Effects of a Post-Discharge Telephone Follow-up Call on Psychiatric Readmission Rates

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Abstract

Problem & Purpose: Preventing early psychiatric readmissions presents a significant challenge to inpatient psychiatric units. Thirty-day readmission rates continue to rise using a significant amount of resources and increasing hospital costs. An inpatient psychiatric unit specializing in treating severe mental illness has a high readmission rate (20%). A quality improvement (QI) project was designed to reduce inpatient psychiatric readmission rates. The purpose of this QI project was to implement a nurse-led follow-up phone call within 72 hours post-discharge to identify issues related to patient understanding and ability to adhere to discharge plans. Identification of barriers encountered in the follow-up plan and early resolutions was posited to reduce thirty-day readmission rates.

Methods: Psychiatric nurses in a 24-bed adult high acuity unit were educated to conduct post-discharge phone calls using a detailed script tailored to the organization. A corresponding documentation tool evaluating data collected on medication reconciliation, confirmed follow- up appointment, the patient's medication regime, and the patient's understanding of discharge instructions was assessed and an intervention during the call was provided as needed. Night shift RNs audited the documentation tool. The phone call was to be completed on each patient discharging over a twelve-week period. Phone call and audit completions were tracked weekly and thirty-day readmission rates were tracked monthly.

Results: Findings suggest the use of a post-discharge phone call was a successful intervention that can be adopted on psychiatric units. Phone call and audit completions reached the goal of 100%. This indicates nurses were able to accommodate the extra tasks without disrupting the milieu. Thirty-day readmission rates decreased 2% compared to the same time in the year prior.

Conclusions: Post-discharge phone calls is a cost effective intervention that has shown to be a successful in reducing thirty-day readmission rates in this psychiatric settings. Future QI projects should consider this intervention in different psychiatric specialties.

Introduction

Mental illnesses are common in the United States with nearly one in five U.S. adults living with a mental illness or substance abuse disorder (46.6 million in 2019) (NIMH, 2020). In any given year, an estimated 18.1% (43.6 million) of U.S. adults ages 18 years or older suffered from any mental illness and 4.2% (9.8 million) suffered from a seriously debilitating mental illness (NIMH, 2020). It costs the United States alone 193.2 billion per year to treat mental illness. (NIMH, 2020). In addition, psychiatric hospitalizations increased at a higher rate than any other type of hospitalization (Heslin and Weiss, 2015). This is troublesome considering that up to 23% of patients are readmitted to an inpatient psychiatric hospital shortly after discharge (Vigod et al., 2013).

Approximately 27.5 million admissions occur annually to inpatient psychiatric facilities, with 29% of those admissions classified as readmissions within 30 days of discharge from inpatient psychiatric treatment (Heslin and Weiss, 2015). Early readmissions to inpatient psychiatric facilities are disruptive not only to patients, but also to their families resulting in poorer outcomes, fewer employment opportunities, and difficult social relationships (Heslin and Weiss, 2015). While working on a behavioral health unit specializing in severe mental illness, the readmission rates within 30 days were observed to be high at approximately 20%. This was deemed an essential problem in the organization, as their readmission rates have climbed from an average of 15% in 2016 to 20% in 2020. In order to address this problem, evidence-based interventions are needed to prevent readmissions for both the issue of cost, and overall, for the benefit of the patient. Specific care interventions, such as post-discharge telephone calls, are aimed at lowering readmission rates by providing support adding support in the transition home. In an attempt to keep patients from being readmitted, these phone calls allow for early

interventions regarding problems patients may face when discharged. The purpose of this quality improvement project was to implement a nurse-led follow-up phone call within 72 hours post discharge aimed at early identification of issues related to patient understanding and their ability to adhere to discharge plans. It is anticipated that this practice change will decrease 30-day readmission rates.

Evidence Review

A literature review was conducted, resulting in five articles supporting the use of a post-discharge telephone follow-up call on reducing 30-day readmission rates. Grading of the articles for level and quality was made possible by use of Melnyk and Fineout-Overholt (2014) and Newhouse (2006).

The five articles included, three systematic reviews (Bahr et al., 2013; Branowicki et al., 2017; Vigold et al., 2013), one quasi-experimental design (Odeh et al., 2019), and one retrospective cohort study (Harrison et al., 2011). All studies in the literature review aimed to identify post-discharge interventions that were effective in reducing readmission rates, including post-discharge telephone calls. Two out of five studies were conducted in a psychiatric setting, while the others were in Emergency department or med-surgical settings.

Researchers from one systematic review (SR) found that post-discharge calls not only decreased readmission rates, but also improved patient satisfaction, medication adherence, and rates of follow-up (Bahr et al., 2013). The other two SR found that using post-discharge phone calls also lengthened time to readmission (Branowicki et al., 2017; Vigold et al., 2013). These two SR evaluated other interventions separately, including home visits and pre-discharge interventions, and found these to be helpful (Branwicki et al., 2017; Vigold et al., 2013). The last two researchers, (Harrison et al., 2011; Odeh et al., 2019), found post-discharge calls reduced

readmission rates. The quasi-experimental design was pharmacist-led (Odeh et al., 2019). The retrospective cohort study was nurse-led (Harrison et al., 2011).

Certain weaknesses and limitations of the current evidence include all but two articles being in a psychiatric setting. In the future more research will be needed to explore other interventions to decrease psychiatric readmissions. There also was one study that used pharmacists instead of nurses to lead post-discharge calls (Odeh et al., 2019). However, the calls were of similar format to the nurse-led calls making it an important contribution to the research. The strengths of these studies consisted of their level and quality of evidence as well as their overall consensus that post-discharge phone calls are an effective tool to impact readmissions. Overall, despite certain limitations, the literature showed positive clinical outcomes on reducing readmission rates using post-discharge phone calls. Similar recommendations include the need for on-going research to decrease readmission rates and more research specific to psychiatric settings.

Theoretical Framework

The Integrated Theory of Health Behavior Change (ITHBC) was used to facilitate implementation. It is a midrange descriptive theory developed by Polly Ryan (2009), which focuses on health promotion and behavior change. ITHBC theory chosen for this project is grounded in behavioral change; the purpose of the intervention was to reinforce patient understanding and management of their mental illness. The patients would have a responsibility in the effort to avoid readmissions, which was a key component of improving outcomes. The ITHBC theory suggests that health behavior change can be enhanced by "nurturing knowledge and beliefs, increasing self-management skills and abilities, and enhancing social facilitation" (Ryan, 2009, p.1). The constructs of the framework include the idea that a patient's engagement

in self-management behaviors was seen as the proximal outcome influencing the long-term distal outcome of improved health status (Ryan, 2009). A post-discharge phone call focused on medication self- management and an understanding of post-discharge instructions through application of the ITHBC would improve the likelihood of adherence and understanding of disease management and the likelihood of reducing any unnecessary hospital readmissions. The focused population was patients with severe mental illness (SMI). Providing patients with information about their medical conditions and the disease process would improve the likelihood they would engage in the recommended health behaviors that improve outcomes (Ryan, 2009). Education should be provided in a manner that the patient understands, including at the correct comprehension level of the patient. An example of application of ITHBC theory was during the intervention call, the nurse reviewed the patient's understanding of the discharge instructions, and the education material was provided to the patient. The nurse answered any questions, and encouraged the patient to write down questions they might have for their primary care provider.

