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Final DNP Project Report
Evaluation of Emergency Department Utilization among Patients
who have Primary Care Providers

Xin Zeng

University of Kentucky

College of Nursing

Summer 2018

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Dedication

This project is dedicated to my parents who supported me in numerous ways with endless love. Thank you so much for holding me together to be the strong woman that I am to this day after going through lots of up-and-down in the past several years. Thank you to my dearest son for being my best-ever companion on this journey. I hope this work shows you that dreams come true through hard work and determination. Thank you to my best friends: Charisma Norton, Christina Boggs, Carrie Schmidt, Eric Schmidt, and Tina Romano. You have never hesitated in helping me. You have never stopped believe in me. It is because of your support and encouragement that I have been able to achieve this academical and professional goal. I also want to say thank you to my manager and coworkers for being flexible and patient throughout my study period. I could not have done this without accommodation from my working family.

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Abstract

PURPOSE: High rates of emergency department (ED) use had little changes nationwide or in Kentucky after implementation of the Affordable Care Act. The Centers for Medicare and Medicaid Services have been calling for ways to reduce unnecessary ED usage. The purpose of this project is to identify factors associated with ED visits among adults in a primary care practice. The results are expected to serve as a needs assessment to determine ways for a primary care clinic to reduce inappropriate ED use.

METHODS A retrospective chart review was conducted to evaluate the ED use among 80 random selected adult patients who had at least one ED visit from January 1st, 2017 to June 30th, 2017. A total of 210 ED visits were reviewed. The patient demographic profile, ED presenting problems and acuity, and the ED visiting timing were evaluated. Correlations between the number of the ED visits and no-show/cancellation with PCP visits were studied as well.

RESULTS: The analysis found higher rates of ED use among middle-aged adults with public insurance, as well as Africa American adult, and women. The most common presenting problems were musculoskeletal or abdominal pain. Among 210 ED visits, 67% were ESI 3; 86% were discharged, and 59% were for the repeated presenting problems. Of 86% discharges, 56% did not see specialties or PCPs as directed. A significant and positive association was found between the number of no show/cancellations with their PCP and subsequent ED visits ($r = .50$, $p < .001$).

CONCLUSION: Increasing support to primary care practice may help reduce inappropriate ED use. Recommendations for the primary care practice are to: 1) assess patients' self-care needs at every PCP visits, 2) educate patients on appropriate ED use, 3) make same or next day appointment available, 4) offer or coordinate non-business hour primary care.

Evaluation of Emergency Department Utilization among Patients who have Primary Care Providers

Introduction

In the past decade, approximately 20% of adults in the United States used the emergency department (ED) for medical care each year (National Center for Health Statistics, 2016). When the Affordable Care Act (ACA) increased the availability of health insurance, it was predicted that increased access to primary and preventive care would decrease ED use, thereby lowering healthcare costs. Yet in 2013 and 2014 a nationwide Health Interview Survey identified little change in ED use during and immediately following ACA implementation (Gindi, Black, & Cohen, 2016). In Kentucky, there was no statistically significant difference in ED use after implementation of the ACA (State Health Access Data Assistance Center, 2017). The purpose of this project is to identify factors associated with ED visits among adults in a primary care practice. The results are expected to serve as a needs assessment to determine ways for a primary care clinic to reduce inappropriate ED use.

Background and Significance

The Emergency Medical Treatment and Labor Act (EMTALA) defines an emergency medical condition as

a condition manifesting itself by acute symptoms of sufficient severity (including severe pain) such that the absence of immediate medical attention could reasonably be expected to result in placing the individual's health in serious jeopardy, serious impairment to bodily functions, or serious dysfunction of bodily organs (American College of Emergency Physicians, 2016, p.3).

In contrast, non-emergency conditions generally are non-life-threatening and treatable in the primary care setting. Hsia and Niedzwiecki (2017) found 3.3% of all 424 million ED visits did not require any diagnostic or screening services, procedures or medications, and patients were discharged home. The National Hospital Ambulatory Medical Care Survey reported there were over 141 million ED visits in 2014, which equals to 45 visits per 100 people (Rui, Kang, & Albert, 2014). Only 7.9% of those ED visits resulted in a hospital admission. The high rates of ED use cause undesirable effects, including long wait times, delayed medical treatments, high cost, patient dissatisfaction, and fragmented care from ED (Capp, Camp-Binford, Sobolewski, Bulmer, & Kelley, 2015; Di Somma et al., 2015; Eriksson, Gellerstedt, Hilleras, & Craftman, 2017; Sun et al., 2013). It's clear that visits to the ED for non-emergency conditions is a problem that was not rectified by ACA as predicted.

