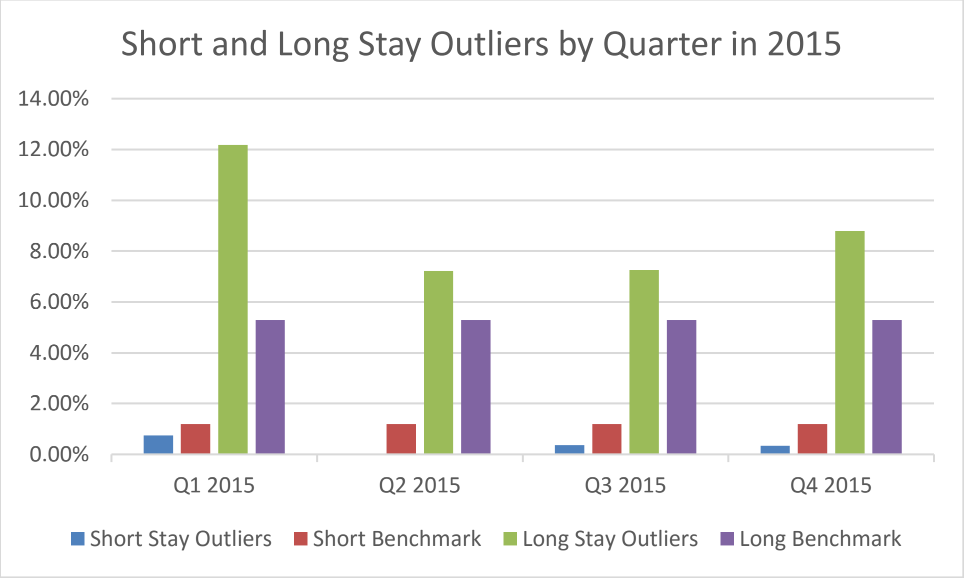

Short and Long Stay Outliers by Quarter in 2015
14.00%
12.00%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
Q1 2015
Q2 2015
Q3 2015
Q4 2015
Short Stay Outliers
Short Benchmark
Long Stay Outliers
Long Benchmark

TABLE A2

BIU Patient Satisfaction Scores for 2015	Q1 2015	Q2 2015	Q3 2015	Q4 2015	2015 Total	2015 National Benchmark
Number of Surveys	25	43	39	33	140	6067
Overall Satisfaction	80%	91%	88%	89%	87%	89%
Recommendation of Facility	93%	98%	94%	95%	95%	94%
Attention to Individual Needs	68%	83%	88%	83%	81%	85%
Patient Involvement in Setting Goals	75%	83%	81%	74%	78%	84%
Family Included in Care	79%	83%	85%	84%	83%	87%
Assistance Planning for Discharge	85%	81%	85%	75%	82%	87%
Coordination of Care by Team	87%	87%	84%	86%	86%	88%
Expectations Met Patient Abilities	78%	87%	79%	87%	83%	87%
Pain Controlled	87%	83%	78%	76%	81%	87%
Doctor	89%	93%	89%	91%	91%	90%
Nursing Staff	86%	88%	88%	90%	88%	88%
Therapists	87%	90%	88%	92%	89%	94%
Case Management	85%	91%	89%	88%	88%	89%

TABLE A3

BIU Staffing	Week Day	Week Night	Weekend Day	Weekend Night
Physiatrists - Float	3	0	1	0
Neuropsychologists - Float	2	0	0	0
Residents - Float	2	0	1	0
Physician Extenders - Float	2	0	1	0
Registered Nurses (RNs) - BIU	2	2	2	2
Rehab Assistants (RAs) - BIU	2	2	2	2
Physical Therapists (PT) - BIU	2	0	1	0
Occupational Therapists (OT) - BIU	2	0	1	0
Speech Language Pathologists (SLPs) - Float	2	0	1	0
Recreational Therapist (RT) - Float	1	0	0	0
Case Managers - Float	3	0	0	0
Housekeeping - Float	2	0	1	0
Dietary - Float	2	0	0	0
Maintenance - Float	2	1	1	0
Float = Assigned patients throughout the IRF				

APPENDIX B.

Literature Matrix

Source (APA)	Study Design	Aim/ Objectives	Sample/ Setting	Methodology/ Instruments	Analysis/ Findings	Conclusions/Implications For Practice
Boger, E. J., Demain, S. J., & Latter, S. M. (2015). Stroke self-management: A focus group study to identify the factors influencing self-management following stroke. *International Journal of Nursing Studies*, *52*(1), 175-187.	Qualitative exploratory study	-To investigate the factors which facilitate or hinder stroke self-management from the patient's perspective.	-Purposive sample recruited from community stroke support groups to represent variation in socio-demographic, gender, age, ethnicity and level of impairment. -Focus groups of 4-9 stroke surviviors -England	-Semi-structured interviews of focus groups were digitally recorded. An independent observer recorded non-verbals and took reflective notes during the interviews. -Thematic analysis of completed interviews with analytic induction used to accurately represent ideas.	-Individual capacity to self-manage is affected by: physical impairment, self-confidence, decision-making (active vs passive), determination, communication, finding resources. -Support for self-management needed from: health professionals (why, not just how to do), resources after acute care, carers (family/friends) are crucial -Environment for self-management: public acceptance, policies supporting treatment/equipment, peer support	-Three broad layers, individual capacity, support for self-management, and the self-management environment can facilitate or hinder self-management. -Engaging support from carers should be a strategy to assist self-management as they are vital to stroke self-management. -Self-management is hindered by a lack of resources and access to professional support in the community.

