


ORIGINAL RESEARCH

General Medicine

Evaluating urgent care center referrals to the emergency department

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Abstract

Background and objectives: Urgent care centers (UCCs) are increasingly popular with an estimated number of 9600 stand-alone centers in the United States compared to emergency departments (EDs). These facilities offer a potentially more convenient and affordable option for patients seeking care for a variety of low-acuity conditions. Because of the limitations of UCCs, patients occasionally are referred to EDs for further care. Prior studies have attempted to evaluate the appropriateness of these UCC referrals. Our study is the first to consider if these referrals require ED-specific care and the diagnostic concordance of these referrals.

Methods: We performed a retrospective chart review to identify patients who were referred from UCCs to our ED between October 2020 and June 2021. We used a Boolean search strategy to screen charts for the terms urgent care, emergency department, referral, or transfer. Cases were manually screened until 300 met the inclusion criteria. Cases had to feature the patient being seen by a UCC provider and directly referred to the ED on the same day. Patients who presented to the ED of their own volition were excluded. Three independent abstractors reviewed the charts. All abstractors and a senior investigator piloted the use of a data collection sheet and discussed the management of any ambiguous data. A senior physician reviewed all discrepancies among abstractors. Data collected included ED final diagnosis and whether the final diagnosis was similar to the UCC diagnosis. A referral was deemed to require ED-specific care and resources if (1) the patient was admitted, (2) imaging (other than an x-ray) was performed, (3) specialist consultation was required, or (4) care was provided in the ED that is not conventionally available at UCCs.

Results: From the 300 patient charts, 55% of patients referred from UCCs to the ED did not require ED-specific care or resources and 64% had discordant diagnoses between UCC diagnosis and ED diagnosis. A total of 41% of patients underwent

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advanced imaging studies, 26% received specialty consultations, and 15% were admitted. Subgroup analysis for lacerations, extremity/fracture care, and abnormal electrocardiograms (ECGs) showed disproportionately high levels of discordant diagnoses and referrals that did not require ED-specific care or resources.

Conclusion: Our data found that 55% of patients referred to EDs from UCCs did not require ED-specific care or resources and 64% carried a discordant diagnosis between UC and ED diagnosis. We suggest quality remedies, such as educational sessions and engagement with telemedicine sub-specialists as well as a coordinated formalized system for UCC to ED referrals.

KEYWORDS

ED overcrowding, ED quality, ED referrals, urgent care centers, urgent care medicine, urgent care referrals, urgent care transfers

1 | INTRODUCTION

1.1 | Background

Urgent care centers (UCCs) are becoming increasingly popular with an estimated 9600 stand-alone such centers in the United States in 2019 and 50–100 new centers opening each year.¹ Compared to emergency departments (EDs), these facilities offer a potentially more convenient and affordable option for patients seeking care for a variety of low-acuity conditions. From 2008–2015, EDs saw a 36% decrease in low-acuity visits while UCCs saw a 119% increase for these visits.²

UCCs are generally unequipped to handle high-acuity patients or patients who require specialty care that may nevertheless present to UCCs. As a result, these patients ultimately require referrals to the ED for further management of their clinical needs. Although UCCs may not always have a definitive diagnosis and are referred due to clinical suspicion of a more emergent underlying medical problem, it is still important to examine if these referrals do indeed require the advanced care and resources that are provided specifically by EDs. Additionally, it is equally as important to examine if there is diagnostic concordance between UCC diagnoses and ED diagnoses. The proportion of UCC referrals to EDs requiring ED-specific care and diagnostic concordance of these UCC referrals to the ED has not been thoroughly reported.³ One study looking at UCC referrals to the ED found that 64% of these referrals were ultimately discharged from the ED.³ Another study found that only 7.3% of UCC referrals were deemed critical and 21.8% of patients referred were subsequently hospitalized.⁴

1.2 | Importance

Prior studies have considered multiple factors in characterizing these ED referrals as simple, complex, or critical, based on the utilization

of resources in the ED such as imaging studies, laboratory studies, procedures performed, specialty consultations, and admission to the hospital.^{2,3,5–8} These studies have reported important UCC health care delivery trends but have not investigated the diagnostic concordance or the proportion of those requiring ED-specific care of UCC referrals to the ED directly. These metrics are important to evaluate as referrals can sometimes result in increased health care spending, burden EDs, redundant testing, and further increase patient frustration.^{4,7}

1.3 | Goals of investigation

Although prior studies have evaluated referrals from UCCs to EDs, no prior study has specifically assessed both the proportion of referrals requiring ED-specific resources and the diagnostic concordance of these referrals in tandem. This study adds to the current data pool regarding the nature of UCC referrals in our metropolitan area and opportunities for EDs and UCCs to work together in providing coordinated care for patients.

