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ENGAGING PATIENTS TO IMPROVE DOCUMENTATION OF ORAL INTAKE ON A
CARDIAC TELEMETRY UNIT

By

Timiny A. Mosher

Bachelor of Arts in Sociology, University of New Hampshire, 2011

CAPSTONE PROJECT

Submitted to the University of New Hampshire

In Partial Fulfillment of

the Requirements for the Degree of

Master of Science

in

Nursing

September, 2015

This Capstone Project has been examined and approved.

Pamela P. DiNapoli PhD, RN, CNL

Committee Chairperson

Date

DEDICATION

This project is dedicated to my fantastic parents who have always supported me through the craziness and encouraged me to pursue my passion no matter what. This project is also dedicated to my amazing boyfriend who has put up with late night dinners, long clinical hours, and my sky-high anxiety level. Also, a big thank you to my friends and family! I could not have gotten through this program without you. Thank you!

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I would like to thank the entire staff on CICU, especially the LNAs, for helping make my project a success and working with the patients when they had questions. I would like to thank my classmates for dealing with the insanity alongside me. I would also like to thank Dr. Pamela DiNapoli for countless draft editing and support. But mostly I would like to thank Hannah Sharp for always encouraging me, helping me through the muddiness, and being an all-around patient care expert and Patti Puglisi for being such a great supporter and being so enthusiastic about my project!

AUTHOR BIOGRAPHY

Timiny Mosher is a Master of Science in nursing candidate who graduated from the University of New Hampshire with her Bachelor of Arts in Sociology in 2011. After several different working experiences, Timiny decided to pursue a nursing degree by gaining admittance into the Direct Entry Masters in Nursing program. Timiny did her clinical immersion on a cardiac telemetry floor where there is a high population of patients with chronic illness. Here, she found her passion was in patient engagement and education in their care. After graduating with her Masters of Science in nursing, Timiny will gain more experience in cardiac telemetry as an RN. Once this program has finished, Timiny hopes to finally adopt a dog and do some traveling through Europe.

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ABSTRACT

Engaging Patients to Improve Documentation of Oral Intake on a Cardiac Telemetry Unit:

A Quality Improvement Initiative

BY

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University of New Hampshire, September 2015

Background Information

It is important for patients with heart failure to have awareness of their intake & output to effectively manage their disease. There is evidence that tracking intake & output is a component of missed nursing care resulting in discrepancies between the actual patient intake and what is documented in the patient's electronic health record (EHR).

Aim

The aim of this quality improvement project was to engage patients in monitoring their intake by using teach-back and patient engagement techniques to track their own oral fluid intake throughout the day.

Methods

The Plan-Do-Study-Act (PDSA) model was used as the framework for this initiative. Patients meeting inclusion criteria were given a teach-back quiz to evaluate baseline knowledge. If patients were able to pass the teach-back quiz, they were given a tracking sheet with instructions on how to use it. After a period of eight hours, the sheet was collected and fluid intake volumes were compared with those documented in the EHR.

Results

Using the Wilcoxon nonparametric test, the mean difference between volume tracked by patient and volume documented by clinician was significant at $p < .05$ ($z = -2.201$, $p = .03$). Patient tracked volume, on average, was tracked in larger amounts than clinician documented oral intake.

Conclusion & Implications for CNL Practice

Variation between oral fluid intake volume documented in the EHR and patient stated volumes indicates that EHR documentation is less reliable than records kept by adequately educated and engaged patients. Implications for CNL practice include identification of opportunities to increase patient engagement and to utilize evidence-based techniques for this purpose. The CNL should explore barriers that contribute to inaccuracy of documentation. The CNL may explore more reliable methods for determining accurate patient fluid balance for at-risk populations.

Keywords: quality improvement, patient engagement, teach-back, heart failure, Plan-Do-Study-Act, oral intake

ENGAGING PATIENTS TO IMPROVE DOCUMENTATION OF ORAL INTAKE ON A
CARDIAC TELEMETRY UNIT

There is evidence that suggests it is essential to engage patients in their own care, especially in the case of a chronic illness in order to reduce hospital readmissions and improve patient outcomes. Barriers to patient engagement that have been identified include health illiteracy, non-standardized documentation, missed nursing care, and poor and inaccurate documentation (Diacon & Bell, 2014; Haney & Shepherd, 2014). It is thought that health illiteracy costs the United States healthcare system anywhere from \$50 to \$73 billion annually (Tamura-Lis, 2013).

