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## Improving Data Collection and Documentation within a Post-Hospital Discharge Follow-Up Phone Call Program

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Improving Data Collection and Documentation within a  
Post-Hospital Discharge Follow-Up Phone Call Program

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### Abstract

Hospital discharge with quality patient education and instruction is paramount for the success of recovery and mitigation of readmission. Identification of gaps within hospital discharge can lead to strategies to improve the discharge process. A project was designed to improve data collection, documentation of discrepancies (gaps/events), and analysis of data relating to patient and process outcomes of a post-discharge follow-up phone call program. Interventions included a newly implemented algorithm to outline a phone call workflow, refine data collection, and evaluate outcomes. Data collection to increase identification of gaps in care from discharge to follow-up aid in improving patient outcomes. Keywords: *follow-up, phone call, primary care, discharge education, RN education.*

## Background

Preventing hospital readmission within 30 days of discharge is a strategy that medical institutions across the continuum use to influence healthcare costs, and to decrease the risk of loss of reimbursement from insurance programs, specifically Medicare, for patients who may be readmitted within 30 days of previous hospitalization. Hospital readmission rates are among the top priorities of most medical institutions as it affects their payment from insurance companies and the Centers of Medicare and Medicaid Services (CMS). The CMS (2017) explains that a “30-day all-cause hospital readmission measure is a risk-standardized readmission rate for beneficiaries ages 65 or older who were hospitalized at a short-stay acute-care hospital and experienced an unplanned readmission for any cause to an acute care hospital within 30 days of discharge”.

A primary care clinic in Southeastern Minnesota utilized a post-hospital discharge follow-up phone calls (PDFUPC) program to prevent 30-day hospital readmissions, however, the effectiveness of the program was unknown and required further review and evaluation. Post-discharge follow-up phone call programs can positively improve patient outcomes, satisfaction, and contribute to a reduction of healthcare costs (Cassavettes, 2018; Christie et al., 2020; Clari et al., 2015; Coberley et al., 2018; Constantino et al., 2013; Harrison et al., 2011; Jayakody et al., 2016; Lewis et al., 2017; Luciani-McGillvray, 2020; Mathew, 2016; Mitchell et al., 2016; Mwachiro et al., 2020; Schuller et al., 2015; Theriot, 2016; & Zhang et al., 2011). Additionally, Tang et al. (2014) noted that PDFUPCs improve post-hospital care by identifying clinical and care-coordination issues early due to inadequate discharge education, such as medication questions and attendance for follow-up appointments. Information gathered via PDFUPCs found that feedback can be provided directly to hospital units to enhance care delivery related to

discharge instruction and improve patient discharge education and reinforcement of discharge recommendations (Schuller et al., 2015).

A clinical scholarship project was developed to expand on data collection methods for an existing post-hospital discharge follow-up phone call program for established primary care patients. The existing follow-up phone call process consisted of a Primary Care Coordinator Registered Nurse (PCCRN) who received a notification via an electronic health record (EHR)-generated report that a primary care patient was discharged from the hospital setting, thus triggering the initiation of the PDFUPC process. The PCCRN would attempt to contact the patient within the first 48 business hours following discharge, as evidenced within the literature (Cassavettes, 2018; Downes et al., 2015; Lewis et al., 2017; Luciani-McGillivray et al., 2020). If the PCCRN was unable to connect with the patient on the first attempt, a second attempt of communication would be initiated 48 business hours from the initial phone contact attempt. If the PCCRN successfully connected with the patient on the first or second attempt, the PCCRN would complete a focused assessment based on the primary reason for hospitalization and document findings in a pre-determined template within the EHR. During the assessment (phone call), if the PCCRN discovered a discrepancy within the discharge process, education, or instructions, the discrepancy was then reported via the Research Electronic Data Capture (REDCap) Discrepancy Survey tool. Downes et al. (2018) defines a discrepancy “as an inconsistency between the 2 lists with respect to drug, dose, or frequency” (p. 560). In the Primary Care department, administrative leadership defined discrepancies as “errors” or “near-miss events” relating to elements of patient discharge. Examples of discrepancies are lack of education on medication or post-discharge care, medication list not updated prior to dismissal, durable medical equipment instruction and prescriptions were not provided, and proper follow-

up appointments, consults, and services were not scheduled. Based on the outcomes of the PCCRN assessment, if the patient required a follow-up appointment within the primary care clinic, the PCCRN would coordinate scheduling with a scheduling specialist.

