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

Lindsay Horihan  
*Winona State University*, lhorihan10@winona.edu

Tasha Flicek  
*Winona State University*, tflickek13@winona.edu

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

Tasha Flicek

Lindsay Horihan

Winona State University

April 19\textsuperscript{th}, 2021
Abstract

**Purpose and Rationale:** The purpose of this project is to improve a post-discharge follow-up phone call program by creating evidence-based methods of collecting, documenting, and analyzing data that will provide insight of the program’s impact on patient and process outcomes. There was sufficient evidence to support the use of follow-up phone calls as an effective method to limit hospital readmissions within thirty days of being discharged. The literature also revealed patient and process outcomes to be measured as a final step in the program and to provide data for ongoing process improvement. **Practice Change and Implementation Strategies:** The current phone call program, such as timing and provider/nurse script, was aligned with the most recent evidence but lacked data collection and evaluation. The project will focus on creating algorithms that will improve decision-making and actions to take after follow-up phone calls are complete, refining methods for collecting data, and evaluating patient and process outcomes. **Evaluation:** Process outcomes include completion rates of follow-up phone calls and categorized discrepancies recorded during follow-up, allowing for future changes to be implemented to enhance the discharge process. Patient outcomes include 30-day readmissions. **Conclusion and Implications for Practice:** Adequate data collection will allow for analysis of processes and patient outcomes. The importance of the program and data collection relates to identifying gaps in patient care and education during discharge from the hospital, as well as targeting patient outcomes such as decreased readmission to the hospital within 30 days.
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Problem

Introduction

Amidst the COVID-19 pandemic, there is a need to keep patients out of the hospital setting to avoid nosocomial COVID, or other infections. Preventing hospital readmission within 30-days of discharge is a strategy that hospitals use to help keep patients safe and lower healthcare costs. Readmissions total $41 billion of healthcare spending in the United States (Mwachiro et al., 2020). A primary care clinic in Southeastern Minnesota was utilizing post-hospital discharge follow-up phone calls to help prevent 30-day hospital readmissions, however, the effectiveness of the program was unknown and required evaluation.

Clinical Problem

Much of the literature surrounding post-discharge follow-up phone call programs focuses on the intervention’s ability, or inability, to influence 30-day hospital readmission rates. Preventing readmission and streamlining discharge processes is a complex process (Mitchell et al., 2016). However, there is sufficient evidence to support that if performed correctly, post-discharge follow-up phone calls 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).

The current process included a follow-up phone call and provided a method of collecting data to note the gaps in care. These gaps include absence of discharge summary, incorrect medication lists or dosing, patient misunderstanding home care instructions (i.e., wound care), and unscheduled follow-up appointments. However, this data collection tool was underutilized and under documented by the nurses (RNs) performing the follow-up calls. Wilcox and McNeil
(2016) noted that credibility of unit-level reports and ability to drive change is weakened by a low capture rate. Mitchell et al (2016) noted that routine analysis and problem-solving using post discharge follow-up ensure that failures in discharge processes are addressed swiftly and increases the positive perceptions of the process by stakeholders. Minnesota Department of Health (MDH) (2020) noted that there is a need to implement broader quality improvement strategies utilizing RNs, social workers, certified nurse’s aides, and quality analysts to improve patient outcomes with transitions of care.

As a result of the project lead’s on-site evaluation and comparison to current and the most recent evidence-based practice, it was determined that the areas requiring improvement were the phone call process and the process of evaluating patient outcomes. The project leads assessed process alignment with the most recent and highest levels of evidence provided in the literature and developed an enhanced process to collect and analyze data regarding process outcomes (e.g., discrepancies in patient care identified during the phone call), as well as the patient outcome of 30-day readmission rate. The nurse administrators of the primary care division considered the topic a priority, thus allowing the formation of a team for the project.

**Purpose**

The purpose of this project is to improve a discharge follow-up phone call program by creating efficient methods of extracting and analyzing data that will provide data of the program’s impact on process and patient outcomes. The outcomes are to (a) identify completion rates of follow-up phone calls pre- and post-project implementation, (b) compare readmission rates (pre- and post-project implementation), (c) enhance consistent use of the current REDCap Discrepancy survey to address discharge discrepancies (Research Electronic Data Capture; Christie et al, 2020), (d) develop a plan for the monthly collection and review of data, and (e)
deliver recommendations to achieve project sustainability upon project completion. The REDCap Discrepancy survey is a data collection tool utilized by nursing staff to influence patient assessments during the follow-up phone call and ensure patient and caregiver needs were met during hospital discharge. See Appendix A for the REDCap Discrepancy survey. Areas listed as potential gaps or care discrepancies, include medication discrepancy, scheduling issues, outpatient services not arranged, discharge summary not provided, after visit summary (AVS) not provided, labs and tests not ordered/scheduled, home equipment not ordered/scheduled, patient reports feeling unsafe at home, patient or caregiver unsure of action if symptoms persist, patient unsure of work/activity restrictions, discharge disposition inaccurate on the AVS, and other. Nursing Staff report the importance of collecting the REDCap Discrepancy survey data but also report conflicting processes to follow if patient care discrepancies are discovered when using the REDCap Discrepancy survey.

**Preliminary Clinical Practice Question**

Do follow-up phone calls reduce thirty-day readmission rates, after adult, 18 years and older, primary care patients of a large teaching hospital in southeast Minnesota are discharged from an acute care setting?

**Evidence**

**Search Strategy**

The initial literature search conducted by project leads consisted of the review of thirty-eight articles, as shown in Appendix B. Articles chosen for review were filtered to the English language only and published from 1996 to 2020. Keywords utilized were follow-up calls AND after discharge from hospital AND readmission rates within 30 days, as well as telephone follow-up after discharge from the hospital. Databases explored were EBSCOhost, Ovid, and PubMed. Another search of literature was conducted by project leads to focus on the data
collection aspect of the follow-up calls. The attention of this new search revolved around two concepts: algorithm use to improve processes and how data was used to enhance discharge process. The primary focus of this literature review was to identify processes of data collection that can be obtained from follow-up calls and confirm support for implementing an algorithm to assist the data collection process. Articles selected for review were filtered to the English language only and published from 2011 to 2021. Databases explored were EBSCOhost, Ovid, and PubMed. An additional review of thirty-two articles resulted in 64 articles total that were reviewed in detail. Other sources in this search included professional practice websites such as the Agency for Healthcare Research and Quality, the Centers of Medicare and Medicaid Services, and three blog posts supporting follow-up phone calls to complete a comprehensive literature review. No practice guidelines were found addressing post-discharge follow-up phone calls within the literature search. Figure 1 provides action items via a Gantt Chart for Project Implementation timeline.

**Review of Evidence**

Appendix C displays the literature review with the level of evidence designated based on criteria by Ackley et al. (2008). Emerging themes recognized in the literature surrounding follow-up phone calls were the efficacy on 30-day readmission rates, data collection to enhance discharge processes, and the use of algorithms. Gaps within the literature included varying statistical significance of the phone calls, indistinction of who provided the follow-up calls (RNs, trained personnel, or other staff members), and a lack of randomized controlled trials.

**Appraisal of systematic review**

No meta-analyses were found during the literary search. Only one of the 64 articles reviewed was a systematic review. Jayakody et al. (2016) performed a systematic literature
review of telephone follow-up and found that five out of ten studies were effective in decreasing readmission rates. However, the review did not provide support for the effectiveness of the intervention, due to mixed findings and external factors effecting readmission rates more directly. High methodological quality studies examining effectiveness of follow-up phone calls are needed in a more standardized way (Jayakody et al, 2016).

**Follow-up call outcome measurements**

There were ten articles that did report statistical significance of post-discharge follow-up calls that decreased 30-day hospital readmissions (Cassaveettes, 2018; Coberley et al., 2018; Constanatino et al., 2013; D’Amore et al., 2011; Harrison et al., 2011; Lewis et al., 2016; Mitchell et al., 2016; Mwachiro et al., 2020; Schuller et al., 2015; & Somberg, 2012). Other positive patient outcomes noted throughout the literature were reduced post-discharge problems (Clari et al., 2015), decreased ED visits (Constanatino et al., 2013; Luciani-McGillvray et al., 2016 & Theriot, 2016), increased follow-up appointment attendance (Hendrickson et al. 2020; Luciani-McGillvray et al., 2016 & Tang et al., 2014) improved patient satisfaction scores (Mathew, 2016; Schuller et al., 2015; Somberg, 2012; & Soong et al., 2014), and providing cost-effective care (Christie et al., 2020, Coberley et al., 2018 & Zhang et al., 2011).

**Enhancing the discharge process**

Nine of 64 articles addressed using data from follow-up phone calls to enhance the discharge process (Cichowitz et al., 2018; Downes et al., 2015; Emdadul Houke et al., 2017; Hendrickson et al., 2020; Jones et al., 2017; Mitchell et al., 2016; Schuller et al., 2015; Tan & Sestan, 2019; & Wilcox & McNeil 2016). Data from follow-up phone calls can provide feedback to enhance care delivery related to discharge planning through improved discharge instructions and reinforcement of discharge recommendations (Schuller et al., 2015). Downes et al. (2015)
stated that telephone follow-up may help in gaining accurate information to avoid adverse patient events. Eight articles supported the use of a survey tool, such as a REDCap Discrepancy survey (currently being used in the setting), to enhance data collection (Christie et al., 2020; Jayakody et al., 2016; Lewis et al., 2017; Lucianai-McGillvray, 2020; MND, 2020; Mwachiro et al., 2020; Soong et al., 2014; & Tang et al., 2014). MND (2020) and Rivasplata et al. (2021) supported having quality analysts, or designated persons, committed to data collection to enhance findings, and seven articles proved not to be useful (MND, 2020 & Rivasplata et al., 2021).

Sustainability is dependent on local investment of trainers, mentors, and quality improvement (Rivasplata et al, 2021).

Data collection

Wilcox and McNeil (2016) noted that data collection was improved by addressing barriers of patient clinicians not utilizing appropriate tools. An algorithm can be a great resource to facilitating proper data collection (Bates et al., 2014; Brown et al, 2021; Coughlin et al, 2020, Hewner et al., 2020, Rivasplata et al 2021; & Wilcox & McNeil, 2016). Ydrogo et al (2020) noted algorithmic instruction with practice opportunities was used to strengthen nurses’ capabilities related to information seeking and data retrieval.

Overall Evaluation of Evidence and Effectiveness of the Interventions

Table 2 demonstrates the comprehensive literature support of current program practice and algorithm intervention. The project leads compared findings from the literature to the facility’s practice to identify gaps and inconsistencies within current nursing practices against the current, most recent evidence. Through direct observation of RNs in the setting and descriptions of the appropriate use of the REDCap Discrepancy survey in the literature, the institution’s practice appeared to under-utilize the data collection tool of the REDCap Discrepancy survey to
obtain knowledge of commonly occurring discrepancies, had an absence of a method or identified person to analyze the REDCap Discrepancy data, lacked staff knowledge of REDCap Discrepancy use, and did not track data on phone call completion rates or readmission rates. Also, during this direct observation, the primary care nurses verbalized there was minimal training for staff relating to the REDCap Discrepancy survey and demonstrated a lack of awareness of the data’s importance. The nurse specialist responsible for creating the REDCap Discrepancy survey previously transitioned to a new role within the institution, which resulted in data review deficiencies. This discovery led to focusing on utilizing the REDCap Discrepancy survey to collect discrepancy data relating to the discharge from an acute care setting.

There was literary evidence supporting post-discharge follow-up phone calls to help improve patient outcomes such as decreasing readmission rates, improving patient satisfaction, and lowering health care costs. The literature also supported the methods of calling within 48 hours post-discharge with two attempts at contacting the patient and scripted conversation including a comprehensive patient assessment and medication reconciliation. In the clinic’s current practice, consistent data collection from the calls to identify recurring themes in discharge discrepancies was deficient. To ensure consistent data collection in the follow-up phone call program, the project leads created an algorithm, shown in Appendix H. Lastly, the project leads identified the need to designate a person to adopt the data collection process upon project completion to ensure sustainability.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Comparison of Current Program Practice and Literature Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Care</td>
</tr>
<tr>
<td>Follow-up phone call made within two business days post-hospital discharge; total of two attempts.</td>
<td>Does not change: Initial phone call made within two days of dismissal with two additional attempts.</td>
</tr>
</tbody>
</table>
Phone call content includes patient assessment, medication reconciliation and follow-up appointment validation.

New content includes:
1). Algorithm
2). Patient Assessment*
3). Medication reconciliation*

Sporadic documentation of calls and errors relating to dismissal process (REDCap Discrepancy survey).

Documentation to include:
1). REDCap Discrepancy survey
2). EPIC smartphrases* for consistency.

No outcome measurement.

Outcome measurements include:
1). Monthly REDCap Discrepancy survey review
2). Monthly chart review of patients who have received follow-up phone calls and the 30-day readmission status
3). Staff knowledge of REDCap Discrepancy survey use and importance
4). Implementation of a designated Quality Registered Nurse – will continue to sustain implementation processes.