Global Problem

Patients with chronic illness such as heart failure must have awareness of their symptoms and the management of their disease complexity. For adequate management of heart failure, it is essential that patients not only conform to provider-driven pharmacological management, but also to be engaged in learning to modify their lifestyle to avoid exacerbations of the disease, and to mutual understanding be confirmed that the conformity has occurred. Most important to the management of heart failure is the accurate monitoring and assessment of fluid intake and output, limiting sodium intake, and daily weights. These parameters are indicative of oncoming fluid overload and often the precedence of an exacerbation (Butler, 2010). Unfortunately, barriers such as the stress of an acute illness are difficult to mitigate and therefore can inhibit a patient's ability to learn (Tamura-Lis, 2013).

Accurate monitoring and assessment of fluid intake and output for the management of heart failure in the acute care hospital has long been a role for the registered nurse. Relying on

the accuracy of nursing documentation to make clinical decisions has the potential for compromising patient outcomes if the documentation is inaccurate. The first mention of the inaccuracy of documentation of intake and output was a qualitative study done by Lewis in 1958. Lewis (1958) surveyed 150 RNs and six common obstacles to accurately charting patient intake and output were identified. This study also compiled ways to overcome the obstacles (Lewis, 1958). Reasons identified for inaccurate charting include that RNs are rushed to see other patients, trays are difficult to collect, the disposal of output, and its documentation can be time-consuming (Lewis, 1958). Lewis (1958) asserts that by telling patients why the intake and output recording is important, they are then more likely to cooperate with participating in its documentation.

An inability to learn related to stress of illness in the inpatient setting presents obstacles to understanding and managing their chronic illness in the outpatient setting and can therefore lead to poor disease management and hospital readmissions within thirty days after discharge (Haney & Shepherd, 2014). Engaging patients to cooperative in their own care hinges on the ability of the patient to understand expectations. The expectation that the patient monitors their own intake and output can be established while the patient is hospitalized, giving the patient the skills they need to continue this practice at home. One tool that has been identified for engaging patients in this education is the use of “teach-back”, an evidence based concept that assists patients with their ability to retain knowledge regarding their care and allows for nurses to accurately assess ongoing knowledge deficits.

Research has identified that gaps exist between evidence and the actual practice in terms of fluid management for heart failure patients (Haney & Shepherd, 2014) which may be a result of a lack of patient engagement in their care management while in the hospitalized. These gaps

in care have resulted in preventable readmissions for heart failure patients. In 2001, the Institute of Medicine (IOM) identified six aims of health care; among those recommended to improve quality of care is patient engagement or patient-centered care.

Local Problem

A retrospective chart review was completed to confirm the discrepancies between actual patient intake and what was documented in the patient's electronic health record (EHR) at the site of this quality improvement. A two week retrospective chart review was conducted of patient records that included orders for monitoring intake and output. Of the 56 patients, only 15 of them had oral intake documented more than three times in a 12 hour period (from 0700-1900). The results demonstrated that for patients within the microsystem with provider orders for "Monitor Intake and Output" and "Monitor Intake and Output – Strict" oral intake was documented, on average, only three times per day with oral fluid intake from their meal tray. This did not account for oral fluid intake given with medication administration or other fluids from patient floor stock. The current process on the microsystem is that there is a purposeful rounder who ensures that patients are offered a beverage at their bedside hourly unless they are nothing by mouth (NPO). Results of documented oral fluid intake are inconsistent with expectations based on the process of hourly rounding. Reviews suggest that the only oral intake being recorded was at mealtime and occasionally once in the afternoon. .

Observation. Observations of inpatients with "Monitor Intake and Output" or "Monitor Intake and Output – Strict" orders were completed over four shifts of four individual patients who were not on contact precaution. Each time a patient finished a beverage and how much water was given with medication (including medications that were mixed with water or juice)

was noted. After each eight-hour shift, observations were compared with what was documented in the patient's electronic chart. There was a difference of at least 500 milliliters per patient (520 ml, 500 ml, 640 ml, 680 ml). Neither the Registered Nurses (RN) nor the Licensed Nursing Assistants (LNA) were consistently documenting the patient's oral intake. Additionally, at least one of these patients was unaware that their intake and output was being strictly monitored based on the patient being asked how much they had to drink in their cup and the patient's response being "why does it matter?". The local problem identified in this microsystem was inconsistent documentation of oral fluid intake and a lack of understanding of the purpose for monitoring intake and output. By extension, this lack of understanding may translate to a knowledge deficit in patients.

