Individual QI projects from single institutions

Right on Schedule: Improving the Rate of Clinic Appointments Scheduled Prior to Hospital Hospital Discharge

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Abstract

Introduction: Children with cancer and blood disorders have many healthcare needs that often require inpatient and outpatient management. There is potential for a lapse in care when patients frequently transition between these settings. We aimed to improve the process and increase the rate of scheduled outpatient follow-up appointments at the time of inpatient discharge for all pediatric hematology-oncology patients from a baseline of 68–80%. **Methods:** A multidisciplinary team developed several Plan-Do-Study-Act cycles to standardize and improve the process of scheduling follow-up appointments, communication to schedulers, and discussion of discharge planning. QI Macros for Excel Version 2019.06 was used for statistical analysis. Our primary outcome was displayed over time with a p-chart. **Results:** Plan-Do-Study-Act interventions had a statistically significant impact in increasing the percentage of patients with follow-up outpatient appointments scheduled at the time of inpatient discharge from a baseline of 68% to consistently over 80%. **Conclusions:** This study demonstrates that standardization of care processes and reminders and education of healthcare providers about the new approaches can improve the rates of outpatient follow-up appointments scheduled at the time of hospital discharge from inpatient care. *(Pediatr Qual Saf 2022;7:e507; doi: 10.1097/pq9.0000000000000507; Published online January 21, 2022.)*

INTRODUCTION

Pediatric Hematology-Oncology (PHO) patient care involves both inpatient and outpatient management. When patients cross between these two care settings with high frequency, there is potential for a lapse in care due to failure to establish appropriate outpatient follow-up

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appointments at the time of inpatient discharge. Hospital discharge without an outpatient follow-up appointment scheduled could result in delayed care for the patient and increased workload for staff to schedule appointments after discharge.

Historically, up to a third of patients discharged from our inpatient PHO unit do not have a scheduled outpatient follow-up visit. This increases the workflow of administrative assistants (AAs) and providers in planning and contacting the family after discharge to arrange follow-up. Often, parents are difficult to reach by phone as reported by Boudreaux et al study, in which they found only 42.1% of study participants were able to be contacted for follow-up after an emergency room visit. This occurred due to incorrect family numbers provided at emergency room registration, disconnected phone lines, or no answers with full voicemails.[1] There can be significant clinical consequences due to difficulty in contacting patients and setting up appropriate outpatient care.[2]

Consistent outpatient follow-up is essential for patients with chronic illnesses such as hematology-oncology patients. Timely inpatient follow-up is important for arranging laboratories, imaging studies, and scheduling treatment. Greenwald et al described the importance of discharge planning and noted that timely follow-up had been identified as early as 1996 when the American

Medical Associations Council of Scientific Affairs published a review of the discharge process and among the Council's six key points was that "post-discharge medical care should be arranged before discharge."[3]

In the Hematology-Oncology patient population, unplanned admissions are dependent on external factors such as fever spikes and pain crises, which can occur despite having appropriate outpatient follow-up. Therefore, re-admission rates are not an appropriate metric in this patient population. Many have found that adequate outpatient follow-up or patient education does not impact hospital re-admission rates in other disease settings.[4–6] However, aiding patients in scheduling post-discharge appointments can result in increased timely outpatient follow-up.[4,6–8] Improving the transition between inpatient and outpatient care settings ensures appropriate care continuity and decreased medical error risk.[2,3,6,9,10]

Our primary aim was to increase the percentage of follow-up appointments scheduled before or at the time of inpatient discharge for all hematology-oncology patients, from 68% to 80%. The global goal was to improve the flow and efficiency with which patients were scheduled for post-hospitalization follow-up appointments and improve continuity of care. Interventions focused on the process of scheduling outpatient follow-up appointments through redesigning the clinic flow, real-time scheduling, provider education, and creating workflow standards that increase efficiency for both providers and the AA.

METHODS
Baseline Setting
Riley Hospital for Children at IU Health is the only comprehensive children's hospital in the state of Indiana. About 900 patients are seen in hematology-oncology clinic per month, with an average of about 48 hospital admissions directly from the clinic to the inpatient unit per month. For this QI project, there were on average 83 total admissions to the inpatient floor per month. Discharges per month averaged about 80 oncology patients, 15 patients with Sickle Cell Disease (SCD), and 8 hematology patients. At the start of our QI project, we had 2 full-time AAs who worked in the clinic and were responsible for scheduling all appointments for hematology-oncology patients.