Training and education not consistent among staff.

Training and education program for all staff with consistent, ongoing communication. Assessment of teaching techniques via RN pre/post assessment results

*Processes within current practice that were already aligned with EBP and were left unchanged.

Benchmarking

To complement the research, the project leads were directed at the request of the project mentors to network with Minnesotan Health Care Home (HCH) centers for insight on their follow-up processes. The project leads emailed a survey to seven HCHs in Minnesota and obtained answers via phone interview or through an emailed response. Six HCH representatives participated, displayed in Appendix D. Appendix E highlights the themes identified by the
project leads relating to the query. Two HCHs utilize registered nurses (RNs) to complete follow-up calls and the remaining four use a mix of personnel. Varying degrees of resources and criteria for contacting patients were identified at each facility. None of the facilities tracked the impact of follow-up calls or programs with readmission rate data. Readmission rates were reviewed on a case-by-case basis or as a general (whole population) number.

These findings were a reflection that mirrored the program established at the large teaching hospital. The project leads identified a strategy to track hospital readmission rates and its correlation to patients contacted by follow-up phone calls. This process was labor intensive, as individual patient electronic health records (EHRs) had to be manually reviewed.

**Theoretical Basis**

Jean Watson created a theory that stressed the importance of training in the human sciences and provided essential tools to understanding the social, cultural, and psychological dynamics of individuals (Barreto et al, 2018). Watson created the ten caritas processes, or clinical caritas, as an extension of the Caritive Factors of Human Care Theory (Barreto et al, 2018; Sitzman, 2017). Barreto et al. (2018) noted *Caritas* was of Latin origin and means to treat with affection, to love, to nourish, to give special attention, to appreciate and to be sensitive. Sitzman (2017) outlined the ten caritas processes based on a 2014 publication created in conjunction with Watson:

1. Demonstrate loving kindness, compassion, and equanimity with self and others.
2. Be fully and authentically present.
3. Nurture personal sensitivity through spiritual awareness.
5. Engage in authentic, nonjudgmental listening/interacting in both positive and negative situations.
6. Promote creative problem solving through full use of self and resources.
7. Employ transpersonal teaching and learning methods that honor the learner’s frame of reference.
8. Create holistically healing environments at all levels.
9. Assist with basic needs as sacred acts.
10. Open oneself to mystery and unknowns and allow for miracles.

Sitzman (2017) addressed that Watson’s theory and processes transcend into the digital age and noted that many teaching settings incorporate the caritas processes. This relates to the project as most of the assessment and education provided to RNs will be delivered virtually. With a focus on educating the RNs on the use of the REDCap Discrepancy survey, the project leads will apply Watson’s theory to be authentically present to the learners and demonstrate poise and compassion when addressing their concerns or frustrations during the implementation process.

Plan for Application of the Evidence

Revision of Preliminary Clinical Practice Question

Does creating an evidenced-based evaluation process (data collection, analysis, and evaluation), of a discharge follow-up phone call program, including the creation and use of a phone call program algorithm, improve program processes and patient outcomes such as:

1. Completion rates of the REDCap Discrepancy survey, when applicable, with increased RN knowledge of proper documentation (process outcome).
2. Percentage of patients who receive a follow-up phone call within 3 days of discharge (process outcome).
3. Categorization of types of patient care discrepancies from REDCap Discrepancy surveys to address in the future with discharge care team (process outcomes).
4. Improvement in RN knowledge of REDCap Discrepancy survey utilization evidenced by an increase in post-assessment scores (pre-education and algorithm...
implementation) compared to pre-assessment scores (post-education and algorithm implementation; project completion) (process outcome).

5. Any reduction of patient 30-day readmission rates (pre-project evaluation period from September 2020 to November 2020) compared to readmission rates (analyzed every 30 days for 3 months throughout project) (patient outcomes).

A revised PICOT question was created to revolve around data collection and RN education. The new question focuses on outcomes of completion rates of follow-up calls, REDCap Discrepancy survey data trends before and after implementation of the algorithm, and increased staff knowledge of identifying and documenting discharge discrepancies. The project leads will assess RN knowledge and skill in using the REDCap Discrepancy survey before and after implementing the algorithm. By identifying discharge discrepancies, future changes (i.e., improved patient education at discharge) could be made to enhance patient education and understanding of care post-discharge and contribute to decreased discrepancies. Post-discharge calls bolster Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores and save patients from expensive and onerous visits to the emergency department (ED) or readmission to the hospital (NRC Health, 2018). By providing timely follow-up, an organization can truly show the dedication to providing high-quality care and drive improved loyalty (Romano, 2020) Therefore, the revised search strategies focused on evaluations of follow-up phone calls and data collection processes to improve discharge methods. Evaluating and ensuring an increase in staff knowledge of identifying and documenting discharge discrepancies will provide higher levels of consistency and accuracy in data collection. Thus, allowing for analysis of gaps within the discharge process in the future.

**Identification of the Problem**
Initially, the problem appeared to be the inability to quantify the effects of the post-discharge follow-up phone call program by evaluating patient readmissions. The literature supported that this type of post-discharge follow-up does help prevent hospital readmission rates and improve patient outcomes. The project leads concluded that the process of the follow-up phone calls is supported by statistical evidence (demonstrated in Table 2) and later identified that the true problem was obtaining data to identify problems at discharge.

A problem was recognized to be the lack of RN knowledge on identifying discrepancies and the use of the REDCap Discrepancy survey to obtain data on the errors, as reported by nursing unit staff. Rivasplata et al. (2021) noted ownership regarding implementing and auditing protocols beyond the training depends on in-house leadership and technical support through continuing professional development. By improving RN ownership of documenting identified discharge discrepancies, the data would provide beneficial knowledge for future practice improvements and have the potential to impact patient outcomes. The lack of consistency in use of the REDCap Discrepancy survey reported via dialogue from nursing staff and project mentors propelled the development of an algorithm, as well as a nursing pre/post-education assessment to be obtained before and after implementation of the algorithm. The pre/post-education assessment will focus on RN knowledge of discrepancies and familiarity of the REDCap Discrepancy survey.

**Utility/Feasibility of Potential Interventions**

Human and economic resources were the main factors identified by the nursing administrators/project mentors that were questionable barriers to feasibility. The concern was that with each follow-up phone call, there is a large pool of human resources that are readily available, i.e., nurses, case managers, social workers, physical therapists, pharmacists, and
physicians. Therefore, the purpose of this project is to strengthen the resources already available and collaborate with a statistician to extract data (post-hospitalization follow-up call completion rates, REDCap discrepancy survey utilization, 30-day readmission rates, RN knowledge of the follow-up call process through pre/post-education assessment) to quantify the impact of the follow-up phone calls on identifying discrepancies in the discharge process. The project leads will provide updated education pertaining to when and how to utilize the REDCap Discrepancy survey. Reinforcing RN education will hopefully contribute to an increase of discrepancy identification and reports during follow-up phone calls.

Due to COVID-19 pandemic recommendations, the communication strategy for the project is to continue weekly virtual meetings with the nurse administrators and intermittent contact by email as needed. The statistician will be contacted when the data extraction process is finalized. At that time the communication strategy is subject to change.

One incentive for participating in this evidence-based practice project is to quantify the value of post-discharge follow-up calls. Another includes improving patient outcomes by addressing lack of education at discharge and potentially avoiding unnecessary hospital readmission (Constanatino et al., 2013). The literature reviewed suggested that this could be of monetary benefit to the facility, as well as a potential promoting factor for patient satisfaction and improved patient outcomes (Clari et al., 2015, Coberley et al., 2018, Constanatino et al., 2013, Harrison et al., 2011, Mathew, 2016, & Zhang).

A risk of implementation is that there may not be a method to achieve data collection due to limited resources caused by the pandemic (i.e., patients diagnosed with COVID-19 may not have primary care follow-up through normal location). Therefore, the data would not reflect the benefit of the intervention.
A benefit of this project would be to accurately recognize discrepancies upon discharge that are being identified through the follow-up process. Currently, the consensus among nursing staff is that there is confusion regarding when to document discrepancies via the REDCap Discrepancy surveys. The institution uses the term “discrepancy/discrepancies” to identify gaps within the discharge process and are considered medication errors, missed or non-scheduled appointments, lack of or little education at discharge. The algorithm implemented will possess step-by-step instructions for appropriately documenting discrepancies utilizing the REDCap Discrepancy survey. Once this information has been captured, it will allow the project leads to filter and trend the data to explore where the gaps during discharge are occurring. Table 4 provides an overview of feasibility.
## Table 4
**Analysis of Feasibility of an Evidence Based Practice (EBP) Change: Follow-Up Phone Calls and Recommendations to Overcome**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Citation(s)</th>
<th>Finding(s)</th>
<th>Fit with Setting</th>
<th>Fit with Sample</th>
<th>Feasibility of implementation</th>
<th>Benefit</th>
<th>Risks</th>
<th>Resources Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algorithm to guide phone call follow-up process and when to submit REDCap Discrepancy survey</td>
<td>Bates 2014; Brown 2021; Coughlin 2020; Horner 2012; Hewner 2020; Mitchell et al., 2016; Rivasplata 2021; Ydrogo 2020;</td>
<td>Recommend algorithms and other data collection to provide RNs with quality training, improve care and reduce cost</td>
<td>Clinical settings in US (Bolivia and Africa primary care settings) using post discharge telephone calls</td>
<td>RNs</td>
<td>Feasible with support of leadership</td>
<td>RN gain clarity on when and how to document discrepancies</td>
<td>None</td>
<td>Means of dissemination (print algorithm). contact list of RNs to give algorithm and explain its use.</td>
</tr>
</tbody>
</table>

| Pre-/Post-Intervention RN Assessment | Christie et al (2020) Mitchell et al., 2016; | Four Question assessment | Evaluation of RN understanding of how telephone follow-up calls have the potential to collect data that can be shared to enhance the discharge process. | RNs contacting patient s at follow-up | Short questionnaire deemed feasible to assess RN knowledge | Access knowledge of RNs pre and post interventions | RNs perception of punitive outcome; fear of evaluation; lack of validity/reliability of assessment | Education assessments to be delivered in a virtual format (Qualtrex assessment, PPT education after first assessed) contact list of RNs to implement |
| Quality RN | MDH (2020); Rivasplata et al. (2021) Schuller et al. (2015) | DPC can provide feedback to help improve care delivery process related to discharge planning through improved discharge instructions and reindorsement of prescribed steps upon pt return home | Large metropolitan hospitals utilizing DC follow-up phone calls focus on Nurses, coordinators, SW, CNA and quality analyst s RN follow-up | Feasible – Necessary for sustainability | Improve pt discharge gaps by providing analyzed data upstream (i.e., unscheduled appointments, medications, readmissions, patients satisfaction, quality of care and discharge process). | Payment of RN to perform this work (a lot .1 FTE per pay period) | Identify who (RN) will take over the role Do we need to interview for this? Application? Payment for time |
Patient Preferences

Although patient satisfaction is not a metric included in this project, it could be considered in future studies based on suggestions from the literature. In a study performed in a pediatric setting, 127 parents were randomized to a group receiving a telephone call as follow-up or a group with standard in-clinic follow-up. The phone call or in-clinic follow-up was for post tonsillectomy and/or adenoidectomy. Anderson et al., (2017) reported that parents in the telephone follow-up group strongly preferred the method versus the in-clinic follow-up. Additionally, almost half of the parents in the in-clinic follow-up group would have preferred follow-up via a phone call. Anderson et al., (2017) also notes that the findings of the study were consistent with similar studies reporting support and satisfaction for follow-up phone call programs. Important to note, there was no internal data available pertaining to patient and/or family perceptions of the primary care follow-up phone call program. Additionally, there is no mention of the phone call follow-up program upon discharge from an acute care facility.

Summary of Recommendations

Based on the most recent evidence within the literature reviewed, the recommended interventions to improve data collection and documentation in a post-discharge phone call follow-up program include incorporating an algorithm and RN staff education. Although the literature lacks randomized controlled trials, there is sufficient and consistent evidence to support the use of algorithms in the telephone follow-up program (Table 2). To complement the literature, some of the primary care RN staff have verbalized a need for a change in the current process. Following observations of the process, the project leads were able to determine that the primary care department (RN staff, RN administrators) were ready to implement a change in the phone call program. The RN administrators expressed interest in supporting a project that would
accurately capture discharge discrepancy data, as well as provide evidence of reduced readmission to the hospital to support the continuation of the phone call program.

