

PEDIATRIC EMERGENCY DEPARTMENTS:
“SAFETY-NET” PROVIDERS FOR VULNERABLE CHILDREN

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ABSTRACT

This research investigates the socio-economic conditions and health service use behaviors of children using an emergency department for non-emergent medical care and contrasts those to a random sample of children in the Dallas, Texas area. The use of hospital emergency departments for non-emergent care among children was significantly associated with lower socio-economic status and lack of medical insurance. Low income, minority, and uninsured children are disproportionately more likely to rely on hospital emergency departments to supplement or supply the array of health care needs typically provided in a physician’s office.

Key words: non-emergent care, pediatric emergency, Texas children. (Texas Journal of Rural Health 2003;21(3): 54-69)

BACKGROUND

Use of emergency departments for non-emergency care, is neither desirable nor effective for maintaining children’s health. By its very nature, episodic emergency department care lacks all the benefits associated with the continuity of care received from a primary care physician, including enhanced prevention, compliance, diagnostic accuracy,

and early detection of disease (Christakis, Mells, Koepsell, Zimmerman, & Connell, 2001; Christakis, Wright, Koepsell, Emerson, & Connell, 1999; Starfield, 1998).

Nevertheless, vulnerable adults (Baker, Stevens & Brook, 1994; Aday, 1993; Stern, Weissman, & Epstein, 1991; Dickhudt, Gjerdingen & Asp, 1987; Lavenhar, Ratner, & Weinerman, 1968) and children (Halfon, Newacheck, Wood, & St. Peter, 1996; St. Peter, Newacheck & Halfon, 1992; Field, Black, Kincannon, & Arnold, 1987) (lower income, uninsured, minority groups, poorly educated, and Medicaid insured) are likely to use emergency departments as their primary source of health care. Although patients may experience low priority and long waits in busy emergency departments when they present with non-emergent conditions, the availability of care (24 hour services, no appointments) and the comprehensiveness of care (radiology, lab work, etc. all in one place) in hospital emergency departments make them an attractive source of care in spite of the inconvenience (Baker et al., 1994).

The underlying reasons for using emergency departments for non-emergency care are complex, and frequently poorly understood. In addition to a lack of family financial resources, research also indicates that other factors contribute to use of emergency departments, such as family structures (i.e., single parent families vs. married couples), and region of residence (Halfon et al., 1996). A large body of research indicates that emergency departments fill a gap in services by providing treatment, medical advice, and parent reassurance because there is a lack of access to primary care physicians (Mayefsky, El-Shinaway & Kelleher, 1991; Feigelman et al., 1990).

Because of increased use of emergency departments for non-emergent care, many

hospitals are struggling to continue to provide non-emergent care in the emergency department. In the past, many hospitals and providers, especially those in economically depressed areas, counted on commercial insurance and government reimbursement to supplement their charity care and, thereby, provide more services to uninsured patients (Cunningham, Grossman, St. Peter, & Lesser, 1999; MacPherson, 1996; French, 1995). As commercial and governmental insurance plans negotiate lower rates, available resources to support episodic emergency department care have significantly diminished (MacPherson, 1996; French, 1995).

In an attempt to understand the underlying reasons for non-emergent emergency department use, this research examines the socio-demographic and health service use patterns of two samples of children in Dallas, Texas. It describes and contrasts the socio-demographic and health service use patterns of a sample of patients from the predominant "safety-net" pediatric provider in the area (Children's Medical Center of Dallas) with those of a random sample of Dallas metropolitan area children, the hospital's primary catchment area. It was hypothesized that vulnerable children are still likely to rely on "safety-net" emergency departments as their regular source of medical care due to socio-economic reasons and lack of access to primary care, even in this era of health care reform and broadening federal/state medical insurance programs.

MATERIALS & METHODS

Children's Medical Center of Dallas

Children's Medical Center of Dallas (CMCD) is a 322-bed pediatric hospital in

Dallas Texas and is the dominant pediatric provider in the North Texas area. Even though it is heavily used by urban and inner-city patients, the hospital also serves suburban and rural populations residing in the surrounding counties.

