

# Adolescents Who Use the Emergency Department as Their Usual Source of Care

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**Objective:** To examine the factors associated with use of the emergency department (ED) as the only source of health care among adolescents.

**Design:** Analyses of the 1997 Commonwealth Fund Survey of the Health of Adolescent Girls, a nationally representative sample of 6748 in-school male and female adolescents in 5th through 12th grade. The  $\chi^2$  statistics and logistic regression analyses were computed with the use of SUDAAN.

**Results:** Overall, 4.6% of the adolescents in the survey, or 1.5 million adolescents in the United States, reported that the ED was their usual source of health care. In multivariate models, factors associated with the use of the ED included male sex, African American ethnicity, fewer financial resources, and living in a rural area. Adoles-

cents with higher levels of risky behaviors, a history of physical or sexual abuse, and higher depression scores were all more likely to use the ED as their usual source of care. Adolescents who reported using the ED as their usual care source were also less likely to have had regular well visits and were more likely to report having missed needed care than those with other sources of primary care.

**Conclusions:** Adolescents who use the ED as their usual source of care are often from vulnerable populations. Many have special mental or physical needs that are unlikely to be met with ED visits only, and they are likely to have missed care they needed. Creating linkages between EDs and other services could help at-risk adolescents identify and use more appropriate sources of primary care.

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**Editor's Note:** The emergency department hardly meets the definition of a good (or any other kind of) "medical home."

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**T**HE EMERGENCY department (ED) is sometimes used by families who may not have the resources to access other care sites, such as physicians' offices or health care centers. Much attention has been focused on the appropriateness of ED use for non-emergent conditions and the high costs associated with delivering routine care in this setting.<sup>1,2</sup> Although EDs are used mostly for treatment of illness or injury,<sup>3,4</sup> they are used by many adolescents as a source of primary care.<sup>1</sup> Not having a regular source of primary care,<sup>5</sup> not being enrolled in school,<sup>6</sup> not having access to school-based health centers,<sup>7</sup> and older age<sup>5</sup> have been associated with adolescents' use of the ED as a usual source of care. Previous reports of adolescents' ED

use are limited to small studies on geographically limited populations.

Adolescents and young adults have worse access to health care than all other age groups.<sup>8,9</sup> Nationally, 20% of the ambulatory care visits of young people 15 to 24 years of age were made to hospital EDs.<sup>10</sup> Although comparatively healthy, adolescents and young adults are at high risk for behaviors that can have serious health consequences, such as alcohol and drug use,<sup>11</sup> and they report high rates of missing needed care.<sup>12</sup> Adolescents have developmental needs for privacy and autonomy that lead them to seek out confidential care.<sup>12,13</sup> Most EDs neither provide adolescents with preventive screening or counseling nor provide patients with an opportunity for routine visits. Therefore, EDs are not generally considered appropriate sources of primary care. Nonetheless, a significant number of adolescents are receiving care in the ED; thus, it is important to determine what influences that decision. This study examines the factors affecting whether adolescents use the ED as their only source of health care. In ad-

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## METHODS

### SURVEY

This study analyzes data from the 1997 Commonwealth Fund Survey of the Health of Adolescent Girls, a nationally representative school-based sample of 6748 adolescent boys and girls. Eligible schools were sampled from a database of 80 000 public, private, and parochial schools in the United States maintained by the National Center for Educational Statistics, as has been previously described.<sup>12</sup> A total of 1665 girls in grades 5 through 8, 1921 girls in grades 9 through 12, 1551 boys in grades 5 through 8, and 1611 boys in grades 9 through 12 completed the survey; 20 of these were excluded because of inconsistent responses.

