1991

Nonurgent users of the pediatric emergency room: a descriptive study

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NONURGENT USERS OF THE PEDIATRIC EMERGENCY ROOM: A DESCRIPTIVE STUDY

Brenda Sirovich

1991
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Signature of Author

May 13, 1991

Date
NONURGENT USERS OF THE PEDIATRIC EMERGENCY ROOM:
A DESCRIPTIVE STUDY

A Thesis Submitted to the Yale University School of Medicine in Partial Fulfillment of the Requirements for the Degree of Doctor of Medicine

by
Brenda Sirovich
1991
ACKNOWLEDGEMENTS

There is one person (besides myself) without whom this thesis would not have happened: my advisor, Lorraine Klerman. By now I certainly appreciate how difficult it is to guide a medical student through a research project in public health, and how much patience it took to start with me from square one. The many hours which the two of us spent together picking everything apart and then putting it together again, meant little compared to her confidence in my ability to get this thesis done, and get it done well. There is no way I could have known two years ago, when I asked her to be my advisor, how lucky I was that she agreed.

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Then, of course, there are the really important people, the ones who kept me sane during the months (and months and months) of progress and frustration. My parents and my brother, Matthew, as well as the whole Hochman clan, especially Grandpa Al, managed to keep their skepticism to a minimum, ask only infrequently how my progress was coming, and remain silently encouraging throughout. Then there is Daniel, who I cannot even attempt to thank enough. Only he knows how black things looked at their blackest, and how much work and how many hugs it took to make me see the light at the end of the tunnel. My smile would be much less bright without him.

Finally, this thesis is dedicated to the memory of my two grandmothers, Lillian Silverstein Sirovich and Frances Roth Hochman, both of whom saw me start, but not finish, my medical school odyssey. They were two extraordinary women, each in their own way, and are never far from my thoughts. I only hope I can live up to their examples and their expectations.
ABSTRACT

The nonurgent use of pediatric emergency rooms (ERs) interferes not only with health care delivery in the ER, but with the provision of integrated and comprehensive pediatric care by the primary care physician. We interviewed 75 chaperones of children between one and six years old who visited the Yale New Haven Hospital pediatric ER with one of a number of preselected common chief complaints. We found that 82% of chaperones felt their child needed medical attention within twelve hours, while physicians felt 38% of the children did. Fifty six percent of parents believed the role of the pediatric ER is to deliver "any kind of care at all times". Predictors of nonurgency of the child's visit, as determined by the examining physician's prospective urgency rating, included familiarity of the ER as a contributor to the parent's decision to bring the child there, parents' reliance on the ER for part or all of their telephone contact with child health professionals, parental perception of the child as vulnerable, parents' reliance on their own experience for most of their child health information, and high levels of parental confidence. Convenience played a major role for a significant minority. We conclude that though restructuring of child health care delivery systems is one possible solution to ERs overburdened with nonurgent patients, educational interventions in the setting of the child's primary physician, or the ER, may be more valuable.
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CHAPTER ONE

INTRODUCTION

A twelve year old boy was brought in to the Yale-New Haven Hospital Emergency Room at 1:30 one winter morning by his parents, worried about a wild haircut he had gotten. Seriously concerned about psychiatric or drug-related problems, and at a loss to handle their adolescent son on their own, they had chosen the emergency room as the facility at which to seek care and guidance. One could certainly name more likely places of support for the family - a pediatrician or family physician, school guidance counselor or social worker, or a child psychiatrist. This episode is just one example of the well established trend toward escalating use of the emergency room, particularly for nonurgent problems.

The phenomenon of ever-increasing volumes of emergency room (ER) visits is hardly new. Davidson noted in his 1978 review, "It is by now commonplace knowledge that utilization of emergency departments has grown enormously in the past thirty years or more." (1) In addition, there has been a consistent shift toward more frequent use of the emergency room for nonurgent medical conditions. Such visits have been deemed "inappropriate", and the trends called "alarming". Before elaborating on the meaning of the changing pattern of ER utilization, or the validity of labeling these usage patterns inappropriate, some numbers may be helpful.
The volume of ER visits started rising dramatically in the 1940's, with a 400% increase in yearly visits over the fifteen year period between 1940 and 1955. (2) Over the period 1954-1981, while the number of U.S. hospitals increased by only 13% and the total yearly number of hospital admissions by 98%, the number of hospital outpatient department visits rose by 310%, and the number of yearly ER visits jumped an astounding 726%. (3) This increase in the volume of emergency room visits constituted a 400% increase per capita. Over the same period, per capita rates of physician office visits remained almost the same. (4) During the 1980's, following an initial fall off in the nation's annual ER census, the increase resumed, going from 77.5 million visits in 1983 to 86.6 million visits in 1988. This 11.7% increase was double the concurrent rate of increase in population. (5)

Children are not exempt from this phenomenon. In the mid 1970's, 16% of children under the age of 18 visited an ER annually. (6) At the same time, one in seven physician visits made by children, and one in four made by poor children, were to hospital clinics and emergency rooms. (7) In the decade from 1957 to 1967, emergency room visits to Children's Hospital Medical Center in Boston jumped from 4500 per year to 50,000 per year. A 1964 survey revealed that 57% of these patients had no usual physician. (8)
These last few figures are from a period before the advent of widespread health coverage for poor children - the Medicaid legacy of the mid-1960's. Since the early 1960's the numerical profile of health service utilization has improved substantially for children. While the percentage of all persons in the U.S. who have visited a doctor in the past year rose from 66.1% in 1963 to 77.4% in 1989 (7, #19 and #176), almost all of that gain took place prior to 1975. On the other hand, the percentage of children under five who have seen a physician in the past year has increased steadily from 80.4% in 1963-64 to 93.3% in 1989 (7, #19 and #176). For children aged 5-14 the percentage with a physician visit in the past year improved from 61.2% in 1963-64 to 76.3% in 1989 (for ages 5-17). The difference in this figure for white and nonwhite children has narrowed from eighteen percentage points in 1963-64 (for children under age 15) to five percentage points in 1989 (for children under age 18). (7, #19 and #176)

However, the news is not all good. While average number of physician visits per year increased between 1963-64 and 1980 for all children under age fourteen (from 5.5 to 7.1 for children under five, and from 2.8 to 3.4 for children aged five to fourteen) (7, #18, #144 p.39), the differential between white and nonwhite children barely showed any improvement. For example, in 1963/64 white children under
five made an average of 5.9 physician visits per year, while
their nonwhite counterparts made only 3.3. By 1980, these two
figures had increased to 7.5 and 5.3 respectively. There was
better news for low income children, the gap between children
from low, middle, and high income families having narrowed
considerably. (See Table One.)

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<th>TABLE ONE</th>
<th>Average Number of Physician Visits Per Year</th>
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<tr>
<td>AGE &lt; 5 yrs.</td>
<td>AGES 5-14 yrs.</td>
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<tr>
<td>ALL CHILDREN</td>
<td>5.5</td>
</tr>
<tr>
<td>WHITE</td>
<td>5.9</td>
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<td>NON-WHITE</td>
<td>3.3</td>
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<tr>
<td>LOWEST INCOME</td>
<td>3.1</td>
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<td>MIDDLE INCOME</td>
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SOURCE: National Center for Health Statistics, (7, #19 and #144)

However, there is some agreement that low income children need
more medical care and more frequent health supervision than do
those from middle and high income families. (9) Therefore, an
equalization of absolute numbers of physician contacts is not
enough.

1 1980 categories were Black and White.

2 Out of the five income brackets in 1963-64 and 1980, only
three are included here. They represent annual incomes in
1963-64 of less than $2,000, $4,000-$6,999, and greater than
$10,000, and in 1980, less than $5,000, $10,000-$14,999, and
greater than $25,000.
Though physician contact data are easily obtained from federal surveys, it is an inadequate measure of health maintenance and health care service availability. In 1963-64, when 80.4% of children under five had seen a physician in the past year, only 45% had had a routine checkup in that period. These figures are even more disparate for black children (of whom 67.1% had seen a physician, but only 31.7% had had a routine checkup), and children from families in the lowest income bracket (income < $2,000 per yr), (63.7% had seen a physician, but only 21.2% had had a checkup). (7, #19) Consistently, 75-80% of physician visits among children under five, and 82-87% for ages five to fourteen, are for "Diagnosis and Treatment", in contrast to regular checkups or immunizations. (7, #19,97,128,144) If such a large percentage of children's physician contacts are made for acute problems, it is important to find out to what extent these contacts are part of an ongoing patient-provider relationship.

In 1988, only 11.4% of physician contacts for children under five, and 12.4% for children under eighteen, were made at hospital outpatient departments or emergency rooms, down from 14.6% (for children under five) and 13.6% (for children under fourteen), in 1963-64. (7, #18 and #173) However, in 1988, black children and low income children under eighteen (family income less than $10,000 per year) made almost one quarter of their physician contacts at a hospital (22.5% for
black children and 22.9% for low income children). (7, #173) The ER itself accounted for only 5.8% of physician visits for children under eighteen (in 1982-83), but this was a higher percentage than for any other age group. (7, #161) As Gibson and Mackenzie remarked in 1986,

"This implies that those patients most in need of primary care that is comprehensive, integrated, and continuous are most likely to receive it from a delivery site in which care is fragmented and episodic." (3, p.688)

The reliance of children on the ER for a significant fraction of their health care, and the disproportionately high rates of emergency room and hospital outpatient department utilization by poor and minority children, are evidence of the failure of pediatric primary care in the U.S. Starfield has stated that primary care comprises four major attributes: first-contact care (implying accessibility), coordination (integration) of care, comprehensiveness, and longitudinality. The ER can itself only succeed in one of these attributes - accessibility. At the same time, the non-urgent use of the ER suggests the failure of the patient's true primary care provider (if any) in realizing that attribute.

"Regardless of what a facility states or perceives its accessibility to be, it does not provide first-contact care unless its potential users perceive it to be accessible and reflect this in their use." (10, p.366)
In addition, nonurgent use of the ER makes it difficult or impossible for the primary care provider to realize two other attributes: coordination of care, and comprehensiveness.

Focusing on the role of primary care for a single patient may clarify what is lost through reliance on the emergency room for nonurgent care.

"Primary care involves much more than simple medical treatment of illness...the existence of a problem must first be recognized ..., diagnosed ..., [followed by] treatment, management and compliance, ... [and] follow-up... Each of these components of the primary care cycle must be performed well if the cycle is to be effective." (9, p.2) (Underlining represents italics by author)

So stated the Harvard Child Health Project Task Force in 1977 as they examined the shortcomings of pediatric primary care in the U.S. The ER will fail especially in the areas of recognition, since the child's normal health and behavior are not known, and of follow-up, as the ER is not set up to ensure or even encourage follow-up. Beyond this, though, sporadic ER visits interfere with the successful completion of the cycle in the appropriate setting for primary care.

Theory can only provide part of the argument against the routine delivery of pediatric primary care in the ER. Primary care in the ER has been shown to be both lower in quality and higher in cost than care delivered in a comprehensive setting.
An experiment in Boston showed that a family-focused pediatric care program resulted in fewer illness visits, higher rates of health maintenance visits, fewer hospitalizations, and better patient compliance than comparable care delivered to similar patients in a hospital setting. (11) In addition, physicians in the comprehensive care program ordered fewer lab tests and radiologic studies, resulting in lower costs per patient. (8) In Baltimore, a similar experiment resulted in increased rates of staff and patient satisfaction, decreased patient waiting time, more time spent with the doctor, and improved likelihood of parents discussing behavioral problems and keeping follow-up appointments. (12) In an adult population, Brook et al. investigated effectiveness of nonemergent care delivered in an ER. Of 116 patients presenting with gastrointestinal symptoms, only 25% were judged to have received "adequate" care, at an average cost to all patients of $313. (13) Estimated cost differences between ER and non-ER care in Portland, ME were $17 for a nonurgent illness in a community health center versus $43 in the ER in 1980 (14), and in Brockton, MA $8-$30 for a sick office visit versus an $85 minimum ER charge in 1988 (15).

Hidden costs lie in the less measurable outcomes of nonurgent encounters in the ER. As Wolcott pointed out in his 1979 editorial, the use of the ER for primary care often elicits hostility on the part of ER personnel, often resulting
in a change in the way they practice medicine, errors in judgement, and patient anger. (16) McMillan et al. found that ER users who were not triaged to receive "immediate" attention (i.e. "urgent" (67%) and "nonurgent" (26%) users) were far less satisfied with the ER compared to the "immediate" group, specifically in terms of cost and waiting time. (17) For patients who are often already on the fringe of involvement with the medical care establishment, these attitudes and behaviors reduce patient confidence and compliance. Patients who are in the ER for urgent and emergent conditions may have to wait longer or receive less attention from ER staff. In addition, ERs overburdened with nonurgent patients can be an impediment to house officer education, both by diluting their emergency experience, and by fostering bad habits with regard to practicing primary care. "[The doctor] is taught by the system to seek a solution to a patient's complaint by ordering a test or referring the patient to a different doctor." (13, p.388)

Clearly, the escalating use of the ER for nonurgent conditions is inappropriate, both in medical and societal terms. Medically, primary care delivered in the ER is less than ideal, as discussed above. In addition, the costs to society are high, in terms of financial resources, potentially compromised care for true emergencies, and suboptimal training of house officers and other health professionals. It is more
difficult to label a specific ER visit or patient inappropriate. Prior studies have used the term "inappropriate" broadly to encompass all ER visits which are nonurgent, not medically necessary, or should have been made earlier, later, or to another health care facility. Almost all patients, however, feel that their visit is appropriate. They all have reasons why the ER was the right place to come. Often we pay little attention to those reasons. In this paper, we will follow precedent and use "inappropriate" to refer to medically inappropriate ER visits, though later we will discuss the wisdom and the ramifications of disregarding the patient's definition of appropriate.

Having established the magnitude of the increases in utilization of emergency services, referred to the shift in the character of the users toward people not in need of emergency care, and argued that such utilization is inherently bad, it remains to discover the reasons for this widespread inappropriate utilization and what, if anything, can be done to ameliorate the situation.

In a sentinel review article on utilization of pediatric emergency services in 1978, Halperin et al. narrowed down their analysis of the mounting inappropriate visit rates to two major paradigms. The first, the "health system perspective" blamed the problem on inconvenience and
inflexibility of hours in clinics serving poor and inner city residents. The second, the "patient-provider relationship perspective" claimed that people must have satisfactory relationships with their primary care providers if they are to be expected to seek their advice for nonurgent health problems rather than using the emergency room. (18) Future strategies should depend on which of these is more valid for a given community and a given ER. The former would suggest acceptance of the continually increasing use of ERs as an accurate reflection of consumer demand, necessitating changes in delivery systems for emergency care in order to accommodate significant numbers of nonurgent patients. The latter would dictate investment in the existing primary health care system in order to try to bring patient and provider's definitions of urgency and of appropriate use of health care services closer together. The current study was undertaken in order to gain some understanding of the population of parents using the Yale-New Haven Hospital pediatric emergency room for their children's nonurgent illnesses, with an eye to contribution toward intelligent strategies for the future.
CHAPTER TWO

LITERATURE REVIEW

There is no dearth of investigations into emergency room utilization. Studies have approached the questions of who uses the emergency room, how much, and how well, from perspectives as varied as single ERs, the group of ERs serving a given community, and population-based surveys. It would be irresponsible to launch into a review of the research in this field without prospectively pointing out the pitfalls to which it is prone. First, what is being studied? As long as the investigation pertains to parameters such as the volume of ER visits, demographics of ER users, and breakdown of patients' chief complaints, objective assessment is possible. Yet most of these studies are interested in appropriateness of ER utilization. The term "appropriate" is difficult to quantify, or even define, and definitions vary among studies. They include determinations based on the amount of time elapsed between symptom onset and ER presentation (19), timely assignment of an urgent or nonurgent rating by the physician seeing the patient (20,21), physician screening in the ER to identify nonurgent patients (22), and retrospective evaluation of urgency based solely on discharge diagnosis (4).

In practical terms, this variation makes it difficult to compare studies and to make generalizations. In theoretical terms, it raises the question of who is the best judge of
appropriateness and when is the proper time to determine urgency. Many studies judge both urgency and appropriateness, but make no reference to the difficulties in extrapolating from the former to the latter. It may even be impossible to derive an objective formula for appropriateness, since it is inextricably linked to the patient's (or parents') perceptions of health and urgency, the social situation, the range of available services, and access to telephone and transportation. Rather than deter us from pursuit of research aimed toward improvement of provision and utilization of emergency services, this caveat is meant to point out that most relevant investigations will raise far more questions than they will settle.