Literature Review

The purpose of this literature review was to find evidence that intake tracking is a component of missed nursing care, to support the importance of tracking fluid intake and output in patients with chronic heart failure, to determine effectiveness of patient engagement in their care, and to determine successfulness of using teach-back to assess patient knowledge and educate patients on their conditions. The literature review was done using the Cumulative Index to Nursing & Allied Health Literature (CINAHL) database. The keywords used were: "fluid management", "heart failure", "teach-back", "inaccurate documentation of intake and output", and "patient engagement" and searched for articles published between 2010 and 2015. The terms "fluid management" and "heart failure" returned 27 results. Articles relating to pharmacological management, ultrafiltration usage, peritoneal dialysis, chronic kidney disease, tele-health and PCP, diagnosis, ICU patients, and full-text unavailable articles were excluded. The terms "heart failure" and "teach-back" resulted in 7 articles. Articles relating to post-CABG

care and education of nurses were excluded. Therefore, this search resulted in 3 articles to be reviewed. A search using “accuracy of intake and output” yielded only one result and this article was reviewed. All articles retrieved relating to the accuracy of documentation and missed care were published more than five years ago so indicating that recent research is limited but the inaccuracy of documentation is an identified problem that resounds in the literature.

Inaccuracy in Documentation of Intake and Output & Missed Care

A study done by Diacon & Bell (2014) asserted that maintaining the balance between fluid intake and output is important in managing critical illness. This study found that 79% of fluid balances recorded were inaccurate by greater than 50 milliliters; this is significant because the patient to nurse ratio is 2:1 in most ICUs, and therefore allows the authors to extrapolate that the discrepancy would be increased in a higher patient to nurse ratio situation (Diacon & Bell, 2014).

In addition to the limited quantitative data available, a qualitative study was conducted listing missed care opportunities (Kalisch, 2006). An interview of 107 RNs, 15 LPNs, and 51 LNAs identified nine recurring themes of missed care, one of which was intake and output documentation (Kalisch, 2006). Obstacles identified included the patient’s tray being collected before the intake was documented, and a lack of systematic process of record the refilling of water glasses and pitchers (Kalisch, 2006). Identifying these obstacles allows for guidance in developing a process where these variables may be avoided and therefore can improve the documentation of patient intake.

Fluid Management Strategies

An article by Hughes (2013) highlights various symptom management strategies in relation to heart failure but specifically focuses on fluid retention management and emphasizes that the assessment of fluid intake is important. Hughes (2013) states that as elderly patients tend to not drink as much water, it is not as necessary to restrict fluid as it is to maintain a general awareness of oral intake. Hughes (2013) also asserts that patients with heart failure on a fluid restriction or fluid suggestion may find it easier to count in numbers of cups of water or tea they may have per day rather than a numerical fluid restriction in milliliters or ounces. In another study by Butler, it was revealed that patients with severe symptoms of heart failure whether inpatient or outpatient require closer oral intake assessment which requires an increase in patient's awareness of fluid intake (2010).

Albert (2012) identifies hypervolemia or fluid overload as the recognized issue with fluid management in heart failure patients. Hypervolemia in heart failure patients is a multi-system problem, therefore, it is important to identify and treat each component (Albert, 2012). Addressing fluid retention immediately is important because it is a predictor of a heart failure exacerbation (Albert, 2012). Albert (2012) recognized that patients with heart failure required education, counseling, and follow-up programs after discharge in order to mitigate or avoid a readmission within thirty days. Strategies were unclear in this article and the author suggests that more specific trials would be necessary for management of fluid balance (Albert, 2012). A qualitative study evaluating the reasons for readmission in heart failure from the perspectives of patients, caregivers, cardiologists, and heart failure nurses was conducted by Annema, Luttik & Jaarsma (2009). The results reported that while 25% of patients cited nonadherence to diet, medication, or fluid restriction as a reason for readmission, the majority of cardiologists identified knowledge deficit as the primary reason for readmissions (Annema et al, 2009).