In 1999 (the year of data collection for this research), CMCD admitted 22,590 patients 15 years of age or younger (inpatients, ambulatory surgery, 23-hour observations) and had 226,180 outpatient visits. Of the outpatients, 93,553 were visits to the emergency department, and 46,455 (50%) of those were emergency department visits for non-emergent medical care.

CMCD developed a pediatric fast track service, known as First Care (FC), adjacent to its emergency center in 1997 to provide services for non-emergent patients. Lower acuity patients who present to the emergency center are triaged by qualified hospital personnel to FC for treatment because their conditions do not require emergency department treatment. FC is staffed by pediatricians and pediatric physician extenders. Two comprehensive internal hospital analyses of patient volumes in 1998 and 1999 indicated that FC essentially provided walk-in non-emergent medical services that parents accessed via the emergency department.

Table 1. Sampling Results & Weighting Scheme

Sampling Frame				
Target Groups	Number of Patients	Percentage of Patients	Sample Obtained	Frequency Weights
First Care Patients				
Insured	1,043	18.38%	167	0.6736
Medicaid	1,891	33.32%	219	0.9310
Uninsured	2,742	48.30%	226	1.3079
Total	5,676	100.00%	612	—
Sample Margin of Error at 95% Confidence Level			+ 4.0%	
	Number of Households	Percentage of Households	Sample Obtained	Frequency Weights
Urban Population				
Less than \$20,000	81,528	7.68%	267	0.4621
\$20,000 - \$34,999	60,460	5.69%	267	0.3423
\$35,000 or more	109,938	10.35%	269	0.6178
Suburban Population				
Less than \$20,000	105,701	9.95%	269	0.5947
\$20,000 - \$34,999	127,173	11.98%	267	0.7205
\$35,000 or more	577,027	54.34%	267	3.2685
Total	1,061,827	100.00%	1,606	—
Sample Margin of Error at 95% Confidence Level			+ 2.4%	—

Additionally, these internal studies found FC to have sustained substantial patient volume growth over the previous years; two-thirds of its patients were from the Dallas urban/ inner city area, half were uninsured, and the overwhelming majority were minorities (predominantly African-American and Hispanic).

Sampling Technique

Data were originally collected from two different stratified samples: a sample of guardians to children in the general population of the Dallas metropolitan area and a sample of guardians to patients who had been admitted to FC at CMCD. Disproportionate sampling was originally used for both samples to ensure adequate frequencies of low income and uninsured children and achieve $\pm 6\%$ level of precision with 95% confidence levels within each strata. Because of this sampling technique, it was necessary to frequency weight the data to reflect each strata's appropriate proportion in the population for this aggregate analysis (based on 1999 United States Census data obtained from Claritas Data Services (1998) for the population sample and patient volumes for the FC sample; see Table 1). Case weights were determined by dividing the appropriate proportion of the population (or patients) by the sample obtained (e.g., row 1 in Table 1: $(0.1838 * 612) / 167 = 0.6736$).

The patient sampling frame consisted of guardians who brought their child to CMCD's emergency department and were subsequently triaged to FC. Guardians (612) of the children treated in FC between April and May 1999 were interviewed via the telephone subsequent to their visit. Guardians (1,606) of children were interviewed via the telephone for the Dallas area population sample. The

total N for this study was 2218.

Data Collection

Surveys were conducted by telephone by the Survey Research Center at The University of North Texas in Denton, Texas. Random digit dialing was used to identify households with children 15 years of age or less living with them. No household was interviewed more than once. Multiple occurrences of the same phone numbers across samples (FC and population samples) were eliminated so that a household could only be selected once. When multiple visits by the same patient during the time frame occurred in the FC sample, the record from the patient's first visit was used. Therefore, no household in either sample was interviewed more than once nor did the population sample contain respondents who appeared in the FC sample.

Respondents were limited to adults aged 18 or over who had primary health care responsibility or shared the health care responsibility for the children under 15 years of age living in the home. For the population sample, respondents were asked the ages of the children under 15 in their homes. Because the respondents with more than one child could have answered the survey for several children, they were asked to answer the questions using a "target" child that was randomly selected by the interviewing software from among the children under 15 in their home. Respondents in the patient sample were asked to answer questions respective to the child who had visited the emergency center. Interviews were conducted in either Spanish or English, depending on the respondent's language preference.

