

Improving Pediatric Hematology/Oncology Care in the Emergency Department

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Abstract

Purpose: Pediatric hematology/oncology patients frequently use the emergency department (ED) for prompt care during potentially life-threatening events, such as sepsis and bleeding. One challenge of these visits is the unavailability of appropriate patient-specific medical information. Lack of information may result in ineffective ED visits for these patients with complex conditions.

Methods: A cross-sectional survey to determine ways to improve the care of pediatric hematology/oncology patients in the ED setting was conducted among parents at two affiliated pediatric hematology/oncology clinics. ED physicians in the catchment area of the clinic completed a separate survey.

Results: All physicians surveyed were confident in caring for pediatric patients in the ED; however, fewer were confident in caring for pediatric hematology/oncology patients. Physicians and parents reported that the patient's written medical history (physicians, 30%; parents, 33%), medication list (physicians, 28%; parents, 24%), on-call pediatric hematologist/oncologist contact information (physicians, 34%; parents, 31%), and needle size and gauge to access the patient's port (physicians, 8%; parents, 12%) would be valuable information to have when presenting to the ED.

Conclusion: Parents were satisfied with ED care, but both physician and parent respondents thought additional information would be valuable to have available at the visit to help facilitate effective care.

Introduction

Children with cancer or blood disorders often require prompt care because of the potential for minor illnesses becoming life-threatening emergencies. Both the disease processes and treatment regimens can put these children at risk for sepsis and bleeding. Consequently, pediatric hematology/oncology patients require rapid assessment and care that is consistently available. To meet this need, many patients receive care in emergency departments (EDs).

As a result, the ED is used by patients with complex conditions who require prompt administration of appropriate therapy. Patients often present to the ED in the evenings and on weekends, at times when the clinic is closed. All oncology patients with fever and a central line need prompt evaluation and treatment because of the risk of sepsis. Quick identification of these patients allows for timely administration of antibiotics and accurate communication regarding further care and follow-up. Patients with blood disorders, such as factor deficiency or von Willebrand disease, also need timely and accurate identification in the ED so they can be provided with the correct therapy. Inaccurate information regarding the type of blood disorder can result in ineffective, costly therapy for life-threatening bleeding.

A study by Fordyce et al¹ evaluated errors in a combined pediatric and adult ED and found that 16% of errors resulted from pharmacotherapy, 22% were associated with diagnostic studies, and 12% resulted from communication issues. In addition, patients involved in errors were more likely to have a higher level of visit intensity.¹ Another study evaluating the impact of multitasking on ED errors found that the communi-

cation process in the ED is complex and cognitively taxing, which ultimately can compromise patient safety.² Implementation of simple methods to improve communication and ensure appropriate therapy may help reduce errors among this population of patients with complex conditions.

Other subspecialties associated with patients with complicated conditions have investigated methods such as emergency letters and standard clinical pathways to improve ED treatment.^{3,4} This study addresses physician and parent attitudes regarding pediatric hematology/oncology ED visits and investigates ways to improve the care of pediatric patients with medically complex conditions in the ED setting.

Methods

This cross-sectional survey was conducted in the two affiliated pediatric hematology/oncology clinics of the Nebraska Medical Center (TNMC) and Children's Hospital and Medical Center (CHMC) in Omaha, Nebraska. There are approximately 90 clinic visits at TNMC Pediatric Hematology/Oncology Clinic each month. An additional 300 visits occur monthly at CHMC Pediatric Hematology/Oncology Clinic. TNMC and CHMC patients are from a catchment area served by 27 EDs staffed by 143 physicians. The study was approved by the University of Nebraska Medical Center Institutional Review Board.

Two distinct, locally developed surveys addressing potential barriers to caring for pediatric hematology/oncology patients in the ED were distributed to a convenience sample of parents of pediatric hematology/oncology patients and ED physicians within the area serving the patient population.