### VARIABLES

Adolescents were asked "Where do you usually go to get medical care?" and could choose 1 or more answers from a list of sources of care. Adolescents who chose only the hospital ED were categorized as having the ED as their only usual source of health care. The comparison group for this study consisted of adolescents who reported using other sources of care. Financial status was determined by asking the adolescent whether his or her family has "hard times," "just enough money," "few problems," or "no problems." Utilization items included whether the adolescent spoke with the provider alone, the length of time since his or her last checkup, and whether the adolescent had ever missed needed care. Factors that may increase the need for health services included self-reported health status, history of drinking or smoking, drug use in the previous month, depression, stress, and a history of physical or sexual abuse. Since increased need for health services may affect where adolescents go for care, need factors were analyzed separately.

Adolescents were asked whether they had health insurance; 33% of all adolescents surveyed were unable to answer the question and either skipped it entirely or answered "don't know." Adolescents who did not report their insurance status were more likely to be younger or male; otherwise, their responses were generally between those with and without insurance (**Table 1**). Only those who knew their coverage were used in the initial analysis. For the multivariate analysis the model was run with and without those who knew their coverage. Use of the larger dataset did not change the effects seen, and the level of significance for findings related to insurance coverage was similar in both cases; the results for the larger population are shown.

### STATISTICAL ANALYSIS

Data were analyzed by means of SUDAAN to adjust for the complex, stratified survey design.<sup>14</sup> Responses were weighted by grade, race, and sex to reflect the US population of in-school adolescents. Cochran-Mantel-Haenszel  $\chi^2$  statistics and proportions were used to determine associations, and logistic regression models were used for the multivariate analysis.<sup>14</sup>

**Table 1. Characteristics of Adolescents by Health Insurance Status**

Variable	% of Adolescents		
	Insurance	No Insurance	Data Missing or Patient Does Not Know
Male sex	49.1	51.0	55.3
Nonwhite race	31.7	51.9	43.3
Financial status			
Hard times	3.1	10.2	6.5
Just enough	16.6	33.1	24.0
Location			
Urban	32.0	40.3	39.8
Rural	32.7	29.9	23.1
Fifth through eighth grade	47.0	45.6	65.5
Usual care in emergency department	4.6	8.8	5.2
Last checkup in past year	87.4	76.2	81.8
Spoke to physician privately	61.3	56.9	50.4
Missed needed care	24.7	46.2	26.1
Used alcohol	35.9	43.0	28.3
Used drugs	15.2	25.8	14.1
High depression score	7.7	12.0	8.2
Reporting abuse	15.4	28.0	15.4
Fair or poor health	14.5	20.8	16.3

dition, we examine the specific needs of and utilization patterns associated with adolescents who report using the ED as their only source of health care.

## RESULTS

Overall, 4.6% (294) of the adolescents in the Commonwealth Fund Survey reported that the ED was their only usual source of care. This represents a total of 1.5 million adolescents in the United States who use the ED as their only source of care. An additional 0.7% (47 adolescents) reported using the ED along with other sources of care. Boys were more likely than girls to use the ED as their usual source of care (5.5% vs 3.8%;  $P = .002$ ); younger and older adolescents were equally likely to report using the ED (**Table 2**). Adolescents with fewer financial resources and lower parental education were also more likely to use the ED as their only source of care, as were adolescents without health insurance. Rural adolescents were more likely to use only the ED (6.6%) than were suburban (3.2%) or urban (4.4%) adolescents ( $P < .001$ ). African American adolescents (8.3%) were more likely than white adolescents (3.7%) and Hispanic adolescents (5.1%) to report using the ED as their usual source of care ( $P = .002$ ).

