



Comparing Utilization and Costs of Care in Freestanding Emergency Departments, Hospital Emergency Departments, and Urgent Care Centers

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Study objective: We compare utilization, price per visit, and the types of care delivered across freestanding emergency departments (EDs), hospital-based EDs, and urgent care centers in Texas.

Methods: We analyzed insurance claims processed by Blue Cross Blue Shield of Texas from 2012 to 2015 for patient visits to freestanding EDs, hospital-based EDs, or urgent care centers in 16 Texas metropolitan statistical areas containing 84.1% of the state's population. We calculated the aggregate number of visits, average price per visit, proportion of price attributable to facility and physician services, and proportion of price billed to Blue Cross Blue Shield of Texas versus out of pocket, by facility type. Prices for the top 20 diagnoses and procedures by facility type are compared.

Results: Texans use hospital-based EDs and urgent care centers much more than freestanding EDs, but freestanding ED utilization increased 236% between 2012 and 2015. The average price per visit was lower for freestanding EDs versus hospital-based EDs in 2012 (\$1,431 versus \$1,842), but prices in 2015 were comparable (\$2,199 versus \$2,259). Prices for urgent care centers were only \$164 and \$168 in 2012 and 2015. Out-of-pocket liability for consumers for all these facilities increased slightly from 2012 to 2015. There was 75% overlap in the 20 most common diagnoses at freestanding EDs versus urgent care centers and 60% overlap for hospital-based EDs and urgent care centers. However, prices for patients with the same diagnosis were on average almost 10 times higher at freestanding and hospital-based EDs relative to urgent care centers.

Conclusion: Utilization of freestanding EDs is rapidly expanding in Texas. Higher prices at freestanding and hospital-based EDs relative to urgent care centers, despite substantial overlap in services delivered, imply potential inefficient use of emergency facilities. [Ann Emerg Med. 2017;70:846-857.]

Please see page 847 for the Editor's Capsule Summary of this article.

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SEE EDITORIALS, PP. 858, 871 AND 875.

INTRODUCTION

Background

A freestanding emergency department (ED) is a facility that is structurally separate and distinct from a hospital that provides emergency care. Some are satellite facilities of acute care hospitals and others are independently operated. No organization tracks the growth of freestanding EDs throughout the country, although various parties have counted the number of facilities at one point. One research article estimated a total of 80 freestanding EDs (satellite and independent) in the country in 2007.¹ A recent study counted 360 as of 2015, with Texas having the most (181) of any state.²

Importance

Proponents of freestanding EDs claim that they relieve crowding and deliver more timely care than hospital-based EDs and decrease health care spending by delivering care in a lower-cost setting. Freestanding EDs may also provide emergency care to patients in markets that have experienced hospital closures, or offer convenience to patients who live far from hospital-based EDs. However, critics of freestanding EDs argue that the facilities increase spending because they serve as supplements to traditional EDs rather than substitutes, delivering care that could be provided in alternative lower-cost settings.³ In particular, several local media outlets have reported cases of patients mistaking freestanding EDs for lower-cost urgent care centers, because both facilities are commonly located in

Editor's Capsule Summary

What is already known on this topic

There has been significant growth in freestanding emergency departments (EDs), particularly in Texas.

What question this study addressed

Using Blue Cross Blue Shield of Texas claims data, the authors compared the types and costs of emergency and urgent care services delivered by freestanding EDs, hospital-based EDs, and urgent care centers between 2012 and 2015.

What this study adds to our knowledge

There is considerable overlap in the types of clinical conditions treated in the 3 settings. For the same diagnostic category, average costs were 10 times higher at freestanding and hospital-based EDs compared with urgent care centers. However, because the latter have different costs, staffing, hours of operation, diagnostic capabilities, and Emergency Medical Treatment and Labor Act expectations than EDs, direct comparison and conclusions about efficiency are not valid.

How this is relevant to clinical practice

In Texas, for comparable conditions, freestanding EDs are not delivering less costly emergency or urgent care compared with hospital-based EDs. Better data for comparison of operational costs is needed.

suburban strip malls.⁴⁻⁶ Despite the opposing claims on the costs and benefits of freestanding EDs, to our knowledge there are no studies that provide evidence from a sufficiently sized sample to conclude whether freestanding EDs increase or decrease costs or whether the services provided justify the amounts billed to consumers and insurers.

Goals of This Investigation

In this study, we analyze emergency care and urgent care claims from one of the largest insurers in Texas to examine changes in utilization of these facilities over time, as well as prices and type of services delivered. Multiple media reports mentioning freestanding EDs in Texas suggest that this state is one of the first to experience significant growth in these facilities.⁷⁻⁹ This state's experience may provide guidance to other states as policymakers consider whether to regulate entry of these new providers. The Texan population of 27 million, which is larger than that of the 19

smallest US states combined, provides a large sample size to draw inferences on how utilization and prices evolve in this market.

MATERIALS AND METHODS

Study Design and Setting

We conducted a secondary analysis of all insurance claims (including facility and professional) processed for care at hospital-based EDs and freestanding EDs, as well as urgent care centers, through Blue Cross Blue Shield of Texas (BCBSTX) for January 2012 through December 2015. States that license freestanding EDs differ in their requirements for these facilities, but the American College of Emergency Physicians has issued a policy statement that freestanding EDs should be available to the public 24 hours a day, 7 days a week, and they should be staffed by qualified emergency physicians.¹⁰ Urgent care centers are walk-in health care centers that treat episodic conditions that need immediate but not emergency care. They are not open 24 hours a day, have different equipment and staffing, and do not have Emergency Medical Treatment and Labor Act obligations.¹¹ Although they do not provide exactly the same services, we compare EDs to urgent care centers because no better comparable billing or cost data are available, and past research has found that 27.1 percent of all ED visits could be managed at a retail clinic or urgent care center.¹²

We accessed all 2012 to 2015 claims processed as of July 2016. The Texas Prompt Pay Statutes and Rules require that all claims submitted by providers be processed within 45 days,¹³ so the documented care in these data is comprehensive for this 4-year period. Almost all of these payments were submitted to BCBSTX electronically. Physicians and other practitioners must submit a diagnosis and related procedure code with each claim to receive reimbursement. Each facility type must submit a procedure code, diagnosis related group, or revenue code. The strengths of private insurer claims databases in documenting treatment costs and dates of service in large populations have been previously noted.¹⁴ We excluded any claims in which BCBSTX was not the primary insurer.

