

Incorporating the Voice of Community Based Pediatricians to Improve Discharge Communication

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Abstract

Introduction: Communication between pediatric hospitalists and primary care physicians (PCPs) at discharge is an essential part of a successful transition to home. While many hospitals require communicating with PCPs for all admitted patients, it is unknown if PCPs find such communication valuable or if it improves outcomes. Our global aim was to improve discharge communication for patients that pediatric hospitalists and PCPs deemed appropriate. **Methods:** We sent surveys to 422 outpatient pediatricians in our care network to understand their communication preferences. Survey results informed local guidelines for when hospitalists should directly contact PCPs. We determined the proportion of inpatient discharges meeting those guidelines and set a target for our primary process metric: the proportion of discharges with attempted direct PCP contact. We engaged in Plan-Do-Study-Act cycles, including a discharge documentation tool in the electronic health record, education of inpatient teams, email reminders including group performance data, asynchronous Health Insurance Portability and Accountability Act-compliant messaging application, and competitions that shared blinded individual data. **Results:** We increased the percentage of documented direct communication with the PCPs from 2% to 33% and from 4% to 65% for those who met guidelines for direct communication. **Conclusions:** PCPs only want direct communication on a subset of discharges. Interventions focused on high-yield populations improved discharge communication in our institution. (*Pediatr Qual Saf* 2020;4:e332; doi: 10.1097/pq9.0000000000000332; Published online 10 July, 2020.)

INTRODUCTION

Communication between the hospitalist team and the primary care physician (PCP) at discharge is an essential aspect of the transition of care from hospital to home, but how this communication should occur is less clear. The American Academy of Pediatrics Clinical Report on Physicians' Roles of Coordinating Care of Hospitalized Children emphasizes the



importance of communication between the inpatient and outpatient physicians and recommends that a hospital summary, as well as direct contact, should occur for all patients at discharge if the outpatient pediatrician was not directly involved in the hospitalization.¹ While this approach makes intuitive sense, no direct evidence supports patients' improved outcomes based on PCP contact at the time of discharge.

Direct communication between hospitalists and PCPs for every discharge places a substantial burden on both parties involved. In an adult survey study, Sheu et al² found that the majority of outpatient clinicians preferred a discharge summary for known patients, but preferred an additional email or verbal contact only for patients who were new or complex, had frequent readmissions, had changes in their goals of care, had new or changes to high-risk medications, or required time-sensitive follow-up. In a survey of pediatric providers, only 27% of both PCPs and hospitalists selected phone calls as their preferred mode of communication at discharge. However, the authors did not determine if this preference changed based on patient characteristics.³ In a qualitative study on pediatric discharge communication, PCPs reported phone calls were particularly important for medically or socially complex patients, those with uncertain diagnoses or plans, and patients who needed short term follow-up.⁴ To our knowledge, no other pediatric studies have looked at preferences for mode of discharge communication depending on patient characteristics.

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Multiple quality improvement (QI) initiatives have shown the ability to increase communication between PCPs and pediatric hospitalists at hospital discharge.^{5,6} However, there are many potential barriers to timely direct communication with the pediatrician for all discharged patients. Previous studies have shown that direct communication between hospitalists and outpatient pediatricians occurs infrequently.⁷ Before initiating a QI effort on discharge communication at our institution, chart review revealed that <3% of patients admitted to the general pediatrics service had documented direct communication with the pediatrician at discharge.

In this study, we aimed to describe PCP and hospitalist preferences for discharge communication based on patient characteristics and their hospital course. These results informed a QI project to improve direct discharge communication for appropriate patients. Our primary aim was to increase direct communication with the pediatricians at discharge from 2% to 25% within 6 months. A secondary aim was to increase the proportion of pediatricians reporting they are satisfied or very satisfied with discharge communication from 46% to 60% within 6 months.