The second cautionary point concerns the wide variation in the character of hospital ERs. Thus the variability of the data obtained in different ER studies is not rooted solely in criteria used for subjective measures (i.e. appropriateness or urgency). Weitzman (23) and Torrens and Yedvab (24) showed the striking differences between the populations using the ERs of various municipal and voluntary hospitals in New York City, in terms of age, medical problems presented, patterns of use of medical care, and insurance status. Because the character of each hospital ER is largely a function of its patient population, research conclusions and resulting recommendations must be tailored to each specific hospital in order to have
any validity. The substantial differences among hospitals within one city hint at the large variations which have been shown between ER characteristics in urban, suburban, and rural hospitals, and in different geographic regions (18). In his 1978 review Davidson stated, "People in different places use emergency rooms differently". (1, p.129) Several authors have emphasized the need for an ongoing database of ambulatory care utilization information on a scale larger than single ERs (18,25,26). At the same time this phenomenon points to the need for each community and each ER to be studied separately, since recommendations must be tailored to their particular characteristics.

As early as 1958, Shortliffe et al. (2) published a study meant to provide insights into the phenomenal growth in patient load in the Hartford Hospital ER, from 3,000 per year in 1944 to just under 18,000 per year in 1955. Unlike many later studies, the authors did not focus on their own ER population. Instead they surveyed ninety Atlantic and Midwestern hospitals for their experiences and opinions. They documented 400 percent increases in volume of ER visits from 1940 to 1955 in most hospitals. Based on subjective assessments by unspecified respondents at the surveyed hospitals, the largest percentage (46%) of hospitals cited inaccessibility of patients' physicians on nights and weekends as the underlying cause of the change in the ER use. The two
most common recommendations for the medical profession were "expand and reorganize all ambulatory facilities" (36%) and "plan according to medical care expected by the community" (17%). Thus, at this early date, a lack of physician availability was blamed for the shifting pattern of medical service utilization, as well as the developing patient assumption that the hospital ER was an acceptable source of care. In addition, the medical establishment, at least that represented in the survey, felt the proper response was a restructuring of services according to patient demand, beginning with the ER itself. Only 7.3% of hospitals responding recommended public education regarding the role of the ER. (2)

Subsequent investigators focused on the ER populations of their home institutions. In a descriptive study of 257 randomly selected ER patients in 1973, Satin found that "more than half [the patients] cannot describe their problems very specifically, at least in medical terms." (27, p.335) Among his conclusions, "[Emergency Unit (EU)] applicants do not see the EU as narrowly specialized", but "come in hope of generalized understanding and help". (27, p.335) This raises an important point, which is echoed from time to time in the work of later investigators concerned over the validity of a determination of urgency or appropriateness, in a population whose problems are not solely medical. (28)
An important consideration in ER studies are the times of maximum utilization. One yearlong study in Rochester NY found the peak hours of use (measured in number of visits per hour) were 10am, 5pm, and 7pm, in descending order. (25) In Cedar Rapids IA, periods of decreased availability of other sources of medical care were by far the busiest times in the ER. Early evening (4-8pm) brought the largest numbers of patients, followed by late evening (8pm-midnight). The two weekend days together represented 45% of weekly visits. (29) On the other hand, a twenty four center national study in 1980 showed the largest volume (47%) of daily visits occurring during the day shift (8am-4pm), with the smallest percentage of those visits judged to require immediate attention (7.5%). (30)

Different determinations of urgency yield vastly different results. Overall rates of nonurgent/unnecessary/inappropriate visits range from 12.8% when Buesching et al. employed the strict American College of Emergency Physicians (ACEP) definition of an appropriate ER visit [definition in appendix A] (31,32), to 78-86% when Haddy et al. used nonurgent to mean "able to be treated adequately and safely in an office setting" (regardless of the hour at which the patient presented) (28). Both of these studies used retrospective determinations of urgency on an unselected sample of ER patients. One study using timely urgency
determinations by a physician, rated 56% of visits nonurgent (20). Another found that only 33% of patients could wait more than twelve hours for medical attention (33). The latter study benefitted from a more extensive list of urgency categories - including "needing prompt attention (within 2-12 hours)" - intermediate between urgent and nonurgent categories. Several studies have examined patterns of ER use, including sources of referral and past history of ER use. Rates of patient self, relative or friend referral, in contrast to referral by a health professional or another figure of authority, range from 65% (20) to 77% (25). The percent of patients reporting at least one ER visit in the year prior to the study visit varies from 30% in Rockford IL (34) to 46% in New Haven, CT (20) to 60% in a small Chicago study restricted to patients with nonurgent conditions. (22)

Predictors of inappropriate ER use begin with the entire ER, not just the pediatric population. In one of the earliest studies, Weinerman et al. (20) looked for underlying factors of nonurgent ER use at Yale New Haven Hospital. They found an higher percentage of nonurgent visits among those patients residing in the central city, whose usual source of care was a clinic or the ER instead of a private physician, not at either end of the age spectrum (i.e. those between age 15 and 55), and without medical referral. Overall, age and relationship with a personal physician were the best
predictors. Surprising themselves, the authors found that social class exerted no influence independent of its correlation with having a personal physician. (20,21)

Later studies have also shown a correlation of nonurgent/inappropriate use of emergency facilities with lack of a regular relationship with a physician. (28,31) While the prevalent assumption is that the lack of a personal physician is an underlying factor of ER misutilization, Haddy, on the basis of his retrospective study of one thousand ER patients, states:

"The obvious conclusion of this study is that if people simply had personal physicians, nonemergency emergency room use would decrease. What is not clear, however, is whether nonemergency ER use exists because many patients elect not to have physicians or people elect not to have physicians because of the existence of emergency services." (28, p.392)

On the other hand, Kelman and Lane (35), though they did not evaluate urgency or appropriateness of ER visits, found significant numbers of patients with private physicians seeking care in the ER. They concluded,

"...the hospital emergency room serves to buttress and sustain the individual private practice of physician care. Whether this arrangement is in accord with the hospital's view of the proper role of the emergency room or even provides adequate levels of quality of care are critical issues..." (35, p.893)
Both of these comments bring to mind Shortliffe's early suggestion that patient reliance on the ER for nonurgent medical care, whether by patients with or without a personal physician, may have originated in tacit physician acceptance of the ER as an alternate site of care.

The association between age and nonurgent presentation varies. While Weinerman (20), as previously mentioned, found the highest risk (for nonurgency) patients in the age group 15-55, Guterman et al (30) found increasing age associated with lower risk of inappropriate ER use, and Buesching et al (31) found one of their highest risk groups for inappropriate visits to be patients under five years old.

Other correlates of nonurgency have been unemployment (29,31), medical assistance patients (29,31), daytime and evening users (as opposed to night shift patients) (30,31), and patients not contacting a physician or the ER prior to the visit (31). In one family practice clinic, it was found that families making more than one emergency visit during the study period, were 3.4 times as likely to have any given visit rated as unnecessary, compared to those families making only one emergency room visit (29). In a second study in a different family practice center, patients of first year housestaff were found to have made significantly more emergency visits during the study period, compared to patients of second and third
year housestaff. (36)

Studies referring exclusively to pediatric emergency department use have appeared later, but a modest body of literature now exists. Uniformly, the highest hourly volume of pediatric ER visits occurs during the evening shift. (6,26,37,38) The greater consistency found here compared to the general ER studies may be related to preselection of the patient population to a more homogeneous group. However, while a multihospital Minnesota study found the temporal distribution of visits of more severely ill children matched those of all pediatric ER patients (26), a study at Chicago Children's Hospital found a significantly lower percentage of ER patient visits requiring hospital admission during the evening shift (6.3%) compared to daytime (8.8%) and nighttime (8.5%) shifts (6). This discrepancy may be accounted for by the unusually high percentage of trauma (44%) among chief complaints in the Minnesota study. Trauma might be expected to have a reasonable likelihood of being severe, whatever the hour of the visit. What is clear, however, is that the resources of the pediatric emergency room are stretched to the maximum during the evening shift.

Data on age range and gender distribution have been fairly consistent among studies. Infants (less than one year old) represent the largest volume of pediatric ER patients
proportional to their numbers in the population. They accounted for 22% of patients in both a Chicago Children's Hospital study of all ER users (6) and a Los Angeles County Hospital study of a 22% sample of pediatric ER visits (39), though represented only 10% of visits in the Minnesota multicenter study, in which trauma is so highly represented (26). Toddler/preschool children (ages one to six) account for 37-51% of pediatric visits, school age children (ages six to twelve) 24-34%, and adolescents (age thirteen to sixteen) 7-19% (6,26,39). Thus, the single largest group of ER users is the toddler/preschool group. This group has also been associated with fewer visits resulting in hospital admission (5.9%) (6), lower severity ratings (26), and a higher percent of inappropriate ER use (37). The mean age of pediatric ER patients was found to decrease over the course of the day from 5.03 years on the night shift (midnight - 8am) to 4.21 on the day shift (8am - 4pm) to 3.52 on the evening shift (4pm - midnight) (37). Thus the "typical" ER patient appears to be a toddler/preschool age child presenting in the evening with a nonurgent complaint. A preponderance of males among pediatric ER patients has consistently been noted, with male:female ratios ranging from 1.14:1 (39) to 1.4:1 (6). In the latter study, the gender differential was least evident in the younger age groups (1.2:1) and was noted to be consistent with previously observed higher rates of health care utilization for male children. (6)
Only one study assigned an urgency and appropriateness ratings at the time of the child's visit to the emergency room (37), three others having used retrospectively rated severity based on chart review (39), diagnostic category (26), or whether or not the child was admitted to the hospital (6). The study with timely urgency ratings found 33% of patient visits to be nonurgent, and 32% of visits inappropriate. The authors noted significantly higher rates of inappropriate visits by blacks compared to whites, and ward compared to private patients. However, regardless of race, social class, or medical status of the child, the overwhelming proportion of visits were motivated by concern over new onset or worsening of symptoms, or an emergency (89%), rather than convenient scheduling or other factors. (37) It is difficult to compare this to adult studies, as few authors have posed the question, and response categories differ. It is likely, though, that concern over symptoms is heightened in the pediatric age group in part because the assessment of severity must be made by a third party, the parent, who cannot experience the symptoms. Thirty four percent of the parents in the above study professed inability to judge the severity of the child's illness. (37)

Correlates of appropriate ER use, other than the child's age and hour of visit, have in part been similar to those in adult ER populations. Appropriateness has been directly
related to higher social class, higher income, and stability of residence. (37) The highest rate of hospital admissions has been found among those residing furthest from the hospital, and the lowest rate among those for whom the ER was most geographically convenient. (6) A 1988 French study found a higher percent of patients arriving at the ER without a letter of referral (inappropriate visits), not only among younger children (less than three years), but also among younger mothers (less than thirty years). (40) The hypothesis that family instability was a correlate of inappropriate ER use was refuted by a large 1968 LA County Hospital study. The most structurally disorganized families showed no differences in number of ER visits, use of preventive services, or promptness seeking medical attention, than the most intact families. However, the authors point out that external measures of family stability do not necessarily correlate with the presence or absence of intact support systems within the family. (41)

Two studies of nighttime pediatric ER users did not uphold the stereotype with which they are often associated: largely minority, from broken homes, with poor patterns of health care utilization and evidence of neglected health, who delay seeking medical attention and present at their own convenience. In fact, nighttime users actually proved more frequently to have a private MD (42), presented more often
with acute illness (duration less than 24 hours) (42,43), and were less frequently welfare-dependent (43) than their daytime counterparts. Evening users, however, either were not analyzed separately (i.e. were divided in the analysis between daytime and nighttime shifts) (43) or were not investigated (42) in these two studies.

Investigators of pediatric ER use have more often than their adult ER counterparts focused on the reasons for parents' choice of the ER over their child's physician, perhaps because a child is more often expected to have a regular source of medical care. While in 1973 Kahn et al. (37) found that 50% of pediatric ER patients recorded an irregular and inconstant source of medical care, more recent studies have shown 67% with an identified provider (15), 80% with a private physician (38), and 83% recording a usual source of medical care, 81% of whom named a private MD (26). Whereas in the adult population, the lack of a personal relationship with a physician becomes an important predictor of nonurgent ER use, additional factors need be considered in the pediatric age group. In one of the above mentioned studies, only 38% of parents had tried to contact a physician before coming in. Among reasons given for not attempting to contact a physician, assumed unavailability, or unwillingness to bother the doctor (35%), preference for the ER (including more extensive services) (18%) and perceived emergency (18%)
were more frequently cited than lack of a doctor to contact (13%). (38) A study of daytime ER users with minor illnesses in Brockton, MA found 33% with no identified provider, and an additional 30% whose providers were inaccessible or unavailable. (15)

Apparently, even in a population of families largely able to identify a regular health care provider, greater perceived accessibility and availability of the ER plays a significant role in ER usage patterns. While in the adult population, existence of a relationship with a primary physician has proved to be the most consistent predictor of nonurgent or inappropriate ER use, perhaps in the pediatric population it is necessary to look beyond the existence of such a relationship to the nature of that relationship. The present study will seek to answer some questions not posed in previous investigations. Is the care provider a stable enough part of the child's life that the parent knows his or her name? Is the care provider a source of advice in the office setting, or considered a significant source of health information? Insofar as assessing the "quality" of the doctor-patient (or parent) relationship is possible at a distance, through an interview, this may prove to be a predictor of inappropriate ER use. This has not been investigated in studies in the past, and such a correlation, or even lack thereof, would certainly have important ramifications.
Undoubtedly, ascribing a single motivation to most families using the ER is overly simplifying the situation. Most decisions are multifactorial, and the decision to seek medical care is no different. Previous studies have not allowed for multiple responses to the "Why the ER?" query, and have thus not provided information on the prevalence of the various influences contributing to ER utilization. In addition, though many have asked "Why now?" regarding the choice of timing of the ER visit, no investigator has specifically inquired why the parents decided not to wait until a later time to seek care. Specifically, among the numerically most important users of the pediatric ER, evening visitors, the decision not to wait to seek care at the patient's doctor or clinic the following day, has not been investigated.
CHAPTER THREE

METHODS

Research Questions

The intent of the present study was to select a subpopulation of pediatric ER users who had an increased likelihood of presenting with nonurgent illness, with the aim of determining the factors underlying this behavior. Specifically, to what extent is inappropriate utilization of the pediatric ER secondary to:

- parental misperception of illness severity and urgency, with or without an exaggerated sense of the child's vulnerability
- parental misperception of the role of the emergency room in health care delivery
- external factors such as convenience, work schedule, financial concerns, or lack of any alternative source of care, dictating the time and place at which pediatric care is sought.

The chaperones of pediatric ER patients fitting predetermined criteria were interviewed, and areas of inquiry included: (1) a detailed description of the present emergency room visit including, among other things, the nature and duration of the illness, motivations for timing of the visit and choice of the ER as place of care-seeking, and parental
urgency and severity ratings; (2) a profile of the child's past medical care utilization, including the regular source of care (if any) and the emergency room, as well as specifics of the parent-provider relationship; (3) an assessment of the perceived health and vulnerability of the child, and the degree of experience and level of confidence of the parent; (4) a determination of the perceived role of the pediatrician and the emergency room in providing children's health care; and (5) demographic information.

The Pediatric Emergency Room

The YNHH ER is the larger of two hospital ERs serving the city of New Haven, CT and surrounding areas. The annual number of ER visits in 1990 was 71,450, which has declined somewhat over the past ten years from 89,394 in 1980. The number of visits to the pediatric division of the ER, where all children under 16 and/or under the care of a pediatrician are seen, was 13,110 in 1990 (18.4% of total visits). This figure does not include patients under age 16 with wounds or lacerations, who are seen in the surgical ER, or obstetrical patients, who are seen in a separate division.

Fifty one percent of the patients were white, 36% were black, 12% were Hispanic, and 1% were other races. Major payment sources included self-pay (28%), Title 19/Medicaid
(23%), private insurance (22%), Medicare (14%), HMOs (6%), and city welfare (6%). The busiest time periods for ER visits are daytime (8am - 4pm, 41% of daily visits) and evening (4pm - midnight, 42%). For the pediatric division alone, evening is the busiest shift (51% of daily visits), compared to 36% of visits during the day shift and 13% at night (midnight - 8am).

The Study Sample

A subset of ER users believed to be at increased likelihood of inappropriate utilization was selected using predetermined criteria, in order to limit the subjectiveness of this assessment. Eligibility was dependent on the patient's chief complaint and the urgency rating of the triage nurse. Thus, children were potential study subjects if they presented with one of the following chief complaints: rash (without fever), sore throat, cold symptoms, cough, congestion, earache, pinkeye, diarrhea, constipation, fever, crying, and irritability. Those with a triage rating of "emergent" were excluded, as well as those children whose triage nursing intake form included mention of a condition or symptom inappropriate for the study (i.e. asthma or wheezing, HIV positivity, neutropenia, or congenital disease).