Variable Measures

Our research incorporated a variety of traditional predictors of health care service use found in the literature, as well as special characteristics of vulnerable populations that may also influence their use of services (Gelberg, Andersen & Leake, 2000; Aday, 1993). Two measures of health care service use were included: The child's number of physician visits in the six months preceding the interview, and the number of emergency department visits during the previous six months.

Guardians were also asked about the child's usual source of sick care and their usual source of well care. They were asked to specify whether the child usually received treatment in a private physician's office, a hospital emergency department, or a community or public health clinic. This variable was included in our analysis because of the well-known benefits of the continuity of care provided by a primary care physician (e.g., more preventative care, better patient compliance, more accurate diagnoses, earlier detection of disease, and coordinated specialty referrals and ancillary care) (Starfield, 1998).

In an attempt to measure continuity of care, and lack thereof, we constructed a variable termed "medical home." A medical home was defined as the place where patients received both well and sick care at one location outside of a hospital emergency department, which presumably would provide the patient access to a regular source of care at one place on an uninterrupted basis. Children who received well and sick care at a physician's office were coded as having a medical home with a private physician. Medical homes at community health centers were computed similarly. Any other combina-

tion of these two variables were coded as "no" medical home, since that would involve some type of mismatch between using a private physician and community health center or reliance on an emergency department for well and sick care.

Three variables measured the guardians' anxiety about acquiring medical care for their children: (a) degree of difficulty obtaining their child's medical care, (b) worry about acquiring their child's medical care, and (c) worry about paying for their child's medical care. Worry about acquiring and paying for their child's medical care were measured with response categories of (1) "never," (2) "seldom," (3) "occasionally," and (4) "often." Degree of difficulty obtaining care was measured with response categories of (1) "very easy," (2) "easy," (3) "somewhat difficult," and (4) "very difficult."

Health status was measured by two traditional measures. First, guardians were asked whether or not their child had a severe disability or medical condition that required frequent hospitalizations or specialized medical care. Second, guardians' perceptions of their children's overall health was measured (Poor/Fair, Good, Very Good, Excellent). Guardians were also asked how many days of school their child had missed in the past six months because of illness and the number of work hours missed in the past six months to care for their child when sick. Low-income parents who use safety-net providers are especially likely to miss work because they have fewer resources with which to access alternative caregiver resources, such as sick-child day care providers.

Socio-economic and demographic characteristics were included: ethnicity (White, Hispanic, African-American, and other), income, education, and area of residence. Dallas County is an urban county,

with more affluent families living in the suburban areas, and poorer families more likely to live in the inner city urban areas. In addition, attributes thought to be especially characteristic of vulnerable populations were included. These included the type of insurance coverage (or if they were uninsured) and the guardian's age, because children in vulnerable populations may be especially likely to have guardians that are either very young or very old (e.g., grandparents). Gender, marital status, and the number of adults in the child's home that were responsible for the child's health care were included. This is important because children in vulnerable populations are especially likely to live in single-parent families, usually with the mother, and are therefore likely to have fewer adult guardians available, especially male guardians. The number of children in the household was included because poorer families, especially among Hispanic populations, are likely to be larger. More children represent more competing needs for family caregiving and financial resources that may negatively influence children's use of health care services.

All N's and percentages are presented using weighted data. Student's t-tests, chi-square, and Fisher's Exact tests were used as appropriate for statistical analysis. The Statistical Program for the Social Sciences (SPSS) was used for all statistical analyses.

RESULTS

Table 2a-b presents the demographic frequency distributions for the general population and FC samples. FC sample respondents were significantly more likely to be minority, low income, and less educated than the general population. The vast majority

of the FC patient sample were African-American or Hispanic (37% and 46%, respectively), while African-Americans and Hispanics represented only 38% of the general population sample. Over half of the FC sample (56%) had total household incomes less than \$20,000 per year, while nearly half (46%) of the general population had total household incomes of \$50,000 per year or more. Nearly two-thirds (63%) of the FC children's guardians had a high school education or less, with over one quarter (26%) reporting less than a high school education. Educational levels in the general population were noticeably higher, with over a third (37%) completing a Bachelor's degree or more.