2 | METHODS

2.1 | Study design

We performed a retrospective chart review to identify patients who were transferred or referred from urgent care to our ED from October 20, 2020 to June 22, 2021.

2.2 | Setting

Our ED is at an academic, tertiary care facility with all patients evaluated by board-certified emergency medicine physicians, sometimes in conjunction with resident physicians.

2.3 | Selection of participants

Inclusion criteria required cases feature the patient being seen by an UCC provider and directly referred or transferred to the ED on the same day. Patients who presented to the ED of their own volition due to increased severity of symptoms or feelings of inadequate care provided by UCC were excluded from our study.

2.4 | Interventions

The data retrieval tool, Advanced Text Explorer, an electronic health record extension tool was used to browse and consolidate relevant data. We used a Boolean search strategy to screen charts for the terms “urgent care,” “emergency department,” “referral,” or “transfer.” The search strategy identified 31,078 potential cases. Using Advanced Text Explorer, cases were manually screened by 3 independent abstractors until 300 met the inclusion criteria.

2.5 | Measurements

Data collected included patient age, gender, date of encounter, mode of arrival to the ED, admission as inpatient, admission as observation, discharge, urgent care diagnosis, modality (if any) of imaging performed, specialty consultation, ED chief complaint, ED final diagnosis, and whether the final diagnosis matched or was similar to the UCC diagnosis. X-rays did not qualify as advanced imaging because this modality is universally available at UCCs. Advanced imaging included computed tomography (CT), magnetic resonance imaging (MRI), ultrasound/point-of-care ultrasound, and ventilation–perfusion scan because these modalities are not universally available at UCCs. After determining variables of interest, a standardized data collection sheet was created. Three independent abstractors and a senior investigator piloted the use of the collection sheet and discussed the management of any ambiguous data. The senior investigator reviewed and adjudicated all cases for validity and to settle discrepancies among abstractors.

2.6 | Outcomes

Referrals requiring ED-specific care from UCCs to the ED were a primary outcome in our study. Specifically, the referral was deemed “ED-specific” if any of the following criteria were met: (1) the patient was admitted to hospital, (2) imaging (other than x-ray) was performed, (3) a specialist consultation was required, or (4) critical care was provided in the ED that is not conventionally available at UCCs.

Concordant diagnosis, which refers to concordance between the UCC diagnosis and ultimate ED diagnosis, was another primary outcome of our study. The diagnosis or differential diagnosis from a UCC was collected from the chart and compared to the final diagnosis in the ED. If the diagnosis from UCC matched any of the final diagnoses in the ED, this was deemed a concordant diagnosis. If none of the final

The Bottom Line

Urgent care referrals to emergency departments (EDs) for further evaluation and management represent potential opportunities to improve care delivery. Retrospective analysis of one ED revealed that 55% of 300 referrals did not need ED intervention and 60% had a discordant diagnosis.

diagnoses in the ED matched the UCC diagnosis or differential, the diagnosis was deemed discordant. Additionally, UCC diagnoses were still considered concordant if they were nonspecific so long as these diagnoses reasonably involved the ultimate ED diagnosis. For example, if the UCC diagnosis was “abdominal pain” and the ED diagnosis was ultimately found to be acute pancreatitis, the UCC diagnosis was considered concordant. Similarly, if a UCC diagnosis was “chest pain” and the patient was ultimately diagnosed with pulmonary embolus in the ED, this was deemed a concordant diagnosis. If there were no specified UCC diagnosis or differential in the chart, the concordant diagnosis assessment was deemed not applicable.

Secondary outcomes included subgroup analysis of rates of discordance in UCC diagnosis and the ultimate ED diagnosis for the most common chief complaints including abdominal pain, abnormal ECG, lacerations, head injuries/falls, extremity injuries/fracture care, and COVID complications.

3 | RESULTS

From the 300 patient charts reviewed, the mean patient age was 52 ± 20 years and most patients (183; 61%) were female. Eleven (3.7%) patients were transferred to the ED directly from referring UCC by ambulance, whereas 287 (96.3%) self-presented to the department (Table 1).