Planned admissions to the inpatient unit are from the clinic for chemotherapy or regularly scheduled infusions that cannot be completed as an outpatient. The provider who saw the patient in the clinic is responsible for sending a return to clinic (RTC) message via the electronic medical record (EMR) to the AA, who then schedules the appointment. Unplanned admissions can occur from the emergency room or the outpatient center as a sick visit. Therefore, patients with unplanned admissions would not be seen in the clinic and not have a PHO provider placing a RTC message.

Stem cell transplant patients are typically admitted for transplant or various complications, and due to an unknown length of stay, an RTC request is planned for during the week of discharge. Due to the different workflow process, the patients on stem cell transplant team were not included in this QI initiative.

The established RTC message template was often not used by providers, which led to a delay as the AA needed to obtain required information for scheduling. The RTC request was often not sent until after the patient left the clinic, and the AAs would often encounter barriers contacting the family due to incorrect phone numbers, disconnected numbers, voicemails that are full or not set up to receive messages. After 3 failed attempts to reach a family, the AA mailed a letter to the family.

A baseline of the current state was determined through a retrospective manual chart review of monthly hospital discharges between January 2019 and June 2019 to determine the percentage of patients who had a scheduled follow-up appointment as part of their discharge instructions at the time of inpatient discharge.

A multidisciplinary quality improvement team was established and consisted of members of the PHO division, including two fellows, the inpatient nurse practitioner, inpatient case manager, outpatient clinic AA, two nurse coordinators, one outpatient nurse practitioner, and three attending physicians, one of which served as a QI expert. The QI expert and one of the fellows were team lead on the project. The multidisciplinary team assessed the current state of patient flow for both planned and unplanned admissions. The team identified key drivers and interventions were developed (Fig. 1). Interventions were applied over 9 months from June 2019 to February 2020 with several Plan-Do-Study-Act cycles to standardize and improve the process of scheduling outpatient follow-up appointments.

Improving Follow-up for Patients with Planned Admissions: Barriers and Interventions
Timely submission of the RTC EMR message was a barrier to successfully scheduling an outpatient appointment. Often, the request for follow-up was not made until after the patient was from a hospital admission, which led to AA time lost in contacting the family and scheduling an appointment. The first PDSA cycle intervention was for real-time scheduling of patients, with reminder stickers placed on workstations to complete the RTC request after a clinic visit as a visual management tool. Patients were directed from their examination room to the AA desk to schedule appointments at the time of discharge from the clinic. Division-wide e-mails were sent to educate providers and ensure notification of the new workflow.

Providers often did not use the RTC request template, which resulted in incomplete RTC requests. This created an inefficient workflow, as the AA would need to contact providers, who were busy during their clinic day, to obtain
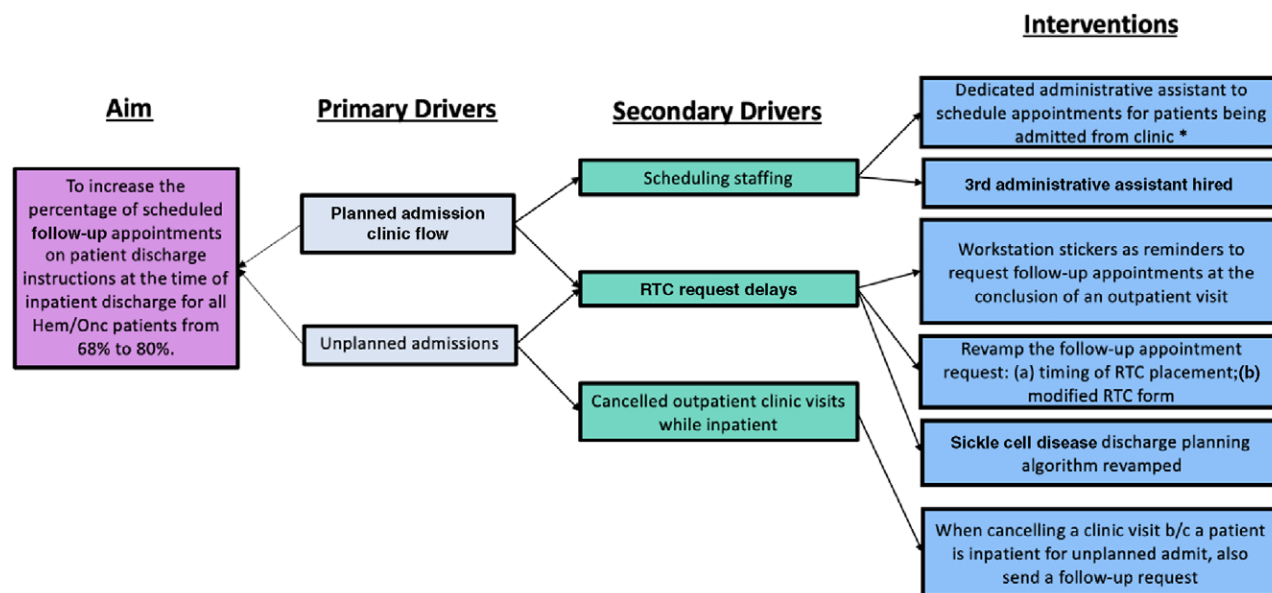
Fig. 1. Key Drive Diagram, outlines our aim, key drivers, and targeted interventions to achieve our goal.