To improve the current post-discharge follow-up phone call process, the project began by collecting baseline PCCRN knowledge of data collection, educating the PCCRNs on the importance of reporting discrepancy data via the REDCap Discrepancy Survey tool (Christie et al., 2020), and creating an algorithm to achieve efficient methods of extracting and analyzing data provided through the REDCap Discrepancy Survey tool. The improved system of data collection was used to evaluate the program's impact on process and patient outcomes, such as decreased rates of 30-day readmission. The project leads defined readmission as patients that were admitted into the hospital or visited an Emergency Department for treatment. The projected outcomes of the intervention included (a) enhance consistent use of the current REDCap Discrepancy survey tool to address discharge discrepancies (b) development of a plan for monthly collection and review of data, (c) delivery of recommendations to nursing administration and quality improvement representative to achieve project sustainability upon project completion, (d) comparison of completion rates of follow-up phone calls pre- and post-project implementation, and (e) comparison of readmission rates (pre- and post-intervention implementation).

### **Materials and Methods**

The project setting was a primary care clinic within a large, midwestern tertiary care medical institution in which PCCRNs conducted follow-up phone calls for established patients after recent hospital discharge. All PCCRNs in the population setting were subject to the pre/post-education assessments and algorithm intervention. The PCCRNs were provided a pre-

assessment survey to determine baseline knowledge of how and when to report a discrepancy via the REDCap Discrepancy Data survey tool. Following the pre-assessment, an education module was presented and recorded to be used for ongoing education for new and current staff. The purpose of the module was to provide nursing staff with updated education regarding how and when to record discrepancies noted during PDFUPCs, to reinforce the importance and effects of reporting discrepancies, to provide the definition and criteria for discrepancy qualifications, and to educate about the effective use of the newly implemented algorithm. The presentation offered an overview of the project, education module objectives, project purpose, and project outcomes. The education module also included a review of the REDCap Discrepancy Survey tool. The REDCap Discrepancy Survey was a tool designated for reporting discharge education and instruction discrepancies identified by the PCCRN during the PDFUPCs. Due to PDFUPC data not being collected and analyzed consistently, significant opportunities for process improvement may have been missed. The project leads developed an algorithm that provided a uniform workflow to be used by each PCCRN for each phone call conducted to accurately capture discrepancy data. Following completion of the PCCRN staff education module, the algorithm was implemented into practice for a 90-day project intervention phase. The post-education assessment was administered upon project completion and the results were compared and statistically analyzed. Readmission data was collected and analyzed in 30-day increments throughout the project intervention phase.

### **Pre-Intervention Data Collection**

#### **Staff survey data**

Prior to administration of the PCCRN staff education module PowerPoint presentation, a pre-education assessment was conducted. Electronic surveys were distributed to each PCCRN

staff member of the primary care department with a response rate of 16 out of 30 (53.3%). Factors contributing to the 53.3% response rate could have been related to email fatigue of the PCCRN, along with frequently changing policies and procedures related to the COVID-19 pandemic. See Appendix A for the PCCRN pre-education assessment. Of the 16 respondents: six (37.5%) PCCRN answered 4 out of 4 questions correctly, four (25%) PCCRN answered 3 out of 4 questions correctly, four (25%) PCCRN answered 2 out of 4 questions correctly, two (12.5%) PCCRN answered 1 out of 4 questions correctly, and zero PCCRN answered 0 out of 4 questions correctly.

### **Readmission Data and Phone Call Completion Rates**

Readmission data was collected prior to implementation of the education module and new phone call workflow algorithm. The project leads collected and evaluated retrospective data from September 1, 2020, through December 1, 2020, to compare to post-algorithm implementation data. Based on the CMS criteria, the readmission rates were assessed on a 30-day basis over a three-month intervention phase. Upon initial assessment of the post-discharge follow-up phone call process, the Fall 2020 timeframe was strategically selected to compare to a Fall 2021 timeframe.

