

*Southern Online Journal of Nursing Research*

[www.snrs.org](http://www.snrs.org)

*Issue 3, Vol. 6*  
*July 2005*

***Predicting Choice of Health Services for Publicly Insured  
Children with Non-urgent Illnesses***

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## Abstract

Throughout the 1990s, private managed care organizations (MCOs) won contracts to administer public health insurance programs for children, but questions about quality and access for pediatric primary care remain. This cross-sectional study of patients ( $n = 403$ ) waiting in community clinics and a pediatric emergency room reveals a lack of ready access to primary care services for many publicly insured ill children, as well as caregiver difficulties with discriminating non-urgent from emergent health problems. After ten years of experience with privatization of public health insurance in this north Texas metropolitan area caregivers still report seeking care for a publicly insured child with a non-urgent illness in the emergency room because of problems with access to primary care. Other factors influencing their decision to seek care in the emergency room suggest workload and quality problems at the primary care level, as well. Although emergency rooms have long served as safety nets for the uninsured, it appears they are safety nets for children insured by public programs, as well.

**Keywords:** *health services, emergency department, primary care, public insurance, children*

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## Introduction

During the past twenty years private managed care organizations (MCOs) gained a windfall of contracts to administer public health insurance programs for children, but questions about quality and access for pediatric primary care continue to haunt us. Although cost containment was the primary motivation for the trend, other benefits were expected, including improved continuity of care, improved

coordination of health services by means of gate-keeping, and increased use of preventive health services.<sup>1,2</sup> It was tacitly assumed that privatized managed care would result in increased access to a medical home for care of minor illnesses. The term *access* refers to an individual or family's use of medical services and relative ease of obtaining treatment.<sup>3</sup> Access to primary care for publicly insured children during periods of non-urgent illness would naturally help

relieve overcrowding and inappropriate use of pediatric emergency rooms (ER).

Primary care is the foundational building block for health services delivery in most advanced nations. Although the term primary care is often used to denote first contact care of individuals, the concept is much broader. Accepted elements of primary care include first contact services, comprehensiveness, continuity of care, and coordination of health services.<sup>2,4</sup> The U.S. Institute of Medicine (IOM) defines primary care as

...the provision of *integrated, accessible health care services* by clinicians who are *accountable* for addressing a large *majority of personal health care needs*, developing a *sustained partnership with patients*, and practicing in the context of *family and community*.<sup>4p31</sup>

In most urban areas health system transformation has resulted in integrating primary care practices serving publicly insured children into larger health care systems, but it is not clear that the other criteria of primary care have been realized. The IOM model of primary care suggests that in the medical home the patient enjoys a relationship with a consistent primary care provider (PCP) who provides

continuous health supervision, illness treatment, referrals, preventive care, and health education. Within this paradigm the PCP provides treatment, education and/or referral for non-urgent illnesses. A dysfunctional primary care system will be unable to satisfy the demand for the health care goods outlined above. In such a situation, demand for care of non-urgent illnesses frequently shifts to emergency rooms.

How well the country measures up to ideal standards requires systematic assessment. With regional differences in public responsibility, there is a need for periodic review of factors that influence access and decisions to use primary care services. Therefore, the purpose of this study was to investigate a combination of factors that influence the choices of caregivers regarding the site of services for treatment of non-urgent illnesses for publicly insured children. Two research questions include: 1) do publicly insured children in an urban area of North Texas have genuine access to primary care services during episodes of minor illness and 2) what are the relative strengths of factors other than lack of primary care access that might contribute to the use of the pediatric ER by the target population?

## Literature Review

According to Anderson's Behavioral Model of Health Services,<sup>5-8</sup> three types of determinants influence individuals' choices of health services. The organization and resources of the health care system comprise one type of determinant. Client or family predisposing characteristics and social norms comprise two other types of determinants. Given Anderson's conceptualization, lack of access to primary care is not the only factor that predicts caregiver choice of the ER for a child with minor illness. Much recent literature regarding use of the ER by patients with non-emergencies speculates about non-system factors that fit well into the Anderson model. Unfortunately, non-access factors have rarely been included simultaneously in decision-making models relating to ER use by publicly insured children.