METHODS

Context

We conducted this project at a 295-bed freestanding, quaternary pediatric hospital in the southeastern United States, connected to a clinically integrated network consisting of 1300 private practice and employed pediatricians and pediatric subspecialists in the Atlanta Metro Service Area. All PCPs in this network have access to a web-based electronic health record (EHR) Access Tool that provides them a secure portal to view their patient's records when they are treated in the system including the admission history and physical exam, laboratory and imaging results, daily notes, and discharge summaries. The hospital also automatically faxes discharge summaries to the patient's PCP. All patients included in this project were inpatients admitted to the pediatric hospital medicine service. We excluded patients who were only admitted for observation. The Children's Healthcare of Atlanta Institutional Review Board reviewed our study and determined that this initiative was QI and did not require formal review.

Measures

Our primary process was to measure the proportion of patients discharged from the hospitalist service with attempted documented direct PCP communication. Our secondary process was to measure the proportion of patients discharged with documented direct contact for those who met guidelines for direct contact. Our outcome measure was the proportion of pediatricians surveyed who reported they are either satisfied or very satisfied with discharge communication with the hospitalist team.

Interventions

We performed an internal survey of outpatient pediatricians and our hospitalist group to understand potential barriers better and to gain insight into current practices and preferences for discharge communication (See Figure, Supplemental Digital Content 1, for a copy of our survey sent to the outpatient pediatricians, <http://links.lww.com/PQ9/A197>). We adapted the survey from previously published work.^{2,8} To augment insights from the survey, we also performed semi-structured interviews based on grounded theory⁹ in a sample of PCPs who we contacted from a sequential sample of hospital discharges. In the setting of a QI initiative, we used a discount approach^{9,10} in which the interviewer took notes during phone conversations and member-checked insights with the interviewee but did not transcribe calls verbatim. Out of 422 outpatient pediatricians, 101 (24%) completed the survey, and 12 of the 14 (86%) hospitalists completed the hospitalist survey. A similar survey was sent to the same group of pediatricians 7 months later, after our study, to assess satisfaction with discharge communication following our interventions. We developed a key driver diagram based on the analysis of PCP and hospitalist goals (Fig. 1).

Using results from our internal survey and interviews, we developed a set of guidelines that defined our criteria for direct contact between the hospitalist and PCP (Table 1). We defined direct communication as a phone call or a Health Insurance Portability and Accountability Act (HIPAA) compliant message sent to the PCP. Indirect modes of communication included either a discharge summary fax or web-based EHR access. We recommended direct contact for the following situations: (1) if the patient was complex (defined as >2 active comorbidities), (2) follow-up recommended within 3 days, (3) had a complicated social situation (defined as social services involvement or concerns about follow-up), (4) required follow-up labs or imaging, or (5) had results pending at discharge.

We subsequently implemented Plan-Do-Study-Act (PDSA) cycles to improve communication at discharge using a primary process metric of the proportion of inpatient encounters with attempted direct PCP contact (synchronous or asynchronous) with a target of 25%. We chose a target of 25% because 27% of all our patients met pilot guidelines for direct contact on a review of 100 charts (excluding the follow-up timeline recommendation (≤ 3 days), which was not verifiable through chart review). Our intervention period ran over 7 months, from April 30, 2018 to November 12, 2018.

Our interventions were as follows:

1. Based on quantitative and qualitative feedback from the hospitalist and PCPs, our first intervention on April 30, 2018, was to implement the new guidelines which we communicated to the inpatient teams in operational forums.
2. For our second intervention, we instituted weekly email reminders to the on service attendings

