Factors Influencing Show Rates of Emergency Department Referrals to Primary Care Safety Net Clinics

Miranda Brown, BS; Gregory Stadter, MPH; Michael C. Decker, MD

ABSTRACT

Background: Utilization of emergency departments for non-urgent conditions has been a longstanding problem leading to excessive health care spending, unnecessary testing, and missed opportunities for patients to form longitudinal relationships with primary care clinicians. The Milwaukee Health Care Partnership established the Emergency Department Care Coordination program to decrease avoidable emergency department visits and connect high-risk individuals with primary care medical homes. Emergency department providers from 8 hospitals schedule patients to safety net clinics to establish follow-up care. During 2018 and 2019, there were 5,035 appointments scheduled, with a 43% show rate. This project aimed to identify factors influencing the show rate to follow-up appointments and to develop program interventions.

Methods: This project utilized a database of deidentified patient and referral information and performed logistic regressions to determine factors that influence show rates.

Results: There was a significant difference in show rates when looking at days between the emergency department visit and follow-up appointment, age, receiving clinic, and insurance status (all *P* > 0.001). Patients seen within 5 days of emergency department visit, patients 65 and older, and uninsured patients had increased likelihood of attending follow-up appointments.

Conclusion: These results demonstrate that older adults are more likely to attend appointments, and more efforts are needed to engage younger people. The analysis shows the need to schedule patients with follow-up primary care quickly, as a short number of days from emergency department visit to primary care appointment was strongly correlated with a higher show rate. In addition, uninsured patients are good candidates for Emergency Department Care Coordination program referrals.

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Author Affiliations: Medical College of Wisconsin, Wauwatosa, Wisconsin (Brown, Decker); Milwaukee Health Care Partnership, Milwaukee, Wisconsin (Stadter).

Corresponding Author: Miranda Brown; email mirbrown@mcw.edu; ORCID ID 0000-0002-0212-5777.

INTRODUCTION

On average, 37% of all emergency department (ED) visits are non-urgent,[1,2] defined as "conditions for which a delay of several hours would not increase the likelihood of an adverse outcome."[1] Using the ED instead of ambulatory care facilities causes excessive health care spending, unnecessary testing and treatment, and a missed opportunity to form a longitudinal relationship with a primary care clinician. The population utilizing the ED is diverse, and there are many factors that contribute to a patient's decision to seek care at an ED for non-urgent conditions.[3]

In the United States, EDs are required by law to provide treatment to anyone seeking care, regardless of their ability to pay.[4] This creates an environment where those who could not otherwise afford care at alternative locations can receive treatment at the ED. Many patients who are uninsured will use the ED in place of a primary care clinic. Patients with insurance, such as Medicaid, may have similar copays at their primary care physician's office and the ED. However, if their primary care physician recommends additional testing or specialty appointments, it may end up costing the patient more than an ED visit,[3,5] which can provide the additional services that ambulatory care settings cannot.[6,7]

EDs are open 24 hours a day, and no appointment is required.[4] This allows patients the flexibility to seek care when it is convenient for them, which often may be outside of normal business hours. In addition, patients may not understand the full benefits

of establishing care with a primary care medical home, such as forming a longitudinal relationship with a clinician who has more extensive knowledge of their medical conditions and past treatment courses.[8]

The Milwaukee Health Care Partnership is a public/private consortium with a mission of improving health outcomes, reducing disparities, and lowering the total cost of care for low-income, vulnerable populations in Milwaukee County, Wisconsin. One program the partnership has implemented is the Emergency Department Care Coordination (EDCC) initiative, which aims to decrease avoidable ED visits, reduce duplicative ED tests and procedures, and connect high-risk individuals with primary care medical homes. Specifically, the EDCC program focuses on ED patients who are not established with a primary care clinician, those who have a chronic condition, and the Medicaid and uninsured populations. The EDCC program was established in 2007, and it now includes 8 adult hospital EDs and 20 safety net clinics throughout Milwaukee County. When a patient enters an ED and the clinician thinks the patient would benefit from a referral to the EDCC program, a care coordinator approaches the patient and schedules an initial appointment at the clinic through an intersystem scheduling platform before the patient leaves the ED. In 2018-2019, there were 5,035 appointments scheduled in the ED, with a 43% show rate to these appointments. Figure 1 shows the appointments scheduled and show rate by month. In an evaluation looking at appointments scheduled from 1 ED to 1 Federally Qualified Health Center (FQHC), there was a 44% reduction in ED usage in the next 6 months among patients connected to primary care.[9]