Methods

This quality improvement (QI) project was implemented in a large psychiatric center on an adult inpatient psychiatric unit with 24-beds in an urban setting. The unit specializes in severe mental illness, such as patients with schizophrenia, schizoaffective, and bipolar disorders. Prior to the implementation of a post-discharge phone call, the identified unit had no standard tool in practice for following up with patients after discharge. Patients were responsible for taking their own medications and making it to their follow-up appointments. In turn this led to inconsistent outcomes, early returns back to the hospital, and dissatisfied patients. Based off the current literature, post-discharge phone calls are an essential component to reducing early readmissions on inpatient psychiatry units. Therefore, this intervention was posited to reduce early

readmissions as staff nurses were able to ensure patients made it to their follow-up appointments, were taking their medications as prescribed, and answering any other questions.

100 % of day shift nurses (16/16) were educated and trained how to place a discharge phone call using a script (Appendix B) and then recording the encounter on a documentation form (Appendix A). 100% of night shift nurses (12/12) were trained how to audit each phone call for completion. Implementation took place over a 16-week period with all patients discharging included in the intervention, except for those discharging to jail or a long-term health facility. These patients were excluded, as they would not have a reliable communication method upon discharge. Patients admitted to the unit were either voluntary or involuntary with an average length of stay between seven-ten days. Nurses work twelve-hour shifts and have an average of six patients per registered nurse (RN).

Implementation team consisted of the project leader, site sponsor, clinical site representative (CSR), quality improvement lead, and five unit champions. The project leader and unit champions trained all nurses. Unit champions were selected and chosen based off seniority and were trained prior to the other RNs. The project lead and CSR were responsible for keeping staff on track, reporting progress, and making adjustments as needed.

To track implementation progress of this intervention chart audits were conducted twice weekly to assess the number of completed phone calls and audits (Appendix C). Monthly electronic health record (EHR) checks were completed to see the average 30-day readmission rate (Appendix D). Education attendance forms and sign-offs were collected by project lead at the end of week 3, completing the training period for all nurses. Weekly meetings were held with CSR/unit champions and monthly with project sponsor to discuss barriers and facilitators encountered.

Training for both day and night nurses occurred in weeks 2 and 3 with multiple sign up dates and times to accommodate staff. At the end of week 3, all staff attended and were signed off for demonstration and comprehension of the intervention (Appendix A). Adherence rates for both phone call and audit completion were tracked and shown visually biweekly to inform staff of progress (Appendix C). Run charts were used to track progress through percentages of completions of phone calls (Figure 2). To maintain progress, an open door policy between staff and project lead was maintained throughout lifespan of the project. Staff provided comments and suggestions and the intervention was modified as needed.

Biweekly reports displaying adherence rates for phone call and audit completions were printed by project lead and CSR. CSR placed run charts on the communication board, so that all staff could visualize progress. Updated values were entered weekly to assess for trends and patterns in data. To protect human subjects, all patient information was de-identified by assigning a unique number to protect their privacy and confidentiality. Data collection tools will use a pseudo identifier and the linked file will be stored in a password-protected computer only accessible by project lead and CSR. This QI project was deemed non-human subjects by an IRB.

Results

During the implementation period, in the first three weeks, 100% of staff nurses (n=28) on the adult inpatient psychiatric unit completed training on how to place a follow-up phone call using the provided script. In addition to training, each nurse was validated for competency on placing a phone call by witnessing each staff member place a phone call and then documenting the results. All day shift nurses (12/12) passed. After the initial three weeks of training, the go

live was initiated and nurses began placing follow-up phone calls within 72 hours of patient discharge.

Lessons learned

Staff nurse's adherence with the phone calls fluctuated initially during the implementation period from weeks 4 to 6. Barriers identified at week 6 included lengthy phone call times, acuity of the unit, and poor staffing resulting in adherence rates that were not reaching 100%. Phone call times were originally lasting close to ten minutes per phone call. A regroup by week 6 was completed to identify causes of the lower adherence rates. The phone call script was condensed and an additional staff was provided each shift to accommodate for the high acuity and extra workload by week 7. With the condensed script, phone calls were lasting 6-7 minutes, while maintaining all essential items. This improved adherence rates dramatically; with 100% adherence rates reached by weeks 14 and 15 during the implementation period. In addition, 30-day readmission rates were 2% lower compared to the year prior. Although subtle, it was a change from 19% to 17% in a one-year span. Facilitators of adherence included strong leadership presence during the entirety of the quality improvement project and the simplicity of making phone calls. The phone calls were less than seven minutes long and often no more than two or three were done per day. Thus, it limited the additional burden on workload for nurses. Staff nurses also reported feeling the phone calls were useful and helpful for patients.

Discussion

The overall results of this QI project demonstrated that a post-discharge phone call is a brief and feasible intervention based off the current findings to reduce 30-day readmission rates on an inpatient psychiatric unit. Staff nurses were able to properly execute conducting a phone

call within 72 hours of discharge, which was supported by a compliance rate of 100% by weeks 14 and 15. The QI data trend of increased adherence throughout the implementation period suggests compliance could easily be maintained. A longer implementation period would be required to assess the impact of a post-discharge phone call 30-day readmission rates over an extended timeframe.

Findings are consistent with the literature supporting the use of post-discharge phone calls to reduce 30-day readmission rates. Three systematic reviews (Bahr et al., 2013; Branowicki et al, 2017; Vigold et al., 2013) concluded that nurse-led telephone follow-up could improve discharge outcomes and facilitate additional care needs. By doing so, early readmissions could be avoided. By the end of implementation, 30-day readmission rates were lower compared to the year prior suggesting the intervention also worked similarly in this setting. In other settings an average of a 3-4% decrease in readmissions was observed (Vigold et al., 2013). However, they had a longer implementation period ranging from six months to one year. With more time, the readmission rates for this QI project could match the other studies.

Limitations of this QI project included documenting the results of each phone call on paper versus the EHR; thus, complicating the accessibility and storage of data. As most forms of other documentation are embedded in the EHR already, this would have streamlined the process for staff nurses completing the phone calls. Efforts to minimize this problem included a user-friendly sheet to record data that did not take a significant length of time to complete. In addition without strong leadership presence to make critical changes, the compliance rates of the phone calls could have easily been lower. Having access to an additional staff each shift greatly improved adherence rates. In other hospital systems with staffing shortages, nurse-led phone

calls may not be as effective. Also, the discharge script was tailored to this specific institution. Thus, making these findings less generalizable to other inpatient psychiatric settings.