Children in the FC sample were three times more likely to have very young guardians. Twenty-eight percent of FC guardians were 24 years of age or younger compared to 9.3% in the general population. FC children were also somewhat more likely than children in the general population to have guardians who were 55 years of age or older (3.4% vs. 2.3%). FC children were somewhat more likely to have a female guardian and much more likely to have a guardian who was never married than children in the general population. More guardians in the general population were married than guardians in the FC sample (75.9% vs. 55.8%) and more of the guardians in the FC sample were never married than was found in the general population (27.8% vs. 9.7%). Guardians of children in the FC sample also had more children under 15 years old in the home and were significantly more likely to live in the urban area than the suburbs.

The data also suggest that FC children experience discontinuity in care and greater use of emergency department services than their general population counterparts (see Table 3a-c). Children in the FC patient sample averaged 25% more physician visits, and

Table 2a. Demographic & Socio-economic Comparisons of Children's First Care and the Population Samples*

Variable	Children's First Care		Population		Sig Level
	Count	Percent	Count	Percent	
Total Sample	612		1606		
Race/Ethnicity					
White-Non-Hispanic	91	14.9%	898	56.1%	
Hispanic	279	45.7%	324	20.3%	
African-American	225	36.9%	289	18.0%	
Other	15	2.5%	89	5.6%	
Total	610	100.0%	1,600	100.0%	(P < 0.001)†
Income					
<\$10,000	135	22.8%	91	5.7%	
\$10-19,999	196	33.2%	192	12.0%	
\$20-34,999	154	26.1%	284	17.7%	
\$35-49,999	59	10.0%	307	19.1%	
\$50-74,999	29	4.9%	293	18.2%	
\$75,000+	18	3.0%	439	27.3%	
Total	591	100.0%	1,606	100.0%	(P < 0.001)†
Education					
<High School	161	26.3%	171	10.7%	
High School or GED	223	36.4%	304	18.9%	
Trade/Vocational	38	6.2%	81	5.1%	
Some College	118	19.4%	333	20.7%	
AA	26	4.2%	119	7.4%	
BA	32	5.2%	380	23.7%	
Graduate Education	14	2.3%	217	13.5%	
Total	612	100.0%	1,605	100.0%	(P<0.001)†

* All N's and percentages presented using weighted data; total N will vary because of incomplete responses, † Chi-square or Fisher's Exact as appropriate.

nearly eight times as many non-emergent emergency department visits in the previous six months than children in the general population. FC patients were more likely to use emergency departments for a usual source of care, especially sick care and were significantly less likely to have medical

homes. These children are five times more likely than children in the general population sample to use a hospital emergency department as their usual source of sick care (26.7%). The FC children are three times more likely to report different sources of usual care for sick care and for well care or to rely on

Table 2b. Demographic & Socio-economic Comparisons of Children's First Care and the Population Samples

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
Area of Residence					
Urban	378	62.4%	381	23.7%	
Suburban	228	37.6%	1,225	76.3%	
Total	606	100.0%	1,606	100.0%	(P < 0.001)†
Guardian's Age					
18-24	169	27.7%	149	9.3%	
25-34	269	44.0%	603	37.5%	
35-44	113	18.5%	643	40.0%	
45-54	39	6.4%	175	10.9%	
55+	21	3.4%	36	2.3%	
Total	611	100.0%	1,606	100.0%	(P < 0.001)†
Guardian Gender					
Male	112	18.3%	436	27.1%	
Female	500	81.7%	1,170	72.9%	
Total	612	100.0%	1,606	100.0%	(P < 0.001)†
Marital Status					
Married	340	55.8%	1,218	75.9%	
Never Married	169	27.8%	155	9.7%	
Divorced	44	7.2%	160	10.0%	
Widowed	9	1.5%	10	0.6%	
Separated	47	7.7%	61	3.8%	
Total	609	100.0%	1,604	100.0%	(P < 0.001)†
Mean (SD)					
Average Number of Adults Responsible for Child's Health Care in the Home	1.81(0.73)		1.68(0.56)		(P < 0.001)‡
Average Number of Children <15 in Household	2.12(1.19)		1.80(0.91)		(P < 0.001)‡

† Chi-square or Fisher's Exact as appropriate, ‡ T-test

hospital emergency departments for care (36.8%) and the majority (62.1%) of the FC children used community and public clinics as their usual source of well care while the majority of the community sample children (79.2%) used private physicians.