**Plan for Implementation of the EBP Change**

**EBP Implementation Model**

With permission from Iowa Model Collaborative, shown in Appendix F, the project leads applied the Iowa Model to the next steps of designing and piloting the practice change. The Iowa Model was created in 1994 and has been used to identify problems within current clinical practice (Doody & Doody, 2011). It encourages evidenced-based research projects by compiling and analyzing research in the literature to improve practices and promote quality patient care (Doody & Doody, 2011). There are seven steps in assisting project implementation: 1). Selection of a topic, 2). Forming a team, 3). Evidence retrieval, 4). Grading the evidence, 5). Developing an EBP standard, 6). Implement the EBP, 7). Evaluation (Doody & Doody, 2011). Step two began in February 2020 when the project leads were introduced to two nurse administrators from the hospital's outpatient clinic division. However, steps one and three did not happen until August 2020 when the team could reconnect after the COVID-19 pandemic interruption. Evidence retrieval (step three) and evaluation (step four) continued until March 2021 with a refined approach to step one. Step five of the model involves formulating and proposing recommendations after research review and appraisal of the evidence. The project leads implemented this step from October 2020 when an algorithm was developed through April 2021, when project proposal will be completed. Every thirty days throughout the project period (90 days), the leads will conduct chart reviews via the EHR to determine if patients were readmitted to an acute care facility within thirty days of the follow-up phone call. Additionally, the leads will review data reported via the REDCap Discrepancy survey to identify monthly trends in
discharge discrepancy categories. Other points of data collection include the pre- and post-algorithm intervention education assessments for RN staff. The assessments will be administered via email distribution and responses will be anonymous. Following the pre-intervention assessment, the project leads will educate nursing staff on the proper use of the algorithm being implemented, as well as the correct method to utilizing the REDCap Discrepancy survey. The education will be offered as a PowerPoint presentation with instructions and recorded using the institution’s Video Exchange program. The PowerPoint will provide objectives for learning and include instructor guidance for future use. This method will allow for social distancing to comply with COVID-19 restrictions and provide staff with the opportunity to watch the education at their convenience, and multiple times. Following the completion of the project, the post-intervention assessment will be administered to RN staff and the results will be statistically compared to the pre-intervention assessment results. The project leads are hopeful the results will demonstrate that RN education had a positive influence on effective application of the algorithm by showing and increase in REDCap Discrepancy surveys completed and increased scores on the post-assessment compared to pre-assessment. When the proposal is approved by the facility’s administrators and the academic institution’s faculty DNP board, the project leads will move into step six of the model.

Step six of the Iowa Model presents multiple aspects of successful implementation of the project. Doody & Doody (2011) stress the importance of open communication between providers, organization, and leadership to support the change. This includes providing evidence-based education to staff regarding the reason for the change and its potential benefits prior to the pilot. Having support and buy-in from the frontline staff will be imperative to the success and
sustainment of the change. Lastly, to assist in implementation, evidenced-based policies, procedures, and guidelines should be applied to the process.

During the final essential step of the Iowa Model, evaluation will allow the project leads to assess the impact of the intervention on the current process and patient outcomes. Doody & Doody (2011) suggest collecting baseline data prior to implementation to quantify the effectiveness of the intervention and utilizing audit and feedback strategies throughout the implementation stages. There will be different periods of evaluation during and after implementation to avoid missing the early and late impacts of the intervention. Even if there are positive benefits identified in the beginning, it should not be assumed that the effects will last without maintaining consistency throughout the entirety of the project.

A three-month period from implementation of algorithm and RN education to reevaluation will be May 2021 to August 2021. Agency for Healthcare Research and Quality (AHRQ) (2013) suggests the importance of identifying the percentage of patients within primary care who are discharged from the hospital that receive post-discharge follow-up phone calls within three days of discharge. It was recommended to produce outcome measures that can be generated using electronic data monthly and track changes over time (AHRQ, 2013).

**Participants/Practice Setting/Clinical Context**

Participants during implementation are RN Primary Care Coordinators (PCC) that conduct follow-up phone calls for primary care patients discharged from the acute care setting. The project setting is a large teaching hospital in southeastern Minnesota. Only PCC RNs located on the second floor of the primary care building of the facility will be selected for implementation. All 23 RNs in this population setting are subject to the pre/post-education assessments and algorithm interventions.
To remain consistent with the current process, excluded patients include those diagnosed with COVID-19, cancer, renal disease, mental illness, and pediatric and obstetric patients. Important to note, the patients called for post-discharge follow-up may have been discharged from an outside facility if the primary care team is notified of the discharge. No patient recruitment is needed for this project.

This large teaching hospital in southeastern Minnesota provides care to thousands of primary care patients each year. Large discrepancies have been found between the types of post-discharge follow-up care recommended by providers and the care patients received (Cichowitz et al., 2018). Schuller et al. (2015) stated that discharge phone calls can provide feedback to help improve care delivery processes related to discharge planning through improved discharge instructions and reinforcement of prescribed steps upon the patient’s return home. The identified population of RNs are the link between discharge discrepancies and follow-up care.

Within the primary care department, there are 23 RNs dedicated to conducting follow-up phone calls. The project leads will aim to achieve at least a 65% response rate (15 RNs) for the RN pre/post-education assessments. The percentage was chosen based on Soong et al. (2014)’s response rate, as well as networking with other managers regarding realistic expectations for participation. There will be no additional nurses needed for the project. IRB approval will be obtained from both the organization and through the university that the project leads are attending. To show appreciation and promote pre/post-education assessment participation, the project leads will provide treats/food for the primary care RNs during the two periods of assessment administration. A card addressed to RN participants will state, “REDCap Discrepancy survey education coming soon! Please consider helping us out by taking the
Knowledge Assessment for Primary Care Registered Nurses” and signed, “The Project Leads: Tasha Fliceck, RN and Lindsay Horihan, RN.”

The primary care nurses will be provided a RN Staff Education Module PowerPoint presentation after the pre-assessment has been completed. This presentation will start by giving an overview of the project, purpose, and the outcomes to be accomplished. Then, it will focus on educating the nurses on discrepancy identification; how and when to fill out the REDCap Discrepancy survey; what qualifies as a completed REDCap Discrepancy survey; and effective use of the newly implemented algorithm. The PowerPoint will conclude by highlighting the importance of this data collection and the primary care nurse’s role in the process. The PowerPoint resource would continue to be made available for new hire and refresher training. Appendix G contains the outline for the RN Education Module PowerPoint. The 30-day and 60-day reviews will consist of the project leads reviewing the REDCap Discrepancy data reports (number of submissions) and themes that emerge from reports. This review will also be taught to a designated Quality RN in primary care that will take over the data collection process and dissemination once the project is completed for sustainment.

**Readiness for Change**

The project team will consist of the project leads, two nurse administrators as the project mentors, a statistician (designated by the university), and the RN PCCs. Due to limited data on the current practice, there was a great amount of support from stakeholders to quantify the outcomes of the intervention. The primary value of the institution is that: the needs of the patient come first. This value directly correlates with the DNP project goals of improving patient outcomes through enhancing the process of identifying discrepancies at discharge that can lead to decreasing readmission rates.
A project facilitator that has influenced the acceptance of the project has been enthusiastic support from the project mentors in the clinical site. During project lead observation, members of the primary care RN group also verbalized that a “more clear and concise process would be beneficial.” Pre-and post-education assessments (Appendix H) will be administered to the unit nurses to gain insight on the effectiveness of REDCap Discrepancy survey (Appendix A) and algorithm (Appendix I) education. The project leads hypothesized that there will be an increase in scores between the pre- and post-education assessments.

Barriers to project implementation may be RN staff dismissing the updated algorithm and choosing not to participate in the practice change, data collection or dismiss the implementation due to an overabundance of changes and updates made during the pandemic. Also, patients found to be positive for COVID-19 results in the transfer to a different care team. Unfortunately, at that point, the data is no longer eligible to be considered for this project. The inability to reach patients with the follow-up phone call may result in missed opportunities for follow-up care and data collection. Inaccessibility of the data related to difficulty in extracting specifics during the pandemic could have a negative effect on reviewing the necessary data. After considering the barriers, the project leads feel confident in achieving the project goals because of the facilitators in place.

**Outcome(s) Measurement Methods/Tools**

Upon project completion, the project leads will be able to identify trends in discharge discrepancy categories through collection of REDCap Discrepancy survey data. Trends will be considered related to frequency of discrepancy category over the ninety-day project period. It is also hopeful that there will be an increase in RN staff knowledge of identifying discrepancies at the time of the phone call and documenting discrepancies using the REDCap Discrepancy survey.
post-implementation of the algorithm. This will be determined by an increase in scores on the post-education assessment results compared to pre-education results, as well as an increase in reported discrepancies. It was reported by the project mentors and nursing staff that REDCap Discrepancy surveys were not consistently submitted, thus, the leads expect to see an increase in submissions after RN education and algorithm implantation. The number of submissions will be compared to baseline REDCap discrepancy numbers collected during quarter four of 2020. Although beyond the scope of the project, the project mentors verbalized the expectation of increased documented discrepancies initially, and a decrease over time as communication about discrepancies is provided to the discharging units and possible changes made in the discharge process to mitigate discharge discrepancies. The outcomes of the project are based on education of staff, improved data collection processes, and patient outcomes.

**Data Collection Process and Logistics**

The REDCap Discrepancy survey had data reports that were accessible, however, the project leads identified RNs were not completing the surveys uniformly or consistently. Although minimal, the data will be used as baseline data for comparison for this project. The project leads will assess the difference in REDCap Discrepancy surveys being filled out pre- and post-education assessment for completeness and thoroughness of survey, and increased incidence to aid in improving patient outcomes by identifying trends and gaps at discharge. Other data collection includes the pre- and post-education assessments that will be administered to the RNs evaluating knowledge of REDCap Discrepancy survey use. Table 5 provides information surrounding the data collection processes for the outcomes and the logistics. The privacy of the REDCap Discrepancy survey is protected by the institution’s firewall (no access authorized outside of firewall), and patient identifiers are not used in the document. Feedback from RN staff
will be received and reciprocated via email, if needed. The instruction on communication will be noted throughout the project implementation via the project leads.

**Table 5**  
*Data Collection Processes*

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<th>Responsible Party</th>
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<td>Completion rates of REDcap discrepancy survey (number of surveys submitted)</td>
<td>Completed survey rates pre-(9/1/2020 to 12/1/2020) and post-intervention</td>
<td>Every thirty days following date of algorithm implementation for 3 months</td>
<td>Project leads will review REDCap discrepancy surveys</td>
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<td>Percentage of patients receiving phone call follow-up within 48 hours of discharge (Completed phone calls/total number of patients discharged from acute care facility)</td>
<td>Completed follow-up calls recorded in EHR report</td>
<td>Every thirty days post-intervention for 3 months</td>
<td>Project leads will review report generated by the EHR</td>
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<td>Common Discrepancy categories identified through the discharge process determined by frequency</td>
<td>Identification of discrepancy trends via the REDCap discrepancy surveys</td>
<td>Every thirty days post-intervention for 3 months</td>
<td>Project leads will review REDcap data and trend frequency of discrepancies over the project period</td>
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<tr>
<td>Improved RN knowledge of the follow-up phone call process including the algorithm and REDCap Discrepancy survey tool</td>
<td>Pre- and post-data from RN assessment; increased completion rate of REDCap Discrepancy surveys</td>
<td>Pre-intervention (algorithm), and post-RN education; project completion</td>
<td>Project leads will review pre- and post-data from RN education assessments and completion rates of REDCap Discrepancy surveys</td>
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<tr>
<td>Reduced patient 30-day readmission rates to acute care facility</td>
<td>Readmission within 30 days following discharge from acute care facility; comparing from 9/1/2020-12/31/2020</td>
<td>Every thirty days post-intervention for 3 months</td>
<td>Project leads will conduct EHR chart reviews to determine if patients are considered</td>
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</table>
Improving Data Collection

| to a three-month post implementation time period | “readmitted” or “not readmitted” |

Plan for Data Analysis

Quality improvement will be evaluated by analyzing data received from the REDCap Discrepancy surveys, and pre- and post-intervention assessments for RN staff. Project leads will analyze data from the REDCap Discrepancy survey every thirty days throughout the project (90 days) to identify trends in discrepancy categories from the hospital discharge process. Analysis of REDCap Discrepancy survey will include reviewing categorical data and determining repeating factors within each category. All protected health information (PHI) will not be collected, stored, or utilized for analysis of REDCap Discrepancy survey data. Consistent trends may contribute to additional recommendations for the follow-up phone call program, and thus create a culture of ongoing improvement with the project.

The staff pre/post-education assessment results will provide information regarding the effectiveness of the REDCap Discrepancy survey education before and after intervention implementation. Following the interpretation of the results as a total scale score, further recommendations can be made to assist in achieving sustainment of the change. Implementation of the algorithm and pre-education assessment will happen Late Spring/Early Summer 2021 and a three-month post-education assessment for the REDCap Discrepancy survey use will be conducted Late Summer/Early Fall 2021.

Resources, Proposed Budget and Timeline

Much of the resources needed to successfully implement the project were available and in place prior to the project start. The current process involves primary care department personnel (nursing administrators, staff nurses) and reports generated through the REDCap Discrepancy
database. These resources will continue to be utilized with the addition of a statistician to assist in interpreting results upon completion of the project.