Eames, S., Hoffmann, T. C., & Phillips N. F. (2014). Evaluating stroke patients' awareness of risk factors and readiness to change stroke risk-related behaviors in a randomized controlled trial. *Topics in Stroke Rehabilitation, 21*(1), 552-562. doi: 10.1310/tsr2151 -S52	RCT	-To identify the effects of a brief educational intervention on stroke patients' recall and recognition of risk factors. -To determine the effects of a brief educational intervention on self-reported performance of risk-related behaviors	-66 patients, 31 control, 35 intervention -Admitted to one of two hospitals in Brisbane, Australia with a confirmed dx of TIA or stroke and met other study criteria.	-Intervention group (IG) received a brief educational intervention consisting of a tailored information booklet and oral reinforcement by a healthcare professional up to 3 times before discharge and by telephone up to 3 times over the next 3 months. -Control group (CG) received standard stroke unit care that included unstructured informal oral education and advice from staff. -Baseline responses to set question list were recorded one week prior to discharge. -A blind assessor interviewed all subjects at 3 months post discharge and responses recorded verbatim. Between-group and within-	-Within group analysis showed significant improvement of unprompted recall of personal (P= .05) and general (P= .02) risk factors over time for both groups. The difference between groups was not statistically significant. -Improvement in self reported performance of risk-related behaviors was significant for both groups (P < .01) but not between groups.	-There were no significant differences between the control and intervention groups for any of the outcomes. -The brief educational intervention did not provide any additional benefit beyond usual care. -The optimal method to increase stroke patients knowledge of risk factors and facilitate changes in risk-related behavior remains unknown.

				group differences were calculated with a significance of P= .05 set.		
Eames, S., Hoffmann, T., Worrall, L., & Read, S. (2011). Delivery styles and formats for different stroke information topics: Patient and carer preferences. *Patient Education & Counseling*, *84*(2), e18-23.	Mixed-methods study	-To identify the preferences for format and delivery style of different categories of stroke information of stroke patients and their carers. -To determine if these preferences changed over time.	-34 patients and 18 carers initially and 27 patients and 16 carers also completed the 3 month interview. -Patients admitted to a hospital acute stroke unit in Brisbane, Australia.	Semi-structured questionnaire designed for the study based on previously identified categories (clinical information, practical management strategies, services/ benefits available, healthy lifestyle information). Responses analyzed using narrative reporting and descriptive statistics. -Rapid Estimate of Adult Literacy in Medicine (REALM) administered to determine participants' reading ability.	-For patients clinical and practical topics were most requested prior to discharge. -Carers requested information on clinical and services/benefits the most prior to discharge. -Delivery styles most requested varied by topic indicating patients and carers want a mix of active and passive information delivery. -Top delivery styles included discussion, talking through written information, contact lists, hotline use and didactic instruction.	-Using a combination of face-to-face, written and telephone support to provide information is most preferred by patients and carers. -Written material is most important prior to discharge especially in practical, services/ benefits, and healthy lifestyle categories. -Focusing on delivery styles of different topics can maximize the access and relevance of stroke information provided to patients and carers.
Forster, A., Brown, L., Smith, J., House, A., Knapp, P.,	Systematic review of RCTs	-To examine the effectiveness of information strategies provided with the intention	-21 RCTs with 2289 patients and 1290 carers.	-Treatment effects were compared using mean difference (MD) or standardized mean difference	-Interventions had a favorable effect on patient knowledge (SMD 0.29, CI 0.12 to 0.46, P<0.001) and	-There is evidence that information provision after stroke improves patient and carer knowledge and some

Wright, J. J., & Young, J. (2012). Information provision for stroke patients and their caregivers (review). *Cochrane Database of Systematic Reviews*, (11). doi: 10.1002/14651858.CD001919.pub3		of improving the outcome for stroke patients or their identified caregivers or both.	-Interventions included information/ education provision by booklets, leaflets, tailored booklets, personalized multimedia presentation, lectures, instruction with hands-on training, workbooks, telephone calls, groups. -Interventions were delivered pre or post hospital discharge up to years post-stroke. -Intervention group (IG) -Control group (CG)	(SMD) or odds ratio (OR) with 95% confidence intervals (CI) -Meta-analyses completed for knowledge, emotional outcome, death and selected satisfaction factors.	carer knowledge (SMD 0.74, CI 0.06 to 1.43, P=0.03). -No significant difference in cases of patient anxiety (OR 0.89, CI 0.57 to 1.38, P=0.60) or anxiety scores (MD -0.34, CI -1.17 to 0.50, P=0.43) between IGs and CGs. -No significant difference in cases of patient depression (OR 0.90, CI 0.61 to 1.32, P=0.59) but there was an effect on decreasing depression scores (MD -0.52, CI 0.93 to -0.10, P=0.01) in the IG. -No effect on carer stress (OR 1.13, CI 0.65 to 1.97, P=0.65). -No effect on ADLs. -No effect on patient participation. -No effect on health behaviors or risk reduction in patients. -Increased satisfaction with information on the	aspects of patient-reported satisfaction of knowledge. -The results suggest that strategies that actively involve patients and carers including planned follow-up and reinforcement should be used in routine practice.

					causes of stroke (OR 2.07, 1.33 to 3.23, P=0.001) in the patient IG. -No effect on carer satisfaction with information on recovery and rehabilitation (OR 1.78, CI 0.88 to 3.60, P=0.11) -No significant difference in patient mortality between IGs and CGs (OR 0.86, CI 0.59 to 1.25, P=0.43).	
Forster, A., Dickerson, J., Young, J., Patel, A., Kalra, L., Nixon, J., & ... Farrin, A. (2013). A cluster randomised controlled trial and economic evaluation of a structured training programme for caregivers of inpatients after	Multicenter cluster randomized controlled trial (RCT)	-To determine if the London Stroke Carer training Course (LSCTC) improves functional independence, physical and psychological outcomes in stroke patients. -To determine if the LSCTC reduces caregiver burden and improves physical and psychological	-930 patient/carer dyads (450 LSCTC, 478 control) -Patients had to have a new stroke, by medically stable and likely to return home with residual disability. -Block randomizatio	-Controls (CG) provided standard care based on National Clinical Guidelines for stroke. -Interventions (IG) provided LSCTC as usual care. -Nottingham extended ADL (NEADL) scale for patient outcomes measured at 6 and 12 months -Caregiver Burden Scale (CBS) for carer	Patient outcomes: -NEADL scale at six months: CG=27.6, IG=27.4, p-value 0.866. No statistical difference found. –NEADL scale at 12 months: No statistical difference found (values not provided in summary). Carer outcomes: -CBS at six months: CG=45.0, IG=45.5, p-value 0.660. No	-There was no difference between the LSCTC and usual care with respect to improving stroke patients' recovery, reducing caregivers' burden or improving other physical and psychological outcomes, nor is it cost-effective when compared with usual care. -The authors suggest that during the immediate post-stroke period, when potential caregivers are