For interventions such as the EDCC program, it is important to identify the subgroups this intervention would benefit, how to best target this population, and then evaluate ways to reduce possible barriers. The aim of this study was to identify factors that contribute to patients of the EDCC program attending their scheduled follow-up appointments.

METHODS

Expedited institutional review board approval was applied for on July 19, 2019 and approved on October 25, 2019. Appointment referrals to the EDCC program in the years 2018 and 2019 were used. The study utilized the MyHealthDirect (cloud-based scheduling tool used to make EDCC appointments) database of deidentified patient information and referral information to assess factors contributing to patient show rates. All referring EDs were included, and only FQHCs were included amongst the receiving clinics. This created data standardization between varying receiving clinics and their available resources, as it excluded smaller non-FQHC receiving clinics. The Box includes the MyHealthDirect database information available for each EDCC referral.

The reason for referral information in MyHealthDirect was a

Box. MyHealthDirect Database Information for Each EDCC Referral

Referring emergency department
Receiving clinic
Forms of communication used for appointment reminders
Reason for referral (diagnosis)
Provider specialty of referring provider
Days to appointment
Insurance type
Patient age
Patient sex
If the patient attended scheduled appointment

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free response text box. This data was categorized based on organ system and then further subcategorized into common diagnoses. Data entries with no diagnosis, insufficient information to infer a diagnosis, and dental complaints were excluded from the analysis. The data set was analyzed with binary logistic regressions using SPSS (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp). When performing the binary logistic regressions, a comparison group was chosen for each category based on which group was hypothesized to have the highest show rate from our literature review and personal knowledge of the EDCC program patterns. The age category was grouped into age brackets to reflect cohorts for young adults, middle-aged adults, and older adults.

RESULTS

There were 5,035 EDCC referrals during 2018 and 2019, with 1,780 attended follow-up appointments, 2,389 no-shows, and 866 with unknown follow-up status, for an overall show rate of 43% after excluding referrals with unknown follow-up status. Table 1 outlines the show rates separated by individual factors. When looking at show rates based on the number of days elapsed between ED visit and follow-up clinic appointment date, there was a significant difference with patients being seen within 5 days of their ED visit having an increased likelihood of attending ($P \geq 0.0001$).

There was a significant difference in show rates among various FQHCs, with patients seen at Clinic A more likely to attend than patients seen at Clinics D and E ($P \geq 0.0001$). There was not a statistical difference in show rates between Clinics A, B, and C. There also was a significant difference in show rates between uninsured and Medicare patients and among different age groups. Uninsured patients were more likely to attend follow-up appointments than Medicare insurance holders ($P = 0.014$), and patients aged 65 and older had an increased likelihood of attending vs the comparison group of patients aged 16-39 ($P \geq 0.0001$).

While clinician type (physician vs advanced practice provider) was significant in the univariate analysis, when looking at the predictive model, it was no longer important when adjusting for lead time, FQHC, age, and insurance. There was no significant difference in show rates between males and females.

Table 2 lists show rates based on the reason for referral separated by chief concern.

DISCUSSION

Looking at programs similar to the EDCC program, show rates to follow-up appointments have ranged from 37% to 50%.[10-12] The EDCC program's show rate of 43% was similar to other programs providing referrals from ED visits to primary care medical homes. However, based on our literature search, these programs all followed program models of 1 ED providing referrals to 1 primary care clinic. The EDCC program has a unique model in that this is a community-wide initiative involving 8 EDs over 3 different health care systems referring to over 20 community safety net clinics. This allows patients to choose which clinic will best serve their needs and greater flexibility in scheduling appointments.

Days to Appointment

Patients seen within 5 days of their ED visit had higher show rates, which is consistent with other studies.[13,14] More timely appointments may have been at the forefront of patients' minds more so than appointments farther out, and the acute health condition they sought treatment for in the ED was more likely to still be present. With appointments that were scheduled farther out, health issues may have resolved, so the perceived need for an appointment seemed less urgent.