The project leads anticipate hesitation from staff RNs to embrace the use of the REDCap Discrepancy survey as intended which could hinder the success of the intervention. To alleviate the possibility of this complication, the project leads will create nursing education regarding the revised process through PowerPoint and/or Video Exchange instructions. The importance of following the new guideline to ensure consistency and accuracy of results will also be emphasized.

Because there is a phone call follow-up process currently in place, there will be no additional requirements of RN staff full-time equivalents (FTE) or requests for increased support from informaticists or leadership. The project leads dedicate their time at no additional cost to the hospital and the statistician, used to analyze the data, will be compensated through the project lead’s tuition costs. Personal expenses from the project leads may be in the form of printing paper if the algorithms are printed outside of the institution, as well as treats/food for unit once 65% participation is reached for staff pre/post-education assessments participation. Costs are projected to be less than $50.00 and will be funded by the students.

Figure 1 outlines the project timeline in a Gantt chart. The project leads have been preparing the Institutional Review Board (IRB) paperwork prior to the proposal meeting. Upon project approval, paperwork for IRB approval through Winona State University and the institution’s IRB will be submitted for review. With IRB acceptance, the leads will implement the pre-education assessment to RNs and allow a ten-day period for response. When the pre-education assessments have been collected (goal of 65% completion rate), introduction and education will be delivered to nursing staff and the new algorithm will be implemented. Upon
completion of the project, the project leads will collaborate with the nurse administrators to formulate recommendations to maintain sustainability of the project after its implementation. After 90 days following implementation, the project leads will administer the post-education assessments allowing for another ten-day response opportunity. At that time, the leads will compare REDCap Discrepancy survey results pre- and post- implementation, and staff assessment results pre- and post-education. Finally, the project leads will disseminate the findings to the nurse administration team and other stakeholders over a four-week time frame.
Figure 1

*Gantt Chart for Project Implementation timeline*

- IRB approval process for Winona State
- IRB approval process for Mayo Clinic
- Pre Survey
- Identify Quality RN
- Algorithm
- Post Survey
- RedCap data collection and comparison
- Disseminate data

Timeline:
- 3/4/2021
- 3/24/2021
- 4/13/2021
- 5/3/2021
- 5/23/2021
- 6/12/2021
- 7/2/2021
- 7/22/2021
- 8/11/2021
- 8/31/2021
Conclusion

In conclusion, the project leads, along with primary care nursing administration, believe that revising the means of data collection obtained from the follow-up phone call process is a priority for the institution. The project will focus on obtaining discrepancy data from follow-up phone calls to primary care patients discharged from an acute care setting. The intervention of an algorithm will help guide RNs to consistently document discrepancies found after discharge and will contribute to improved process outcomes. Completion rate of calls will be analyzed, staff knowledge of the REDCap Discrepancy survey will improve, and monthly discharge discrepancy trends will be identified via REDCap Discrepancy survey reports. There is literary support for each of these project components.

The project leads applied Caritas Factors of Jean Watson’s Human Care Theory and the Iowa Model for evidence-based practice implementation. The Iowa Model will guide the project leads through the steps of successful implementation and sustainment achievement. Upon completion of the project period and interpretation of the findings, the project leads are confident that the revised phone call follow-up process will contribute to increased staff knowledge and use of REDCap Discrepancy surveys to identify discharge discrepancies. Future research is encouraged to identify outcome measures such as reduced hospital readmission, improved connection to health care providers, increased knowledge of self-management, and patient satisfaction scores as recommended by AHRQ (2013).
References


http://dxdoi.org/10.1071/AH16059


www.health.state.mn.us


Tang, N., Fujimoto, J., & Karliner, L. (2014). Evaluation of a primary care-based post-discharge phone call program: Keeping the primary care practice at the center of post-


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## Appendix A
REDCap Discrepancy survey

### Discrepancy

Please respond to each question using the provided answer choices or comment boxes. Click the "Next Page" button to move through the survey. Your comments are welcomed and all responses are anonymous.

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### Home Visit Discrepancy

- Medication Error
- Patient Fail
- Other

### Other Home Discrepancy

__________
IMPROVING DATA COLLECTION

What area(s) did you identify as a potential gap?
Select all that apply.

- Medication discrepancy
- Scheduling issues
- Outpatient services not arranged (i.e., home health care, PT, OT, oxygen)
- Discharge summary not provided to patient
- AVS not provided to patient
- Labs post hospitalization not arranged/scheduled
- Tends post hospitalization not arranged/scheduled
- Home equipment not arranged (i.e., bed, CRAP, etc.)
- Patient reports feeling unsafe at home
- Patient/caregiver unsure of what to do if symptoms persist
- Patient unsure of instructions for work/activity restrictions
- Discharge Disposition Inaccurate on AVS
- Other

If other potential gaps, please list:

Medication Discrepancy
Select all that apply.

- Didn’t pick up/half prescription
- Financial considerations
- Intolerance to medication
- Didn’t understand rationale for medication
- Patient thought had enough of medication at home
- Didn’t understand how to take medication
- Patient did not want to start/bake medication
- Patient unsure what dosage to take
- Discharge instructions not clear
- Discharge summary unavailable
- Duplication of medication
- Unclear instructions on medication(s) to hold
- Unclear instructions on medication(s) to restart
- Unclear instructions on medication(s) to discontinue
- Discrepancy between AVS/med list and provider’s discharge summary note
- Incorrect form of medication (pill vs. suspension, etc.)
- Prescription sent to the wrong pharmacy
- Medications missing from the medication list

Medication Discrepancy Noted During:

- PHUJ Call
- Follow-up Call
- Other

Discharge Date

Was it an evening, weekend, or holiday discharge (after clinic hours)?

- Yes
- No
### Scheduling Issues
Select all that apply.

- Post hospital follow-up app't. not scheduled at all
- Post hospital follow-up app't. not scheduled with PCP
- Post hospital follow-up app't. not scheduled at all with Specialty
- Post hospital follow-up app't. rescheduled for patient need
- Post hospital follow-up app't. not scheduled within 7 days
- Other

If other scheduling issues, please list:

---

### What did you do to resolve the discrepancy issue(s)?
Select all that apply.

- Encouraged adherence to medication plan
- Updated medication list
- Contacted PCP to clarify medication(s)
- Prescription re-issued
- Assisted patient to schedule hospital follow-up
- Rescheduled follow-up appointment
- Rescheduled follow-up appointment with Specialist
- Arranged outpatient services (i.e. home health care, PT, CT, oxygen)
- Provided patient with discharge summary
- Provided patient with IVS
- Scheduled post hospitalization labs
- Scheduled post hospitalization procedure/test
- Assisted patient in setting up home equipment needs (i.e. bed, CPAP, etc.)
- Other

If "Other" resolutions were used, please list:

---

### Additional Comments
## Database Search Strategies

### Database Search and Article Selection

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| 9/14/2020      | Follow-up calls AND after discharge from hospital AND readmission rates within 30 days (time frame of 1996-2020) | EBSCOhost, Ovid, PubMed    | 60        | 26     | 7        | Burtch (2016)  
|                |                                                                              |                            |           |        |          | Cassavettes (2018)  
|                |                                                                              |                            |           |        |          | Coberley et al. (2018)  
|                |                                                                              |                            |           |        |          | Constantino et al. (2013)  
|                |                                                                              |                            |           |        |          | Harrison et al. (2011)  
|                |                                                                              |                            |           |        |          | Mathew (2016)  
|                |                                                                              |                            |           |        |          | Theriot (2016)  |
| 9/14/2020      | Telephone follow-up after discharge from the hospital: Does it make a difference (1996) (Sited 16 times in database) | EBSCOhost, Ovid, PubMed    | 17        | 4      | 3        | Clari (2015)  
|                |                                                                              |                            |           |        |          | D’Amore (2011)  
|                |                                                                              |                            |           |        |          | Zhang (2011)  |
| 9/17/2020      | Article provided by advisor on LACE rt Scale                                | Not Applicable             | 2         | 2      | 0        | 0 – looked up definition of machine learning [www.sas.com/en_be/insights/analytics/machinelearning.html](http://www.sas.com/en_be/insights/analytics/machinelearning.html)  
| 03/06/2021     | Algorithm AND nurses AND (collect data)                                    | ProQuest                   | 3,303     | 2      | 2        | 0  
| 03/06/2021     | Algorithm AND nurses AND (collect data)                                    | ProQuest (last five years) | 1398      | 1      | 0        | 0  
| 03/06/2021     | Algorithm AND improved data collection                                     | Ovid                       | 2         | 2      | 0        | 0  
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<td>Patient preferences with follow-up phone calls</td>
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### Appendix C