Access to care was more problematic in the FC sample than in the general population. Although the majority of guardians in both samples said that acquiring medical care for their children was easy or very easy, the guardians of FC children were twice as likely to report that getting care was somewhat or very difficult and significantly more likely to worry about acquiring medical care for their children. An astounding 42.0% of the guardians of FC children reported that they *often* worry about getting their children in to see a doctor and 45.2% reported that they often worry about having enough money to pay for their child's care.

The percentage of children with medical insurance was remarkably different between the samples. Nearly half (48%) of the FC patients were uninsured, whereas less than one-fifth (17%) of the general population was uninsured. Of those with insurance, managed care predominated in the general population, with half (52%) reporting that they had one of several types of managed care plans (HMO, PPO, POS plans). Among the FC sample, the largest percentage was uninsured (48%), while the insured FC patients were more likely to rely on Medicaid (33%).

DISCUSSION

This research investigated non-emergent emergency department use among patients at Children's Medical Center of Dallas (CMCD) in Dallas, Texas and compared them to a random sample of children in the Dallas

metropolitan area. The majority of children who use the emergency department at CMCD for non-emergent care are among the most vulnerable children in the Dallas metropolitan area. These children were proportionately more likely to be part of a minority group, from low income, poorly educated households, uninsured or on Medicaid, have more difficulty accessing care, and to be more likely to lack medical homes than the children in the general population.

These findings suggest that the use of hospital emergency departments for acute, but non-emergent care is disproportionately more common among children from families with lower socio-economic status (low income and educational levels). Since children's access to care is a direct function of their parents' or guardians' ability to acquire medical insurance or pay for their care, pediatric hospital emergency departments appear to serve a "safety-net" function for vulnerable children much like the previous research indicates they do for adults. Emergency departments frequently supply or supplement an array of non-emergent health care services typically provided in a private physician's office. Regardless of whether or not this role is cost effective, medically ideal, or even preferable, hospital emergency departments continue to provide a broad array of primary and acute health care services to vulnerable populations, which also includes increasing numbers of children.

This study also demonstrates that children who use the urgent care center, FC of CMCD, are more likely to experience discontinuity of care than children from a random sample of families living in the area. A much larger proportion of the children in the FC sample lacked a medical home of any kind than children in the general population. This disjuncture in sources of care is a major policy

Table 3a. Health Status and Access to Care Comparisons*

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
Overall Health Status					
Poor/Fair	72	11.8%	59	3.7%	
Good	147	24.0%	209	13.0%	
Very Good	163	26.7%	515	32.1%	
Excellent	229	37.5%	821	51.2%	
Total	611	100.0%	1,604	100.0%	(P < 0.001)[†]
Disability Present					
Yes	38	6.2%	91	5.7%	
No	573	93.8%	1,515	94.3%	
Total	611	100.0%	1,606	100.0%	(P = 1.00)[†]
	Mean (SD)		Mean (SD)		
Average Number of Work Hours Missed in the Past Six Months to Care for a Sick Child	24.22(61.59)		13.47(43.31)		(P < 0.001) [‡]
Average Number of School or Day Care Days Missed Due to Illness in the Past Six Months	7.14(12.90)		3.40(7.93)		(P < 0.001) [‡]

* All N's and percentages presented using weighted data; total N will vary because of incomplete responses, † Chi-square or Fisher's Exact as appropriate, ‡ T-test

issue for the care of vulnerable children, because, as children's health services researchers have discussed, the health care delivery system for children the United States has evolved a unique set of public and private financing and organizational arrangements that do not work together seamlessly (Forrest, Simpson & Clancy, 1997; Halfon, Schuster, Valentine, & McGlynn, 1998). Such is the case in Dallas County. In Texas, the provision of health care for people who are medically indigent and uninsured is primarily the

responsibility of counties in a system based on English Poor Laws. The state accepts the minimum of federal funding for public insurance programs through Medicaid and State Children's Health Insurance Program (SCHIP), and consequently, has one of the largest percentages of uninsured children in the nation (Fenz, 2000).