Nurses also felt that improving adherence to heart failure therapies such as fluid intake restriction or monitoring was the most important primary intervention for preventing readmission (Annema et al, 2009). Studies suggest that further research be done to identify and align symptom management in terms of fluid retention across all heart failure patients (Albert, 2012; Butler, 2010; Hughes, 2013).

Patient Engagement Strategies

Tamura-Lis (2013) defines teach-back as a “method to confirm when the health care professional has explained the necessary information in a manner patients can understand. Patient understanding is verified when patients can restate the information in their own words.” (p. 267). The goal of this method is to provide health education at the health literacy level of the patient and/or primary learner (Tamura-Lis, 2013). This evidence-based method has been adopted because errors in communication account for up to 70% of sentinel events and by improving communication using evidence-based practice, these types of events can be avoided in the future (Tamura-Lis, 2013). Tamura-Lis (2013) also identifies this method as simple and cost-effective (Tamura-Lis, 2013).

A study done by Haney & Shepherd (2014) aimed to find if teach-back could reduce hospital readmissions in patients with heart failure. Inclusion criteria for this study included that the patient’s current admission was a readmission within thirty days of discharge, the patient had two or more heart failure admissions from the year previous, and patients scored higher than 25% on the Yale Readmission Risk Score for Heart Failure (Haney & Shepherd, 2014). Once identified, the principal and co-principal investigators delivered sixty-minute teach-back sessions to the eligible patients that were usually held 1-2 days after admission and never done on the day

of discharge (Haney & Shepherd, 2014). The results found that there had been a reduction in readmission from 18% to 16.2%. Qualitative interviewing additionally found that 10 out of 23 patients reported changing their sodium intake habits because of the education, among other positive takeaways.

In a study conducted by Peter et al (2015), 200 heart failure patients were surveyed, and the pre-intervention data indicated that that in heart failure patients who were readmitted, patients felt that the nurses had failed to ask the clarifying question to make sure that the patient understood their condition well enough (Peter et al, 2015). By using this information, the investigators were able to design a teach-back program using a multi-disciplinary team to not only measure a patient's knowledge-base but also tailor the education to the patient by asking the right teach-back questions (Peter et al, 2015). There was a 12% reduction in readmissions for the patients that had received the teach-back for the entire sample, and a 50% reduction on the pilot unit (from 28.2% to 14%) in one year (Peters et al, 2015). This study supports the use of teach-back as an effective and cost-efficient tool, especially in the case of patients with chronic diseases such as heart failure (Peter et al, 2015).

Global Aim

The global aim of this capstone project was to engage patients in their care in order to reduce CHF readmissions. This is important because up to 40% of heart failure readmissions could be prevented (Hoyt & Bowling, 2001).

Specific Aim

The specific aim of this quality improvement initiative was to use teach-back methods to engage patients in their care to improve documentation of oral fluid intake by July 17, 2015. The

process began with the nurse providing teach-back questions regarding oral fluid intake tracking in the morning during a day shift. The patient self-tracks his/her oral fluid intake. The nurse returns after eight hours to collect the data sheets and compares them with what has been documented in the electronic chart. By implementing this process, it is expected that there will be more accurate documentation of oral fluid intake and increased patient involvement in care. This is important because patients with fluid overload issues should be able to monitor their intake at home thereby reducing readmissions due to CHF exacerbations.

Methods

Setting

This microsystem is a 47-bed intermediate care unit that focuses on inpatients requiring telemetry monitoring and a higher level of care than a general medical-surgical floor. The level of care is higher than medical-surgical units but is a less acute level of care than the intensive care unit. The majority of patients admitted to this unit are admitted for cardiac diagnoses such as myocardial infarctions, chest pain, heart failure exacerbations, pre- and post-cardiac catheterization care, uncontrolled and irregular rates, symptomatic bradycardia, pacemaker placements, etc. Additional client diagnoses include drug overdoses, CVA or TIA, endocarditis, septic pneumonia, pulmonary embolism, etc. as these patients require a higher level of care. The age range of patients can be from eighteen years of age to 103, with the majority in their mid-sixties to mid-eighties. Patients are admitted from home, skilled nursing facilities, or long-term care facilities. Common patient procedures include echocardiograms, stress tests, chemical stress tests, and diagnostic cardiac catheterizations.

