

# Characteristics of Frequent Users of Emergency Departments

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**Study objective:** We identify frequent users of the emergency department (ED) and determine the characteristics of these patients.

**Methods:** Using the 2000 to 2001 population-based, nationally representative Community Tracking Study Household Survey, we determined the number of adults (aged 18 and older) making 1 to 7 or more ED visits and the number of visits for which they accounted. Based on the distribution of visits, we established a definition for frequent user of 4 or more visits. Multivariate analysis assessed the likelihood that individuals with specific characteristics used the ED more frequently.

**Results:** An estimated 45.2 million adults had 1 or more ED visits. Overall, 92% of adult users made 3 or fewer visits, accounting for 72% of all adult ED visits; the 8% of users with 4 or more visits were responsible for 28% of adult ED visits. Most frequent users had health insurance (84%) and a usual source of care (81%). Characteristics independently associated with frequent use included poor physical health (odds ratio [OR] 2.54; 95% confidence interval [CI] 2.08 to 3.10), poor mental health (OR 1.70; 95% CI 1.42 to 2.02), greater than or equal to 5 outpatient visits annually (OR 3.02; 95% CI 1.94 to 4.71), and family income below the poverty threshold (OR 2.36; 95% CI 1.70 to 3.28). Uninsured individuals were more likely to report frequent use, but this result was only marginally significant (OR 2.38; 95% CI 0.99 to 5.74). Individuals who lacked a usual source of care were actually less likely to be frequent users.

**Conclusion:** The majority of adults who use the ED frequently have insurance and a usual source of care but are more likely than less frequent users to be in poor health and require medical attention. Additional support systems and better access to alternative sites of care would have the benefit of improving the health of these individuals and may help to reduce ED use. [Ann Emerg Med. 2006;xx:xxx.]

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## INTRODUCTION

### Background

Emergency department (ED) utilization has risen in recent years, with a 26% increase in the number of visits between 1993 and 2003.<sup>1</sup> In fact, the majority of EDs reported that they were at or over capacity for at least 50% of the time in 2003.<sup>2</sup> Frequent users of the ED are a much-studied group in the literature,<sup>3-30</sup> in part because of the presumption that they contribute substantially to ED crowding and that their use is inappropriate.

Most previous assessments of the contribution of frequent users to ED crowding are limited by the fact that they use patient data from 1 ED, making the results difficult to

generalize. Additionally, ED-based studies are not as likely to have access to patient health information, such as their health status, usual source of care, and their use of other health care resources. Finally, there is no widely accepted definition of a frequent user. Definitions of frequent use range from as few as 3 visits annually to 12 or more visits annually, often without a clear rationale for the choice.<sup>4,6,7,29,30</sup> Thus, it is difficult to compare or integrate the results of these studies.

### Importance

Frequent use is often considered a major contributor to ED crowding. Solutions to crowding that target this group of ED

**Editor's Capsule Summary***What is already known on this topic*

Emergency department (ED) utilization has increased more than 26% during 1993 to 2003 and is thought to contribute to the large number of EDs that report crowding. Frequent users are presumed to contribute to the problem of crowding and raise questions about inappropriate use of EDs.

*What question this study addressed*

To identify frequent users of the ED and determine the characteristics of these patients.

*What this study adds to our knowledge*

Through use of a national, population-based data source to investigate frequent ED use, 8% of patients were defined as frequent users (those having 4 or more visits in a single year). Most adults who use the ED frequently have insurance and a usual source of care but are more likely to be in poor health and seek frequent medical attention than other ED users.

*How might this change clinical practice*

Additional support systems and better access to alternative sites of care may contribute to improving the health of these individuals and help to reduce ED use.

visitors may require significant resources. Understanding the characteristics of frequent ED users and the impact of frequent use on total ED utilization is essential to ensuring that policies are successful in reducing ED crowding and in addressing the needs of these patients.

**Goals of This Investigation**

We studied a national, population-based data source to investigate frequent ED use. The goals of this study were to describe the frequency of visits among adults who report ED visits and to characterize frequent users.