### MULTIVARIATE ANALYSIS

Predisposing and enabling factors with significant bivariate relationships to using the ED as the only source of care were entered into a logistic regression model to determine the independent effects of each factor. Boys remained almost 2 times more likely than girls to use the ED as their usual source of care (odds ratio [OR], 1.62; 95% confidence interval [CI], 1.21-2.17) (**Table 3**). Race

**Table 2. Factors Associated With Use of the ED as Usual Source of Care\***

Variable	Value	% Using ED as Only Source	SE	P
Grade group	Fifth through eighth	4.5	0.47	.67
	Ninth through twelfth	4.8	0.50	
Sex	Male	5.5	0.51	.002
	Female	3.8	0.37	
Health insurance	Yes	4.1	0.37	.04
	No	7.8	1.47	
Income	Hard times	6.8	1.87	.007
	Just enough	6.7	0.90	
	Few problems	4.0	0.59	
	No problems	3.8	0.45	
	<HS	8.9	1.64	
Parental education	HS graduate	5.6	0.75	.02
	Some college	4.0	0.70	
	College graduate	4.0	0.57	
	Postgraduate	3.2	0.78	
	Do not know	5.4	1.13	
Goes to parent for health information	Yes	4.4	0.37	.09
	No	5.8	0.75	
Location	Urban	4.4	0.53	<.001
	Suburban	3.2	0.48	
	Rural	6.6	0.74	
Family structure	2 Parents	3.8	0.35	.004
	1 Parent	5.7	0.79	
	Other	9.7	2.25	
Race	White	3.7	0.40	.002
	African American	8.3	1.22	
	Hispanic	5.1	0.96	
	Other	5.3	1.11	

\*ED indicates emergency department; HS, high school.

also remained highly significant, with African American adolescents more than 2.5 times as likely as white adolescents to use the ED (OR, 2.56; 95% CI, 1.68-3.91); however, Hispanic adolescents were no more likely than white adolescents to report that the ED was their usual source of care (OR, 1.28; 95% CI, 0.76-2.15).

In the multivariate model, insurance status, parental education, and family structure were no longer significant predictors of ED care. Adolescents who did not know their insurance status were no more or less likely to use only the ED (OR, 1.05; 95% CI, 0.71-1.55). However, adolescents reporting that their families had “just enough” financial resources were more likely to report using the ED as their usual source of care (OR, 1.62; 95% CI, 1.13-2.33). Rural adolescents were twice as likely to report using the ED than urban or suburban adolescents (OR, 1.92; 95% CI, 1.23-2.99); however, urban adolescents were no more likely than suburban adolescents to use the ED as their usual source of care.

#### SUBSTANCE USE, HEALTH STATUS, AND MENTAL HEALTH

Adolescents who reported using the ED as their usual source of health care were more likely to report substance use, worse health status, and mental health problems (Table 4). Forty-four percent of those using the

**Table 3. Factors Associated With Use of the ED as Usual Source of Care: Logistic Regression Model\***

Variable	Value	Odds Ratio (95% CI)	P
Sex	Male	1.62 (1.21-2.17)	.001
	Female	1.00 (. . .)†	
Insurance	Yes	1.00 (. . .)	.41
	No	1.38 (0.86-2.22)	
	Do not know or missing	1.05 (0.71-1.55)	
Financial status	Hard times	1.60 (0.86-2.97)	.02
	Just enough	1.62 (1.13-2.33)	
	Few problems	1.01 (0.67-1.53)	
	No problems	1.00 (. . .)	
Parental education	<HS	1.83 (1.08-3.11)	.07
	HS graduate	1.21 (0.80-1.81)	
	Some college	0.92 (0.58-1.48)	
	College graduate	1.00 (. . .)	
	Postgraduate	0.64 (0.35-1.20)	
Location	Urban	0.92 (0.57-1.48)	<.001
	Suburban	1.00 (. . .)	
	Rural	1.92 (1.23-2.99)	
Family structure	2 Parents	1.00 (. . .)	.33
	1 Parent	1.12 (0.79-1.60)	
	Other	1.61 (0.84-3.10)	
Race	White	1.00 (. . .)	<.001
	African American	2.56 (1.68-3.91)	
	Hispanic	1.28 (0.76-2.15)	
	Other	1.26 (0.75-2.11)	

\*ED indicates emergency department; CI, confidence interval; and HS, high school.  
†Reference.

