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Cover Page Footnote

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The impact of follow-up calls after a pediatric emergency department visit

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Abstract

Pediatric emergency department (ED) visits can be a stressful time for patients and their caregivers. This high stress environment can lead to questions and needed clarifications post-discharge. We implemented a post-discharge callback system to resolve these concerns for a focused subset of patients who historically have provided the most negative comment feedback on ED patient experience surveys. We hypothesized that comment types would shift to more positive than negative and the themes of the comments received would change. We developed a discharge callback process that focused on patients who were triaged as ESI level 4 during their emergency department visit. Over a 6-week period, patients were called the day after discharge and asked if they had questions regarding their recent ED visit in addition to questions regarding current health, post-discharge instructions, prescriptions, or follow-up instructions if applicable. A maximum of 3 discharge calls were made if needed in order to contact the patient or family. Any questions regarding health care needs were followed up by a licensed healthcare provider within 24 hours with a maximum of 3 attempts. At the end of the project timeframe we analyzed comments received from our patient experience surveys to identify if there was a shift in comment types and their themes. In addition, we analyzed ED return rates within 72 hours of discharge. During the 6-week period, 2710 calls were made to contact 1618 patients' caregivers. Follow up was requested by 149 families with a healthcare provider. There was no significant change in the number of comment types received. Thematic analysis of the patient experience survey comments received during this time period, revealed a reduction in questions regarding the recent ED visit and post discharge needs. There was no significant change in 72-hour ED return rates. The institution of an ED discharge callback system can effectively reduce patients' and families' questions regarding post-discharge care by providing an opportunity to clarify care after they have left the emergency department.

Keywords

Pediatrics, emergency medicine, quality improvement, patient experience

Introduction

Communication with patients and families after an emergency department (ED) visit concerning care provided is recognized as a process which can affect the patient and family's experience.^{1,2} Patients and families present to the ED at very vulnerable times in their lives. They are often concerned, worried and unsure of how to navigate their acute health concern. This may be overwhelming and create a sense of confusion and fear as it relates to their health. After discharge there may be residual questions around the care provided in the ED that may need clarification. For this reason, many EDs have instituted post ED visit callback programs to enhance the ED experience by improving communication.^{1,3}

Previous studies have demonstrated the effectiveness of post-discharge follow-up systems in other settings. A 2021 literature review synthesized the findings of 20 articles that overall endorsed the positive impact of a post-discharge call on patient experience in academic and community settings as well as urban and suburban in adult emergency

departments across the United States and Europe.⁴ Other articles include settings such as adult emergency departments and post-inpatient calls in a pediatric population.^{1,2,3} A pediatric Midwest Level II Trauma Center also found that a post-discharge call increased caregiver's understanding of their child's illness.⁵ Another study observed a significant drop in 72-hour return rates to the emergency department.⁶ The purpose of our study is to observe the effectiveness of such a program on patient experience and return rates specifically with an urban pediatric population. This presents the added factors of a cultural mosaic that may differ from a more homogenous area. Additionally, implementing this system in a pediatric emergency department introduces the factor of the patient's caregiver as the primary respondent to the phone call. To our knowledge, this study is unique in using a targeted post-discharge callback program that focuses on a specific pediatric triage group in the ED.

Our emergency department is an urban academic quaternary care Level 1 Trauma Center that serves 90,000 patients annually. As the only freestanding children's

hospital in the region, we serve as a regional referral center for pediatric emergencies. We serve a large and diverse pediatric population in a methodical, efficient, and caring way. Our institution contracts with Press Ganey, a nationally recognized patient satisfaction survey vendor, to measure and benchmark patient experience. The survey that is sent 5 days after ED discharge. This study utilized these patient experience survey data to quantify how effective a post-discharge callback system is at addressing questions and concerns.