Dallas County provides a vivid example of how complex this system can become, and the challenges it can pose for guardians of sick children, for providers, for health care

Table 3b. Health Status and Access to Care Comparisons

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
<i>Worry About Child's Access to Health Care</i>					
<i>Currently, how difficult is it for you to get medical care for your child?</i>					
Very easy	275	45.7%	921	57.7%	
Easy	192	31.9%	489	30.6%	
Somewhat Difficult	79	13.1%	108	6.8%	
Very Difficult	56	9.3%	78	4.9%	
Total	602	100.0%	1,596	100.0%	(P < 0.001)[†]
<i>How often do you worry about getting your child in to see a doctor?</i>					
Never	156	25.6%	759	49.5%	
Seldom	79	13.0%	331	21.6%	
Occasionally	118	19.4%	208	13.6%	
Often	256	42.0%	236	15.3%	
Total	609	100.0%	1,534	100.0%	(P < 0.001)[†]
<i>How often do you worry about having enough money to pay for your child's medical care?</i>					
Never	183	30.1%	795	49.6%	
Seldom	54	8.9%	265	16.5%	
Occasionally	96	15.8%	224	14.0%	
Often	274	45.2%	319	19.9%	
Total	607	100.0%	1,603	100.0%	(P < 0.001)[†]
<i>Use of Health Services</i>					
Average Number of Physicians Visits	Mean (SD) 1.92(2.46)		Mean (SD) 1.53(1.93)		(P < 0.001) [‡]
Average Number of Emergency Room Visits	Mean (SD) 1.42(1.30)		Mean (SD) 0.25(0.85)		(P < .001) [‡]

† Chi-square or Fisher's Exact as appropriate, ‡ T-test

administrators, and for policymakers. In addition to the array of private practitioners who serve those children who are medically insured or whose parents can otherwise afford to access their services, the Dallas County Hospital District has historically provided tax funding for a public safety-net hospital that is nationally recognized as a

leader in innovative indigent health care. The county also funds a series of geographically dispersed community health centers to serve predominantly low-income and/or uninsured populations in the county.

It is these community clinics that are the major source of sick and well care for the vulnerable children seen in CMCD's urgent

Table 3c. Health Status and Access to Care Comparisons

Variable	Children's First Care Sample Count		Population Sample Count		Sig Level
	Count	Percent	Count	Percent	
Source of Health Care					
<i>Usual Source of Sick Care</i>					
Private Physician	200	32.8%	1,265	79.1%	
Hospital Emergency Department	163	26.7%	88	5.5%	
Community/Public/ Other Clinics	247	40.5%	246	15.4%	
Total	610	100.0%	1,599	100.0%	(P < 0.001) [†]
<i>Usual Source of Well Care</i>					
Private Physician	209	34.7%	1,260	79.2%	
Hospital Emergency Department	19	3.2%	17	1.1%	
Community/Public/ Other Clinics	373	62.1%	313	19.7%	
Total	601	100.0%	1,590	100.0%	(P < 0.001) [†]
<i>Medical Home</i>					
Private Physician	156	26.0%	1,184	74.7%	
Community Health Center	223	37.2%	192	12.1%	
None	221	36.8%	209	13.2%	
Total	600	100.0%	1,585	100.0%	(P < 0.001) [†]
Insurance Coverage					
<i>Medical Insurance</i>					
Yes	315	51.7%	1,329	82.8%	
No	294	48.3%	277	17.2%	
Total	609	100.0%	1,606	100.0%	(P < 0.001) [†]
<i>Type of Insurance</i>					
Commercial Managed Care	82	13.2%	836	52.0%	
Fee-for-service					
Medicaid	202	33.0%	150	9.4%	
Uninsured	294	48.3%	277	17.2%	
Other	3	0.5%	191	11.9%	
Don't Know	19	3.0%	101	6.3%	
Undeterminable	12	2.0%	51	3.2%	
Total	612	100.0%	1,606	100.0%	(P < 0.001) [†]

[†] Chi-square or Fisher's Exact as appropriate, [‡] T-test

care center. However, these require payment or a coverage arrangement for services (although substantially less expensive than private practices). Additionally, parents have difficulty accessing care the same day and may be required to wait several days for appointments. The appeal of the emergency department is self-evident. FC can be accessed 24 hours a day, seven days a week, on a walk-in basis. Further, it provides a substantial level of charity care and is overwhelmingly perceived in the area as a reputable institution that provides high quality care.

