

Retail Clinics, Primary Care Physicians, And Emergency Departments: A Comparison Of Patients' Visits

Retail clinics show signs of becoming a safety-net provider, thereby relieving the stress on emergency departments.

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ABSTRACT: In this study we compared the demographics of and reasons for visits in national samples of visits to retail clinics, primary care physicians (PCPs), and emergency departments (EDs). We found that retail clinics appear to be serving a patient population that is underserved by PCPs. Ten clinical problems such as sinusitis and immunizations encompass more than 90 percent of retail clinic visits. These same ten clinical problems make up 13 percent of adult PCP visits, 30 percent of pediatric PCP visits, and 12 percent of ED visits. Whether there will be a future shift of care from EDs or PCPs to retail clinics is unknown. [*Health Affairs* 27, no. 5 (2008): 1272–1282; 10.1377/hlthaff.27.5.1272]

RETAIL CLINICS PROVIDE A NEW MODEL for ambulatory care that emphasizes patient convenience. These clinics are typically located in retail stores such as Target, CVS, Walgreens, Walmart, and grocery chains and provide basic medical care without an appointment and with short wait times.¹ They differ from urgent care clinics because they are located within stores, almost exclusively use nurse practitioners or physician assistants to provide care, and offer a limited scope of care.² Although most retail clinic visits were initially paid for out of pocket, more recently health insurers, including Medicare and Medicaid, are paying for these visits.³ Large retail chains are opening new clinics in many of their stores, and it is estimated that the number of clinics will grow from approximately 450 to almost 6,000 in the next five years.⁴ Recent polls indicate that 15 per-

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cent of children and 19 percent of adults are very likely or likely to use a retail clinic in the near future.⁵

Since the first retail clinic opened in the United States in 2000, such clinics have been the subject of considerable controversy. U.S. physician organizations, such as the American Medical Association, the American Academy of Family Physicians, and the American Academy of Pediatrics, have raised concerns about whether health professionals operating at these sites make accurate diagnoses and appropriate triage decisions, and whether retail clinics potentially disrupt existing physician-patient relationships.⁶

Despite this controversy, there have been few empirical studies of retail clinics, and no one has systematically described the characteristics of patients who visit retail clinics and the most common medical problems these patients seek to address. We sought to begin filling this gap by addressing two questions: (1) What are the demographic characteristics of patients who visit retail clinics as compared with patients who visit primary care physicians (PCPs) or emergency departments (EDs)? (2) What are the reasons patients visit retail clinics as compared with reasons for using PCPs and EDs? The answers to these questions provide a useful framework for future evaluations of the quality and costs of care in retail clinics.

Study Data And Methods

We conducted a cross-sectional comparison of retail clinic, PCP, and ED visits using separate data sources for each care setting.

■ **Visits to retail clinics.** We invited the leadership of all retail clinic companies that are members of the Convenient Care Association, a national organization of retail clinic companies, or that were listed in a publication about the retail clinic industry to participate in the study.⁷ We requested that participating companies provide deidentified data on each visit that occurred from the inception of operations through the summer of 2007. The companies received no incentive to provide the data, nor was the study funded by a retail clinic company. We did not collect original data but, rather, obtained data elements that were routinely collected by retail clinic companies for billing and tracking purposes. These data elements included sex, age, method of payment for the visit, whether the patient had a PCP, the reason for the visit or diagnosis, and whether the patient was triaged to an ED or a physician's office after being registered and evaluated. Not all retail clinic companies could provide data on all of the requested data elements. For example, few companies collected data on whether patients were triaged to an ED or a physician's office. We excluded visits with missing data from the relevant analyses and note when more than 5 percent of visits lack the variable of interest.