**Literature Review Tables**

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<th>Author (Year)</th>
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<th>Design/Framework/ Intervention</th>
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<tr>
<td>(Anderson et al., 2017)</td>
<td>To compare parent preferences from in-clinic follow-up to telephone interview follow-up after tonsillectomy of a child.</td>
<td>n = 124 control – 51 experimental – 73 tertiary level children’s hospital</td>
<td>observational prospective study</td>
<td>clinic vs telephone follow-up survey</td>
<td>-73 (58.9%) of surveys filled out over the phone (41.1% completed in clinic). Follow-up was a median of 38day post-surgery -p&lt;0.0001 parents who went to in-clinic more likely to agree to alternative (follow-up call) than those who were called wanting to have in-clinic follow-up</td>
<td>• Telephone follow-up is an alternative to clinic follow-up, but it is not a replacement. • Parents preferred telephone follow-up and this method proved safe, cost-effective, and satisfying to both families and practitioners</td>
<td>VI (Ackley et al., 2008)</td>
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| (Bates et al., 2014) | To discuss opportunities for patients using clinical analytics and big data as a means of predicting readmissions, ensuring patient needs are met, and identifying gaps in care. Authors suggest that analytics could assist in driving down health care costs in the U.S. | Review of six use cases for high-risk patients in the inpatient setting (inpatient setting offered the most data) | N/A | N/A | -Reduced costs through use of big data: high-cost patients, readmissions, triage, decompensation, adverse events, treatment optimization  
-Authors recommend collecting data via analytics, algorithms, registries, assessment scores, monitoring devices  
-Improved care, cost reduction | • Requires more systematic evaluation  
• Extent of FDA regulation and oversight  
• Payment reform | VII (Ackley et al., 2008) |
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| (Brown et al., 2021) | To describe how a health care organization optimized staffing during the COVID-19 crisis by capitalizing on the expertise of nursing professional development practitioners to create a rapid deployment onboarding plan. | Nursing professional development (NPD) team at Riley Hospital for Children at Indiana University Health, 456-bed pediatric hospital | • Training plan to ensure deployed nurses’ success to support positive patient outcomes  
• Plan included a nurse tracking system, an algorithm to identify the deployed nurse training needs, a skills laboratory covering essential nursing tasks with virtual content expert support, a foundational skills competency validation tool, and standardized communication tools for frontline staff and leadership | NPD designed an algorithm to provide structure in decision making for the level of training required for each deployed nurse within the entire organizational health care system, not just the pediatric hospital setting | • Proactive training plan reskilled nurses to deploy to areas of need, such as the emergency departments and inpatient units  
Algorithm provided the hospital with a plan to screen nurses and provide them with a quality training plan | • Overarching goal of the plan was to scale up through real-time NPD to optimize nursing resources to meet acuity needs of patients and surge capacity  
• Using an algorithm and hands-on training with a foundational skills checklist prepares nurses to provide safe care in multiple hospital settings | VII (Ackley et al., 2008) |
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<td>(Burthc, 2016)</td>
<td>To evaluate the feasibility of implementing a telephonic transitional care intervention in conjunction with current evidence-based hospital discharge processes to reduce 30-day hospital readmission rates for patients 18 years of age or older requiring inpatient admission.</td>
<td>Patients with a primary diagnosis of Heart Failure (HF) who were over 18 years of age (N = 19) Ochsner Medical Center Northshore (Louisiana and Mississippi residents) from September through November 2015.</td>
<td>Quasi-experimental – not well founded Implement a survey and telephonic follow-up intervention, three months data was collected on HF patients and their 30-day readmission rates via the electronic health record (EHR). Other measures included percentage of patients who received the follow-up call within 48-72 hours and percentage of patients who received follow-up calls 72 hours post hospital discharge. Number of attempts to contact the patient, the number of patients who required additional services post discharge were also included. Monthly meetings to evaluate discharge process and improve readmission rates and healthcare outcomes.</td>
<td>Patients receiving telephonic follow-up call intervention vs absence of intervention Self-Care of Heart Failure Index (SCHFI) questionnaire – 22 question survey HF telephonic invention template utilized in electronic health record and data collected in Excel spreadsheet Readmission rates obtained through the EHR</td>
<td>Two (10.5%) of the 19 patients who received the intervention were readmitted within 30 days of discharge. 52.5% of intervention group received the intervention within 48-72 hrs. post discharge; 31.6% completed after 72 hours; 15.8 (two) did not receive the intervention.</td>
<td>Tailored interventions (i.e., education) upon admission can help patient outcomes. Identifying knowledge deficits upon hospital admittance and addressing deficits with education can promote self-efficacy and adherence to treatment plan.</td>
<td>VI (Ackley et al., 2008)</td>
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<tr>
<td>(Cassavettes, 2018)</td>
<td>Determine the effectiveness of a follow-up phone call following discharge to decrease readmission within 30 days</td>
<td>Indigent clinic in Great Lakes region. N=37 intervention, n=50 control. Age over 21 without psychiatric diagnosis</td>
<td>Health Belief Model as theoretical framework. Nurse initiated follow-up phone call within 12-48 hours of discharge to assess and resolve issues with discharge instructions (symptoms, medication, self-care. Quality improvement program; descriptive statistics</td>
<td>Barriers of physical communication due to financial obstacles, and lack of access to healthcare because of health insurance coverage. Transitional care promotion. The Donabedian Model to evaluate care in structure, process, and outcome. Nurse utilized teach-back method</td>
<td>30-day readmissions were significantly lower for intervention group (p=0.010)</td>
<td>Follow-up phone call was successful when coupled with teach-back method. Calls can decrease readmission rates within a 30-day period in high-risk, vulnerable population</td>
<td>IV (Ackley et al., 2008)</td>
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<td>(Christie et al., 2020)</td>
<td>To develop a pilot mobile health protocol to evaluate the feasibility of utilizing cellular telephones as a means of initiating follow-up care after hospital treatment of injuring in Cameroon.</td>
<td>Cameroon, Africa patients presenting for traumatic injury to Limbe Regional Hospital (LRH) between Feb 2017 and Oct 2017 N1180</td>
<td>Prospective observational study</td>
<td>Patients contacted vs not (i.e., no phone access, number not provided, not surveyed)</td>
<td>62% completion rate (pts reached by phone) 48% (565) participated in survey Average of 1.76 call attempts to be reached Median call time is 4.43 min 5pt died from injuries 27% required ongoing assistance (post discharge) 47% reported inability to take medications or care for injury post-discharge; 38% of pt. had adequate pain control post-discharge</td>
<td>Undertreatment of Cameroon patients with injury. Telephone follow-up demonstrates potential as a feasible tool for screening patients after discharge that could benefit from further care.</td>
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<td>(Ackley et al., 2008)</td>
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<td>REDCap (Research Electronic Data Capture) survey STATA</td>
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| (Cichowitz, et al., 2018) | To characterize the event of acute hospitalization for people living with and without HIV and describe its impact on the care continuum. | Convenience sample (n=293) of adult patients in a single hospital in South Africa. 46% of participants had HIV | • Prospective cohort study  
• Baseline information at the time of hospital admission, subsequent diagnoses, and discharge instructions were recorded  
• Participants prospectively followed with phone calls for 6 months after discharge  
Phone calls attempts (up to 5) made at 4-8wks, 3mo, 6mo after discharge | Patients with known HIV versus HIV negative/unknown status  
Access to care | -Descriptive analysis utilized (proportions, percentages, medians, interquartile ranges).  
Bivariate testing to compare differences in characteristics, care prior to hospitalization, discharge instructions, follow-up care, 6mo outcomes  
97% give referral for follow-up care.  
36% returned to care in 1 month, 50% returned after 1 mo., 14% did not return for follow-up | -Large discrepancies found between the type of post-discharge follow-up care recommended by providers & what patients were able to receive.  
Additional research needed to characterize patients’ risk and vulnerability after hospitalization, retention in HIV and chronic disease programs following inpatient, integrate services across care-continuum, pilot patient-centered interventions to improve health outcomes for those being discharged from acute care hospital stays | IV (Ackley et al., 2008) |
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<td>(Clari, et al., 2015)</td>
<td>To evaluate the effectiveness of a follow-up telephone call to reduce the number of issues after hospital discharge</td>
<td>Medium to low-intensity orthopedic patients. N=110 intervention group, N=109 control group</td>
<td>Double-blind, randomized controlled trial. Structured telephone follow-up call conducted by a senior orthopedic nurse to provide educational support to the intervention group. Call was made 24-96 hours post-discharge. Standard operating protocol was created to guide nurses through the call and to address all potential problems. Reliability and validity of protocol was tested on 219 questionnaires (Cronbach’s α was 0.81 (95% CI: 0.77-0.84))</td>
<td>Statistical tests: Chi-square and Wilcoxon rank sum tests. Linear regression model to investigate factors involved into post-discharge outcomes</td>
<td>Intervention group had statistically significant reduction in all post-discharge problems except pain and mobilization. Intervetion group had lower chance of experiencing frequent or severe problems. Educational intervention and prior poor health had strong correlation with problems after discharge</td>
<td>Telephone follow-up reduces the number of health problems post-discharge for orthopedic patients. Educational intervention and prior poor health benefit from the follow-up; could prevent an unnecessary burden on the community health system. Patients considered information valuable</td>
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<td>(Coberley et al., 2018)</td>
<td>To evaluate the effect of telephone support after hospital discharge to reduce early hospital readmission among members of the disease management program: My Health Guardian (MHG) offered by the Hospitals Contribution fund of Australia</td>
<td>All MHG members with a pre-authorized admission (some exclusions applied); includes multiple hospital sites Australia</td>
<td>Quasi-experimental retrospective Hospital discharge (HODI) program calls intervention supporting recently discharged MHG members; post-discharge calls that successfully reached the member within 14 days of discharge. Assessing readmission 1-28 days after discharged from hospital</td>
<td>Treatment group MHG participants (hospital discharge call) and comparison group (non-participating MHG program exposure) Propensity score matching (PSM) to reduce potential confounder bias in comparison groups Coarsened exact matching to enable more comparable evaluation of study groups Adjusted relative risk (IRR) Logistic analysis (Odds ratios)</td>
<td>Significantly lower rates of 28-day readmission in treatment group (29% decrease) Comparison group was 1.34 times more likely to get readmitted than the treatment group Estimated savings from avoided readmissions were $713,730 in Australian currency.</td>
<td>Follow-up phone call was successful when coupled with teach-back method. Calls can decrease readmission rates within a 30-day period in high-risk, vulnerable population</td>
<td>III (Ackley et al., 2008)</td>
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<td>(Constanatino et al., 2013)</td>
<td>To evaluate whether outbound telephonic support for patients post-discharge to home can reduce readmissions, and healthcare costs and utilization</td>
<td>Members enrolled in Medicare Advantage health plan who had an acute inpatient hospitalization followed by discharge to home. Ages 18-89. 104,755 Medicare health plan members identified, 115,811 inpatient index admissions. From this pool, health care utilization and cost analyzed for 48,538 controls and 48,538 cases in which the patient received a telephonic intervention after discharge from hospital</td>
<td>Retrospective study with descriptive analysis. Telephone calls made by qualified associates: licensed nurse (for patients at highest risk of readmission) or a non-licensed team member (for patients with routine risk of readmission) to complete PDS.</td>
<td>Study evaluated demographics, health care cost, and utilization during the immediate 30-day post-discharge period. Post-discharge Screening (PDS) tool utilized to attempt to reduce/identify bias r/t readmission within 30 days. Readmission Predictive Model Score (continuous variable) calculated on discharge incorporating over 50 data elements (length of stay, diagnosis, inpatient utilization, readmissions, pharmacy claims, comorbidities).</td>
<td>Wilcoxon signed rank test to assess difference between test and control group. Propensity score matching used for obtaining a matched control group using multiple independent variables to control for demographic, plan, and clinical characteristics PDS score average 172.2, slightly below average of 184 Fewer readmissions with PDS (19.5%)</td>
<td>In addition to reduction in hospital admissions, patients had significantly less ER visits (p&lt;0.0001) Post-discharge follow-up reduced the likelihood of a hospital readmission The shorter the time frame between discharge and intervention, the greater the influence on decreasing readmission Reduced overall costs associated with hospital readmission</td>
<td>II (Ackley et al., 2008)</td>
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| Coughlin et al., 2020 | To provide nursing educators/leaders with the tools and structure related to distinguishing the need for competency. Discussion of a process for vetting regulatory requirements, clinical skills, and continued learning by establishing a standardized organization-wide approach for competency and education | N/A | • The Nursing Education and Competency Algorithm framework to differentiate education and competency through standardization of practice  
• Development of competencies is intricate and includes reference to nursing standards, regulatory requirements, and nursing scope of practice  
Standards provide framework for validating and developing consistency in nursing practices and streamlining performance | Algorithm is based on criteria for competency selection related to high-risk, low-volume, problem-prone situations and regulatory requirements | Authors recommend a formal structure, an algorithm and advisory panel, to differentiate nursing competency from education  
Competencies and nursing standards together define the guidelines for highly reliable EBP | • Staff complete annual competencies and education based upon regulatory and hospital requirements  
Competencies are assessed for patient care and unit needs | VII (Ackley et al., 2008) |
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<tr>
<td>(D'Amore et al., 2011)</td>
<td>To comparatively examine patients who received telephone follow-up for response difference on a mail satisfaction survey and 30-day readmission rates</td>
<td>Patients from Memorial Hermann Healthcare System (11-hospital health system) eligible to receive nursing call (N=10,559) Southeast Texas 10 nursing units across four hospitals October 2008-May 2009</td>