Since shorter lead time to appointments leads to increased show rates, it is imperative that receiving safety net clinics have an appointment system that provides ample appointment slots within a few days' notice. A model that books appointments into a safety net clinic's walk-in/urgent care center may allow for more appointment flexibility, as some participating FQHCs currently do. Another option FQHCs use is to double-book visits into the same appointment slot, which allows for more available appointments and mitigates the effects of no-shows, although it can create workflow issues if both patients arrive.

It also may be important for ED clinicians to emphasize to patients the importance of follow-up appointments for their conditions. Spending a few extra minutes at discharge with the patient could help them understand that establishing primary care with regular and timely outpatient follow-up may prevent future avoidable ED visits.

Insurance Type

The higher show rates for uninsured patients compared to patients with Medicaid insurance may have been due to a higher motivation by uninsured patients to establish care because they had fewer options for access to health care.[15,16] By providing a referral appointment in the ED, this reduced the amount of research that uninsured patients had to complete to appropriately navigate the health care system. If the barrier of not knowing where to seek care was alleviated through appointment referrals, it may have led

Table 1. Show Rates Categorized by Individual Factors

	Attended	Did Not Attend	Grand Total	Show Rate (%)	Odds Ratio (95% CI)	P value
FQHC						
Overall clinic comparison						0.0001
Clinic A	464	460	924	50		
Clinic B vs A	524	545	1069	49	0.90 (0.74 – 1.10)	0.311
Clinic C vs A	419	639	1058	40	1.09 (0.88 – 1.13)	0.435
Clinic D vs A	291	549	840	35	1.49 (1.21 – 1.84)	0.0001
Clinic E vs A	82	196	278	29	2.18 (1.60 – 2.96)	0.0001
Total	1780	2389	4169	43		
Lead time (days)						
Overall lead time comparison						0.0001
0 – 5	802	836	1638	49		
6 – 10 vs 0 – 5	583	780	1363	43	1.31 (1.12 – 1.52)	0.001
11 – 15 vs 0 – 5	162	270	432	38	1.59 (1.26 – 2.01)	0.0001
16+ vs 0 – 5	233	503	736	32	1.91 (1.54 – 2.37)	0.0001
Total	1780	2389	4169	43		
Insurance						
Overall insurance Comparison						0.011
Uninsured	775	924	1699	46		
Commercial vs uninsured	98	104	202	49	0.79 (0.59 – 1.08)	0.13
Medicaid vs uninsured	857	1288	2145	40	1.10 (0.96 – 1.27)	0.157
Medicare vs uninsured	50	73	123	41	1.69 (1.11 – 2.58)	0.014
Total		1780	2389	4169	43%	
Age						
Overall age comparison						0.0001
16 – 39	957	1567	2524	38		
40 – 64 vs 16 – 39	751	752	1503	50	0.61 (0.53 – 0.70)	0.0001
65+ vs 16 – 39	52	39	91	57	0.37 (0.23 – 0.59)	0.0001
Under 16 vs 16 – 39	20	31	51	39	0.92 (0.52 – 1.64)	0.781
Total	1780	2389	4169	43		
Provider specialty						
Overall provider Specialty comparison						0.313
Internal/family medicine	1549	2090	3639	43		
APP	231	299	530	44	1.24 (0.90 – 1.41)	0.313
Total		1780	2389	4169	43%	
Gender						
Overall gender comparison						0.224
Female	777	1061	1838	42		
Male vs female	1003	1328	2331	43	1.08 (0.95 – 1.23)	0.224
Total	1780	2389	4169	43		

Abbreviations: FQHC, Federally Qualified Health Centers; APP, advanced practice provider.

to higher show rates versus other patients on Medicaid who didn't have as significant of a barrier.

Advanced Practice Provider vs Physician

There was no significant difference in show rates based on if the referring receiving clinician was a physician or an advanced practice provider (APP). There may not be a perceived difference in emphasis on the value of a follow-up appointment based on whether it is with a primary care physician vs an APP. This may be due to a culture shift, as APPs are becoming more widely utilized in health care and the public is more accepting of them,[17] which may allow flexibility in the primary care setting to delegate appointment referrals to other health care clinicians.