stroke: The TRACS trial. Scientific summary. *Health Technology Assessment*, *17*(46), 1-6. doi: 10.3310/hta17460		outcomes for carers. -To determine if the LSCTC is cost effective. -LSCTC- is 14 training competencies for carers. Staff sign off each topic once competency or inability to be competent is determined by the staff after training.	n of 36 stroke rehabilitation units (SRUs) in four regions of the United Kingdom.	outcomes measured at 6 and 12 months -Other scales used for physical and psychological outcomes: HADS, EQ-5D, SIS, FAI measured at 6 and 12 months	statistical difference found. -CBS at 12 months: No statistical difference found (values not provided in summary). -No differences found in other physical and psychological scale measures for patient or carer.	coming to terms with their new situation, may not be the ideal time for the delivery of structured training. The intervention approach might by more relevant if delivered after discharge by community based teams.
Gonçalves-Bradley, D. C., Lannin, N. A., Clemson, L. M., Cameron, I. D., & Shepperd, S. (2016). Discharge planning from hospital. *Cochrane Database Of Systematic Reviews*, (1), doi: 10.1002/14651858.CD000313.pub5	Systematic review of RCTs	-To assess the effectiveness of planning the discharge of individual patients moving from hospital. -To determine if discharge planning improves patient outcomes. -To determine if discharge planning reduces overall costs of healthcare.	-30 studies with 11,964 participants. - 6 studies included for this update of a 2013 review. -RCTs evaluated discharge planning, most with a patient education component vs. routine discharge care with	-Two authors extracted data from each study using a specialized data extraction form. Risk ratios (RR) or mean differences (MD) with 95% confidence intervals (CI) were calculated for mortality, length of stay, unplanned readmission and discharge destinations. RR values <1 favored discharge planning. A summary of findings table was developed	-For elderly patients with a medical condition, discharge planning decreased readmission at three months, RR 0.87, CI 0.79 to 0.97. Length of stay was also reduced in this population, MD -0.73, CI -1.33 to -0.12. -Discharge planning did not affect whether patients were discharged to home or another facility, RR 1.03, CI 0.93 to 1.14.	-A structured, individually tailored discharge plan brings about a small reduction in hospital length of stay and unplanned readmissions in elderly patients with a medical condition and may increase patient satisfaction. -The studies included in the review did not report on quality of communication during discharge planning though this is felt to be important aspect to be explored.

			broadly similar interventions in a variety of patient populations.	for patient satisfaction, cost data.	-Discharge planning did not have an effect on mortality at 4-6 month follow-up, RR 1.02, CI 0.83 to 1.27. - Uncertain if patient-assessed outcomes including functional status, mental well-being, perception of health, self-esteem and affect are improved with discharge planning. -Discharge planning may increase patient and healthcare professional satisfaction (low certainty). -Uncertain if discharge planning reduces hospital costs, primary care and community costs, and problems with medication use. -The evidence does not support an increased or decreased effect of discharge planning for patients with low health literacy.	

Haspeslagh, A., DeBondt, K., Kuypers, D., Naesens, M., Breunig, C., & Dobbels, F. (2013). Completeness and satisfaction with the education and information received by patients immediately after kidney transplant: A mixed-models study. *Progress in Transplantation, 23*(1), 12-22.	Mixed-methods study	-To evaluate the completeness of and the satisfaction with the current education program and to identify patients' needs for information in the longer term after a kidney transplant.	-31 kidney transplant patients that met study criteria. -The University Hospitals of Leuven, Belgium.	Semi-structured interview developed for the study with Likert-type questions and open-ended questions that underwent pilot testing and review for content validity. Interview conducted 3 months after transplant during a scheduled appointment. Likert scale responses were statistically analyzed, qualitative data was reviewed for content analysis and main themes extracted.	-Themes identified were needs in medical management, role management, and emotional management during inpatient and at three months s/p transplant. -Inpatient education focused on immediate needs and not ongoing needs and changes. -Healthy lifestyle, return to work and emotional changes were not well addressed.	-Providing only factual information is insufficient to meet patient needs, practical and concrete tips should be included to develop self-management skills. -Education should be spread throughout the inpatient stay to improve patient understanding and ease nurses' workloads. -Relevant topics should be repeated throughout the inpatient stay. -Self-management skills training urgently needs to be developed for chronically ill patients.
Horton, S., Howell, A., Humby, K., & Ross, A. (2011). Engagement and learning: An exploratory study of situated practice in multi-disciplinary stroke	qualitative ethnographic study	-To explore how active participation and engagement are produced during day-to-day multi-disciplinary stroke rehabilitation for patient with communication impairments.	-Patients with acute head trauma (stroke, head injury) receiving rehabilitation. -Two patients' data was highlighted for this study.	-Researcher video recorded therapy sessions (PT, OT, SLT). Video was analyzed using concepts of discourse analysis and conversation analysis focusing on the interactions, activity, engagement, and	-Patient engagement was associated with therapists' strategies for promoting full understanding of reasons for particular practices. -Engagement was facilitated by supporting patient participation in planning and problem	-Building regularity across disciplines by focusing on increasing patient participation in the process of rehabilitation may help improve the consistency and quality of patient engagement.