The patient experience survey categorizes comments received as positive, mixed, neutral, and negative. Often the comments which address post discharge concerns are identified as negative. We focused our study on the patients and families who historically generate the greatest number of negative comments received on our patient experience survey. These patients and families belong to the triage ESI level 4 group. There are 5 tiers of triage groups – ranging from level 5 being the least acute medical concerns, and level 1 being the most acute and in need of immediate attention. Level 4 group comments typically surround care provided, ongoing care at home, discharge or follow up instructions, and prescriptions provided.

Comments from our patient experience surveys revealed that patients and families were lacking guidance post ED visit and had follow up questions which need to be addressed. The following questions are ranked according to their frequency of occurrence in the qualitative comment data. The first ranking subset of questions related to the ED care provided, was a lack of understanding of the ED diagnosis and how these illnesses may continue to manifest. Second, how to continue care for their child/themselves at home. Third, if outpatient follow up was needed to continue care, how this should be done and with whom. Last, which prescriptions were received and how to access and utilize these. To address these problems, this pilot study was designed and conducted to test the effectiveness of a post-ED visit callback system at our institution.

The purpose of our study was to focus on resolving the subset of problems identified post discharge. We anticipate that this would enhance the targeted population's ED experience and decrease the number of negative comments received from this group as it relates to these concerns. In addition, we expect a reduction in return visits within 72 hours to the ED for the same complaint.

Methods

This pilot study was conducted at an urban, academic, quaternary care Level 1 Trauma Center at a free-standing children's hospital that serves over 90,000 annual visits in a 6-week period, June 8th through July 19th, 2020. IRB approval was obtained (IRB Pro00011835) for this study.

Participants

When patients presented to the ED, they were triaged into the 5 different Emergency Severity Index (ESI) groups. These groups stratified patients based on the level of acuity, dependent on their initial signs and symptoms, as well as how many resources will likely be needed to address the presenting problem. Level 1 patients are most acute and could be unresponsive, intubated, cyanotic, hemodynamically unstable and represent acute medical emergencies. Level 2 patient could be delirious, in severe pain, have respiratory distress and are slightly less acute than level 1 patients. Level 3 patients typically had stable vital signs but required multiple resources such as imaging studies or laboratory tests that need to be performed. Level 4 patients required only one of the resources mentioned. Level 5 patients required only a history and physical.⁷

Due to the large number of patients that present to Children's National ED, it was most feasible to select one triage group to prioritize in this study. We analyzed comment types received in the qualitative comment data received on our Press Ganey surveys from March 2019 to May 2020. All negative comment types were extracted and the corresponding unique account numbers for these visits were identified. We extracted data from our EHR records, (Cerner Corporation, Kansas City, Mo.), for the same time period and identified the associated unique visit account number. These 2 data sets were linked using Python (version 3.x) using the unique visit account number. The negative comments were grouped by triage level, identifying the number of negative comments received by triage level 1 through 5. We were able to identify the highest number of negative comments were from those categorized as ESI 4 triage group. We utilized this focused group of ED patients for our study.

Each day from June 8 through July 19, 2020, we extracted patients who were triaged as ESI 4 group and had visited the ED in the prior 24 hours from the EHR report. These patients or families received a post ED visit callback and a follow up call if requested during the post ED discharge call.

During the 6-week study period, 1630 patients and families were identified as an ESI 4 level visit and were discharged home from the ED. Of these, discharge call backs were attempted for 1618 (99.3%) patients and families. Calls were not made to patients or families whose reason for visit was of a sensitive nature, such as alleged child abuse or sexual assault.

