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DNP Final Project Report
Emergency Room Services Used by Pediatric Patients Who Have an
Established Primary Care Provider

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College of Nursing

Spring 2019

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PEDIATRIC EMERGENCY SERVICES

Dedication

I would like to express my immense gratitude to those who have been especially patient and supportive of me while I've worked my way through this program. I would like to thank my wife, Laurel, and my children, Christopher and Rubye, who have tolerated my frequent physical, mental, and emotional absence throughout the struggles of finding a balance between family, class, clinic, and work. Laurel, you hold strong to your faith in my ability to succeed despite my persistent self-doubt, and it is because of your unconditional love and endless confidence that our family grows stronger as a whole with each passing day. This project has therefore been dedicated to you.

Acknowledgements

I am exceedingly grateful to my advisor and mentor, Dr. Julie Ossege. Your kindness and your dedication to my success throughout the program helped me to pull through some very difficult times. Thank you for the many hours that you put into this project alongside me, coaching and critiquing throughout the course of its development. I especially appreciated the personal time and space you granted me to sort through family events, and the counsel that you concurrently provided to keep me on track, impossible though it seemed to me at the time. Your gentle guidance was exactly what I needed to make my advancement in the program feel attainable. I am forever grateful that our paths crossed in this fashion, for without you my graduation would not have been possible. Thank you for your commitment to my perseverance and success in this Doctorate of Nursing Practice program.

Table of Contents

Acknowledgements iv

List of Tables vii

Abstract 1

Introduction 2

Background 3

 Impact of the Affordable Care Act 3

 Medicaid’s Relationship to the Problem 4

Literature Review 4

 Primary Provider Availability 5

 ER Scoring System 6

 Associated Costs 6

 Summary 7

Conceptual Framework 7

 Andersen’s Behavioral Model of Health Services Use 7

Methods 8

 Study Design 8

 Study Setting 9

 Population 9

 Data Collection: Measures and Procedures.....10

 Data Analysis 11

Results 12

 Chart Review..... 12

PEDIATRIC EMERGENCY SERVICES

Provider Interviews	15
Discussion	18
Provider Interviews	20
Limitations	21
Practice Implications	22
Future Research	25
Conclusion	25
References	33

PEDIATRIC EMERGENCY SERVICES

List of Tables

Table 1. Descriptive Summary of Population Presenting to the ER	26
Table 2. Summary Statistics as Related to Frequency of Patient ER Visits Over Fiscal Year	27
Table 3. Descriptive Summary of Arrival Time to ER by Population	28
Table 4. Descriptive Summary as Related to Chief Complaint	29
Table 5. Summary Statistics Related to Fever	31
Table 6. Descriptive Summary of Primary Diagnosis According to Season	32

PEDIATRIC EMERGENCY SERVICES

Abstract

Background: The use of emergency room services for primary care issues is an ongoing problem. The incidence is higher in the Medicaid population and is associated with emergency room overcrowding and excessive medical costs.

Purpose: The purpose of this study was to explore the extent of and the details surrounding non-acute emergency room visits in a pediatric population within an urban primary care clinic.

Methods: This was a two-part descriptive study with both quantitative and qualitative components. A retrospective chart review of this facility's ER data constituted the quantitative descriptive part of the study. The qualitative arm of the study included semi-structured interviews with ER providers that were conducted to explore their perceptions on ER use within this population. Interviews were attained during observation experiences during their work shifts and were later grouped by common themes.

Results: There was a higher incidence of ER visits among the African-American (44%) and Hispanic (30%) populations, and with visits outside of normal clinic hours. The most common chief complaint was fever. The most common diagnoses fell within the respiratory system (26%). Themes from the provider interviews included the need for caregiver reassurance, patient and system level concerns, and provider solutions.

Conclusion: Implications for practice include a culturally relevant health initiative on the management of fever, and increased access to after-hours primary care.

PEDIATRIC EMERGENCY SERVICES

Emergency Room Services Used by Pediatric Patients Who Have an Established Primary Care Provider

Introduction

Emergency room (ER) overcrowding is one of many constraining forces currently complicating the healthcare system. Byproducts include prolonged triage wait time, depleted medical supply resources, slowed access to ancillary procedures, reduced availability of hospital staff, and a depreciated capacity for the provision of high-quality care throughout the facility (Burokienė et al., 2017; Office of Disease Prevention and Health Promotion [ODPHP], 2014; Yarmohammadian, Rezaei, Haghshenas, & Tavakoli, 2017). A positive correlation has been noted between overcrowding and premature departure of patients, which can substantially extend the length of time before the patient is seen by a provider (Burokienė et al., 2017).

Long-term retention of an established primary care provider (PCP) is associated with greater communication and trust between the patient and the provider and a correlating decrease in the abuse of ER services (ODPHP, 2014). Despite this, disparities continue to exist in all levels of care-access, including acquisition of health and dental insurance, procurement of physical access to primary care, and establishment of an ongoing provider, all of which contribute to low-acuity ER use (ODPHP, 2014). Demographic disparities such as race, ethnicity, socioeconomic status, age, sex, disability status, sexual orientation, and residential geographics persistently result in disrupted access to health care (ODPHP, 2014; U.S. Department of Health and Human Services [USDHHS], 2015). The purpose of this study was to assess the characteristics of the pediatric population from one urban clinic, who visited the ER for a low acuity visit between June 1, 2017 and May 31, 2018. The goal of the project was to

PEDIATRIC EMERGENCY SERVICES

gather information that could be used to inform practice and policy directed toward increasing this population's use of the primary care clinic for low-acuity needs.

Background

Impact of the Affordable Care Act

In 2010, one-hundred and twenty-nine million visits to the ER were reported in the U.S., one-fifth of which were pediatric patients (Wier, Yu, Owens, & Washington, 2013). According to a cost-focused study, ER visits accounted for more than \$300 billion of national healthcare spending in 2010, with 30% of these visits deemed non-emergent (Galarraga & Pines, 2016). Approximately 75% of ER visits reported in 2012 occurred outside of normal clinic hours and more than 40% did not reflect a medical concern thought by the child's caregiver to be emergent in nature (CDC, 2014). It was believed by many that implementation of the Affordable Care Act (ACA) would decrease low-acuity ER use by improving disparities in access to primary care (Finkelstein, Taubman, Allen, Wright, Baicker, 2016; Galarraga, & Pines, 2016; Levin, Toerper, Makowsky, Xu, & Cole, 2017). However, the Centers for Disease Control and Prevention (CDC, 2017) reports only a 1% decrease in ER use by children with Medicaid, and less than 1% for children with private insurance or no insurance since implementation of the ACA.