**MATERIALS AND METHODS****Study Design**

The Community Tracking Study Household Survey, conducted by the Center for Studying Health System Change, is designed to measure health care use and the characteristics associated with use, such as income, education, insurance, and health status.<sup>31</sup> Data for the current analysis were collected from July 2000 through June 2001. Community Tracking Study estimates of population ED use, which are based on self-reported data, are similar to estimates from the hospital-based National Hospital Ambulatory Medical Care Survey.<sup>32,33</sup>

A family informant provided basic sociodemographic and health insurance information about the family unit. Each adult in the family (including the informant) then responded to

questions about personal habits; health status; visits to physicians, EDs, and hospitals in the last year; satisfaction with medical care, including satisfaction with physician choice; and unmet medical needs. Health status was measured by administering the SF-12<sup>TM</sup> Health Survey (standard US version 1.0, 1994), which contains components for both physical and mental health.<sup>34,35</sup> Interviewers queried up to 8 members of the household. The study excluded households that could not complete the interview in either Spanish or English.

**Selection of Participants**

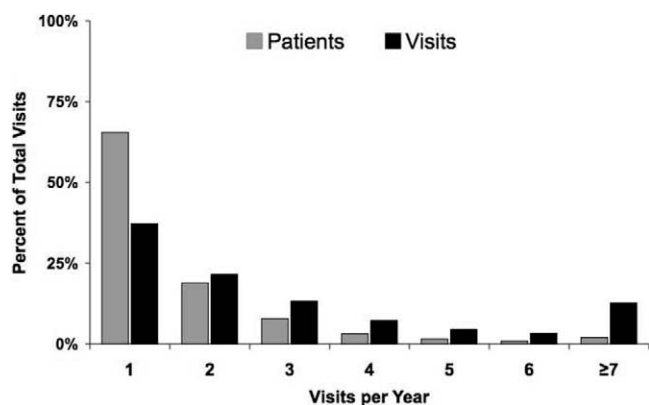
The sampling methods for the Community Tracking Study are described extensively elsewhere.<sup>31,36,37</sup> Briefly, interviewers surveyed households by telephone in 60 randomly selected communities and in a national supplemental sample. Random-digit dialing was used to select households within these communities for interviews. To include families and individuals who do not have telephones, interviewers conducted field surveys. The base sample includes standard epidemiologic weights to estimate trends at the national, civilian, noninstitutionalized, US population level.<sup>31</sup> A weight is assigned to each respondent to characterize the number of people in the country he or she represents. All analyses used survey weights that account for probability of selection and nonresponse.

The 2001 Community Tracking Study survey used 67,255 telephone numbers to obtain responses for 59,725 individuals in 32,669 households, for a weighted response rate of 56.2%. Lack of response included refusals to be interviewed and dialed telephone numbers that were not answered or were not working. A language barrier accounted for 0.3% of households not interviewed. Individuals younger than 18 years were excluded from the present analysis because children were not interviewed directly and are not the primary decisionmakers about health care use. In addition, many of the variables of interest (eg, SF-12 scores) were not asked of children. The resulting study sample consisted of 49,603 adults.

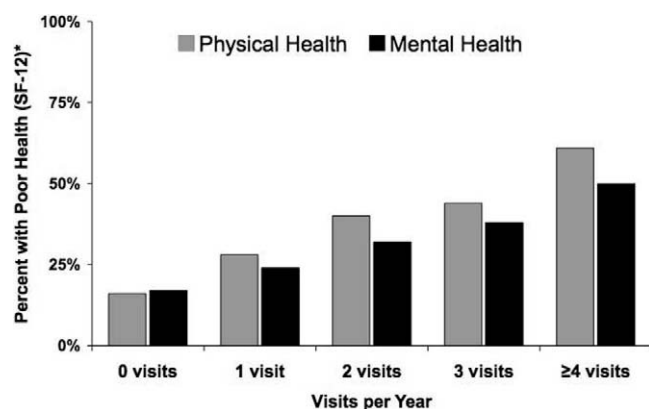
**Primary Data Analysis**

Using the Community Tracking Study data, we determined who used the ED in the adult population and how many visits per year each ED user made. We grouped ED users by level of use (1 to 7 or more visits) and calculated the percentage of overall visits ED users represented within each level and the proportion of overall ED visits accounted for within each level (Figure 1). We then determined the proportion of individuals within each level of use who possessed certain demographic or health-related characteristics, including health status, usual source of care, and family income. No particular level of visits demonstrated an obvious breakpoint in these characteristics. For example, as visits increased, so did the proportion of individuals in poor physical and mental health (Figure 2).