Due to limitations in the number of chaperones a single investigator could interview, the sample population was
limited along two dimensions in order to maximize the likelihood of valid findings. As discussed earlier, age is a major determinant of relative volume of emergency room use. Younger children, while more highly represented among emergency room visitors, more frequently have a regular source of medical care than do older children. Although the problem of school age and adolescent children having no regular source of medical care is serious and urgent, we chose instead to focus on toddler/preschool children (ages one to six), most of whom do have some regular source of care. Why do their parents choose the emergency room for care of nonurgent conditions, and do so often enough that this age group constitutes the largest percentage of users of the pediatric ER? We decided to eliminate infants, for whom an elevated level of vigilance on the part of both parents and health professionals is natural and even encouraged.

The second criterion for inclusion was the time of the ER visit. The consistent finding that the evening shift is the busiest time period in the pediatric ER was confirmed for Yale-New Haven Hospital (YNHH) by review of daily ER log sheets. In practical terms, such evening ER users are easiest to survey, both because they are more numerous, and because they consequently have a longer waiting time during which to be interviewed. More important, evening users are the biggest strain on ER services, and represent a large group of children
receiving episodic health care services, and thus are most critical to characterize and understand. Therefore data were collected only during the evening shift (4pm-midnight) Sunday through Thursday. These days were selected on the assumption that a nonurgent problem on one of these evenings could wait until the next day at a physician's office or clinic.

The Survey Instrument

The full interview schedule is available in appendix B. Most questions had a fixed set of responses. On the basis of a pilot study, the investigator decided to ask about ten percent of the questions in an open-ended format. Responses were recorded verbatim, divided into meaningful groups, and coded. [A list of the responses and coding for most of the open-ended questions is available in appendix D.] For several questions, more than one response was possible. In these instances, all answers were recorded and included in the interview results. The first response given was recorded as the primary response, and any additional responses recorded as secondary.

Data Collection

Check-in procedures at the YNHH Emergency Room (ER) consist of an initial evaluation by a triage nurse and
subsequent administrative check-in. Following this, patients and their chaperones wait in the main ER waiting room to be called into the pediatric section. The paperwork on each patient is brought to the pediatric ER front desk following completion of check-in, where it remains in the "incoming" bin, prioritized by triage rating and time of arrival (triage time), until an examining room becomes available. From this bin, patients for the study were selected, based on the above mentioned criteria. The interviewer located the patient and his or her chaperone in the main waiting room, described the study, and obtained informed consent. The patient's chaperone was then interviewed in the main waiting room, each interview lasting an average 15-20 minutes. As the patient's paperwork was left in the "incoming" bin during the interview, occasionally the interview would be interrupted when the patient was called into the pediatric section to be seen. In these cases (approximately 15 of 79 interviews) the interview was completed in the examining room following the nurse's intake but before the doctor was seen. (In two cases the interview was completed following the physician's initial encounter, but before discharge.) In all cases, the chart of the first eligible patient in the "incoming" bin was selected. Only in the event of a refusal, or inability to locate the patient in the waiting room, was another file sought.

The number of potential study subjects during the
duration of the study period (counting only days on which subjects were interviewed) was estimated on the basis of a review of the ER log sheets from one month of the study period. Approximately 170 patients met the inclusion criteria. Ninety seven chaperones were approached for an interview. Seven eligible chaperones were unable to participate due to a language barrier (Spanish speaking); seven potential interviewees were eliminated because they had previously been interviewed for the present study (regarding either the same or a different child); four refused to participate (5% of those solicited). A single interviewer (P.I.) interviewed 79 chaperones. The majority (68 of the 79) of these were conducted over a two month period (Nov. 27, 1989 - February 13, 1990, excluding a two week hiatus over the winter holidays), with the remainder completed by April 24, 1990. Of the 79, three were disqualified immediately when it was found that the chief complaint on the triage nursing intake form included wheezing, asthma, or croup. Another was disqualified because she was greater than six years old (initially misrecorded). Thus, 75 interviews comprise the data base.

Chaperones of potential study subjects failed to be solicited for an interview because: (1) the patient was called to an examining room before the interviewer finished the previous interview; (2) the patient was called to an
examining room as soon as his or her file was placed in the "incoming" bin (frequently on slow days); (3) the patient was not located in the main waiting room but later reappeared; (4) the patient arrived by ambulance - such patients are brought immediately back to the pediatric section of the ER, even when the chief complaint is nonemergent; and (5) the patient had a private physician. The policy of the pediatric ER at YNHH is that patients who are sent to the emergency room by their physicians are brought directly back to an examining room upon arrival at the ER and their paperwork never appears in the "incoming" bin. Often these patients are met in the emergency room by their pediatricians, though just as frequently they are seen by pediatric housestaff or ER attendings. Due to this policy, the sample of children in the study was slightly skewed toward patients not under the care of a private pediatrician. (The profile of usual sources of care of study subjects is discussed under Results.) Based on a thirty day sample of ER log sheets, the estimated percent of total potential study subjects listing Private MD as their usual source of medical care was 22%, whereas they comprise only 18% of actual study participants.

Each physician seeing a study patient rated the urgency with which the child needed medical attention, both prospectively, without information provided by the physical exam, and retrospectively, after the diagnosis was
established. The physician urgency questionnaire included six distinct urgency ratings, identical to those used for the chaperone's urgency rating choices. The physician recorded both ratings on the same form, after having seen the patient. (See appendix C, after Gifford et. al. (33) Patient Urgency Study.) The physician also recorded chief complaint and discharge diagnosis (or diagnoses). The patient's first documented temperature was recorded directly from the ER sheet, as well as the presence of any chronic or underlying medical condition recorded in the past medical history. In addition, a copy of the completed ER sheet on each patient was submitted to two independent expert reviewers for evaluation of retrospective urgency and appropriateness of the visit.

Each chaperone interviewed for the study also consented to a review of the child's YNHH chart, conducted more than six months following the initial encounter. Hospitalizations, emergency room visits, and Yale Primary Care Center clinic visits are included in the chart. Chart review yielded information about past ER use, hospitalizations, social work involvement and, if the child was a patient at the Yale Primary Care Center, relevant information about well and sick child visits. In addition, follow-up of the index emergency department visit were recorded.

One way frequency distributions were run on all relevant
variables. Means and standard deviations were recorded for all interval variables. The sample was then divided into more and less urgent categories (based on the physician's prospective urgency rating), and selected comparisons between the two groups were made using likelihood ratio Chi Square analysis. Selected other cross-tabulations were examined, also using the likelihood ratio Chi Square.
CHAPTER FOUR

RESULTS

The study's data base consists of seventy five interviews. All chaperones interviewed were primary caregivers for the children they had brought in to be seen in the emergency room. Sixty nine were mothers, three were fathers, and the remaining three were either aunts or grandmothers, each of whom was the child's primary guardian. For the remainder of the Results and Discussion, chaperones will be referred to as parents.

The responses to interview questions will be reported in six sections: demographic data, characteristics of the study ER visit, relationship with a primary physician, child health and vulnerability, parental confidence and experience, and prior use patterns and perception of the ER. Data are then reported on the review of the child's YNHH chart, his or her diagnosis and physician urgency ratings, and expert urgency and appropriateness ratings. In the subsequent chapter, we report on the analysis of factors associated with the urgency of the ER visit.

Demographics

The study children were evenly divided between males and females; 57% were black, 29% were Hispanic, and the remainder
were white. The average age of the children was 2 years and 11 months (34.95 mos., SD 19.32 mos.), ranging from 12 months to 72 months, as established by the inclusion criteria. Forty one percent were between one and two years old, and the remaining 59% evenly distributed among the four remaining age groups (i.e. 2-3 yrs., 3-4 yrs., 4-5 yrs., 5-6 yrs.).

The average age of the chaperones interviewed was 26.16 years (S.D. 7.13). Thirteen percent were under 20, and 55% were 20 - 28 years old. The majority of chaperones were single (63%), including three who were divorced, and four who were engaged. Another 11% were married but separated, and the remaining 27% were married and living with a spouse. The average level of education was 11.5 years, with 65% having completed high school, and 21% with at least one year of education following high school. Most (63%) were unemployed, while 32% were employed (full or part time), and 5% were in school.

Most (69%) of the study children were covered by Medicaid (Title 19) or city welfare for their medical care, 27% of parents had some private insurance, and 4% paid solely out of their own pocket. Of parents who were able to estimate their household income (97%), 58% made under $10,000 per year, and 84% under $20,000 per year. Eighty one percent, though, said cost was not at all important in their decisions to seek
medical care (at any time) for their children, while only seven percent said cost was very important.

**The Index Visit**

An approximately equal number of subjects were enrolled on all weekdays (averaging 16 per weekday), while two thirds of this number were enrolled on Sundays (total of 10 on Sundays). Hours of arrival of patients interviewed were evenly distributed between 4 pm and 10 pm (averaging 11 (15%) in each hourly period), with a modest falloff from 10 pm until midnight (averaging 5 (7%) in each hourly period). The falloff was due to a lighter patient volume and shorter waiting period during the later hours, and delayed paperwork arriving after midnight in the "incoming" bin.

Patients' chief complaints, elicited from the chaperone during the interview, were most heavily weighted toward earache/ear pulling (23%), upper respiratory symptoms (24%), and fever alone (19%). Fifty two percent of parents mentioned fever as part or all of their child's symptoms. Other chief complaints represented were sore throat (7%), pinkeye (3%), rash (5%), fussiness (8%), diarrhea (7%), and vomiting (5%). Although a chief complaint of "vomiting" was not among the inclusion criteria, parents mentioning vomiting as one of the child's symptoms were not excluded from the study. All four
children whose parents mentioned vomiting as a symptom had been registered with a chief complaint of "fever".

Only 42% of children had had the onset of their symptoms (or the most recent change in symptoms) during the 24 hours prior to arrival at the ER, with 13% beginning on the afternoon or evening of the visit. Twenty three percent of parents had waited at least four days before coming to the ER. A total of 10% of the children had been seen previously at a medical facility during the course of this illness, including one third of those presenting after four or more days of illness.

Seventy one percent of parents cited concern over the child's symptoms as the reason they chose that time in particular to bring the child in, while 33% mentioned convenience (8% said both, and 4% gave other answers). Parents were asked why they had decided not to wait until the following day to take their children to see a doctor. While 24% cited greater convenience of the time chosen as the primary reason for not waiting, 36% said their child was too uncomfortable to wait, and 40% said it might be dangerous to the child's health to wait until the following day. Parents who did not care for their children during the day (n=25) more frequently cited convenience as the reason for choosing the time of the visit, and for not waiting until the following day
than those who did. (Neither difference was statistically significant.)

Thirty three percent had attempted to reach a doctor by phone before coming in, one fifth of these had telephoned the ER. Of the 33%, approximately half had been instructed to come to the ER (16% overall), while one quarter were unable to reach their child's physician, and the remainder received recommendations they chose not to follow.

<table>
<thead>
<tr>
<th>TABLE TWO</th>
<th>Why did you decide not to call before coming in?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Knew the child needed to be seen by a doctor, including &quot;it's an emergency&quot;</td>
<td>10</td>
</tr>
<tr>
<td>It's better to come in than call, or phone advice is poor and inadequate</td>
<td>12</td>
</tr>
<tr>
<td>Patterns of use, including i.e. &quot;you're supposed to come to the ER at this hour&quot;</td>
<td>13</td>
</tr>
<tr>
<td>Other's advice</td>
<td>3</td>
</tr>
<tr>
<td>Doctor is unavailable</td>
<td>7</td>
</tr>
<tr>
<td>No phone</td>
<td>5</td>
</tr>
</tbody>
</table>

Various reasons were given by the fifty parents (67%) who did not attempt to contact a doctor or medical facility before coming to the ER. (See Table Two.) The most frequently given reasons were that the parent knew the child needed to be seen
by a physician, that coming in to the ER was better than calling, or that the ER was the appropriate place to come when the child is sick after hours. (Inclusion of the second responses of the twenty percent who gave them did not significantly alter the proportions, and they are not included in the table.)

Fifty nine percent of parents felt their child needed medical attention urgently (within two hours), while only 17% felt the child could wait twelve hours or more to be seen.

<table>
<thead>
<tr>
<th>TABLE THREE</th>
<th>Parental Ratings of:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td><strong>Urgency - child needs medical attention:</strong></td>
<td></td>
</tr>
<tr>
<td>immediately (within minutes)</td>
<td>21</td>
</tr>
<tr>
<td>urgently (within 1-2 hours)</td>
<td>23</td>
</tr>
<tr>
<td>promptly (within 2-12 hours)</td>
<td>18</td>
</tr>
<tr>
<td>soon (within 24 hours)</td>
<td>10</td>
</tr>
<tr>
<td>fairly soon (within days)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Severity:</strong></td>
<td></td>
</tr>
<tr>
<td>dangerously sick</td>
<td>3</td>
</tr>
<tr>
<td>very sick</td>
<td>25</td>
</tr>
<tr>
<td>moderately sick</td>
<td>31</td>
</tr>
<tr>
<td>mildly sick</td>
<td>11</td>
</tr>
<tr>
<td>hardly sick</td>
<td>4</td>
</tr>
<tr>
<td><strong>Discomfort:</strong></td>
<td></td>
</tr>
<tr>
<td>very uncomfortable</td>
<td>53</td>
</tr>
<tr>
<td>moderately uncomfortable</td>
<td>16</td>
</tr>
<tr>
<td>mildly uncomfortable</td>
<td>3</td>
</tr>
<tr>
<td>hardly uncomfortable</td>
<td>2</td>
</tr>
</tbody>
</table>

1 Percentages may not add to 100% due to rounding.
Nonetheless, only 38% judged their child to be "very" or "dangerously" sick. Parents were much more apt to estimate their child's discomfort, rather the severity of the illness, as high, 71% of parents responding that their child was "very uncomfortable". (See Table Three.) Parental urgency ratings were not correlated with duration of illness before the ER visit (p>.25). Seventy two percent had given their child some medication at home. Of these, most gave Tylenol (82%), cough medicine or decongestant (24%), or both (11%).

Chaperones were requested to state in their own words why they had chosen this emergency room as the facility at which to seek care for their child. Forty nine percent cited the lack of any other source of medical care at that hour, including eight percent who said their child had no regular place of care. Other frequently given reasons included the urgency or severity of the child's condition, a positive view of the ER or preference for the ER over the child's regular place of care, and the opinion that the ER was a suitable alternative to the child's doctor or clinic. (See Table Four. Inclusion of the second responses of the twenty two percent who gave them did not significantly alter the proportions, and they are not included in the table.)

Each chaperone was asked which, if any, of eleven stated possible reasons for using the ER, had contributed to their
decision. Sixty seven percent cited the quality of the ER,

<table>
<thead>
<tr>
<th>TABLE FOUR</th>
<th>Why did you choose the ER in particular?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Doctor or clinic not available, including: child has no regular place of care</td>
<td>37</td>
</tr>
<tr>
<td>(6) (8%)</td>
<td></td>
</tr>
<tr>
<td>Urgency or severity of child's medical condition</td>
<td>12</td>
</tr>
<tr>
<td>Positive view of ER, or preference for ER over child's doctor or clinic</td>
<td>9</td>
</tr>
<tr>
<td>ER is suitable alternative to doctor or clinic</td>
<td>8</td>
</tr>
<tr>
<td>ER is more convenient, including: easier to pay for</td>
<td>5</td>
</tr>
<tr>
<td>(1) (1%)</td>
<td></td>
</tr>
<tr>
<td>Doctor instructed to come in</td>
<td>4</td>
</tr>
</tbody>
</table>

61% the familiarity of the ER, and 45% the lack of need for an appointment as factors in their decision, and 41% agreed that the ER was the best place for the child's condition to be treated. Twenty percent said they would have brought their child to the emergency room even if they had needed to come in during daytime hours, and 25% said that the ER was the ideal place for the care of their child's problem.

Each parent was probed for a "hidden agenda" (after Yudkin, 44) by asking if there was any concern besides the previously mentioned chief complaint, which the parent wished
to discuss with the medical staff. Forty three percent answered yes, though most (17 of 32) of these other concerns proved to be part of the child's chief complaint which the parent had, or had not, mentioned earlier. Only four (5% overall) mentioned a feared diagnosis or severity of the child's illness, four mentioned a chronic problem (i.e. poor appetite), and seven brought up a separate current problem (i.e. a recent fall).

**Usual Source of Medical Care**

Ninety three percent of the children in the study had a regular source of medical care. Of those with a regular source, just under half (49%) were seen at the Primary Care Clinic (PCC), the YNHH-based pediatric residents continuity clinic. Other major sources include private physicians (22%, including one patient at a local HMO, Community Health Care Plan (CHCP)), and the Hill Health Center (HHC), a community health center (19%). Ninety nine percent of parents said they used the child's regular doctor for checkups, but only 81% regularly brought the child there with an illness. Reasons given for never or only sometimes using the regular doctor or clinic for illness care included the need for an appointment to see the doctor, superiority of medical care at the ER, inconvenience of the regular doctor, and the child's tendency to get sick during evening hours.
Parental ratings of quality of and satisfaction with the relationship with the child's doctor were generally high. Seventy seven percent felt "very satisfied" with the care at their child's regular doctor or clinic. Parents who were very satisfied with their child's doctor were less likely to have attempted to contact the doctor prior to coming in than those who were less satisfied (30% v. 56% attempted to call, respectively, p=0.055).