**Table 4. Adolescents Using the Emergency Department (ED) as their Usual Source of Care, and Those Using Other Sources, by Substance Use, Health Status, and Mental Health**

Variable	ED Usual Source		Other Usual Source		P
	%	SE	%	SE	
Used alcohol	44.4	3.3	34.0	1.1	.003
Used drugs in past month	26.6	3.2	15.0	0.8	<.001
Reported smoking	40.2	3.2	26.6	1.0	<.001
Reported fair or poor health	20.1	2.6	14.8	0.6	.046
High depression	17.6	2.5	7.2	0.4	<.001
High stress index	51.5	3.5	36.0	1.0	<.001
Reported history of abuse	28.8	3.3	15.1	0.7	<.001

ED, vs 34.0% of those with other sources of care, reported using alcohol ( $P = .003$ ), 26.6% vs 15.0% reported having used drugs in the previous month ( $P < .001$ ), and 40.2% vs 26.6% reported smoking ( $P < .001$ ). One fifth of those using the ED, compared with 14.8% of those with other sources of care, reported having fair or poor health ( $P = .046$ ). High scores on a depression index were reported by 17.6% of those using the ED, but only 7.2% of those with other care sources ( $P < .001$ ), and 51.5% vs 36.0% scored in the highest category of a stress index ( $P < .001$ ). Rates of reported abuse among the adoles-

cents using the ED were high: 28.8% vs 15.1% of those with other care sources ( $P < .001$ ).

## UTILIZATION

Adolescents who reported using the ED as their usual source of care were much more likely to report having had their last medical checkup more than 3 years before the survey (13.5% vs 5.0%;  $P = .007$ ), were less likely to have had a checkup in the previous year (75.0% vs 86.3%;  $P = .007$ ), and were much more likely to report missing needed care (39.8% vs 25.3%;  $P < .001$ ) than adolescents with another primary care source. Adolescents who reported using the ED were more likely to cite cost as a reason for missing care (31.7% vs 21.2%,  $P = .04$ ) than those with other sources of primary care. The percentage reporting having missed needed care because of not having insurance coverage was not significantly different between those using the ED and those with other primary care (11.1% vs 8.9%;  $P = .50$ ).

## COMMENT

Nationally, as many as 1.5 million adolescents aged 10 to 18 years reported having no usual source of health care other than the ED. These adolescents were more likely to live in rural areas, be African American or male, and have fewer financial resources. Most troubling, these adolescents were much more likely to report engaging in risky behaviors such as alcohol and drug use, and were almost twice as likely to report a history of abuse. The factors associated with adolescents' reporting having no other source of care were similar to those reported in studies that relied on parent report.<sup>15,16</sup> However, a higher percentage of adolescents reported using only the ED than found in national studies of children 0 to 17 years of age based on parent report (4.6% in our study vs 3.4%<sup>15</sup> and 1%<sup>16</sup>). This study is the first, to our knowledge, to provide us with nationally representative data on sources of care for adolescents, based on their self-report.

Health insurance status was not significantly associated with ED use when analyzed in the multivariate model. However, it is unknown how the results might differ if the insurance status of all adolescents were known. Since having "just enough" financial resources, more than insurance status, predicted that adolescents would use the ED as their usual source of care, it is possible that some of these adolescents have fallen into the gap between Medicaid and employer-sponsored family health insurance, or are underinsured with regard to their coverage for primary care. The data also do not show what kind of insurance these adolescents had, or whether the observed insurance effect would increase if Medicaid were a separate category. Regardless, the recent expansions in coverage provided by the State Child Health Insurance Plan legislation provide opportunities for increasing access to primary care for adolescents.<sup>17</sup>

African American adolescents were 2½ times more likely to report using the ED as their usual source of care

than were white adolescents. Family financial status was not associated with ED use among African American adolescents, suggesting that there are other factors influencing health care-seeking behaviors. A recent study found that African Americans are almost twice as likely as white Americans to regard their community's health services as fair or poor.<sup>18</sup> Satisfaction with the health care available to African American adolescents, and the effect of availability on where adolescents go for health care, need to be explored further.