rehabilitation. *Disability and Rehabilitation, 33*(3), 270-279. doi: 10.3109/09638288.2010.524270			-Neurorehab unit in England, UK.	learning between patient and therapist.	solving during instruction	
Horwitz, L. I., Moriarty, J. P., Chen, C., Fogerty, R. L., Brewster, U. C., Kanade, S., & ... Krumholz, H. M. (2013). Quality of discharge practices and patient understanding at an academic medical center. *JAMA Internal Medicine*, *173*(18), 1715-1722. doi: 10.1001/jamainternmed.2013.9318	Prospective observational cohort study	-To conduct a multifaceted evaluation of transitional care from a patient-centered perspective. -Patient-centered care was defined as patient satisfaction with the following: preparation for discharge, discharge care, discharge instructions, and post-discharge needs assessment.	- 395 Patients 65 and older admitted for acute coronary syndrome, heart failure, or pneumonia and discharged to home and met study criteria. -Single urban tertiary care hospital in the USA.	-Patients were interviewed by telephone within one week of discharge and their medical records were reviewed for content of provided discharge instructions. -Interview was given by a trained non-clinical staff member and consisted of about 50 questions on dx, discharge instructions, communication, understanding of medications, and patient education. -Descriptive statistics and word cloud development used to analyze results.	-100% of patients received written discharge instructions, 90.3% reported receiving them, 82.5% reported being able to ask questions about them. -95.6% of patients reported understanding reason for hospitalization, 59.6% were able to verbalize reason. -98.4% of patients received information on warning signs and reasons to call physician. 83.5% were able to self-report warning signs. -98.4% of patients received information on follow-up MD, 86.4% self-reported knowing who to call.	- Patient perceptions of discharge practices and self-rated understanding may be more optimistic than direct evaluations of practice or understanding. -It may be best to reorganize patient education around the premise that all patients will have difficulty understanding, remembering, and enacting key aspects of care.

Lawrence, M., & Kinn, S. (2012). Defining and measuring patient-centred care: An example from a mixed-methods systematic review of the stroke literature. *Health Expectations: An International Journal of Public Participation in Health Care and Health Policy, 15*(3), 295-326. doi: 10.1111/j.1369-7625.2011.00683.x	Mixed-methods Systematic review	-To identify stroke-specific patient-centered outcome measures, patient-centered interventions and family-centered interventions.	22 quantitative and qualitative research articles that met inclusion criteria and focused on patient-centered interventions and outcomes.	-Included articles were screened, quality assessed, data was extracted and analyzed. -Descriptive statistics were used for quantitative data and thematic analysis completed on each article. -Themes were grouped and then synthesized into broad categories from which a theoretical framework was developed.	Patient-centered outcome measures: -Subjective Index of Physical and Social Outcome (SIPSO) -Stroke Impact Scale (SIS) -Communication after Stroke scale (COAST) Elements of patient-centered interventions: -delivery in patient's home, intensive, relevant content and mode of delivery, close involvement of family, delivery by trained experts Thematic analysis: -10 themes encompassed in three categories: meaningfulness and relevance (understand patient and carer experiences, priorities, concerns, and goals), quality (quality of participation), and communication (communication	-Patient-centered care requires the tailoring of measures and interventions to suit specific needs and priorities of patients and their families. -Definition of patient-centered care: "Identifies individual's communication skills and utilizes appropriate and effective communication strategies in all interactions between the health-care professional and the individual. Identifies outcomes that are valued and prioritized by individuals. Identifies outcomes that reflect the desired quality of participation. Monitors and measures outcomes at appropriate times and points in the rehabilitation process. Uses the resultant information to inform the patient/health-care professional's decision making process" (p. 322).

					impairment is a barrier to patient-centered care).	
Meng, K., Seekatz, B., Haug, G., Mosler, G., Schwaab, B., Worringen, U., & Faller, H. (2014). Evaluation of a standardized patient education program for inpatient cardiac rehabilitation: Impact on illness knowledge and self-management behaviors up to 1 year. *Health Education Research, 29*(2), 235-246.	quantitative quasi-experimental study	-To evaluate the short, intermediate and long term effects of a new patient-oriented educational program compared with a traditional lecture-based program. -Patient-oriented was defined by the active involvement of the patients through the whole educational process. -Primary outcome: illness knowledge. -Secondary outcomes: health behavior, medication beliefs and adherence, health status, and treatment satisfaction.	-434 patients meeting inclusion criteria for study, 214 in control group (CG), 220 in intervention group (IG) from two cardiac rehabilitation hospitals in Germany.	-CG received usual care education program of 2-4 lectures (avg. 180 minutes total) by a physician, with no limit on group size. Questions could be asked by patients. -IG received 5 patient-oriented interactive sessions of 45 minutes, small group format (<15 participants) with mixed presentations, flip charts and patient booklet. Lead by multidisciplinary team members with personalized goals, action plans and coping plans for each patient. -Questionnaire data collected at admission, discharge, at 6 months and at 12 months post rehabilitation.	-Illness knowledge at discharge: P=0.024, N2=0.013. SES CG = 0.25 SES IG = 0.46 -Behavior change knowledge at discharge: P=0.039, N2=0.011 SES CG = 0.06 SES IG = 0.21 -Illness and treatment knowledge at 12 months: P=0.015, N2=0.018 -Physical activity change at 12 months: P=0.053, N2=0.011 SES CG = 0.13 SES IG = 0.35 -Small treatment effect on illness knowledge at discharge and 12 months. -Small treatment effect on physical activity at 12 months. -No effect found on healthy diet or	-The study showed that a patient-oriented education program may be more effective than a lecture-based education program on certain outcomes, illness knowledge and physical activity, and should be considered for implementation.

				-Within-group (Standardized Effect Sizes SES) and between-group (statistical significance P<0.05 and effect sizes N2) calculated.	medication adherence.	
Munce, E. P., Webster, F., Fehlings, M. G., Straus, S. E., Jang, E., & Jaglal, S. B. (2014). Perceived facilitators and bariers to self-management in individuals with traumatic spinal cord injury: A qualitative descriptive study. *BMC Neurology, 14*(1), 48-48. doi: 10.1186/1471-2377-14-48	Qualitative descriptive study	-To understand the perceived facilitators and barriers to self-management to prevent secondary complications from the perspectives of SCI patients, their carers, and acute care/ rehabilitation managers.	-7 spinal cord injury (SCI) patients and their carers (dyads) recruited from the community and 12 acute care/ rehabilitation managers. -Ontario, Canada	-Semi-structured telephone interviews digitally recorded -Interviews analyzed using inductive thematic analysis	-Facilitators to self-management: physical caregiver support, emotional caregiver support, peer support and feedback, a positive outlook and acceptance, maintaining independence and control over care. -Barriers to self-management: caregiver burnout, funding and funding policies, lack of accessibility, physical limitations and secondary complications, difficulties with positive outlook and mood.	-Carers make significant contributions to the physical and emotional well-being of SCI patients and should have ongoing training for the evolving needs of SCI patients. -Future research should incorporate both educational and emotional support for carers. -The issue of timing and readiness in control, mood, and supports should be explored.