Family predisposing factors include variables such as unshared parenting responsibilities, language barriers, and perceptions of illness severity. Social norms emerge as a factor in ER use when family choices are influenced by endorsement from members of the family's social network. Historical practices in the extended family and

social group, such as parent use of the ER as a child and beliefs about the appropriateness of hospitals for acute care represent social norms as factors in service choice, as well. Research suggests that both social modeling<sup>9-13</sup> and endorsement<sup>14,15</sup> influence decision-making.

Based on both cross-sectional and interventional studies, investigators speculate that unshared parenting responsibilities,<sup>10,16</sup> language barriers<sup>17-19</sup> and mismatched professional/family perceptions of illness severity<sup>20-22</sup> contribute to choice of service site, though the contributions of these factors are generally poorly measured or unmeasured. Studies show the impact of perceived fever,<sup>23-25</sup> the quality of family-practitioner communication,<sup>26-28</sup> trust,<sup>28-32</sup> and family dislike of the treating physician<sup>11,29</sup> may influence choice of health services, as well.

A substantial body of research has accumulated in the past decade regarding appropriate utilization of various types of health care services. Although the meaning of appropriate may be controversial,<sup>15,33</sup> the assumption presented in the literature is that delivery of most personal health services by

primary care providers acting as gatekeepers is the least costly way to organize service delivery [1,34](#) and improves quality of life through preventive care and health promotion. [35-37](#) Accordingly, the vitality of primary care services available to recipients of public insurance is of critical interest.

Historically, the use of the emergency room for non-urgent care of Medicaid insured ill children has been substantial. [38-40](#) A managed care promise for Medicaid was that low-income children would gain entrance into the offices of private primary care providers as providers accepted the security of capitation reimbursement. [41,42](#) Enrollment of pediatric Medicaid and State Children's Health Insurance (CHIP) recipients in managed care plans, assignment to specified primary care providers, and negotiation of capitation contracts was expected to shift services for non-urgent illness and chronic conditions from emergency departments to primary care providers as primary care alternatives became increasingly available to families. In some cases, given generous provider incentives, such as simultaneous capitation and fee-for-service reimbursement, this

happened. [38,43](#) In other cases, publicly insured patients continue to seek care for non-urgent conditions as they have in the past, in the emergency room, [44](#) however, the reasons for the failure to shift service sites and regional trends remain unclear.

This study fills a gap in the literature as it focuses specifically on publicly insured children rather than publicly insured adults or other populations. It also attempts to include multiple factors in family decision making, including factors that have been speculative in the literature, but not specifically included together in other studies. Finally, this study examines family decision-making in a geographic area that has been penetrated by Medicaid and CHIP managed care and the associated mass member education for almost ten years.

## Methods

This study employs a cross-sectional design. A purposive sample of caregivers of publicly insured children presenting at primary care clinics and at a local pediatric ER were surveyed regarding reasons for obtaining care at the selected service site for a child's non-urgent illness.

*Sample.* The sample consisted of caregivers, mostly mothers, of children between the ages of 4 months and 18 years with non-urgent illnesses waiting for care in either a local primary care pediatric community clinic or the local pediatric ER. The term *non-urgent* denotes an illness or problem that does not require emergency medical attention or admission to hospital. Non-urgent problems may encompass symptoms of minor or chronic illnesses such as sore throats, earaches, runny noses, rashes, bowed legs, bedwetting, and poor growth. Appropriate treatment of non-urgent problems refers to treatment occurring in primary care settings or in specialty clinics.

Caregivers of children less than 3 months of age or those waiting in clinics for well-child care were excluded.