Reasons for visits were tracked by retail clinic companies using different systems. We mapped the disparate methods into a uniform system to facilitate analysis. When the retail clinic companies reported *International Classification of Diseases*,

Ninth Revision (ICD-9), diagnosis codes, we classified the visits into the following categories: upper respiratory infection (460, 465), sinusitis (461, 473), bronchitis (490, 466), otitis media (middle ear infection) (381, 382), otitis externa (external ear infection) (380), pharyngitis (462, 463, 034), conjunctivitis (372), urinary tract infection (599, 595), immunization (V03–V06), screening blood pressure check or lab test (V73–V82), or other preventive visit (V01, V70, V72, V29–V39). When the retail clinics provided only text descriptions of the diagnoses, one of the authors (Mehrotra) coded them into these same categories. Three retail clinic providers, representing 11 percent of visits in our sample, tracked presenting symptoms (for example, burning with urination) rather than diagnosis (for example, urinary tract infection). One of the authors (Mehrotra) classified these visits into likely diagnoses. For example, “burning eyes/eye matting/red eyes” was classified as conjunctivitis, and “coughing/sneezing/sinus pressure” was classified into “upper respiratory infection, sinusitis, and bronchitis.” We aggregated “upper respiratory infection, sinusitis, and bronchitis” and “otitis media and otitis externa” each into single categories because it is difficult to distinguish the diagnosis based solely on symptoms. One retail clinic company, representing less than 1 percent of visits, did not classify the specific reasons for acute visits, and another company, representing 10 percent of visits, did not classify the specific reasons for preventive visits. In total, for 7.2 percent of all retail clinic visits, we could not classify the reasons for visits.

■ **Ambulatory visits to PCPs and EDs.** We obtained data on ambulatory visits to PCPs from the National Ambulatory Medical Care Survey (NAMCS) and data on visits to EDs from the National Hospital Ambulatory Medical Care Survey (NHAMCS) for 2002–2005, the most recent years for which data are available.⁸ In both surveys, each sampled patient visit was weighted by the inverse probability of its selection (that is, the number of visits in the population that the sampled visit was taken to represent). Using these weights, data from NAMCS and NHAMCS can be extrapolated to nationally representative universe of visits to community office-based physicians (NAMCS) or EDs (NHAMCS).⁹ Missing data were imputed, and weights were adjusted for nonrespondents and missing data by the National Center for Health Statistics (NCHS). In both the NAMCS and NHAMCS surveys, standard one-page encounter forms were completed by the physician, office or hospital staff, or an outside coder using the medical chart or some combination of these respondents. We restricted our analyses of NAMCS survey data to PCP visits as defined by the specialties of family/general practice, internal medicine, or pediatrics. Specialty is self-reported by the physician. We examined data on patient demographics, method of payment, length of visit, reasons for visit, diagnoses, and delivery of preventive care.¹⁰ We pooled the most recent available four years of surveys to provide stable estimates. From 2002 to 2005 the participation rate of physicians sampled for NAMCS ranged from 61.5 percent to 70.4 percent, and the participation rate in NHAMCS by sampled hospitals ranged from 69.3 percent to 89.6 percent.

Method of payment at the time of visit for PCP and ED visits was classified into insurance (Medicare, Medicaid, private insurance, workers' compensation) or out of pocket (any other classification). Reasons for visits were classified based on ICD-9 diagnosis codes for the "Primary Diagnosis" (both surveys report up to three diagnosis codes) using the coding scheme described above.

Some have raised concerns that if patients visit retail clinics instead of PCP offices, then this will decrease the opportunities for PCPs to manage chronic illnesses and provide preventive care. To assess this potential impact, we identified PCP visits in which patients had one or more of seven common chronic conditions, including asthma (493.0–493.9), cerebrovascular disease (430.0–437.9), diabetes mellitus (250.0–250.9), hypertension (401.0–405.9), ischemic heart disease (410.0–414.9), chronic obstructive pulmonary disease (COPD) (492.0–492.9 and 496.0–496.9), and depression (296.0–296.9, 309.0–309.9, and 311.0–311.9). We also determined whether one or more of eight preventive or counseling services (mammograms, prostate-specific antigen testing, Pap testing, cholesterol testing, smoking cessation counseling, weight loss counseling, exercise counseling, and nutrition counseling) were ordered or performed at the visit. These eight services are listed on encounter forms used by NAMCS.