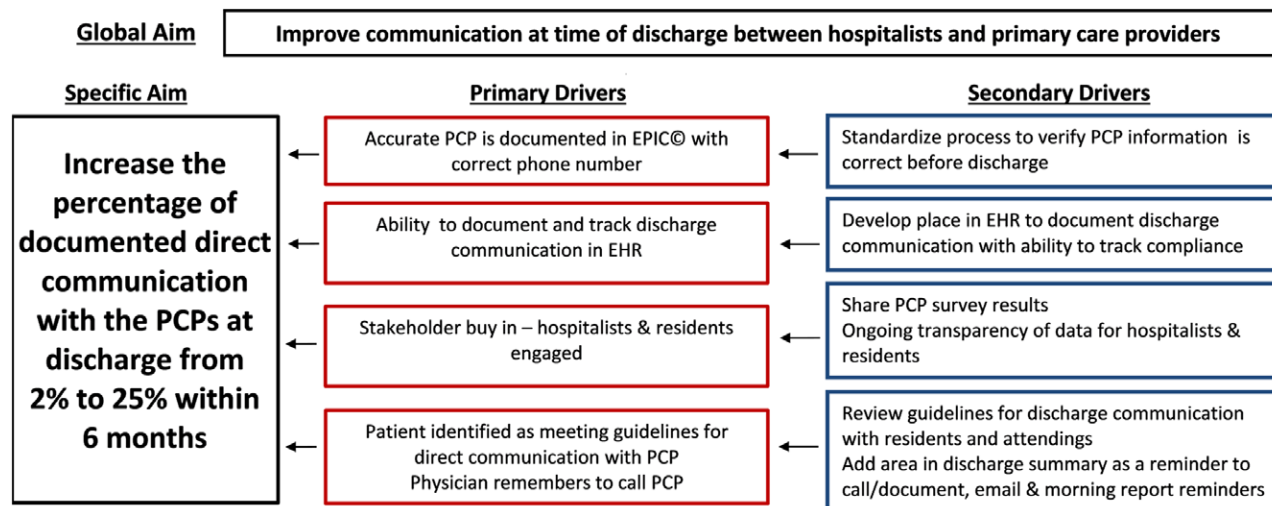


Fig. 1. Key driver diagram.

Table 1. Guidelines for Direct PCP Contact

Patients we should call for: Follow-up recommended for ≤ 3 days Complex patients (> 2 active comorbidities) Complicated social situations Needs follow-up labs or imaging Results pending at discharge Hospitalist feels direct PCP contact warranted	Patients to consider calling for: Spent time in PICU Multiple admissions in past 6 months
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and residents with the communication guidelines included and shared the previous month’s performance.

- In the third cycle, we taught hospitalists how to reach PCPs via a HIPAA-compliant secure messaging application (Doximity; Doximity, Inc., San Francisco).
- In our fourth PDSA cycle, we sent an email with individualized data relative to hospitalist peers. We started a competition for both residents and attendings to promote adherence based on social influence theory.¹¹ After the competition, we provided a small prize for the winning resident team and attendings.

Data Collection and Analysis

We obtained baseline data from 100 randomly selected charts each week over 8 weeks from September 2017 to October 2017 by retrospective manual chart review. The pre-implementation phase from March 2018 to April 2018 included the development of an EHR tool where users could document discharge communication, and we could reliably track the communication without manual chart review. Before this change, it was stated in the discharge summary without a way to track this communication other than manual chart review. Our internal survey

suggested that most hospitalists were documenting if they had contacted the pediatrician at discharge.

To study the impact of our interventions, we continually reviewed weekly data and elicited formative feedback from residents and attendings via email and monthly division meetings. We also had periodic meetings with a board of community pediatricians of our clinically integrated network to gain additional insight, which we also used to help guide the next intervention. The percentage of inpatient pediatric patients discharged from the general pediatrics team with documented attempted direct PCP communication was plotted on a Statistical Process Control Chart and monitored weekly throughout the initiative. We used previously accepted methodology for differentiating between common cause and special cause variation.¹²

RESULTS

Primary Process Measure: Documented PCP Contact

Baseline data showed just 2 out of 100 (2%) patients who were admitted to the general pediatrics service selected randomly over 8 weeks had documented direct communication with the pediatrician at discharge. During our pre-intervention phase from March 2018 through April 2018, after the addition of an EHR documentation tool, the average rate of discharge communication documentation increased to 8%.