Conclusion

Effective interventions are essential to combat the rising rates of early psychiatric admissions. These results support the use of post-discharge phone calls as a method to decrease early readmission rates on inpatient psychiatric units. Strengths of this project include the interventions being cost-effective and easy to use. Once trained, staff nurses' felt comfortable placing phone calls without feeling overwhelmed. Also, discharge scripts can be easily obtained and customized to various hospital settings.

In order to sustain the results shown so far, the project has been approved to continue at least for another year. During this time, project updates will be included in monthly staff meetings to provide staff with the latest information and help maintain staff engagement in this project. The increase in data points should allow for a more robust determination if post-discharge phone calls succeed in reducing 30-day readmission rates long-term.

This project has the potential to be utilized among other inpatient psychiatric units as well as non-psychiatric units. Implementation processes may need to be adjusted for unit context, but the technology and execution would be the same. This would allow other units to reduce readmissions and provide further insight into what that patient population struggles with while transitioning back into an outpatient setting.

Looking forward, future QI projects should examine other interventions that could reduce early psychiatric readmissions. Looking at pre-interventions along with post-interventions would provide even greater coverage to supporting patients transitioning home. This not only decreases hospital costs, but also improves patients' lives as they manage their illness outside the hospital.

References

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Branowicki, P., Vessey, J., Graham, D., McCabe, M., Clapp, A., & Blaine, K. et al. (2017). Meta-Analysis of Clinical Trials That Evaluate the Effectiveness of Hospital-Initiated Postdischarge Interventions on Hospital Readmission. *Journal For Healthcare Quality*, *39*(6), 354-366. https://doi.org/10.1097/jhq.0000000000000057

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Table 1

Evidence Review Table

Citation: Branowicki, P., Vessey, J., Graham, D., McCabe, M., Clapp, A., & Blaine, K. et al. (2017). Meta-Analysis of Clinical Trials That Evaluate the Effectiveness of Hospital-Initiated Postdischarge Interventions on Hospital Readmission. *Journal For Healthcare Quality, 39*(6), 354-366. https://doi.org/10.1097/jhq.0000000000000057					Level I
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"The purpose of this study was conducted to assess the effectiveness of Hospital-initiated post-discharge interventions (HiPDI), such as follow-up phone calls or home visits, on reducing hospital readmissions using a systematic review of clinical trials published between 1990 and 2014."	Systematic review (SR) with meta-analysis published in English over the last 25 years (January 1, 1990–June 30, 2014) that evaluated one or more HiPDI implementations.	**Search strategy**: A standardized protocol to identify articles about clinical trials that evaluate the impact of one or more HiPDI on hospital readmission was created with methods adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions The electronic health care article databases Medline, PsycINFO, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) were searched using terms: (MH "Telephone") OR (MH "Cellular Phone1") OR (MH "Wireless	**Control:** Controls varied across studies included in SR (education, standard discharge materials) **Intervention:** Interventions in the studies in the SR included either telephone follow-up phone calls made by nursing staff, a home visit by a care manager, or both within 30 days of D/C. **Tx Protocol:** Not applicable	**Main exposure:** The main exposure, HiPDI, was defined as any intervention that was initiated after hospital discharge for the purposes of helping patients to mitigate disease burden, prevent hospital readmissions, and ultimately improve quality of life. **Main outcome measure:** The main outcome measure was hospital readmission after discharge from a previous admission within 30 days. **Measurement:** Readmission rates within 30 days from previous D/C date. 13 studies tracked readmissions back to same hospital, 7 studies tracked readmissions	**Level of Measurement:** Meta-analysis of aggregated data across the selected RCT was conducted. In univariable analysis, data from each clinical trial were pooled to generate an overall odds ratio (OR) and corresponding 95% CI of hospital readmission for patients exposed to HiPDI in the intervention groups. Next, to assess which HiPDI have the greatest impact on readmission, generalized estimating equations with a random effect for article were used to account for data clustering and nuances of individual articles that could potentially influence the overall results across articles. Multiple fixed effects were used to assess the

		Technology") OR (MH "Internet") OR phone call* OR telephone call* OR texting OR iPhone OR iChat OR (MH "House Calls") OR (MH "Home Care Services") OR (MH "Home Nursing") OR (MH "Home Care Services, Hospital-Based") OR home visit* OR (MH "Monitoring, Ambulatory1") OR intervention* AND (MH "Patient Discharge") OR ((hospital OR patient) AND discharge). **Eligible studies:** 508 studies identified and then reviewed independently by 4 members of the study team for inclusion in the study. Twenty articles were chosen for meta-analysis. Each of the 20 articles randomly assigned to 2 reviewers for data abstraction. Disagreements in data abstraction were arbitrated in discussion with a 3rd reviewer. No assumptions were made regarding missing data; no data required for meta-analysis were missing.		back to any hospital.	impact of HiPDI on readmissions, while accounting for potential confounders, such as admission diagnosis. The statistical significance threshold was p , .05. SAS (9.3, Cary, NC) was used for all analyses. **Results:** Home Visits: Having one or more home visits was associated with a lower likelihood of readmission (OR, 0.6 [95% CI, 0.4– 0.7]), whereas having no home visit was not (OR, 1.0 [95% CI, 0.8–1.1]). Readmission rates were 24% (95% CI, 16–34%) in hospitalized patients with 1 or more postdischarge home visits compared with 36% (26–48%) in patients without a home visit. Telephone follow-up: Having one or more follow-up phone calls made from providers to patients was associated with a lower likelihood of readmission (OR, 0.7 [95% CI, 0.6–0.8]),

		Included: 20 RCT selected from various countries focusing on HiPDI, specifically follow-up phone calls or home visits within 30 days of D/C. **Excluded**: Those that were not RCT and did not have either a follow-up phone call or home visit after D/C from hospital within 30 days. (Specific #'s not provided). **Power analysis**: N/A **SR Bias Risk:** based on the methodology described, bias risk is low			whereas having no phone call was not (OR, 0.9 [95% CI, 0.7–1.1]). Readmission rates were 23% (95% CI, 15–35%) in hospitalized patients with 1 or more postdischarge phone calls compared with 31% (20–45%) in patients without a phone call. **Conclusion:** Hospital-initiated postdischarge interventions that include home visits and/or follow-up phone calls may have the greatest impact on hospital readmission.
Citation: Vigod, S., Kurdyak, P., Dennis, C., Leszcz, T., Taylor, V., Blumberger, D., & Seitz, D. (2013). Transitional interventions to reduce early psychiatric readmissions in adults: Systematic review. *British Journal of Psychiatry, 202*(3), 187-194. doi:10.1192/bjp.bp.112.115030					Level I
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"The purpose of this study was to describe and evaluate interventions applied during the transition from in-patient to out-patient care in preventing early psychiatric readmission using a systematic review."	"Systematic review of transitional interventions among adults admitted to hospital with mental illness where the study outcome was psychiatric readmission."	**Search strategy:** "The following electronic databases were searched from inception until January 2012 using Medline, CINAHL, EMBASE, PsycINFO and the Cochrane Library. The following terms were used: Hospitalization,	**Control:** Varied across studies but included standard discharge process per hospital **Intervention:** Pre-discharge interventions: 4 studies tested interventions with pre-discharge components. 2 studies evaluated a	**Main exposure:** Any intervention (pre, post, or both) that was used to help prevent readmission after discharge. **Main outcome measure:** Hospital readmission rates after discharge within 3	**Level of measurement:** The characteristics of studies and attributes of study quality were summarized in tables. Studies were categorized chronologically and by study design. The intervention