The patient-to-nurse ratio during the day shift is 4:1 with a full assignment. The night matrix can go up to 6:1. Employees on the unit with direct patient contact are mostly registered nurses (RNs) and licensed nursing assistants (LNAs) with occasional ancillary contact from phlebotomists, dietary aides, and attending and consulting providers. This department employs 80 staff RNs, 40 LNAs, 4 Resource RNs, 1 unit manager, and 2 CNLs. Each of these staff members on the unit has the potential to enter a patient's room who is not assigned to them to answer a call light. This means that any oral intake during these times has the potential of going undocumented.

Study Question

This quality improvement initiative poses the following questions: 1) Does using teach-back to engage patients in their care improve the accuracy of documenting oral intake?

Theoretical Framework

Dorothea Orem's theory of Self Caring is the central theoretical philosophy that is employed for this quality improvement initiative. Self-care is defined by when self-care agency equals self-care demands (Orem, 1995). Self-care agency refers to a person's ability to care for oneself. Self-care demand refers to the needs of oneself. A self-care deficit is characterized by when the self-care demands outweigh self-care agency (Orem, 1995). Orem's theory iterates that when a self-care deficit is identified, then nursing is necessary to temporarily assist and re-develop their agency (Orem, 1995; Denyes et al, 2001).

The project rooted in Orem's Theory of Self-Care was implemented using the Plan-Do-Study-Act (PDSA) Model. The Institute for Healthcare Improvement (IHI, 2011) asserts that the PDSA Model should be used to test quality improvement change using a cyclical method. There

are cyclical phases beginning with the Plan stage (IHI, 2011). The Plan stage entails setting the aims of the project, planning the tasks that will be necessary for making the change, and establishing measures (IHI, 2011). Next, the Do stage involves actually implementing the change. The Study stage analyzes the effectiveness of the change (IHI, 2011). Finally, the Act stage involves deciding if there are changes to make, if the change has been successful, or if the project is ineffective and should be abandoned (IHI, 2011).

Intended Improvement

Design

Patients were pre-screened through census review using the following inclusion criteria: Must be documented as alert and oriented x 4, documented as literate via learner's assessment and have no documented barriers to learning, patient must be an adult, must have a top ten diagnoses of heart failure, and the patient must have a provider order of "Monitor Intake & Output" or "Monitor Intake & Output – Strict".

Eligible patients were then asked if they would like to volunteer to participate. Patients were then introduced to the teach-back method which addressed the intervention activity of monitoring their oral fluid intake. If they were able to understand and repeat how to use the oral fluid intake tool and why it is important then they received the tool and further teaching. The script was the same for all patients (See Appendix B). The patient was also given a tracking sheet verified by nutrition for measuring oral intake (ex: 1 juice cup = 4 oz, 1 can of soda = 12 oz). The patient was discouraged from asking for help from the primary RN, and was encouraged to independently monitor themselves as practice for discharge. The record was collected every 8 hours.

Process Tools.

Inclusion Criteria Checklist. This tool is a checklist that determines if a patient is eligible and/or able to be screened using teach-back. This checklist can be completed via chart review of the department census. This checklist includes the aforementioned criteria for a patient to be eligible to be approached. See Appendix A.

Teach-back Script Tool. This tool is a patient screening tool to determine patient agreement with participation and also to determine if the patient could be able to understand and potentially complete the oral intake tracking sheet. This tool is important to understand the patient's baseline knowledge and evaluate if they are able to participate in the patient engagement activity. See Appendix B.

Method of Evaluation

Process Measures. A measure of process was the number of patients who met inclusion criteria but refused to participate. As patients refused to participate, they were removed from the initial sample size. Excluding the final eligibility criteria of agreement to participate, the participation rate of 23% was calculated as potential participants refused.

Outcome Measures.

Oral Intake Tracking Sheet. This tracking tool is exclusively used by the patient and the investigator. There are three columns: "Time", "how much?", and "what did you drink?" At the bottom of the tracking sheet there is a key that contains points of reference and the conversion of ounces to milliliters. This is the tool that will be used for retrospective chart comparison. See Appendix C.