As described above, definitions of "frequent use" vary widely in the literature. To create policies that effectively address ED crowding, frequent use should be defined according to the size



**Figure 1.** Frequency of visits to EDs among adults, United States, 2000 to 2001.



**Figure 2.** Poor physical and mental health among ED visitors, United States, 2000 to 2001. \*Poor health is defined as the lowest 20% of SF-12 scores within each group (physical health and mental health).<sup>48</sup>

and impact of this group of patients. Therefore, we determined whether a particular group of individuals account for a disproportionate percentage of all ED visits. This group would have to be large enough to warrant the expenditure of resources required for policy interventions to improve health care outcomes for these individuals and reduce ED crowding. With the understanding that interventions are not likely to completely eliminate all visits, targeting a group that accounts for approximately 25% of ED visits would likely have a substantial impact on total ED visits.<sup>1</sup> Therefore, a group of patients was identified whose level of use accounted for approximately 25% of annual ED visits and are referred to as “frequent users,” whereas individuals with fewer visits are referred to as “less frequent” users.

Logistic regression techniques were used to test the association between patient characteristics and the likelihood of being a frequent user. To avoid capitalizing on chance associations, the models included a set of independent variables entered simultaneously according to a priori hypotheses; stepwise techniques were not used. These characteristics were

chosen by their likelihood of affecting frequency of use and included age, sex, education, race, poverty level, risk-taking preferences, usual source of care, smoking habits, insurance type and changes, health maintenance organization (HMO) enrollment, health status, number of overnight hospital stays, and number of primary care visits.<sup>33</sup> Health status was based on respondents’ physical component summary scores and mental component summary scores, which are calculated from SF-12 question responses. Using these scores, we identified the 20% of the population that was in poorest health.<sup>34</sup> Usual source of care was based on the respondent’s answer to the following questions: “Is there a place that you usually go to when you are sick or need advice about your health? What kind of place is it: a doctor’s office, an HMO, a hospital outpatient clinic, some other clinic or health center, an emergency room, or some other place?” For the analysis, usual source of care was grouped into 4 categories: (1) physician’s office, (2) “clinic/other location” (HMO, hospital outpatient clinic, some other clinic or health center, and “other”), (3) ED, and (4) no usual source of care (similar to groupings used in the National Ambulatory Medical Care Survey).<sup>38,39</sup> Other independent variables included exogenous geographic characteristics (size of metropolitan area [ $>200,000$  population,  $\leq 200,000$  population, nonmetropolitan area]), degree of HMO penetration in the area, and the area’s physician-population ratio. The rationale for the selection of independent variables was described previously.<sup>33</sup>

Because individuals’ experience with their usual source of care may be associated with frequency of ED use, we computed additional equations to test variables characterizing an individual’s outpatient encounters. Given that many of these variables were correlated with each other, each was added separately to the equation that included the above set of core independent variables. These variables included whether the individual was treated by the same or a different provider at each visit to the usual source of care, whether the place of usual source of care had changed in the past year, and responses to the following: “Are you satisfied or dissatisfied with the choice you personally have for primary care doctors?” and “I trust my doctor to put my medical needs above all other considerations when treating my medical problems.” Persons whose last outpatient visit had been to their usual source of care were also asked to estimate the time between calling for the appointment and being treated by a physician and for their rating of how well their physician listened. Satisfaction with health care was assessed by responses to the questions, “During the past 12 months, was there any time when you didn’t get the medical care you needed?” and “Have you been satisfied or dissatisfied with the health care you have received during the last 12 months?” The association of the total number of outpatient (nonemergency) visits with frequent use was also tested. Statistical significance was defined as a probability of a type I error of less than 5% (2-tailed). Results are expressed as odds ratios (ORs) with 95% confidence intervals (CIs). Standard

errors were calculated using the statistical package SUDAAN (Research Triangle Institute, Research Triangle Park, NC).<sup>40</sup>

This study was approved by the Committee on Human Research at the University of California, San Francisco.

## RESULTS

An estimated 23% of US adults (45.2 million persons) reported at least 1 visit to the ED during the study period, for a total of 79.5 million visits. The percentage of adults who reported 1 to 7 or more annual ED visits and the proportion of total ED visits made by individuals with each level of use are shown in Figure 1. Overall, 92% of individuals made 3 or fewer visits and accounted for 72% of all adult ED visits. The 8% of users with 4 or more visits were responsible for 28% of visits. Therefore, according to our previously described rationale, we defined frequent users as those with 4 or more ED visits.