		Recurrence, post discharge, postdischarge, hospitalization*, readmit*, discharge planning, continuity of patient care, co-ordination, coordination, outpatient-care, ambulatory-care, transitional-care, aftercare, in combination with mental, psychiatric*, mental disorders, mentally ill persons, mental health services AND intervention*, therapy. Database searches yielded 477 unique articles. In total, 105 full-text articles were retrieved and reviewed in detail, with 15 meeting inclusion criteria." **Inclusion:** "Studies that were of RCT design outcomes were reported in an intervention group and non-intervention group, interventions whose goals were to assist in the transition from in-patient to out-patient care for adult in-patients on psychiatric units. Eligible interventions could have components delivered prior to discharge (pre-discharge), shortly after	pre-discharge psychoeducation component 2 multicomponent interventions included a pre-discharge medication reconciliation/education component, Post-discharge interventions: 8 studies tested interventions with post-discharge components. 4 used post-discharge telephone followups, and 4 used home visits. Both generally involved enquiry about mental health status and whether or not the patients had visited their out-patient mental health provider. Both pre/post d/c interventions: 3 studies included both pre/post interventions including psychoeducation prior to d/c then using a telephone follow-up after d/c. **Protocol:** N/A	months and then 6 months. **Measurement:** Readmission rates back to same hospital within a 3 month and 6 month time window.	components within studies were categorized as pre-discharge, post-discharge or both. For each study, we calculated absolute risk reduction in readmission rates (in percentage points) or days in hospital during the follow-up period (in days) for each intervention. They planned to combine data quantitatively across studies using standard meta-analytic techniques to arrive at pooled estimates of the odds ratios for readmission associated with interventions compared with usual care where there were a sufficient number of clinical homogeneous studies, but due to extreme variability this was forgone. **Results:** 4 Studies with an only pre-discharge intervention component generated significant results. pre-discharge interventions in psychiatry where the pooled risk of readmission ratio for

		discharge (post-discharge) or could span both the pre- and post-discharge time periods, psychiatric readmission after hospital discharge was a required outcome in all studies." **Exclusion:** "Excluded studies included interventions not related to adult mental health. Excluded interventions directed at treating specific psychiatric disorders (for example, using medication or specific psychotherapies) were not included." **Eligible studies:** All included studies were conducted in high-income countries, with the majority from the USA. **PRISMA:** Included detailing decision making criteria for retaining/omitting studies from the SR **Power Analysis:** N/A **SR Bias Risk:** based on the methodology described, bias risk is low			discharge planning interventions using data from only four studies was 0.66 (95% CI 0.51–0.84), control group readmit rates at 3 months ranged from 9-24 % and 6 months ranged from 12-32%. Intervention group readmit rates at 3 month ranges from 7-17% and 6 months ranged from 10-27%. 8 Studies with an only post d/c intervention, 6 out of 8 studies involving post-discharge psychoeducational components revealed significant reductions in readmission in the intervention groups, 4 out of those 8 studies involved telephone follow-up (Readmit rates down roughly 15% between 3/6 month averaged) . 4 studies involving post-discharge home visits, 2 were found to be non-significant, while the other two were found to be significant (readmit rates down roughly 10.2% between 3/6month averaged). 3 studies with a

					pre/post intervention revealed the strongest reduction in readmit rates (readmit rates down between 5-12% at 3 months; 6 months 9-24%). **Conclusion:** Using pre, post, or both interventions may reduce early psychiatric readmission and that when they are effective, the magnitude of effect appears to be clinically meaningful.
Citation: Bahr, S. J., Solverson, S., Schlidt, A., Hack, D., Smith, J. L., & Ryan, P. (2014). Integrated Literature Review of Postdischarge Telephone Calls. Western Journal of Nursing Research, 36(1), 84–104. https://doi.org/10.1177/0193945913491016					Level 1
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"This systematic review of the literature assessed the impact of a postdischarge telephone call on patient outcomes."	Systematic review of postdischarge telephone follow-up calls after discharge from the hospital.	**Search Strategy:** "An electronic search (Medline, CINHAL, and Cochrane Review) was conducted. Search terms included "post-discharge," "telephone calls," "hospital discharge," and "follow up." Standardized data extraction tool for quantitative studies was used.. At least two members of the team read every article. The comparability of responses entered onto the tool was determined. Differences were	**Control:** Control groups included discharge process without any post d/c telephone follow-up. **Intervention:** The interventions across the studies included post discharge telephone follow-up within 30 days of discharge **Protocol**: N/A	**Main exposure:** Post d/c telephone follow-up within 30 days of discharge from hospital **Main outcome measure:** How did the telephone call after d/c affect patient outcomes such as satisfaction, medication, and follow-up. In addition, how did it affect hospital outcomes such as readmission rates, and visits to the ED. **Measure:** Readmission rates within 30 days of d/c.	**Level of measurement:** "A standardized data extraction tool for quantitative studies was used. The tool contained information about the research design, sample (type, size, number of groups), outcome measurement tools (variable measured, reliability and validity, and description) analysis, findings of the study, and evaluation of the scientific merit of the study. The tool was

		managed by the addition of a third reader and a consensus was reached via group discussion.All members of the team read the methods, analysis, and results sections of articles. Once individual studies were critiqued, data were entered onto an evidence table." **Sample: "**Studies were included if they met the following inclusion criteria: patients at least 18 years of age or older; a minimum of a 24-hr hospital stay; an experimental and contrasting group, medical-surgical (not restricted to a specific diagnostic group); a phone called made within 30 days of discharge; and research work published prior to February of 2013, and written in English. Exclusion criteria included programs delivered over time for education or support purposes, data collection or surveillance, appointment reminders, 30-day outcomes not reported, or the phone			customized for the project by adding questions about eligibility criteria, characteristics of the postdischarge telephone call (who placed the call, when the call was made, types of questions asked, completion rate, length of the call, numbers of calls made to achieve contact with the person, and cost), and the specific outcome measures. Team members were experienced in using the extraction tool." **Results:** Patient outcomes: Patient satisfaction was measured in 6 studies; 4 studies found that patients who received telephone calls were more satisfied than patients who did not and 2 studies found no difference in satisfaction between patients who received postdischarge telephone calls and patients who did not receive telephone calls. Medication adherence was measured in 3

		call was part of a systemwide discharge or transition program." **Eligible Studies:** A total of 19 original research studies met inclusion criteria. Study designs were from RCT trials. **PRISMA:** Included detailing decision making criteria for retaining/omitting studies from the SR **Power Analysis:** N/A **SR Bias Risk:** based on the methodology described, bias risk is low			studies; 1 study found that patients who received phone calls showed no difference in med. adherence while 2 studies found a significant difference. 1 study evaluated follow-up-Postdischarge telephone calls were associated with an increased rate in the scheduled follow-up. In the study people in the intervention group had a higher rate of initiating contact with the health care system in the first 24 hr (68 persons compared with 40 persons) stated postdischarge telephone calls significantly increased the rates of timely follow-up. Hospital outcomes: Significant change in hospital readmission was found in 11 of of the studies, while 8 studies showed no significant change. Visits to the ED were evaluated in four studies, 2 studies showed a decrease in ED visits, while 2 showed no significant difference in ED visits.