A recent study reviewing the correlation between Medicaid and ER use revealed that an expansion of Oregon's Medicaid program led to a 40% increase in ER use rather than a reduction (Taubman, Allen, Wright, Baicker, & Finkelstein, 2014). One explanation for this, according to the 2014 Quality and Disparities Report (QDR), is that access to care did improve but a significant number of disparities endured (USDHHS, 2015). Findings such as these led to a strong push for the reduction in the use of hospital-based ERs for non-emergent needs. This is most evident through payment and delivery reform strategies such as patient-centered medical

PEDIATRIC EMERGENCY SERVICES

homes and accountable care organizations (Centers for Medicare & Medicaid Services, 2018; Finkelstein et al., 2016; Galarraga, & Pines, 2016; Levin et al., 2017). Despite this, little change has been achieved in the use of the ER for primary care needs.

Medicaid's Relationship to the Problem

In 2015, nearly 20% of U.S. children sought emergency care at least once, and of the thirty million, more than 96% were treat-and-release, indicating a non-emergent need (McDermott, Stocks, & Freeman, 2018). Children within the lowest income quartile made up more than 30% of visits, and Medicaid accounted for more than 60% of the ER's treat-and-release patients (McDermott et al., 2018; Sun, Karaca, & Wong, 2018). According to a 2014 study by the CDC, almost 25% of the Medicaid population had visited the ER at least once in the year prior. By 2015, almost one-third of Medicaid's pediatric population had a history of recent visits to the ER, which was more than twice that of those with private insurance or no insurance (CDC, 2017). The number of visits by this select population has been trending aggressively upwards since enactment of the ACA in 2014 (McDermott et al., 2018). Furthermore, the seriousness of the medical problem was less likely to be the reason that children with Medicaid visited the ER as compared to those children with private insurance (CDC, 2017).

Literature Review

A literature review was performed utilizing several databases, including PubMed, Cumulative Index to Nursing and Allied Health (CINAHL), and Cochrane Library. The search terms used included: "pediatric" and "primary care emergency," "non-urgent emergency" or "inappropriate emergency." Inclusion criteria were as follows: a focus on pediatric patients, statistical reports on the proportion of low-acuity ER visits, studies examining potential predicting factors of low-acuity ER visits, and interventions to decrease occurrences of non-

PEDIATRIC EMERGENCY SERVICES

urgent ER presentations. Exclusion criteria included: research conducted outside the United States, a focus on non-urgent ER visits in adults, disease-focused studies, a focus on urgent-treatment-center utilization, or a focus on emergency medical service involvement. Only articles published from 2014-2019 were accessed. This review of the literature was conducted to identify the following:

1. Ratio of non-urgent ER visits occurring in the pediatric population
2. Potential predictors (barriers/enablers) for non-urgent ER presentation
3. Interventions believed to decrease occurrence of non-urgent ER presentations.

The majority of the results from the literature review were found through the PubMed search engine, which yielded twenty-five titles that met the inclusion criteria. CINAHL revealed several that overlapped with PubMed and one potential additional article. No articles were kept from the Cochrane Library database search. Further reading eliminated several studies including ten foreign, three literature reviews, and four deemed irrelevant to current study needs, which left eight studies appropriate for this project.

Primary Provider Availability

Several studies reported an inability to access the PCP as the principal reason for choosing the ER over a primary care clinic (Cabey et al., 2018; Davis et al., 2018; Hummel et al., 2014; Long et al., 2018; Pethe et al., 2019; Samuels-Kalow, Bryan, & Shaw, 2016; Swavely et al., 2015). Other prominent issues were related to ease of access and included such things as hours of operation, requirement of an appointment, openings for walk-ins, or on-site availability of ancillary services (Davis, Meyer, Beste, & Batish, 2018; Hummel et al., 2014; Long et al., 2018; Pethe et al., 2019; Samuels-Kalow et al., 2016; Swavely et al., 2015).

PEDIATRIC EMERGENCY SERVICES

ER Scoring System

An example of an acuity level scoring system is the emergency severity index (ESI), which is based on the extent of resources required to stabilize a patient. The ESI is a five-level acuity system, with level one being the most serious and level five describing a condition that would not likely require treatment at the time of presentation (USDHHS, 2018). Most conditions that score an ESI 4 or 5 could be better served by a primary care provider in a primary care clinic setting (USDHHS, 2018). The literature that addressed the nature of the diagnoses presenting to the ER revealed more respiratory and fever disorders than all other diagnoses (Davis et al., 2018; Samuels-Kalow et al., 2016; Swavely et al., 2015). Most of these were considered low-acuity based on a scoring system such as the ESI (Davis et al., 2018; Samuels-Kalow et al., 2016; Swavely et al., 2015).

Associated Costs

A recent Health Care Cost Institute (HCCI, 2018) report revealed a dramatic rise in the use of the ER for outpatient services and labeled it the biggest contributor to the increase in outpatient spending. An increase of more than 30% was noted in ER visit expenses, bringing the new average per-visit-cost up to almost \$2,000, while the cost of an acute visit to a PCP remained at just over \$100 (HCCI, 2018). The report additionally noted an 18% decline in PCP office visits from 2012 to 2016 (HCCI, 2018). Public insurance was the primary payer for most of the individuals studied ranging from fifty (Hummel et al., 2014), to sixty (Cabey et al., 2018; Long et al., 2018; Samuels-Kalow et al., 2016) and to more than ninety percent (Cabey, MacNeill, White, Norton, & Mitchell, 2014; Swavely et al., 2015). The Healthcare Cost and Utilization Project reports low-acuity ER visits among children as high as 29 million in 2015,

PEDIATRIC EMERGENCY SERVICES

sixty percent of which were paid by Medicaid (McDermott et al., 2018). At an increased cost of \$1900 per visit, the financial loss to this public health insurer is more than \$33 billion annually.