A total of 121 (40.7%) patients underwent advanced imaging studies. Ninety patients (30%) received CT scans, 19 (6.3%) received ultrasound, and 3 (1%) received MRI. A total of 76 (26%) cases required

TABLE 1 Chart review of patients

	N = 300
Age, year	
Mean (SD)	52.13 (19.98)
Range	5.0–94.0
Gender	
Male	117 (39%)
Female	183 (61%)
Mode of arrival	
Ambulance	11 (3.7%)
Other	287 (96.3%)

TABLE 2 Patients requiring advanced imaging, specialty consult, disposition, ED-specific care, and diagnostic concordance

Advanced imaging	No. (%)
Total received	121 (40.7)
CT	90
US	19
MRI	3
Specialty consult	
Total cases consulted	76 (26)
Cardiology	16
Neurology	8
Endocrinology	2
Ear, nose, and throat	7
Gastroenterology	1
General surgery	6
Internal medicine	4
Infectious disease	2
Nephrology	2
Ophthalmology	7
Orthopedic surgery	6
Plastic surgery	6
Pulmonology	1
Urology	7
Vascular surgery	1
Disposition	
Admitted to observation	5 (1.7)
Admitted to inpatient	41 (13.7)
Discharged home	254 (84.6)
ED-specific care	
Not provided	165 (55)
Provided	135 (45)
Diagnostic concordance	
Discordant	125 (42)
Concordant	73 (24)
Not applicable	102 (34)

Abbreviations: CT, computed tomography; US, ultrasound; MRI, magnetic resonance imaging; ED, emergency department.

specialty consultations with the most common being Cardiology at 16 (21%), 5 (1.7%) patients were admitted to observation, 41 (13.7%) were admitted to inpatient, and 254 (84.6%) patients were discharged home. Based on the criteria defined above for referrals requiring ED-specific care, 165 (55%) patients referred from UCCs to the ED did not require ED-specific resources, whereas 125 (64%) patients referred received a discordant diagnosis between UCCs and EDs (Table 2).

A subgroup analysis of referring chief complaints was performed based on the following categories: abnormal ECG, abdominal pain, lacerations, head trauma/fall, extremity injury/fracture, or COVID complications (Table 3).

TABLE 3 Subgroup analysis of diagnostic discordance and ED-specific care provided

	No. of cases	% Not requiring ED-specific care	% Discordant diagnosis
Abnormal ECG	26	67	83
Abdominal pain	31	23	72
Lacerations	20	80	87
Head trauma/fall	16	25	83
Extremity injury/fracture	17	59	29
COVID	18	61	55

Abbreviations: ECG, electrocardiogram; COVID, coronavirus disease.

A total of 26 patients were referred for “abnormal ECG” and 67% of these patients did not require ED-specific resources and 83% carried a discordant diagnosis. Thirty-one patients were referred for “abdominal pain” and 23% of these did not require ED-specific resources and 72% carried a discordant diagnosis. Twenty patients were referred for “lacerations” and 80% of these did not require ED-specific resources and 87% carried a discordant diagnosis. Specific examples of these include lacerations deemed at UCCs to have neurologic or vascular injuries that were not present on the physical examination performed in the ED. These were ultimately documented as simple laceration repairs that required no advanced specialty assistance with repair or advanced imaging performed and eventually discharged from the ED after repair. Seventeen patients were referred for “head trauma” and 25% of these did not require ED-specific resources and 83% carried a discordant diagnosis. Seventeen patients were referred for “extremity injury”/“fractures” and 59% of these did not require ED-specific resources and 29% carried a discordant diagnosis. Eighteen patients were referred for “COVID”-related complaints and 61% of these did not require ED-specific resources and 55% carried a discordant diagnosis.

4 | LIMITATIONS

Our study has several limitations. First, this was a single center study and may simply reflect the local UCC community and not be representative of care provided at UCCs on a national level. Additionally, because there is no formal referral or transfer system, many of the patients presented to the ED without their UCC documentation, so ED documentation was performed by word of mouth from these patients who were referred. It is therefore possible that there was miscommunication that contributed to the high levels of discordant diagnoses and referrals that did not ultimately require ED-specific resources. Another limitation is UCCs do not have access to stat labs as these were not considered in the referral criteria we used. It is important to note that our definition of “ED-specific care and resources” is somewhat subjective and what we have determined to be “ED-specific” may not be agreed on by every institution. In addition, only a small fraction of patients

seen at UCCs, and only those referred to the ED, were analyzed in this study. This represents a selection bias, and it is thus outside the scope of this study to make any definitive conclusions regarding the overall care of patients seen and discharged from UCCs. Last, some UCCs do in fact have access to advanced imaging capabilities such as CT and ultrasonography, and, therefore, we may have overestimated the number of referrals requiring ED-specific resources as a result.