Our first intervention on April 30, 2018, was to implement the new guidelines which we communicated to the inpatient teams in operational forums. Using the process measure of the proportion of patients discharged with documented direct PCP communication, we saw a modest increase in communication. We achieved special cause variation, with 8 consecutive points above the mean (Fig. 2). In informal discussions with hospitalist and

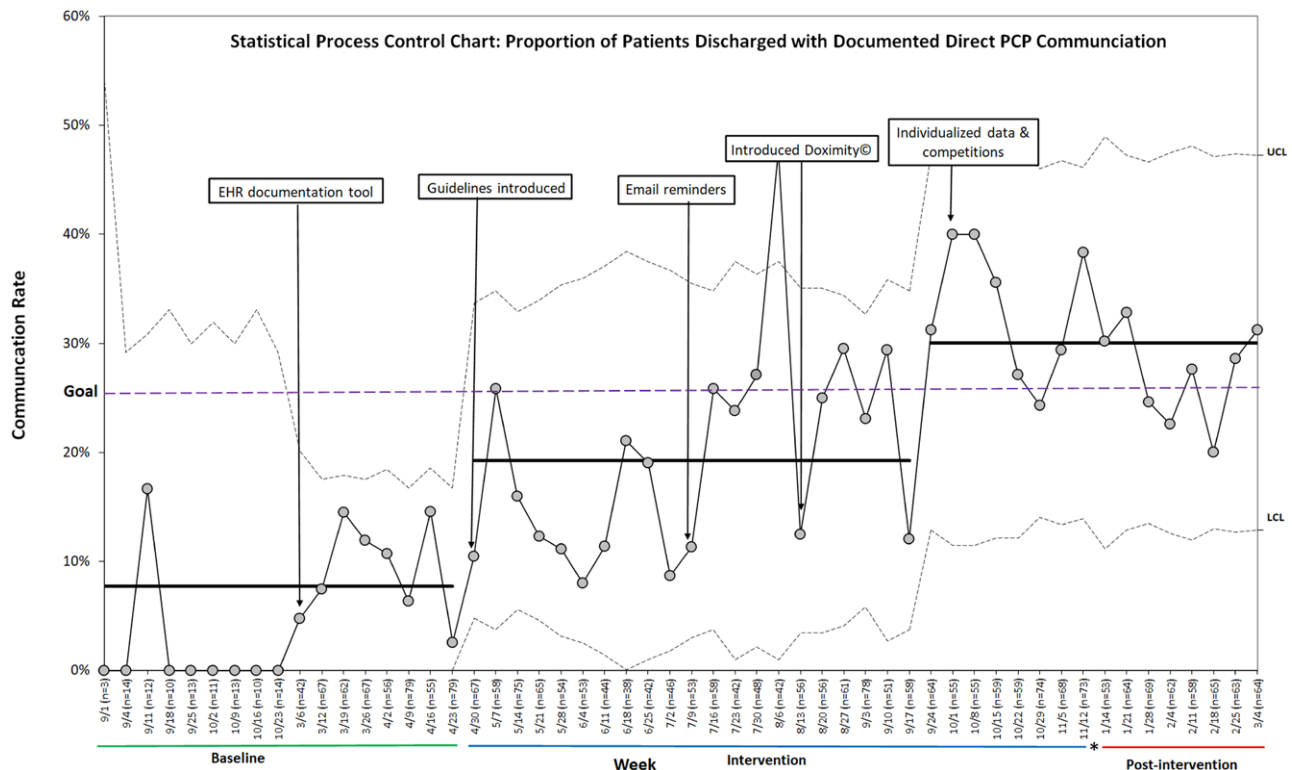


Fig. 2. Statistical process control chart of the proportion of inpatients discharged from the general pediatrics team with documented attempted or completed direct PCP communication by week, 2017–2019. The timing of various interventions, including practice guideline implementation, email reminders, HIPAA compliant messaging application, and data and competitions, are outlined. Two centerline (CL) shifts occurred after project initiation with an increase in communication from 8% during the baseline period to a mean of 19% and then to 30%, meeting the target of >25%. *Depicts the 2-month washout period. LCL, lower control limit; UCL, upper control limit.