■ **Analyses.** The patient visit was the unit of analysis. All analyses were conducted in SAS version 9.1. Analyses of the NAMCS and NHAMCS data were done using SAS survey procedures to account for the complex sampling design. We analyzed pediatric (younger than age eighteen) and adult visits separately and together. We report two-sided *p* values with a significance level of 0.05 for all statistical tests. In comparing differences in proportions between retail clinics and PCP offices, we used a *z* approximation using the standard error estimates from the SAS survey procedures and report *p* values using a Bonferroni correction for multiple comparisons.¹¹ We note when, because of missing data, analyses are based on a subset of retail clinic visits.

Study Findings

■ **Participating retail clinic companies.** We recruited retail clinic companies and obtained deidentified visit-level data on all visits between 2000 and 2007 from eight of twenty-four known retail clinic companies (Exhibit 1). Altogether, clinics operated by these eight companies accounted for 74 percent (326 of 441) of the clinics in operation as of 1 July 2007. Participating companies operated, on average, 40.8 clinics, compared to 7.2 clinics among nonparticipating companies. The participating retail clinic companies provided data on 1.35 million visits. The NAMCS survey data included 35,814 visits, which were representative of an estimated 483.47 million visits to PCPs per year, and the NHAMCS data included 147,784 visits, which were representative of an estimated 112.40 million visits to EDs per year.

■ **Comparison of patient demographics and visit characteristics.** Gender distribution for retail clinic, PCP, and ED visits was similar overall (54–63 percent

EXHIBIT 1
Retail Clinic Companies Participating In The Research Project

Retail clinic company (location of clinics)	States in which clinics were currently operating	Clinics open as of 1 July 2007	First clinic opened
SmartCare (Walmart)	CO	15	2006
Lindora Health Clinics (Rite-Aid)	CA	1	2006
Sutter Express (Rite-Aid)	CA	6	2007
MedPoint Express (Walmart, Martins Grocery Stores)	IN	8	2005
MinuteClinic (CVS, Cub Foods, QFC Grocery Stores)	AZ, CA, CT, FL, GA, IL, IN, KS, MD, MI, MN, MO, NV, NJ, NY, NC, OH, OK, PA, TN, TX, VA, WA	196	2000
Redi-Clinic (H-E-B Grocery Stores, Walmart)	AR, OK, TX, VA	47	2005
Take Care Health Clinics (Walgreens)	AZ, FL, GA, IL, KS, MO, NV, OH, OR, PA, TN, TX	50	2005
WellnessExpress Clinic (Longs Drugs)	CA	3	2005 ^a

SOURCE: Analyses based on data obtained by the authors from retail clinic companies.

^aThree clinics closed in December 2006, so therefore none were open as of 1 July 2007.

female), although statistically different ($p < 0.001$ for both comparisons with retail clinics; Exhibit 2). Compared to the age distribution of PCP visits, patients ages 18–44 accounted for almost twice as many visits to retail clinics (43 percent versus 23 percent). Patients in the youngest and oldest age groups were less likely to visit retail clinics than they were to visit PCPs or EDs. Also, visits to retail clinics were more likely than PCP visits to be paid for out of pocket. However, this trend has markedly changed over time: the percentage of retail clinic visits paid for out of pocket fell from 100 percent in 2000 to 15.9 percent in 2007.

We had information on whether the patient had a PCP for 88.1 percent of the retail clinic visits. Patients reported having a PCP for 38.7 percent of these visits. Nationally, about 80.7 percent of adults and children reported having a particular doctor’s office or other location to go to if they were sick or needed medical advice in 2004.¹²

Patients were triaged to an ED or a physician’s office during 2.3 percent of visits to retail clinics (data available for 87.8 percent of our retail clinic visit sample). The reason for triage was not systematically coded, but our review of typed notes found that the most common reason was that the patient’s presenting problem was outside the protocols used at the clinic. Our data only included triage decisions that were made after registration and evaluation. We did not have data on how many patients did not register for a visit because they were told that their presenting symptom was not appropriate for the clinic.