Summary

In this literature review, perceived difficulty with accessing the PCP was a contributing factor to the use of the ER for low-acuity conditions. Acuity of a patient is measured through varying scoring systems. One example of a scoring system is the ESI which measures on a scale of one-to-five with level one requiring life-saving interventions and level five requiring none. Respiratory and fever disorders were the most commonly diagnosed conditions. Public insurance was the primary payer in all studies that included health insurance as a variable. Low-acuity ER visits by pediatric patients were noted as high as 29 million in 2015 and 60% of these were covered by Medicaid.

Conceptual Framework

Andersen's Behavioral Model of Health Services Use

Conceptual frameworks exist to provide a unique perspective and methodological approach to research. One example of a theoretical framework appropriate to the expectations of this study is Andersen's (2014) Behavioral Model of Health Services Use. This framework focuses on both the individual and the contextual components of behavior, and how they relate to healthcare utilization and health outcomes (Andersen, Davidson, & Baumeister, 2014). The two components are further separated into three factors: predisposing, enabling, and need. In short, this model states that individuals are predisposed to health behaviors by extant circumstances and afflictions which contribute to their use or avoidance of the health care system (Andersen et al., 2014). Enabling- or need-based conditions exist to either support or condemn the decision to

PEDIATRIC EMERGENCY SERVICES

enter care. The newest version of this framework acknowledges the impact that community and environment will have on an individual's behavior (Andersen et al., 2014).

As applied to the caregivers that are frequenting the ER for low-acuity needs, predisposing conditions would include such things as age, race, or gender. Development of a trusting relationship with a PCP and/or the availability of social and physical resources are examples of enabling factors. Lastly, the needs factor exists in such things as level of urgency to be treated and released, which is one example of a strong behavior-driver. Health policies that consider both the positive and the negative aspects of this framework, specific to their unique community, can have a profound effect on an individual's health behaviors. The predisposing and needs factors were the focus of this study; enabling factors were not addressed.

Methods

Study Design

This was a two-part study that consisted of both quantitative and qualitative descriptive designs. A retrospective chart review of the select facility's ER data constituted the quantitative descriptive part of the study. Informed consent was waived for the pediatric sample given that no interaction or intervention was required. To complement the descriptive chart review, interview sessions with the ER providers were conducted. Written informed consent was obtained for provider interviews at the initial encounter. A qualitative analysis of the interviews was then performed, and the responses were grouped by common themes. Approval was successfully obtained from the Institutional Review Board, as well as the study's clinic and hospital sites.

PEDIATRIC EMERGENCY SERVICES

Study Setting

The study focused on an urban family practice clinic located in central Kentucky, and the two ERs within the same healthcare organization. The clinic provides care to patients of all ages, with more than half under the age of 18. The clinic providers see more than 6,000 patients yearly, almost 70% of whom are covered by Medicaid. Hospital site one, the primary ER in the study, was a 569-bed academic health facility and level one trauma center. This ER was the site used for both the chart review and the provider interviews. Hospital site two, a smaller (180-bed) extension of this primary facility, was also included in the chart review. The two ERs combined see as many as 114,000 patients annually, with one-third of these being pediatric. At the time of the study the two facilities were supported by 83 providers: 32 board certified emergency physicians (also known as attendings), 31 advanced practice providers (APPs), and 20 residents.

Population

Chart review. The subject selection criteria for the chart review included those patients from the chosen clinic, aged newborn through seventeen years, that were seen at either of the two ERs between June 1, 2017 and May 31, 2018. The study focused on low-acuity ER visits and only those with ESIs of 3, 4, and 5 were included. No participants were excluded based upon sex/gender or race/ethnicity. Seventy-five patients were pulled in three-month increments in an attempt to obtain a maximum total of three hundred patients who were evenly distributed throughout the year. Randomization was achieved by selecting every 15th visit until 75 visits from each 3-month period were gathered. Duplicate names during the search were dismissed to ensure the goal of three hundred unique patients.

PEDIATRIC EMERGENCY SERVICES

Provider interviews. The ER providers were the target population for the qualitative portion of the study. No participants were excluded based on sex/gender or race/ethnicity. Participation was voluntary and uncoerced. Provider schedules were acquired and contact with individual providers was accomplished through email, targeting those providers working in the pediatric ER between January 1, 2019 and February 1, 2019. The email included a brief explanation of the study and the primary investigator's intentions and expectations from the participants. Those willing to participate responded by return email. A total of five attendings agreed to participate.

Data Collection: Measures and Procedures

Chart review. The hospital ER databases were entered with permission. After a list of eligible patients was obtained from the Center for Clinical and Translational Sciences (CCTS), data were extracted from the ER databases. The data extracted included:

- Patient demographics (age, gender, ethnicity, and insurance details)
- Frequency of visits to the ER
- Time of arrival to ER (to include day of the week and time of day)
- Emergency Severity Index (only level 3, 4, and 5 were accessed)
- Chief complaint by caregiver
- Diagnosis from provider

All data acquired were stored in Research Electronic Data Capture (REDCap), a secure, web-based application designed to support data capture for research studies.

Provider interviews. Permission was granted by the pediatric medical director to interview the attendings who were working during the time of the study. Provider interview arrangements were made via email according to the provider's availability and time preference.

PEDIATRIC EMERGENCY SERVICES

Written consent was obtained from each participating provider prior to the start of the interview. The investigator was also given permission to sit in during patient encounters; however, no contact with the patient or caregiver was made during these encounters.

Interview questions were spread out during the course of a four-to-five-hour observation period. Interview questions were asked intermittently, as time allowed, and typically in groups of two or three in between patient encounters. A series of semi-structured open-ended questions were presented to each provider so as to prompt in-depth interviews that were similar in subject. All physicians were asked the same twelve questions over the course of the observation period. Examples of interview questions included the following:

1. Could this patient have been equally or better cared for in a primary care clinic?
2. Could this patient have waited for a primary care appointment for this condition?
3. Why do you think caregivers choose the ER for non-urgent needs?
4. Do you feel this ER visit could have been avoided through use of such things as phone-triage, after-hours clinics, or urgent treatment centers?