The nonprofit health insurer had 5.5 million individuals enrolled in health maintenance organization or preferred provider organization plans in 2012, which increased to 5.8 million beneficiaries in 2015. The majority of individuals covered had employer-provided health insurance, but the sample includes those who purchased insurance directly from BCBSTX, including customers covered by federal Health Insurance Marketplace plans from January 2014 onward. The insurer was estimated to account for 48% of the commercial insurance market in 2013.¹⁵

To avoid biasing comparisons across facility types, we excluded claims from metropolitan statistical areas in which there was no freestanding ED open during the sample period. This exclusion limited the analysis to claims for patients living in the metropolitan statistical areas: Amarillo, Austin, Beaumont, Bryan, Corpus Christi, Dallas/Ft Worth, El Paso, Houston, Lubbock, Midland, San Antonio, Texarkana, The Valley, Tyler, Victoria, and Waco. These areas represent 84.1% of the Texas population.

A protocol for analysis of the freestanding ED data was submitted to Rice University's institutional review board and found to be exempt from the need for further review according to Title 45, Part 46, Section 101 (b)4 of the Code of Federal Regulations. Statistical analyses were performed with SAS (version 9.4; SAS Institute, Inc., Cary, NC).

Methods of Measurement

The BCBSTX claims files contain a provider-type code with roughly 330 categories that encompass professions (eg, licensed practical nurses, occupational therapists) and facility types (eg, diagnostic imaging facilities, nursing homes). Claims with the code for "free standing ER (24/7)" were classified as freestanding ED claims. There were 7 different codes (eg, urgent care facility, urgent care clinic) that were then used to identify urgent care center claims.

Because the provider-type codes for hospitals were even more diverse than for urgent care centers (eg, specialty hospitals, psychiatric hospitals), it was more straightforward to identify claims associated with hospital-based ED visits by using a 2-step process, in which we first used a different variable to identify claims from an "institution" (as opposed to a professional, pharmacy, etc, claim). We then selected claims with an institutional revenue code for an ED visit (codes 450 to 459) or a current procedure terminology (CPT) code for ED visit for evaluation and management of a patient (codes 99281 to 99285) that did not have a provider-type code for a freestanding ED. Any provider that is seeking reimbursement from BCBSTX must submit valid licensing and certification proof, plus undergo an onsite inspection. Although we likely do not have data on all freestanding EDs, hospital-based EDs, and urgent care centers in Texas, the Blue Cross Blue Shield verification process supports the accuracy of facility types.

For each visit, the claims contain the "total allowed amount," which is the amount the provider should be paid by the insurer and patient together. We refer to this amount as the "price" of each visit. The claims also specify the "paid amount," which is the portion of the total allowed amount paid by the insurer. We assumed the remainder of the total allowed amount was paid out of

pocket by the patient. We lack information on hospital-based ED visits that resulted in hospitalization because it was impossible to determine which portion of these bills was attributable to the ED visit and which was attributable to the admission.

Primary Data Analysis

For each year, we calculated the aggregate number of visits to each facility type for beneficiaries with claims processed by BCBSTX. All claims from the same facility within a 24-hour period are assumed to represent one visit. However, if there are claims associated with more than one facility on the same day (eg, claims from a freestanding ED and a hospital-based ED), they represent 2 separate visits in the sample. We also calculated the mean and median price per visit to each facility type by year, proportion of the price attributable to facility versus professional services, and the mean and median amounts for which the patient was liable out of pocket. Professional services encompass health care provided by physicians, nurses, and any other personnel at the facility.

Almost all visits to an ED require medical screening of each patient, which results in both the facility's and the physician's billing separately for evaluation and management services. The billing code ranges from 99281 to 99285, with the facility code determined by the intensity and volume of resources utilized, and physician billing based on the complexity and cognitive effort expended to treat the patient. Higher codes result in higher reimbursement to the provider.¹⁶ We report the distribution of evaluation and management visits by billing code and year for freestanding and hospital-based EDs.

We determined the most common diagnoses according to *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)* codes for each facility type during the 4-year sample period. The *ICD-9-CM* codes were collapsed into 285 clinically meaningful categories, using the Agency for Healthcare Research and Quality Clinical Classifications Software methodology.¹⁷ We list the 20 most common diagnostic categories and report the mean and median price for each diagnosis and the percentage of all visits each diagnosis represents by facility type. We then compute the ratio of the treatment price for each diagnosis at a freestanding ED compared with an urgent care center and the price ratio for hospital-based EDs versus urgent care centers. An average of these ratios over all diagnostic categories that either freestanding EDs or hospital-based EDs have in common with urgent care centers summarizes the difference in costs of care by provider type.

Procedures were defined in the claims data with the Healthcare Common Procedure Coding System. We

collapsed these system codes into approximately 500 clinically related categories, using a method developed by Truven Health Analytics.¹⁸ We then used these categories to determine the 20 most common procedures performed during each visit. At freestanding and hospital-based EDs, both the facility and the physician submit claims to BCBSTX for treatments provided. At urgent care centers, there is no facility claim. For some visits, more than one procedure was performed. In these cases, we included each billed procedure in our counts. We list the 20 most common procedures and report the mean and median price for each procedure by facility type and the share of all visits where this procedure was found.

RESULTS

Characteristics of Study Subjects

The freestanding ED claims processed by BCBSTX came from 52 facilities in 2012. The number of facilities submitting claims increased to 86 in 2013, 134 in 2014, and 207 in 2015. The smaller number for 2012 is consistent with a previous count of 191 hospital-affiliated freestanding EDs open nationally at the end of 2008, with an additional 31 independent freestanding EDs serving patients, mostly in Texas.¹⁹ The count of 206 freestanding EDs through December 2015 is higher than the report of 181 freestanding EDs in Texas by Schuur et al,² but their count was current only through March 31, 2015. The insurer BCBSTX gained enrollees between 2012 and 2015, but at an uneven rate. There were small declines in

enrollment in 2013 and 2015, along with a much larger enrollment increase in 2014.

Main Results

Figure 1 graphs the number of visits to freestanding EDs, hospital-based EDs, and urgent care centers by year in the 16 Texas metropolitan statistical areas in which at least one freestanding ED was open between 2012 and 2015. Trends in total visits by year and facility type highlight the differential growth in utilization by facility type. Between 2012 and 2015, visits to freestanding EDs that filed claims with BCBSTX increased 236% (from 54,696 to 183,971). In contrast, hospital-based ED visits increased 10% (from 954,548 to 1,046,545), and visits to urgent care centers increased 24% (from 748,213 to 926,933). The absolute decrease in hospital-based ED and urgent care center visits between 2012 and 2013 is likely due to the slight decrease in enrollment that BCBSTX experienced in 2013.