Post-discharge follow-up phone call completion rates were collected from September 1, 2020, through December 1, 2020. Completion of a phone call was achieved if the patient answered on the first or second attempt of contact, or if the patient returned a phone call within 48 hours of hospital discharge. A total of 164 patients were contacted during the retrospective data collection phase and 147/164 (89.6%) follow-up phone calls were completed versus 17/164 (10.4%) of patients who were contacted with no response.

### **REDCap Discrepancy Survey Data**

One project outcome focused on enhancing the collection of REDCap Discrepancy surveys by capturing discharge discrepancies more consistently and accurately. The data were trended over a monthly period and analyzed to identify recurring gaps within the discharge process. REDCap Discrepancy survey data was collected pre-project implementation from September 1, 2020, through December 1, 2020. Notably, verbal reports from the PCCRN staff indicated that the frequency of identified discrepancies were daily and weekly, however, the REDCap Discrepancy surveys reported did not support that frequency.

### **Statistical Analysis**

Statistical analyses were considered for each project outcome. The responses for the PCCRN knowledge assessment pre- and post- PCCRN education were unmatched pre- to post-survey due to anonymity of the participants. The organization did not allow allotted numbers to be assigned to staff for assessments. Therefore, following statistical consultation, no formal statistical test was applicable, and results were summarized by correct responses in the pre- and post- assessments. Secondly, the rate of reported discrepancies was compared between the two time periods of pre-PCCRN education and algorithm interventions to post-PCCRN education and algorithm interventions. A test of two Poisson rates was used to test this question to analyze the number of discrepancies within the selected time intervals (NIST/SEMATECH, 2013). Lastly, the 30-day readmission rates among patients who received follow-up calls pre-interventions compared to post-interventions were arranged in a 2x2 table. A chi-square test of independence was used to determine whether the 30-day readmission rate differed between the two timeframes.

## Results

Table 1 summarizes the results of the PCCRN Knowledge Assessments (pre-education module and post-education module). By percentage, the number correct on the pre- and post- were similar. For example, 31% of nurses scored 4 out of 4 correct on the pre-assessment compared to 30% of nurses on the post-assessment; 44% of nurses scored 3 out of 4 correct on the pre-assessment compared to 40% of nurses on the post-assessment, etc. Table 2 provides the number of reported discrepancies between the two 90-day timeframes. There were 233 discrepancies reported during September 1<sup>st</sup> to December 1<sup>st</sup>, 2020, and 268 reported from June 28 to September 28, 2021. Although the increase in reported discrepancies was not statistically significant ( $p = 0.064 > 0.05$ ), it was clinically significant as it supported the effectiveness of the algorithm in increasing consistent usage of reporting via the REDCap Discrepancy Survey tool.

Despite the project interventions, it was reported that readmissions within 30-days post-hospital discharge had increased by greater than 20%. The increase in readmissions was statistically significant ( $p < .001$ ) but lacked supporting evidence to explain the increase due to differences in sample sizes (147 charts reviewed pre-interventions versus 172 charts reviewed post-intervention).

## Conclusion

The number of nurses taking the pre- and post-surveys had decreased from 16 to 10 responses. Again, contributing factors could have been PCCRN email fatigue, as well as decreased free time to complete due to increased workload (phone calls and documentation). Similar scores may have resulted due to the possibility of different nurses completing each assessment in the absence of an accurate method to track improvement. Notably, there was an increased physical presence to promote the completion of the pre-assessment compared to the

completion of the post-assessment following the intervention phase due to the reimplementation of COVID-19 restrictions within the institution. The project leads acknowledged that having anonymity for the assessments was important in obtaining participation, however, it would have been advantageous to create a unique participant identifier to measure and compare pre- and post- PCCRN knowledge assessments.