The fifty parents who had not attempted to contact a physician before coming to the ER were questioned regarding their past use of the telephone for medical advice. Seventy eight percent said they had on at least one occasion telephoned a doctor or medical office with a concern about one of their children. Of those who had, 61% called their child's doctor or usual place of care, 18% called the ER, and 21% called one or the other. Of those who had never called, 45% (8% of the entire study population) said that if they ever wanted to reach a medical professional by phone, they had nowhere to call. Overall, 67% of the parents in the study had a telephone at home, but having a telephone proved not to be associated with having ever telephoned a physician.

A history of having contacted a physician by phone did vary with the child's usual source of medical care. All parents who used private physicians had used the telephone to
contact a physician, while 91% of parents whose children were patients at the PCC and 42% of parents of HHC patients had (p=0.003). Forty percent of parents of PCC patients reported calling the ER for medical advice, in contrast to 25% for patients of private physicians, and 20% for HHC patients.

The number of illness visits in the year preceding the index visit (both to the regular place of care and to the ER), as a percentage of the total number of physician contacts, was calculated for children who had made at least one contact, and for whom both figures were available (n=53). The average rate of sick visits for all study children was 52%, with 51% of children having made more than half of their physician visits for illness care.

The large majority of parents (88%) felt that the proper role for a child's doctor included not only well child care and care when the child was sick, but also advice and support for parents. Eight percent said the doctor should provide well child care only, while four percent said only well and sick child care were included in the doctor's role.

**Child Health and Vulnerability**

Several questions assessed the parent's perception of the child's overall health status, as well as his or her level of
vulnerability. They rated the children's health as follows:

<table>
<thead>
<tr>
<th>TABLE FIVE Child's General Health</th>
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<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>-----</td>
</tr>
<tr>
<td>excellent</td>
</tr>
<tr>
<td>very good</td>
</tr>
<tr>
<td>good</td>
</tr>
<tr>
<td>fair</td>
</tr>
<tr>
<td>poor</td>
</tr>
</tbody>
</table>

A modified ten question version of the Forsyth and Canny Vulnerability Scale (45) was administered. This questionnaire asks the parent to respond to various statements regarding their perception of the child's health. The authors have reported acceptable reliability, as well as validity, as evidenced by association between vulnerability scores, higher use of health services and increased parental fear for the child's death. On a scale of 10 to 40 (with 40 representing lowest perceived vulnerability), the median score of children in the study was 35.5, with a mean of 33.85.

The vulnerability score was not observed to be associated with most child and parental characteristics, including age, race, sex, income, number of children in the family, or past history of hospitalization for the child. It was strongly associated with the parents perception of the child's general state of health (p<0.001), and a history of parents concern for the child's life (p=0.026). In addition, vulnerability
was found to be associated with the parent's perception of his or her own health. Among children of parents who considered themselves to be in "excellent" health, 29% were in the half who were more vulnerable (score < 36), while among parents whose health was not excellent, 60% of children were in the more vulnerable group (p=0.012).

**Parental Confidence and Experience**

As stated earlier, all chaperones interviewed were the (or one of the) primary caregivers and guardians of the study children, though three were not the parents. Sixty nine percent said they had personal support at home in the form of someone (a relative) helping them take care of the child. Sixty seven percent of the children were cared for by the parent during the day.

Respondents were asked their main source of health information. The largest number (39%) relied primarily on their own prior experience. This figure was only 22% for parents whose oldest child was under three years, and as high as 55% for parents whose oldest child was over nine years old. Twenty four percent relied primarily on family and friends (39% for those with children all under three), 28% counted on the doctor or clinic as their main source of child health information, and 9% on books, magazines, television or
multiple sources. None cited the ER as a main source of information.

An attempt was made to determine each chaperone's level of experience and preparedness in matters relating to children and child health. Parents were queried regarding their own ratings of satisfaction with their knowledge of child health, and confidence in their ability to judge the severity of their children's illnesses. Sixty three percent each responded that they were "very satisfied" with their level of knowledge, and that they felt "very confident" in their judgement. Fifty three percent were both very satisfied and very confident. About 10% each were somewhat or not satisfied with their knowledge, and somewhat or not confident in their judgement. Of all variables tested, knowledge satisfaction was only found to be correlated with level of education, in an inverse relationship. Only 38% of mothers with some education after high school were "very satisfied" with their level of knowledge, while 70% of those with high school, and 69% with less than high school educations were (p=0.069).

About one fifth (21%) of the parents interviewed had attended parenting classes. Of those not having taken a class, over one third (37%) expressed interest in taking one. Neither the youngest parents nor the ones with the least experience were the most interested in taking a class. Those
most likely to be interested in taking a class were age 24-27 (47% were interested), and those whose oldest children were between 5 and 8 years old (56% were interested in classes).

Eighty four percent of parents claimed to have a thermometer in the house, though 11% of them always or sometimes had difficulty using it. Altogether 75% both had a thermometer and were consistently able to read it. About one fifth (19%) of respondents had never heard of Syrup of Ipecac, though a description was given by the interviewer. Thirty six per cent who had heard of it did not have it in the house. Thus, almost half (48%) the households represented did not have Ipecac. These figures were no different for the most relevant households: of parents of study children under five years old, 19% had never heard of Ipecac and 51% did not have it in the house. (According to the American Academy of Pediatrics, all households with children under five should have Ipecac. (46))

**Previous Emergency Room Use**

Just over 80% of the children in the study had previously been seen in an emergency room, 62% of whom had come in with the same chief complaint on one or more past visits. Seventy one percent had visited the ER in the past year. (The figures were somewhat different for charted YNHH ER visits: an almost
identical 81% had previously visited the ER, though only 59% had been seen in the past year. This discrepancy may be due to parental overestimation, or use of an ER at a different hospital.) Of parents with other children, 77% had brought their other children to the ER on one or more occasion. A history of a recent ER visit was significantly related to the age of the child; of children under three, 83% had made one or more visits in the preceding year, in contrast to 56% of children over three (p=0.012).

Forty six percent of parents who had previously brought their children to the ER were very satisfied with the care received there. One third were moderately satisfied, while the remaining 20% were somewhat or not satisfied. Of those whose children did have a regular source of care, 18% felt the quality of care was better in the ER, 28% thought it was worse, and 54% thought it was the same. The most frequently voiced problem with the ER was the long wait and slow service (24 out of 34 with complaints), while 13 out of 34 mentioned a bad attitude on the part of ER personnel. (Five parents mentioned both.)

Parents who were "very satisfied" with the ER were more likely to have brought their child in for a visit in the preceding twelve months than those who were less satisfied. Ninety percent of "very satisfied" parents, compared with 81%
of those who were less than "very satisfied" had brought their child to the ER in the preceding twelve months, according to the parent's history (p=0.049). (According to the YNHH chart, these figures were 82% v. 55%, p=0.020.)

The number of ER visits in the preceding year, as a proportion of the child's total number of sick visits, was calculated (if both figures were available and non-zero). The mean proportion for all children was 46%.

Respondents were asked to choose among four statements regarding the role of the pediatric emergency room, and were offered time to consider all four before responding. The

<table>
<thead>
<tr>
<th>TABLE SIX</th>
<th>Which of the following statements most closely describes what you believe is the function of the pediatric emergency room?</th>
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<tbody>
<tr>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>The emergency room is meant only for conditions which require prompt or emergent treatment.</td>
<td>7   9%</td>
</tr>
<tr>
<td>The emergency room is meant for care of sick children when their regular doctor is not available.</td>
<td>13  17%</td>
</tr>
<tr>
<td>The emergency room is meant for care of sick children at all times.</td>
<td>13  17%</td>
</tr>
<tr>
<td>The emergency room is meant for any kind of care at all times.</td>
<td>42  56%</td>
</tr>
</tbody>
</table>

2 Percentages do not add to 100% due to rounding.
results are given in Table Six. By far the largest percentage, indeed the majority, perceive that the emergency room is available to serve any kind of problem at any hour of the day.

Past Medical History

Based on the medical history obtained in the ER and that contained in the child's YNHH medical record, 12 children (16%) had significant past medical histories. Three children had asthma. Three had dermatologic conditions, including atopic dermatitis and an unidentified bullous skin disease. Two had resolved past conditions, including one each with neonatal seizures and early failure to thrive. Three had developmental delay, including one who also had chronic otitis media and had been a premature baby.

As mentioned earlier, 59% of the children in the study had been seen in the YNHH ER in the year preceding the index visit, and 81% at some point in the past. Of the 32 PCC patients whose full outpatient records were available, 63% had had follow-up of at least one ER visit with their regular physician. In all, 18% of past ER visits were followed up or referred to in the PCC chart. Of the index visits, 5 out of 32 (16%) were followed up or mentioned in the PCC chart, as of six months after the visit date.
Patient Evaluation

The time at which the pediatric ER nurse called the patient to an examining room was recorded for 66 of the 68 patients who were eventually examined. Seven patients left the ER without being seen, and on six of their ER sheets the hour at which they were first called was recorded by the nurse. Waiting time was estimated as the time elapsed between the triage time (as recorded by the triage nurse upon the patient's arrival at the ER), and the time at which the patient was first called. The average waiting time was 1 hour 14 minutes for all patients, 1 hour 9 minutes for those who went on to be examined, and 2 hours 12 minutes for those who left without being seen.

The chief complaints listed on the ER sheet, as recorded by the triage nurse, did not differ significantly from those told to the interviewer. The exception was that fever alone was the chief complaint for 37% (instead of 19%), and other chief complaints such as earache, sore throat, fussiness, and diarrhea were proportionately less numerous, and vomiting not represented at all (because a patient with a chief complaint of vomiting was not eligible under the inclusion criteria).

Of the 68 patients who were examined and diagnosed, the most common primary diagnosis was otitis media (53%, including
6% who had otitis/conjunctivitis syndrome). The other leading primary diagnoses were upper respiratory infection ( URI) (12%) and pharyngitis (12%). The remaining 23% were divided fairly evenly among viral illness, dermatologic conditions, gastroenteritis, cough, viral stomatitis, and pneumonia (two or three patients with each). Twelve patients had at least one secondary diagnosis, including, in addition to the above mentioned diagnoses, bronchitis/bronchiolitis (two patients), asthma/wheezing (two), rule out bacteremia (one), scarlet fever (one), and rule out urinary tract infection (two).

Physicians who saw study patients included interns, residents, and medical student-attending physician pairs. Physicians were asked to assign each patient a prospective urgency rating (as of the time they first saw the patient, before having done a detailed assessment) and a retrospective urgency rating. As indicated in Table Seven, physicians prospectively rated 38% of study patients as "needing prompt attention", indicating the need for medical attention within two to twelve hours. Thirty five percent of patients were judged to need attention "soon" (within 24 hours), 13% "fairly soon" (within days), and 9% not at all. No patients received an urgency rating of "immediate" or "urgent" (requiring attention within 2 hours). Sixteen patients (24%) received
prospective and retrospective ratings which differed: in nine

<table>
<thead>
<tr>
<th>TABLE SEVEN</th>
<th>Physician Urgency Ratings</th>
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<tr>
<td></td>
<td>Prospective</td>
</tr>
<tr>
<td>immediately</td>
<td>--</td>
</tr>
<tr>
<td>urgently</td>
<td>--</td>
</tr>
<tr>
<td>promptly</td>
<td>26 38%</td>
</tr>
<tr>
<td>soon</td>
<td>24 35%</td>
</tr>
<tr>
<td>fairly soon</td>
<td>13 19%</td>
</tr>
<tr>
<td>does not need</td>
<td>5 8%</td>
</tr>
<tr>
<td>medical attention</td>
<td></td>
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</tbody>
</table>

cases (13%) the physician initially underestimated and in seven cases (11%) initially overestimated the urgency. In three cases the two ratings were more than one urgency level apart, two initially rated "fairly soon" were revised to "prompt", and one initially rated "prompt" was revised to "did not need medical attention".

**Expert Ratings**

The ER sheet on each study patient seen by a physician in the emergency room was submitted to two independent reviewers, both YNHH pediatric fellows. They responded to three questions: 1) Given the history recorded, what would you have told this parent had they called in?, 2) Retrospectively, how soon did this patient need medical attention (using the same six urgency categories as did the examining physician), and 3) Would you judge this to have been an appropriate ER visit? No definition of appropriate was given.
There was considerable variability between the ratings of the two reviewers. While Reviewer #1 would have told 33% of parents to bring their children to the ER (and 18% to come in if the child's condition became worse), Reviewer #2 would have instructed 55% to come in to the ER (and 5%, if the child got worse). Reviewer #1 rated 82% of children as needing medical attention promptly (within 12 hours) or sooner, but judged only 42% of visits to be appropriate. Reviewer #2 thought only 47% of children needed medical attention within 12 hours, but judged 66% of visits appropriate. Of that 66%, Reviewer #2 specified that almost half (31%) should have sought medical attention earlier and at a different location, leaving only 35% who sought medical attention appropriately.

In terms of agreement on specific cases, the two reviewers agreed that 21 (33%) should have come to the ER (at that time or if the child did not improve or got worse) and that 13 (21%) could have waited. They disagreed on the instructions for 29 (47%). The retrospective urgency ratings were identical in 26 cases (38%), and were within one urgency level in an additional 25 (37%). In 17 cases (25%) the two ratings differed by at least two urgency levels. There was agreement that 25 visits (37%) were appropriate and 20 visits (30%) were inappropriate, and the remaining 22 were disagreed upon. (One reviewer did not rate one patient.)
CHAPTER FIVE

FACTORS ASSOCIATED WITH URGENCY

In this chapter we present the results of the analyses that attempted to determine whether any of the following groups of variables were associated with the urgency of the visit:

Demographic factors and parental characteristics
Descriptors of the index visit
Parental relationship with child's primary health care provider (if any)
Parental perception of child's health and vulnerability
Parental confidence and experience
Prior use patterns and perceptions of the ER

The study subjects were divided into two groups based on the ER physician's prospective urgency rating. Those needing medical attention within 12 hours ("immediately", "urgently", or "promptly") were labelled "urgent", and those requiring medical attention "soon", "fairly soon", or not at all, were labelled "nonurgent". The two groups were compared, excluding seven children who left the emergency room without being seen. This last group was too small in number to analyze separately. The Chi Square test was used to compare the two groups, with p<.05 considered significant. Trends which fell short of statistical significance, but for which p was between 0.05 and
0.20 are mentioned as marginally significant. (All tables are at the end of this chapter.)

Demographics

Overall, 38% of the 68 children examined by a physician were considered to have an urgent problem (as defined above), and 62% were considered nonurgent. Younger children (under three years) were more somewhat likely to be rated urgent (45%) than older children (aged 3-6, 29% urgent, p=0.167). Black children were somewhat less likely to be rated urgent (31%) than white children (48%), and Hispanic children were more frequently considered urgent (55%) than non-Hispanic children (31%), (p=0.142 and p=0.069, respectively). Gender was associated with urgency: girls were rated urgent twice as often as boys (50% v. 26%, p=0.045). (See Tables 8A-D.)

There were identical percentages of nonurgent visits among all parental age groups, income brackets (except the highest, with four out of four nonurgent), employment status, and methods of payment. Children of parents who considered their own health "excellent" somewhat more frequently had children rated urgent (50%) than parents who felt in worse health (33% urgent, p=0.170). (See Table 8E.)
The Index Visit

Presenting symptoms, as recounted during the interview, were associated with level of urgency. Of children with fever as part (or all) of the child's chief complaint, 50% were rated urgent, in contrast to 23% of whose parents did not complain of fever (p=0.025). (See Table 8F.) The child's other symptoms also correlated with urgency: none of the children with sore throats, and only 13% of those with symptoms of upper respiratory infection (URI) were rated urgent, as compared with 40% of children with earaches, 57% of those with fever alone, and 52% of children with other symptoms (numbers too small to use Chi Square).

Children who had been sick for a longer time before being brought in to the ER were somewhat less likely to be considered urgent. Forty eight percent of those who had been ill less than 24 hours were rated urgent, as compared with 40% who had been ill 1-3 days, and 19% who had been ill four days or more (p=0.137). (See Table 8G.) Children who had been seen previously during the course of the illness were no more or less likely to be rated urgent than children being seen for the first time (25% urgent v. 36% urgent, respectively, p>0.5).

The profile of reasons for choosing to come to the ER at
that time were similar for urgent and nonurgent users: the majority of visits by children in both groups were precipitated by parental concern over the child's symptoms. However, the reason for not waiting until the following day to seek care was associated with urgency. Of those citing convenience, only 7% were rated urgent, compared with 38% of those mentioning potential danger to the child, and 58% of those concerned most about the child's discomfort (p=0.002). (See Tables 8H,I.)