Table 1. Participant Demographic and Other Characteristics

Characteristic	No.	%
Physicians		
Years in practice		
0-5	6	15.7
6-10	5	13.1
11-15	6	15.7
16-20	7	18.4
> 20	14	36.8
Medical specialty		
Emergency medicine	15	39.5
Family practice	15	39.5
Internal medicine	1	2.6
Pediatrics	7	18.4
ED patients who are children, %		
0-25	10	26.3
25-50	18	47.4
50-75	2	5.3
75-100	7	18.4
Unknown	1	2.6
Patients		
Age, years		
Mean		10.5
Range		1.7-24
Diagnosis		
Cancer	40	69.0
Sickle cell disease	5	8.6
Bleeding disorder	2	3.4
Other	11	19.0
Type of line		
Central line	7	12.1
Infusaport	21	36.2
None	30	51.7

Abbreviation: ED, emergency department.

Parents were recruited at clinic visits during a 1-month period and given a nine-question voluntary paper survey. Although some patients have more or less frequent follow-up visits to the clinic, on average patients visit the clinic on a monthly basis, thus allowing for the best cross-section of survey responses. Parents who visited the clinic more than once during the survey period were asked to only complete the survey once.

Physicians were identified at EDs using hospital Web sites; they were contacted via fax or e-mail and asked to complete a nine-question survey. Physicians could return the completed survey via fax or the provided Internet link.

Results

Fifty-eight parents (TNMC, $n = 27$; CHMC, $n = 31$) responded to the 160 distributed surveys (36%). Mean patient age was 10.5 years (range, 20 months to 24 years; Table 1). A majority of patients were seen for cancer (69%) and the remainder for sickle cell disease (8.6%), bleeding disorders (3.4%), or

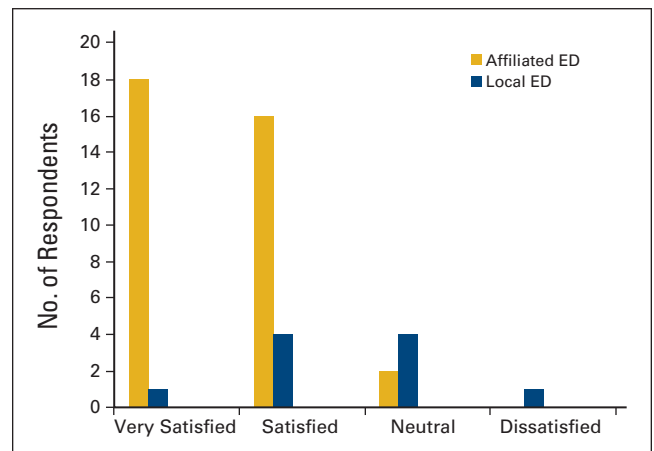


Figure 1. Parent satisfaction with emergency department (ED) care.

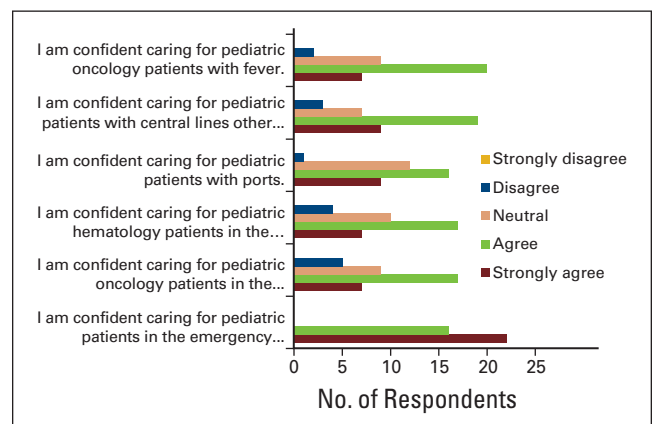


Figure 2. Emergency physician confidence in caring for pediatric hematology/oncology patients.

other hematologic diagnoses (19%). Approximately half of patients had a central line (12.1%) or infusaport (36.2%). Most patients ($n = 43$; 74.1%) were seen at the same ED where they are seen in the clinic and the remainder ($n = 15$; 25.9%) at their local ED. A majority of parents were satisfied with the care their child received in the ED (strongly agree [SA], 32.7%; agree [A], 34.5%; neutral [N], 10.3%; disagree [D], 1.7%; strongly disagree [SD], 1.7%; not applicable [NA], 19.0%). Parental satisfaction was higher when patients were seen in their clinic-affiliated ED versus local ED (Fig 1). Parents' reported patient written medical history (33%), on-call pediatric hematologist/oncologist contact information (31%), medication list (24%), and needle size and gauge to access port (12%) as the most valuable information to have readily available when coming to the ED to make the visit go most smoothly. All parents felt they were able to get in touch with the pediatric hematologist/oncologist on call when needed (SA, 69%; A, 19%; N, 3%; NA, 9%).