Figure 2 graphs the average price paid for care by facility type and year. Between 2012 and 2015, the average price per visit at freestanding EDs increased 54%, from \$1,431 to \$2,199. During this same period, the average price per visit at hospital-based EDs increased 23%, from \$1,842 to \$2,259. Prices at urgent care centers were substantially lower and increased only 2% (from \$164 to \$168) between 2012 and 2015. As prices increased, the amount patients were liable for out of pocket also increased. Freestanding ED patients were liable for 32% out of pocket in 2012 (\$462/\$1,431) but 35% (\$763/\$2,199) in 2015. Patients treated in hospital-based EDs were liable for 29% out of pocket in 2012 (\$541/\$1,842) but 33% (\$749/\$2,259) in 2015. Even urgent care center patients were liable for more out of pocket over time: 36% in 2012 (\$58/\$164) versus 38% in 2015 (\$63/\$168). Median prices by provider type and year are reported in Table E1 (available online at <http://www.annemergmed.com>). The median prices are lower than mean prices for freestanding and hospital-based EDs, suggesting that payments to these providers are skewed to the right. Changes in mean prices paid out of pocket for freestanding ED patients are greater than the change in median prices, indicating that freestanding ED patients with the highest out-of-pocket costs fared the worst over time.

Figure 3 graphs the average price per visit for emergency care and the share attributed to the facility fee versus the professional fee. Urgent care facilities do not charge a facility fee. In each year, the facility accounts for at least 80% of the total visit price for both freestanding and hospital-based EDs. Between 2012 and 2015, the growth rate in the facility component was greater for freestanding

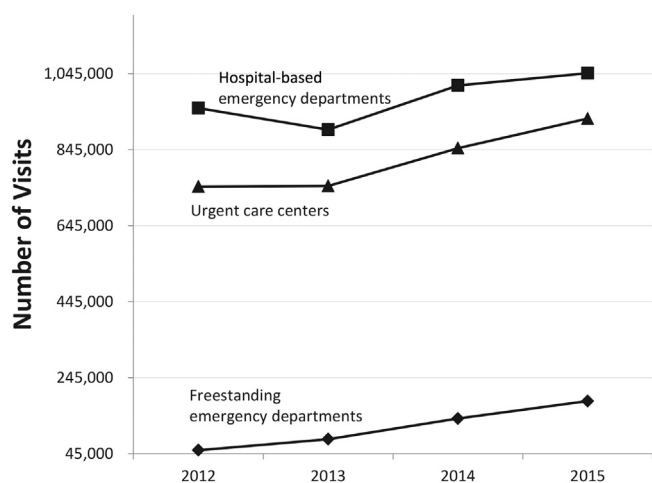


Figure 1. Visits by Blue Cross Blue Shield customers in Texas by provider type and year. The plotted values reflect increases of 10%, 24%, and 236% in visits between 2012 and 2015 respectively, for hospital-based emergency departments, urgent care centers and freestanding emergency departments.

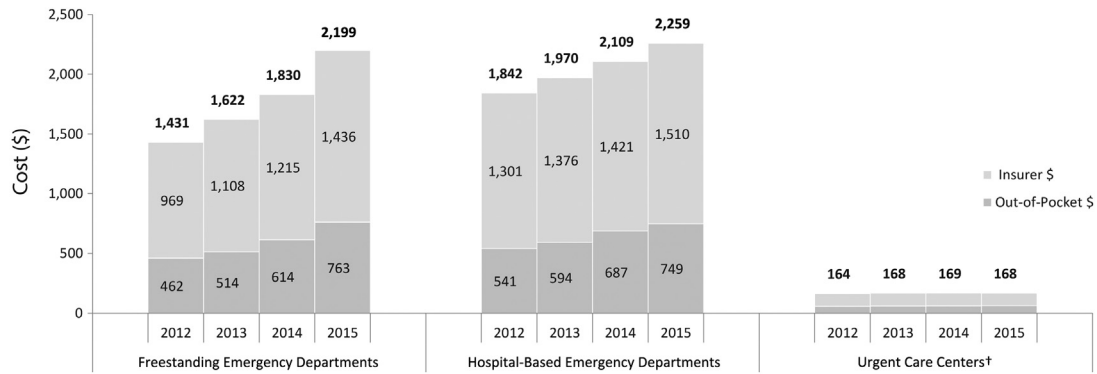


Figure 2. Mean total price per visit and mean amounts paid by insurance versus out of pocket by provider type and year.* *Number of visits in 2012 versus 2015 equals 54,696 versus 183,971 for freestanding EDs, 954,548 versus 1,046,545 for hospital-based EDs, and 748,213 versus 926,933 for urgent care centers. †At urgent care centers, the insurer-paid amount was \$106 in 2012 and \$104 in 2015. The amount paid out of pocket was \$58 in 2012 and \$63 in 2015.

EDs than hospital-based EDs (47.0% versus 21.9%). The growth rate for the professional component was also greater for freestanding EDs relative to hospital-based EDs (95.0% versus 25.7%). Table E1 (available online at <http://www.annemergmed.com>) shows that mean prices paid to facilities and physicians are higher than median prices among freestanding and hospital-based EDs. Similar to mean prices, increases in median prices are greater for freestanding versus hospital EDs.

Figure 4 graphs the distribution of ED visits by acuity level as coded in facility and professional bills for freestanding and hospital-based EDs by year. In the facility bills, of all visits for freestanding and hospital-based EDs, levels 1 and 2 visits declined, respectively, from 11.1% and 16.3% in 2012 to 5.8% and 13.0% in 2015. Level 3 visits of all visits for freestanding and hospital-based EDs also decreased, respectively, from 49.1% and 40.8% in 2012 to

44.5% and 36.5% in 2015. In contrast, level 4 and 5 visits of all visits for freestanding and hospital-based EDs increased, respectively, from 25.3% and 42.8% in 2012 to 49.7% and 50.4% in 2015. Changes in the distribution of acuity levels were similar in the professional bills, although physicians were less likely to code visits as 99281 to 99282 relative to facilities.