Data Analysis Plan

A comparison of what the patients have recorded during the intervention phase to what was recorded in the patient's Electronic Health Record (EHR) for oral fluid intake over the same period was analyzed. A Wilcoxon test was done to determine the discrepancy between patient-tracked oral intake and that documented in the EHR existed. The statistical significance of the results was determined using the Wilcoxon nonparametric test due to a small sample size.

Using a power calculator the original sample size anticipated was $n=56$. The assumption that the average daily census accounts for an average of four new cases determines the initial sample size. This sample size is based on a two week retrospective chart review completed previous to this intervention.

The sample size was the adjusted ($n=6$) using a confidence interval of 20 and 80% confidence level including only those patients who agreed to participate. The sample population was adjusted for refusal to participate on an ongoing basis.

Results

Tracking Sheet

Data were analyzed using SPSS version 20.0. Open-ended comments were categorized into negative and positive. Out of an intended sample population of $n=56$, less than 25% of eligible participants asked chose to participate in this initiative. Because the inclusion criteria included participation, the sample was met.

The results of intake amount tracked by the patient and intake amount documented by the clinician groups were evaluated using the Wilcoxon nonparametric test. A significant difference

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between means was found in the results where $p < .05$ ($z = -2.201$, $p = .03$). Figure 1 represents the mean difference of patient tracked and clinician documented amounts.

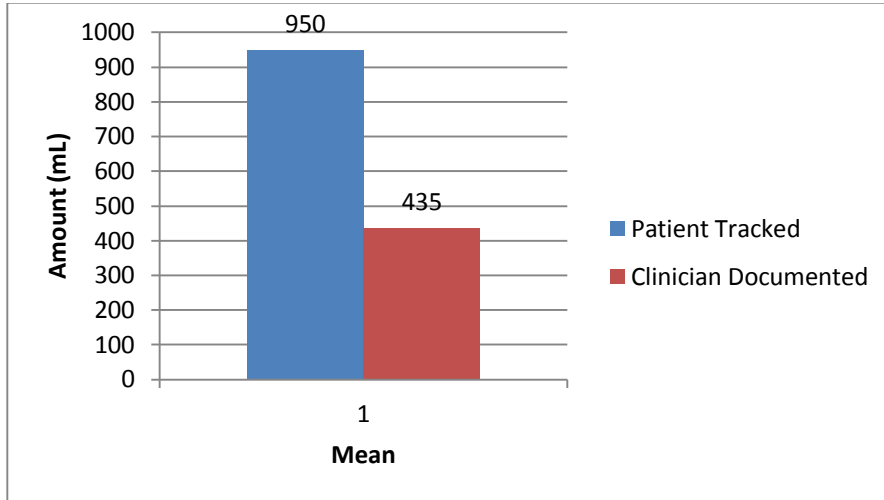


Figure 1. Comparisons between the means of patient tracked & clinician documented * $p < .05$

Patient-tracked amounts were consistently larger than clinician-tracked electronically documented amounts in a sample size of $n = 6$. Figure 2 represents the individual differences between the amounts of oral fluid intake tracked by patients in comparison to the amounts of oral fluid intake documented by the clinician.