<td>Retrospective study Script of six standard questions Calls generally placed during daytime hours 1-4 days post discharge (multiple attempts but not all pts reached). Call lasted average of three minutes; call length and unanswered attempts equalled 1-2 hours a week per nursing department conducting follow-up calls.</td>
<td>Post discharge callback system (n=4951) 47% reached; vs comparison/ no call Logistic regression to determine if call data impacted survey response and 30-day readmission rates Nonparametric analysis was used to evaluate comparison groups</td>
<td>Completion of telephone follow-up was significant predictor of response to survey (p&lt;0.01), and lower readmission rates (p&lt;0.04) Comparison group was 10.8% readmission compared to 9.5% for intervention group No significant difference in satisfaction between groups; follow-up was not a significant predictor of satisfaction</td>
<td>Telephone follow-up in a consistent, scripted manner is a significant predictor of readmission and patient survey response. Tool may be part of effective hospital practices to help manage patients over continuum of care settings No relational value to satisfaction score improvement</td>
<td>IV (Ackley et al., 2008)</td>
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<td>(Downes, et al., 2015)</td>
<td>1 Describe common types of medication discrepancies between inpatient d/c summary and patient-reported regimen</td>
<td>17 patients at high risk for medication discrepancies at time of discharge</td>
<td>Descriptive case series n=17</td>
<td>Telephone script to guide phone call</td>
<td>-96 discrepancies identified (n=67, 68%) were from the omission of a medication by the patient or d/c summary</td>
<td>-There is a need to complete and gain accurate medication information, even during stressful admissions</td>
<td>V (Ackley et al., 2008)</td>
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<td>2 Identify patient and system factors r/t process breakdown</td>
<td>Academic group practice that provided inpatient and outpatient care</td>
<td>Telephone Interview: One patient was discharged, EMR was reviewed for eligibility. Data gathered in addition to d/c summary, standardized telephone script guided 2-part phone interview to collect information, started 48 hours post-discharge</td>
<td>EMR discharge summary</td>
<td>Cardiovascular medications accounted for almost ¼ of discrepancies</td>
<td>-2014 National Patient Safety Goal in ambulatory settings</td>
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<td>Inclusion: 18+ years old, recently discharged from internal med. hospital service, follow-up appt scheduled, 3 or more chronic conditions, 8 or more medications</td>
<td>Interviewing compiled list of medications reported by patient</td>
<td>EMR medication reconciliation feature</td>
<td>-15%-16% of discrepancies related to dose and frequency</td>
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<td>Determine patient and system factors r/t medication discrepancies</td>
<td>-2nd interview: Pts asked questions r/t perceived barriers to d/c process. Medication discrepancies between patient report and discharge summary were identified and categorized</td>
<td>Discrepancy defined “as an inconsistency between the 2 lists with respect to drug, dose, or frequency” (p. 560)</td>
<td>-96 discrepancies identified (n=67, 68%) were from the omission of a medication by the patient or d/c summary</td>
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<td>Emdadul Hoque et al., 2017</td>
<td>To synthesize the impact of clinical quality registries (CQRs) as an ‘intervention’ on 1) mortality/survival, 2) measures of outcome that reflect process or outcome of health care, 3) health care utilization, 4) healthcare - related costs</td>
<td>30,102 abstracts from which 75 full text articles assessed, to 17 articles selected for synthesis</td>
<td>Systematic Review, PRISMA-P (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology, checklist and standard search strategy for structured data extraction</td>
<td>Data extraction and assessment, Data synthesis and analysis, Statistical analysis</td>
<td>Two studies were experimental design and showed significant improvement in health outcomes using the registry. Two articles provided supportive evidence of cost-effectiveness of investing of 5 Australian CQRs</td>
<td>Few articles have rigorously evaluated impact of registry as intervention on improving health outcomes. No studies have evaluated economic impact of registries as intervention. Registries play an important role in care management through generating performance feedback to physicians.</td>
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<td>(Harrison et al., 2011)</td>
<td>To determine whether telephonic outreach to ensure patient understanding and adherence to discharge orders following a hospitalization is effective at reducing hospital readmissions within 30 days after discharge.</td>
<td>30,272 members of a commercial health plan (Medicare Advantage) that were discharged in 2008 (whole calendar year) Franklin, Tennessee</td>
<td>Retrospective cohort study Hospital Discharge Campaign (HDC); members eligible to receive telephone call from a specially trained registered nurse Called within 14 days of DC</td>
<td>Members who received a telephone call within 14 days of discharge and were not readmitted prior to the call were the intervention group (N - 6773); all other members formed the comparison group (N - 23,499) Multiple logistic regression was used adjusting for covariates Fishers exact test for association between sex of patients upon readmission.</td>
<td>Likelihood of 30-day readmission was positively associated with older age at time of initial hospitalization. Median time to readmission was 11 days; with highest readmission 2-3 days post-discharge; one third occurring within 7 days and half within 14 days intervention group (called) was 23.1% less likely to be readmitted than comparison group (p - 0.043)</td>
<td>Timely discharge follow-up by telephone to supplement standard care is effective in reducing near-term hospital readmissions resulting in reduced costs for health plans and their members</td>
<td>IV (Ackley et al., 2008)</td>
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<td>(Hendrickson et al., 2020)</td>
<td>To assess the effect of a personalized phone call 3-5 days after hospital discharge on attendance at the first post discharge outpatient clinic visit</td>
<td>Urban Level 1 trauma center 159 patients exposed to reminder phone call 33% reached, 28% received voicemail reminder</td>
<td>Prospective study Phone calls made by trained trauma recovery coach to provide education, mentorship, counseling, coaching Call placed 3-5 days after d/c as reminder for follow-up appt and to answer questions/ facilitate further care Basic script provided to ensure consistency Independent sample t tests used to compare the means of continuous variables and Fischer exact tests or Pearson chi-squared tests used for categorized variables Statistical significance set at p&lt;0.05</td>
<td>Outcome measure was attendance at first post discharge clinic visit Basic phone script Exposure to Trauma Recovery Services</td>
<td>(n=86, 54%) attended scheduled appointments Attendance more common among patients that were reached vs. voicemail (70% vs. 51%) Pts exposed to Trauma Recovery Services attended appointments more often (p=0.026) Insured patients had higher attendance (p=0.0036) Smokers had less attendance (p=0.001)</td>
<td>Patients reached by telephone had better rates of follow-up attendance Economic factors and substance use appear vital to post-op visit compliance Patients with met psychosocial needs, satisfactory emotional support, exposure to Trauma Recovery Services had highest rates of attendance</td>
<td>IV (Ackley et al., 2008)</td>
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<td>(Hewner, et al., 2020)</td>
<td>To explore research literature on the integration and coordination of services for high-need, high-cost (HNHC) patients to answer: 1) what models are used, 2) how effective are they in reducing low-value utilization and improving continuity</td>
<td>U.S. urban, suburban, rural health care sites within primary care, veterans’ services, behavioral health, palliative care</td>
<td>Joanna Briggs Institute and PRISMA guidelines for scoping reviews, stepwise method applied to search databases for peer-reviewed published research on transitional care models serving HCNC adult patients</td>
<td>Reviewers developed a protocol to define objectives, methods, and inclusion/exclusion criteria prior to study selection and data extraction</td>
<td>Very few studies measured continuity of care</td>
<td>Care coordination and case management were primary strategies for the care needs. Interventions must reflect strategy to identify and direct patients to appropriate resources. Full potential of technology is not being utilized in care coordination. Interventions must bridge multiple health care settings and community-based settings. Continuity of care is vital.</td>
<td>I (Ackley et al., 2008)</td>
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<td>(Horner et al., 2012)</td>
<td>Conglomerate rate of abstracts for an educational conference</td>
<td>Call for Abstracts (136) **variety of settings and samples</td>
<td>Varied Algorithmic formats (Mack &amp; Avery)</td>
<td>Varied Not specified (Mack &amp; Avery)</td>
<td>Varied – different focuses for different abstracts</td>
<td>Found algorithmic formats useful in data collection (Mack &amp; Avery)</td>
<td>Visual cues and algorithms are helpful in implementing a new process (Mack &amp; Avery) Revised insulin infusion algorithms improved control outcomes (Murray et al) Quatrara, B. used algorithm to improve pt. outcome of falls in ICU admissions Gode and Bly found algorithm to help RNs identify pts at risk for lymphedema 11 of 136 abstracts used an algorithm to improve outcomes.</td>
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<td>(Jayakody et al., 2016)</td>
<td>To determine the methodological quality and effectiveness of interventions utilizing telephone follow-up (TFU) alone or in combination with other components in reducing readmission within 30 patients with cardiovascular disease, chronic respiratory disease and diabetes.</td>
<td>Systematic literature review</td>
<td>Interventions which included TFU alone, or in combination with other components, amongst patients with chronic disease, reported 30-day readmission outcomes and met Effective Practice and Organization of Care design criteria were included. The titles and abstracts of all identified articles were initially assessed for relevance and rejected on initial screening by one author. Full text articles were assessed against inclusion criteria by two authors with discrepancies resolved through discussion.</td>
<td>Ten studies were identified with five being effective in reducing 30-day readmissions. No evidence of TFU being effective</td>
<td>Evidence is inconclusive for the effectiveness of interventions using TFU</td>
<td>V (Ackley et al., 2008)</td>
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| (Jones, et al., 2017) | To describe home health care (HHC) RN perspectives about challenges and solutions to coordinating care for recently discharged patients | 6 focus groups of HHC RNs and staff (n=56) recruited from 6 agencies in Colorado | • Descriptive qualitative study  
• Focus groups were recorded, transcribed, and analyzed using a mixed deductive/inductive approach to theme analysis  
Domains selected from Agency for Healthcare Research and Quality Care Coordination Measurement Framework: Accountability, Communication, Assessing Needs/Goals, Medication Management | • Analysis team used inductive theme to group challenges and solutions in care coordination and deductively applied to AHRQ domains  
• Analysis team met with focus groups until thematic saturation  
Analysis facilitated by Scientific Software ATLAS.ti, version 7.5.15 | • Medication discrepancies frequent problem in HHC (94%-100% had at least 1)  
Communication failures between HHC and physician associated with 10% increase of readmission in high risk HHC patients with HF | • High rate of medication discrepancies in HHC may contribute to adverse outcomes  
Unclear accountability and poor communication can contribute to adverse outcomes such as readmission | VI (Ackley et al., 2008) |
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<td>(Lewis et al., 2016)</td>
<td>to report on the content, duration, multidisciplinary team involvement, optimal time interval and perceived health benefits of telephone follow-up calls for older patients in post hospital discharge period.</td>
<td>Australia frail older patients seeking help in several urban hospitals through the ED</td>
<td>Prospective study TFU call</td>
<td>Follow-up phone calls within 48 hours of hospital discharge</td>
<td>Multi-center and multifactorial randomized control trial with data linked to readmissions – decreased loneliness, isolation, improved health and quality of life for older people</td>
<td>subsequent follow-up call to assess outcome of any action taken and offer social and emotional support viewing this as an equally beneficial opportunity of avoiding hospital appt. May improve psychosocial health for older patients. Structured, brief and timely post-discharge follow-up calls have the potential to benefit vulnerable patients and bereaved relatives; also heralds as cost-effective method for improving outcomes by preventing readmission to hospital. Effectiveness studies are needed to confirm the hypothesis generated.</td>
<td>VI (Ackley et al., 2008)</td>
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<td>Luciani-McGillvray et al., 2016</td>
<td>1 increase the percentage of ED patients who completed recommended follow-up with their medical provider within 7 days</td>
<td>2 non-critical, low acuity care areas of the ED in an urban, tertiary care, 1000+ bed, teaching hospital</td>
<td>QI with PDSA utilizing chart review for outcome measures evaluated small tests of change</td>
<td>Control: no call back</td>
<td>Patient follow-up reduced ED revisit rates with the call back program. Nurses provide expert assessment, knowledge, collaboration, and coordination with external resources when pt. appointments were missed. Trained volunteer could continue making calls to other patients on the roster. Patients described feeling supported, cared for, and valued. This novel, nurse-led, systematic post-discharge patient call back program utilizing hospital volunteers may be an efficient and feasible hybrid model for other EDs seeking to improve patient experience, follow-up, and reduce the number of revisits to the ED after discharge.</td>
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<td>2 decrease 7-day revisit rate in ED</td>
<td>Control (baseline) n=380</td>
<td>Simple, scripted phone call from a trained volunteer at 72-96 hours post discharge in addition to RN call at 24-48 hours post discharge</td>
<td>PDSA1 n=115</td>
<td>Cycle 3 increased follow-up to 65.5% (p&lt;0.0001) significantly reduced pt. revisit to the ED (P&lt; 0.001)</td>
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<td>PDSA2 n=93</td>
<td>PDSA2 Modified call back call by RN 2nd call by volunteer</td>
<td>PDSA3 n=686</td>
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<td>PDSA3 Randomized to no call</td>
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<td>Mathew, 2016</td>
<td>To explore the effectiveness of transitional care interventions which include comprehensive discharge education and structured telephonic support</td>
<td>Adults (18+) diagnosed with heart failure (HF) who were discharged home after hospitalization</td>
<td>Quasi-experimental design Telephonic support = telephone call by the student to each patient enrolled within 72 hours of discharge (focus on self-management, early assessment, understanding of HF including signs and symptoms of distress, medication teaching). Phone calls were scheduled prior to leaving the hospital Weekly calls for 4 weeks for HF self-management.</td>
<td>Comprehensive discharge teaching and structured telephonic support (STS) Mobile app: MyMedSchedule Care transitions Measurement of cost outcomes done via MS Excel spreadsheet Hospital readmission extracted from Kaiser Health news</td>
<td>No significant decrease in hospital readmission (p = 0.79) Satisfaction with CTM increased (80% of participants responded strongly agree to 15 questions)</td>
<td>Further exploration with enhanced sample size and evaluation of confounding factors may better inform effectiveness on hospital readmissions. Increased satisfaction noted via HCAHPS</td>