Table 1 lists the 20 most common diagnoses by facility type for 2012 to 2015 combined. The top 20 diagnoses account for 68% of all conditions treated at freestanding EDs, 57% at hospital-based EDs, and 77% at urgent care centers. These figures suggest that the patient population at hospital-based EDs is more heterogeneous than at freestanding EDs and urgent care centers. There was noticeable overlap in the diagnoses noted across facility types. Fifteen of the 20 most common diagnoses treated at freestanding EDs and 12 of the most common for

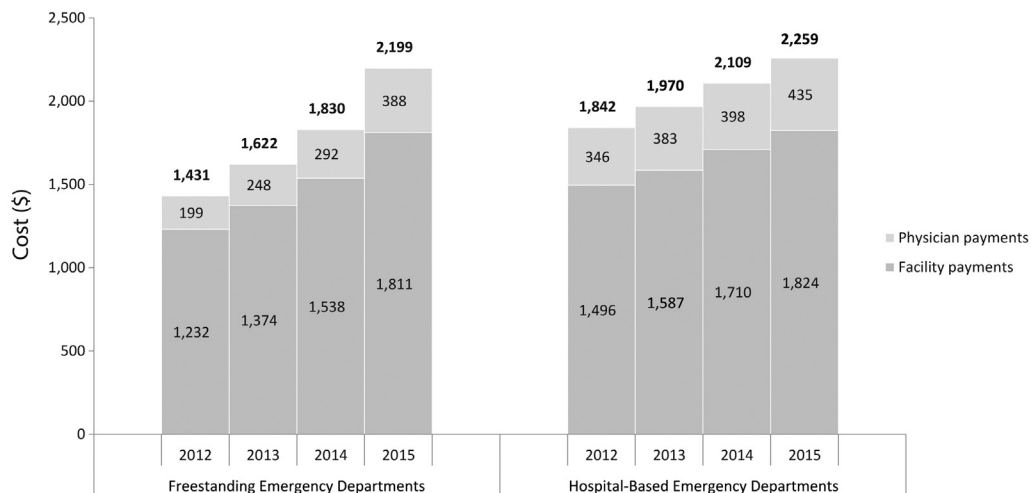


Figure 3. Mean price per visit and by facility and professional components for EDs.* *Number of visits for 2012 versus 2015 equals 54,696 versus 183,971 for freestanding EDs and 954,548 versus 1,046,545 for hospital-based EDs.

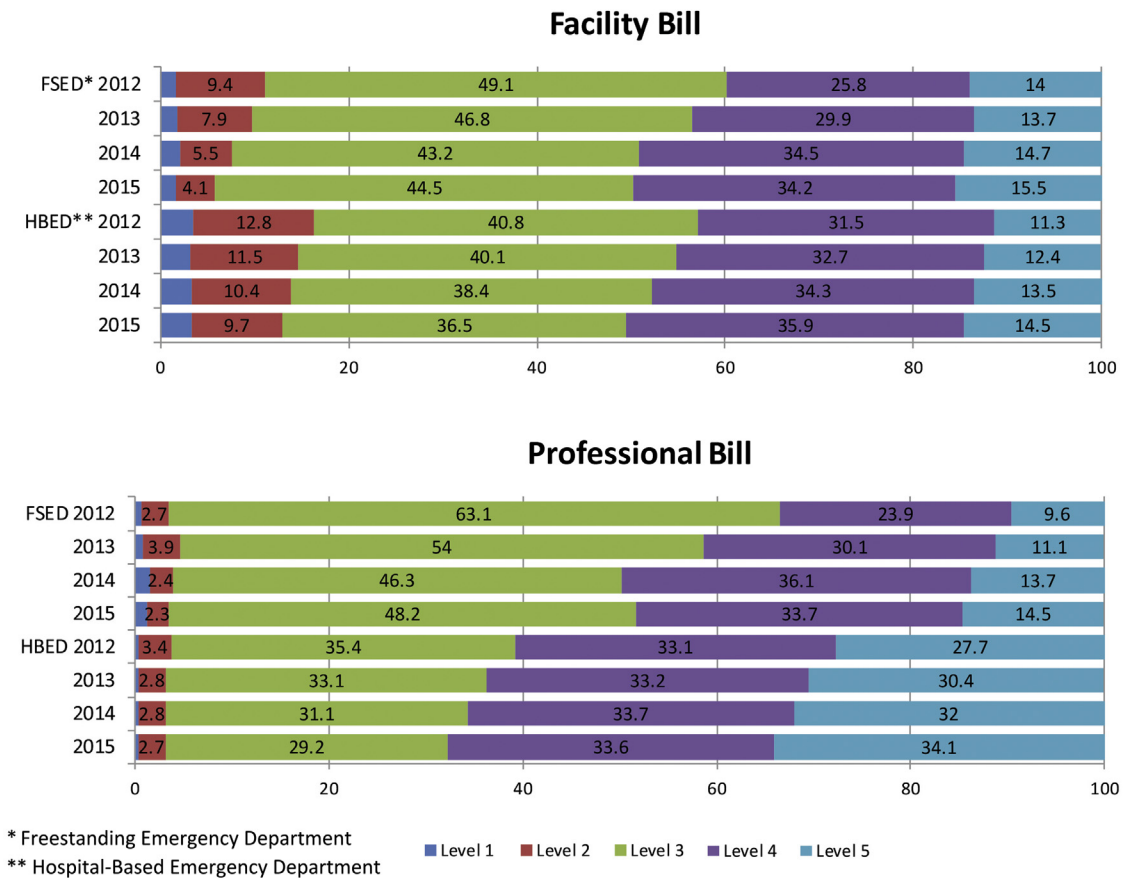


Figure 4. ED visits by severity level and facility type.

hospital-based EDs were also in the top 20 for urgent care centers. However, prices for patients with the same diagnosis were on average almost 10 times higher at freestanding and hospital-based EDs relative to urgent care centers. For example, the most common diagnostic category treated at freestanding EDs is “other upper respiratory infections,” which had an average price of \$1,351, 8.2 times the price of \$165 that was paid for the same diagnosis at urgent care centers. Hospital-based EDs were paid \$1,074 for this diagnostic category, which was 6.5 times the price paid at urgent care centers. The average of these price ratios for the 15 diagnostic categories treated at both freestanding EDs and urgent care centers was 9.8. The average of these prices ratios for the 12 diagnostic categories treated by hospital-based EDs and urgent care centers was also 9.8. Median prices by diagnosis are reported in Table E2 (available online at <http://www.annemergmed.com>). The ratio of median prices for freestanding EDs versus urgent care centers and for hospital-based EDs versus urgent care centers were both on average equal to 8.0.