information required to schedule patients appropriately. Providers revealed via survey that they felt the RTC template was redundant and time consuming. The RTC template was redesigned to include drop-down options that would be preset to the most common requests, allowing for easier and faster use. It also ensured that all the information required by the AA would be included. Members of the QI team attended the disease-specific team meetings and provided in person education on the workflow process and helped input the revised generic RTC template into each provider's EMR settings.

Real-time scheduling of patients resulted in a bottleneck at the AA desk. The next intervention trialed was a dedicated AA to schedule appointments for patients being admitted from the clinic to the inpatient unit. The other AA would schedule follow-up appointments for patients being discharged at the end of their clinic appointment. Due to a limited number of AA's and a large clinic patient volume, this dual process was not a sustainable intervention. Consequently, a third AA was hired to be consistently present in the clinic to help with the workflow. The increase in the workforce allowed for better management of the workload. The function of the AAs did not change with this addition. The addition of a third AA was an unexpected PDSA intervention that was of paramount importance to help with workflow.

Improving Follow-up for Patients with Unplanned Admissions: Barriers and Interventions

Following a review of patients who did not have an outpatient follow-up appointment scheduled at the time of discharge, it was clear that a notable portion were patients in the hospital following an unplanned admission.

Oncology patients with unplanned admissions would potentially miss a previously scheduled outpatient appointment (for their next scheduled chemotherapy, for example). Messages would be sent to cancel the outpatient appointment; however, no request would be made to reschedule until after discharge. The decision was made to create an intervention that when canceling a clinic appointment, a follow-up appointment would be requested at the same time. While inpatient, if phone attempts failed, the AA could contact the room phone or have the inpatient team discuss with the family to call to schedule the appointment.

Scheduling hematology patients presented unique barriers and required a separate set of interventions. Our division policy allows for appointments to be scheduled up to 3 months in advance, with appointments further out resulting in scheduling reminders. Many hematology patients will therefore only have scheduling reminders for the AAs in the EMR. When hematology patients were admitted for unplanned admissions, there was no clinic appointment being actively canceled to be re-scheduled, or there was a reminder for an appointment in the system that would not take place for a considerable amount of time post-discharge. We determined that a different intervention was required to better serve this patient population.

Patients with sickle cell disease (SCD) comprised 71.6% of the unplanned hematology admissions. Many of our hematology providers do not work within the SCD clinic and are not as familiar with the nuances of when follow-up would be required. The hematology department has an established but underutilized algorithm with general rules for the appropriate time frames for SCD patient follow-up. This algorithm was updated to include triggers for when to place an RTC request (eg, weaning pain meds for a vaso-occlusive crisis). The re-circulation of the discharge algorithm via email and availability on a shared

online location improved awareness of the document overall (Fig. 2). This intervention provided inpatient caregivers with the specific knowledge needed to schedule an appropriate outpatient follow-up for patients with SCD.

Measure and Analysis

The inpatient nurse practitioner and case manager reviewed the inpatient census daily and tracked discharges. They reviewed the EMR for the presence of an outpatient follow-up appointment scheduled at the time of hospital discharge. The fellow reviewed the discharges weekly and would go through the EMR, to determine why a patient may not have had an outpatient follow-up appointment scheduled. The most common reasons included no RTC message sent, RTC message sent post-discharge, RTC message sent over the weekend when the AA does not work. Interventions were tailored to address these issues as we became aware of them.