Although the ED is an essential component of the healthcare system in the United States, ED care is designed to offer urgent/emergent care rather than routine and/or ongoing medical care. Seeking management of chronic conditions in the ED leads to unnecessary diagnostic procedures, and higher medical costs. Patients with chronic diseases need cohesive care and coordinated treatment, which is continuity of care, a primary objective of family medicine (American Academy of Family Physicians, 2015).

In Kentucky, the number of uninsured people dropped from approximately 585,000 in 2012 to 265,000 in 2015 as a result of the ACA (State Health Access Data Assistance Center, 2017). All Kentucky enrollees in the Medicaid system are assigned a primary care provider (PCP). Despite this fact, enrollees had more ED visits than those with private coverage. The State Health Access Data Assistance Center (2017) revealed Medicaid coverage of ED visits has

increased from almost one-third in 2012 to nearly half in 2015 and through the third quarter of 2016.

In order to reduce healthcare costs, assure quality of care, and improve patients' experiences, the Centers for Medicare and Medicaid Services (CMS, 2014) have been calling for ways to reduce unnecessary ED usage. One CMS strategy is to broaden access to primary care services. Primary care medical and health homes should be optimized by having extended hours (weekends and evenings), same day appointments, 24 hour a day – 7 days a week nurse advice lines, and continuity with one provider. The existing primary care offices could adopt some of these strategies to redirect patients back to primary care, thus achieving better continuity of care and reducing ED utilization.

Review of Literature

A review of the literature was conducted by a search of the worldwide web and the on-line resources available through the University of Kentucky Medical Center Library. The literature search of journals published between January 2013 and March 2018 used the following databases: CINAHL, ClinicalKey, Cochrane library, PubMed, and Google Scholar. Search terms included: non-urgent care in emergency department, primary care availability, same-day access, extended hours, and continuity of care.

Inclusion criteria encompassed articles that involved studies focused on factors contributing to ED visits; barriers to PCP visits before seeking ED care; primary care continuity decreasing ED visits; and discussions regarding implementation, outcomes, or impact of increasing availability of primary care and improving understanding of patient deficit of care. Articles written in English and available in full text were also required. Studies on patients under the age of eighteen, and those conducted outside of the United States were excluded.

Researchers have sought to determine reasons for ED use among U.S. adults. The 2013 and 2014 National Health Interview Survey (Gindi, Black, and Cohen, 2016) found adults with Medicaid had the highest prevalence of at least one ED visits in the past 12 months. In both years, ED care demographic variables were associated with adults aged 18-29; women were more likely to visit the ED; non-Hispanic black adults visited the ED more often than non-Hispanic white adults and Hispanic adults. Medicaid patients account for the largest percentage of non-urgent ED visits and were less likely to make regular visits to their PCPs (Weisz et al., 2015).

Sommers, Blendon, and Orav (2016) studied the use of private insurance versus traditional Medicaid to provide coverage to low-income adults, they unexpectedly found the total use of the ED increased as a result of Medicaid expansion. They reported that though gaining health insurance removed financial barriers to pursue outpatient care, but the increase in primary care demands resulted in patients having to wait for outpatient appointment. Similarly, State Health Access Data Assistance Center (2017) statistical analysis showed 28.7% of non-elderly adults visited the ED in 2016 because no other health care facilities were open at the time they needed care.

Barriers to accessing primary care were found to contribute to higher ED use. For example, Fishman, McLafferty, and Galanter (2018) found that among low income populations, a lack of access to reliable transportation and long travel times from home to the PCP's office led to more ED visits. Capp et al. (2015) found convenience, as well as rapid access to technology and specialty care in the ED, saved patients significant travel time and personal expense. For these reasons, patients preferred to receive care in the ED rather than in their PCP's office.