Descriptive results are displayed in Table 1. An estimated 3.5 million frequent users accounted for 22.2 million ED visits, compared with 41.7 million less frequent users who accounted for 57.3 million visits. Sixty-five percent of the frequent user population were women, 83% were younger than 65 years, and 60% were white. Thirty-three percent of frequent users had family incomes below the federal poverty level, whereas 16% were at or above 400% of the federal poverty level. Eighty-four percent of frequent users had some form of health insurance, and 81% had a usual source of care. About half of frequent users with a usual source of care were under the care of a private physician. Sixty-one percent of frequent users reported poor physical health, and 50% reported poor mental health. Sixty-eight percent of frequent users had 5 or more outpatient visits in the previous year.

The results of the multivariate analysis are shown in Table 2. Poverty, poor physical health, poor mental health, and having 5 or more outpatient visits were all independently associated with the likelihood of frequent ED use in the adult population. Compared to persons with private insurance, Medicaid and Medicare enrollees were more likely to report frequent use (Medicaid OR 1.64; 95% CI 1.17 to 2.31; Medicare OR 1.85; 95% CI 1.26 to 2.73), and there was a trend toward uninsured individuals being more likely to report frequent use (OR 2.38; 95% CI 0.99 to 5.74).

Individuals who stated that they had no usual source of care were less likely to be frequent users (OR 0.67, 95% CI 0.49 to 0.93) than individuals who reported a private physician's office as their usual source of care. Not surprisingly, individuals who stated that the ED was their usual source of care were more likely to be frequent users (OR 2.34; 95% CI 1.62 to 3.39). Individuals who visited a clinic for their usual care were more likely than those who were treated by a private physician to be frequent users (OR 1.26; 95% CI 1.03 to 1.54). Individuals who were treated by the same physician at every visit were less likely than those who were treated by different physicians to report frequent use (OR 0.67; 95% CI 0.53 to 0.84). Individuals who stated that they were satisfied with their choice of physicians were less likely than those who were not satisfied

to be frequent users, although this was only marginally significant (OR 0.78; 95% CI 0.61 to 1.00). Individuals who were satisfied with their health care were less likely to report frequent use than those who were dissatisfied with their care (OR 0.75; 95% CI 0.60 to 0.94). Unmet need, changes in insurance status, HMO enrollment, longer waits for appointments, and trust in one's physician or physician listening skills were not associated with frequent use.

## LIMITATIONS

Similar to other survey data, our findings may be limited by recall bias and lack of response. However, the sampling and weighting methods of the Community Tracking Study were designed to include a nationally representative sample and to account for differences in the likelihood of selection and differential response rates. The study sample could also potentially underrepresent homeless persons, who might account for a disproportionate share of frequent ED visits.<sup>41</sup> It is unlikely that our inferences and conclusions would be substantially changed if the sample included a larger proportion of the estimated 2.3 to 3.5 million persons who are homeless.<sup>42</sup> Our estimates of total ED visits and payer mix have been published previously and are similar to estimates from the 2001 National Hospital Ambulatory Medical Care Survey.<sup>32,33</sup> Because no diagnostic information was available in the Community Tracking Study Household Survey, this study could not assess the reason for or the urgency of the ED visit. However, previous studies attempting to assess appropriate use of care using clinical data are contradictory, with poor interrater reliability and poor ability to predict outcome.<sup>43-46</sup> Because the analysis was confined to the responses of surveyed adults, these results cannot be applied to children.

As we demonstrated, the proportion of individuals who possess a particular characteristic changes gradually as the number of visits increases, with no distinct cutoff. Thus, defining frequent use as a specific number of visits is necessarily arbitrary. This is an important finding as much as it is a limitation of this study. We chose to use a level of visits that accounted for a predetermined proportion of all ED visits because of the potential impact on ED crowding. Studies of other issues and questions might, however, select a different visit level or define frequent use by other criteria.

## DISCUSSION

Most adults who use the ED frequently have insurance and a usual source of care but are more likely to be in poor health than other users. Adults who use the ED more frequently are also more likely to be poor, heavy users of other parts of the health care system, and dissatisfied with their medical care. Contrary to common perceptions, individuals who lack a usual source of care are actually *less* likely to be frequent users than those who have usual source of care. The absolute number of frequent users who are poor, lack a usual source of care or are uninsured is small relative to the number of less frequent users with similar characteristics.

**Table 1.** Total adult ED visitors and visits by characteristics of less frequent and frequent users, United States, 2000 to 2001.