The details of the patient's acuity level and presentation were discussed following each encounter. When time allowed, providers were asked to elaborate on their responses to the interview questions as best they could. Interviews and observations were recorded through shorthand notes, which were later transferred into REDCap for data storage and analysis. For the purpose of anonymity, provider details, with the exception of credentials, were not recorded.

Data Analysis

Descriptive statistics were used for the demographic summary and included age, gender, race/ethnicity, and insurance status. Categorical data were analyzed using the frequency

PEDIATRIC EMERGENCY SERVICES

distribution formula in SPSS and displayed in a frequency table. Information on the frequency of ER visits over the given year was calculated using the COUNTIF function in Excel.

The provider interviews were defined by common phrases and themes. Similarities in responses were noted in the providers' statements and were therefore grouped into the themes: caregiver reassurance and education, system issues, caregiver issues, and provider solutions. Commonalities were identified, and the varying categorical levels therein were discussed. Those statements that fell into themed categories were then further critiqued and synthesized by two researchers so as to optimize their contribution to the study.

Results

Chart Review

Patient demographics. Three hundred medical records were reviewed. The age groups that presented more frequently were 4-6 years at 26% (n=78) and 2-3 years at 23% (n=70). Males accounted for 53% of the sample (n=158). Thirty percent (n=90) identified as Hispanic/Latino and 44% (n=131) as Black or African American. The primary payer was Medicaid at 92% (n=275), and 2% (n=6) were lacking in insurance coverage (see Table 1).

Frequency. During the study period the clinic saw 1859 pediatric patients. The rate at which these patients visited the ER was evaluated for the duration of the study. Thirty-four percent (n=626) of this population (N=1859) visited the ER during the study period. Of those, 58% (n=362) visited once and 38% (n=240) had 2-to-4 visits. Four percent (n=24) of patients went to the ER 5 times or more, with the biggest outlier being a single patient who visited the ER 10 times during the one-year duration of the study. The 300-patient-sample for this project represented 16% of the clinic's population during the study. It represented almost half of clinic's pediatric ER users during that year (see Table 2).

PEDIATRIC EMERGENCY SERVICES

Timing. Data were collected on the time of day, day of the week, and time of year of ER visits (see Table 3). It was noted that 29% (n=87) of visits occurred during normal business hours, 46% (n=138) occurred outside of clinic hours during the week, 14% (n=42) on Saturday, and 11% (n=33) on Sunday. Saturday hours were further broken down to help determine if opening the clinic on a Saturday from 9 am to 12 pm would improve clinic after-hours access; however, only 4% (n=12) of ER visits occurred during this time period.

As previously stated, 75 charts were pulled quarterly, allowing information to be pulled from all seasons. Data were examined in three-month increments, beginning with January through March and continuing throughout the year. The months with the heaviest ER use were December (11% [n=34]) and February (11% [n=34]). March, at 5% (15) of visits, was noted as the month with the lowest volume. When grouped according to season, winter represented 31% (94) of visits as compared to summer at 25% (76), fall at 22% (67), and spring at 21% (63; see Table 5).

Emergency severity index. Only those patients with an ESI of 3, 4, or 5 were considered as these scores represent lower acuity visits. Twenty percent (n=61) of the 300 pediatric patients were considered an ESI score of 4; no ESI 5's were noted in this study. Of the 61 patients with an ESI score of four, 25% (n=14) required no intervention beyond education and reassurance, 25% (n=15) were sent home with a prescription and nothing more, 5% (n=3) required nothing more than over-the-counter (OTC) medications, and 8% (n=5) were given OTC medications in house and sent home with a prescription.

Chief complaint. The chart review included details on the chief complaint(s) as provided by caregiver during patient triage. Multiple chief complaints were given by many of the presenting caregivers for a total of 458 presenting complaints. The frequency of each

PEDIATRIC EMERGENCY SERVICES

individual complaint was calculated, as well as their totals according to health system. Fever was the most noted concern by caregivers at 16% (n=74), followed by cough at 9% (n=40) and vomiting at 8% (n=38). When organized into body systems or events, the top three most noted systems were the gastrointestinal and the thermoregulatory systems at 17% (n=78), with respiratory disturbances following closely at 16% (n=74; Table 4).

Fever (N=71) was the most common individual chief complaint. Thirteen percent (n=9) of the cases with a chief complaint of fever did not require an intervention. An additional 42% (n=30) required interventions that could have easily been provided in most primary care clinics. About 16% (n=11) of the 71 cases required multiple interventions, and therefore may have been urgent in nature given the extensive amount of time likely spent on the patient. The remaining 28% (n=20) required interventions that could only be provided at a clinic equipped with an on-site laboratory and/or radiology department, or the means to provide prescriptive-pharmaceutical services, such as nebulizers or Zofran, during a patient visit (see Table 5).

Primary diagnosis. Diagnoses, when evaluated annually, yielded significantly higher counts for respiratory conditions at 26% (n=78), followed by ear/nose/throat (ENT) and gastrointestinal conditions at 16% (n=48) each. When categorized by season, diagnoses related to ENT at 5% (n=14) were the most frequent of diagnoses in the spring season. The most common afflictions noted in the summer were those related to dermatologic issues at 6% (n=18), and gastrointestinal complaints were the most common in the fall, at 15% (n=5). The development of respiratory disturbances in the winter, at a rate of 16% (n=48), was the most noteworthy diagnosis according to season (Table 6).

PEDIATRIC EMERGENCY SERVICES

Provider Interviews

Interviews were conducted with five ER attending physicians, over a four-to-five-hour period, and as time allowed. The dialogue between provider and investigator generally lasted less than a minute but it was instigated frequently throughout the observation period and obtained as brief statements in response to the investigator's questions. Many common themes emerged from the interviews with the ER providers.

Caregiver reassurance and education. The providers' interview responses supported a belief that reassurance and education to caregivers was necessary in almost all cases, especially with the low-acuity patients. It was believed by most providers that caregivers are unaware of what warrants going to the primary care clinic as opposed to their local ER for primary or tertiary care. Statements that support this theme included:

- "I believe that if they feel like they need to be here, like they are not feeling capable of caring for the child on their own, then they should be here."
- "Everyone belongs because they all require something...education, reassurance, evaluation, sometimes treatment or referral."
- "The word emergent is relative."
- "The parents that come in often feel that their child's situation is more urgent than it appears to us."