5 | DISCUSSION

Overall, our data found that 55% of UCC referrals did not require ED-specific resources or care and 64% carried a discordant diagnosis when compared to the ultimate ED diagnosis. These findings suggest that the majority of UCC transfers to the ED in our data set did not require ED-specific care or resources. This has potential negative impacts on individual patients directly and the health care system broadly. The fact that 64% of patients transferred to the ED in our study carried a discordant diagnosis than that of the ultimate ED diagnosis raises questions regarding the diagnostic accuracy of the referrals in our data set as well.

By evaluating the circumstances surrounding these referrals and discordant diagnoses, we can begin to understand where UCCs can use further training as well as support and ultimately identify specific areas for improvement. For example, 80% of all lacerations transferred from UCCs did not require ED-specific care or resources. Many laceration injuries that were referred to the ED for higher level of care were not complex wounds and were subsequently discharged home after a simple repair. Referrals for abnormal ECGs were also found to not require ED-specific care 67% of the time and carried a discordant diagnosis 83% of the time. Frequent examples of discordant diagnoses and those not requiring ED-specific care were arrhythmias documented by UCCs that were not present on either the UCC or ED ECG, and bundle branch blocks that did not require urgent evaluation or management. In one example, a patient was referred directly to the ED for a normal sinus arrhythmia. In another, a patient was referred for a new diagnosis of "atrial fibrillation" and when the UCC ECG was reviewed by the ED provider it in fact demonstrated a normal sinus rhythm and this was confirmed on a repeat ECG in the ED. The high frequency of referrals that did not require ED-specific care and discordant diagnoses reflects an area where advanced training in ECG interpretation would be potentially high yield.

UCCs by design are staffed and created to see large volumes of low acuity visits. A study that polled 436 UCCs in the United States found that only 14% had a CT scanner and 18.6% had an ultrasound on site.⁵ UCC providers are placed in a difficult position and must therefore decide between referring patients with concerning presentations to the ED for advanced imaging or discharging these patients home with an uncertain diagnosis. Another challenge of practicing urgent care medicine is many centers lack the capacity for stat labs and must send specimens out that can take days for results.⁵ The vast majority of UCCs are not staffed by board certified emergency medicine physicians, and approximately one-third are staffed by nurse practitioners

and physician assistants frequently without a supervising physician on site.⁵ As such, many of these providers are not thoroughly trained in areas, such as ECG interpretation or proficient in procedures that many emergency physicians may unfairly expect of UCC providers.⁵ It is not the intention of this body of work to infer that UCCs provide low quality care. However, this study does highlight specific areas in which UCCs can improve on for the benefit of patients they treat.

Our study results suggest that some of these issues could be remedied by instituting educational sessions and protocol-based care models at UCCs focused on the clinical issues highlighted in this study. Examples include educational sessions focused on ECG interpretation, procedural skills labs for laceration care and implementing a standardized transfer or referral system when UCC providers do refer patients to the ED. Educational sessions could potentially help UCC providers feel more comfortable managing these patients without referring them to the ED.^{5,9} Additionally, using telehealth technology to engage specialty consultants, which was effectively used during the COVID-19 pandemic, could also potentially reduce referrals that do not require ED-specific care.¹⁰ UCC providers, for example, could consult an on-call cardiology service to assist with ECG interpretation, surgical consultants to assist with laceration care, and orthopedic surgery consultants to assist with fracture care and management. Having real-time access to specialty consultants via telehealth technology could potentially assist UCC providers in managing these patients.

Last, a formal referral or transfer system could help reduce miscommunication between UCCs and ED providers, thus reducing discordant diagnoses and confusion surrounding referral rationale.¹¹ A study that polled 102 ED clinicians found that 4 out of 5 respondents "strongly agreed" that a patient transferred to the ED should have an associated provider-provider phone call, the reason for referral, the specific concern, complete documentation of services provided at the UCC, and UCC-provider contact information.¹¹ According to the Safe Transitions Best Practice Measures guidelines for UCCs, the referring UCC clinician is responsible for speaking to the accepting ED provider and providing documentation summarizing the visit, a practice which is rarely followed.^{11,12} As more UCCs open their doors to serve patients, it becomes increasingly important to develop a standardized method of communication between UCCs and the local EDs to which they refer patients. Further studies are needed in all the aforementioned areas of potential improvement to evaluate outcomes.

AUTHOR CONTRIBUTIONS

Douglas Rappaport, Shyam Patel, Audrey Keim, and Chris Poyorena conceptualized and designed the study, analyzed the data, and created and edited the manuscript. Marlene Girardo provided statistical analysis and support. Jessica Monas, Andrej Urumov, and Rachel Lindor created and edited the manuscript. Douglas Rappaport takes responsibility for the paper as a whole.

CONFLICTS OF INTEREST

The authors have no conflict of interest to declare.

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