					Conclusion: After review of 19 studies, most of them showed significant positive changes using post d/c telephone follow-up call compared to using no telephone follow-up call.
Citation: Odeh, M., Scullin, C., Fleming, G., Scott, M. G., Horne, R., and McElnay, J. C. (2019) Ensuring continuity of patient care across the healthcare interface: Telephone follow-up post-hospitalization. *Br J Clin Pharmacol*, 85: 616– 625. https://doi-org.proxy-hs.researchport.umd.edu/10.1111/bcp.13839.					Level III
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"To implement a pharmacist-led, postdischarge telephone follow-up (TFU) intervention and to evaluate its impact on rehospitalization via comparison with a well-matched control group."	"The study was designed as a pragmatic, prospective, quasi-experimental study in which intervention patients were matched with a control group at a 1:1 matching ratio using a propensity score matching technique."	**Sampling technique:** Convenience sampling **Eligible participants:** Patients discharged from Antrim Area Hospital, a 426-bed district general hospital within the Northern Health and Social Care Trust in Northern Ireland between Feb 15 2016-June 30 2016. **Excluded:** Patients were excluded if suffering from a terminal illness, using a prescribed adherence support aid; unable to communicate coherently, confused, or scheduled to be discharged to a nursing	**Control:** Standard practice (no use of post d/c telephone call). **Intervention:** Telephone follow-up was scheduled. The clinical pharmacists involved in delivering the additional TFU service were asked to communicate with the intervention patients three times,i.e. structured telephone calls scheduled within ten days, at 1 month and at the start of the 3rd month post discharge. **Treatment fidelity:** The service was delivered by 3 clinical	**Main exposure:** Post d/c telephone follow-up within 10 days, 1 month, and the start of 3rd month. **Main outcome measure:** How did the telephone call after d/c affect readmission rates. **Measure:** Readmission rates at 30 days and 90 days after initial discharge.	**Level of measurement:** Data collected for participating patients (administrative data on hospitalization from the hospital computer system were transferred to SPSS (version 23) for statistical analysis. Standard statistical methodology was used to assess the impact of postdischarge telephone follow-up by comparing data from the intervention and control groups using appropriate parametric or non-parametric tests. **Results: T**he intervention group,

		home. **Accepted:** Eligible patients for inclusion were adult patients aged 18 years or over who were receiving at least 3 prescribed medicines for the management of chronic illness, including mental illness. **Control:** 211 patients (109 male, 102 female) **Intervention:** 211 patients (109 male, 102 female) **Power:** A sample size calculation was carried out using samplesize software (Statulator, the online beta version). Pilot study results for 30-day readmission rate were used in the sample size calculation, which indicated that a sample of 175pairs, would achieve a statistical power of 90% for detecting a 6% difference in readmission rate between intervention and control groups. **Group Homogeneity:** Homogenous between both intervention and control groups	pharmacists who were members of the hospital clinical pharmacy team. The clinical pharmacists employed a structured guide during interactions with patients. During each interaction, the pharmacist noted any issues or problems patients were experiencing with their treatment/illness, including adherence concerns.		when compared with the control group, demonstrated a significant reduction of 10.0%(P<0.001) and 15.2% (P=0.021) in the 30-day and the 90-day readmission rates respectively. The odds of readmission within 30 days and 90 days in the intervention group were reduced by 43% [odds ratio (OR) = 0.57; 95% confidence interval (CI): 0.36–0.90] and 47% (OR = 0.53; 95% CI: 0.36–0.79) respectively when compared with the control group. **Conclusion:** The results suggest that this type of service (post d/c telephone follow-up phone call) should be routinely adopted in an attempt to reduce early rehospitalization of patients.

		SR Bias Risk: based on the methodology described, bias risk is low			
Citation: Harrison, P. L., Hara, P. A., Pope, J. E., Young, M. C., & Rula, E. Y. (2011). The impact of postdischarge telephonic follow-up on hospital readmissions. *Population health management, 14*(1), 27–32. https://doi.org/10.1089/pop.2009.0076					Level: IV
Purpose/ Hypothesis	Design	Sample	Intervention	Outcomes	Results
"This study was undertaken to determine whether telephonic outreach to ensure patient understanding of and adherence to discharge orders following a hospitalization is effective at reducing hospital readmissions within 30 days after discharge. "	Retrospective cohort study	**Sampling tech:** Convenience **Eligible: "**Participants in this study included all 30,272 members from a large commercial health plan with Medicare Advantage who were enrolled in a chronic disease management program and who had a hospital admission for any reason during calendar year 2008. Eligibility for a disease management program required a diagnosis of asthma, coronary artery disease, chronic kidney disease, chronic obstructive pulmonary disease, depression, diabetes, end-stage renal disease, heart failure, or one of 11 other chronic conditions Program	**Control:** N/A- there was a comparison group, but not specific control group. **Intervention:** Postdischarge telephone call **Intervention fidelity:** The Hospital Discharge Campaign (HDC) was a focused intervention aimed at reducing preventable hospital readmissions and delivered within chronic disease management programs. Program members were entered into the HDC upon the health plan notifying the program provider of a discharge following an inpatient hospital stay. Members were then eligible to receive a telephone call from a specially-trained	**DV:** Hospital readmission rates within 30 days. **Measure:** The first occurrence of a hospital admission for each member within the 2008 calendar year was considered the initial hospital admission for that member. A subsequent hospital admission for any reason that occurred within 30 days of the initial hospital discharge was considered a 30-day readmission. Hospital admissions and/or readmissions that occurred more than 30 days after the initial hospital discharge were not included in this study.	**Level of measurement: "**Multiple logistic regression was used to determine the impact of hospital discharge calls on preventing 30-day readmissions after controlling for covariates including sex, age, length of stay (LOS) during the initial hospitalization, and a variable coined the "readmission window," which represented the varying window of opportunity members had to be readmitted to the hospital based on whether or not, and when, they received a discharge call. The readmission window was 30 days for all members of the comparison group; however, because the length of the