Data Collection

Within 24 hours of discharge from the ED respondents received an initial discharge call. At the beginning of this call the current state of the patient's health was identified. If ongoing or new health concerns were discovered

patients and families were directed to contact their primary care provider and, if unable, were offered a follow up visit with an ED based telehealth appointment. Respondents were then asked if they had questions regarding topics commonly mentioned in the negative comments including care provided, ongoing at home care, discharge or follow up instructions, and prescriptions provided. If concerns were present a short summary of concerns was written for the follow up provider and the respondent was placed on a list requiring a follow-up call. The respondents on this follow-up list were then called by a healthcare provider in the ED who could answer their questions and provide guidance. At the end of the discharge callback or follow up, call respondents were reminded that they would receive a survey shortly after their recent ED visit and that their feedback on this survey was valuable to help improve patient experience.

Three attempts were made to contact the patient or family. If respondents could not be reached on the first callback attempt 24 hours after discharge, two more attempts were made on subsequent days. For those contacted by the discharge callback and self-identifying the need of further follow up, three attempts were made by the licensed healthcare provider to address these concerns.

The post-discharge and follow up callback data were captured in a REDCap database (Research Electronic Data Capture, 8.10.18 - © 2020 Vanderbilt University). A multiple-choice form on REDCap allowed the person doing the post-discharge call to select if the respondent had questions regarding discharge instructions, follow-up instructions, or prescriptions. There was also a free-text box that allowed us to further document these concerns. Whenever possible, respondents' concerns were written verbatim in these text boxes. Then the follow-up health provider was able to see this database and address the respondents' concerns accordingly. Our goal was to complete discharge and follow-up calls prior to their receiving the patient experience survey from the ED visit. Patient experience surveys were then sent out by text 5 days after discharge followed by 2 email attempts if there was no response to the initial text survey through the Press

Ganey Survey System (© 2022 Press Ganey Associates LLC). Patients were asked on these surveys for feedback regarding their overall experience at the Children's National ED as well as their experience with providers.

Data Analysis

After all data were received, we linked the discharge and follow up call data with the Press Ganey survey data with Python (version 3.x) using unique visit account numbers. We were able to identify the subset of patients who had received a post discharge follow up and had responded to the Press Ganey survey with comments.

The database was stored in Microsoft Excel (Excel Version 14.7248.5000 (32-bit)). Utilizing pivot tables, we identified the quantity of qualitative comment types (positive, negative, mixed and neutral) submitted by patients. Comments from respondents were analyzed and categorized under different themes. On reviewing the comments, we identified these themes. We then counted the number of times these themes appeared in the comments. We were then able to rank the comments based on frequency.¹⁴ In addition we analyzed the 72-hour return rates in 2020 and compared these to 2019 for this specific ESI group to assess if there was any improvement as a result of our intervention.

Results

Post-Discharge Calls

In total, 2710 phone calls were made in attempt to reach 1618 patients and families. Of these families, 1246 were able to be contacted within 3 discharge call back attempts, and 372 families were unable to be contacted. Patients were unable to be contacted due to disconnected phone lines or failure to answer after 3 callback attempts. Of the patients and families who were able to be contacted, 149 (12.5%), requested a follow-up call regarding their recent ED visit (Table 1).

For English-speaking families, these discharge calls were usually from 1 to 4 minutes in length if the patient's family was reached. If the patient's family was unable to be

Table 1

Discharge Call Attempt #	Follow-Up Requested?		Total
	No	Yes	
1	840	122	963
2	196	22	218
3	60	5	65
Unable to be contacted			372
Total	1096	149	1618

Table 2

Patient's Preferred Language	# of Patients called (%)	# of Patients requiring follow-up (%)
English	1346 (83)	115 (77)
Spanish	275 (17)	34 (22)
Total	1621	149

reached, leaving a voicemail lasted around 1 minute. For patient's whose preferred language was not English, calls were longer, ranging from 5 to 10 minutes, due to the need for a translator.

Amongst the patients who received a discharge call back attempt, the most common race identified was African American/Black (51%), the most common language spoken was English (83%), and most patients identified their ethnicity as non-Hispanic/Latino (66%). The distribution of ages was unimodal, with 466 patients between 1-3 years old, with a slightly higher representation of male gender.