There was no relation between urgency and whether or not the parent had gotten advice from anyone, or had attempted to contact a physician. However, of the twelve parents who had reached a physician by phone and had been instructed to come in to the ER, 58% were rated urgent, compared to 32% among the rest of the study population, (p=0.119). There was no association between urgency and the means of transportation to the ER or the duration of the trip.

The parent's urgency, severity, and discomfort ratings were not associated with physician urgency ratings.¹ (See

¹ Statistically, the parental urgency rating was somewhat associated with whether or not the physician rated the child's visit as urgent (p=0.131), but the trend across different parental urgency ratings was inconsistent. Of children rated as needing immediate attention by their parents, 53% were rated urgent, compared to children with parental ratings of urgently (25% urgent), promptly (35% urgent), and soon/fairly soon (42% urgent).
Children who had been given medication at home were no more or less urgent than children who had not.

The distribution of reasons for choosing the emergency room was similar for parents with urgent and nonurgent children. Each reason given was associated with a 50-75% rate of nonurgency. Of eleven factors queried as potential contributors to the decision to use the ER, only the familiarity of the ER proved to be associated with urgency. Twenty five percent of those for whom familiarity of the ER contributed to the parent's decision to bring in the child, were rated urgent, as compared to 57% of those not influenced by familiarity of the ER (p=0.007). (See Tables 8M,N.)

Neither the presence nor the nature of a "hidden agenda" (a parent's deeper concern underlying the reason for the visit) was associated with urgency, nor was the parents choice of the ideal facility for care of the child's present illness. (See Table 8P.)

Usual Source of Medical Care

Neither the child's usual source of medical care, nor any of the variables pertaining to the quality of, or parental satisfaction with, the physician-parent relationship were associated with urgency of the ER visit. (See Table 8Q.)
However, past use of the phone to contact a physician for advice was. Among parents who had at some time telephoned a physician about their child (n=58), 48% of children whose parents always called the child's regular doctor (or clinic) were considered urgent, as compared to only 17% of those whose parents mentioned calling the ER (p=0.020). This disparity was even more pronounced among parents who had not attempted to call prior to the index visit. (See Table 8R.)

Children for whom all sick visits (including the ER and the usual place of care) constituted more than half of their physician visits in the preceding year, were somewhat less likely to be rated urgent (30%) than those making half or fewer of their visits because of illness (50% urgent, p=0.149). (See Table 8S.)

**Child Health and Vulnerability**

None of the variables relating to parents' perceptions of their child's general state of health or vulnerability, or the child's past history of hospitalization, were associated with the urgency rating of the visit. Among parents of more vulnerable children (vulnerability rating <36 out of 40), however, 70% rated their child as needing medical attention immediately or urgently, as compared to only 46% of parents of less vulnerable children (p=0.033). Controlling for the
physician rated urgency, the association between vulnerability and parental rated urgency held for children who physicians rated nonurgent (p=0.013), while there was no observable association for those rated urgent.

**Parental Confidence and Experience**

The presence of an additional caregiver at home was associated with nonurgency of the visit. Of children whose parent did have someone else at home to help with the child, 71% were rated nonurgent, compared to 40% of those without a second caregiver (p=0.018). (See Table 8T.)

The parent's main source of child health information was also associated with urgency. Of those parents who cited their own "prior experience", only 21% had children who were considered urgent, a smaller fraction than for those relying primarily on family or friends (35% urgent), the doctor or clinic (61% urgent), and books and magazines (60% urgent) (p=0.037). Since the child's age was associated weakly with both physician-rated urgency and parental source of health information, we controlled for the age of the study child in testing the association between urgency and source of health information. For children under three years (n=40), the parent's main source of health information was associated with urgency, as above, with an 86% rate of nonurgent visits among
children of parents relying primarily on "prior experience" (p=0.045). However, children over three years (n=28) showed no such association. (See Table 8U.)

Parents' satisfaction with their own level of child health knowledge was also correlated with nonurgency. For "very satisfied" parents, only 27% of children were considered urgent, as compared to 56% for parents who were moderately, somewhat, or not satisfied (p=0.017). Again controlling for the child's age, the association held somewhat for children under three (p=0.068), and to a lesser extent for children over three years (p=0.114). The same tendency toward nonurgency was observed with high parental confidence levels, but this association fell far short of statistical significance (p>0.25). (See Tables 8V,W.)

There was no correlation between the child's urgent/nonurgent status and the number of children in the family, the age of the oldest child, or the position of the index child within the family (i.e. oldest v. not oldest). There was also no association observed between urgency and estimates of parental preparedness, including a history of having taken parenting classes, possession of and ability to use a thermometer, or familiarity with and possession of Syrup of Ipecac.
Children who had previously been seen in an emergency room were somewhat more likely to be rated nonurgent (67%) than those who had not (38% nonurgent), (p=0.058). Children who had made an ER visit in the year preceding the index visit (according to the parents) were somewhat more likely to be nonurgent (70%) than those who had not (45% nonurgent), (p=0.061). Since the child's age was correlated with use of the ER in the preceding year (younger children more likely having made a visit than older children), as well as weakly with urgency, age was controlled in testing this association. For children under three, use of the ER in the year prior to the index visit was correlated with nonurgency (p=0.013). Among children over three, those who had visited an ER in the past year were half as likely to be rated urgent (20%) as those who had not (38% urgent), but the numbers were too small to reach statistical significance (p=.280). (Of note, there was no association between a charted YNHH visit in the past year and nonurgency (both groups 59-64% nonurgent).) (See Tables 8X-Z.)

Fifty two percent of children who made one third or fewer of their sick visits in the preceding year to an ER, were rated urgent, in contrast to only 28% of children having made over one third of their sick visits to an ER (p=0.075). (See
There were no observed associations between level of urgency and other parameters of prior ER use, including whether the child had previously presented with the same chief complaint, whether other children in the family had used the ER, the degree of parental satisfaction with the ER, or the perceived quality of the ER compared to the child's regular place of care. In addition, there was no association between urgency and the parent's perception of the role of the ER.

**Past Medical History**

Two of the twelve children who had a significant past or present medical condition left without being seen. Of the ten who were evaluated, the percentage of urgent visits was no different than that of the other children. Excluding those with "non-medical" conditions (developmental delay, dermatologic conditions), 67% of these children were rated urgent, but the number (n=6) was too small to allow for comparisons.

As mentioned earlier, the presence of a documented YNHH ER visit in the preceding year was not associated with nonurgency, nor was a charted YNHH ER visit at any point in the past. For PCC patients, urgent visits were no more likely
to be followed up or mentioned in the patient's PCC record than were nonurgent visits.

**Patient Evaluation**

Based on the chief complaint recorded by the triage nurse, 52% of children with fever were urgent, as well as 50% each with earache and cough, but none of ten children with URI symptoms and 23% of those with other chief complaints were rated urgent. (p=0.007, but numbers were small). Association was found between discharge diagnosis and level of urgency: 53% of children with otitis media were rated urgent, as were 25% of those with a diagnosis of URI/cold, 12% of those with pharyngitis, and 28% of those with other diagnoses (p=0.013). The patient's temperature was not found to be associated with the urgency rating. (See Tables 8BB,CC.)

**Summary**

Nonurgency of the ER visit was found to be statistically associated with: 1) gender (male), 2) the absence of fever as part of the child's chief complaint, 3) convenience as a motivating factor for the visit, 4) the familiarity of the ER as a contributor to the decision to come in, 5) parent's relying on the ER for part or all of their telephone contact with health professionals, 6) parental perception of the child
as vulnerable, 7) parental reliance on prior experience as the main source of child health information, 8) high levels of confidence in matters of child health, 9) child's prior use of the emergency room, and the 10) presence of an additional caregiver for the child at home. Some of these associations were stronger for children under three years old than for those over three years old. These included parent's main source of health information, child's history of ER use, high parental confidence levels.

Variables found to be marginally associated (.05 < p < 0.20) with nonurgency of the child's visit included 1) age (over three), 2) race (black, non-Hispanic), 3) longer duration of illness, 4) children making more than half of their physician contacts in the preceding year for sick visits, 5) use of the ER in the preceding year, 6) children who made more than one third of their sick visits in the preceding year to the ER, and 7) parental ratings of their own health as less than excellent.
Table 8 Analysis of Urgent and Nonurgent Visits

<table>
<thead>
<tr>
<th></th>
<th>URGENT</th>
<th>NONURGENT</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>p</td>
</tr>
<tr>
<td><strong>A. CHILD'S AGE</strong></td>
<td></td>
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</tr>
<tr>
<td>1-2 years</td>
<td>18</td>
<td>45%</td>
<td>22</td>
<td>55%</td>
<td>0.167</td>
</tr>
<tr>
<td>3-6 years</td>
<td>8</td>
<td>29%</td>
<td>20</td>
<td>71%</td>
<td></td>
</tr>
<tr>
<td><strong>B. RACE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>black</td>
<td>12</td>
<td>31%</td>
<td>27</td>
<td>69%</td>
<td>0.142</td>
</tr>
<tr>
<td>white</td>
<td>14</td>
<td>48%</td>
<td>15</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td><strong>C. HISPANIC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>11</td>
<td>55%</td>
<td>9</td>
<td>45%</td>
<td>0.069</td>
</tr>
<tr>
<td>no</td>
<td>15</td>
<td>31%</td>
<td>33</td>
<td>69%</td>
<td></td>
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<tr>
<td><strong>D. SEX</strong></td>
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<td>n</td>
<td>%</td>
<td>n</td>
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<td>42%</td>
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<td>32</td>
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<td>moderately</td>
<td>7</td>
<td>44%</td>
<td>9</td>
<td>56%</td>
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<tr>
<td>mildly/hardly</td>
<td>3</td>
<td>75%</td>
<td>1</td>
<td>25%</td>
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<td>8</td>
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<td>conven/financ</td>
<td>2</td>
<td>40%</td>
<td>3</td>
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<td>MD instructed</td>
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<td>50%</td>
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N. CONTRIBUTING FACTORS TO DECISION TO COME TO THE ER:

N1. ER IS BEST PLACE
   yes     8 29%   20  71%       0.167
   no      18 45%   22  55%

N2. FAMILIARITY OF ER
   yes     10 25%   30  75%       0.007
   no      16 57%   12  43%

P. HIDDEN AGENDA?
   no        9 30%   21  70%
   part of chief com  5 29%   12  71%       NS
   true hidden agenda 4 31%    9  69%

Q. SOURCE OF PRIMARY CARE
   PCC       13 42%   18  58%
   HHC       5 50%    5  50%
   PMD       3 20%   12  80%       0.258
   other     4 57%    3  43%

R. HISTORY OF PHONE USE TO CONTACT PHYSICIAN FOR ADVICE

R1. FOR THOSE PARENTS WHO DIDN'T CALL FIRST: WHOM HAVE YOU CALLED IN THE PAST?
    child's doc 13 59%   9  41%       0.009
    ER (& reg doc) 2 15%  11  85%

R2. FOR ALL PARENTS WHO HAVE CALLED AN MD: WHOM HAVE YOU CALLED OR DID YOU CALL (TODAY) ?
    child's doc 19 48%   21  52%       0.020
    ER (& reg doc) 3 17%  15  83%
### S. Sick Visits as a Percent of Total Physician Encounters (Past Year)

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<thead>
<tr>
<th></th>
<th>Urgent</th>
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<th>Nonurgent</th>
<th></th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
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</tr>
<tr>
<td>half or fewer</td>
<td>13</td>
<td>50%</td>
<td>13</td>
<td>50%</td>
<td>0.149</td>
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<tr>
<td>more than half</td>
<td>8</td>
<td>30%</td>
<td>19</td>
<td>70%</td>
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### T. Other Caregiver at Home?

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<td></td>
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<td>%</td>
<td>n</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14</td>
<td>29%</td>
<td>34</td>
<td>71%</td>
<td>0.018</td>
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<td>No</td>
<td>12</td>
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### U. Main Source of Health Info

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<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
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<tr>
<td>prior experience</td>
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<tr>
<td>doctor/clinic</td>
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#### U1. (Ages 1-2 Only)

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<td>n</td>
<td>%</td>
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<td>doctor/clinic</td>
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<td>n</td>
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<td>10</td>
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<td>14%</td>
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<tr>
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<td>40%</td>
<td>3</td>
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<td>13</td>
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CHAPTER SIX

DISCUSSION

This study has attempted to determine the contributions of (1) misperception of the roles of the emergency room and the child's primary care physician, (2) "purposeful" misuse of the ER due to issues of convenience, and (3) misperception of urgency, to high volumes of nonurgent visits among young children. This chapter will discuss the extent to which our findings help answer this question, the implications of those findings, and the limitations of this study in providing conclusive answers. The subsequent chapter will present recommendations for pediatric ambulatory care, in light of past interventions and their outcomes.

FINDINGS

Misperception of the Role of the ER

Kahn et al. (37) concluded in 1973 that a significant difference existed in the perception of the ER between physician and patient.

"For the physician, the emergency room represents an acute facility for conditions requiring prompt or immediate treatment...The patient, on the other hand, considers the emergency room available for any kind of care at any time of day." (37, p.159)
The present study used these two descriptions as two of four possible responses\(^1\), asking directly for each parent's perception of the role of the pediatric emergency room. Fifty six percent of parents answered that "the emergency room is meant for any kind of care at all times." Seventy three percent of parents believed the ER is meant for care at any time of day (either "any kind of care" or "care of sick children"), not just when the child's regular doctor is not available.

Kahn et al. (37) based their above conclusion on the finding that only 20% of parents rated their child's condition as "emergent" or "severely ill", while 46% were "mildly" to "moderately" ill. In the present study, 37% of parents believed their child was "dangerously" or "very" ill, 62% "moderately", "mildly", or "hardly" ill, and only 1% were unable to rate severity. Thus, 62% of our sample appears to believe the emergency room is meant for care of mild to moderate illness.

Several other findings support the theory that misperception of the role of the ER plays a major role in nonurgent use of the ER. Of parents who did not try to

\(^1\) The two intermediate choices were "The emergency room is meant for care of sick children when their regular doctor is not available" and "The emergency room is meant for care of sick children at all times".
contact a physician prior to coming to the ER, 50% said they had not called either because "you're supposed to come to the ER at this hour" or because "coming in is better than calling". The ER is thus viewed not only as a substitute for the regular physician, as Stratmann and Ullman (47) found in their 1975 community-wide survey, but also as an alternative to calling for advice.

Parents' reasons for choosing the ER most often focused on lack of any alternative at the time, but one quarter cited either a positive opinion of the care in the ER, or the view that the ER was a suitable alternative to the child's doctor or clinic. In identifying factors which played a role in the decision to use the ER, 67% named the quality of ER care, and 61% the familiarity of the ER. The latter group proved to have a very high rate of nonurgency (75% nonurgent). Twenty five percent of parents said the ER was the ideal site for care of the child's condition. These findings suggest that the ER is viewed as one of several equally available and appropriate alternatives for child health care, with a significant number of parents opting for the ER due to perceived superiority of the care delivered there.

Parental perception of the ER is also reflected in the child's history of past ER visits. In a study of patients using the ER in Oklahoma City, Walker equated not having made
an ER visit in the past year with appropriateness of use and proper perception of the role of the ER. (34) Nelson et al. found frequency of ER use to be related to nonurgent presentation. (29) In the present study, the average number of ER visits in the preceding 12 months was 2.14 per child; 71% of children made at least one visit, and 48% made two or more. On average, children in the study made 45% of their sick visits to an ER.

Regularity of use of the ER implies perception of the ER as a regular source of care. In this study, patients who made more than one third of their sick visits in the preceding year to an ER were somewhat more likely to be rated nonurgent than those who had made one third or fewer (p=0.075). Patients who had been seen in the ER in the past year were somewhat more likely to be rated nonurgent than those who had not (p=0.061). Interestingly this was only the case for ER visits reported by the parent, and not for those recorded in the chart. Indeed, perhaps it is the parent's perception that the child frequently visits the ER that is associated with a higher risk of nonurgency.

Convenience

Convenience (or "enabling factors", in the language of Kahn et al. (37)) may also be a factor in the nonurgent
utilization of the ER. In this population of mostly single non-working mothers, most of whom had another caregiver in the home, convenience did not play a major role. Thirty three percent said convenience was the only, or one of several reasons for the timing of their visit, but this conferred no higher risk of nonurgency. On the other hand, of the 24% who named convenience as the reason for not waiting until the following day, only 7% were rated urgent. Thus, a significant minority use the ER for nonurgent health care needs because of convenience. Most of the parents who cited convenience did not specify the inconvenience of coming during the daytime because of a job or other commitment, but rather that they were already in the ER (with another child), in the hospital (visiting an inpatient), or in the neighborhood, and bringing the sick child in at that time was extremely convenient. Thus, not only convenience, but a perception of the ER as providing such walk-in service, played a part in their decision to use the ER.