Since living in an urban area has been associated with use of the ED as a source of care, it was surprising that urban adolescents were no more likely than suburban adolescents to use the ED. For rural adolescents, not having insurance and being of African American ethnicity were associated with use of the ED as the only source of care. Rural communities are having an increasingly difficult time retaining primary care facilities.<sup>19</sup> Transportation is also a major factor for adolescents in rural areas; if an adolescent is unable to get to a physician's office or clinic, the ED may be the only source of care available.

Higher rates of substance abuse, physical or sexual abuse, and depression among adolescents who use the ED as their usual source of care suggest a need for stronger links between hospital EDs and mental health resources. In addition, the high out-of-pocket cost of mental health care, even for those with insurance, needs to be addressed. Although increased use of drugs and alcohol puts adolescents at risk for more serious injury and illness, ED visits rarely allow for the comprehensive counseling or follow-up necessary to effectively address these behaviors. It is disturbing that the highest rate of ED use occurred in adolescents who scored highest on a depression inventory. In addition, the higher rate of sexual and physical abuse reported by adolescents who use the ED as their usual source of care suggests that many ED users have serious physical and psychological health needs that have not otherwise been met. Without intervention, these high-risk adolescents are more likely to become adults with poor health, addictions, and psychological distress.

Many guidelines for providing care to adolescents recommend that every adolescent should have an annual preventive care visit, including counseling and screening about risky and healthy behaviors.<sup>20-22</sup> Adolescents who used the ED as their usual source of care were much less likely to have had a checkup within the previous year, and many had not had a well visit within 3 or more years. Adolescents who used the ED as their only source of care were also more likely to report having missed needed care. Although we do not know whether these adolescents would have had more access if they had another regular source of primary care, health centers, physicians' offices, or clinics would be more likely to provide them with longitudinal care<sup>23</sup> and would probably be less costly.<sup>24</sup> It is simple for EDs to ask standard questions about usual source of care and provide referrals if necessary, and the American College of Emergency Physicians recommends that an appropriate health care professional be identified to provide follow-up care to patients after they are discharged.<sup>25</sup>

Our study is limited by the fact that we surveyed only adolescents who were in school on the day of the survey; thus, adolescents who are absent or who have dropped out of school are underrepresented, and these adolescents generally have worse health status and less access to medical care. Inclusion of out-of-school or absent youth might be expected to increase the rate of ED use. Another limitation is the high proportion of adolescents who did not report their health insurance status. Questions about family financial status and parental education level also may have been difficult for adolescents to answer. To address this concern we used both variables and combined the parental education variable to reflect the highest level of education of either parent. Although we know, based on telephone interviews, that adolescents' recall of the health services they received up to 7 months previously is valid,<sup>26</sup> the reliability of recall is not known for younger adolescents, for in-school pen-and-paper surveys, and for longer periods. Thus, it is not known whether the differences between the rates reported by adolescents in this study and the rates reported by parents in other studies are due to actual differences in rates for adolescents, differences in adolescents' vs parents' perceptions of care sources, adolescents' misunderstanding of the question, or a combination of factors. More investigation is needed to determine the validity of parent report of adolescent health care use.

All adolescents need access to comprehensive and confidential care to address the unique physical and emotional challenges they face. There is no single answer; for some adolescents the problem may be transportation, and for others the cost of care may be prohibitive. Further research is needed to determine what influences decisions to use the ED for care. Nonetheless, strategies for outreach to adolescents presenting to EDs are needed to enhance detection of past psychiatric or current psychosocial problems, and so that appropriate interventions can be provided. In addition, expanding insurance coverage must involve emergency and primary care providers, health insurance companies, and policymakers, to design a seamless system for integrating disenfranchised youth into the current system of primary health care.

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