There is evidence that non-emergent ED visits are rarely preceded by a visit to a PCP. Patients often do not attempt to contact their PCP as they believe the wait for an appointment would be too long (Goodman, 2013; Weisz et al., 2015). Lack of satisfactory communication with the PCP office, inadequate availability for the same-day PCP appointments, or no after-hours care access were noted as reasons for patients preferring the ED to their PCP (Capp et al., 2015; Weisz et al., 2015). These perceptions have not borne true once primary care practices changes office hours and focused on educating patients on appropriate ED use. For example, a decrease in ED use was associated with same or next day appointments, “open-access” scheduling, after-hours calls for phone advise, providing new patients with instruction on the appropriate use of ED, and sending a follow-up letter or telephone call after ED visit (Goodman, 2013). Goodman (2013) found a high percentage of ED use for PCP-treatable conditions decreased (49.2 visits per 1000 in 2009 decreased to 7.3 visits per visit in 2010) after effective primary care practice management techniques were implemented.

PCPs have a cohesive understanding of patients’ medical histories and provide comprehensive follow-up care for disease management and preventive care, which allows for continuity of care to improve patient outcomes. This contributes to fewer ED visits as well as fewer hospitalizations (Pourat, Davis, Chen, Vrungos, & Kominski, 2015). According to these researchers, the rate of ED visits declined from 4.11 percent to 3.13 percent, and the rates of hospitalizations declined from 1.37 percent to 1.17 percent among patients who always adhered to using their PCP.

Theory

Dorothea Orem developed her conceptual model of nursing with three interrelated theories: theory of self-care, theory of self-care deficit, and theory of nursing system (Nursing Theory.org, 2016). Orem's model states that all patients want to care for themselves and are able to recover more quickly and holistically by performing self-care as much as they are able. This theory applies to primary care settings in which patients are encouraged to be independent with the goal of increasing their ability for self-care. It would enhance patients' self-care ability if they can appropriately utilize various resources in health care system to best serve their needs. The theory provides a nursing framework for considering patient needs that lead them to choose ED instead of PCP office for medical care. Orem's model includes three professional practice operations: diagnostic, prescriptive, and regulatory (Orem, 1995).

Diagnostic operations begin with establishment of the nurse-patient relationship, exploring current and potential self-care demands. Elements that affect self-care actions of the patient are basic conditioning factors: age, gender, developmental state, pattern of living, sociocultural beliefs, health state, resource availability, and health care system (Orem, 1995). To identify a patient's ability to provide effective self-care, a healthcare provider initiates an assessment of basic conditioning factors to determine the extent of self-care deficit. For the patients who have a PCP and seek ED service for non-emergent conditions, it's necessary to assess whether their self-care deficit is associated with unmet self-care demands.

Prescriptive operations consist of planning what should be done with consideration of patient's basic conditioning factors. It is making known to the patient what action should be taken to achieve therapeutic self-care demand, ultimately partnering with them to form a shared plan of care. For example, a patient may have multiple ED visits because they lack knowledge of

chronic disease management. A patient-centered healthcare plan would then include more PCP visits to assess the patient's concern of the disease, and provide education on medications and disease progress.

In regulatory operations, healthcare providers effectively regulate activities through which the prescriptive operations are performed. Continuing contact with the patient and periodically assessing the patient's self-care deficit will be required to adequately perform these operations, enhancing patient adherence to primary care, avoiding ED use for PCP-treatable disease. The effectiveness of regulatory operations needs to be constantly evaluated by patient outcomes.

Objectives

The purpose of this project was to identify factors associated with ED visits among adults in a primary care practice. The results are expected to serve as a needs assessment to determine whether current primary care processes meet the primary care needs of their adult patients. A retrospective chart review was conducted at a primary care clinic. The chart review focused on adult patients who had at least one ED visit at the University of Kentucky Hospital Emergency Department from January 1, 2017 to June 30, 2017. The project is targeting the following aims:

AIM1: Examine the demographic profile, presenting symptoms and visit characteristics of the adult patients who used ED service during the study period

AIM 2: Determine the demographic characteristics and presenting symptoms associated with time of visit to the ED (business vs non-business hours) and multiple visits to the ED for the same reason.

AIM 3: Determine frequency of PCP visits and frequency of patients' no-show or cancellation associated with frequency of ED visits.