Surveys of uninsured or privately insured children were discarded. Patient complaints included rashes, fever, headache, stomachache, chest pain, stomach pain, aches and pains other than chest and abdominal pain, cough, dysuria, vomiting, sore throat, otalgia, diarrhea, anorexia, dizziness, runny nose, stuffy nose, enlarged lymph nodes, constipation, dry skin, stiff neck (torticollis), and pink eye. Children with acute injuries or wheezing were excluded even if judged non-urgent at triage due to potential exacerbations of their conditions. Characteristics of caregivers participating in the survey are displayed in Table 1

**Table 1**  
**Characteristics of Caregiver Respondents**

Characteristic	Total Sample N = 403	ER Subsample N = 202	Clinic Subsample N = 201
<b>Respondent age:</b>			
14-19 years	8%	10%	6%
20-29 years	52%	51%	51%
30-39 years	30%	27%	32%
40-49 years	8%	7%	10%
50-63 years	2%	4%	1%
<b>Respondent Race/ethnicity</b>			
	48%	43%	53%
Hispanic	34%	35%	33%
Black/African-American	15%	17%	13%
White	3%	5%	1%
Other			
Length of Time lived in the area (years)	Mean = 15	Mean = 18	Mean = 13
<b>Patient (child) born</b>			
in Tarrant County	72%	84%	69%
in USA	93%	98%	95%
<b>Respondent born in the USA</b>			
	70%	75%	62%
<b>Respondents caring for</b>			
	28%	33%	22%
Only one child	32%	28%	35%
Two children	16%	16%	15%
Four or more			
<b>Work outside the home 20 hours/week or more</b>			
	47%	49%	43%
	11%		
	26%	4%	1%
Age 14-19	13%	28%	24%
20-29	4%	13%	13%
30-39	1%	2%	11%
40-49		2%	0%
50+			
<b>Respondent education</b>			
≥12 years	60%	<i>Shut-outs 57%</i>	58%
Range=0-19 years		<i>Bypassers 69%</i>	
Mean=10.7 years			

Sample size was estimated based on the known population of 100,000 publicly insured children in the Tarrant County service area, confidence interval of 95% and an *a priori* assumption of only a 50% response rate. An additional factor in the calculation of sample size included the needs of the logistic regression method, which uses maximum likelihood estimation (MLE) rather than ordinary least squares. MLE relies on asymptotic normality, thus requiring at least 30 observations for each variable in the model.

*Instrument.* A questionnaire was constructed by the author to elicit information about factors predicting caregiver choice of services for a child with a non-urgent illness. Questions were based on variables previously reported in the literature as significant, possibly significant, or speculative. Some items were based on variables considered significant in the local community, such as transportation difficulties and aesthetic characteristics of the ER versus the clinics.

Questionnaires were developed in English and Spanish. Reading level for the English surveys judged by Fogg and Fleisch indexes was at the 4<sup>th</sup> to 6<sup>th</sup> grade level. All items were answered yes/no

except for demographic items and two questions regarding the child's symptoms and prior treatment. Prior to the study, questionnaires were piloted with English and Spanish reading parents in a community clinic over three clinic days. Parents reported problems with double negative wording of certain items, which were changed in response to their suggestions. Faculty members at a local school of nursing, ER nursing managers, clinic managers, and clinic staff reviewed the surveys as well, and their suggestions were incorporated into the revised versions of the questionnaires.

Internal consistency was evaluated by means of Kuder-Richardson 20 for items expected to covary consistently. Fifteen variables thought to represent core behaviors of interest were analyzed, and an alpha value of .80 was obtained using the total sample. These fifteen items described factors that, theoretically, should influence families to choose an emergency room rather than a primary care site for episodic care. These factors included language mismatch with the primary care provider, inability to communicate with the primary care provider by phone, advice by family members and friends to seek care in the

emergency room, a nicer environment in the ER than clinic, and an inconvenient primary care appointment.