System issues. The providers expressed that in the ER setting, it is necessary to treat for the worst-case scenario. One provider said, "The ER has to work backwards from a primary care provider, we must rule out the life-threatening zebras before sending them home." Another commented, "A full work up is often necessary to rule out worst case scenario despite our belief that it is a simple and common diagnosis." The ER physicians reported that they are "unable to

PEDIATRIC EMERGENCY SERVICES

watch and wait because we do not have a relationship with the patient and therefore do not know if the patient will truly follow up with their primary provider as we recommend.”

Compounding this, the providers stated that all testing deemed necessary must be done at once because they “cannot tie up an ER bed while working through a step-by-step process of diagnosis.” Holding a patient in observation status while waiting for test results was considered to be a significant problem to these providers in that it slows down access to an ER bed for other patients who present with emergent needs. The providers expressed feeling as if they must turn their low-acuity ER beds over as rapidly as possible while maintaining safety, which is often a challenge given the liability associated with such actions.

Financial reimbursement was frequently noted as being insufficient as related to the resource expenditure. Providers noted that Medicaid only reimburses the hospital based on diagnosis, not necessarily on services rendered. Frustration was expressed given the high level of care that must be provided to low-acuity patients because they came to the ER. One provider stated, “Everyone would be better off if low-acuity didn’t come into the ER. [Low-acuity patients] don’t help [the hospital] financially because reimbursement is so low.”

Caregiver issues. The providers expressed the belief that many of the patients presenting to the ER are without an established provider or an alternate connection to the healthcare system, and that the ER is their only available option. They also expressed the belief that most caregivers choose the ER because primary care is not always available the same day; even when it is, the results for imaging and lab work often require a wait time of several hours to several days, as opposed to the “instant gratification received with stat-labs and testing” that comes with a visit to the ER. It was said that the watchful-waiting mentality of the primary care

PEDIATRIC EMERGENCY SERVICES

clinic does not always appear to sit well with an overly concerned caregiver, and that the more typical mentality of this population is “I want what I want and I want it now.”

Similarly, providers expressed the feeling that the ER is often used as a specialty clinic, or as a second opinion when caregivers do not agree with their primary provider. All of the providers reported a belief that caregivers often use the ER for special procedures and testing rather than wait several weeks (or several months) to see a specialist. This was noted in such statements as “They consider us pediatric specialists with instant access to resources and therefore quick results from testing” and “I went to my provider but I didn’t agree with him, didn’t like his recommendations so I wanted to hear what you think (or) I wanted further testing.”

ER Providers’ solutions. The final theme involved alternatives to the use of the ER for low-acuity needs. The need for readily available after-hours primary care was frequently noted in such statements as:

- “A solution to this would best come with the addition of urgent-treatment centers or after-hours sick appointments to the local clinics. People tell me all the time that they tried to call their clinic but just couldn’t get in.”
- “The most frequent reasons the families give us, is that the clinic wasn’t open, or an appointment wasn’t available today, and they needed this taken care of now in order to suit their schedules.”
- “The [after-hours] clinic here at [the hospital] does a good job of absorbing some of the local after-hours needs.”
- “I come from a facility that used telemedicine and I found that somewhat helpful.”

PEDIATRIC EMERGENCY SERVICES

- The busiest times were described as 9:00 PM through midnight, typically, but you start to see the increase in ER flow as early as 7:00 PM.

All providers stated that frequent low-acuity presentations were more likely related to the hours of operation of their clinic than any other issue. Use of phone triage was discussed but this was not well supported by the providers in that “Phone triage can be difficult because no one wants the liability. It is hard to form a sound opinion about a patient’s condition over the phone because they often look much better, or much worse when they get to us.”

Discussion

Demographics. This project uncovered many patterns in the use of the ER by the pediatric patients of this isolated central Kentucky urban clinic. The population breakdown by race/ethnicity was well supported in that the Black/African American and Hispanic/Latino presented more frequently for non-urgent needs (Cabey et al., 2014; Cabey et al., 2018; Hummel et al., 2014; Long et al., 2018; Samuels-Kalow et al., 2016; Swavely et al., 2015). This may be due to the higher proportions of these populations at the select urban clinic. According to the literature, however, health disparities exist in these populations in the form of structural barriers, health literacy barriers, and/or financial barriers (Cabey et al., 2018; 2014; Long et al., 2018; 2016; Pethe et al., 2019; Swavely et al., 2015). This finding could indicate the need for more culturally appropriate teaching methods, or culturally appropriate content regarding home-management of an acute illness, by the primary care clinic.

The findings with regard to Medicaid as the primary payer were similar to those of other researchers; however, our findings were more profound in that most studies showed a frequency of Medicaid patient-presentations at around 65% (Cabey et al., 2014; Cabey et al., 2018; Hummel et al., 2014; Long et al., 2018; McDermott et al., 2018; Samuels-Kalow et al., 2016;

PEDIATRIC EMERGENCY SERVICES

Swavely et al., 2015; Taubman et al., 2014). Our study on this clinic's population revealed a 92% prevalence rate. This is likely because 70% of the study clinic's patients are covered by Medicaid; however, it seems a relationship exists between low-acuity ER use and possession of public health insurance.

Timing. The time of day and week in which the ER visits in this study occurred were similar to national findings, in that the higher volume of flow through the ER occurred outside of clinic hours (Pethe et al., 2019; Samuels-Kalow et al., 2016; Swavely et al., 2015). The results of this study (at 71%) were more significant than those of Pethe et al. (2019), who identified a 53% prevalence rate, or Samuels-Kalow et al. (2016) at 60%. This was also well supported by the providers' belief that the ER's volume increased greatly between the hours of 9:00 PM and midnight. As this is outside normal PCP hours, interventions to address low-acuity needs during this time frame may be warranted.