Age Groups and Gender

This study found that older individuals were more likely to attend follow-up appointments, which is consistent with the literature.[8,18] This may be because older individuals typically have more comorbid health conditions to manage. There also may be more of an emphasis on managing these chronic health care conditions. Conversely, younger individuals could perceive their health as stable, causing them to feel less motivated to attend follow-up appointments. Our study also showed that there was no difference in show rates between males and females, which is also consistent with the literature. However, new data exist indicating that men may be less likely to keep their appointments.[19]

FQHC Differences

There were statistically significant differences in show rates among the individual FQHCs, which could be due to multiple factors, including differences in resources, cultural competency, appointment times and availability, and clinic location. Individual FQHC resources could alleviate certain barriers to seeking care, such as providing transportation services. In addition, differences in relationships with the community and cultural competence could foster increased trust in the clinic, translating to increased show rates. Ultimately, more work is needed to analyze individual clinic workflows and implementation of the EDCC program referrals to understand these differences in show rates. In analyzing differences, it will be important to examine outreach prior to appointment, how many appointment slots are available to patients, other services offered to patients such as transportation and in-person interpreters/bilingual physicians, and overall clinic workflow.

Chief Concern

The top reasons patients sought treatment at the ED were for cardiovascular, musculoskeletal, gastrointestinal, and pulmonary concerns. Of these complaints, patients presenting with gastrointestinal concerns were less likely to attend their follow-up appointments than those with other chief concerns. This could be due to gastrointestinal complaints being more likely to be

Table 2. Show Rate Categorized by Chief Concern

Chief Concern	Attended	Did Not Attend	Total	Show Rate (%)
Behavioral Health	38	53	91	42
Cardiovascular	242	283	525	46
Dental	2	6	8	25
Dermatology	61	119	180	34
Endocrine	62	63	125	50
Ear, Nose, Throat	28	49	77	36
Gastrointestinal	144	232	376	38
Genitourinary	16	28	44	36
Hematology	3	1	4	75
Musculoskeletal	186	202	388	48
Neurology	106	136	242	44
Obstetrics	48	44	92	52
Ophthalmology	7	17	24	29
Pain	27	39	66	41
Pulmonary	128	143	271	47
Renal	11	12	23	48
Trauma	61	64	125	49
Unknown	610	898	1508	40

resolved than other concerns by the time of follow-up appointments.

Limitations

This study had limited demographic information for each appointment referral; race, ethnicity, income, and education information for each patient would have provided a more complete analysis. In addition, staffing variability per ED and per FQHCs was not analyzed. For example, some EDs have medical assistants make EDCC referrals, while some EDs will have staff with a master's degree in social work make these referrals, which could influence outcomes.

Additionally, there was a shift in 2020 to telehealth due to SARS-Cov-2, which has led to a significant decrease in appointments but an increase in show rates that was not explored given the study's timeframe.

CONCLUSIONS

No-nurgent utilization of emergency departments is a well-known problem with many factors contributing to the issue. To reduce non-urgent ED utilization, multiple approaches are needed to target the underlying reasons patients decide to seek care at EDs. Programs such as the Emergency Department Care Coordination initiative are important in targeting a certain subset of this patient population by linking them to primary care medical homes. Through this study, it was found that the patients who attended scheduled follow-up appointments at primary care medical homes were older individuals, uninsured individuals, and those individuals who had follow-up appointments scheduled within 5 days of their presentation to the ED. More research is needed to discern factors that influence the differences in show rates to follow-up appointments among individual receiving clinics. The next steps will be to meet with individual FQHC leadership to

discuss the barriers individual clinics face and what strategies they have utilized to successfully integrate EDCC appointments into their workflows. Additionally, meetings will be conducted with ED staff regarding which patients are good candidates for EDCC referrals and what populations may need additional interventions. These lessons learned will be disseminated to other receiving clinics and EDs in order to improve show rates to these follow-up appointments and, ultimately, reduce nonurgent utilization of community EDs.

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