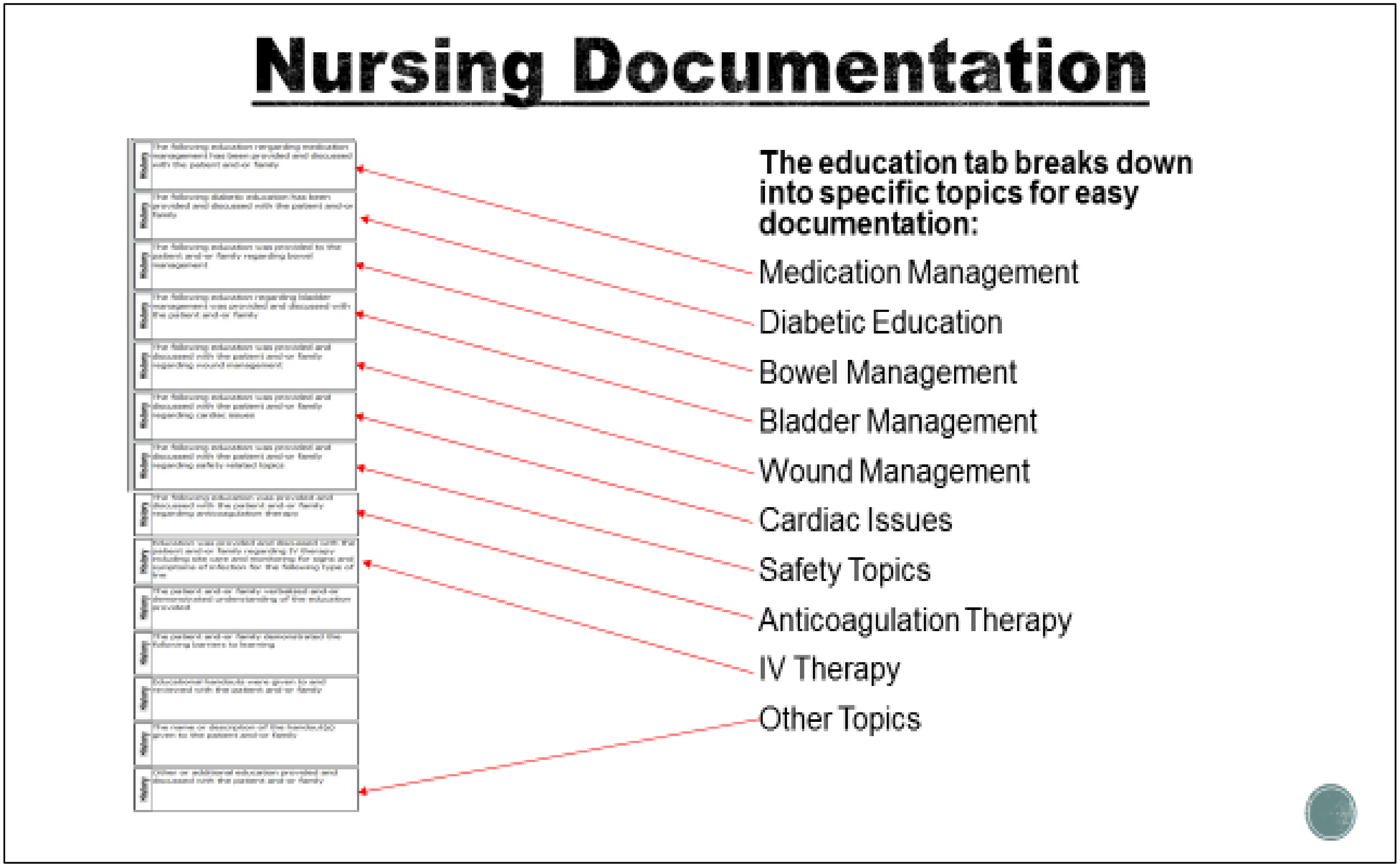
Nagl, M., Ullrich A., & Farin, E. (2013). Comprehensibility of patient education in orthopaedic rehabilitation: A qualitative study on patients and providers [Abstract]. *Rehabilitation*, *52*(1), 34-39. doi: 10.1055/s-0032-1312664	Qualitative exploratory study	-To explore what factors are conducive to and counterproductive to comprehensibility of patient education from patients and providers perspectives. -To examine patients' comprehension of patient education under routine conditions.	-50 patients and 35 patient education providers from 9 orthopedic rehabilitation centres in Germany.	-Qualitative content analyses of interview transcripts using Mayring's analysis.	-Involvement of patients is the most conducive factor to patient education. -Superficial and contradictory information is the most counterproductive factor to education. -Patient education is generally comprehensible.	-Topics for patient education should include references to patients' every life, consideration of patients' interests and expectations, more information, and improved tutoring and modeling from providers.
Piccenna, L., Lannin, N. A., Gruen, R., Pattuwage, L., & Bragge, P. (2016). The experience of discharge for patients with an acquired brain injury from the inpatient to the community setting: A qualitative review. *Brain Injury*, *30*(3),	Systematic review of qualitative studies	-To provide a synthesis of the perspectives of people with acquired brain injury (ABI), caregivers, families, or relatives on the transition from hospital to home.	-10 qualitative studies	-Multiple database search for qualitative studies meeting study criteria published between January 2007 and May 2015. -Data extracted by one author on country, design/approach/ methodology, participants, setting, and key findings/ conclusions.	-Two major themes identified, engagement and support. Engagement: -All of the studies found the level of information provided on care and/ or treatments was insufficient. -Several studies reported caregivers wanted greater communication and consultation about the	-Caregivers play a prominent and life-long role in the lives of people with ABI. -It is important to individualize support services based on the needs expressed by the patient and family. -Deficiencies in effective communication, engagement, and lack of appropriate information cause unsatisfactory transitions to home. -Enhanced education and counseling for patients