Methods

Study Design

A retrospective chart review was performed through the utilization of the University of Kentucky's Center for Clinical and Translational Sciences. Study criteria were met by 504 electronic health records, and electronic health records of 80 individual patients were randomly selected. The selected patients were from 19 years old to 84 years old. All subjects were seen at least once at an urban primary care clinic between January 1st, 2017 through June 30st, 2017, and all subjects were seen at University of Kentucky Healthcare ED once or multiple times at the same six months period as well. The study variables include patients' demographic information: age, gender, race, and insurance status; ED visit information: presenting problems, emergency severity index (ESI), disposition at ED discharge, and timing for ED visits; primary care office visiting information: frequency of PCP visits, no show and cancellation of PCP visits in the six months period.

Setting

The primary care clinic used for this analysis serves the northside and urban community of Lexington, providing care across the age span. There are several ED locations in Lexington, Kentucky. For the purpose of this research, patients who received care at University of Kentucky Healthcare EDs were studied. University of Kentucky Healthcare includes Chandler ED and Good Samaritan ED. The Chandler ED is a Level I trauma center and encompasses both an adult and pediatric emergency center. It provides the highest level of surgical care to trauma patients as well as treats adult patients experiencing medical emergencies with a full range of specialists and equipment available 24/7. The Good Samaritan ED offers a variety of emergency services in

a community-hospital setting. It offers fast-track service for urgent but non-life-threatening medical problems and emergency help for mental health needs.

Study Population

The population of interest for this project were primary care adult patients who are assigned to a primary care clinic in an urban area. All 80 randomly selected patients met the sample inclusion criteria for the chart review: 1) all patients between age 18-84 years, 2) established patients at the primary care clinic before the ED visit, 3) had at least one ED visit from January 1,2017 to June 30,2017, 4) had ED visit(s) at University of Kentucky HealthCare's Chandler ED or University of Kentucky HealthCare's Good Samaritan ED. Exclusion criteria are 1) women who were pregnant, 2) patients who did not have at least one primary care visit at the urban primary care clinic.

Statistical Analysis

Descriptive statistics, including means and standard deviation or frequency distributions were used to describe the demographic profile of adults visiting the ED and visit characteristics. Presenting symptoms by time of ED visit were displayed in 2x2 cross-tabulations. Pearson's correlation coefficient evaluated the associations between number of PCP visits with ED visits and number of no-show/cancellation during the study period. Data analysis was conducted using SPSS, version 24 with an alpha level of 0.05.

Ethical Considerations

Research involves the collection of existing medical records. Data collected were de-identified by assigning individual patient project numbers. The approval for the project was obtained from the University of Kentucky's institutional review board.

Results

For this project, 80 adult patients had at least one ED visit within the study period. Within the sample, there were 210 ED visits evaluated. All data were abstracted from the electronic medical record.

Sample Characteristics

Difference in ED use by demographic characteristics are listed in Table 1. The most prevalent age group were those between 45-64 years (46%), followed by those between 30-44 years of age (26%). Females were more likely to have used the ED (78% females versus 23% males). African Americans adults were more likely to visit the ED, compared to Caucasian adults (63% versus 38%). Adults with public insurance, Medicaid and Medicare, had the highest prevalence of ED visits (93%). Only one patient was uninsured.

Table 1.

Demographic characteristics of patients presenting at the ED during 1/1/2017-6/30/2017 (n=80 patients)

Variables	% (n)
Age	
18-29	15(12)
30-44	26(21)
45-64	46(37)
65+	13(10)
Gender	
Male	23(18)
Female	78(62)
Race	
White	38(30)
African American	63(50)
Insurance status	
Private	6(5)
Public	93(74)
None	1(1)

ED visits characteristics

The most common presenting problems were musculoskeletal or abdominal pain (see Table 2). ESI, a five-level triage algorithm with 1 being the most critical and 5 has minimum risk is used to categorize which patients need treatment first. ED nurses assess both patients' clinical presentations and potential resource needs to assign an acuity using ESI (Ahrq.gov, 2012).

Among the 210 ED visits, 6% were an ESI level 2, indicating the patient had either a high-risk condition or unstable vital signs. An ESI 3 was assigned to 67% of the total number of the visits in which many resources are needed but vital signs are not in a danger zone. ESI level 4 was assigned to 21% of the sample visits and ESI level 1 was assigned to 1% of the ED visits.