The fellow would summarize the weekly data in an email sent to the QI team every month. The performance improvement team would meet every 2 months to discuss the various issues, resulting in not having a follow-up appointment at the time of discharge and would act on the data.

QI Macros for Excel Version 2019.06 was used for statistical analysis. Our primary outcome was displayed over time with a p-chart. P-chart centerline shifts were made based on the usual Statistical Process control chart rules such as trends and sustained points above or below a centerline.[11]

RESULTS

Our retrospective baseline data indicated 68% of our patients had appointments scheduled at the time of discharge. After our interventions, we had one statistically significant centerline shifts to 87% (Fig. 3).

Some patients continued to fail to have follow-up appointments at the time of inpatient discharge despite our interventions. Some common reasons included: (1)

Fig. 2. Algorithm for discharge for hematology patients with sickle cell disease admitted to the Hematology-Oncology inpatient unit. VOE, Vaso-Occlusive Event; ACS, Acute Chest Syndrome; AOM, Acute Otitis Media; PCP, Primary Care Physician.

patients who still had an undetermined diagnosis at the time of discharge (awaiting pathology, etc); or (2) patients in the middle of transitioning to adult care settings or other institutions. As these were clinical situations that continued to evolve, we determined that a PDSA intervention would not be beneficial as follow-up plans would also be evolving.

DISCUSSION

This QI initiative successfully achieved our aim of improving the rate of outpatient follow-up appointments scheduled at the time of inpatient hospital discharge. When looking at the p-chart (Fig. 3), the overall percentage of patients with appointments scheduled at the time of discharge improved from a baseline of 68% to a mean of 87%. We believe the most effective interventions were the revamped RTC requests format and stickers at workstations as a visual reminder for providers to complete an RTC request after an outpatient visit. The interventions sustained a continued effect maintaining the percentage of patients with scheduled follow-up appointments greater than our original goal of 80% (Fig. 3). Overall our interventions of real-time scheduling, redesigning the RTC message, and SCD discharge algorithm allowed for streamlining the workflow for the AA in failed attempts to contact patients.

The hiring of a third AA was an unintended intervention in our process improvement project and had a significant impact on allowing real-time scheduling of patients. Our interventions, which were based on ensuring communication of when to schedule patient follow-up appointments, would not have been sustainable had there not been an appropriate workforce to carry out the scheduling.

Updating older procedural components such as the RTC message and the SCD discharge algorithm allowed for a new and increased awareness of the proper use of these tools, which allowed for improvement in the rates of follow-up appointments being made before discharge. Srinivasan et al examined increasing fellow clinic continuity care for patients through various interventions. They noted that poor communication between AAs and fellows led to confusion regarding which patient had follow-up with which fellow. They improved communication by using direct hand-off to schedulers to improve communication.[12] Our study used a similar intervention but through our EMR, with the revamped RTC request format and establishing a process flow of placing a RTC request before the patient leaving the clinic.