241-251. doi: 10.3109/02699052.2015.1113569					patient's condition or care. -Family and or caregivers were not included in discharge arrangements or decisions about care/ treatments or discharge time. Support: -All studies reported there was insufficient support provided from transition from hospital to home. -The transition experience was unsatisfactory due to limited engagement and disorganized arrangements for support services.	and family at multiple points during transition should be a priority for healthcare providers. -More interaction between staff and families creates opportunities to ask questions and enhance understanding prior to discharge.
Strong, S., & Bettin, A. (2014). An initiative to improve patient discharge satisfaction. *Rehabilitation Nursing, 40,* 52-59. doi: 10.1002/rnj.155	Single descriptive study	-To provide patients with the knowledge needed to make a smoother transition from inpatient rehabilitation to another level of care.	-Single rehabilitation hospital in Illinois, USA	-Patient Experience Committee reviewed rehabilitation steps with patient feedback. Developed "The Journey to Discharge" which entails: Notebooks provided to each patient on admission with roadmap symbolizing	-Prior to implementation in 2008 Press-Ganey ranked in the 53rd percentile among all freestanding inpatient rehabilitation facilities. Since initiation of "The Journey to Discharge" ranking in 2010 was 91st, 2011	-Clear explanations of the journey through inpatient rehabilitation may improve patient satisfaction with the discharge process. -Continuous education of patients and family/caregivers, aimed at preparation for discharge, along with post discharge follow-up

				rehabilitation stay. Treatment staff personalize notebook and refer to it during patient education. Family education visit conducted prior to discharge. Phone numbers of assigned staff and information on support groups provided at discharge. Post discharge phone-call completed. -Press Ganey rankings	was 90th and 2012 was 95th. -Increase in Press-Ganey patient satisfaction scores reported, no data provided.	may contribute to lower readmissions rates.

APPENDIX C.

EMR Education Tab



Nursing Documentation

The education tab breaks down into specific topics for easy documentation:

Medication Management

Diabetic Education

Bowel Management

Bladder Management

Wound Management

Cardiac Issues

Safety Topics

Anticoagulation Therapy

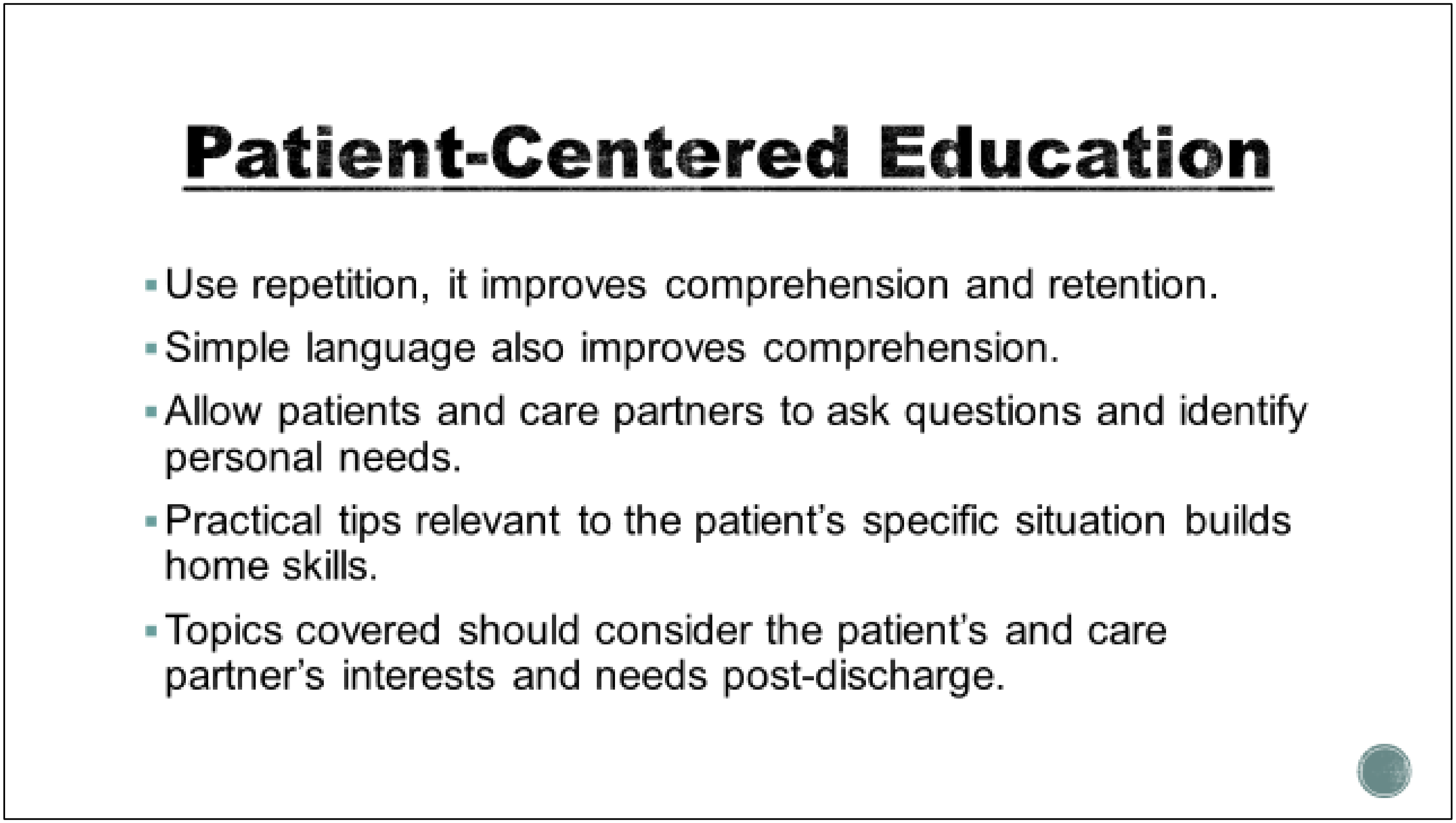
IV Therapy

Other Topics

APPENDIX D.