Characteristic	Less Frequent Users (1–3 ED Visits)				Frequent Users (≥4 ED Visits)			
	Persons		Visits		Persons		Visits	
	No. (Millions)	%	No. (Millions)	%	No. (Millions)	%	No. (Millions)	%
<b>Total</b>	41.7	100	57.3	100	3.5	100	22.2	100
<b>Sex</b>								
Male	18.8	45	25.2	44	1.2	35	7.4	33
Female	22.9	55	32.1	56	2.3	65	14.8	67
<b>Age, y</b>								
18–34	14.8	36	20.6	36	1.3	36	7.9	35
35–64	19.5	47	26.5	46	1.7	47	11.0	49
65–79	5.6	13	7.7	13	ISD	ISD	ISD	ISD
≥80	1.8	4	2.6	5	ISD	ISD	ISD	ISD
<b>Income by Poverty threshold*</b>								
≥400%	14.2	34	18.2	32	0.6	16	3.2	14
200–399%	13.5	32	18.4	32	0.9	26	5.8	26
100–199%	8.3	20	12.2	21	0.9	24	4.9	22
<Poverty threshold	5.7	14	8.6	15	1.2	33	8.2	37
<b>Race/ethnicity</b>								
White	30.0	72	40.4	70	2.1	60	13.3	60
Black	5.6	13	8.5	15	0.8	22	5.2	23
Other	1.7	4	2.2	4	ISD	ISD	ISD	ISD
Latino	4.5	11	6.3	11	ISD	ISD	ISD	ISD
<b>Physical health status<sup>†</sup></b>								
Good	28.4	68	37.4	65	1.4	39	8.0	36
Poor	13.3	32	19.9	35	2.1	61	14.1	64
<b>Mental health status<sup>†</sup></b>								
Good	30.4	73	40.6	71	1.7	50	10.3	46
Poor	11.3	27	16.7	29	1.8	50	11.9	54
<b>Insurance</b>								
Private	23.1	55	30.5	53	1.2	35	7.5	34
Medicare	9.1	22	12.7	22	1.0	30	6.3	28
Medicaid/other public	2.8	7	4.3	7	0.7	19	5.0	23
Military	0.6	1	0.9	2	ISD	ISD	ISD	ISD
Uninsured	6.1	15	9.0	16	0.5	15	3.1	14
<b>Enrolled in HMO</b>								
Yes	14.9	36	20.1	35	1.1	32	7.2	32
No	20.0	48	27.2	47	1.9	53	11.8	53
<b>Usual source of care</b>								
Physician's office	24.6	59	33.1	58	1.7	49	10.5	47
Clinic/other location <sup>‡</sup>	10.1	24	14.6	26	1.1	32	7.4	33
ED	1.9	5	3.0	5	ISD	ISD	ISD	ISD
No usual source of care	5.0	12	6.5	11	ISD	ISD	ISD	ISD
<b>Outpatient visits past 12 mo</b>								
None	5.9	14	7.6	13	ISD	ISD	ISD	ISD
1–4	19.4	47	25.6	45	0.8	23	4.4	20
≥5	16.4	39	24.1	42	2.4	68	15.8	71

ISD, Insufficient data (<100 respondents in this category). The numbers and percentages may not add to totals because of rounding and missing values.

\*In the 2000–2001 Community Tracking Study Household file, the poverty threshold is based on the US Census Bureau 2000 family income poverty threshold, and it varies with family size. In 2000, the federal poverty threshold was an income of \$17,661 per year for a family of 4.

<sup>†</sup>Poor health is defined as the lowest 20% of SF-12 scores within each group (physical health and mental health).<sup>48</sup>

<sup>‡</sup>Clinic/other location includes individuals who identified an HMO, hospital outpatient clinic, other clinic or health center, or “some other place” as their usual source of care.