Three of the eleven contributory factors queried regarding the decision to use the ER related to "enabling" factors. Fifty one percent of parents said that it was the best time for them to come in (though this might have been interpreted as "best time during the child's illness" rather than "best time of the day"). Forty five percent responded that the lack of need for an appointment was important, and
15% said the ER was easier on them financially. Thus, while convenience did not assume a major role for most study participants, several types of convenience added to the appeal of the ER for a number of parents. Contrary to study preconceptions, parents with family support at home were far more likely to have their visit rated nonurgent than those without (p=0.018). This may relate to greater convenience of having care for other children, or having someone to drive to the ER.

**Misperception of Urgency**

In contrast to the more moderated parental ratings of severity of illness discussed earlier, 59% of parents responded that the child needed medical attention within two hours, and 83% believed the child needed medical attention within 12 hours. Since all patients were seen during the evening shift, medical care within 12 hours usually would preclude waiting until the following day. Using parental-rated urgency as an index, only 17% of parents chose to use the ER despite the belief that the child's problem could wait up to 12-24 hours or more (in contrast to the 62% who chose the ER for care of a mild to moderate illness). Perceived severity thus is not an accurate measure of the parental impetus to seek medical care - perceived urgency must be a function of more than the severity of the illness. In
particular, 71% of all parents felt their children were very uncomfortable, and for 36% the child's discomfort was the reason for not waiting until the following day to seek medical care.

Previous studies have illustrated the difference between patient- and physician-rated urgency. Gifford et al. (30,33) found that while 73% of patients rated themselves as requiring "immediate" or "urgent" attention (defined as in the present study), physicians prospectively rated only 39% of patients this way. The authors pointed out that the physician's prospective rating is a more meaningful determinant of patient appropriateness than a retrospective rating, as the judgement the patient must make in deciding whether to come to the ER is also prospective. Having preselected patients that were less likely to be urgent, no patients in the present study received physician ratings of "immediate" or "urgent". Although 82% of parents believed their children needed medical attention within 12 hours, examining physicians thought only 38% of patients did. Thus there is clearly a difference in perception of urgency between physician and parent, and therefore a "misperception" of urgency on the part of the parent, in the eyes of the medical community. For 4% of the patients in the Gifford study (33), and 13% in this one, however, the physician initially underestimated the urgency, compared to that physician's retrospective urgency rating. In
addition, despite the widespread patient overestimation of urgency (relative to the physician), 12% of patients in the Gifford study (33) and 7% in this one rated themselves (or their children) as less urgent than the physician did (prospectively).

Duration of symptoms also plays a role in perception of urgency. For a physician, a longer duration of symptoms before seeking medical attention is a sign of nonurgency. Indeed, at least one study used the duration of symptoms as the sole determinant of visit appropriateness (19). In the present study children who were sick for longer periods before being brought in were somewhat less frequently rated urgent by the physician than those who had not been sick as long (p=0.137). However, duration of the child's symptoms bore no association with the parent's urgency rating.

**IMPLICATIONS**

Having documented the considerable differences between perceptions of physician and patient, it is now important to attempt to understand those differences. Wolcott, in his 1979 editorial, offered several vivid examples of three very different definitions of urgency - from the point of view of the patient, medical personnel, and society, as well as cases in which the different definitions overlap. A patient who has
"the worst headache of my life" is urgent by his own and by the physician's standards, but not to society. A child who is "crying all night with fever" may be urgent to the parent and society, but may not be to the ER staff. Wolcott recommended beginning to remedy the situation by aiming to increase commonality in the definition of urgency. (16)

**Parental Perceptions**

The first step in developing such a commonality is understand the patient's (or parent's) perception of urgency. In the present study, the parental urgency ratings were not observed to be associated with either the parent's severity or discomfort ratings. Parents who rated their children as more urgent did tend to perceive the child as more vulnerable ($p=0.033$), most significantly among children who physicians rated nonurgent ($p=0.013$). In turn, the only parental or child characteristic which was found to be associated with the child's vulnerability score (other than the parent's rating of the child's general health, and a history of fear for the child's life), was the parent's rating of his or her own health. Thus the vulnerability score seems to identify a group of parents who worry more about health and who are more likely to feel health problems are urgent (especially when they are not).
Children who had made more than half of their physician contacts in the past year because of illness were somewhat more frequently rated vulnerable; they were also somewhat more likely to be making a nonurgent visit, than those having made fewer of their physician contacts due to illness. (p=0.113 and p=0.149 respectively). Physicians rated boys as urgent one half as often as girls, though boys were not rated as being more vulnerable by the parents. This observation is consistent with well established tendencies toward greater health care seeking by parents for boys than for girls (especially in the under five age group). (6, 7, 39)

One additional measure of parental perception of urgency is the parent's urgency rating relative to that of the physician. We found that parents whose urgency rating was farther from the physician's were somewhat more likely to have rated their children as more vulnerable (59% v. 37% for parents whose urgency rating was closer to that of the physician, p=0.081). These parents were also more likely to say the familiarity of the ER played a role in their decision to come to the ER (73% v. 37%, p=0.003), and more likely to broadly interpret the role of the ER (p=0.035) than parents whose urgency rating was closer to the physician's. Thus, those parents who tend to overestimate their child's urgency (relative to the physician) also tend most often to "misperceive" the role of the ER.
Other authors have studied parents' sense of urgency about their children's health in different ways. Since Yudkin (44) in 1961 described six children with coughs, each of whom had a second diagnosis (the so-called "hidden agenda") in the eyes of the parent, several investigators have looked for such deeper concerns in their attempts to explain the differences between parents' and physicians' perceptions of urgency and illness. Bass and Cohen, studying children making sick visits to a pediatric practice, found that in 34% of cases there was an underlying reason for seeking medical attention. Most often this proved to be a family history of disease, or a parent who "feared the worst". (48) Daly found that 60% of parents had a definite idea about the etiology of their child's illness. (49) She found that unearthing these parental concerns did not improve ability to diagnose the problem, but greatly improved parent-provider communication and enhanced the ability of the physician to deal with parental concerns. In the present investigation, we found that 20% of parents had a hidden concern that was not part of the chief complaint, but the presence of one was not associated with a nonurgent visit.

**Parental Knowledge**

The issue of parent-provider communication is an important one. As the Select Panel for the Promotion of Child
Health pointed out in their 1981 report, "It is the parents who provide the lion's share of all care to a sick or injured child." (50, p.53) Therefore, it is important for parents to have some solid grounding in child health in order to make good judgements regarding their children's health and need for medical care. Parents in the present study relied on their own experience (39%) and family and friends (24%) for most of their child health information. Based on the high rates of nonurgency among children of these parents, these knowledge sources may be inadequate. Parents who relied on the doctor or clinic showed much higher rates of urgent visits (61% urgent v. 21% for those citing prior experience, and 35% for family or friends, p=0.037), and were also less likely to overestimate their child's urgency (relative to physician rated urgency, p not significant).

Complementing this tendency is the finding that parents who were most satisfied with their knowledge of child health were most likely to have their child's visit rated nonurgent by the physician; this was particularly true for parents of children under three years old. Parents who are most satisfied with their own knowledge are probably least likely to express doubts or ask questions of their child's physician, and least likely to initiate a solid line of communication.
Physician-Patient Relationship

Yet physician-parent communication is certainly needed. Silva, in a study of child health services utilization by Puerto Rican families, pointed out how culturally bound expectations of health care interfered with communication between physician and parent. One patient told her,

"'You know when I take my children to get a checkup or a shot I feel that any doctor is qualified, and I feel that it is very important that they are very friendly to my children and take time to explain things. Quite frankly, when my children are sick I don't care if the doctor is friendly. All I care about is that he is competent. When my children are sick, I like a clean sterile atmosphere.'" (51, p.34)

This view was doubtless never communicated to the children's physician. Several parents in the present study expressed the same viewpoint, stating that the child's regular doctor was simply not a "full-service facility". Perhaps these parental explanations shed light on how almost universally high ratings of parental satisfaction with the child's doctor can coexist with findings of significant numbers of parents who don't rely on the doctor for sick care, health information, or telephone advice, and 25% of parents who did not consider their child's regular doctor the ideal place for care of the child's illness.
The issue of telephone contact between parent and provider is very relevant. Only 33% of parents in the present study had attempted to contact a physician before coming to the ER; one quarter of these parents did not succeed, and another quarter did not follow the physician's advice. Thus only 16% of the chaperones interviewed reached a physician by phone and followed that physician's advice.

Although in this study, most measures of the quality of the physician-parent relationship did not prove to be predictors of nonurgent use, at least one factor did. Patients who tended to rely on the ER, at least in part, for phone advice about their children's health, were much less likely to be rated urgent that those who did not (17% v. 48%, p=0.020). The data identify certain populations in New Haven who are less likely to have good telephone access to a physician. Of Hill Health Center patients, 85% did not attempt to call before the index visit, and 54% had never called a physician. Of Primary Care Clinic patients, close to half regularly called the ER.

The previously cited Select Panel's 1981 report underscored the critical importance of telephone availability of physicians, not only in the case of emergency:

"...the family that can easily and quickly reach a doctor by telephone is more likely to seek
information about a health problem early in its course. This may prevent the problem from becoming serious, and help parents use health resources more appropriately... This, however, is largely a privilege of the middle or upper class parent." (50, p.213)

Among their recommendations,

"There should be some time during the day when families can consult over the telephone about general areas of concern... In addition, every community should have... day and evening access for acute health needs." (50, p.214)

Studies have found provision of phone advice from the ER to be variable at best. (52) Given the significant numbers of parents who rely on the ER for telephone advice, and the poorer patterns of health care utilization among them (as measured in this study by the rate of nonurgent ER visits), efforts must be made to ensure availability of telephone advice from a non-ER source, preferably the child's regular place of care. Admittedly, many pediatric practice sites, particularly residents clinics, are not optimally organized for 24 hour phone availability, and pediatric housestaff have been shown not to be proficient in telephone management of pediatric illnesses. (53)

It has been estimated that 25% of pediatric consultations, and up to three hours a day of a pediatrician's time consist of telephone management of illness (51); thus,
this is certainly a skill which pediatric residents should learn. In addition, parents of patients at the YNHH residents' clinic (the PCC) had the highest rate of reliance on the ER for telephone advice, which in turn was one of the most significant predictors of nonurgency of the index ER visit. It therefore seems in the interest of this pediatric residency program in particular, and most likely of others as well, to develop a reasonable system of telephone cross coverage by pediatric residents for their clinic patients.

LIMITATIONS

The results of this investigation point to certain areas which warrant attention, intervention, or further investigation. Prior to a discussion of recommendations based on these findings, there are several limitations of the present study which must be mentioned.

Size

The most important limitation of the present study is the small size of the study population. Because the anticipated number of study participants was small, the sample population was limited according to the age of the child, time of the ER visit, and nature of the chief complaint. In so doing, we collected data on a population which it is very valuable to
characterize — young children who use the ER during the busiest shift, for problems usually taken care of at a doctor's office or clinic. However, had it been possible to interview a far greater number of subjects, the same information could have been collected for a wide variety of subjects, and the different groups later characterized according to the child's age, timing of the visit, and nature of the chief complaint.

Number of Variables

Another shortcoming is that due to the large number of variables collected for each patient, there is a risk of finding significant correlations which may have occurred by chance alone. One in twenty cross-tabulations will show significant association due to chance alone, and one in five will be marginally significant. This risk is lessened by testing only cross-tabulations for which correlation between the two variables would be meaningful, but it is certainly worth bearing in mind. The intention was to conduct a pilot study in order to suggest which characteristics may be associated with parents making nonurgent visits. The small sample size and large number of parameters investigated make definitive conclusions impossible.
Control Population

The study also lacks a control population. Ideally we would have interviewed parents bringing their children to their regular doctor or clinic with one of the chief complaints included in the present study (i.e. those making appropriate visits). However this was impossible, since making meaningful comparisons to the population using the ER would have necessitated conducting interviews at numerous locations.

Instead "urgent" ER visitors served as a quasi-control population, with the implicit assumption that these parents were using health care facilities "appropriately", while those whose children were not rated urgent were using the ER "inappropriately". This assumption is certainly arguable. It is possible that parents of children making urgent visits had waited too long before seeking medical attention, and should have made a less urgent visit earlier, to a more appropriate facility. Nonurgent visitors may conversely have been more attentive to their child's health needs, and more apt to intervene at an earlier point in the illness, whether or not the child's doctor was available at that time.

The results did not support this caveat, as nonurgent visitors were more likely to have waited longer before
bringing the child in, and were more likely to use the ER for a significant proportion of their child's health care needs. Thus it seems that this study has identified a population (those rated "nonurgent") whose use of the ER is inappropriate. This certainly does not insure that those parents whose children were rated urgent were using the ER appropriately. In fact, 50% had waited more than 24 hours since the onset or last change in symptoms before seeking medical attention, thus deferring the opportunity to seek care at a location other than the ER. In addition they broadly interpreted the role of the ER as often as those parents whose children were rated nonurgent.

Had the sample population been larger, it would have been interesting to classify ER visits simultaneously on the basis of urgency of presentation, duration of symptoms before ER presentation, and periodicity of that child's use of the ER. This would have enhanced our ability to assign labels of "appropriate" and "inappropriate" to individual visits.

Validity of Judging Appropriateness

Thus far we have offered no definition of appropriateness of pediatric ER visits, having implicitly used physician rated urgency of the ER visit as the sole determinant of appropriateness. As pointed out above, however, this is not
an optimal definition. Appropriateness is intimately related to the timing of the ER visit, the condition of the child, and the range of available services. For almost all of the patients in this study, the range of available services at the hour of their visit was limited to the ER at YNHH and one other hospital ER (95% answered that their child's regular doctor or clinic was not available at the time). However not all 95% were making appropriate visits. Only 42% of children had had the onset of symptoms (or the most recent change in symptoms) in the 24 hours prior to ER presentation and only 38% of children seen by a physician were believed to need medical attention within 12 hours. The percentage of children who both had been sick less than 24 hours and were rated urgent was 19%. Therefore 81% of parents could reasonably be expected to have taken their child to his or her usual place of care either earlier in the course of the illness or on the following day. Excluding parents who made their visit on a Sunday evening, and had waited between one and three days before coming in, this figure is reduced to 77%.

Using such strict criteria, 77% of study visits were avoidable or preventable, a term that has been used previously in reference to hospital admissions (64). We believe this to be a more valid term in the present context than "appropriate", since the latter carries a value judgement and implies a single reference point. Medical care for routine
childhood illnesses is best provided in the context of an ongoing patient provider relationship, and therefore an ER visit for such care is medically inappropriate. On the other hand, by parental standards, any visit is appropriate when the child's health needs are urgent, no matter how long the parent waited before seeking medical attention.

Standards even vary by physician, as is evident from the divergence of opinions of the two expert reviewers. One believed that 82% of study children needed prompt attention (within 12 hours) but rated only 42% of visits appropriate; the other judged 47% to need attention promptly but believed 66% of visits were appropriate. However, the second reviewer, after counting as inappropriate parents who had waited too long before seeking medical attention, judged only 35% of visits to be appropriate.

Given just these three perspectives on appropriateness - theoretical (based on consideration of optimal medical care), the patient's (parent's), and the physician's - we can understand Haddy et al.'s statement, "It may be an oversimplification to view emergency room use as appropriate or inappropriate". (28, p.392). However, we believe that it is valid to call the 77% of visits referred to above avoidable or preventable. If parents understood and respected the role of the ER as providing care for urgent and emergent
conditions, if they had a more accurate estimation of urgency of children's illnesses, and if convenience did not play a role, these visits may not have been made.
CHAPTER SEVEN
RECOMMENDATIONS

Many of the factors which contribute to the nonurgent or avoidable use of the emergency room have been identified previously, and a host of different programs have attempted to change such utilization patterns. They have ranged from educational interventions to disincentives to provision of alternative sites of care. Following a discussion of the implementation and outcome of those programs which are most relevant to the present study population, we will present recommendations and suggestions for further research.

PAST INTERVENTIONS

Educational Programs

Several programs have addressed the contribution to nonurgent ER use made by patient misperception of the role of the ER and of urgency. Experience in trying to educate patients in the ER setting, however, has been variable. Benz and Shank developed a patient education program for patients enrolled in a family practice residency clinic, in order to attempt to reduce the volume of inappropriate ER visits. (19) Among other things, each patient making an inappropriate ER visit received immediate feedback about appropriate use of the ER, and the advisability of telephoning first. While the
percentage of inappropriate visits decreased during the study period (from 29% to 18%), the number of total ER visits rose, as did the percentage of patients seen who had called first. This can be viewed as a success; yet the overall increase in the number of ER visits may represent a shift toward patients presenting earlier in the course of the illness, since duration less than 24 hours was used as the sole criterion for appropriateness. If so, different measures of appropriateness of visits may be needed in order to judge the success of the program.