Nurse Education Power-Point Slides

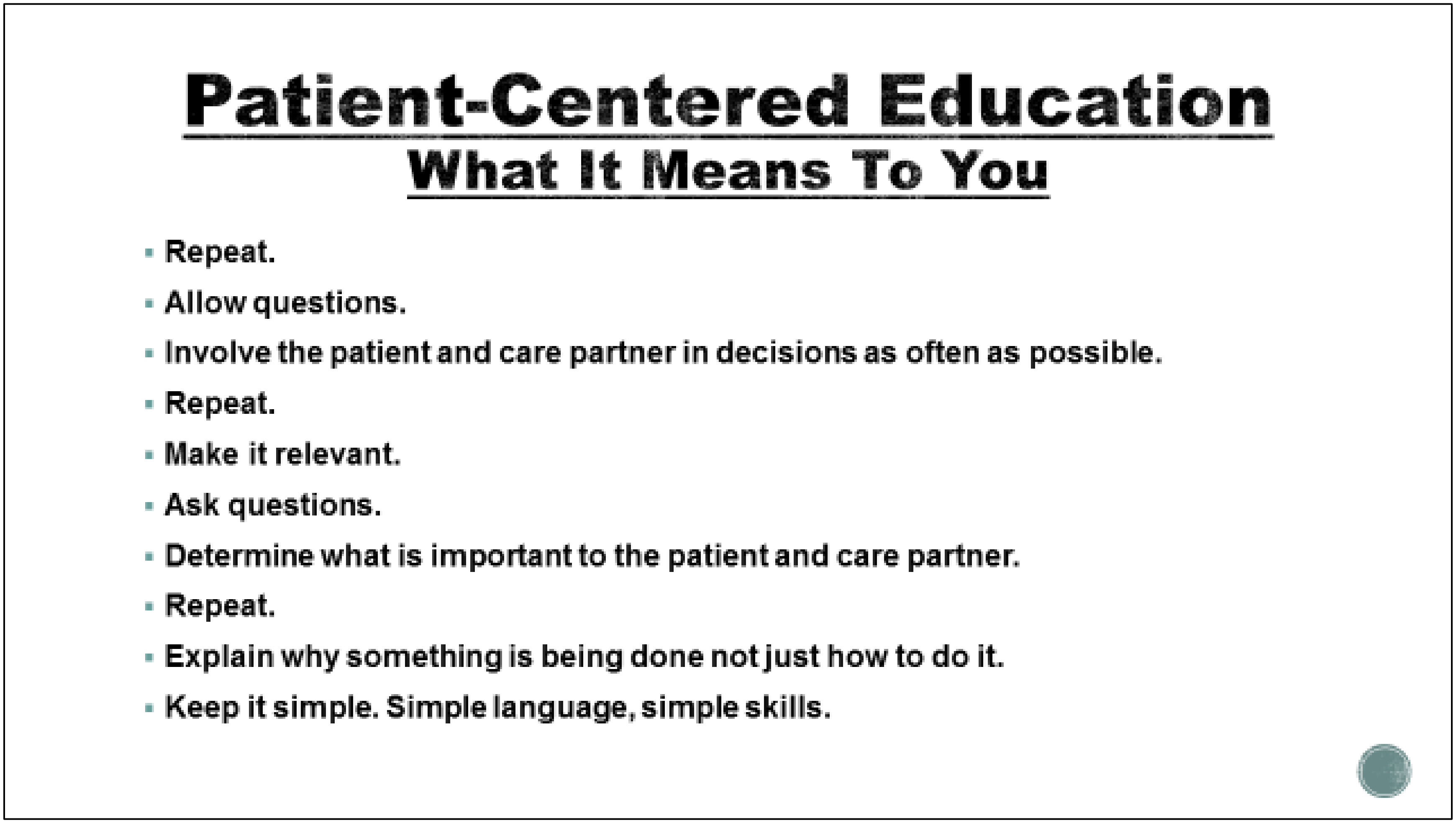
FIGURE D1



Patient-Centered Education

- Use repetition, it improves comprehension and retention.
- Simple language also improves comprehension.
- Allow patients and care partners to ask questions and identify personal needs.
- Practical tips relevant to the patient's specific situation builds home skills.
- Topics covered should consider the patient's and care partner's interests and needs post-discharge.