To check whether the higher prices in EDs versus urgent care centers might be due to differences in patients with specific ICD-9 codes presenting at different facilities, we

examined visits with clinical classifications software code 789 (abdominal pain) more closely. The 4 most common 5-digit ICD-9 codes in this category were epigastric pain (789.06), generalized pain (789.07), other specified site (789.09), and unspecified site (789.00). The 2015 price for visits with these codes as the primary diagnosis ranged from \$3,167 to \$3,785 for freestanding EDs, from \$2,614 to \$3,137 for hospital-based EDs, and from \$149 to \$158 for urgent care centers. Therefore, the observed price differentials do not appear to be a consequence of inappropriate aggregation of diagnoses.

Table 2 lists the 20 most common procedures by facility type for the study period 2012 to 2015. The prices in Table 2 include both the facility and professional component of each procedure’s price.

Almost all visits to freestanding and hospital-based EDs (98.3% and 97.1%, respectively) included a claim for an ED visit for evaluation and management of a patient (CPT codes 99281 to 99285). For urgent care center patients, 96.4% of visits included a claim for an office visit for a new or established patient. There was slightly less overlap in procedure codes between EDs and urgent care centers

Table 1. Rank by frequency, percentage of all visits, and mean prices of the most common diagnoses by provider type (2012 to 2015).*

Diagnosis and CCS Code	FSED			HBED			UCC		
	Rank	%	Price, \$	Rank	%	Price, \$	Rank	%	Price, \$
Abdominal pain 251	3	6.6	3,466	1	5.7	2,875	17	1.6	173
Acute bronchitis 125	5	4.0	1,571	20	1.6	1,471	2	5.0	178
Allergic reactions 253	16	2.1	1,373	18	1.6	1,139	11	2.3	159
Calculus of urinary tract 160				13	1.9	3,404			
Chest pain 102	12	2.5	3,497	4	4.5	2,987			
Fever of unknown origin 246	8	3.2	1,579				15	1.8	174
Fracture of upper limb 229	17	1.9	1,783	15	1.8	2,263			
Headache, including migraine 84	9	2.9	2,267	6	3.2	2,231			
Inflammation, infection of eye (except that caused by tuberculosis or sexually transmitted disease) 90							12	1.9	144
Influenza 123							8	2.8	185
Nausea and vomiting 250				14	1.9	2,009			
Open wounds of extremities 236	6	3.9	1,486	8	2.7	1,410	18	1.6	212
Open wounds of head, neck, and trunk 235	14	2.4	1,494	12	2.1	1,721			
Other complications of pregnancy 181				17	1.7	1,835			
Other connective tissue disease 211	19	1.6	1,568	19	1.6	1,585	19	1.3	169
Other ear and sense organ disorders 94	20	1.4	1,123				14	1.9	154
Other injuries and conditions from external causes 244	10	2.9	1,611	10	2.4	1,934			
Other lower respiratory disease 133	13	2.4	2,168	16	1.8	2,178	10	2.3	173
Other upper respiratory disease 134							6	3.3	169
Other upper respiratory infections 126	1	8.6	1,351	3	5.0	1,074	1	28.7	165
Otitis media and related conditions 92	18	1.7	1,062				3	4.1	152
Pneumonia (except that caused by tuberculosis or sexually transmitted disease) 122							20	1.2	200
Skin and subcutaneous tissue infections 197	7	3.3	1,579	11	2.4	1,297	7	3.0	172
Spondylosis, intervertebral disc disorders, other back problems 205	15	2.3	1,716	7	2.8	1,755	16	1.7	160
Sprains and strains 232	2	6.9	1,581	2	5.4	1,523	4	4.1	183
Superficial injury, contusion 239	4	4.6	1,441	5	4.3	1,585	9	2.8	171
Urinary tract infections 159	11	2.5	1,769	9	2.7	2,122	5	3.4	153
Viral infection 7							13	1.9	156

CCS, Clinical classifications software; FSED, freestanding ED; HBED, hospital-based ED; UCC, urgent care center.

*Cells are blank in cases in which a procedure is not in the top 20 for a facility type.

relative to the overlap in diagnoses. Thirteen of the most common procedure codes associated with freestanding ED visits were also one of the 20 most common for urgent care centers, and hospital-based EDs and urgent care centers reported 11 procedures in common. In cases in which procedure codes overlapped, the total price per visit was 13 times higher in freestanding EDs versus urgent care centers and 11 times higher in hospital-based EDs versus urgent care centers. For example, the price for a therapeutic or intravenous injection at a freestanding ED was \$203, which was 11.9 times the \$17 price at an urgent care center. Hospital-based EDs had a price of \$145 for the same injections, 8.5 times the urgent care center price. These injections were billed for in 37.6% and 41.7% of visits to freestanding and hospital-based EDs, respectively, and 20.6% of urgent care center visits. Median prices by procedure are reported in Table E3 (available online at <http://www.annemergmed.com>). The ratio of median

prices for freestanding EDs versus urgent care centers was on average equal to 10.8. The ratio for hospital-based EDs versus urgent care centers was on average equal to 11.1.

LIMITATIONS

Caveats remain in regard to our analysis. Patients may not have paid their portion of allowed costs in the claims, which would have led to overestimated prices. We have no reason to believe that hospitals are more successful in collections from insured patients than freestanding EDs, so any overestimate of price could be similar for both. Even if patients do not pay the full out-of-pocket price, the anxiety caused by high bills and the potential for medical debt distresses them. Data from one insurer may not track the full effect of freestanding EDs in the Texas market. Other insurers may differ in their population case mix and the number of freestanding EDs and urgent care centers in their network.