Although the project did not directly impact 30-day readmission rates, the increase in readmission rates from 2020 to 2021 was statistically significant. This was likely due to multiple external, uncontrollable factors influencing the increase in rates. During 2020, many people avoided healthcare settings due to the COVID-19 pandemic and national restrictions. Czeisler, et al. (2020) reported that a staggering 41% of adults in the United States chose to forego seeking urgent or emergent medical care (12%) and routine care (32%) by June 30, 2020, due to concerns of COVID-19 (para. 2). The World Health Organization (2021) reported that “the pandemic has likely increased deaths from other causes due to disruption to health service delivery and routine immunization, fewer people seeking care, and shortages of funding for non-COVID-19 services.” (para. 5). Consistent use of the current discrepancy data collection survey was not reported to be statistically significant but was clinically significant as it supported the algorithm intervention’s effectiveness in increasing discrepancy data collection. Lastly, the project leads assisted in identification of an interprofessional team consisting of a quality nurse and clinical nursing specialist to review REDCap Discrepancy Survey and readmission data routinely. The uniform and routine collection of discrepancy data will provide future insight into recurring trends and potential gaps within the inpatient discharge process. Final recommendations for sustainability included PCCRN education, provided by the project, to be administered during new employee orientation and annual or bi-annual PCCRN education as a review. Once the

improved follow-up phone call process has been established and discrepancy data is being consistently collected, further steps may be implemented to identify frequencies in discrepancies and recurring discrepancies per individual hospital inpatient department.

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## Appendix A

Knowledge Assessment for Primary Care Coordinator Registered Nurses  
(to be administered pre-education and three months post-implementation of algorithm upon completion of project)

Which of the following qualify as a discrepancy in post-discharge follow-up phone calls?  
(Select all that apply)

- a. Patient verbalized unclear medication instructions
  - b. An unscheduled post-hospital follow-up appointment
  - c. Patient verbalized understanding of discharge directions provided on the After Visit Summary (AVS)
  - d. Patient did not pick up or fill prescriptions
2. When is the most beneficial time to fill out the REDCap Discrepancy survey on an identified discrepancy?
- a. As you are dialing the patient's phone number
  - b. Immediately, after the phone call has been completed
  - c. At the end of the workday
  - d. All of the above are appropriate and beneficial times
3. Which of the following scenarios would indicate the need for a REDCap Discrepancy survey? (Select all that apply)
- a. Mr. Spade was discharged from the hospital 30 hours ago. In the follow-up phone call, he verbalizes appreciation for the follow-up. He has no questions relating to his discharge or ongoing care. All medications on his medication list are correct and he has no additional needs. However, Mr. Spade states that no discharge paperwork (discharge summary/AVS) was given to him upon dismissal from the hospital.
  - b. Ms. Green was discharged from the hospital 24 hours ago with a right upper extremity PICC line for long-term antibiotic therapy. She tells you that she is uneasy about "walking around with this thing in her arm" and that no one has contacted her about continuing her antibiotic infusions. She was due for a dose of medication at 0900, and it is now 1300. Upon further investigation, you learn that there was minimal education about "who" would be providing the therapy while she is at home, and "how" to contact the providers.
  - c. Jainey, a 19-year-old basketball player, was evaluated in the Emergency Room 32 hours ago for a left ulnar fracture. She received a cast extending above-the-elbow to immobilize the extremity and confirms she has follow-up with orthopedic surgery scheduled in two days. Jainey reported that she picked up her pain medications and

has no new symptoms to report. She verbalized understanding of cast care and the follow-up appointment.

d. Mr. Dayton is a 76-year-old farmer that was discharged from the hospital 48 hours ago with a diagnosis of diabetic ketoacidosis. Diabetes Mellitus Type I is a new diagnosis for Mr. Dayton. After asking how he is doing with his new insulin pen, he replies, “Just dandy! Now that I have this handy little pen, I can go back to cookies and Mountain Dew for breakfast! Who knew that one pocket-sized device could cure diabetes?”

4. Why is it important to completely fill out the REDCap Discrepancy Survey?
  - a. It is the expectation of the manager
  - b. Information could potentially change the upstream processes at discharge to be more effective and beneficial for patients, thus, improving patient outcomes
  - c. It is a requirement per Joint Commission Standards
  - d. None of the above

**Table 1***Count (%) of responses by each number correct on the PCCRN Knowledge Assessments*

<b># Correct</b>	<b>Pre (N=16)</b>	<b>Post (N=10)</b>
1	1 (6%)	0 (0%)
2	3 (19%)	3 (30%)
3	7 (44%)	4 (40%)
4	5 (31%)	3 (30%)

**Table 2***Reported number of discrepancies between the two 90-day timeframes*

	9/20-12/20/2020	6/21-9/21/2021
# Discrepancies	233	268
	$p = 0.064$	

\* $p < .05$