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Many Emergency Department Visits Could Be Managed At Urgent Care Centers And Retail Clinics

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ABSTRACT Americans seek a large amount of nonemergency care in emergency departments, where they often encounter long waits to be seen. Urgent care centers and retail clinics have emerged as alternatives to the emergency department for nonemergency care. We estimate that 13.7–27.1 percent of all emergency department visits could take place at one of these alternative sites, with a potential cost savings of approximately $4.4 billion annually. The primary conditions that could be treated at these sites include minor acute illnesses, strains, and fractures. There is some evidence that patients can safely direct themselves to these alternative sites. However, more research is needed to ensure that care of equivalent quality is provided at urgent care centers and retail clinics compared to emergency departments.

Americans seek a large amount of nonemergency care at hospital emergency departments,[1] because of long wait times for appointments, limited after-hours care at physician offices, and other barriers to access.[2–4] Lengthy waits in the emergency department[5,6] can lead to both inconvenience and patients' choosing to leave without treatment. Although some studies find a small marginal cost of treating nonemergency conditions in the emergency department, charges for those conditions are much higher in the emergency department than in other settings.[7–10] These higher charges may increase patients' out-of-pocket spending and create added strain on national health care spending.

Over the past decade, alternative care settings for nonemergency care, such as retail clinics and urgent care centers, have grown in number.[11–13] Retail clinics, located in retail stores, are typically staffed by nurse practitioners and treat a limited range of health conditions, such as minor infections and injuries.[12] An estimated 29 percent of the U.S. population lives within a ten-minute drive of a retail clinic, although such clinics are less likely to be located in minority and low-income neighborhoods.[14,15]

Urgent care centers typically are freestanding physicians' offices with extended hours; on-site x-ray machines and laboratory testing; and an expanded treatment range, including care for fractures and lacerations.[13] There is some evidence that care at these alternative sites costs less than, and is of comparable quality to, care provided in the emergency department.[7,8,16]

Retail clinics, urgent care centers, and emergency departments share several relevant characteristics. They all provide walk-in care that focuses on acute conditions and exacerbations of chronic conditions.[13] Nurse practitioners and physician assistants work in all three settings.[12,13] They are the primary providers in retail clinics and often work in emergency department "fast track" areas that focus on minor conditions.

About half of urgent care centers nationwide employ physicians trained in emergency medicine.[17] The demographic mix of patients is similar at retail clinics and emergency departments.[11] An important difference between these facilities, however, is that emergency departments are never closed, see patients whose con-

ditions are much more acute, and are required by federal law to examine and stabilize all patients regardless of their ability to pay.

To date, however, there have been no detailed examinations of the overlap in the care provided at the three sites or the extent to which urgent care centers or retail clinics could substitute for emergency departments in providing nonemergency acute care. In this paper we address these questions, comparing the patient demographics, medical conditions treated, and medications prescribed at each site.

Study Data And Methods

DATA The data on retail clinics, urgent care centers, and emergency departments came from three different sources. For a prior study, we invited leaders from all retail clinic companies to provide deidentified data on each visit that occurred from the inception of operations through the summer of 2008.[7] Eight companies—accounting for 74 percent (326 of 441) of the retail clinics in operation as of July 2007—provided data on 1.2 million visits. The data set, as described in greater detail elsewhere[7] and in our online Supplement,[18] did not include drugs prescribed.

Urgent care center data came from visits between July 1 and December 31, 2007, to centers in thirty-five states that use a common electronic health record that is specific to urgent care centers. For a random sample of 1,263 visits, we abstracted data including demographic characteristics, primary diagnosis, prescribed medications, and whether the patient was referred to another provider. These data are not representative of visits to all urgent care centers, but, as far as we know, they are the largest, most representative sample available. The abstracting process was funded by the *Journal of Urgent Care Medicine*.

Emergency department visit data came from the 2006 National Hospital Ambulatory Medical Care Survey (NHAMCS). Details on this nationally representative survey are available from the National Center for Health Statistics.[19,20] We excluded visits for patients who were subsequently admitted to the hospital as being de facto inappropriate for care at a retail clinic or urgent care center. These exclusions accounted for 13 percent of all visits in this data set. Our analysis included the remaining 31,197 visits, representing an estimated 104 million visits nationally.