Chief complaints. The most noteworthy finding for this study, both through the chart reviews and the provider interviews, was the frequency in which "fever" was mentioned as an ailing concern. The high prevalence of fever complaints has been noted in several studies (Davis et al., 2018; Morrison et al., 2014; Rupe, Ahlers-Schmidt, Wittler, 2010; Samuels-Kalow et al.; 2016, Swavely et al., 2015; & Wallenstein et al., 2013). Fever was the most common presenting complaint in this study and was mentioned twice as often as cough or vomiting. This finding followed closely to that of Samuels-Kalow et al. (2016) at 18% and Swavely et al. (2015) at 15%.

The providers expressed that caregivers often have a grave fear of fever. Providers asserted that a common belief exists among caregivers that fevers can lead to seizures and/or brain damage if allowed to run too high. Similarly, Wallenstein et al. (2013) found that 93% of

PEDIATRIC EMERGENCY SERVICES

caregivers surveyed expressed this fear. Rupe, Ahlers-Schmidt, and Wittler's (2010) study, which focused on the varying fears as related to fever that exist in caregivers, reports that 55% of its population expressed concern about fever-related seizures and 47% expressed concern about brain damage. They also reported a high frequency (23%) of antipyretic overdosing and the provision of alternative fever treatments by caregivers, which included cool baths, alcohol baths, or ice baths (Rupe et al., 2010). Researchers have found a correlation between low health literacy and low-acuity ER presentation for fever (Morrison et al., 2014; Peetoom et al., 2017; Swavely et al., 2015; Wallenstein et al., 2013). Culturally relevant education about fever management is therefore likely warranted.

Provider Interviews

Common reasons why patients come to the ER for low-acuity needs, as told by providers, included the desire for second opinions and fast answers, and the inability to discern urgent from non-urgent care needs. Studies by Pethe et al. (2019) and Long et al. (2018) support this finding; they reported that only 50% and 25% of caregivers, respectively, believed their child's condition to be urgent. The data from this study support this given that 20% of the study sample was noted as very-low-acuity through their ESI score of four. A level 4 ESI implies that the patient required only a simple intervention, if any, as well as reassurance and education.

Providers frequently noted an elevated level of fear amongst the patients' caregivers as well. According to Morrison et al.'s (2014) study, individuals with low health literacy often have an increased sense of urgency resulting in frequent ER visits for low-acuity concerns. Swavely et al.'s (2015) study related several variables to a diminished health literacy level, such as the inability to make decisions based on the child's presentation, and the inability to properly treat the child from home when the condition is believed to be less than urgent. The frequent

PEDIATRIC EMERGENCY SERVICES

presentation of the chief complaint of fever in this study population supports the existence of an exaggerated fear, likely related to a low health literacy level. This needs further exploration in this specific clinic population.

Providers also frequently noted an increase in patient-presentations during the evening and night hours. As noted in the literature, the caregiver's use of the ER due to ease of access, which included the need for after-hours availability, supported the providers' opinions on this finding. Almost 53% of Pethe et al.'s (2019) study population reportedly went to the ER for non-urgent needs because their clinic was closed. Samuels-Kalow et al. (2016) and Swavely et al. (2015) yielded similar supporting results. The ER providers' proposed solutions for the reduction of low-acuity ER flow included the development of an on-site urgent treatment center or the expansion of clinic hours where warranted to cover the needs of those patients presenting in the evening and night hours.

Limitations

While every effort was made to ensure a high-quality study, some limitations did exist. This study did not look at the patients' history of visits to the clinic before or after their visit to the ER. This information would have been useful because it may have given insight as to whether the ER was being used as a second opinion or a specialist, as was noted frequently throughout the literature.

When collecting charts, the months of the year were grouped by three, and a set amount was pulled from each group. They were not grouped by season, but rather started with January and then incremented by threes. This was done to ensure that some details would be gathered from all four seasons; however, it may have skewed the results to those counts related to frequency of visits within the season.

PEDIATRIC EMERGENCY SERVICES

Another limitation was noted in the absence of advanced practice providers, residents, and nursing staff in the ER. This study was limited to the six attendings working in the pediatric ER due to the need to be as unobtrusive as possible. This provides for the perceptions of only a narrow sampling of those working in the ER at the time of the study. Similarly, this study was limited to one healthcare organization, the select hospitals and the study clinic, which could limit the diversity of demographics for this population, including age, race, ethnicity, and socioeconomic status. The perceptions from the side of the patient and the primary care providers were also lacking.

Practice Implications

Recommended Interventions. Improved flexibility with appointment scheduling within ambulatory care settings was the most frequently noted recommendation throughout the literature review (Cabey et al., 2018; Davis et al., 2018; Hummel et al., 2014; Long et al., 2018; Pethe et al., 2019). Health literacy education on topics such as general health maintenance and use of the ER for urgent needs were also frequently discussed (Cabey et al., 2018; Davis et al., 2018; Long et al., 2018; Pethe et al., 2019; Samuels-Kalow et al., 2016; Swavely et al., 2015). Individuals with low health literacy often have an increased sense of urgency resulting in frequent ER visits for low-acuity concerns (Morrison et al., 2014). Taking the time to provide caregivers with information on what constitutes an urgent condition, and subsequently ensuring that a sufficient level of understanding has been reached, diminishes this exaggerated feeling of criticality that consequently leads to low-acuity ER visits.

Fever phobia. Fever phobia is clearly an issue in need of addressing in this population. Rupe et al. (2010) reported a significant variance in the definition of a fever, and a greater sense of fear and doom noted in the Hispanic and the African American populations. Several areas of

PEDIATRIC EMERGENCY SERVICES

concern that could present as a result of this fear, included over-medicating with acetaminophen and/or ibuprofen, administering residual antibiotics, cold water or alcohol baths, or submersion in ice baths (Rupe, Ahlers-Schmidt, Wittler, 2010). Wallenstein et al. (2013) noted that 90% of people surveyed in their study would treat a low-grade temperature in a child (<100°F) despite the child appearing comfortable and well. Further, very few of those surveyed defined a fever appropriately.

Culturally relevant education on the nature, characteristics, and therapeutic benefits of a fever is warranted for the caregivers of the pediatric population in this study. Educating caregivers prior to the development of a fever, such as during a routine well-child check, has shown positive results through a subsequent reduction in unnecessary provider consultations (Peetoom et al., 2017). Morrison et al. (2014) further supports this by pointing out the importance of health literacy. Education must be provided using simple phrases that are easy to comprehend, with patient-teach-back to confirm understanding. Educating caregivers, in teach-back style, on how to check for and rate a fever, and how to properly dose acetaminophen and ibuprofen, could decrease the rate of ER visits due to fever.