In a total of 210 visits, only 7% were admitted to the hospital. The majority (86%) were discharged home and 16% left ED against medical advice. Among those who were admitted to the hospital, the most common presenting symptoms to the ED visits were abdominal pain (33.3%), and shortness of breath (20%). Among those who were discharged from the ED, an equal percentage presented with either musculoskeletal pain (22.8%), compilation of random problems (22.2%) or abdominal pain (20%). Among those discharges, patients were directed to follow up with a medical specialist in 22% of visits or to follow up with their PCPs in 49% of visits, however, in 56% visits, patients did not follow through the recommendation. There was no medical record soon after the ED visits indicating patients went to PCP or specialists.

Over 50% of the total sample had more than one ED visit in the study period, and 59% went to the ED for repeated presenting problems. One patient used the ED 23 times for the same presenting problem. The most common presenting problems for repeated ED visits were musculoskeletal pain or abdominal pain.

Table 2.

ED visit characteristics (n=210 visits)

ED variables	% (n)
ED visit frequency	
Once	42(34)
More than once	58(46)
Presenting symptoms	
Abdominal pain	21 (43)
Chest pain	7(14)
Short of air	5(10)
Headache	4(8)
Nausea/vomit	2(5)
Musculoskeletal pain	21(45)
Psychiatric evaluation	4(9)
Injuries	6(12)
Cold-like symptoms	6(13)
Others	24(51)
ESI	
1	0
2	6(12)
3	67(141)
4	21(44)
5	1(2)
missing	5(11)
Disposition	
Home	86(180)
Admitted	7(15)
Other (died/left without being seen)	7(15)
ED follow-ups	
Specialties	22(47)
PCP	49(102)
No referral	22(47)
Other (died, admission, left without being seen)	16(33)
ED visits for the same presenting problem	
Different presenting problem	41(86)
Repeated presenting problem	59(124)

ED Visit Characteristics Related to PCP Visits

An evaluation was conducted to explore ED use when the PCP office was open versus not open (non-business hours) (see Table 3). ED visits during PCP office non-business hours

encompassed 65% of the total number of ED visits. Presenting problems were abdominal pain (26.3%), followed by random complaints (25.5%) and musculoskeletal pain (18.2%) (Figure 1). During business hours, musculoskeletal pain had the highest percentage of ED visits (28.2%), followed by compilation of random complaints, e.g. skin rash, medication refills, eye problems, ear problems, or drug overdose (21%).

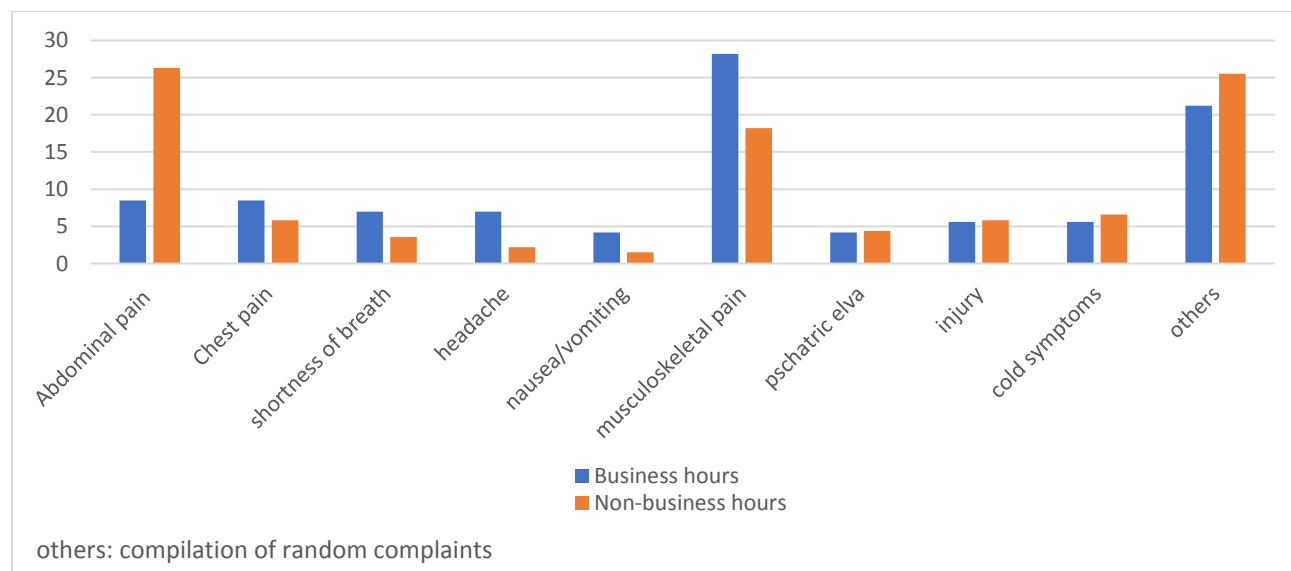
Table 3.