Table 2. Rank by frequency, percentage of all visits, and mean prices of the most common procedures by provider type (2012 to 2015).*

Procedure	FSED (CPT)			HBED (CPT)			UCC (CPT)		
	Rank	%	Price, \$	Rank	%	Price, \$	Rank	%	Price, \$
Bacterial culture, urine				19	6.1	83			
Blood cell count, automated	5	22.8	109	3	39.7	67	10	4.7	7
Blood test: prothrombin time				17	7.2	48			
CT scan, abdomen/pelvis	17	7.1	1,560	13	8.6	1,625			
CT scan, head and neck	20	4.9	1,210	15	8.0	957			
ECG	16	7.5	155	9	17.9	235	19	1.1	23
ED visits	1	98.3	1,049	1	97.1	937			
Observation care				16	7.3	541			
Immunology tests							15	1.7	7
Injections: immunizations							13	2.2	31
Injections: therapeutic/intravenous	3	37.6	123	2	41.7	111	4	20.6	17
Laboratory tests, organ/disease panel	6	22.1	198	4	38.8	149			
Medical supplies and devices	2	38.0	46	12	9.0	145	8	5.6	13
Office visits, emergency							9	5.2	65
Office visits, established patient							1	53.1	130
Office visits, new patient							2	43.3	149
Office visits, other							5	9.4	21
Other chemistry tests	12	11.4	111	5	30.6	86	20	1.0	6
Other injections/noninjectables	13	10.2	47						
Other microbiology tests	8	14.0	150	14	8.3	93	3	22.6	18
Other minor skin and breast surgery	19	4.9	393				17	1.4	141
Other nonsurgical pulmonary services	4	30.2	81				16	1.7	4
Other urinalysis	15	9.1	64	18	6.4	70	18	1.2	6
Respiratory therapy							14	1.9	22
Routine urinalysis	7	18.7	51	6	27.1	49	6	6.7	3
Specialty drugs	14	10.0	109	10	13.2	58			
Transportation services	18	5.6	171	20	5.4	456			
Venipuncture (draw blood)	10	12.4	19	7	21.0	12	12	3.0	3
Radiograph, chest	11	12.0	267	8	19.7	194	11	4.7	25
Radiograph, extremities	9	13.2	266	11	11.4	216	7	6.4	27

CT, Computed tomography.

*Cells are blank in cases in which a procedure is not in the top 20 for a facility type.

We lack information on hospital-based ED visits that resulted in hospitalization because it was impossible to determine which portion of these bills was attributable to the ED visit and which was attributable to the admission. For a sensitivity analysis, we removed from the sample freestanding ED visits that resulted in a hospital admission (1.6% of all freestanding ED visits), and the calculations on prices and utilization remained virtually the same.

Texas's population has increased steadily, so it would have been informative to report the number of visits per capita by facility type. However, we lack information on the total number of insured consumers that BCBSTX is responsible for. In addition to the number of BCBSTX enrollees whom we reported, BCBSTX also processes claims for Texas residents who are employed by corporations based outside of Texas with Blue Cross Blue Shield Association insurance coverage, ie, coverage from a Blue Cross Blue Shield insurer in other states. BCBSTX receives data only for beneficiaries who consume services that result in a claim. It is likely that the share of all claims

coming from residents with out-of-state coverage is the same across years, although we have no way to confirm this statement. Because we do not report any statistics based on rates, the presence of out-of-state coverage does not influence the statistics that we do report.

Even though we identified significant overlap in diagnoses across facility types, the disease severity may have been higher for patients within disease categories treated at emergency facilities versus urgent care centers. Previous studies have also noted that EDs have experienced an increase in high-intensity visits from patients with more comorbidities and higher case-mix indices, as the population ages and the prevalence of chronic diseases has risen.^{20,21} Yet, we cannot rule out the possibility that freestanding EDs and urgent care centers that are owned by physicians who work there³ have greater incentives to upgrade the disease severity of claims to a higher code to receive higher reimbursement. Future analyses with more detailed clinical data should examine overlapping diagnoses and the potential for rising disease severity versus upgrading more closely.

This study did not quantify potential benefits to patients of faster access to care through freestanding EDs versus hospital-based EDs, nor did we consider whether any of the health care examined in this study (particularly care at urgent care centers) could have instead been delivered in a regular physician office at lower costs.

DISCUSSION

Texas passed legislation in 2009 regulating the capabilities and operation of independently operated freestanding EDs, including a required state license to open. The regulations require insurance companies to cover any initial screening examination at a licensed freestanding ED to determine whether an emergency condition exists. If one does, then the insurance company must also cover treatment costs.³ Thus, freestanding EDs can earn a steady stream of revenues in Texas if they can serve a well-insured patient population. A recent study found that freestanding EDs preferentially locate in zip codes with higher rates of population growth, higher median income, higher shares of residents with private insurance, and lower shares of residents covered by Medicaid than in zip codes without a freestanding ED.² Although many freestanding EDs in Texas are unaffiliated with hospitals, satellite emergency facilities may be advantageous for expanding service into suburban areas, which can then refer patients to the flagship hospital when inpatient care is needed.²²⁻²⁴

Our analysis revealed that although Texans use hospital-based EDs and urgent care centers much more than freestanding EDs, the latter facility type experienced a 236% increase in utilization between 2012 and 2015. The average total price per visit was lower for freestanding EDs versus hospital-based EDs in 2012 (\$1,431 versus \$1,842), but prices in 2015 for freestanding and hospital-based EDs were comparable (\$2,199 versus \$2,259). In contrast, prices for urgent care centers were only \$164 and \$168 in 2012 and 2015. Out-of-pocket liability for consumers was between 29% and 36% for all these facilities in 2012 and increased to a range of 33% to 38% in 2015. There was 75% overlap in the 20 most common diagnoses at freestanding EDs versus urgent care centers and 60% overlap for hospital-based EDs and urgent care centers. However, prices for patients with the same diagnosis were on average almost 10 times higher at freestanding and hospital-based EDs relative to urgent care centers. This increase in freestanding ED utilization tracks that in the number of freestanding ED facilities year over year. An April 2015 news article reports that 162 freestanding emergency facilities had opened in Texas since 2010 when they were first licensed by the state.⁹

At least 80% of the price in each year is attributable to the facility fee for both freestanding and hospital-based EDs.

Unlike urgent care centers, both freestanding and hospital-based EDs must provide continuous access to an emergency physician, an emergency nurse, laboratory and radiology technicians, moderate-complexity blood testing (such as urinalysis with microscopy and D-dimer), and advanced imaging such as computed tomography and ultrasonography.²⁵ The cost for meeting these requirements is substantial, supporting the need for a facility fee. However, one would expect that the operating costs of a freestanding ED would be lower than for hospital-based EDs, which must have costly facilities and on-call services that are prepared to provide care for trauma, stroke, and acute coronary patients. Past research has observed that ambulances preferentially route higher-acuity patients with diseases or injuries that will be more costly to hospitals instead of freestanding EDs.²⁶ Moreover, it is difficult to claim that hospital-based EDs have a cost advantage over freestanding EDs owing to economies of scale because past research has concluded that the average cost per visit does not decline as the number of patients treated increases in EDs.²⁷ Future studies should be conducted examining detailed cost data by facility type to determine in which instances the relatively equivalent prices between freestanding and hospital-based EDs for specific diagnoses and procedures may be justified.