		enrollment was automatic for eligible members unless the individual elected to opt out of the program." **Comparison group:** **"**Members who were readmitted prior to receiving a discharge call; these members, who comprised only 0.5% of the total study population, were assigned to the comparison group because a discharge call must precede a readmission to have the opportunity to prevent that readmission. Members who did not receive a discharge call within 30 days of initial hospital discharge and those members who received discharge calls between days 15 and 30 following their initial hospital discharge were also assigned to the comparison group. (N=23,499)." **Intervention group:** **"**Members who received discharge calls within 14 days of their initial hospital	registered nurse verify that the member, or the member's caregiver, received discharge instructions, did not receive duplicate or contraindicated prescriptions for medications, and understood the proper steps to take, such as follow-up physician visits, to avoid additional acute events or exacerbations.		readmission window for members in the intervention group varied between 16 and 29 days based on when discharge calls were received, it was necessary to adjust for this disparity to ensure equal comparison of the two groups. All statistical analyses were conducted using SAS Release 9.1.3." **Results:** Results of a multiple logistic regression analysis with adjustment for age, sex, initial hospitalization LOS, and readmission window indicated that members who do not receive a call within 14 days after discharge are 1.3 times more likely to be readmitted to the hospital within 30 days of discharge than those who do receive calls ($P = 0.043$). **Conclusions:** Intervention demonstrates that it was successful in this objective, as evidenced by the reduction in readmissions among intervention group

		discharge were classified as having received the intervention (N=6773). The 14-day requirement was imposed because the first 2–3 weeks after discharge are considered the critical window for prevention of readmissions." **Power Analysis: N/A**			members.

Table 2

Synthesis Table

Evidence Based Practice Question (PICO): Does introducing postdischarge telephone follow-up in addition to standard discharge protocol reduce 30-day readmission rates compared to standard discharge protocol alone?			
Level of Evidence	**# of Studies**	**Summary of Findings**	**Overall Quality**
I	**3**	Branowicki et al. (2017) found that using either post d/c telephone follow-up, home visits, or both succeeded in reducing readmission rates. Vigold et al. (2013) found that using pre and post d/c interventions was the best equipped to lengthen readmission rates, however, using pre and post d/c interventions separately also lengthened readmit times. Bahr et al. (2013) found that using postdischarge telephone calls improved rate of patient and hospital outcomes. These included patient satisfaction, medication adherence, and rate of follow-up. For hospital outcomes, these included readmission rates and visits to the ED.	A- SR using a through an intensive search protocol using PRISMA, they narrowed it to 20 RCT studies examining these effects, including inclusion/exclusion criteria. Selection bias addressed and avoided. Characteristics tabled provided. It was generalizable as the studies came from a variety of different countries. Most of the 20 studies examined had sufficient sample size, with 2 being considered on the smaller side. However, all the studies found lengthened readmission times using post d/c interventions supporting a definitive conclusion. A meta-analysis was also included. B- A SR using a thorough search strategy was listed using PRISMA, they included 15 RCT studies. Inclusion/exclusion criteria reported including a characteristics table. Selection bias addressed and avoided. It was less generalizable as most studies came from high income countries, limiting generalizability to lower income countries. This was a stated limitation. Meta-analysis not included as results were too scattered from studies. This was also stated. The results of the studies were similar, most showed a significant improvement after implementing d/c interventions whether pre/post/both. However, there were a few studies showing no difference after implementation supporting a less definitive conclusion. A- A SR using a thorough search strategy was employed using various electronic databases, search terms were provided and a table made to show their search. Inclusion/exclusion criteria provided along with a characteristics table. 19 studies were included all RCT. A variety of different patient populations were used in the studies from med-surg to psych, from a variety of diff. countries making the results more generalizable. Meta-analysis included. Overall results showed positive significant changes related to post d/c telephone

			calls making the findings more conclusive
III	**1**	Odeh et al. (2019) found that using a pharmacist-led postdischarge telephone follow-up reduced readmission rates from 30 and 90 days respectively.	B- Quasi-experimental design, did a power analysis to determine appropriate sample size, sample size was equal for both control and intervention group using a 1:1 ratio, strict inclusion/exclusion criteria could threaten generalizability, but needed to control for outside variables. Results consistent and recommendations were clear.
IV	**1**	Harrison et al. (2011) found that receiving a postdischarge follow-up phone call within 14 days of d/c resulted in a longer readmission rate compared to no phone call following d/c.	B- no randomization and no set control group, however, a contrast group was used against the intervention group. Large sample size, no power analysis was reported to contextualize the adequacy of the sample size. Loose inclusion criteria could make results generalizable. Results were consistent and recommendations were clear.

Figure 1

Applying The Integrated Theory of Health Behavior Change to the implementation of the post-discharge phone call