Follow-Up Calls

Of the patients successfully contacted, 149 patients and families requested further follow-up with a healthcare provider from the emergency department during their discharge callback (Table 1). The follow-up demographic distribution was reflective of the population presenting to this ED, with a slightly larger proportion of families whose preferred language was not English to need a follow-up call (Table 2).

Of the patients requiring follow-up, 45 had questions about discharge instructions, 62 had questions about follow-up instructions, 18 had questions about prescriptions, and 24 had other concerns. One hundred and thirty-nine (93%) of these patients were able to be reached within three follow-up call attempts, which took a total of 214 calls and resulted in resolution of the issue. The length of these calls with English-speaking families lasted from 5 to 10 minutes depending on the issue presented. Calls with families whose preferred language was not English, lasted from 12-22 minutes due to the additional time needed to connect with a translator and translate the conversation.

Table 3

Call Type	Total Time Spent (in minutes)
Discharge	10,840
Follow-Up	1,328
Total Time	12,168

This study required a significant amount of time to complete both discharge and follow-up calls. The amount of time required to make these calls required approximately 25 8-hour days or 5 weeks of work. Table 3 summarizes the amount of time in minutes, assuming an average call time of 4 minutes for initial discharge calls, 8 minutes for follow-up calls, and 12 minutes for follow-up calls requiring a translator.

Patient Experience Survey Data

Of the 1618 ESI 4 patients who were contacted during the study, 42 (2.6%) patients responded to the survey with 72 comments. Patient's comments were categorized as positive, negative, mixed, or neutral. In 2020 we received higher percentages of mixed, negative, and positive comments for patients who were included in the post ED visit call back system as compared to the same period in 2019 in which we had no post ED visit callback system (Table 4).

Thematic Analysis of Comments

Theme 1: The ED Environment

In 2019, ESI 4 negative comments included specific environmental issues such as cleanliness of waiting or exam rooms, long wait times, and lack of entertainment for patient and families. Examples are as follows:

"We had to wait too long for the doctor to attend to us but I was satisfied with service provided."

"Long time waiting in the waiting area, long time waiting for the Dr in the emergency room, but just waiting time was too much, all the rest was very good"
"Things are not really child-proofed in the exam rooms - outlets and cabinets and so hard to keep him out of the trash!"

"Not sure what's offered to pre-teens to keep them entertained. The waiting area could use some work in terms of cleanliness. The chairs were dirty."

Table 4

Comment Rating	2020	2019
Mixed	14%	13%
Negative	28%	20%
Neutral	3%	16%
Positive	56%	52%

In 2020, similar ESI 4 negative comments arose. Examples are as follows:

“So dirty.”

“It should not have taken 9 hours to x-ray and cast a fractured arm.”

“I think there must have been a lack of communication between the nurses and doctors about the relative urgency of the case. By the time the doctor examined my son, it was already too late for any possible intervention. Because that intervention, due to time wasted, was off the table, we could have stayed at home.”

Theme 2: Lack of Clarity Post-Discharge

In 2019, ESI 4 negative comments themes included issues that arose after discharge home, lack of communication post ED visit and confusion about discharge instructions. Examples are as follows:

“My son was diagnosed with polyp in the right nostril but there was no ENT doctor on staff to see him. Was told that the ENT clinic would call me in 1-2 days, but no one called. I called the next day to the ENT clinic and was told that polyps are handled by the ER not ENT, so I was not able to make the appt. neither departments were able to help me.”

“My child had lab testing done, and I did not receive the lab report. I would have liked to know which strain of influenza he was diagnosed with. I did get a generic flu info sheet, which was fine but not needed.”

“The discharge nurse seemed irritated and not very patient. He seemed to rush through the discharge paperwork and follow up care. I understand it was late almost 2 a.m. and he was probably tired, but our child was very ill. We could tell he wasn't in his best state of service.”