Timing of ED visits related to primary care clinic office hour (n = 210 visits)

Business vs non-business hours	% (n)
ED visits at clinical business hours	34(71)
Non-business hours	65(137)
Other (during office hour but referred to ED by PCP)	1(2)

Figure 1:

Presenting problem at ED visits related to PCP office hours vs after-hours



Correlations between the ED visits and PCP visits were explored. There was a significant and positive association between the number of no show/cancellations with their PCP and subsequent ED visits ($r = .50, p < .001$). The likelihood of going to ED was found to be linked to the no-show and cancellation number of PCP visits during the study period. The study did not have the data whether patients who did not miss PCP appointments were more possible not have the ED visit, because all samples met the criteria that they used the ED at least once in the six-month period. It's noted that patients who had no-show and cancellations were more than two times more likely to use the ED repeatedly than patients who had not missed PCP appointments.

Discussion

This study provides basic descriptive statistics for patients who have an established PCP in an urban primary care office and their ED use. The demographic profile results of this study revealed that key insurance and demographic subgroups had higher rates of ED use, consistent with results from Statistics Brief from Healthcare Cost and Utilization Project (Moore, Stocks, & Owens, 2017). The analysis found higher rates of ED use among middle aged adults with public insurance, as well as among African American adults, and women.

It was not an unexpected finding for the high percentage of Medicaid patients to use ED service in this project as Medicaid was the most common type of medical insurance coverage for the patient population in this clinic. This finding is supported Finkelstein, Taubman, Allen, Wright, and Baicker (2016), where they found that Medicaid enrollees were more likely to use the ED as complementary to the PCP service.

Other factors have been identified as why Medicaid patients use ED services more than those with private insurance. Ollove (2015) found Medicaid recipients were generally unhealthier than the general population, and their comorbidities led to more ED care. Further,

many Medicaid patients have hourly jobs that made it difficult to get work release to attend a primary care visit. The lack of transportation also was noted as a barrier for Medicaid recipients. High frequency of ED use in Medicaid enrollees does not result in any financial obligation to the patient unlike those with private insurance. Patients seek ED services as they are known for its prompt accessibility and availability of specialty testing (i.e. CT scans) (Capp et al., 2015).

In order to better understand the high rates of ED visits, one must look at the patient's personal experience with the health system, socioeconomic status, and physical disease (Capp et al., 2015). In this project, patient's presenting problems, their acuity (ESI), and disposition were analyzed to assess whether patient physical disease at ED visit were emergent. Patients sought ED service for various presenting problems, from abdominal pain, musculoskeletal pain, to compilation of random complaints, cold-like symptoms. However, among most ED visits, patients had stable vital signs but requiring one or more resources. Moreover, a large percentage of ED visits do not result in a hospital admission. The results revealed that patients with PCPs did use the ED for non-emergent medical reasons. Weisz et al. (2015) suggested to avoid non-necessary ED visits not resulting in a hospital admission by increasing availability and appropriate use of primary care. Therefore, we infer that the majority of those ED visits could be seen by PCPs first.

This project also found patients went to the ED for common PCP-treatable problems when the PCP office was open. Patients may use the ED as they are unable to distinguish the level of acuity. This may be due to their low health literacy, or they are encouraged by friends or family members due to their worries (Gindi et al., 2016). Patients may not understand the procedure for obtaining a same day appointment and simply go to the ED for care needs

(O'Malley, 2013). A most unfortunate finding by Capp et al. (2015) is the ED use associated with patient dissatisfaction with their PCPs.

Reasons behind the patients to use the ED service while the PCP office was open was beyond the scope of this study. It was difficult to explore if patients attempted to contact their PCPs, the availability of same-day appointments nor the patients' perception of their health acuity and their satisfaction with their PCPs. Each of these reasons if explored would have offered insight to understand patients' decision making on PCP office service vs. ED service.