Another study had looked at increasing the rate of scheduled appointments for patients at the time of discharge for asthma exacerbations. The intervention was to follow-up post-discharge with phone calls to set up clinic appointments, and if after three attempts there was no answer to send a letter. With this intervention, 5% of their cohort could not be contacted and did not have an outpatient follow-up scheduled within 30 days of discharge.[13] This emphasizes the benefit of real-time scheduling as we did in our project to catch patients who would be missed due to difficulty contacting them following discharge.
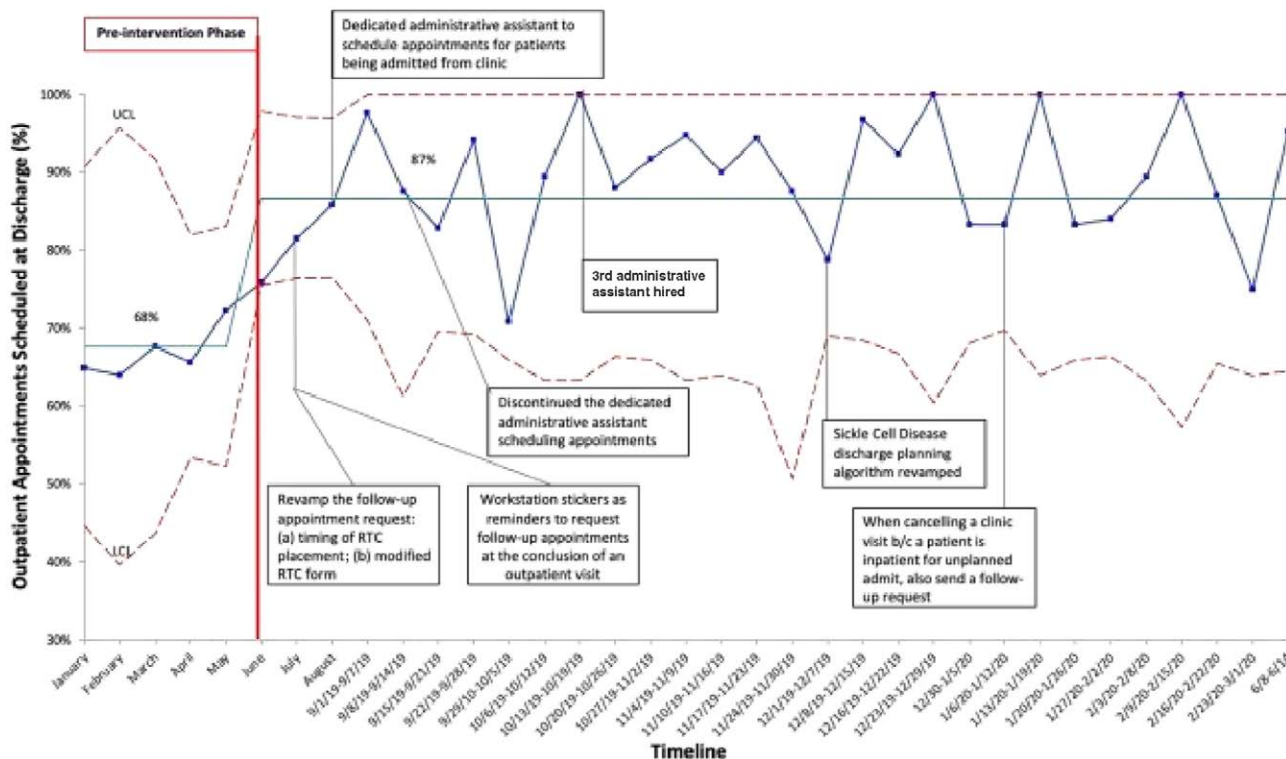

Fig. 3. P-Chart analysis of percentage of appointments scheduled at the time of inpatient discharge.

We have entered the maintenance phase of this project and will analyze the rates of RTC appointments scheduled at inpatient discharge with quarterly audits, which started in June 2020. Currently our rate (Sep 2020) is consistently about 94%.

The degree of cooperation from the PHO division in compliance/adoption of our interventions was a major strength of this QI initiative. Figure 3 illustrates an upward trend during the pre-intervention phase, likely due to the many discussions around this process change being a QI initiative for the department resulting in a Hawthorne effect. Another limitation to our study is that many of the changes to flow processes addressed are institution-dependent and therefore are potentially not generalizable. Some interventions that could be generalized are early planning for inpatient discharge with arranging for clinic appointments at the time of admission or creating a flow sheet that allows for identification of when to start arranging for outpatient follow-up.

Our next steps will focus on resident engagement in the overall discharge process. In an academic setting, there is always a high turnover of learners and new faculty through our Hematology-Oncology inpatients service. Developing a consistent strategy for discharge planning is an opportunity for improvement and trainee ownership. We hope to create a stoplight algorithm for the resident team to allow for early discharge planning. This algorithm would include not only verifying a follow-up appointment is scheduled, but also help navigate early discharge planning, taking into consideration if prescriptions have been sent to the pharmacy, medication administration teaching is complete for parents, and more.

CONCLUSIONS

Our study demonstrates that standardization of a process of care and reminders and education of healthcare providers about the new approaches can improve the rates of outpatient follow-up appointments scheduled at the time of hospital discharge from inpatient care. Also, it is essential to continually assess and update processes that may already be in place as processes are dynamic and constantly changing. Most importantly, our interventions revolved around the concept of real-time scheduling of follow-up visits. Although our patient population is complex and diverse within hematology/oncology, we could standardize processes that improved the workflow for providers and AAs.

DISCLOSURE

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