In 2020, ESI negative comments regarding post-discharge confusion were reduced. Examples of some confusion are:

“I am still trying to access my son's full discharge summary—which identifies the reason for the investigation—but was told I would not be able to obtain his entire hospital record immediately due to a Covid-19 policy.”

“No discharge papers given at the end.”

Theme 3: COVID-related Concerns

New themes specifically regarding COVID-19 restrictions were present in 2020. Subthemes in comments included limitations to the number of people that could accompany a patient in the hospital, increased stress about being in the hospital, and concern regarding contact with other families.

“9 hours during COVID is tooooooo long to have patents in the hospital.”

“Only thing I didn't was the one parent allowed. Due to that I'm pregnant and was unable to carry her because of her neck pain. We couldn't switch and I was the person who was there. It was a neck injury like we didn't know what was going on. This was too serious for one parent.”

“Ultimately, the experience was frustrating, humiliating, and kept us in the hospital longer than necessary during a pandemic.”

Comparison of Data

A comparison of 2019 and 2020 negative comments show similar themes regarding environmental issues but a reduction in comments referring to post ED visit confusion. The comments in 2020 around post-ED confusion regard discharge paperwork instead of questions about the experience. Comparison of the 2019 and 2020 ESI 4 positive comments data yielded similar themes. Patients and families were overall satisfied with their experience with nurses and doctors in the hospital. Praise was often given for listening skills, bedside manner, and professionalism. A notable change in the comment themes in 2020 from 2019 was a decrease in wait times for some patients. Comments categorized as mixed usually had both positive and negative elements, and neutral comments usually regarded services not applicable to the patient's care.

72 Hour ED Return Rates

In 2019 the ED experienced a return rate within 72 hours of all ESI 4 patients seen in the ED of 2.7% for 3760 patients. In 2020 this return rate was 3% for 1610 patients. Of these patients who returned to the ED in 2020, 31 were contacted by our post ED visit callback system of which 28 indicated at the time of the discharge callback that no follow up was required and 3 required a follow up call. One of these 3 was instructed to return to the ED for ongoing concerns during the follow up call.

Discussion

We piloted a discharge callback system in the pediatric ED to improve communication with patients and families and the patient experience. A discharge callback system is identified as a best practice to help improve the patient experience.^{1,3,12} Prior to implementation of the study, many of the negative comments received from our patient experience surveys centered around post ED visit confusion regarding ED diagnosis, disease manifestation, at home care, discharge instructions, next steps in patient care related to follow-up appointments and prescriptions. During the timeline of this post ED visit callback system, these types of comments reduced dramatically amongst the targeted ESI 4 group.

These calls identified patients and families who required a follow-up call to answer questions and clarify ED care. More specific concerns within these categories included: follow-up scheduling, difficulty accessing and using prescriptions, general confusion about the ED diagnosis, and length of recovery. All these questions can be addressed in a post ED visit callback system. As a result of our intervention, questions regarding the visit and post ED visit instructions were clarified which was reflected in the comments received in 2020. There was an overall reduction in confusion for patients and families post ED visit as an opportunity was provided for ED staff to address questions or concerns. By instituting this system, patient experience was positively impacted.

The study suggests Spanish-speaking families and patients need more additional follow-up when compared to English-speaking families (Table 2). While they only represented 17% of the total ESI 4 patient population, 22.8% of patients requiring additional follow-up spoke exclusively Spanish. This may highlight the struggles of limited English proficiency (LEP) patients in an English-speaking healthcare setting. This is supported by previous research that points to factors such as stigma, negative bias, and “getting by” with limited language skills.⁹ Our hospital system has a robust certified interpreter services program which supports healthcare providers who do not speak the patient’s preferred language. While these services are used in the ED, this higher percentage of LEP patients requiring follow up calls may suggest limitations in communication may still exist despite the use of this service.¹⁰