There is no commonly agreed-on definition of frequent use. Frequent use could mean more than the 1 visit per year made by the majority of visitors,<sup>47</sup> anything beyond reasonable use,<sup>4,6</sup> or a number of visits beyond the 99th percentile of use.<sup>7,29,30</sup> Definitions of frequent use must

depend on the reasons for studying that particular population and, most appropriately, should be based on criteria that can inform cost-effective policy decisions. Focusing on the very small group of patients who have an extraordinary level of use but account for a tiny proportion

**Table 2.** Likelihood of 4 or more ED visits per year among adult ED users,\* United States, 2000 to 2001.

Population Characteristic	OR (95% CI)
<b>Income by poverty threshold<sup>†</sup></b>	
≥400%	1.00 (Reference group)
200–399%	1.43 (1.07–1.91)
100–199%	1.65 (1.22–2.23)
<Poverty threshold	2.36 (1.70–3.28)
<b>Race/ethnicity</b>	
White	1.00 (Reference group)
Black	1.27 (0.98–1.64)
Hispanic/Latino	1.02 (0.73–1.43)
Other	1.31 (0.87–1.97)
<b>Physical health status<sup>‡</sup></b>	
Good	1.00 (Reference group)
Poor	2.54 (2.08–3.10)
<b>Mental health status<sup>‡</sup></b>	
Good	1.00 (Reference group)
Poor	1.70 (1.42–2.02)
<b>Insurance</b>	
Private	1.00 (Reference group)
Medicare	1.85 (1.26–2.73)
Medicaid/other public	1.64 (1.17–2.31)
Military	0.67 (0.32–1.38)
Uninsured	2.38 (0.99–5.74)
<b>Enrolled in HMO</b>	
Yes	1.00 (Reference group)
No	1.03 (0.83–1.28)
<b>Usual source of care</b>	
Physician's office	1.00 (Reference group)
Clinic/other location <sup>§</sup>	1.26 (1.03–1.54)
ED	2.34 (1.62–3.39)
No usual source of care	0.67 (0.49–0.93)
<b>Outpatient visits past 12 mo</b>	
None	1.00 (Reference group)
1–4	1.05 (0.68–1.60)
≥5	3.02 (1.94–4.71)
<b>Change in usual source of care last 12 mo</b>	
Change	1.00 (Reference group)
No change	0.75 (0.62–0.91)
<b>Satisfied with choice of physician</b>	
No	1.00 (Reference group)
Yes	0.78 (0.61–1.00)
<b>Treated by same provider at usual source of care</b>	
No	1.00 (Reference group)
Yes	0.67 (0.53–0.84)
<b>Did not get or put off needed care</b>	
No, did not have unmet need	1.00 (Reference group)
Yes, had unmet need	1.17 (0.81–1.70)
<b>Satisfaction with care received in past 12 mo</b>	
No, not satisfied	1.00 (Reference group)
Yes, satisfied	0.75 (0.60–0.94)

\*Selected ORs for having ≥4 annual ED visits vs 1–3 visits, adjusted for all of the characteristics included in the table, plus the following variables: age, sex, education, number in household, risk taking, smoking, percentage of population enrolled in HMO, physician to patient ratio in geographic area, location in a metropolitan statistical area (SMA) (>200,000 population, ≤200,000 population, not in SMA), and missing values. Trust in primary physician, physician listening skills, or whether the patients waited ≥7 days for their last appointment were not associated with frequent use.

<sup>†</sup>In the 2000–2001 Community Tracking Study Household file, the poverty threshold is based on the US Census Bureau 2000 family income poverty threshold, and it varies with family size. In 2000, the federal poverty threshold was an income of \$17,661 per year for a family of 4.

of visits is not likely to affect either population health or ED visits.

Although a number of other studies have assessed frequent use of the ED, their utility has been limited because most were not population-based or nationally representative, often included only a subgroup of ambulatory ED visitors, and reported on a limited number of patient characteristics.<sup>3–30</sup> No studies reviewed the overall distribution of visits in their population to define a cutoff for frequent visits, and only a few studies provided a rationale for their definition of frequent use. Zuckerman and Shen<sup>4</sup> characterized frequent users as those with 3 or more visits, according to the rationale that the need for a small number of visits can happen to anyone, but “having three or more visits is more likely to reflect a pattern of dependence on the ED as a source of care.” Chan and Ovens<sup>7</sup> used 12 visits on the basis of identifying outliers in behavior and the ability of ED physicians to “recognize one visit per month.”

The study by Zuckerman and Shen<sup>4</sup> is the only other study of frequent ED users we are aware of using population-based data that can be generalized to the entire United States. This study pooled data from the Urban Institute's 1997 and 1999 National Survey of America's Families and defined frequent use as 3 or more visits. Although the authors provide a rationale for the definition of frequent use, the distribution of visits was not assessed in determining this definition, and the number of visits frequent users account for was not reported. The authors found that frequent users were more likely than less frequent users to be poor and near-poor, in fair or poor health, to have public insurance, and to have more outpatient visits to physicians and a perception of unmet medical needs. These results are similar to ours. Of note, the National Survey of America's Families samples children and nonelderly adults, whereas our analysis included all adults but excluded children.