■ **Comparison of reasons for visits.** The majority of retail clinic visits (90.3 percent) were for ten simple acute conditions and preventive care: upper respiratory infections, sinusitis, bronchitis, pharyngitis, immunizations, otitis media, otitis externa, conjunctivitis, urinary tract infections, and screening lab test or blood pressure check (Exhibit 3). We conducted sensitivity analyses excluding those retail

EXHIBIT 2
Characteristics Of Patient Visits To Retail Clinics, Primary Care Physician (PCP) Offices, And Emergency Departments (EDs)

	Retail clinic visits			PCP visits			ED visits		
	All patients	Children	Adults	All patients	Children	Adults	All patients	Children	Adults
No. of visits (millions) ^a	1.35	0.36	0.97	483.47	144.37	339.10	112.40	28.23	84.17
Sex									
Male	37.2% (0.04)	47.3% (0.1)	33.5% (0.05)	44.5% (0.5)	52.5% (0.6)	41.1% (0.6)	46.0% (0.2)	52.7% (0.3)	43.8% (0.3)
Female	62.8 (0.04)	52.7 (0.1)	66.5 (0.05)	55.5 (0.5)	47.5 (0.6)	58.9 (0.6)	54.0 (0.2)	47.3 (0.3)	56.2 (0.3)
Age (years)									
<2	0.2% (0.004)	0.8% (0.02)	- ^b	9.0% (0.4)	30.2% (0.7)	- ^b	6.4% (0.3)	25.3% (0.5)	- ^b
2-5	6.3 (0.02)	23.5 (0.1)	- ^b	7.3 (0.3)	24.4 (0.5)	- ^b	6.3 (0.2)	25.1 (0.4)	- ^b
6-17	20.3 (0.04)	75.7 (0.1)	- ^b	13.5 (0.5)	45.3 (0.8)	- ^b	12.4 (0.2)	49.5 (0.7)	- ^b
18-44	43.0 (0.05)	- ^b	58.8% (0.1)	22.7 (0.6)	- ^b	32.3% (0.7)	41.3 (0.4)	- ^b	55.1% (0.4)
45-64	22.6 (0.04)	- ^b	31.0 (0.05)	26.0 (0.5)	- ^b	37.0 (0.5)	18.8 (0.2)	- ^b	25.1 (0.2)
>65	7.5 (0.03)	- ^b	10.3 (0.03)	21.5 (0.7)	- ^b	30.7 (0.9)	14.8 (0.3)	- ^b	19.7 (0.3)
Primary source of payment for visit									
Out of pocket	32.9% (0.04)	29.5% (0.1)	34.0% (0.1)	9.9% (0.5)	8.1% (0.6)	10.7% (0.6)	24.6% (0.5)	18.0% (0.7)	26.8% (0.6)
Insurance (any)	67.1 (0.04)	70.5 (0.1)	66.7 (0.1)	90.1 (0.5)	91.9 (0.6)	89.3 (0.6)	75.4 (0.5)	82.0 (0.7)	73.2 (0.6)
Patients reporting having a PCP ^c									
Yes	38.7% (0.04)	52.9% (0.1)	33.3% (0.05)	- ^d	- ^d	- ^d	- ^d	- ^d	- ^d
No	61.3 (0.04)	47.1 (0.1)	66.7 (0.05)	- ^d	- ^d	- ^d	- ^d	- ^d	- ^d
Triage decision by provider to refer to ED or PCP office ^c									
No	97.7% (0.01)	97.9% (0.03)	97.6% (0.02)	- ^d	- ^d	- ^d	- ^d	- ^d	- ^d
Yes	2.3 (0.01)	2.1 (0.03)	2.4 (0.02)	- ^d	- ^d	- ^d	- ^d	- ^d	- ^d

SOURCE: Authors' analyses of claims data obtained from retail clinic companies and survey data from the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS).