A further improvement in health literacy could be enacted with the incorporation of a multicomponent intervention, such as with Stockwell et al's (2014) study on the integration of an upper respiratory education sequence. Their study yielded positive results in their attempt to reduce the number of visits to the pediatric ER; their focus group was primarily Spanish-speaking and of Latino ethnicity (Stockwell et al., 2014). This study's population would benefit from a health campaign that provides information on general health maintenance, such as how to care for a child with a fever, or when to seek urgent treatment care. The development of a culturally appropriate health literacy initiative, distributed in times of health, could help to

PEDIATRIC EMERGENCY SERVICES

reduce the development of caregiver fear that occurs when symptoms later emerge in their children.

Convenient after-hours care. The literature supports the integration of urgent-treatment centers to help reduce the cost-burden associated with use of the ER's resources for low-acuity conditions, as well as the expansion of primary clinic hours to accommodate walk-ins (Cabey et al., 2018; Davis et al., 2018; Hummel et al., 2014; Long et al., 2018; Montalbano, Rodean, Kangas, Lee, & Hall, 2016; Pethe et al., 2019). Montalbano et al. (2016) demonstrated a higher rate of urgent-treatment center use amongst the Hispanic/Latino population. Hudgins and Rising's (2016) study focused on African Americans, and an increased level of fear that may exist in this culture due to feelings of vulnerability stemming from barriers to health care access. The incorporation of place-based community-level care into varying health care facilities, including hospitals, was encouraged in this study (Hudgins & Rising, 2016). The study further reported that integration of an ambulatory clinic within hospital grounds could promote entry into primary care by providing for both urgent and non-urgent needs in the same location (Hudgins & Rising, 2016). The expansion of the hospital to include an urgent-treatment center and/or a walk-in branch of the associated clinic could be cost-effective. It could also provide improved primary care access, as well as reassurance, to this high-frequency, low-acuity, ER-utilizing patient population.

Medicaid. A significant presence of public-health insured patients was noted in this study population. Medicaid has been highly implicated as a confounding variable impacting patient, provider, and facility (Cabey et al., 2014; CDC, 2017; Long et al., 2018; McDermott et al., 2018; Sun, Karaca, & Wong, 2018; Swavely et al., 2015; Taubman et al., 2014). Lobbying for a healthcare policy change that is directed toward a reduction in the use of the ER for low-

PEDIATRIC EMERGENCY SERVICES

acuity needs may be beneficial. Changes to Medicaid policy is likely warranted; however, this is beyond the scope of this paper.

Future Research

Additional information is needed to further this study. Research related to behavior-change and the enabling factors therein would be highly contributory. Future research could include a qualitative study that explores the thoughts, opinions, and feelings of the caregivers as related to the use of the ER for primary care needs. In addition, a qualitative study looking at the perceptions of a caregiver who is obtaining health care for a child covered by Medicaid could provide further insight as to why this population frequents the ER for low-acuity needs.

Conclusion

In conclusion, use of the ER for reassurance and for after-hours care was frequently noted amongst providers, as well as in the literature. The behaviors of this population match the literature, so the clinic therefore may benefit from the recommendations made therein. One such recommendation includes providing information on universal health literacy. The need for increased availability in access to primary care outside of normal clinic hours was also frequently noted and was well supported by the literature. Given the high frequency of visits that presented outside of clinic hours, the integration of an on-site urgent-treatment center or after-hours clinic would likely be a successful solution.

PEDIATRIC EMERGENCY SERVICES

Table 1. Descriptive Summary of Population Presenting to the ER (N =300)

	N (%)	
Age		
NB – 12 months	17	(5.7%)
1	31	(10.3%)
2 - 3	70	(23.3%)
4 - 6	78	(26.0%)
7 - 10	42	(14.0%)
11 - 14	34	(11.3%)
15 - 17	28	(9.3%)
Total	300	(100%)
Gender		
Male	158	(52.7%)
Female	142	(47.3%)
Total	300	(100.0%)
Race/Ethnicity		
Asian	4	(1.33%)
Black/African American	131	(43.67%)
Hispanic/Latino	90	(30.00%)
White	75	(25.00%)
Total	300	(100.00%)
Insurance		
Auto	4	(1.3%)
Medicaid	275	(91.7%)
Private	15	(5.0%)
Self-Pay	6	(2.0%)
Total	300	(100%)

PEDIATRIC EMERGENCY SERVICES

Table 2. Summary Statistics as Related to Frequency of Patient ER Visits (N =1859)

ED Visits	N	(%)
0	1233	(66.3%)
1	362	(19.5%)
2	144	(7.7%)
3	66	(3.6%)
4	30	(1.6%)
5	11	(0.6%)
6	8	(0.4%)
7	4	(0.2%)
8	0	(0.0%)
9	0	(0.0%)
10	1	(0.1%)
TOTAL	1859	(100%)

PEDIATRIC EMERGENCY SERVICES

Table 3. Descriptive Summary of Arrival Time to ER by Population (N =300)

	N (%)	
Time of Day		
Monday – Friday Clinic hours	87	(29.00%)
Monday – Friday Outside Clinic hours	138	(46.00%)
Saturday Clinic hours (9am – 12pm)	12	(4.00%)
Saturday Outside Clinic hours	30	(10.00%)
Sunday	33	(11.00%)
Total	300	(100.00%)
Time of Year		
January	26	(8.67%)
February	34	(11.33%)
March	15	(5.00%)
April	24	(8.00%)
May	24	(8.00%)
June	27	(9.00%)
July	22	(7.33%)
August	27	(9.00%)
September	26	(8.67%)
October	21	(7.00%)
November	20	(6.67%)
December	34	(11.33%)
Total	300	(100.0%)
By Season		
Summer (June – August)	76	(25.33%)
Fall (September – November)	67	(22.34%)
Winter (December – February)	94	(31.33%)
Spring (March – May)	63	(21.00%)
Total	300	(100.00%)