Emergency room questionnaires contained 48 items; clinic questionnaires contained 43 items. Additional items on the ER questionnaire were designed to identify respondents who had attempted to access the PCP prior to presenting at the ER. Respondents were asked if they chose the ER because a telephone call to the PCP had not been answered, or a call had been answered, but they were left on hold so long they gave up waiting. They were also asked if they had left a message that had not been returned, had been given an inconvenient appointment, believed the child's clinic was closed or had been verbally re-directed to the emergency room from the PCP. These items ultimately defined a group experiencing barriers to primary care access.

Section One of the ER Survey questions followed the stem, "I brought my child to the emergency room today because..." Items addressed events relating to lack of access, perceived severity of the child's illness, quality of relationship with the primary care or emergency room physicians and staff, emergency room environment,

transportation, and social network influences. Section One of the PC Survey presented items following the stem, "I brought my child here today because..." Items following the stem were those for emergency room respondents except for items related to clinic access, as respondents in the clinic had obtained access. Items were worded differently in some cases to reflect the site. Section Two in both questionnaires was identical and elicited demographic and historical information. Copies of these questionnaires may be obtained from the author.

*Procedures.* This study was approved by the Institutional Review Board of the parent medical center of the pediatric emergency room and clinics participating in the study, and the university's institutional review board. After approval, the author and research assistants trained by the author administered surveys in the waiting areas of three neighborhood clinics and the local pediatric ER on business days (Monday through Friday) between the hours of 10:30 and 4:30 p.m. Times were selected based on the assumption that the PCP would be accessible during this period. Surveys were scheduled to include random periods from December

2002 through June 2003, but were not administered on holidays or the day before or after a holiday. Respondents in the emergency room were approached after triage established that patients did not require emergency attention.

Respondents in the clinics were approached after they had registered. Questionnaires were read to subjects who were unable to read.

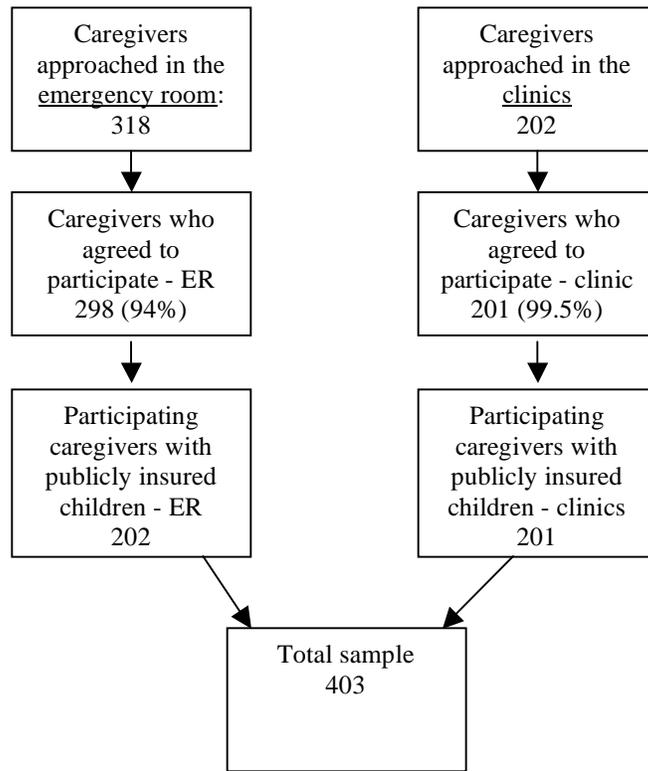
*Data Analysis.* Multinomial logistic regression was used to examine the relationship between predictive factors and three outcomes. These outcomes were the following: Caregivers sought access to the PCP, succeeded, and waited for care in the clinic. Two hundred and one caregivers experienced these outcomes and served as the reference group, or *system successfuls*. Respondents who attempted to connect with the PCP but failed were termed *shutouts* (139 respondents). The third possible outcome was membership in the

*by-passers* (63 respondents) group. These respondents sought care in the ER without attempting to connect with the PCP first.