DIAGNOSIS CODES AND PRESCRIBED DRUGS To compare diagnoses across settings, we aggregated primary or first-listed *International Classification of Diseases*, Ninth Revision (ICD-9) codes into groups that are similar or require similar equipment for treatment.[7] We similarly defined categories for drugs prescribed in urgent care centers and emergency departments, grouping drugs first into therapeutic categories using the commonly used Multum classification system[21] and then into larger categories. We identified the most frequently prescribed drugs and show data for categories that represent more than 0.5 percent of the drugs prescribed in urgent care centers.

EMERGENCY DEPARTMENT VISITS AND ALTERNATIVE TREATMENT SITES To determine the number of emergency department visits that could be handled in retail clinics or urgent care centers, we first defined a set of diagnoses that are commonly treated in each of these settings. Our definition included health conditions that were seen at more than 2 percent of all visits at each site. Although it is possible for these alternative care sites to effectively treat other conditions that are less commonly seen, setting a minimum threshold means that these diagnoses are seen with adequate frequency to ensure the availability of appropriate supplies and equipment, and the necessary provider training.

We then used an algorithm developed by John Billings and colleagues that classifies the percentage of emergency department visits for a given diagnosis that could be treated in a primary care setting or that are nonemergency.[22,23] We assumed that such visits could be managed at an alternative site. The algorithm does not classify trauma-related diagnoses, such as strains or fractures. For these diagnoses, we estimated the impact of assuming that either 25 percent or 50 percent could be treated at urgent care centers. For each condition commonly treated at a retail clinic or urgent care center, we applied the algorithm to determine the proportion of emergency department visits that could probably be treated in each of these settings, and we summed across all conditions.

We also calculated how many emergency department visits occurred during hours when retail clinics and urgent care centers are typically open—9 a.m. to 9 p.m. Monday through Friday; 9 a.m. to 5 p.m. Saturday; and 10 a.m. to 5 p.m. Sunday.[13]

ANALYSES The patient visit was the unit of analysis. For the NHAMCS data, we corrected for the complex sampling design. To compare the proportions shown in the exhibits, we used standard statistical methods that accounted for the multiple comparisons made across the three data sets. Differences discussed are statistically significant at $p < 0.05$ or better, which means that they are unlikely to be due to chance alone. Our online Supplement[18] includes more detailed information on methods.

Study Results

PATIENT AND VISIT CHARACTERISTICS Exhibit 1 shows the patient and visit characteristics for all three sites of care. The majority of visits were by females, and more than 40 percent of visits were by adults ages 18–44. Adults age sixty-five and older accounted for a larger fraction of visits to emergency departments than to retail clinics, and children under two were more frequently seen in emergency departments than in retail clinics or urgent care centers.

Approximately 17 percent of visits to emergency departments were made by patients who were uninsured, compared with approximately 26 percent of visits to retail clinics. Patients were referred to an emergency department or a physician's office at 2.3 percent of retail clinic visits, similar to the 2.2 percent of urgent care center visits that resulted in referral to the emergency department.

CONDITIONS TREATED The most common diagnoses at retail clinics were for upper respiratory infections (60.6 percent), while preventive care such as vaccinations or preventive exams accounted for 21.6 percent of visits; other minor conditions such as allergies, insect bites, rashes, and conjunctivitis, 9.5 percent; and urinary tract infections, 3.7 percent (Exhibit 2). These four major groups of diagnoses accounted for more than 95 percent of all retail clinic visits in 2006.

Urgent care centers see a wider range of conditions than retail clinics. Upper respiratory infections are quite common at urgent care centers, but these illnesses constitute a smaller proportion of urgent care visits compared to those at retail clinics (33.3 percent versus 60.6 percent). Beyond the conditions typically seen at retail clinics, urgent care centers also see a sizable proportion of visits related to musculoskeletal conditions (21.5 percent) such as strains, fractures, and joint and muscle pain, and dermatological conditions, such as burns and lacerations (9.7 percent).

Both urgent care centers and emergency departments had considerably fewer visits for preventive services than retail clinics did (zero and 3.8 percent versus 21.6 percent, respectively). The nine major groups of conditions shown in Exhibit 2 accounted for 91 percent of all urgent care center visits in 2006.