NOTE: Standard errors are in parentheses.

^a Number of visits to retail clinics since they opened. Number of estimated annual visits to PCPs and EDs from 2002 to 2005 based on sampling weights.

^b Not applicable.

^c Not reported for PCP visits, because no equivalent question in NAMCS.

^d Not available.

clinic companies that provided presenting symptoms (not diagnoses); this did not substantively change our results. Among patients age sixty-five and older, 73.6 per cent of the retail clinic visits were for immunizations.

EXHIBIT 3
Reasons For Visits At Retail Clinics, Primary Care Physician (PCP) Offices, And
Emergency Departments (EDs)

	Retail clinic visits			PCP visits			ED visits		
	All patients	Children	Adults	All patients	Children	Adults	All patients	Children	Adults
Total visits (millions) ^a	1.25	0.34	0.89	483.47	144.37	339.10	112.40	28.23	84.17
Reason for visit ^b									
Upper respiratory infection, sinusitis, or bronchitis	27.4% (0.04)	16.3% (0.07)	31.6% (0.1)	9.7% (0.3)	14.2% (0.5)	7.8% (0.4)	5.0% (0.1)	9.6% (0.3)	3.4% (0.1)
Pharyngitis	21.2 (0.04)	35.1 (0.08)	16.3 (0.04)	1.9 (0.1)	3.9 (0.3)	1.1 (0.1)	1.6 (0.1)	2.9 (0.2)	1.1 (0.1)
Immunizations	19.7 (0.04)	9.4 (0.05)	24.0 (0.05)	0.6 (0.1)	0.8 (0.2)	0.6 (0.1)	0.04 (0.007)	– ^c	0.04 (0.008)
Otitis media or otitis externa	12.7 (0.03)	26.1 (0.08)	7.7 (0.03)	3.1 (0.1)	7.5 (0.3)	1.2 (0.1)	2.5 (0.1)	7.4 (0.2)	0.8 (0.04)
Conjunctivitis	4.6 (0.02)	6.0 (0.04)	4.1 (0.02)	0.6 (0.1)	1.2 (0.1)	0.3 (0.03)	0.6 (0.03)	1.1 (0.07)	0.5 (0.03)
Urinary tract infection	3.5 (0.02)	0.4 (0.01)	4.7 (0.02)	1.2 (0.1)	0.6 (0.08)	1.5 (0.1)	1.9 (0.1)	1.1 (0.1)	2.1 (0.1)
Screening lab test or blood pressure check	1.3 (0.01)	0.1 (0.005)	1.5 (0.01)	0.3 (0.04)	– ^c	0.4 (0.1)	0.1 (0.01)	– ^c	0.07 (0.01)
Other preventive care ^d	0.8 (0.008)	0.8 (0.02)	0.3 (0.006)	11.4 (0.4)	25.2 (0.8)	5.5 (0.3)	0.4 (0.04)	0.5 (0.05)	0.4 (0.05)
Other care not included in above categories	8.9 (0.03)	5.8 (0.04)	9.7 (0.03)	70.5 (0.6)	44.7 (0.8)	81.5 (0.6)	87.5 (0.3)	76.2 (0.6)	91.3 (0.2)
Total, ten most common reasons for visits to retail clinics ^e	90.3 (0.03)	93.4 (0.04)	90.0 (0.03)	18.1 (0.5)	30.1 (0.8)	13.0 (0.5)	12.0 (0.3)	23.2 (0.6)	8.3 (0.2)

SOURCE: Authors' analyses of claims data obtained from retail clinic companies and survey data from the National Ambulatory Medical Care Survey (NAMCS) and the National Hospital Ambulatory Medical Care Survey (NHAMCS).