## Results

A total sample of 403 publicly insured patients was obtained (Figure 1). Of the 318 families approached in the emergency room, 298 (94%) agreed to participate. Surveys of respondents with private insurance were removed leaving 202 publicly insured ER respondents. All but one of the families approached in clinics agreed to participate resulting in 201 *system successfuls*. The data suggests that caregivers at the clinics represent families that are somewhat newer to the service area and larger than the families at the emergency room, although family size, length of time resident in the area, and immigrant status did not significantly predict emergency room use.

Figure 1  
Sample Selection Process



Eleven predictive variables achieved significance. Variables are paired with survey items in Table 2. Parameter values were obtained using SPSS 12.0 statistical software. Table 3 records the maximum likelihood estimates and odds ratios for the predictors for *Shutouts* and *By-passers*. Parameters for *Shutouts* and *By-passers* are interpreted relative to

*System Successfals*. The difference between the  $-2\text{LogLikelihood}$  of the null model (718.805) and the full model (358.069) results in a significant chi-square value of 360.069 ( $p = .000$ ). Pseudo  $R^2$  values include Cox & Snell .591, Nagelkerke .683, and McFadden .446.

**Table 2**  
**Variables with Associated Survey Items and Frequencies of Responses (N=200)**

Variable	Item(s)					
	PCP survey	Yes	No	ER Survey	Yes	No
Child's condition is perceived as an emergency	<ol style="list-style-type: none"> <li>1. My child is sick, but I do not think it is serious, and the doctor or nurse practitioner here can handle it.</li> <li>2. My child may have something serious, but it is not an emergency, and the doctor or nurse practitioner here can handle it or make a referral</li> </ol>	95%	4%	In my opinion my child is so sick he or she needs immediate emergency care or needs to be admitted in to the hospital	46%	53%
Language mismatch	The doctor or nurse practitioner here speaks our language	93%	7%	My child's doctor or nurse practitioner listed on the insurance card speaks our language	76%	23%
ER easier to access	It is easier to get here than the Emergency Room or urgent care center	87%	13%	It is easier to get to the emergency room than to the doctor's office or clinic	46%	53%
Caregiver perceived ER staff as more caring/kinder	<ol style="list-style-type: none"> <li>1. The doctor or nurse practitioner here really cares about my child.*</li> <li>2. The staff here are kinder or more respectful than at other places *deviation in wording due to the fact that some caregivers have never chosen the ER for care and have no basis for comparison</li> </ol>	92%	8%	The staff and doctors in the emergency room seem kinder or more interested than the staff and doctor where my child is supposed to go for regular care.	37%	62%
Advised by members of social network to choose the service site used	Family members or friends advised us to come here	55%	44%	Family members or friends advised me to come to the emergency room	46%	53%
Members of social network use non-PCP source of care when their children are sick.	Family members or friends usually take their children to a primary care doctor or nurse practitioner when they are sick instead of the emergency room.	80%	18%	My family members and friends use the emergency room for their sick children, too,	74%	25%

\*Note: deviation in wording due to the fact that some caregivers have never chosen the ER for care and have no basis for comparison

**Table 3**  
**Maximum Likelihood Estimates for Factors Predicting Choice of Medical Services for Children with Non-urgent Illness**