Woolf et al. showed success with an ER education program focused on prevention of childhood poisoning. Targeting parents of children under five visiting the ER, they showed improvement of parental poisoning readiness at 4-6 months in the group who received educational intervention in the ER. (46) However, Shields et al., in their study of inner city children with asthma, found no difference in health care utilization rates between intervention and control groups, despite a multiple contact asthma education program which resulted in self-reported improvement in mastery of the material. They attributed the program's failure to an inadequate behavioral component and the absence of targeting the most motivated or high risk population. (54)
Influencing Behavior

Robinson and Schwartz referred to the fact that educational programs which increase knowledge often fail to change behavior when they instituted a fever health education program designed to do both. Working with a pediatric clinic population whose top four chief complaints for acute visits were almost identical to those of this study's participants (fever, URI, ear problems, and GI infections), they enrolled parents of children under 13 who presented after hours with fever. The intervention group watched a 10 minute videotape on "Fever: Fears and Facts". In addition to improved post-test scores in the intervention group, the authors found a significant decrease in fever-related and other acute visits up to eight months later, though the effect decreased over time. (55)

This type of educational program is very relevant to the present study population, 52% of whom had fever as part or all of their chief complaint. In a survey of parents at a pediatric clinic, Schmitt found that most were "unduly worried" about fever of less than 102 F, and 85% gave the child antipyretics before the temperature reached 102 F. He concluded that health education to address widespread parental "fever phobia" should be a part of routine health supervision visits. (56)
The issue raised by Shields et al. of the importance of targeting a high-risk and motivated population is worth considering. The high risk nature of the Robinson study participants was insured by aiming the program at parents making an after hours clinic visit for fever. Whether or not the visit was "appropriate", the educational material on fever was well-aimed. It is not difficult to imagine transferring such a program to a pediatric ER, where the waiting periods are often long, and parents would welcome some form of diversion.

The issue of identifying a motivated population is somewhat more difficult than finding one at high risk. Patients with asthma, potentially in danger of needing emergency room care for respiratory distress, might be expected to be more motivated to modify behavior in response to an educational program, than parents of children using the ER for minor illnesses. Although thirty four parents (56% of responders) in the present study voiced complaints about the ER, all were repeat visitors (since only previous users were posed the question). Dissatisfaction with the ER, however, was associated with not having brought the child in for a visit in the preceding year (by history). However, few would argue that making the ER experience unsatisfactory to patients is a means to motivate people not to use it for nonemergent care.
Disincentives

One powerful motivating factor that has been investigated as a disincentive to nonurgent or inappropriate ER use is the financial one. The absence of a cost disincentive toward nonurgent ER use, a consequence of broad coverage for ER visits by most medical insurance and assistance plans, has often been interpreted to be an incentive. Different authors have supported (29) and refuted (57) the hypothesis that Medicaid, in particular, promotes emergency room misuse. Several studies have examined the effects on ER use of reformatting insurance or Medicaid plans to render emergency room visits more costly to the patient. This research is particularly germane to our study population, 69% of whom were covered by Medicaid or city welfare.

O'Grady et al. showed, in their experiment with four versions of a cost-sharing plan, each with a different coinsurance rate, that patients bearing any of the cost for an ER visit (whether a 25%, 50%, or 95% coinsurance rate) had significantly lower rates of ER use than those receiving free care. (4) The magnitude of this effect was triple for less urgent diagnoses compared to more urgent diagnoses. Low income participants were found to have higher ER expenses, controlled for the coinsurance rate than those in other income brackets. However, they were no more sensitive to cost-
sharing than higher income patients, possibly because their lower cost cap was more frequently exceeded. The authors state, however, that,

"Even though low income persons do not differ in their response to cost-sharing, however, changes in insurance coverage specific to emergency department care would have a greater impact on them, because they depend on the emergency department for a greater share of their health care." (4, p.489)

An even stronger deterrent to nonurgent ER use than cost-sharing is denial of care. A number of programs using this intervention have been studied. The programs are usually instituted in populations on Medical Assistance and function on the gatekeeper model, whereby funding for the patient's ER visit may be denied by the patient's primary physician. Studies have shown success in significantly decreasing the number of emergency room visits by program participants (58,59,60), with little or no concurrent change in numbers of hospital admissions (58,60), suggesting that urgent visits were not deterred.

However, a study at Children's Hospital of Pennsylvania, which included the closest follow-up of patients who were denied emergency room care, found 19% of patients unreachable via telephone or their primary care physician (PCP) over the 1-3 days following their visit; an additional 26% did not keep their follow-up appointments. In addition to the 45% with no
obtainable follow-up, two patients required hospitalization, three needed further referral, and another seven were believed by their PCP to have been inappropriately triaged in the ER. The hospital terminated the policy of refusing ER treatment due to unacceptable outcomes. (61)

Thus, the use of financial obstacles as disincentives to emergency room care, whether via co-payment or denial of nonurgent care, is questionable. While often powerfully effective as a deterrent to nonurgent care, the risk of deterring or preventing people from seeking care for urgent problems is a real one. Only in populations with excellent follow-up potential would this risk be minimized, and few would consider the ER-using population in this class.

Alternate Sites of Care

Other investigators have examined the effect of providing alternative sites or systems of care, instead of limiting the supply of ER services. In 1971, Hochheiser et al. studied the effect of a neighborhood health center on the use of the pediatric ER at four hospitals in Rochester, New York. They found a decrease of 38% in the number of pediatric ER visits by patients living in the area served by the center, but no decrease in the number of visits by the patients living elsewhere. The decrease in utilization was not associated
with the time of the center's opening, but with the institution of comprehensive services and a community outreach program. (62)

A different experiment in providing an alternative to emergency room care was undertaken at the Arizona Health Sciences Center with the institution of a "Fast Track" urgent care center within the ER of a teaching hospital. Such a solution had been suggested by previous investigators (25). Nonurgent patients were triaged to the Fast Track by the triage nurse. The service operated on weekends and weekday evenings using two examining rooms, and was staffed by one nurse devoted solely to the Fast Track, and one resident. The program proved to be successful except when the ER was overloaded with acutely ill patients, at which time it was canceled for the day. For Fast Track patients, turnaround time was greatly reduced, satisfaction improved, and no patients required admission. No data, however, were provided on non-Fast Track patients. (63)

APPLYING THE INTERVENTIONS

Thus, models are available if restructuring of health care delivery systems is determined to be the best approach to reducing the emergency room overcrowding. Overcrowding, however, is not the only problem with the increasing numbers
of nonurgent users of the ER.

**Primary Care in the ER**

Emergency room pediatric care also compromises the quality of health care delivered. One five year old child in this study had made six YNHH ER visits for pharyngitis within a two year period, each between 7 and 8 pm. On all visits the patient was treated for strep throat infection, but none of the throat cultures was positive. Did the child's parent know this, or, less likely, the child's regular health care provider? Another four year old boy had made 17 health care encounters (including 9 ER visits) by the age of 16 months, yet at that time was found to be behind on immunizations. Another child in this study was seen in the ER during the index visit for recurrent otitis media. The ER physician noted that the patient was on prophylactic Amoxicillin, yet according to the patient's PCC chart, he was actually taking Bactrim prophylactically. Such a piece of information would certainly have influenced treatment choice. These are a few examples of the effects of the loss of comprehensiveness and integration of care which arises as a result of use of the ER for primary care needs.

Seventy seven percent of the visits in this study were avoidable. The question we have tried to address is: how are
these visits avoidable? We found that convenience played a large role for a modest number (~25%) of parents (many of whom were able to go to the doctor during daytime hours), though a contributing role for a larger number. While reorganization of existing ER facilities to serve a nonurgent visit population would certainly solve the overcrowding problem, it would not ameliorate the problems of discontinuity of care, and would not address the two more important contributors to avoidable ER use: misperception of the role of the ER and misperception of urgency.

**Patient-Provider Communication**

This study has documented that misperception of the role of the ER plays a major role in avoidable ER visits, and that there is widespread misperception of the role of the ER by parents who made both urgent and nonurgent visits. One previous study attempted to educate patients in the ER regarding its appropriate use. (19) While this is a valuable intervention, discussion of the role of the ER and of the proper procedure to follow in the event of a child's illness, would be much more valuable if undertaken during the child's routine health maintenance visits with the regular primary care provider. The role of the primary care physician in advising parents about illness and providing illness care should be reinforced by both the physician and nurses at the
child's regular place of care.

In addition, every effort should be made to insure that ER visits for urgent or nonurgent health needs are followed up with the child's regular health care provider. Even if the child's medical problem does not warrant prompt follow up, ER visits and other health care encounters should be discussed at the child's regular appointments. Not only would this begin to address changing the parent's patterns of use of the ER, but it would also increase the integration of the child's health care. The number of ER visits a child makes, as well as diagnosis and treatment for each ER visit, bear significantly on the child's health status and should be considered in his or her ongoing medical care. However in our study, only 16% of index visits by PCC patients (and 18% of total past ER visits by PCC patients in the study) were followed up or mentioned in the patient's medical record.

Identifying High Risk Families

While behavioral and educational interventions would probably benefit most parents of young children, we have identified a subset of children and parents at higher risk for nonurgent/avoidable use of the ER. Major risk factors include: high levels of parental confidence in matters of child health, parental reliance on experience rather than
their child's doctor for child health information, reliance on the ER instead of the child's doctor for telephone advice, patterns of frequent past use of the emergency room, and gender of the child (male), and to a lesser extent, age (over three), high frequency of sick visits relative to routine checkups, and parental less than excellent health. It would not be difficult to administer a short questionnaire to each parent at the pediatrician's office or pediatric clinic, in order to identify those at high risk. It remains to be seen whether those parents who rely least on the doctor for knowledge and advice can be drawn into an improved patient-provider relationship by targeting of counseling and educational materials. In addition, it is unclear whether non-reliance on the physician for advice is causally related to inappropriate ER use, though this seems very plausible. Future investigations should determine whether a change in the quality of the parent-provider relationship and improved parent-provider communication (including increased parental reliance on the child's physician for advice) can reduce the inappropriate use of health care facilities. A study of this sort would measure whether an intervention can change not only parental perception of child health and illness and the reported degree of reliance on the child's physician for knowledge and advice, but also patterns of use of health care facilities.
Beyond targeting of specific counseling toward high risk parents, general education programs in matters of child health also can be valuable. Such programs, specifically video presentations, have been shown to be effective in increasing understanding of child illness and improving patterns of health care seeking by parents. Given the often lengthy waiting periods at child health clinics (and ERs), and also probably at pediatricians' offices, their inclusion in any setting of pediatric primary care delivery is worth pursuing.

**Telephone Availability**

Lastly, because half of our study patients were Yale Primary Care Clinic patients, the findings bear on the way in which pediatric residents' clinics operate. Wilson et al. (65) studied the residents' primary care clinic of the Johns Hopkins pediatric residency program and found that the primary care provided fulfilled Starfield's four attributes of primary care (accessibility, integration, comprehensiveness, and longitudinality).

Based on the recommendation of the Select Panel on Child Health regarding telephone availability of pediatricians, however, the YNHH PCC falls short. After clinic hours, calling the ER becomes the substitute for calling the clinic for advice. Indeed, 40% of PCC parents cited the ER as a
regular source of phone advice. Two PCC parents were able to reach their child's doctor through his or her beeper, via a special arrangement. It is important that arrangements for telephone coverage should become more formalized. For example, five residents could share responsibility for answering telephone calls from the parents of their patients on every fifth night and weekend. The hours of such coverage could be restricted to evenings (i.e., 5 - 10 pm) to allow for "some time during the day when families can consult over the telephone about general areas of concern" (Select Panel Recommendation, 50, p.214), yet minimize the added burden to pediatric residents. The ER could then be used as a stopgap for calls after 10 pm. Various systems of telephone coverage have been implemented in different residency programs, and the system should certainly be tailored to the particular program. The addition of telephone availability is essential to the delivery of pediatric primary care by a residents clinic.

In conclusion, this investigation has found that parental misperception of illness urgency, and misperception of the role of the ER both play large roles in the nonurgent/avoidable use of the pediatric ER, while convenience and scheduling issues play less of a role in this population. Reorganization of existing health care facilities, for example the creation of an evening urgent visit clinic or a bipartite pediatric ER, would alleviate problems of ER overcrowding and
serve the needs of children with acute but nonemergent health problems, and those whose parents are unable to make daytime visits. However this is only a partial solution. Health care provision would still be fragmented and episodic; lack of familiarity and communication between patient and physician as well as lack of availability of past medical records and follow up would continue to compromise the quality of care. Before large scale restructuring decisions are made, the effectiveness of education and counseling in the setting of the child's primary care provider should be investigated.
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APPENDIX A

DEFINITION OF BONA FIDE EMERGENCY (31)
American College of Emergency Physicians, adopted 10/23/82

We feel that a patient has made an appropriate visit to an emergency department when: An unforeseen condition of a pathophysiological or psychological nature develops which a prudent layperson, possessing an average knowledge of health and medicine, would judge to require urgent and unscheduled medical attention most likely available, after consideration of possible alternatives, in a hospital emergency department. This would include:

1. Any condition resulting in admission of the patient to a hospital or nursing home within 24 hours.
2. Evaluation or repair of acute (less than 72 hours) trauma.
3. Relief of acute or severe pain.
4. Investigation or relief of acute infection.
5. Protection of public health.
6. Obstetrical crises and/or labor.
7. Hemorrhage or threat of hemorrhage.
8. Shock or impending shock.
9. Investigation and management of suspected abuse or neglect of person which, if not interrupted, could result in temporary or permanent physical or psychological harm.
10. Congenital defects or abnormalities in a newborn infant, best managed by prompt intervention.
11. Decompensation or threat of decompensation of vital functions such as sensorium, respiration, circulation, excretion, mobility or sensory organs.
12. Management of a patient suspected to be suffering from a mental illness and posing an apparent danger to the safety of himself, herself, or others.
13. Any sudden and/or serious symptoms which might indicate a condition which constitutes a threat to the patient's physical or psychological well-being requiring immediate medical attention to prevent possible deterioration, disability, or death.
APPENDIX B

CODE:

DATE:

LOCATION:

SHIFT:

1. Why did you bring [name] in today? open-ended

2. How long has he/she had this open-ended
   [chief complaint]?

3. What made you choose this time in open-ended
   particular to come in?

3a. [If no answer given or vague, say:] Here are some answers that
   other people have given. Are any of these true for you?
   
   __I thought this was an emergency 1
   __[Name] just became sick 2
   __[If not 9am-4pm] [Name] was sick earlier but we couldn't come in during the day.
   __[Name]'s symptoms changed or got worse. 4
   __I expected [name] to get better but he/she hasn't. 5
   __I thought that the wait would be shorter at this time than at other times. 6

4. [If not 9am-4pm] What is the reason you didn't wait until daytime hours tomorrow to come in? (Choose the one answer which was most important in this decision.)
We are unable to come in during daytime hours. [Name] is too uncomfortable. It might be dangerous to [name]'s health to wait that long. Other: specify________________________

5. [If "unable to come in" in 3 or 4] open-ended
   Why?
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

7. Did you speak to anyone about [name]'s [chief complaint] who suggested you come here now?  
   __yes 1  
   __no 0

7a. [If yes to 7] Who? open-ended
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

8. Did you try to telephone here or any other medical personnel before you came in?  
   __yes 1  
   __no 0

8a. [If yes to 8] Whom did you call? open-ended
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

8b. [If yes to 8] What did the person you spoke to say? open-ended
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

8c. [If, in 8b, the patient was advised not to come to the doctor] open-ended
   What made you decide to come in to the ER/PCC anyway?
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

8d. [If no to 8] Why didn't you call a doctor? open-ended
   [If no answer or vague, say:] Here are some answers other people have given. Are any of them true for you?
   __I thought this was an emergency. 1
   __I didn't think of calling. 2
   __I knew I would need to come in anyway. 3
I don't have anywhere to call at this hour. I could call [name]'s doctor but:
- This is not something they could take care of.
- I didn't want to bother them.
- I don't have a telephone.

9. Do you believe [name] needs medical attention:
   - immediately (w/in mins) 1
   - urgently (w/in 1-2 hrs) 2
   - promptly (w/in 2-12 hrs) 3
   - soon (w/in 24 hrs) 4
   - fairly soon (w/in days) 5

10. Do you believe [name] is:
    - dangerously sick 1
    - very sick 2
    - moderately sick 3
    - mildly sick 4
    - hardly sick 5

11. How uncomfortable would you say [name] is as a result of his/her [chief complaint]?
    - very uncomfortable 1
    - moderately uncomfortable 2
    - mildly uncomfortable 3
    - hardly uncomfortable 4

12. Did you give [name] any medication today for his/her [chief complaint]?
    - yes 1
    - no 0

12a. [If yes to 12] What? open-ended

13. How did you get here?
    - our own car 1
    - borrowed a car 2
    - got a ride from someone 3
    - bus 4
    - taxi 5
    - ambulance 6
    - walked 7
14. How long did your trip take?