NOTE: Standard errors are in parentheses.

^a Number of visits to retail clinics since they opened. Number of estimated annual visits to PCPs and EDs from 2002 to 2005 based on sampling weights. Numbers for retail clinics are different from what is presented in Exhibit 2 because of missing data on reasons for visits.

^b Column percentages do not add up to 100% because of rounding.

^c The National Center for Health Statistics recommends against reporting individual estimates based on fewer than thirty records or with a standard error greater than 30% because of low reliability.

^d Preventive care visits not for immunizations or screening. Defined by primary visit *International Classification of Diseases*, Ninth Revision (ICD-9), diagnosis codes V01, V70, V72, and V29–V39.

^e The ten most common reasons are upper respiratory infection, sinusitis, bronchitis, pharyngitis, immunizations, otitis media, otitis externa, conjunctivitis, urinary tract infection, and screening lab/blood pressure test.

The ten clinical issues commonly addressed at retail clinics account for an estimated 87.67 million visits to PCPs (18.1 percent of all PCP visits) and 13.53 million visits to EDs (12.0 percent of all ED visits) (Exhibit 3). The mean duration of these visits at PCP offices was 14.0 minutes, versus 18.2 minutes for visits to PCPs for other reasons, and the mean duration of these visits to EDs was 142.8 minutes.

Some have raised concern that if patients visit retail clinics instead of PCP offices, this will decrease the opportunities for PCPs to manage chronic illnesses and provide preventive care. Among the 87.67 million visits to PCPs for reasons that are commonly cared for at retail clinics, in 8.0 percent of the visits, the patients had one of seven common chronic illnesses (asthma, hypertension, diabetes, COPD, congestive heart failure, depression), and in 11.3 percent, the physician provided or ordered any of the eight preventive care services listed earlier.

Discussion

■ **Safety-net providers?** Compared to patients seen by PCPs, retail clinic patients are more likely to be young adults (ages 18–44) who pay out of pocket for their care and who are less likely to have a PCP. The profile of visits to retail clinics is more similar to patients' visits to EDs. If retail clinics were not available, it is unclear whether these patients would have gone to a PCP office, urgent care clinic, or ED or if they would have sought medical care at all.¹³ It is possible that retail clinics could serve as a safety-net provider for some patients who now seek care in EDs. If retail clinics are serving patients who would not have sought care at all, there is the potential for retail clinics to increase overall health care costs. Future studies should examine which, if any, alternative sources of care users of retail clinics considered and why they sought care from the retail clinic.

■ **Limited number of problems.** The scope of care at retail clinics is focused on a small set of clinical complaints: just ten complaints account for more than 90 percent of all retail clinic visits. In contrast, these same ten complaints account for 13 percent of adult PCP visits, 30 percent of pediatric PCP visits, and 12 percent of ED visits. Patients may consider these problems to be straightforward and value convenience more than they value seeing a particular provider. Retail clinics might be particularly attractive because it is often difficult to obtain a timely PCP appointment and because EDs have long waiting times.¹⁴

■ **Preventive services.** In addition to providing care for acute health problems, retail clinics provide preventive services, primarily immunizations. Immunization rates for U.S. adults continue to be low. In 2007, only 69 percent of adults age sixty-five and older and 17 percent ages 18–49 had received an influenza vaccine in the previous year.¹⁵ Another study found that just 64 percent of elderly people had been offered a pneumococcal vaccine.¹⁶ To the extent that convenience is a factor, retail clinics may offer a new venue for helping increase immunization rates.¹⁷

■ **Disruption of primary care relationships.** Some have raised the concern that retail clinics may disrupt primary care relationships. We found that three-fifths of patients did not report having a PCP, so for these patients there is no relationship to disrupt. Some argue, however, that urgent care appointments with a PCP enable patients to establish such a relationship and provide an opportunity to deliver preventive care.¹⁸ We found that in 11 percent of similar visits to PCPs there was some preventive care ordered or delivered. Future studies should assess whether retail clinics

“Most of the conditions cared for in retail clinics likely do not require the level of training of a physician.”