Almost 35 percent of visits to emergency departments were for conditions that are not

EXHIBIT 1

Characteristics And Insurance Status Of Patients Seen In Retail Clinics, Urgent Care Centers, And Emergency Departments

	Retail clinic visits	Urgent care center visits	Emergency department visits
Unweighted *N*	1.2 million	1,263	31,197
SEX			
Male	37.3%	44.8%	45.4%
Female	62.7	55.2	54.6
AGE (YEARS)			
Under 2	0.2	1.5	5.9
2–5	6.6	4.5	6.1
6–17	21.0	12.4	12.3
18–44	43.5	49.8	45.0
45–64	21.5	23.1	20.0
65 and older	7.2	8.7	10.8
INSURED STATUS[a]			
Yes	73.8	–	–
No	26.2	–	–
TYPE OF COVERAGE			
Private	–	–	34.4
Medicare	–	–	11.0
Medicaid	–	–	26.2
None	–	–	17.1
Other	–	–	11.3
REFER TO OTHER LOCATION[b]			
Yes	2.3	2.2	–

SOURCES Authors' analysis of retail clinic and urgent care center data as described in the text; and authors' analysis of data from the 2006 National Hospital Ambulatory Medical Care Survey. [a]Insurance data were not available for urgent care centers. Retail clinic data did not detail type of insurance. [b]Retail clinic data include information on referrals to emergency departments and to physicians' offices without distinguishing between these two sites; urgent care center data include information on referrals to emergency departments. Not applicable to emergency department visits.

EXHIBIT 2

Diagnoses Treated At Retail Clinics, Urgent Care Centers, And Emergency Departments, And Percentage Not Requiring Emergency Care

Condition	Percent of retail clinic visits	Percent of urgent care center visits	Percent of emergency department visits	Percent of emergency department visits not requiring emergency department care[a]	
				Any time of day	When alternative site is typically open[b]
N	1.1 million	1,235	31,197	–	–
Upper respiratory infections	60.6%	33.3%	9.8%	–	–
Rhinosinusitis, laryngitis	26.1[c]	18.7[c]	5.0	81.1%	48.4%
Pharyngitis	22.2[c]	8.1[c]	2.3	93.9	56.7
Ear infections	12.3[c]	6.5[c]	2.5	95.7	53.0
Musculoskeletal conditions	0.1	21.5	19.4	–	–
Strain and fractures	0.0	14.5[c]	8.9	50.0[d]	34.0
Back pain	0.0	0.5	2.8	–	–
Joint and muscle problems[e]	0.0	3.0[c]	2.7	87.5	58.3
Contusions	0.0	3.6[c]	5.0	50.0[d]	33.4
Dermatological conditions	0.7	9.7	7.8	–	–
Cellulitis or abscess	0.6	5.1[c]	2.5	66.7	45.7
Burns	0.1	0.6	0.4	–	–
Lacerations	0.0	4.0[c]	4.8	50.0[d]	31.8
Symptoms without specific diagnoses	0.1	6.7	11.7	–	–
Abdominal pain	0.0	1.4	4.3	–	–
Headache	0.0	1.5	2.9	–	–
Unclassifiable symptoms	0.0	3.8	4.6	–	–
Urinary tract infections	3.7[c]	3.1[c]	2.4	75.6	43.7
Chronic illnesses and psychiatric conditions[f]	0.0	2.5	1.5	–	–
Lower respiratory conditions[g]	0.4	2.0	3.8	–	–
Other minor conditions	9.5	11.7	4.7	–	–
Allergies	2.3[c]	1.5[c]	0.4	91.5	43.0
Insect bites, rashes, contact dermatitis	2.1[c]	5.7[c]	2.4	74.8	47.6
Conjunctivitis	5.1[c]	2.3[c]	0.9	83.3	55.9
Constipation	0.0	0.5	0.5	–	–
Eye injuries	0.0	1.8	0.6	–	–
Preventive care	21.6	0.0	3.8	–	–
Other conditions	3.5	8.9	34.9	–	–

SOURCES Authors' analysis of retail clinic and urgent care center data as described in the text; and authors' analysis of data from the 2006 National Hospital Ambulatory Medical Care Survey. **NOTE** Empty cells denote conditions that are treated at fewer than 2 percent of visits to retail clinics or urgent care centers; see text for details. [a]Based on the algorithm from John Billings; see Note 22 in text. [b]Based on the assumption that retail clinics and urgent care centers are open 9 a.m. to 9 p.m. Monday through Friday; 9 a.m. to 5 p.m. Saturday; and 10 a.m. to 5 p.m. Sunday. [c]Common conditions treated at care site. These conditions were defined as those seen at 2 percent or more of all visits. Allergies were included in the urgent care center set of commonly treated conditions as they were commonly seen at retail clinics, and therefore we judged that they could probably be treated at urgent care centers. [d]Not defined in the Billings algorithm. As detailed in the text, we used both 50 percent and 25 percent as estimates. [e]Includes joint and muscle pain, knee dislocation, and bursitis. [f]For example, hypertension, diabetes, anxiety-related disorders. [g]For example, chronic obstructive pulmonary disease, asthma, pneumonia.

typically managed at retail clinics or urgent care centers, such as chest pain.