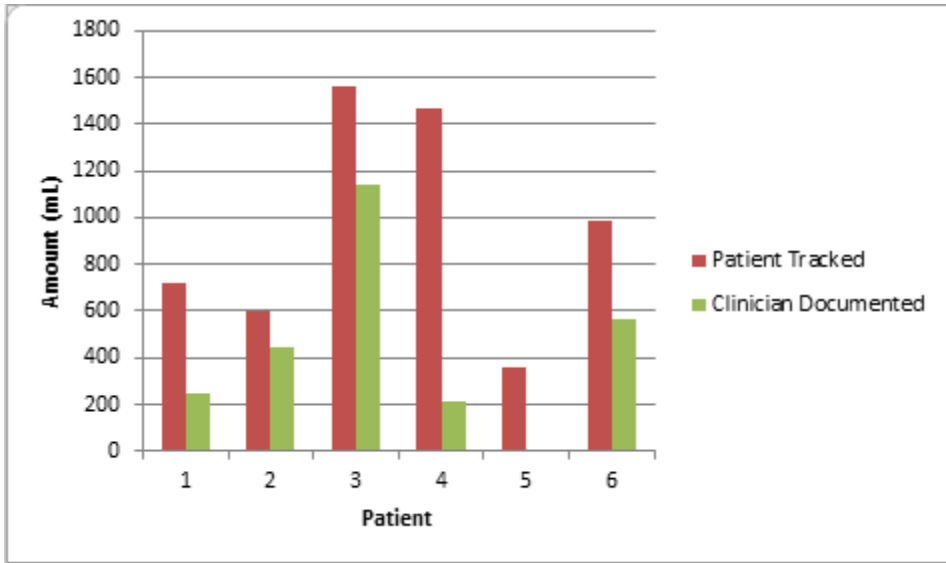


Figure 2. Comparisons between patient-tracked amounts vs. clinician documented amounts.

Open-Ended Comments

Patients and family members commonly made comments regarding the initiative. Two main themes for not participating were revealed. Patients commented that they were “not feeling up to it” or expressed that they “did not need this”. Positive open-ended comments included “this is a great idea for participation” and “the chart is very easy to use”.

Discussion

This statistically significant difference indicates that when adequately engaged, patients keep a more reliable record than is electronically documented by the staff due to various factors. The results of this project must be considered with speculation based on the process measures, and the following questions were raised. Specifically, did the process work considering the number of patients resisting to participate in their care? Further, is this intervention not a

dependable method of tracking oral intake considering such resistance? The limited sample size indicates a thematic lack of interest and/or lack of exposure to engagement in care.

According to Perren et al (2011), one liter of fluid is equal to one kilogram (kg) of body weight. When examining the fluid balance flowsheet, clinical decisions based on the net intake and output are not reliable when there is a documented inaccuracy according to Perren et al (2011). When taken into consideration that one liter of fluid intake is equal to one kilogram of body weight according to Perren (2011), some discrepancies in patient tracked vs electronically documented were over a liter different. The use of intake and output net balance in clinical decision making in this microsystem is unclear as it varies by attending physician. With the extreme discrepancies found in this quality improvement initiative, it can be implied that the electronic documentation is not an accurate measure on which to base clinical decisions.

All of the 6 patient participants were able to adequately answer the teach-back questions (Appendix B). Also of note, four of the six patient participants asked follow-up questions regarding their conditions, symptoms, and management aside from the information provided in the teach-back script.

Limitations

In addition to patient refusal, the small sample size may be attributed to the varying census; the census will typically decrease during the summer months. Additionally, there is an unwillingness to participate or engage in care, even though research has demonstrated that it is important to educate in the acute phase of an illness as long as the patient is medically stable (Haney & Shepherd, 2014). This quality improvement analysis indicated that there was a lack of motivation in terms of patient participation, and a lack of understanding of the importance of

engaging in hospital care on the part of the patient. Contributing factors to this resistance to participate may include the advanced age of patients who are typically diagnosed with heart failure, a recent shift in policy, and also the geographical and cultural location in which this population resides.

To increase the sample size in future PDSA cycles other diagnostic criteria should be included. For example, other patients such as patients with a sepsis protocol order and patients with chronic kidney disease usually also had orders for monitoring intake and output and could be part of the included population. However, the education component would need to differ for different diagnoses and that was outside of the scope of this intervention. Other limitations outside of the control of this investigator included that while some physicians had tendencies to order intake and output monitoring for patients with heart failure, others did not place them therefore the attending hospitalist would determine how many patients were eligible for the intervention.

Role of the CNL

The CNL has several key roles within this quality improvement. As a systems analyst/information manager, it is the role of the CNL to identify and analyze gaps in care. It is also the responsibility of the CNL to implement processes within the microsystem based on evidence and best practice. Additionally, it is within the scope of the CNL to advocate for the clients. This quality improvement initiative involves advocating for best patient care and also identifying patients who would most benefit from this type of intervention (i.e. chronic illness). Finally, it is the responsibility of the CNL to be an educator. In the case of this initiative the

CNL should educate on the management of chronic illness, reinforce previous knowledge, and assist the patient in avoiding hospital readmissions.