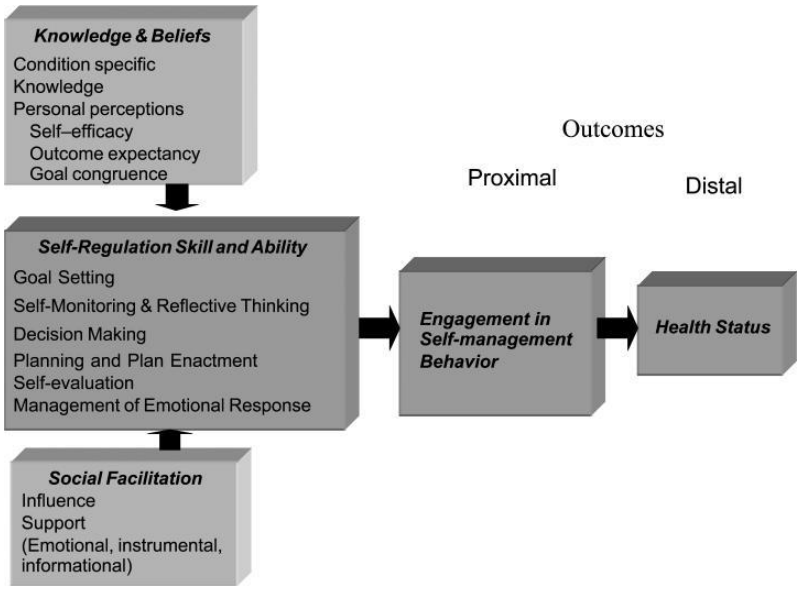


Figure 2

Weekly Nurse Compliance Rates

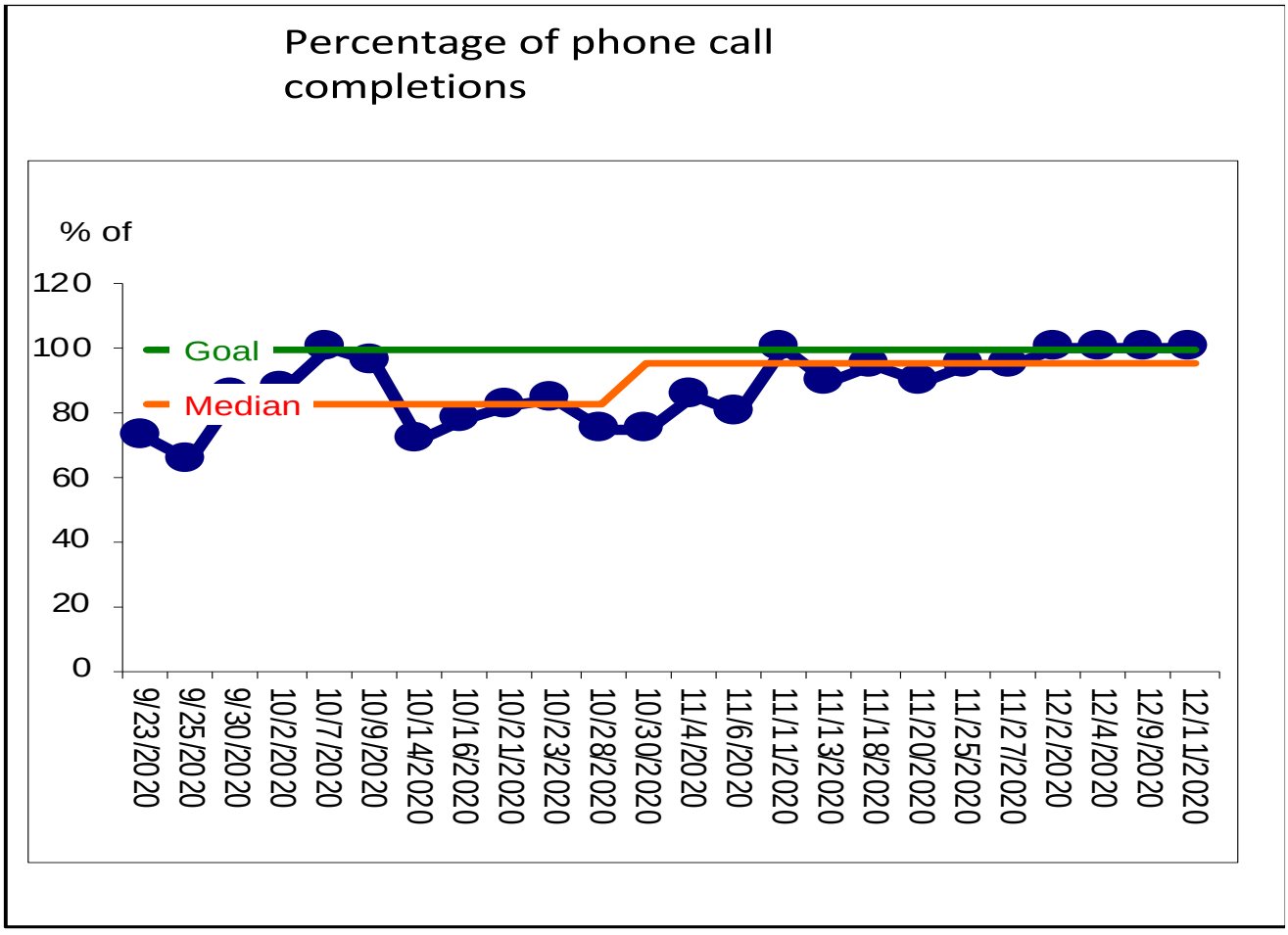
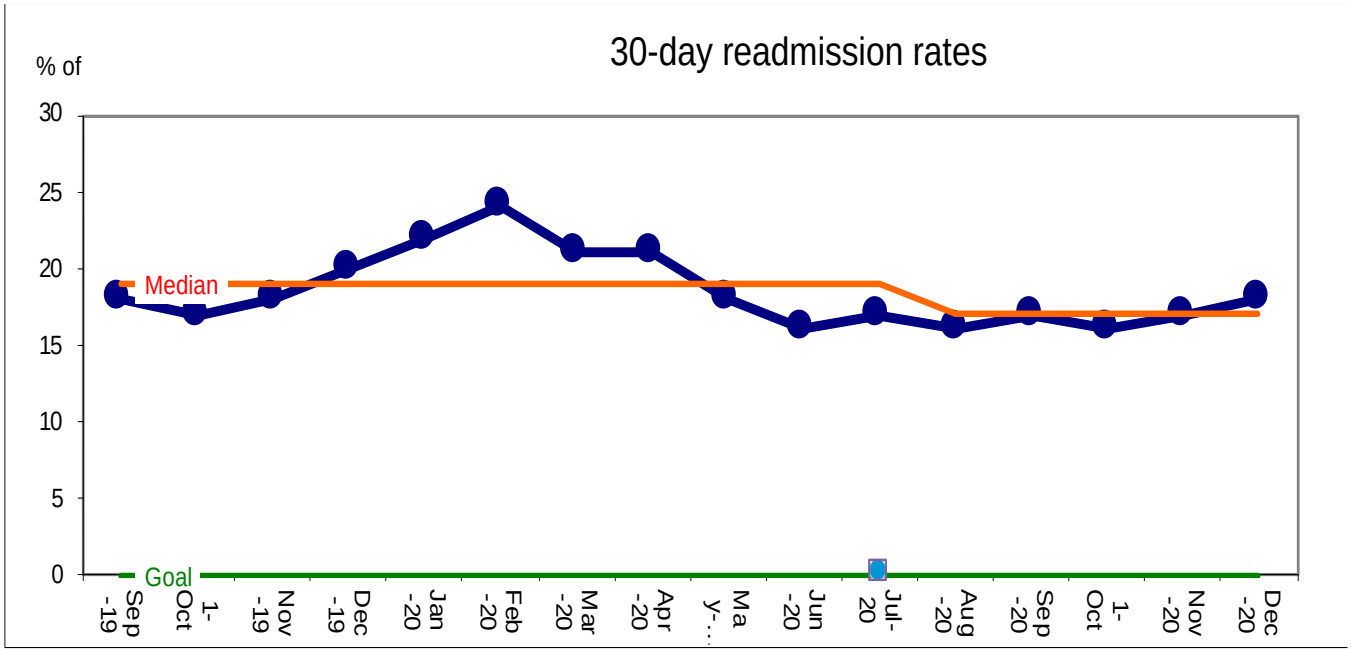


Figure 3

Monthly 30-day Readmission Rates



Appendix A

COMPETENCY CHECK OFF:			
Project:	Post DC telephone follow-up	**Meeting Date:**	Days in week 2 and 3
Facilitator:	Michelle G, RN/DNP student	**Place/Room:**	Potomac Unit Conference Room

Name	**Title**	**Shift**	**Staff Signature**	**Facilitator initials**

Name	Title	Shift	Staff Signature	Facilitator initials

Appendix B

Phone Call Documentation Form

Prior to phone call:

Review:

Health history
Medicine lists for consistency
Medicine list for appropriate dosing, drug-drug and drug-food interactions, and major side effects
Contact sheet
DE notes
Discharge summary and AHCP

Patient Identifier 001: _____

Discharge date: _____

Principal discharge diagnosis: _____

Call Completed: Y N

With whom (patient, caregiver, both): _____

Number of hours between discharge and phone call: _____

Phone Call Attempts

Patient/Proxy

Phone Call #1: Date & Time:_____Reached: Yes/No
If No (circle one): ans. machine/no answer/not home/declined/busy/rescheduled/other:
Phone Call #2: Date & Time:_____Reached: Yes/No
If No (circle one): ans. machine/no answer/not home/declined/busy/rescheduled/other:
Phone Call #3: Date & Time:_____Reached: Yes/No
If No (circle one): ans. machine/no answer/not home/declined/busy/rescheduled/other:
Phone Call #4: Date & Time:_____Reached: Yes/No

A. Diagnosis and Health Status

Ask patient about his or her diagnosis and comorbidities

- ❑ Patient confirmed understanding
- ❑ Further instruction was needed

If primary condition has worsened:

What, if any, actions had the patient taken?