Variable	Shut-outs				Bypassers			
	$\beta$	SE	Sig.	Exp( $\beta$ )	$\beta$	SE	Sig.	Exp( $\beta$ )
Fever Present	1.297	.397	.001	3.660	1.735	.459	.000	5.671
Perceived Serious Illness	3.674	.530	.000	39.428	3.721	.581	.000	41.296
Recent Well-Child Care	2.160	.610	.000	8.668	1.051	.644	.103	2.861
Language Mismatch	1.582	.535	.003	4.865	.847	.648	.191	2.332
ER Easier to Access	1.320	.414	.001	3.744	1.828	.474	.000	6.219
ER Staff Kinder/Nicer	1.450	.484	.003	4.263	1.632	.557	.003	5.115
Advised by Friends	.844	.370	.022	2.326	-.296	.444	.505	.744
Others use ER/non-PCP	3.076	.402	.000	21.676	3.100	.488	.000	22.195
Dislikes PCP	2.540	.535	.000	12.683	3.212	.588	.000	24.828
ER less convenient for other children	.522	.428	.222	1.686	2.079	.601	.001	7.997
White race	.152	.470	.746	1.164	1.200	.542	.027	3.321
INTERCEPT	-6.886	.934	.000		-8.190	1.079	.000	

A result, not apparent from the table of parameter values because it defines a group, is the fact that 69% of the respondents seeking service in the emergency room reported events that were barriers to accessing their assigned medical homes. The PCP or PCP staff verbally directed 95 of these *Shutouts* (68%) to the ER. Cross-tabulation to investigate whether children redirected from primary care to the ER were perceived as sicker by parents showed no significant relationship between redirection to the ER and respondent perception of the child’s illness as serious (Pearson  $\chi^2 = .677$ ).

Otherwise, caregiver (mis)perception of the child’s illness as serious enough to warrant emergency or hospital care is the strongest predictor for choosing the

emergency room in this model. Odds increased about 40-fold in each group in the presence of this perception. Two other strong predictors in both ER groups were knowledge that the respondent’s significant social network uses non-PCP services for similar problems and dislike of the PCP. Dislike of the PCP was a stronger predictor for *Bypassers* than *Shut-outs*. Other significant predictors of ER use included language mismatch between the caregiver and the PCP, caregiver belief that getting to the ER was easier than getting to the PCP, caregiver belief that the ER staff was nicer or more interested than the PCP staff, and recommendation by friends or family.

Two other variables that appear significant include white race and the

belief that the emergency room is less convenient for other children. The fact that only 59 individuals in the total sample were Caucasian makes this finding less meaningful. The statement that respondents bring ill children to the emergency room because it is less convenient for other children is counterintuitive and may reflect problems with language in the instrument. These variables are acknowledged in the model, but not interpreted.

## Discussion

After ten years of experience with privatization of public health insurance administration in the Tarrant County, Texas service area, the majority of caregivers seeking care for a publicly insured child with a non-urgent illness in the ER still report they are there because of problems with access to primary care. Although emergency rooms have long served as safety nets for the uninsured, it appears they are now safety nets for children insured by public programs as well. [44-46](#)

The fact that no significant relationship was found between

perceived severity of the child's illness and redirection from the primary care site to the ER suggests that redirection into the ER may be more a function of primary care workload and/or quality of primary care telephone triage than professional judgment. Inability to connect with the PCP by telephone, inconvenient appointments, and belief that the clinic is closed also suggest clinic workload problems.

Caregiver perception of the severity of a child's illness is a strong predictor for choice of service site for an ill child. This supports previous work that suggests parental perception of a child's illness as severe contributes to the decision to use an ER. [47-49](#) Binary logistic regression applied to data from the ER respondents identified the work status of the respondent and the respondent's own use of the ER for illness care as a child as the most significant predictors of reporting the child's illness as severe. Thus cultural practices and the impact of a child's illness on family function appear to shape the perception of illness severity as much as or more than professional judgment.

Furthermore, perception of a non-urgent problem as a serious problem may be an indication of inadequate education by primary care providers or inadequate contact between families and primary care staff. This phenomenon may worsen in the current market-based health system as increased productivity (measured in numbers of encounters) is stressed in primary care microsystems. As volume increases, time spent on health education and counseling is diminished. Mass interventions, such as mailings to MCO members, have been designed to “educate” families of publicly insured children to comply with the demands of the health care system in an efficient way. These projects typically fail or show minimal short-term improvements, which are not sustained.<sup>50-52</sup> Ironically, the trend toward greater efficiency may further shift patients away from primary care for illness treatment.