Other studies that used definitions of frequent users similar to ours but were conducted at single institutions also support our findings that patients with more frequent use are a sicker and more vulnerable population. Using a convenience sample of patients from an ED in Ireland, Byrne et al<sup>6</sup> defined frequent users as those with greater than or equal to 4 visits. Frequent users reported more visits to the physician, more hospital visits, and greater use of other health care services (eg, social work services, addiction counseling, and psychiatric services) than less frequent users. They also reported poorer mental health than less frequent visitors. Ruger et al<sup>29</sup> reviewed the ED population at an urban academic ED in the United States, grouping patients in 1, 2, 3 to 20, and 20 or more visits annually. Patients

<sup>‡</sup>Poor health is defined as the lowest 20% of SF-12 scores within each group (physical health and mental health).<sup>48</sup>

<sup>§</sup>Clinic/other location includes individuals who identified an HMO, hospital outpatient clinic, other clinic or health center, or “some other place” as their usual source of care.

with 3 to 20 visits were as likely to present with acute illnesses and be admitted to the hospital as those with only 1 visit.

Frequent use is often equated with inappropriate use. Our data do not support this assumption. The health status and patterns of health care use of frequent users found in our study and others using similar definitions strongly suggest that these individuals have greater health care needs than the rest of the population. Therefore, it appears that frequent users may be using the ED appropriately or perhaps in lieu of other forms of care that are unavailable to them. In contrast, in the ED-based study by Ruger et al,<sup>29</sup> individuals who had 20 or more annual ED visits presented with less acute problems and were more likely to be discharged from the ED than those with 3 to 20 visits, which appears to be inappropriate use. However, only 23 patients had 20 or more visits and accounted for only 1% of total ED visits. Focusing efforts on this small group of patients would have minimal impact on ED use overall.

In a previous study, we assessed the characteristics of users and nonusers of the ED (without regard to visit frequency) and determined that the majority of all adults who use the ED have a usual source of care, are insured, and are not poor.<sup>33</sup> The results of the current study demonstrate that the majority of frequent users also have a usual source of care, have insurance, and are not poor. Thus, frequent ED users are similar to less frequent users and, in fact, to the general population with regard to these characteristics.

Our previous study also demonstrated that individuals in poor physical and mental health and those who had 5 or more outpatient visits were more likely to have had an ED visit. This study extends these findings by showing that poor health and high use of outpatient care is also associated with increasing use of the ED. Thus, there appears to be a continuum of ED use in which individuals in poor health are more likely to use the ED, and those in poorest health are more likely to be frequent visitors. Lack of insurance did not predict overall ED use in our first study; insurance status was marginally associated with frequent use in the current analysis. Although having a usual source of care actually appeared to increase the likelihood of ED use in the previous study and frequent use in this study, the current analysis demonstrated that individuals who visited clinics rather than private physicians' offices or who were treated by different physicians at an outpatient visit were more likely to be frequent users. Taken together, these 2 studies suggest that ED use, regardless of the number of visits, is more closely associated with health status and health care delivery than with having a usual source of care or insurance.

In conclusion, frequent users are more likely to be in poor health and heavy users of all types of care, which suggests that frequent ED use may be appropriate, particularly if support services and alternative sites for care are insufficient. Policies to decrease ED utilization by frequent users should focus on improving health care delivery services and are likely to benefit less frequent users with similar needs.

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**Editor's Capsule Summary:** *What is already known on this topic:* Emergency department (ED) utilization has increased more than 26% during 1993 to 2003 and is thought to contribute to the large number of EDs that report crowding. Frequent users are presumed to contribute to the problem of crowding and raise questions about inappropriate use of EDs. *What question this study addressed:* To identify frequent users of the ED and determine the characteristics of these patients. *What this study adds to our knowledge:* Through use of a national,

population-based data source to investigate frequent ED use, 8% of patients were defined as frequent users (those having 4 or more visits in a single year). Most adults who use the ED frequently have insurance and a usual source of care but are more likely to be in poor health and seek frequent medical attention than other ED users. *How might this change clinical practice:* Additional support systems and better access to alternative sites of care may contribute to improving the health of these individuals and help to reduce ED use.