Our study was conducted within the height of the COVID-19 pandemic and many patient experience comments reflected the change experienced in our ED due to this. Specific COVID-19 related comments received described stress about being in the hospital for long periods of time, complaints about the limitation of the number of people who could accompany the child to the ED, and anxiety regarding proximity to other patients and

families. During the COVID-19 pandemic, there was a 50% to 60% reduction in the volume of patients presenting to our ED. The number of ESI 4 patients seen during the study period was 40% of the volumes seen during the same time period in 2019. This reflects pediatric ED trends seen during the pandemic, with overall lower volumes and higher proportions of sick versus non-sick patients presenting to the ED for care.¹³ Patient comments also reflected these volume changes citing shorter wait times to be seen in the ED. While COVID impacted the volume of patients and perception of being in a healthcare setting, we believe the data collected are generalizable because these COVID-related comments represented a minority of comments received during our study. Most comments during the study were like comments received outside of the COVID-19 pandemic, such as comments about the ED environment and questions regarding discharge instructions. Therefore, we believe our findings reflect the impact of this study beyond the scope of COVID-19 specific feedback.

The utilization of a post ED visit callback system did not significantly reduce 72-hour bounce back rates to the ED as compared to the previous year during the same time frame. We initially thought it would, due to the ability to address outstanding concerns and provide support after the ED visit. We did, however, note that most of the patients who returned within 72 hours indicated they did not need a follow up call when contacted by the discharge caller. Review of these patients who did return revealed these were due to expected situations which generally lead patients to return to the ED, such as prolonged illness, worsening symptoms or the inability to contact the primary care provider.¹¹

This study demonstrates the effectiveness of contacting patients and families after an ED visit to improve their overall ED experience and continuity of care as evidenced by the decrease in comments regarding common points of confusion post-discharge. We would therefore recommend EDs implement post-ED visit callback system to enhance patient care and experience.

While our post ED visit callback study utilized man hours, an automated calling or texting system may have similar outcomes. Our study demonstrates the utility of a such a system and reveals how labor intensive and time-consuming personal callbacks can be. An automated system would be a more efficient way to connect with patients and families after they have left the ED in higher-volume settings. The use of a non-automated system could have led to more patients and families engaging with the discharge callback caller and requesting follow up calls due to the personal connection.^{3,10} However, due to the labor-intensive nature of a non-automated system, we recommend an automated system to complete the initial discharge call with an in-person follow up call to reduce

the time burden, while still allowing for personalized follow-up. A patient's or family's perception and desire to engage with an automated system may differ from personalized communication. A study comparing the perception of an automated system versus a non-automated system making the initial discharge call, followed by a non-automated follow-up call, as requested, would be a next step to identify the differences and determine which is most effective. Additionally, our study shows that despite many discharge calls required, few require a follow up call, approximately 9%. Other studies have proven the effectiveness of automated callback system in other healthcare settings in improving patient experience.^{1,2} So this approach may decrease the time burden demonstrated in our study and result in a similar outcome.

Further areas for exploration include comparison of an automated with a non-automated discharge callback system followed by an in person follow up call as needed, the effectiveness of this system in varied populations with differing demographics, and the reproducibility of these results outside of the COVID-19 pandemic.

Conclusion

Visiting the pediatric ED is often a stressful time for patients and families who are filled with anxiety about their child's acute illness, exhausted from long wait times and interacting with multiple healthcare professionals, and overwhelmed by the amount of information received. Due to this, patients and families may not be able to process all the information given during the visit and may recognize after the visit they have questions or need clarification. Our study supports the implementation of a post ED visit callback system to address the needs of these patients and families and improve their care beyond the actual ED visit. Although 72-hour return rates were approximately the same, our thematic analysis suggests improved patient experience around patient and family concerns related to ED diagnosis, at home care, follow up care and prescriptions. While this study focused on a specific ED ESI group, we believe this approach should extend to all patients and families who come to the ED for care.

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