<td>III (Ackley et al., 2008)</td>
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<td>MDH 2020</td>
<td>to provide support to patients, address unmet needs, coordinate care, and reduce preventable ER visits and hospital readmissions</td>
<td>MN hospitals focus on Nurses, coordinators, SW, CNA and quality analysts</td>
<td>Contact patients; collect and record/submit data; implement broader QI strategy; Call scripts/data collection forms Attachments hold data collection tools</td>
<td>NA</td>
<td>NA</td>
<td>Level VII (Ackley et al., 2008)</td>
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<td>(Mitchell et al., 2016)</td>
<td>to describe the methods used to create the RED Toolkit, the implementation challenges faced by hospitals and how these barriers can be mitigated</td>
<td>10 hospitals from different regions of United States</td>
<td>Training for participating leaders and implementation staff using RED Toolkit as basis of the curriculum followed by monthly telephone-based technical assistance for up to a year</td>
<td>RED Toolkit</td>
<td>1. Wide variability in fidelity of the RED intervention 2. Engaged leadership and multidisciplinary implementation teams were keys to success 3. Common challenges included obtaining timely follow-up appointments, transmitting discharge summaries to outpatient clinicians, and leveraging information technology</td>
<td>Implementing streamlined DC process to achieve improvements in 30-day readmission rates is a complex process requiring significant commitment on behalf of hospital leadership and implementation team. Routine analysis and problem solving ensure that failures in the discharge process are addressed swiftly and increases the positive perceptions of RED among key stakeholders</td>
<td>Level III (Ackley et al., 2008)</td>
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<td>Study</td>
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<td>Mwachiro et al., 2020</td>
<td>To evaluate the effectiveness of nurse follow-up calls conducted in the neurosurgery service for discharged patients between Oct 2017 and Feb 2018 in reducing 30-day readmission rate</td>
<td>Neurosurgery service located in a large academic medical center (1 site)</td>
<td>PDSA for QI, post-discharge follow-up phone call (FUPC), RN surveys pre and post</td>
<td>45% completion rate of FUPC, patients stayed out of the hospital longer than those who did not (IRR of 1.54, p = 0.0006, 16 days vs 10 days), 83% completion rate by RNS in survey and 50% of those RNs needed help with calls.</td>
<td>Implementing small scale/low-cost interventions like FUPC could save hospitals penalties, improve patient outcomes, and contribute to reduction of healthcare cost.</td>
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Readmissions make up $41 billion of healthcare spending in the US.
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<td>(Rivasplata et al., 2021)</td>
<td>to improve triage in the ED</td>
<td>district hospital located in a small town on the Beni River in the Bolivian Amazon with 8,672 inhabitants</td>
<td>4-week triage pilot using MTS training Pre and post knowledge surveys (4pt Likert scale), satisfaction scores and self-efficacy (4pt Likert) with MTS training tools and feasibility For onboarding new staff, a voiceover PPT, clinical scenarios, pre- and posttests, infographics, and algorithms were provided to the master trainers (the medical director and nurse manager).</td>
<td>implementing an MTS training for nurse and physicians</td>
<td>RNs and physicians self-report of self-efficacy and knowledge significantly increased during post training (p &lt; .05). increase in having tools and information to implement MTS from pre- (M = 1.8) to posttest (M = 3.2, p &lt; .05) The training methods evaluation (n = 17, 90%) equally reported a plan to use the infographics (M = 3.5), algorithms (M = 3.5), and training video (M = 3.4). At 4 weeks post training and pilot testing, the staff (n = 3, 16%) were using infographics, algorithms, and the training video at a similar rate (M = 3.3), although the response rate was low.</td>
<td>Sustainability is dependent on local investment of trainers, of mentors, and in quality improvement Providing master trainers with evaluation methods to assess the system can provide data to adjust the process. Building in-house leadership and technical support through continuing professional development will encourage the nurses and doctors… Ownership regarding implementing and auditing protocols beyond the training depends on them.</td>
<td>Level VI (Ackley et al., 2008)</td>
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<td>(Schuller et al., 2015)</td>
<td>to improve quality of care and decrease readmission rates</td>
<td>Large metropolitan hospital N= 15</td>
<td>Use of Discharge phone call (DPC) relating to medication management, follow-up appt, and answering questions</td>
<td>Discharge phone call (DPC)</td>
<td>Most frequently reported benefit of DPC was answering pt. questions and general follow-up. Top 7 benefits of DPC: Questions, appointments, medications, readmissions, patient satisfaction, quality of care and discharge process</td>
<td>DPC can provide feedback to help improve care delivery process related to discharge planning through improved discharge instructions and reinforcement of prescribed steps upon pt. return home</td>
<td>Level VI (Ackley et al., 2008)</td>
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<td>(Somberg, 2012)</td>
<td>To influence the patient safety and satisfaction in OB triage using nurse-led post-discharge phone intervention Objective: is there a difference between readmission rates &amp; satisfaction between standard d/c and phone intervention</td>
<td>Discharged OB triage patients with diagnoses to rule out labor, spontaneous rupture of membranes, and influenza-like illness</td>
<td>Upon discharge, RNs asked permission to call patient RNs completed call within 1-2 days using call-back form</td>
<td>-Scripted evidence-based questions on call-back form -Press Ganey survey</td>
<td>-Responses related to predelivery nursing care, and information provided about condition, monitoring, and special procedures increased from 69.9% to 76.1% post-intervention -Overall rating of labor and delivery care increased from 74.4% to 76.8% post-intervention -Patient comments evidenced appreciation of phone call -Readmission to OB triage decreased from 2.99% to 2.86% post-intervention</td>
<td>Phone calls influenced patient satisfaction and readmission rates, impacting patient safety and quality of care</td>
<td>IV (Ackley et al., 2008)</td>
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<td>(Soong et al., 2014)</td>
<td>To examine effect of a 72-hour post discharge phone call on the patient’s transition of care experience</td>
<td>Urban, academic medical center General med patients 18 and older discharged home after hospitalization N= 328 over 6mo period</td>
<td>Cluster-randomized control trial</td>
<td>Care Transitions Model (CTM-3) score Self-reported adherence to medication and follow-up plans and 30-day readmission or ED visit</td>
<td>69% completion of FUPC 65% completion for survey P= 0.01 difference in control vs implementation group adherence was similar between two groups The results of our study are consistent with previous efforts that failed to demonstrate a meaningful effect of post discharge phone calls on readmission. However, several studies reported improved patient satisfaction scores</td>
<td>A single post-discharge FUPC had small impact on quality of transition and no effect on readmission. Higher intensity PD support may be required to improve pt. experience</td>
<td>Level VI (Ackley et al., 2008)</td>
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<tr>
<td>(Tan, &amp; Sestan, 2019)</td>
<td>To determine whether an automated electronic system for follow-up (i.e., DayCOR) was more efficient and acceptable than telephone call system (TCS) of follow-up of day surgery patients.</td>
<td>Tertiary non-profit private hospital in metropolitan Melbourne Australia; one of seven acute care campus that treats around 60,000 pt. a day.</td>
<td>Comparison of two parallel systems of follow-up Surveys sent to patients</td>
<td>DayCOR (N=1487) vs TCS (N=11,016)</td>
<td>Mean cost for TCS 3.21 Australian dollars vs .69 with DayCOR = cost reduction of $101,345 (53%) if manual data extracted and $142,745 (74%) if integrated with institutions current software Completion rates: DayCOR-100% TCS-51-61.4% 78% of RN and 94% of anesthetists preferred DayCOR to TCS</td>
<td>DayCOR’s efficiency and acceptability will allow more effective collection of post-discharge patient outcomes than is currently possible in our institution and will support interventional studies aimed at improving quality of recovery of day surgery patients.</td>
<td>Level VI (Ackley et al., 2008)</td>
</tr>
<tr>
<td><strong>Author (Year)</strong></td>
<td><strong>Purpose</strong></td>
<td><strong>Sample/Setting</strong></td>
<td><strong>Design/Framework/Intervention</strong></td>
<td><strong>Variables/Instruments</strong></td>
<td><strong>Results</strong></td>
<td><strong>Implications</strong></td>
<td><strong>Level of Evidence</strong></td>
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<tr>
<td>(Tang et al., 2014)</td>
<td>describe a primary care-based program to identify and address problems arising after hospital discharge.</td>
<td>University of California San Francisco adult patients discharged from internal medicine practice.</td>
<td>QI program embedding RNs in primary care practice to call pts within 72 hours of discharge and route problems with real-time solutions.</td>
<td>Full scripted (n=486) message scripted (n=229) Missed call (n=75)</td>
<td>Full scripted: 76% had one problem identified; 25% were new symptoms; 47% were medication issues had higher FU appt attendance (p=0.004) No sig difference on 30-day readmission</td>
<td>PDFUPC program in primary care improves post-hospital care by identifying clinical and care-coordination problems early. With CMS, such programs could become an important, self-sustaining part of the patient-centered medical home.</td>
<td>Level VI (Ackley et al., 2008)</td>
</tr>
<tr>
<td>(Theriot, 2016)</td>
<td>To evaluate a quality improvement project examining follow-up rates of trauma patients.</td>
<td>Trauma patients admitted to University Medical Center New Orleans N-53 18yrs + Fall 2015</td>
<td>Prospective cohort design with convenience sample Educating patients on discharge appointment utilizing Re-Engineered Discharge (RED) toolkit, determining barriers to transportation, and providing reminder phone call to the patient about their upcoming appointment (participants were called the Friday before their upcoming appointment).</td>
<td>RED toolkit Follow-up call to remind patients of upcoming appointment (intervention group compared to comparison) Contingency chi square test was used to compare pre- and post-intervention data</td>
<td>Increased the trauma patient post-discharge follow-up rate from 58-85%. Increased 30-day readmission rates 4% - 9% Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHP) were unaffected Decreased ED visits directly related to trauma 24.3% to 13%</td>
<td>Proper discharge education plays an integral role in patient compliance post-discharge and decreased ED visits</td>
<td>IV (Ackley et al., 2008)</td>
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<tr>
<th>Author (Year)</th>
<th>Purpose</th>
<th>Sample/ Setting</th>
<th>Design/ Framework/ Intervention</th>
<th>Variables/ Instruments</th>
<th>Results</th>
<th>Implications</th>
<th>*Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Wilcox &amp; McNeil, 2016)</td>
<td>To address barriers of quality improvement of information and level of participation in registries in Australia</td>
<td>Australia Patient care clinicians</td>
<td>Framework was created describing mechanism to record data to measure, monitor and report the appropriateness and effectiveness of healthcare. Process of care improvement tools have been developed and made available in a toolkit, which includes evidence-based practice algorithms, critical pathways, standardized orders, discharge checklists, pocket cards, and chart stickers. The toolkit also includes algorithms and dosing guides for guideline-recommended therapies and a comprehensive set of patient education materials.</td>
<td>Framework</td>
<td>A low capture rate renders the pool of results unrepresentative and ungeneralizable, thus weakening the power of a registry to inform policy determinations.3 Omissions of data within a single clinical unit create the potential for “manipulation” of included and excluded data, thus weakening the credibility of unit-level reports and their ability to drive change.</td>
<td>systematic and ongoing collection of standardized data on medical and surgical interventions allows the identification and analysis of clinical practice variation and its effect on patient outcomes</td>
<td>Level VII (Ackley et al., 2008)</td>
</tr>
<tr>
<td>Author (Year)</td>
<td>Purpose</td>
<td>Sample/Setting</td>
<td>Design/Framework/Intervention</td>
<td>Variables/Instruments</td>
<td>Results</td>
<td>Implications</td>
<td>*Level of Evidence</td>
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<td>Ydrogo et al., 2020</td>
<td>to describe the multifaceted approach taken at our comprehensive cancer institute to (a) renew a spirit of inquiry about EBP and research and (b) strengthen nurses’ EBP capabilities. Special attention is given to describing the specific educational interventions used and the approaches taken to measure their effectiveness.</td>
<td>healthcare setting specifically ambulatory Focus on RN teaching</td>
<td>multifaceted professional development program was implemented to promote a spirit of inquiry, strengthen EBP facilitators, overcome barriers to EBP, and expand nurses’ knowledge of EBP</td>
<td>Seminars with evaluation Post seminar evaluations (3-22 RNs)</td>
<td>Vast improvement from baseline (double the test score averages)</td>
<td>Overwhelmingly, the greatest barrier to implementing EBP into practice was lack of knowledge and skills, especially in ambulatory care settings. In addition, nursing leadership felt strongly that there was a pressing need to stimulate a renewed spirit of inquiry about EBP and research. Algorithmic instruction with practice opportunities was used to strengthen nurses’ capabilities related to information seeking and data retrieval. The algorithms, posted on each nursing unit, gave step-by-step instructions on how to access the medical library URL and retrieve research reports.</td>
<td>Level VI (Ackley et al., 2008)</td>
</tr>
<tr>
<td>Author (Year)</td>
<td>Purpose</td>
<td>Sample/ Setting</td>
<td>Design/ Framework/ Intervention</td>
<td>Variables/ Instruments</td>
<td>Results</td>
<td>Implications</td>
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<td>(Zhang et al., 2011)</td>
<td>Explore the telephone intervention conversations conducted by RNs with patients discharged home with a colostomy</td>
<td>N=12 randomized to the study out of 59 originally recruited due to reaching saturation. Inclusion criteria: diagnosis of primary rectal cancer &amp; permanent colostomy after surgery, ability to speak Mandarin or Cantonese, alert and oriented, reachable by phone after discharge</td>
<td>Descriptive qualitative research design to describe content of telephone follow-up. Randomized to intervention, qualitative study. Intervention: Follow-up phone call after discharge guided by protocol developed in the main study. Three parts: assessment (overall condition), intervention (Bandura’s 1997 Social Learning Theory to promote self-care), and management (reinforcement of appropriate behaviors, PRN follow-up calls, closure). Calls made: 3-7 days and 14-20 days post-discharge; 23-27 days post-discharge if needed</td>
<td>Recorded and transcribed calls for qualitative data then categorized into themes based on patient statements.</td>
<td>Major parts of calls were related to education, access to stoma care, encouraging stoma self-care</td>
<td>Post-discharge follow-up is important in assisting with recovery. Telephone follow-up is convenient and cost-effective. Protocols can be developed to ensure standards of care and consistent RN training. RN telephone follow-up helps reduce the need for hospital care which leads to affordable care.</td>
<td>VI (Ackley et al., 2008)</td>
</tr>
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</table>
Appendix D
Health Care Homes Inquiry
Tasha Flicek, RN
Lindsay Horihan, RN
Winona State University-Rochester