Freestanding and hospital-based EDs report relatively low proportions of visits with a billing code of 99281 and 99282. Visits with code 99283 were more common, ranging from 36.5% of all visits for hospital-based EDs in 2015 to 49.1% for freestanding EDs in 2015. Code 99283 reflects visits with “moderate severity” of disease. Future studies should investigate what proportion of these cases could be treated at urgent care centers at lower cost, with similar outcomes for the patient. The proportion of all visits coded at acuity levels 4 and 5 increased from 39.8% to 49.7% between 2012 and 2015 for freestanding EDs and from 42.8% to 50.4% for hospital-based EDs. Future studies should also undertake multiple comparisons of diagnoses and treatments across facility types to determine what proportion of the increase in the level of billing codes reflects true increases in disease severity versus increased upgrades in coding.

The overlap in diagnoses across facility types that we found, accompanied by higher prices for both freestanding and hospital-based EDs relative to urgent care centers, suggests that patients’ inefficient use of hospital-based EDs found in older studies is apparent among freestanding EDs.²⁸⁻³⁰ Patients bear a significant portion of this excess cost, with approximately 30% or higher out-of-pocket liability for emergency care. These out-of-pocket payments are particularly high for visits to freestanding and hospital-based EDs, exceeding \$700 per visit in 2015. All consumers eventually assume some burden for these high

prices because insurance companies raise premiums to cover increased costs. Freestanding EDs potentially waste societal resources because they represent a high-cost provider for services that could be delivered in lower-cost settings. This case is particularly troublesome because anecdotal evidence suggests patients often confuse freestanding EDs for urgent care centers and experience sticker shock when they receive their bills.^{7,31}

Under the Patient Protection and Affordable Care Act, emergency services were included as one of 10 essential health benefits that must be covered in insurance plans. Furthermore, the law specifies that insurers may not impose more restrictive requirements on patients for accessing out-of-network providers relative to conditions imposed on in-network care. Although this language enables better access to emergency care for patients in dire circumstances, it also decreases the incentive for EDs to negotiate lower prices with insurers for delivering in-network care.³²

Our findings suggest that policymakers should consider options for encouraging more efficient freestanding ED utilization. Texas enacted legislation effective September 1, 2015, requiring freestanding EDs to notify incoming patients that the facility charges rates comparable to those of a hospital ED and that the facility may not be in the patient's insurer network.³³ However, this language is weaker than the wording in the original version of the bill, which would have required freestanding EDs to post the minimum and maximum physician charges and the facility fee they would likely charge per visit.³⁴ Patients inexperienced with the health care system may benefit from seeing explicit potential prices, rather than generalities of the comparability of freestanding ED and hospital-based ED fees. Moreover, this stronger wording would benefit freestanding ED patients who mistakenly believe they are visiting an urgent care center.³¹

Policymakers could consider limiting the amount for which freestanding EDs can balance bill patients for out-of-network care. In Texas, insurers are required to pay out-of-network freestanding EDs "usual and customary charges" when no in-network provider is reasonably available. However, the state's rules do not prohibit balance billing patients for out-of-network care.³⁵ Limiting balance billing for facility fees, which compose more than 80% of total freestanding ED prices, seems particularly appropriate. Texans with health maintenance organization coverage are not liable for balance bills; the health maintenance organization is fully responsible for paying the provider. However, most Texans are unaware of this rule, and state law does not prohibit providers from sending a balance bill to health maintenance organization customers.³⁵ New York State is recognized as having the most comprehensive consumer protection; the law requires consumers in

state-regulated plans to pay only in-network cost sharing amounts for emergency services. Maryland and New Mexico, like Texas, provide only partial protection against balance billing.³⁶ Policymakers might also require that freestanding EDs display the logos of insurance companies with negotiated in-network rates, similar to businesses displaying the logos of credit card companies.

Employers and insurers should educate consumers on what conditions require emergency care versus illnesses that can be treated in alternative settings. Most major insurers post information on their Web sites advising consumers to seek emergency care for symptoms such as chest pain, difficulty breathing, or head or eye injuries. These Web sites also give examples of symptoms that can be handled at an urgent care center, including fever without rash, ear pain, or a sore throat. Education supplements monetary incentives included in insurance plans, which charge higher co-payments for visits to an emergency facility versus other outpatient options.³⁷

In summary, we find that the rapid growth of freestanding EDs in Texas has been accompanied by an equally high increase in utilization at relatively high prices that lead to sizable out-of-pocket costs to patients. Local news reports suggest that freestanding ED growth is faster in Texas than other parts of the country. However, entry of freestanding EDs has been reported elsewhere, including Alabama, Colorado, North Carolina, and Rhode Island.^{3,38-40} Only some states maintain certificate-of-need regulations that limit entry of new health care providers, and many rules pertaining to the regulations do not include language about freestanding EDs.¹⁹ Our findings suggest that careful thought must be applied when one designs insurance plans and policies that cover freestanding EDs so that utilization of new services is delivered in a cost-effective manner.

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All authors attest to meeting the four [ICMJE.org](http://www.icmje.org) authorship criteria: (1) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND (2) Drafting the work or revising it critically for important intellectual content; AND (3) Final approval of the version to be published; AND (4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Representatives of BCBS were asked by the editor of *Annals of Emergency Medicine* to attest to the completeness and validity of the data they provided to Dr. Ho. The Senior Director for Media and Public Relations for BCBS Texas sent a description of the methods and the multiple academic organizations who supported the research and the following statement, which we interpreted as their attestation of the data:

"Blue Cross and Blue Shield of Texas firmly supports the work done by the non-biased researchers led by Dr. Vivian Ho at Rice University's Baker Institute. We stand by the accuracy of the data used in the study."

Additionally two other separate requests were sent to executives of national BCBS asking if they would be willing to have the data reviewed for completeness and accuracy by an impartial third party (the only intervention that could convincingly confirm or rebut the concerns about data manipulation). Neither request received any reply from BCBS.

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Table E1. Mean and median price per visit by year, provider type, payer, and payee.