This situation is not unique to Dallas. Some researchers argue forcefully that evaluation of children's health care services must integrate the multiple service sectors from which children receive their care, including, in this instance, the not-for-profit urgent care center in a free-standing children's hospital, and the tax-supported system of community health centers (Forrest et al., 1997). Smooth working relationships between these various providers and convenient, consistent access to care outside of the emergency department are critical to providing continuity of care and appropriate follow-up services for children. This is especially important for public policy related to populations that are vulnerable because of risk factors related to culture, race, socio-economic status, family, and environment, as is the FC population studied in this research (Simpson & Fraser, 1999; Szilagyi & Schor, 1998).

Working relationships among urban care providers must also extend to the treatment of rural patients who use urban medical facilities. Many rural hospitals lack sufficient emergency medical staff and specialists to meet patient care needs and, therefore, must focus on patient stabilization, admission, or transfer

to urban emergency departments with better diagnostic and treatment facilities (Williams, Ehrlich & Prescott, 2001; Sklar, et al., 2002). Also, rural residents are less likely to obtain preventative care, have greater unmet medical care needs, and frequently must travel to urban facilities to acquire specialty care (e.g., surgeons and cardiologists) (Long, Coughlin & Kendall, 2001; Borders & Rohrer, 2001; Buczko, 2001; Casey, Call & Klingner, 2001; Buczko, 1997; Melzer, Grossman, Hart, & Rowenblatt, 1997). For these reasons urban hospitals and emergency departments anticipate patients from rural areas for acute and specialty care. However, hospital patient demographics during the study period (1999) of this research indicated that some rural children used the emergency department at CMCD for *non-emergent* care.

Approximately 6% of the children treated in the CMCD emergency department for acute medical needs were from rural adjacent and rural non-adjacent north-central and north-east Texas counties, while 2% of the total FC patient volume came from these rural counties. Therefore, at least a small percentage of parents were apparently willing to bypass local medical providers and travel to the CMCD emergency department for care that could have been provided in a local physician's office or primary care clinic. We suspect that emergency departments serve the same "safety-net" function for these rural children who have difficulty accessing care as they do for their urban counterparts. In any case, there is an apparent need for pediatric emergency departments in urban centers to also consider utilization by the surrounding rural population for acute, specialty, and *non-emergent* emergency department care when formulating policies and services.

A limitation to this study should be noted. The number of emergency room visits and

physician use was obtained from parent/guardian recall alone. Although we used a time frame (six months) based on the research findings by the consortia of Harvard Medical School, RAND, and Research Triangle Institute who found that a six-month interval is the optimal time period about which to measure health care use, recall is inherently subject to inaccuracies and incompleteness (Harris-Kojetin, Fowler, Brown, Schnaier, & Sweeny, 1999). Studies that use medical record, hospital admission, and physician/clinic visit data would likely have produced more accurate data. This, however, was logistically impossible for our population wide comparative sample.

Finally, this study has several implications for further research. First, these data confirm that even in a large metropolitan area with a large network of health care providers the socio-economic stratification in health care service use found by previous researchers continues and, therefore, requires additional monitoring and redress. Second, it may be inferred from this research that providing medical insurance and allocating children to medical homes that minimize access barriers would likely decrease reliance on emergency departments for non-emergent care. Medicaid managed care and SCHIP were implemented in the Dallas area after these data were collected. More research is, therefore, needed that directly tests allocation to a primary care physician (as required by Medicaid managed care) and SCHIP on emergency department use for non-emergent care by these vulnerable populations. Third, while the literature discusses the reasons urban emergency departments can expect to see rural patients with acute and specialty care needs, more research is needed that specifically investigates why some rural parents are willing to travel to an urban emergency department and

bypass local care facilities for non-emergent care.

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PEDIATRIC EMERGENCY DEPARTMENTS

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