FIGURE D2

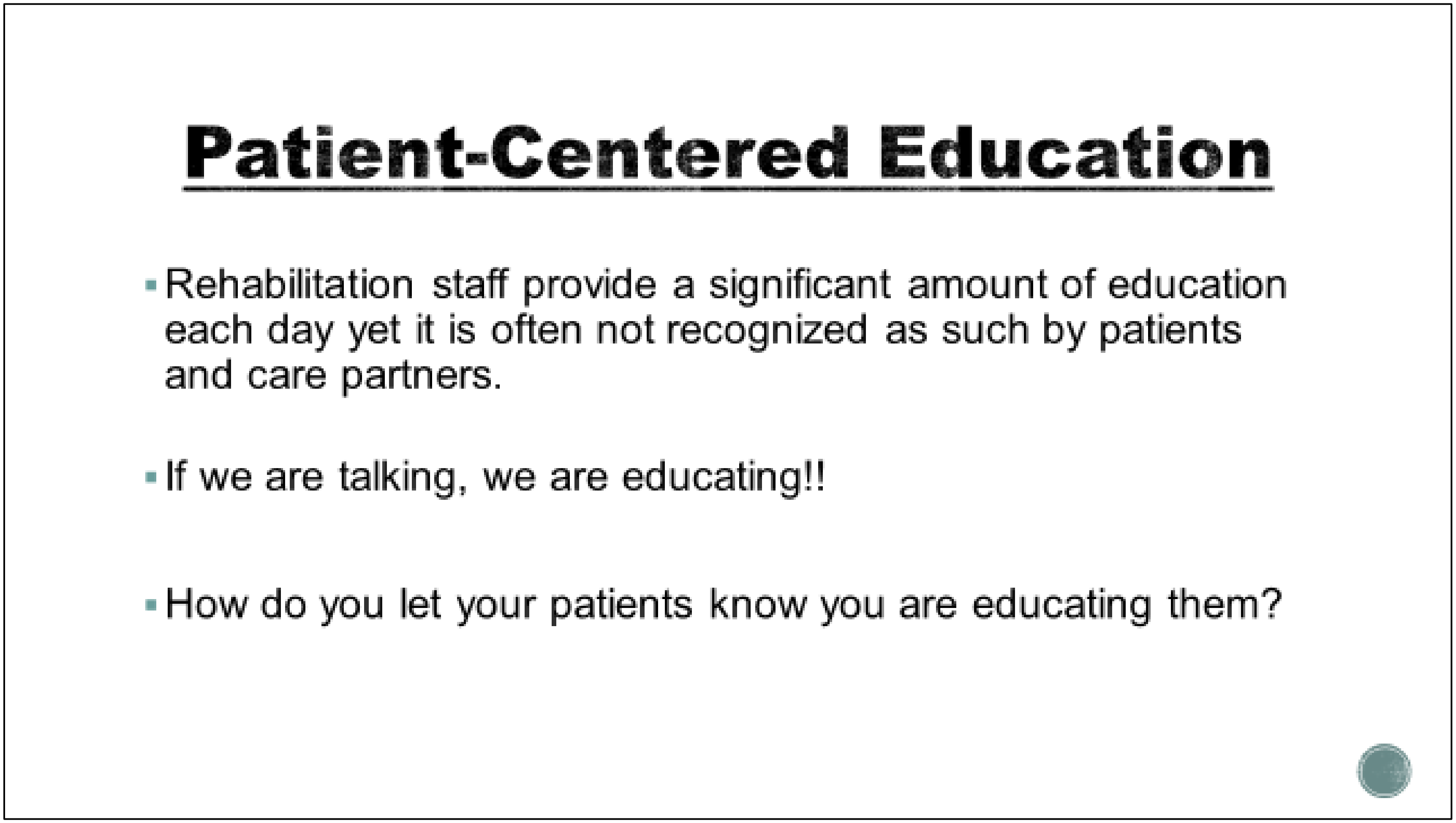


Patient-Centered Education

What It Means To You

- Repeat.
- Allow questions.
- Involve the patient and care partner in decisions as often as possible.
- Repeat.
- Make it relevant.
- Ask questions.
- Determine what is important to the patient and care partner.
- Repeat.
- Explain why something is being done not just how to do it.
- Keep it simple. Simple language, simple skills.

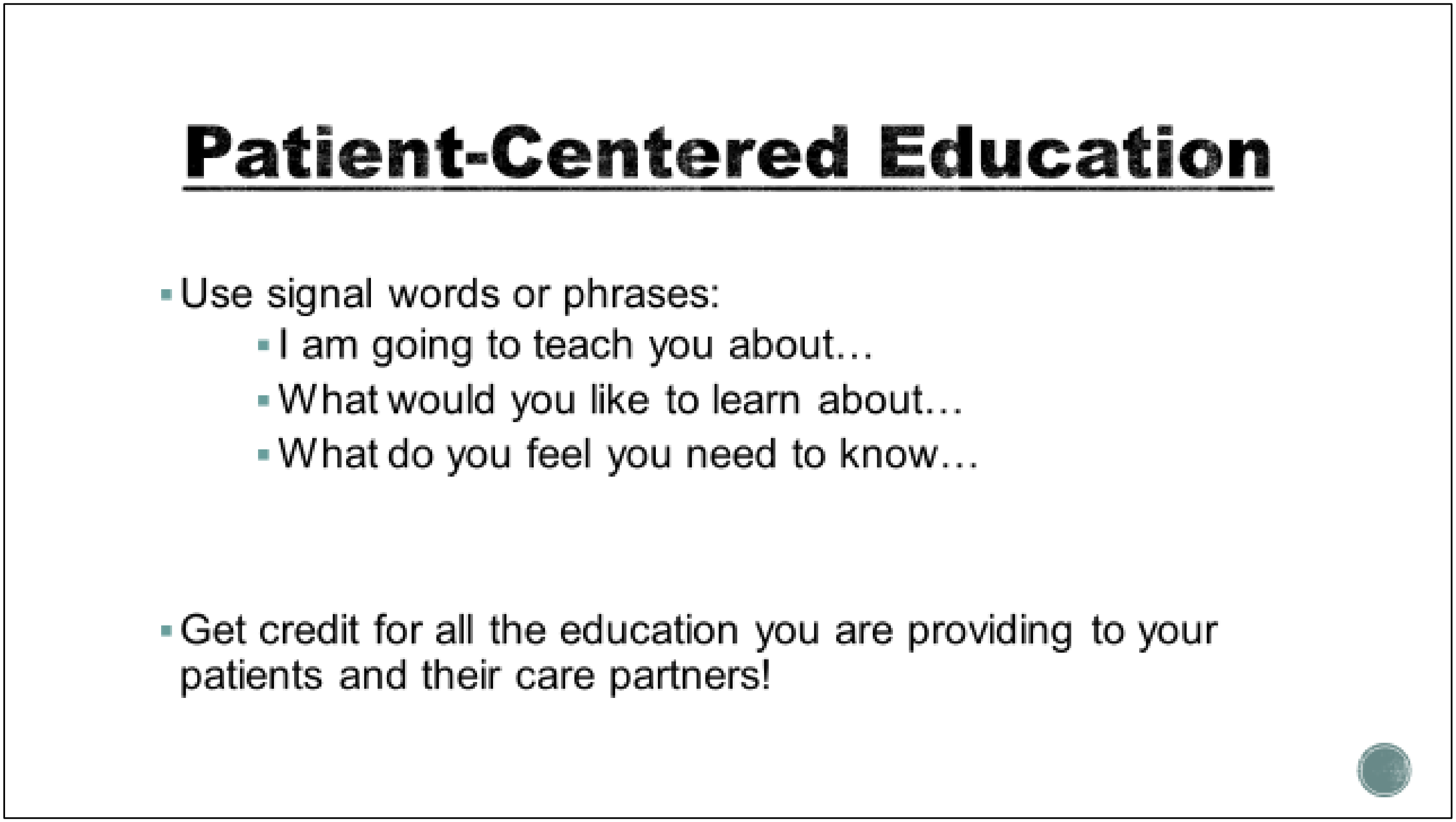
FIGURE D3



Patient-Centered Education

- Rehabilitation staff provide a significant amount of education each day yet it is often not recognized as such by patients and care partners.
- If we are talking, we are educating!!
- How do you let your patients know you are educating them?

FIGURE D4



Patient-Centered Education

- Use signal words or phrases:
    - I am going to teach you about…
    - What would you like to learn about…
    - What do you feel you need to know…

- Get credit for all the education you are providing to your patients and their care partners!