PEDIATRIC EMERGENCY SERVICES

Table 4. Descriptive Summary as Related to Chief Complaint (N =458)

Chief Complaints	N	(%)	Total per system
Thermoregulatory			
Fever	74	(16.2%)	
Dehydration	4	(0.9%)	78 (17.2%)
Neurological			
Headache	16	(3.5%)	
Seizure	6	(1.3%)	
Irritability	2	(0.4%)	
Dizziness	3	(0.7%)	
Lethargy	3	(0.7%)	30 (6.6%)
Musculoskeletal			
Limb Injury	31	(6.8%)	
Head Injury	9	(2.0%)	
Back Pain	4	(0.9%)	44 (9.6%)
Ophthalmic			
Eye Drainage	3	(0.7%)	
Eye Swelling	3	(0.7%)	
Eye Irritation	1	(0.2%)	
Foreign Body, Eye			10 (2.2%)
Ear/Nose/Throat			
Sore Throat	15	(3.3%)	
Food Lodged in Throat	1	(0.2%)	
Difficulty Swallowing	2	(0.4%)	
Ear Drainage	2	(0.4%)	
Ear Pain	15	(3.3%)	
Mouth Sores	4	(0.9%)	
Nose Bleed	2	(0.4%)	
Runny Nose	2	(0.4%)	44 (9.6%)
Foreign Body, Nasal	1	(0.2%)	
Respiratory			
Cough	40	(8.7%)	
Congestion	15	(3.3%)	
Flu Symptoms	5	(1.1%)	
Breathing Trouble/SOA	10	(2.2%)	
Wheezing	4	(0.9%)	74 (16.2%)
Cardiac			
Chest Pain, non-trauma	3	(0.7%)	
Chest Pain, trauma	2	(0.4%)	5 (1.1%)

PEDIATRIC EMERGENCY SERVICES

Gastrointestinal				
Vomiting	38	(8.3%)		
Abdominal Pain	19	(4.1%)		
Diarrhea	11	(2.4%)		
Decreased PO	8	(1.7%)		
Constipation	2	(0.4%)		
G-Tube clog	1	(0.2%)	79	(17.2%)
Genitourinary				
Urinary Complaints	9	(2.0%)		
Penile Swelling	2	(0.4%)		
Vaginal Discharge	1	(0.2%)	12	(2.6%)
Skin				
Laceration	16	(3.5%)		
Rash	15	(3.3%)		
Skin Lesion/Bumps	9	(2.0%)		
Breast Mass	2	(0.4%)		
Allergic Reaction	2	(0.4%)		
Dog Bite	1	(0.2%)		
Burn	1	(0.2%)	46	(10.0%)
Mental Health				
Psych Evaluation	7	(1.5%)		
Behavioral Disturbance	2	(0.4%)		
Suicidal Ideation	6	(1.3%)		
Anxiety	1	(0.2%)	16	(3.5%)
Multi-System Evaluation				
Fall	9	(2.0%)		
MVC	5	(1.1%)		
DCBS Evaluation	3	(0.7%)		
Assault	2	(0.4%)		
Medication overdose	1	(0.2%)	20	(4.4%)
Total	458	(100%)	458	(100%)

PEDIATRIC EMERGENCY SERVICES

Table 5. Summary of Interventions Related to Chief Complaint Fever (N =71)

Fever Interventions	N	(%)
No intervention provided	9	(12.7%)
Over-the-counter medicine given	3	(4.2%)
Rapid swab study testing	3	(4.2%)
Prescription provided	11	(15.5%)
Over-the-counter medicine given and prescription provided	8	(11.3%)
Rapid swab study testing and a prescription provided	5	(7.0%)
Radiographic imaging	1	(1.4%)
Radiographic imaging and lab-work	2	(2.8%)
Prescriptive medication given	9	(12.7%)
Prescriptive medication given and a prescription provided	3	(4.2%)
Prescriptive medication given and a rapid swab study testing	3	(4.2%)
Prescriptive medication given and lab-work	1	(1.4%)
Prescriptive medication given and radiographic imaging	1	(1.4%)
Multiple interventions	11	(15.5%)
Information unavailable	1	(1.4%)
Total	71	(100%)

PEDIATRIC EMERGENCY SERVICES

Table 6. Descriptive Summary of Primary Diagnosis According to Season (N =300)

	N (%)				
Health System	Summer	Fall	Winter	Spring	Total
Behavioral Health	1 (0.3%)	3 (1.0%)	2 (0.7%)	2 (0.7%)	8 (2.7%)
Cardiac	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)	1 (0.3%)
DCBS Evaluation	0 (0.0%)	1 (0.3%)	0 (0.3%)	2 (0.7%)	3 (1.0%)
Dermatologic	18 (6.0%)	10 (3.3%)	10 (3.3%)	5 (1.7%)	43 (14.3%)
Ear/Nose/Throat	12 (4.0%)	8 (2.7%)	14 (4.7%)	14 (4.7%)	48 (16.0%)
Fever	1 (0.3%)	3 (1.0%)	0 (0.0%)	1 (0.3%)	5 (1.7%)
Gastrointestinal	14 (4.7%)	15 (5.0%)	7 (2.3%)	12 (4.0%)	48 (16.0%)
Genitourinary	5 (1.7%)	0 (0.0%)	3 (1.0%)	2 (0.7%)	10 (3.3%)
Hematological	0 (0.0%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
Musculoskeletal	8 (2.7%)	4 (1.3%)	4 (1.3%)	8 (2.7%)	24 (8.0%)
Neurologic	6 (2.0%)	5 (1.7%)	5 (1.7%)	4 (1.3%)	20 (6.7%)
Ophthalmology	2 (0.7%)	2 (0.7%)	1 (0.3%)	2 (0.7%)	7 (2.3%)
Poisoning	0 (0.0%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	1 (0.3%)
Respiratory	7 (2.3%)	13 (4.3%)	48 (16.0%)	10 (3.3%)	78 (26%)
Not Available	2 (0.7%)	1 (0.3%)	0 (0.0%)	0 (0.0%)	3 (1.0%)
Total	76 (25.3%)	67 (22.3%)	94 (31.3%)	63 (21%)	300 (100%)

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