Survey responses were received from 38 (27%) of the 143 physicians contacted. The physicians had been in practice for an evenly varied timespan (0 to 10, 28%; 11 to 20, 33%; > 20 years, 36%). A majority of physicians had completed a residency in emergency medicine (38%) or family practice (38%),

whereas 18% had completed a residency in pediatrics. All physicians were confident in caring for pediatric patients in the ED (SA, 57.9%; A, 42.1%), whereas fewer were confident in caring for pediatric oncology (SA, 18.4%; A, 44.7%; N, 23.7%; D, 13.2%) or pediatric hematology patients in the ED (SA, 18.4%; A, 44.7%; N, 26.3%; D, 10.5%). ED physicians felt comfortable caring for patients with an infusaport, central line, or fever (Fig 2). Physicians reported patient written medical history (30%), medication list (28%), and on-call pediatric hematologist/oncologist contact information (34%) as the most valuable information to have readily available when coming to the ED to make the visit go most smoothly. Eight percent of ED physicians felt the needle size and gauge to access the patient's port would be valuable information.

Discussion

This study investigated physician and parent attitudes regarding pediatric hematology/oncology ED visits. Although all physicians surveyed were confident in caring for pediatric patients in the ED, fewer were confident with pediatric hematology/oncology patients needing care in the ED. Presence of an infusaport or central line did not affect physician confidence. Physicians and parents reported that patient written medical history, medication list, on-call pediatric hematologist/oncologist contact information, and needle size and gauge to access the patient's port would be valuable information for patients to have when presenting to the ED. Type and usefulness of information were similarly rated between physicians and parents.

A majority of patients were seen at the clinic-affiliated ED; however, 25% of patients were seen at their local ED. Parents were generally satisfied with their child's care in the ED; nevertheless, parents were more satisfied with care when patients were seen in the clinic-affiliated ED. The patient's written medical history was considered most useful among physicians and parents. Appropriately, physician access to medical records, including medical history and medication lists, is most seamless when a patient is seen in the affiliated ED, likely resulting in increased parent and patient satisfaction.

To facilitate care for pediatric hematology/oncology patients in the ED, a wallet card for parents and patients to have available when visiting the ED was developed. All newly diagnosed patients with an infusaport or central line receive a card. On the basis of the survey results, the on-call pediatric hematologist/oncologist contact information and the needle size and gauge to access the patient's port were included on the cards. Additional

information regarding basic treatment of fever in this patient population was included to assist in ensuring prompt care for this vulnerable patient population. The back of the card states: "I am at risk for life-threatening bacteremia. If I have a fever, please draw CBC with differential and blood culture, then give 50 mg/kg ceftriaxone (max 2 g) immediately. Please call the pediatric hematologist/oncologist on call before I leave the ER [emergency room] for follow-up." Although the pocket card does not address all information requested by physicians and parents in the surveys, such as written medical history and medication list, the increasing implementation of electronic medical records will likely assist in effectively transmitting this information. In addition, increased focus on educating parents regarding their child's diagnosis, medical history, and current medications can facilitate effective ED care.

There are several limitations to this study, including the use of convenience sampling, unknown validity and reliability of the survey tool, and bias as a result of parental self-reporting, all of which result in undetermined generalizability of the results. Parental surveys were collected without regard to patient diagnosis, reason for ED visit, or current therapy or disease state. These details may have influenced parental impression of the ED visit, resulting in bias.

There is little published literature about ED care for patients with medically complex conditions and no known investigation of this topic among pediatric or adult hematology/oncology patients. Given the frequency of ED visits among this patient population, the need for timely intervention in the ED, and the potential for severe consequences if patients are not identified, this topic needs further exploration. Future investigations as a result of this study include the impact of ED efficiency for pediatric hematology/oncology patients before and after card implementation, a more thorough exploration of factors affecting physician and parent satisfaction, and the influence of the card on patient safety.

Author's Disclosures of Potential Conflicts of Interest

The author indicated no potential conflicts of interest.

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