- ❑ Returned to see his/her clinician (name): _____
- ❑ Called/contacted his/her clinician (name): _____
- ❑ Gone to the ER/urgent care (specify): _____
- ❑ Gone to another hospital/MD (name): _____
- ❑ Spoken with visiting nurse (name): _____
- ❑ Other: _____
- ❑ What, if any, recommendations, teaching, or interventions did you provide?

If new problem since discharge:

Had the patient:

- ❑ Contacted or seen clinician? (name): _____
- ❑ Gone to the ER/urgent care? (specify):_____
- ❑ Gone to another hospital/MD? (name): _____
- ❑ Spoken with visiting nurse? (name):_____
- ❑ Other?:_____

Following the conversation about the current state of the patient's medical status:

What recommendations did you make?

- ❑ Advised to call clinician (name): _____
- ❑ Advised to go to the ED
- ❑ Advised to call DE (name):_____
- ❑ Advised to call specialist physician (name):_____
- ❑ Other: _____

What followup actions did you take?

- ❑ Called clinician and called patient/caregiver back
- ❑ Called DE and called patient/caregiver back
- ❑ Other:

B. Diagnosis and Health Status

Ask patient about his or her diagnosis and comorbidities

- ❑ Patient confirmed understanding
- ❑ Further instruction was needed

If primary condition has worsened:

What, if any, actions had the patient taken?

- ❑ Returned to see his/her clinician (name): _____
- ❑ Called/contacted his/her clinician (name): _____
- ❑ Gone to the ER/urgent care (specify): _____
- ❑ Gone to another hospital/MD (name): _____
- ❑ Spoken with visiting nurse (name): _____
- ❑ Other: _____
- ❑ What, if any, recommendations, teaching, or interventions did you provide?

If new problem since discharge:

Had the patient:

- ❑ Contacted or seen clinician? (name): _____
- ❑ Gone to the ER/urgent care? (specify):_____
- ❑ Gone to another hospital/MD? (name): _____
- ❑ Spoken with visiting nurse? (name):_____
- ❑ Other?:_____

Following the conversation about the current state of the patient's medical status:

What recommendations did you make?

- ❑ Advised to call clinician (name): _____
- ❑ Advised to go to the ED
- ❑ Advised to call DE (name):_____
- ❑ Advised to call specialist physician (name):_____
- ❑ Other: _____

What follow-up actions did you take?

- ❑ Called clinician and called patient/caregiver back
- ❑ Called DE and called patient/caregiver back
- ❑ Other:

c. Medicines

Patient is adhering to prescribed medications: Yes or No (circle one) If no, follow below.

Document any medicines patient is taking that are **NOT** on AHCP and discharge summary:

_____

Document **problems** with medicines that are on the AHCP and discharge summary (e.g., has not obtained, is not taking correctly, has concerns, including side effects):

Medicine 1: _____

Problem: _____

- ❑ Intentional nonadherence
- ❑ Inadvertent nonadherence
- ❑ System/provider error

What recommendation did you make to the patient/caregiver?

- ❑ No change needed in discharge plan as it relates to the drug therapy
- ❑ Educated patient/caregiver on proper administration, what to do about side effects, etc.
- ❑ Advised to call PCP
- ❑ Advised to go to the ED

What followup action did you take?

- ❑ Called hospital physician and called patient/caregiver back
- ❑ Called outpatient pharmacy and called patient/caregiver back
- ❑ Other:_____

Medicine 2:_____

Problem: _____

- ❑ Intentional nonadherence
- ❑ Inadvertent nonadherence
- ❑ System/provider error

What recommendation did you make to the patient/caregiver?

- ❑ No change needed in discharge plan as it relates to the drug therapy
- ❑ Educated patient/caregiver on proper administration, what to do about side effects, etc.
- ❑ Advised to call PCP

- ❑ Advised to go to the ED

What followup action did you take?

- ❑ Called hospital physician and called patient/caregiver back
- ❑ Called outpatient pharmacy and called patient/caregiver back
- ❑ Other:_____

Medicine 3:_____

Problem: _____

- ❑ Intentional nonadherence
- ❑ Inadvertent nonadherence
- ❑ System/provider error

What recommendation did you make to the patient/caregiver?

- ❑ No change needed in discharge plan as it relates to the drug therapy
- ❑ Educated patient/caregiver on proper administration, what to do about side effects, etc.
- ❑ Advised to call PCP
- ❑ Advised to go to the ED
- ❑ Other: _____

What follow-up action did you take?

- ❑ Called hospital physician and called patient/caregiver back
- ❑ Called outpatient pharmacy and called patient/caregiver back
- ❑ Other: _____

D. Clarification of Appointments

Potential barriers to attendance identified: ❑ Y ❑ N

List: _____

Potential solutions/resources identified: ❑ Y ❑ N

List: _____ Alternative

E. Problems

Did patient/caregiver know what constituted an emergency and what to do if a non-emergent problem arose?

❑ Yes ❑ No

If no, document source of confusion:

F. Time

Time for reviewing information prior to phone call: _____ Time for ini

Caller's Signature: _____

Appendix C

Audit Tool

De-identified Pt ID	Date of admit	Date of DC	Date of call	Length of call	Doc form part A filled?	Doc form part B filled?	Doc form part C filled?	Doc form part D filled?	Doc form part E filled?	Comments	RN initials performing call
001											
002											
003											
004											

Key:
X: Filled out section completely 100%
Y: Filled out section 25-75%
Z: Filled out section 25% or less
N/A: Patient refused to answer

Appendix D

30-day Readmission Rates Collection Tool

Without post d.c phone calls With post d.c phone calls

Month	Total # pts readmitted w/in 30-days onto Potomac unit	Total # pts admitted onto Potomac unit	Percentage of 30-day readmissions	Month	Total # pts readmitted w/in 30-days onto Potomac unit	Total # pts admitted onto Potomac unit	Percentage of 30-day readmissions
Sept 2019			18	Sept 2020			17
Oct 2019				Oct 2020			
Nov 2019				Nov 2020			
Dec 2019				Dec 2020			

Appendix E

The Road to Readmission Reduction begins with you!

Keep up the hard work!!!