PRESCRIPTION MEDICATIONS More than two in five prescriptions (41.5 percent) written at urgent care centers were for antibiotics; 14.0 percent were for pain medications (Exhibit 3). These proportions were approximately reversed in the emergency department, where 16.3 percent of medications administered or prescribed were for antibiotics and 38.8 percent were for analgesics. Prescription information was not available in our retail clinic data.

EMERGENCY DEPARTMENT VISITS AND ALTERNATIVE SITES Exhibit 2 also shows the conditions commonly treated at retail clinic and urgent care centers—diagnoses that constitute 2 percent or more of all visits in each setting, as discussed above. Based on published algorithms,[22,23] the majority of visits for these common conditions could be managed outside the emergency department (range: 66.7–95.7 percent). In contrast, only 9.7 percent of emergency department visits for chronic obstructive pulmonary disease and asthma—typically more serious conditions—could be seen outside the emergency department (data not shown).

We estimated that 13.7 percent of all emergency department visits could take place at a re-

EXHIBIT 3

Medications Prescribed At Urgent Care Center And Emergency Department Visits

Therapeutic class	Percent of urgent care center visits	Percent of emergency department visits
Antibiotics	41.5	16.3
Penicillins	9.5	3.7
Cephalosporins	7.2	3.8
Macrolides	8.6	2.3
Other	16.2	6.6
Central nervous system agents	18.9	44.2
Pain medications	14.0	38.8
Other (including anti-emetic and antivertigo agents, muscle relaxants)	4.8	5.4
Respiratory agents (for example, antihistamines, bronchodilators)	12.1	9.2
Topical agents (for example, steroid creams, respiratory agents)	10.3	3.7
Hormones and glucocorticoids	6.9	3.2
Cardiovascular agents (for example, antihypertensives)	2.7	4.1
Gastrointestinal agents (for example, drugs for acid reflux, laxatives)	1.1	5.7
Metabolic agents (for example, diabetes medications)	0.8	0.8
Antidepressants and anxiolytics	2.5	4.5
Other	3.3	8.3

SOURCES Authors' analysis of urgent care data as described in the text; and authors' analysis of data from the 2006 National Hospital Ambulatory Medical Care Survey.

tail clinic. When we restricted our analyses to visits that occur when retail clinics are open, we estimated that 7.9 percent of all emergency department visits could take place at a retail clinic. Further, we estimated that an additional 13.4 percent of emergency department visits could take place at a urgent care center—8.9 percent when hours are restricted. That is, a total of 27.1 percent of all emergency department visits could be managed at a retail clinic or urgent care center—16.8 percent when hours are restricted.

These estimates assume that all patients have ready access to one of these alternative care sites. They also assume that 50 percent of emergency department visits for trauma-related conditions that are commonly seen in urgent care centers—such as strains, fractures, contusions, and lacerations—could be treated there. Lowering this assumption to 25 percent results in an estimate of 13.7 percent of all emergency department visits being potentially treatable elsewhere during hours that retail clinics or urgent care centers are typically open.

Discussion

If 13.7–27.1 percent of all emergency department visits could take place at retail clinics or urgent care centers, why do patients go instead to emergency departments? The answer may be because of difficulty obtaining accessible, affordable, convenient care for these conditions elsewhere.[2–4]

Diverting these patients to alternative care sites could decrease the time spent waiting to be seen by a clinician, since many patients spend extended periods in emergency department waiting rooms. Diversion also could generate potential savings. Prior studies have estimated that costs of care at retail clinics and urgent care centers are $279–$460 and $228–$414 less than emergency department costs, respectively, for similar cases.[7,8]

Assuming the smallest of each of these savings and assuming that 16.8 percent—our midpoint estimate—of the 104 million emergency department visits that did not result in a hospital admission in 2006 could take place in one of these alternative settings, the potential savings to the health care system would be approximately $4.4 billion annually, or 0.2 percent of national health care spending.

LIMITATIONS Our study has a number of limitations. Although our emergency department data were nationally representative, our retail clinic and urgent care center data came from limited sets of providers. No data were available regarding the proportion of trauma-related diagnoses—a large share of emergency department visits—that could be treated appropriately outside the emergency department. We tested a range of assumptions to address this concern,

but it is only partly mitigated in our analyses.