Recommendations

While the results of this initiative that clearly illustrate an inaccuracy in EHR when compared with what patients track on their own is clinically compelling, there are recommendations to promote the success of this intervention. A longer period of study and a larger sample size would likely strengthen the argument that patient engagement, in the case of this initiative, not only increased accuracy of documenting oral fluid intake but also engaged patients in the care and management of their chronic illness. A follow-up on patient participants to determine success of readmission reduction would also be necessary.

Additionally, findings that patients were hesitant and/or resistant to participating demonstrate a need for further assessment and examination of exactly why and how that can be changed. The inclusion of family in this activity seemed to promote participation, so further research may be done to determine why. The clinician understands the value and success of teach-back and patient education and its role in readmission rate reduction in patients with chronic illness is a priority with this intervention. Conveying the importance of patient engagement to the patient is an additional responsibility of the clinician. Finally, the accuracy of intake and output documentation changes from shift-to-shift and has been questioned as a reliable measure on which to base clinical decisions (Perren et al, 2011; Pflaum, 1979). This indicates that there may be a shift to another more objective and reliable determination of fluid balance in an inpatient setting.

Conclusion

Engaging patients in their care using teach-back is an evidence-based method that has not only been shown to improve the patient's management of a chronic disease, but also has improved hospital outcomes. The small number of engaged patients consistently tracked larger amounts of oral fluid intake than was electronically documented by the clinician. Though desire to participate was low, patients who were knowledgeable about their condition were more likely to want to participate in this intervention. However, these nursing interventions are not without barriers such as patient participation, cultural differences, and educator incompetence. It is the role of the CNL to explore ways to overcome these types of barriers in order to improve outcomes and reduce readmissions. In addition to examining ways to improve patient engagement, the CNL should also work with a multi-disciplinary team to develop a more reliable method of measuring fluid balance in heart failure patients in an effort to standardize the process and also continue to promote patient-centered care.

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Appendix A

Capstone Project: Pre-Screening Tool

- Is this patient in the CICU census?
- Does this patient have orders for one of the following?
 - Monitor Intake & Output
 - Monitor Intake & Output – Strict
- Is this patient Alert & Oriented x4 (see DocFlowSheet)?
- Is the Learner's Assessment complete? (see Patient Education tab)
 - English as a primary language? (see learning assessment)
 - No barriers to learning? (i.e. patient is illiterate)

Appendix B

Patient Teach-back for Oral Intake Tracking

Script

Introduction: I'm in the Masters of Nursing program at UNH. For my final project, I am trying to see if by asking patients to participate in their care we would be better able to more accurately track patient oral intake. Right now it is a problem because with so many different staff members helping out throughout the day it is difficult to track how much you drink outside of your meals. It is important to track how much you drink so we can compare that with your output (like when you go to the bathroom) so we can tell if you are getting closer to your dry weight, or if your body is retaining fluid. Would you be willing to participate in some education and then possibly help by tracking all of the liquid you drink throughout the day?

If yes, then assess baseline knowledge.

If no, then move on to next qualified patient.

Questions:

- 1) Why is it important to monitor your intake and output?
- 2) How does heart failure cause your body to retain fluid?
- 3) How would you measure how much is in this cup?

Evaluate, re-educate as needed, then ask teach-back questions again.

Answers:

- 1) It is important to monitor intake and output because it is common in heart failure to retain fluid. Having an idea of how much you are taking in and putting out can help reduce the work your heart is doing.
- 2) Your body retains fluid because of a hormonal response to your heart not pumping as well as it should. A hormone called anti-diuretic hormone is released because the body senses that there is not enough blood volume. This causes reabsorption of water back into your blood stream which can lead to the overload and therefore the retaining of fluid.
- 3) Handing them a 12 oz cup for "rule of thumb" or reference, marking measurements on cup, etc. Also showing where the # of ounces is located on cup.

If pass then patient receives oral tracking chart and additional instruction,

If fail then move on to next qualified patient.

Appendix C

What'd you have to drink?

Time	How much?	What was it?
7:00 am		
8:00 am		
9:00 am		
10:00 am		
11:00 am		
12:00 pm		
1:00 pm		
2:00 pm		
3:00 pm		
4:00 pm		

Key: 1 ounce = 30 milliliters



= 12 ounces = 360 milliliters



= 4 ounces = 120 milliliters



= 4 ounces = 120 milliliters



= 8 ounces = 240 milliliters