The findings of this project revealed more than half of adults not only had more than one ED visit but for repeated presenting problems. Interestingly, although in 71% of 210 visits, patients were advised to follow up with either a specialist or a PCP or both, 56% of the patients did not follow the recommendation. It's unclear whether failure to attend outpatient appointments was the reason causing the patient to return to the ED. Pound and Howard's study (2016) found patients returned to the ED because of fear and uncertainty about their presenting problems as well as lack of access to outpatient resources.

Inaccessibility to PCPs is linked with higher ED use for their unmet medical need(s) (Centers for Medicare & Medicaid Services, 2014; Goodman, 2013; Weisz et al., 2015; Yoon et al., 2015). This study supports the finding that most ED visits occurred when the PCP office was closed. Given the findings, a high percentage of the ED visits in this study were expected to see their PCPs if they could get an appointment at a convenient time.

A statistical significant correlation between no-show/cancellation and ED use was noted. For the six-month study period, patients who missed more PCP appointments were found to use the ED more often. This information concurred with the conclusion that patients who have high PCP adherence have less probability of ED visits (Pourat et al., 2015). No correlation was noted

between PCP visit frequency and ED use frequency; however, this could be due to short study period, mislabeled or incomplete medical record from change of PCPs.

Recommendations

The diagnoses for the presenting problems like abdominal or musculoskeletal pain can represent a spectrum of conditions from benign and self-limited disease to surgical emergency. Patients often cannot differential the acuity of their presenting problems. Educating patients about what constitutes a true medical emergency is an important intervention that can be integrated into PCP visits. Distributing handouts in the PCP's office on when to seek ED care may increase knowledge among patients, family members or friends. PCPs have a responsibility in educating patients about when to seek ED care based on their specific diagnoses, as well as teaching patients that the ED does not provide ongoing chronic disease management and preventive care as PCPs do. Documenting teaching of appropriate ED use in the electronic medical record to assure the teaching is done.

Based on Orem's conceptual model, patient self-care deficits are affected by their basic conditioning factors (Orem, 1995). Patient's ability to provide self-care changes when those conditioning factors change. For example, a change of insurance could lead to inability to afford certain medications, medical knowledge deficit develops as a new diagnosis is made, new medical needs arise as pattern of living changes, or inaccessibility to PCP office at non-business hours occurs by reason of work schedule. As a result, their unmet medical care needs might result in ED visits.

PCPs should establish a good relationship with their patients, exploring self-care needs at every appointment and developing a patient-centered healthcare plan in order to enhance adherence to continuity of care from PCP. In addition, patient needs should be addressed in

multiple ways, for example, handout instructions on the appropriate use of the telephone phone triage process during office hours to evaluate call urgency, same or next-day appointment availability, non-business hours calls through answering service before connecting to a PCP, or non-business hours care for medical problems managed by a patient's PCP by e-mail, phone, or in person, or through some combination of these, depending on clinical practice capacity.

Limitations

Several limitations were identified in the design and procedure of this study. The data were collected from only one clinic, limiting generalization of the study. Additionally, the demographic characteristics of the sample population could be affected by the location of the PCP office site. The urban community in Lexington has a large percentage of African Americans, and a significant percentage of population was below poverty level (City-Data.com, 2016). Another limitation of this study is incomplete data on ED use for patients in this geographic area. The sample population could have an even higher number of ED visits if data were collected from other ED locations as well.

Conclusions

Since implementation of the ACA, ED use has not decreased substantially. Patients who have assigned PCPs sought emergent and non-emergent care in the ED. This study evaluated ED use among patients who have established PCPs in an urban community clinic by conducting a retrospective study of medical records. The findings identified some factors associated with ED visits among adults in a primary care practice. In order to decrease non-emergent ED use and make full use of health care resources, more research is needed to understand why patients choose the ED rather than PCP for non-emergent medical care. Future studies should focus on patients' perception of why they choose the ED care, patients' social status influence (homeless,

substance abuse, and domestic abuse), insurance company's perspective and relevant policy, and ED personnel responses.

In conclusion, this study analyzed why adult patients who had established PCPs sought ED services with a goal to find ways to avoid non-emergent ED use among this specific population. Recommendations are suggested based on a consideration of patients' self-care deficits. PCPs may be able to design better outpatient interventions to address patients' medical care needs and therefore reduce the ED use. Fully utilizing PCP healthcare resource to avoid unnecessary ED use is very promising in the future.

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