To whom it may concern,

Hello! Thank you for taking time to address our inquiry regarding Health Care Homes in Minnesota. As students of the Doctorate of the Nursing Practice program, we are attempting to identify interventions that contribute to decreased readmissions rates within 30 days post-discharge from an acute care hospital. We will be partnering with the Primary Care Divisions at Mayo Clinic-Rochester and would appreciate your input on your processes.

- Does your organization conduct post-hospital follow-up?
  - What are the criteria for qualifying a patient to receive a follow-up contact?
  - What type of contact do you utilize (phone call, video conference, automated services, etc.)?
  - If contact is made, who is performing the follow-up (RNs, LPNs, Social Workers, Pharmacists, etc.)? If there are automated services, how is that data reviewed?
  - Have you found effectiveness to the intervention? What are the primary outcome measures, and would you be willing to share your data?
  - What impact have you seen for patients and the care team knowing that it can require a significant number of resources to complete the work?
- Are there additional resources implemented for follow-up?
  - Is there an algorithm or template that guides the phone call? If so, would you be willing to share it? How does the tool provide clinical decision support for the follow-up steps?
- What are the criteria for patients to be evaluated for follow-up with a provider?
- Are patients billed utilizing transitional care management (CPT) codes?
- Are there patients that receive follow-up contact from others outside of your practice area (i.e.: insurers, specialty practices, etc.)? If so, that does create a significant amount of duplicate work?
- What are the current readmission rates (all cause) within 30 days post-discharge in your primary care patient population?
- After the initial 30 days post-discharge, is there additional follow-up with the patient?
- Are you seeing reoccurring themes that contribute to readmission? (I.e., medication reconciliation)

Thank you for assisting us in further understanding the current processes.

Sincerely,
Tasha Flicek and Lindsay Horihan
## Appendix E

### HCH Inquiry Theme Matrix

<table>
<thead>
<tr>
<th>Organization</th>
<th>Details about Org</th>
<th>Follow-up (FU) contact for PCP</th>
<th>Criteria for Contact</th>
<th>Call Set up</th>
<th>Add. Resources</th>
<th>Billed for FU Call (CPT)</th>
<th>Conflicting Callers</th>
<th>Current Readmission rates</th>
<th>FU after 30 days</th>
<th>Common themes r/t readmission</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ Wenner</td>
<td>small independent clinic (4 staff)</td>
<td>A phone call made by any of the four members (Dr., NP, LPN, or secretary) within 48 hrs. and follow-up visit within a week of discharge; all patients discharged from the hospital (small clinic - know when patients are hospitalized generally)</td>
<td>no formal script, flows as you talk with patient; primary outcome is making sure patient is safe in home and has any questions answered, calls have always been done (no pre- or post-data)</td>
<td>No, not for phone call; any TCM would be for the follow-up visit only; CCM is not billed</td>
<td>Unknown; no appearing to be a burden as each caller has his/her own agenda</td>
<td>Reports are done per patient, unknown number off hand as the EHR does not have that specific report</td>
<td>Unknown</td>
<td>No</td>
<td>Nothing stands out from the office manager's perspective</td>
<td>Advice: having staff do the work can be time consuming but make it a priority. Patients enjoy the follow-up and feel that they are 'not just a number' that way. *this small clinic uses it as more of a social call</td>
<td></td>
</tr>
<tr>
<td>Mankato Clinic HCH</td>
<td>Fairly large clinic</td>
<td>Phone call is made by an LPN or an RN care manager if the patient is being followed within 3-4 business days and a FU appt in 7 days; all discharged patients that are made aware in the local hospitals</td>
<td>Nurse Team do all screener questions in EHR, found appointments within 7 days to be the most impactful, nurse calls can get patients in earlier if needed; decrease in rehospitalizations and ED visits</td>
<td>Yes</td>
<td>Unknown; specialties may do their own follow-up, but there is a process in place to reduce duplicatio n</td>
<td>Unknown</td>
<td>Only if enrolled in RN Care Management</td>
<td>Unknown</td>
<td>Mental Health</td>
<td></td>
<td></td>
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No protocol for CHF patient FU, but a curriculum has been created for symptom management (i.e., fluid restrictions). Unknown process for Orthopedics; effective at reducing readmission rates (no data available though). CHF has significant improvement and Orthopedic patients have always done follow-up (no pre- post-data); calls may get patients in sooner, better in connecting patients to providers, and an increase in patient satisfaction.

Health coaches doing FU calls within a week of discharge and PCP appointments are after 2 weeks. Blog posts are on the webpage about testimonias (how it helped), other resources are offered (i.e., smoking cessation). More data and measurements are improving holistic care.

No, not for phone call; too many expectations were put on the billing and not focusing on the patient; readmission reduction saves plenty of monetary value without this type of billing.

Decreased; unknown actual data

Working in a poor population – all factors including health literacy and patients understanding – Time for education, transportation can be an issue, is family involved (support system) play part in the readmission.

Cellulitis – over wt., cleanliness

Resistance to HHC - patient does have the ultimate right to refuse.

**Time and Resources are limited for follow-up

Has an opioid addiction health coach as well

Each person has been reprioritized due to COVID teaching as well

Local health agency to purchase scales, BP cuffs,

Auxiliary group – internal funding group (Grant opportunities)
<table>
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<tr>
<th>U of Minnesota</th>
<th>Phone calls are made by a front desk person within two business days of discharge. Certified medical assistants and/or social workers may also be making phone calls. Appointments are to be made upon discharge from the hospital.</th>
<th>Dot phrases are used as a script for all FU calls (found in EHR). Program was founded five yrs. ago (9 months to roll out: one clinic at a time - total of four); Patients love it! Care team has found it positive too by implementing tight time frames and implementing early intervention/timely care.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All patients discharged from the hospital within the local area; excluding OB.</td>
<td>If the patient has urgent needs, then pharmacist makes a call or RN could call before the patient has the follow-up appointment.</td>
</tr>
<tr>
<td></td>
<td>Yes, via the EPIC script (dot phrases)</td>
<td>Unknown; TCM the first doctor to bill wins!</td>
</tr>
<tr>
<td></td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>Normal care monitoring – unless they get assigned to care coordinator and have long term care coordination needs.</td>
<td>Nothing to note; no major themes – hodgepodge of multiple things.</td>
</tr>
<tr>
<td></td>
<td>Goal was 25% of pt. = GOT 80%</td>
<td>Process summaries – how many DC summaries, how many pts getting to appointments in a week, how many phone calls made/answered</td>
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</tbody>
</table>
Welia Health  Called but contact forgot the interview; followed up a week later and they still needed more time. After emailing them a week after second contact, there was no response.

Winona Health  Hospital based and had a clinic; senior services and has 13 specialties as well as urgent care and ED, 1000+ employees, over 400 volunteers and 90+ providers.

RNs call within 2 days of patients who score high on the LACE tool. All patients are contacted, minimal risk patients are within contacted within 30 days, Care consult in hospital using the LACE tool in all patients to be discharged excluding dialysis patients and OB.

RNs follow a template; (see the template upon request) found to be effective mostly on the med rec and TCM parameters; no actual data on lowered readmission rates; patient satisfaction is biggest bonus.

Social worker and two community health workers (CHW) connect with further resources; Winona Integrated community hub - this is where the CHW (non-medical) connects patients with resources such as food shelf, schools, etc.

Phone calls are not billed but if enrolled for care coordination then minutes could be billed (more focused on pt. being safe and cared for); IHP and ACO (Accountable Care Organizations) Accredited and make money by keeping people out of the hospital.

Sometime s, now they are integrating care coordinators into practice teams and the systems approach will change to avoid overlap. Mayo follows their own patients and Winona’s CC will not follow them if Mayo is doing so. Try to limit overlap.

Incredibly good! (low) unable to tap into the data currently.

Kelly Fluharty started Winona Integrated community Hub.

70% decrease in ED visits in the first 3 years

Won MN innovative healthcare home award 2018

Top three readmits were COPD, Heart Failure and Pneumonia.

COPD focus – action plans; 24/7 contact – now plans are not monitored /followed and may see a spike.

Only if followed under the Enrolled TCM program
Patient was in the hospital or ED at Alomere (or other facility if patient was on PrimeWest (PW) insurance. Will also qualify if received from the report via PROMPT encounter alert service. Recommed provider appt for “high risk” patients. If discharge notes indicate a follow-up is necessary, assist with scheduling. Patients do sometimes decline.

Phone call from nursing, office visit (or telehealth visit) with provider if patient is agreeable. RNs, LPNs, CMAs

Yes, see algorithm. The SmartPhrase has pre-set choices and prompts to help guide the user. SmartPhrase was developed with coding/quality improvement to capture transitional care requirements.

Time required for transitional care:
- Tuesday - Friday an hour or less,
- Mondays: 3 hours for just quality team member sending reports (does not include RN calls to patients)

When quality team was doing FU during COVID, they spent an additional 1-1.5 hours per day completing the calls because nursing was short staffed.

PW and Blue Cross. Heartland Orthopedics does own FU. Alomere monitors to see if there are duplicates, on average it would have been about 30 per week. Have made changes to eliminate the duplicate efforts of quality improvement have been made and post discharge follow-up prompts sent to nursing in the primary care area.

Current discharge rates as of September 2020, 2% for only ALEXANDRIA CLINIC (not Sanford) patients. Could be higher than that rate since we do not include “no PCP” patients that have not been seen in the last year and do not have a PCP at our clinic. No PCP list is worked by HCH coordinator to try to identify a PCP/schedule a visit to establish care.

Med rec seems to contribute. Otherwise, complex patients with frequent patterns of readmissions. Will see more patients with MA/PrimeWest that opt for the ED instead of seeking care in the primary care setting. PW will send letters regarding appropriate use. Have noticed specific provider trends (some providers will be more willing to fit patients in for follow-up, respond to MyChart, etc.) Some providers may be more likely to direct patients to ED instead of working into their schedule or the primary care schedules (express care, etc.) Also, chronic patients with complex illness and chronic alcoholics that have very frequent readmissions.
Appendix F

The Iowa Model Revised (2015) Permissions

From: Kimberly Jordan - University of Iowa Hospitals and Clinics <survey-bounce@survey.uiowa.edu>
Sent: Wednesday, November 25, 2020 11:38 AM
To: Horihan, Lindsay M <lhorihan10@winona.edu>
Subject: Permission to Use The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care

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Appendix G

RN Staff Education Module PowerPoint Outline

1. Slide 1
   1.1. Overview of DNP Project
2. Slide 2
   2.1. Purpose of DNP Project
3. Slide 3
   3.1. Outcomes to be accomplished upon completion
4. Slide 4
   4.1. Identifying a discrepancy during a follow-up phone call
   4.2. Review of REDCap Discrepancy survey components
5. Slide 5
   5.1. How and When to fill out the REDCap Discrepancy survey
6. Slide 6
   6.1. What qualifies as a “completed” REDCap Discrepancy survey
   6.2. Required fields to be filled out before submission
7. Slide 7
   7.1. Introduction of algorithm to use during each follow-up phone call
   7.2. Effective use of new algorithm
8. Slide 8
   8.1. Importance of data collection relating to patient and process outcomes
9. Slide 9
   9.1. Conclusion
   9.2. Thank You
Appendix H

Doctor of Nursing Practice Project
Improving Data Collection and Documentation in a Post-Discharge Follow-Up Phone Call Program

You are invited to participate in a doctoral project. The purpose of the project is to evaluate the effectiveness of follow-up phone calls made to primary care patients after discharging from an acute care facility. The purpose of this assessment is to gather and quantify data relating to the nurse’s knowledge of the current and updated process. There are no considerable risks or benefits from participating in this assessment.

The project will begin Spring 2021 and end Fall 2021. We estimate that participating in the assessment below will require 5 minutes of your time.

Data collected during this assessment and project will be anonymous. This means that no identifying information will be associated with your responses. The files with your responses will be scanned into a password protected computer and kept with the project leads. The data will be analyzed after the project is done. The data may also be stored for a time and analyzed later. Other researchers may use the data to help find patterns or new knowledge within the data. If the results of this project are published or presented, no names or other identifying information will be associated with the data.

For questions about this project, contact the project leads Tasha Flicek (tflicek13@winona.edu, 507-421-9572) or Lindsay Horihan (lhorihan10@winona.edu, 507-272-8157), the site mentors Stephanie Witwer, PhD (Witwer.Stephanie@mayo.edu) and Angela Mattson, DNP (Mattson.Angela@mayo.edu), or the faculty chair, Jen Prochnow (jprochnow@winona.edu, 651-278-4412).

Participation in the project pre- and post-education assessment is voluntary. If you do not want to participate, there will not be a penalty or loss of benefits to which you are entitled. You may stop participation at any time without penalty or loss of benefits. A decision to stop participation or withdraw will not affect your current or future relationship with Mayo Clinic or Winona State University.

AGREEMENT TO PARTICIPATE

You are making a decision whether or not to participate in this project described above. Participation is voluntary. Your participation in this assessment indicates that you have read the information provided above, had an opportunity to ask questions about the project, and have decided to participate.

Knowledge Assessment for Primary Care Registered Nurses
(to be administered pre-education and three months post-implementation of algorithm upon completion of project)
1. 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 work day
   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
Appendix I
Primary Care Follow-Up Phone Call Algorithm

Patient is discharged from acute care hospital inpatient

Primary Care Registered Nurse (RN) is notified of discharge (DC) via the Patient Hospital Follow-up report (PHFU)

Primary Care RN initiates telephone call within 48 business hours of DC

RN completes assessment and determines an appointment has been made or is needed earlier

Is patient reached on first phone call attempt?

Yes

Primary Care RN makes second attempt within 48 business hours from DC

No

Is patient reached on second call attempt?

Yes

Stop

No

Is follow-up appointment made/sufficient?

Yes

RN transfers call to appointment coordinator to schedule

No

Complete documentation, and Redcap survey if discrepancies were noted

Stop