We also cannot assess the distance between the emergency departments at which patients sought nonemergency care and any available retail clinic or urgent care center. An alternative site that is more distant than an emergency department is not likely to be equally accessible to a given patient.

Finally, our savings estimate is predicated on three assumptions. The first is that all eligible patients would shift to alternative sites for nonemergency care, finding them accessible, affordable, and willing to provide care regardless of patients' insurance status. Second, we assumed that retail clinics and urgent care centers would have the capacity to provide care to a greatly increased number of patients. Because neither assumption is likely to be fully valid, our estimate represents an upper bound on potential savings.

Countering this is our third assumption, that we capture the full range of services that could be provided at retail clinics and urgent care centers in our definition of commonly seen conditions. This is probably untrue, especially given recent expansions in the scope of care at retail clinics.[24] Thus, the third assumption may lead us to underestimate potential savings.

POLICY CAVEATS The goal of this work was to estimate the fraction of emergency department visits that could be seen elsewhere. There are a number of caveats to be considered should policy makers seek to encourage patients to use alternative sites.

▶ **POLICY LEVERS MIGHT NOT FUNCTION:** First, policy levers to discourage nonemergency use of the emergency department could be ineffective. Although increased copayments can decrease emergency department use,[25] their spread has not prevented long-term increases in that use.

Another approach is to refer patients to an alternative site after they are triaged at the hospital emergency department. One study found that 52 percent of eligible patients accepted a deferred appointment with a primary care physician.[26] However, most emergency departments will refer a patient elsewhere only after evaluation by a physician. Refusing emergency department services to patients with nonemergency conditions raises ethical concerns,[27] and some fraction of patients denied care may have urgent needs.[28]

▶ **CONCERNS ABOUT PATIENT DIVERSION:** Second, there are outstanding concerns about diverting patients away from emergency departments. One study found comparable quality across the three care delivery settings.[7] However, more research is needed to ensure that care of equivalent quality is provided at retail clinics and urgent care centers as at emergency departments.

In addition, more-rigorous assessments of patients' ability to choose the most appropriate site are needed. We found that both retail clinics and urgent care centers refer less than 3 percent of patients to other sites, and that the oldest and youngest patients—who are likely to need the most complex services, and for whom acute illnesses are most likely to be serious—are more common among emergency department patients than in the other two settings.

These findings indicate that patients are currently triaging themselves in a manner that appropriately ensures safety, bringing the most complex and urgent conditions to the emergency department. However, self-triage might become problematic if larger numbers of patients begin to use alternative sites. In addition, simply expanding the number of alternative sites or promoting their use will not ensure that patients will visit them instead of the emergency department.

▶ **SAVINGS MAY BE LIMITED:** Third, there are limitations to realizing any estimated savings. If greater availability of alternative sites leads to increased demand for care overall, some or all savings could be offset. Similarly, any increase in reimbursement to retail clinics and urgent care centers will decrease savings.

Finally, one driver of higher emergency department costs is that care for life-threatening conditions is expensive. If these costs are spread over a smaller number of total emergency department visits, per visit emergency department costs will rise, decreasing aggregate societal savings.

CONCLUSION A continued increase in the number of emergency department visits for nonemergency causes is likely to be unsustainable in our current health care system. At the same time, there are calls for health system improvement that focus on increasing quality and patient-centeredness, while holding organizations accountable for the cost and outcomes of the care they provide. It is unclear what role alternative sites such as retail clinics and urgent care centers might play in such a framework.

Although many policy makers may prefer that patients seek care for nonemergency conditions from a primary care provider, acute care is increasingly provided outside of the primary care setting. New initiatives such as medical home demonstrations and accountable care organizations[29,30] encourage the use of primary care and seek to improve access to it. However, these initiatives are unlikely to provide a widespread solution in the near term.

As insurance coverage is expanded under the Patient Protection and Affordable Care Act of

2010, more people are likely to seek primary care. This shift, in combination with the shortage of primary care physicians, may well contribute to worsening primary care access. Recent experience in Massachusetts indicates that insurance expansions there did not lead to a drop in low-acuity emergency department visits.[31] This indicates a continuing need for alternative sites for the provision of nonemergency care. This study suggests that retail clinics and urgent care centers could be reasonable, cost-saving alternatives for a sizable share of acute, nonemergency conditions. ■

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