resident physicians, we noted a willingness to adopt the guidelines. Still, they frequently forgot to communicate with the outpatient pediatricians and/or document their communication. Therefore, for our second cycle, we instituted weekly email reminders with the communication guidelines included and shared the previous month’s performance. Again, we saw improved communication rates approaching our goal of 25%, but with substantially lower rates on patients discharged on weekends (10% versus 25% during the weekdays).

We found that the average time spent communicating with the PCPs per patient was 7 minutes (estimated by the physician during EHR documentation). To help mitigate the time spent on communication and increase communication on weekends and after office hours, in the third cycle, we taught hospitalists how to reach PCPs via a HIPAA-compliant secure messaging application (Doximity; Doximity, Inc.). Use was limited because residents cannot use Doximity HIPAA-compliant communication functions as trainees. Also, many of the local pediatricians were not signed up for Doximity. Our communication rates did not increase significantly, but individual users had substantial increases. We also noted that direct communication rates varied widely. During 2 months, communication rates ranged from 4% to 64%, depending on the individual attending. In our fourth

PDSA cycle, we sent an email with individualized data relative to hospitalist peers and started a competition for both residents and attendings. At the end of our intervention period, we had improved the rate of patients with attempted direct PCP contact by up to 33%, demonstrating special cause variation. After our interventions the week of November 12, 2018, we allowed for a 2-month washout period. After our project, we maintained a discharge communication average of 30%, which included the last 8 weeks of our intervention period and our 8-week post-intervention period (Fig. 2).

Secondary Process Measure: Documented Contact for Patients Who Met Guidelines

Through manual chart review, we then specifically looked at patients who met our guidelines for direct contact [excluding the follow-up timeline recommendation (≤ 3 days)]. This review took place pre-intervention, during our interventions, and at the end of our 7-month intervention period. Out of 100 discharged patients before our interventions selected from all discharges during 2 months using a random number generator, 27 discharged patients met the criteria for direct communication. Of those, only 4% (1/27) had documented communication with the PCP. During our intervention period the week of May 21, 2018, of the 65 inpatients discharged that

week, 26% (17/65) met criteria for direct communication, and 41% (7/17) had documented attempts at direct communication. During the final week of our intervention, November 12, 2018, of the 73 discharges that week, 23% (17/73) met the criteria for direct contact. Of those who met the criteria, 65% (11/17) had documented direct communication.

Outcome Measure: PCP Satisfaction

One hundred one out of 422 outpatient pediatricians (24%) completed the survey. Of those who responded to the survey, 46% reported they were satisfied or very satisfied with the current discharge communication they were receiving. Our secondary aim was to increase the proportion of pediatricians reporting they are satisfied or very satisfied with discharge communication from 46% to > 60%. Of the 92 pediatric providers who completed the follow-up survey questions on satisfaction communication, 56 (61%) reported they were satisfied or very satisfied with discharge communication.

DISCUSSION

Summary

Despite recommendations for direct communication for all discharged patients, we found that PCPs and hospitalists preferred asynchronous communication for most discharged patients, with direct contact required in complex cases or when the PCP needed to take action. Incorporating these goals along with additional educational and technical interventions, we increased communication for all inpatient discharges. We increased the percentage of documented direct communication with the PCPs from 2% to 33%. Additionally, we were able to achieve an even more significant increase in direct communication for the patients that the pediatricians and hospitalists felt direct contact was warranted from 4% to 65%. Importantly, we also saw increased satisfaction of PCPs regarding discharge communication with the hospitalist team after our QI interventions.