Provider Type	Mean Prices, \$					Median Prices, \$				
	Total Price	Paid by Insurer	Paid Out-of-Pocket	Paid to Facility	Paid to Professional	Total Price	Paid by Insurer	Paid Out-of-Pocket	Paid to Facility	Paid to Professional
Freestanding EDs										
2012	1,431	969	462	1,232	199	934	678	300	778	106
2013	1,622	1,108	514	1,374	248	1,139	710	332	860	129
2014	1,830	1,215	614	1,538	292	1,404	781	384	1,162	140
2015	2,199	1,436	763	1,811	388	1,520	920	479	1,320	200
% change	53.0	48.1	65.2	47.0	94.6	62.6	35.7	59.6	69.7	87.8
Hospital-based EDs										
2012	1,842	1,301	541	1,496	346	1,264	821	342	975	210
2013	1,970	1,376	594	1,586	383	1,379	881	369	1,063	221
2014	2,109	1,421	687	1,710	398	1,505	887	416	1,146	225
2015	2,259	1,510	749	1,824	435	1,634	924	447	1,248	242
% change	22.6	16.1	38.3	21.9	25.7	29.3	12.5	30.6	28.0	15.6
Urgent care centers										
2012	164	106	58			159	110	40		
2013	168	107	61			160	114	45		
2014	169	107	62			160	113	45		
2015	168	104	63			159	109	45		
% change	2.0	-1.7	8.6			0.0	-0.5	12.5		

Prices are rounded to the nearest dollar for readability, but percentage changes between 2012 and 2015 are computed including dollars and cents.

Table E2. Rank by frequency, percentage of all visits, and median prices of the most common diagnoses by provider type (2012 to 2015).

Diagnosis and CCS Code	Freestanding ED			Hospital-Based ED			UCC		
	Rank	%	Price, \$	Rank	%	Price, \$	Rank	%	Price, \$
Abdominal pain 251	3	6.6	2,720	1	5.7	2,612	17	1.6	164
Acute bronchitis 125	5	4.0	1,335	20	1.6	1,132	2	5.0	170
Allergic reactions 253	16	2.1	1,228	18	1.6	906	11	2.3	158
Calculus of urinary tract 160				13	1.9	3,330			
Chest pain 102	12	2.5	2,787	4	4.5	2,720			
Fever of unknown origin 246	8	3.2	1,245				15	1.8	167
Fracture of upper limb 229	17	1.9	1,423	15	1.8	1,514			
Headache, including migraine 84	9	2.9	1,643	6	3.2	1,917			
Inflammation; infection of eye (except that caused by tuberculosis or sexually transmitted disease) 90							12	1.9	144
Influenza 123							8	2.8	188
Nausea and vomiting 250				14	1.9	1,684			
Open wounds of extremities 236	6	3.9	1,384	8	2.7	1,092	18	1.6	191
Open wounds of head, neck, and trunk 235	14	2.4	1,142	12	2.1	1,110			
Other complications of pregnancy 181				17	1.7	1,550			
Other connective tissue disease 211	19	1.6	1,170	19	1.6	1,164	19	1.3	160
Other ear and sense organ disorders 94	20	1.4	878				14	1.9	147
Other injuries and conditions from external causes 244	10	2.9	1,175	10	2.4	1,236			
Other lower respiratory disease 133	13	2.4	1,511	16	1.8	1,740	10	2.3	167
Other upper respiratory disease 134							6	3.3	159
Other upper respiratory infections 126	1	8.6	1,070	3	5.0	848	1	28.7	160
Otitis media and related conditions 92	18	1.7	849				3	4.1	146
Pneumonia (except that caused by tuberculosis or sexually transmitted disease) 122							20	1.2	200
Skin and subcutaneous tissue infections 197	7	3.3	1,195	11	2.4	1,026	7	3.0	156
Spondylosis, intervertebral disc disorders, other back problems 205	15	2.3	1,388	7	2.8	1,209	16	1.7	151
Sprains and strains 232	2	6.9	1,204	2	5.4	1,121	4	4.1	173
Superficial injury, contusion 239	4	4.6	1,016	5	4.3	1,057	9	2.8	162
Urinary tract infections 159	11	2.5	1,313	9	2.7	1,669	5	3.4	149
Viral infection 7							13	1.9	151

Table E3. Rank by frequency, percentage of all visits, and median prices of the most common procedures by provider type (2012 to 2015).

Procedure	Freestanding ED (CPT)			Hospital-Based ED (CPT)			UCC (CPT)		
	Rank	%	Price, \$	Rank	%	Price, \$	Rank	%	Price, \$
Bacterial culture, urine				19	6.1	74			
CBC count, automated	5	22.8	87	3	39.7	65	10	4.7	7
Blood test: prothrombin time				17	7.2	43			
CT scan, abdomen/pelvis	17	7.1	1,241	13	8.6	1,381			
CT scan, head and neck	20	4.9	914	15	8.0	919			
ECG	16	7.5	121	9	17.9	187	19	1.1	22
ED visits	1	98.3	841	1	97.1	735			
Facility visits				16	7.3	360			
Immunology tests							15	1.7	5
Injections: immunizations							13	2.2	24
Injections: therapeutic/intravenous	3	37.6	93	2	41.7	90	4	20.6	15
Laboratory tests, organ/disease panel	6	22.1	135	4	38.8	125			
Medical supplies and devices	2	38.0	22	12	9.0	54	8	5.6	5
Office visits, emergency							9	5.2	44
Office visits, established patient							1	53.1	142
Office visits, new patient							2	43.3	145
Office visits, other							5	9.4	22
Other chemistry tests	12	11.4	86	5	30.6	76	20	1.0	2
Other injections/noninjectables	13	10.2	20						
Other microbiology tests	8	14.0	116	14	8.3	75	3	22.6	12
Other minor skin and breast surgery	19	4.9	257				17	1.4	116
Other nonsurgical pulmonary services	4	30.2	56				16	1.7	3
Other urinalysis	15	9.1	49	18	6.4	62	18	1.2	6
Respiratory therapy							14	1.9	20
Routine urinalysis	7	18.7	40	6	27.1	44	6	6.7	2
Specialty drugs	14	10.0	51	10	13.2	14			
Transportation services	18	5.6	142	20	5.4	346			
Venipuncture (draw blood)	10	12.4	17	7	21.0	11	12	3.0	3
Radiograph, chest	11	12.0	214	8	19.7	187	11	4.7	23
Radiograph, extremities	9	13.2	210	11	11.4	218	7	6.4	25