Managed care organizations bidding on public contracts claim adequate numbers of primary care providers to serve members, but the capacity of the system “in practice” appears stressed. Low reimbursement rates in particular have a negative impact on access to primary care for publicly insured

children.<sup>53,54</sup> Most private pediatric practices curtail their proportion of publicly insured patients to maintain profitability, resulting in shifting Medicaid and CHIP patients into “community clinics” designed to serve low-income populations. Additionally, Medicaid reimburses well-child care more generously than ill care resulting in the tendency to heavily book schedules with well-child encounters, squeezing ill children out. High patient volume, inelastic resources, and attempts to make ends meet by seeing the most lucrative (well) patients are stressing community clinic safety nets.

The problem of inadequate capacity is not likely to improve in the near future. Bills passed in the Texas legislature of 2003 severely cut funding for CHIP, reduced physician reimbursement for Medicaid, and permitted creation of a Medicaid drug formulary restricting prescription medication choices, which added an increased bureaucratic “hassle” factor in primary care offices. Within months of data collection for this study, a participating community clinic had already closed its doors leaving 6,000 publicly insured children without any primary care near their neighborhoods. These families are now likely to seek care

in the pediatric facility closest to their old clinic – the pediatric ER.

For years energy in the policy arena of child health care focused on decreasing the numbers of uninsured children in the belief that access to primary care would naturally follow. Data from this study refutes the notion that public insurance guarantees access to primary care when children and their families need it for illnesses. Although current political trends do not indicate allocation of significantly greater dollars to socialized health insurance programs for children, primary care services can be delivered to vulnerable children within the constraints of available resources and current policy. Tacitly acknowledging primary care failure, many larger health systems have designed urgent care centers or “fast-track” ER services to deliver episodic care quickly to children with minor illness. Although this solution alleviates the immediate problem of ER overcrowding, it does nothing to promote development of genuine primary care. A more effective approach in terms of preserving primary care values may be reorganization of pediatric primary care microsystems to take advantage of a broader mix of personnel and new

organizational skills, such as demand management.

Reorganizing primary care teams to make more efficient use of providers, such as pediatric nurse practitioners (NP) and physician assistants, could make a significant impact on service delivery by increasing the supply of qualified and effective health care personnel. Primary care NPs, in particular, are educated within a nursing model that stresses health promotion, family-centered care, and building therapeutic relationships that are empowering to patients.

Characteristics of an effective pediatric primary care team are probably similar to those suggested by Donaldson and Mohr<sup>55</sup> in their descriptions of health care microsystems that can continuously improve. These characteristics include integration of information, measurement, support by the umbrella system, constancy of purpose, investment in improvement, alignment of role and training, and connection with the community. When providing health care to marginalized populations, such teams could be flexible, mobile, and operate in dispersed facilities throughout the community

where they could establish relationships with both neighborhoods and families. The influence of social networks on family decision-making makes it imperative that primary care teams become more aware of community values, beliefs, and practices.

This model does not make claims regarding causation. It does identify predictors whose significance is a matter for interpretation. Theory resulting from such interpretation should subsequently be tested. Also, the policy environment is volatile in the US, and at the state level funding changes rapidly. Thus, studies need to be conducted regularly to determine how phenomena such as access are influenced by policy changes.

In summary, two major findings of the study reviewed here include a lack of ready access to primary care services for

publicly insured ill children and caregiver difficulties with discriminating non-urgent from emergent health problems. These contribute to continuing use of the pediatric ER for childhood health problems that could be handled in the primary care setting. Suggested solutions for the problems include community coalition building to promote innovative structures for health care delivery and reorganization of primary care microsystems to include more non-physician providers in a team model rather than the traditional small-business, private practice model. Further research is needed to explore the contributions of other factors identified in this study, such as social network influences and patient-provider relationships, on choices of health services for children.

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