Interpretation

Our results showed that most pediatricians felt that a discharge summary and/or EHR Access Tool was preferred for straightforward admissions. This approach would allow more time for direct contact for more complicated admissions, where 2-way communication may be especially beneficial. This finding is consistent with other studies showing PCPs' interest in verbal communication only for complex patients.¹³ For times when PCPs did not want direct communication, we hypothesize that any necessary information may be gleaned from the discharge summary or EHR Access Tool. Therefore, a phone call may be repetitive and/or act as an interruption. PCPs are already inundated with messages, which contribute to frustration with the EHR and burnout.¹⁴⁻¹⁶ Thus, targeted communication

efforts focused on patient characteristics are likely to be more successful than global messaging approaches.

Before implementing our QI project, the rate of direct communication with outpatient pediatricians was <3%. After our interventions, it improved to 33%. In a study by Mussman et al,⁵ they were able to increase initiated calls to PCPs at discharge from 52% to 97%. Their increased success was likely augmented by the use of a telephone operator link and the requirement for residents to perform the discharge communication process. In our study, attendings attempted direct contact about one-quarter of the time, and residents or medical students completed the remainder of the calls.

Time spent making phone calls on a busy hospitalist service was a critical barrier to achieving higher direct communication rates. The average time to perform the discharge communication estimated by the physician in real-time for each patient during our intervention period was 7 minutes. If the service discharges 60 patients that week, that will equate to 7 hours spent on this process. Also, hold times of more than 15 minutes were occasionally reported, which may have limited the number of calls attempted.

Many inpatient services frequently have non-core faculty, students, and residents that rotate on the service, limiting the effectiveness of educational interventions. We aimed to address this issue in our study by incorporating recommendations for discharge communication into orientation materials. Nonetheless, structural interventions guiding communication at the time of discharge may be more effective, particularly for services with frequent turnover.

Another significant challenge for our improvement efforts was the difficulty with establishing communication on the weekends and after office hours. We attempted to mitigate this by using asynchronous communication forms with a HIPAA compliant messaging application; however, many pediatricians were not on the chosen platform. On our follow-up survey, when PCPs were asked "Would you be interested in using a HIPAA compliant secured text messaging application to communicate about patients?" 73% (79/108) answered that they were likely or very likely interested. Thus, efforts to improve pediatrician uptake of either third-party messaging services or services integrated into health systems' EHR may be an important facilitator of direct communication.

Limitations

Our study also had several limitations. First, we used a non-validated survey, and the survey response rate of 24% could result in nonresponse bias, although this response rate is comparable to similar previous studies.^{17,18} The nature of a survey study may have introduced selection bias, and responders may have been more engaged stakeholders in the communication process and thus may have differed in opinions, experiences, or characteristics from non-participants. Our survey was administered to help

guide local improvement efforts, and the generalizability of the results may be limited by the fact that all pediatricians included in our study were part of one large geographical area, and the hospitalists were all from a single practice group. Furthermore, pediatricians' communication preferences in networks that do not have similar infrastructures, such as a web-based access tool interface, may be different.

Also, we relied on physician documentation of communication in a designated area in the EHR to track our results. We cannot account for physicians who were contacting the pediatrician but were not documenting it in the correct place. While we expect this occurrence to be rare, there were isolated instances on manual chart reviews.

CONCLUSIONS

The majority of PCP and hospitalist stakeholders did not feel direct communication was necessary for all discharged patients. The 2 groups identified a similar cohort of patients, which they felt would benefit from direct communication based on patient complexity and action required by the PCP. Using QI methodology, we increased the percentage of documented attempted direct communication with the pediatricians from 2% to 33% and from 4% to 65% for those who met guidelines for direct communication. Optimal communication at hospital discharge remains an essential target for high-quality QI efforts, and further studies are needed to look at the impact of discharge communication on patient outcomes.

DISCLOSURE

E.W.O. is a co-founder and has equity in Phrase Health, a clinical decision support analytics company.

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