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adversely affect the receipt of preventive care.

■ **Coordination of care.** A related issue is coordination of care and the concern that retail clinics could exacerbate the already major problems in communication across care settings.¹⁹ Most independent retail clinic providers can provide patients with a printed visit summary from their electronic medical records (EMRs), or the clinic can fax the record to a physician upon the patient’s request.²⁰ However, we do not know how often this occurs and whether the pattern of communication is better or worse than what is seen between other care providers.²¹

■ **Training requisites.** Most of the conditions cared for in retail clinics likely do not require the level of training of a physician. For some conditions, such as urinary tract infections, computer kiosks have been used to diagnose and treat patients.²² The shortage of physicians, in particular PCPs, and the stress on EDs suggest that retail clinics could relieve some of the demand on both of these care settings.²³

■ **Potential financial impact on PCPs.** Some worry that if such a shift of care occurs, it could hurt PCPs financially.²⁴ We found that visits to PCP offices for the ten complaints most commonly seen in retail clinics are on average almost 25 percent shorter than other types of visits. Therefore, if there is a shift in care, PCPs will be forced to schedule fewer visits per hour. Furthermore, simple acute visits are less likely than visits for chronic disease management to generate unreimbursed care outside of the visit.²⁵ Therefore, it is possible that a shift in care could hurt PCPs financially. On the other hand, if PCPs replace these lost visits for these simple acute problems with visits for more complex problems that are reimbursed at a higher rate, then the impact could be minimal. The financial impact of retail clinics on PCPs should be addressed in future research.

■ **Study limitations.** There are some important limitations to our findings. Although our analyses included the majority of retail clinics, we do not know whether our results are generalizable to other retail clinic companies. Given the expected rapid growth among retail clinics, we also do not know whether the patterns of utilization we observed will remain stable over time. We found no major time trends in patient demographics. As the sector expands, ongoing descriptive studies will be necessary to evaluate trends.

We found that 67 percent of retail clinic visits and 90 percent of PCP visits were paid for by insurance. We do not have a direct measure of patients’ insurance status, and so we relied on the method of payment as a proxy. Furthermore, because some retail clinic companies provided patient symptoms instead of a diagnosis, our estimates of the number of visits for some diagnoses such as otitis media might be high. We were not able to validate the coding of reasons for visits by retail clinic providers, but we have no reason to believe that it is systematically biased. Lastly,

our estimates on the frequency of diagnoses at retail clinics could be biased if nurse practitioners, the usual providers at retail clinics, systematically misdiagnosed conditions. But this seems unlikely, because previous research has found comparable quality of care between nurse practitioners and physicians.²⁶

THE NUMBER OF RETAIL CLINICS IN THE United States is increasing rapidly. Recent polls indicate that 15 percent of children and 19 percent of adults are very likely or likely to use a retail clinic in the future, and one report estimates that by 2011 there will be 6,000 retail clinics in the United States providing more than fifty million visits per year.²⁷ Retail clinics appear to be providing care to a patient population less likely to use PCPs, and their focus is on a limited scope of reasons for which patients might prefer convenience over a relationship with a particular provider. To what extent the growth in retail clinics will lead to a shift of care from EDs or PCP offices to retail clinics or the disruption of primary care relationships is unknown.

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 These research findings were presented at the 2008 AcademyHealth Annual Research Meeting, 9 June 2008, in Washington, D.C., and the 2008 Annual Meeting of the Society for General Internal Medicine, 9 April 2008, in Pittsburgh, Pennsylvania. The authors gratefully acknowledge the California HealthCare Foundation for its financial support of this work. Ateev Mehrotra's salary was supported by a career development award (no. KL2-RR024154-01) from the National Center for Research Resources, a component of the National Institutes of Health. The authors also thank the participating retail clinic companies for providing their data.

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