- < 15 minutes 1
- 15 - 30 minutes 2
- 30 - 60 minutes 3
- > 1 hour 4

15. Why did you choose to come specifically to the emergency room?  

open-ended

16. Others have given the following reasons. Could you tell me whether each one influenced your decision to use the emergency room? Please answer yes or no for each one.

a. The ER is the only place [name]'s condition could be handled.  
   - yes 1
   - no 0

b. [Name] does not have a regular doctor or source of medical care.  
   - yes 1
   - no 0

c. [Name]'s doctor or clinic is not available at this time.  
   - yes 1
   - no 0

d. [Name]'s condition couldn't wait until his/her doctor is available.  
   - yes 1
   - no 0

e. This is the best time for us to come in.  
   - yes 1
   - no 0

f. The emergency room is the best place for a [chief complaint] to be treated.  
   - yes 1
   - no 0

g. The emergency room is less of a problem financially (in terms of money) than other places we might go.  
   - yes 1
   - no 0

h. The quality of medical care here is high.  
   - yes 1
   - no 0

i. The speed of service here is good.  
   - yes 1
   - no 0
j. I don't need to make an appointment here.  

k. I am more familiar with the ER than with other medical facilities.  

17. [If not 9am-4pm] Where would you have brought [name] for this [chief complaint] at 10 in the morning?  

17a. [If "couldn't have came in"] Why not?  

18. Ideally, where would you prefer to bring [name] for this problem?  

19. I know that you brought [name] in today because of his/her [chief complaint]. Is there any other concern you'd like to discuss with the medical staff?  

NOW I'D LIKE TO ASK YOU SOME QUESTIONS ABOUT YOUR EXPERIENCES WITH DOCTORS BEFORE TODAY. FIRST I NEED TO KNOW A LITTLE BIT ABOUT YOU.  

20. How are you related to [name]?  

21. Are you the main person taking care of him/her?  

21a. [If no to 21] Who is?  

___yes 1  
___no 0  

___yes 1  
___no 0  

___We couldn't have come in.  
___the emergency room  
___[name]'s regular doctor  
___other location 9  

open-ended  

open-ended  

___"hidden agenda" 1  
___no "hidden agenda" 2  

___mother 1  
___father 2  
___other relative 3  
___other: specify 9  

___yes 1  
___no 0  

open-ended
21b. [If yes to 21] Is there anyone at home who helps you taking care of [name]?  

[ ] yes 1 [ ] no 0

22. Does [name] have a regular doctor or place of medical care?  

[ ] yes 1 [ ] no 0

22a. [If yes to 22] What is it?  

open-ended

23. Is that where you usually take him/her for checkups?  

[ ] yes 1 [ ] no 0

24. Is that where you usually take him/her when he/she is sick?  

[ ] yes 1 [ ] no 0

24a. [If no to 24] Why not?  

open-ended

24b. [If no to 24] Have you ever taken him/her there for an illness?  

[ ] yes 1 [ ] no 0

25. How many visits has he/she made to [22a] in the last 12 months?  

open-ended

26. How many of those visits were due to illness?  

open-ended

27. Does [name] see the same doctor during each visit to [22a]?  

[ ] always 1 [ ] usually 2 [ ] sometimes 3 [ ] always a different doctor 4

27a. [If not "always different"] What is the doctor's name?  

[ ] can name 1 [ ] can't name 2

28. How satisfied are you with the care [name] gets at [22a]?  

[ ] very satisfied 1 [ ] moderately satisfied 2 [ ] somewhat satisfied 3 [ ] not satisfied 4
28a. [If not "very satisfied"] What is the biggest problem with the care at [22a]?

open-ended

29. At these visits, do you have enough time to explain your concerns and ask questions?

_always_ 1
_usually_ 2
_sometimes_ 3
_never_ 4

29a. [If not "never" to 30] Do you feel they are taken seriously?

_always_ 1
_usually_ 2
_sometimes_ 3
_never_ 4

30. Have you ever discussed the following things with [name]'s doctor at [23a]?

_have you ever discussed the following things with [name]'s
doctor at [23a]?

_a. safety precautions?.__yes_ 1

_b. behavioral problems?.__yes_ 1

30c. [If "no" to 31a or 31b] Have you ever wanted to?

__yes_ 1
__no_ 0

31. Which of the following statements most closely describes what you believe are the responsibilities of [name]'s regular doctor? Please listen to each of the three statements and then tell me which one you agree with.

__A child's regular doctor is responsible for well child care, including regular checkups and immunizations (shots). 1

__A child's regular doctor, in addition to well child care, is responsible for treating the child when he or she is sick. 2

__In addition to well child care and sick child care, the doctor should provide information, advice, and support to parents. 3

Would you like me to repeat them once?

32. Would you say [name]'s health in general is:

__excellent_ 1
__very good_ 2
33. Has [name] ever been so ill that you were concerned for his/her life?
   ___good 3
   ___fair 4
   ___poor 5
   ___yes 1
   ___no 0

33a. [If yes to 33] What did he/she have? open-ended

33b. [If yes to 33] How old was [name] when this happened? open-ended

34. Has [name] ever been hospitalized?
   ___yes 1
   ___no 0

34a. [If yes to 34] Why? open-ended

34b. [If yes to 34] When? open-ended

FOR THE FOLLOWING TEN STATEMENTS, PLEASE SAY WHETHER EACH IS DEFINITELY TRUE, MOSTLY TRUE, MOSTLY FALSE, OR DEFINITELY FALSE

35. In general, [name] seems less healthy than other children of the same age.
   ___definitely true 1
   ___mostly true 2
   ___mostly false 3
   ___definitely false 4

36. I often think of calling the doctor about [name].
   ___definitely true 1
   ___mostly true 2
   ___mostly false 3
   ___definitely false 4

37. When there is something going around, [name] usually catches it.
   ___definitely true 1
   ___mostly true 2
   ___mostly false 3
   ___definitely false 4

38. [Name] usually has a healthy appetite.
   ___definitely true 4
   ___mostly true 3
   ___mostly false 2
   ___definitely false 1
39. Sometimes I get concerned that [name] doesn't look as healthy as he/she should. 
   __definitely true 1 __mostly true 2 __mostly false 3 __definitely false 4

40. [Name] usually gets stomach pains or other sorts of pains.
   __definitely true 1 __mostly true 2 __mostly false 3 __definitely false 4

41. I often have to keep [name] indoors because of health reasons.
   __definitely true 1 __mostly true 2 __mostly false 3 __definitely false 4

42. [Name] seems to have as much energy as other children of the same age.
   __definitely true 4 __mostly true 3 __mostly false 2 __definitely false 1

43. [Name] gets more colds than other children of the same age.
   __definitely true 1 __mostly true 2 __mostly false 3 __definitely false 4

44. I get concerned about circles under [name]'s eyes.
   __definitely true 1 __mostly true 2 __mostly false 3 __definitely false 4

45. Where does your child spend most of the day?
   __at home 1 __somewhere else 2

45a. [If "at home"] Who takes care of your child most of the day?
   __you 1 __someone else 2

46. From whom or where do you get most of information about child health?
   (Please answer only one.)
   __prior experience 1 __friends 2 __relatives 3 __doctor/clinic 4 __the ER 5 __books 6 __television 7 __other: specify 9

47. How many children have you had? open-ended

48. How many are now part of your household? open-ended

49. How many are older than [name]? open-ended
50. How old is the oldest? open-ended

51. How satisfied are you with your knowledge of child health?
   _very satisfied 1
   _moderately satisfied 2
   _somewhat satisfied 3
   _not satisfied 4

52. How confident are you in your ability to judge how serious your children's illnesses are?
   _very confident 1
   _moderately confident 2
   _somewhat confident 3
   _not confident 4

53. Have you ever gone to parenting classes?
   _yes 1
   _no 0

54a. [If no to 54] Would you be interested in going if they were available?
   _yes 1
   _no 0

55. Do you have a thermometer at home?
   _yes 1
   _no 0

55a. [If yes to 55] Do you ever have any difficulty reading it?
   _always 1
   _sometimes 2
   _never 3

56. There is a medicine called Syrup of Ipecac which doctors often prescribe to families of young children. This syrup is given to make children throw up in case they accidentally swallow something poisonous. Have you ever heard of Syrup of Ipecac?

56a. [If yes to 56] Do you have Syrup of Ipecac at home?
   _yes 1
   _no 0

58. Have you ever brought [name] to the emergency room [if ER] before today?
   _yes 1
   _no 0

58a. [If yes to 58] Were any of those visits for a [chief complaint]? _yes 1
58b. [If yes to 58a] Had you been advised by a doctor or doctor's office to bring [name] into the emergency room? _yes 1 _no 0

58c. [If no to 58a or 58b] Have you ever been advised by a doctor or doctor's office to bring [name] into the emergency room? _yes 1 _no 0

58d. [If yes to 58c] What was [name] sick with at that time? open-ended

ASK 59 IF THERE ARE OTHER CHILDREN

59. Have you ever brought any of your other children into the emergency room? _yes 1 _no 0

59a. Were any of those visits for a [chief complaint]? _yes 1 _no 0

59b. [If yes to 59a] Had you been advised by a doctor or doctor's office to bring the child into the emergency room? _yes 1 _no 0

60. [If yes to 58] How many times has [name] been seen in the emergency room in the last 12 months open-ended

60a. [If yes to 58] How satisfied have you been with the care [name] has received in the emergency room? _very satisfied 1 _moderately satisfied 2 _somewhat satisfied 3 _satisfied 3 _not satisfied 4

60b. [If not "very satisfied"] What is the biggest problem with the care in the emergency room? open-ended

61. [If yes to 50 or 51] How do you feel the quality of care in the emergency room compares to the quality of care at [name]'s regular place of care [if different]? _better 1 _the same 2 _worse 3
62. Which of the following statements most closely describes what you believe is the function of the pediatric emergency room? Please listen closely to each of the four, and then tell me which which one you agree with.

_The emergency room is meant only for conditions which require prompt or emergent treatment._
_The emergency room is meant for care of sick children when their regular doctor is not available._
_The emergency room is meant for care of sick children at all times._
_The emergency room is meant for any kind of care at all times._

Would you like me to repeat them once?

ASK 63-64 ONLY TO THOSE CHAPERONES WHO DID NOT ATTEMPT TO TELEPHONE BEFORE THE CURRENT VISIT.

63. Have you ever called a doctor or medical office with a concern about any of your children?  

_yes__ 1  
_no__ 0  

63a. [If yes to 63] Whom have you called?

open-ended

63b. [If no to 63] If you wanted to reach a medical professional by phone regarding a concern about [name], whom would you call?

open-ended

64. Doctors sometimes recommend calling ahead before making an unscheduled but non-emergency visit to any health care facility. Have you ever been told this?  

_yes__ 1  
_no__ 0  

65. Is there a phone available at home?  

_yes__ 1  
_no__ 0
66. How important are concerns about cost in your decisions about taking [name] to a doctor?

- very important 1
- moderately 2
- somewhat 3
- important 4
- not important 4

WE'RE ALMOST FINISHED. I NOW HAVE A FEW IMPORTANT QUESTIONS TO ASK YOU ABOUT YOU / THE MAIN PERSON TAKING CARE OF THIS CHILD (TMPTCOTC)

67. How old are you / is TMPTCOTC?

open-ended

68. What is your marital status / the marital status of TMPTCOTC?

- single 1
- married 2
- divorced 3
- separated 4
- widowed 5
- engaged 6

69. What was the last grade you completed in school / TMPTCOTC completed in school?

open-ended

70. Are you employed / Is TMPTCOTC employed?

- full-time 1
- part-time 2
- no 3
- in school 4

71. Would you say your health in general is:

- excellent 1
- very good 2
- good 3
- fair 4
- poor 5
72. How do you usually pay for this child's medical care?

- out-of-pocket
- private insurance
- Medicaid
- other: specify

73. Including all sources of income, which category best represents the total combined family income during the last 12 months?

- < $5,000.
- $5,000. - $9,999.
- $10,000. - $14,999.
- $15,000. - $19,999.
- $20,000. - $24,999.
- $25,000. - $29,999.
- $30,000. - $34,999.
- > $35,000.

THE FOLLOWING INFORMATION WILL BE TAKEN FROM THE PATIENT'S CHART:

74. Child's race:

- black
- white
- asian
- native american
- other: specify

75. Child's sex

- male
- female

76. Child's age:

open-ended

77. Hispanic?

- yes
- no
APPENDIX C

PHYSICIAN URGENCY RATING SHEET

1. When you first saw this patient, before you did a detailed assessment, you felt that attention was required:

___ immediately (within minutes)
___ urgently (within 1-2 hours)
___ promptly (within 2-12 hours)
___ soon (within 24 hours)
___ fairly soon (within days)
___ did not need medical attention

2. What was the discharge diagnosis relative to the chief complaint?

3. Was the patient:

___ admitted ___ expired in ER
___ discharged ___ left against advice
___ transferred ___ left without being seen

4. Retrospectively, after the patient left or a diagnosis was established, you felt the problem merited attention:

___ immediately (within minutes)
___ urgently (within 1-2 hours)
___ promptly (within 2-12 hours)
___ soon (within 24 hours)
___ fairly soon (within days)
___ did not need medical attention

5. In your estimation, this patient could have been treated adequately:

___ only in a hospital ER
___ in a hospital clinic
___ in a doctor's office
___ at home
___ other __________________

6. If you chose an alternative to the emergency department (question #5), was it available to the patient within the time it took to arrange a disposition?

___ yes
___ no
___ don't know
APPENDIX D
CODING OF RESPONSES TO SELECTED OPEN ENDED QUESTIONS

3. What made you choose this time in particular [to come in]?

SYMPTOM RELATED

- emergency
- new onset of symptoms
- change or worsening of symptoms
- expected improvement (with or without medicine)
  - but condition hasn't improved
- high level of discomfort
- anticipated sleepless night

CONVENIENCE

- convenient timing
- short wait expected
- other child also sick
- was already in the hospital visiting
- was already in the neighborhood
- got a ride
- just got out of work or school

DOCTOR'S ADVICE

3

MISSING THE DOCTOR AT THE OFFICE

4

FRIEND'S ADVICE

5

8b. [For parents who did call before coming in] What did the person you spoke to say?

TOLD TO COME TO THE ER

1

TOLD TO COME TO THE OFFICE OR CLINIC

2

TOLD TO WAIT UNTIL THE MORNING

3

TOLD MD WAS CLOSED / NO ANSWER / DIDN'T CALL BACK

4

PUT IN TOUCH WITH COVERING MD

5
8c. [If advice wasn't followed] Why did you decide to come to the ER anyway?

DISSATISFACTION

Didn't talk to a doctor
Not satisfied with advice

GOT A RIDE AT THIS TIME

DID GO TO REGULAR DOC BUT WAS TOO FULL

8d. Why didn't you call a doctor?

CHILD NEEDS A DOCTOR

A. Symptom related

Can't stand to see my son like this
Spur of the moment, emergency
Thought it was an emergency
Child is in pain

B. Child needed to see a doctor

She gets an ear infection whenever she gets a cold
I know, I'm the mother
This can't just be a cold
Knew would be advised to come right in
Nine out of ten times told to come in

COMING IN IS BETTER THAN CALLING

A. Phone is a poor substitute for calling

They'd just tell him to take Tylenol
By the time they answered, we could be here
No results over the phone
Don't want guessing over the phone
They tell you stuff that don't work
Would have been told the same thing as yesterday (instructions)

B. Better to bring child in than to call

Would have brought her in anyway - it's full service
Thought it was better to bring him in
When it comes to my kids, I ain't telephoning, I'm just coming
I'd rather she be seen
Wanted to come in, not call
PATTERNS OF ER USE

A. Always come here

I just come
I just bring him in
Always come to the hospital
I have a car so I came in
Thought I'd come here first
Last time was told to come in (with a head bump)

B. Didn't think of it

Didn't think of it
Was trying to handle it at home

C. No phone

OTHER'S ADVICE

Spoke to my mother
The school nurse called me
The pharmacist I worked for told me to bring her in

DOCTOR ISN'T AVAILABLE

Told that Hill Health Center is closed today
Hill Health Center closes at 4 pm
Doctor isn't in today
Nowhere to call. Doctor closed down
Doctor isn't available until Wednesday
15. Why did you choose the emergency room?

DOCTOR UNAVAILABLE

A. Doctor is unavailable

Doctor won't see him at 5 pm
PCC (Primary Care Center) is not open
Doctor is closed today
Where am I going to take her?
It's the only thing open
Where I normally take her is closed
Nowhere else to go now
Couldn't reach the doctor
Where else do you go at 10 pm?
Only place I can come at night

B. Child has no doctor

We have no pediatrician in the area
Have nowhere else (been in New Haven 1 week)
New here. No doctor yet
Only place he goes to the doctor around here
Got nobody else

MEDICAL SITUATION

Can't wait
I think he needs prompt attention
Needed to be seen right away
Condition of the child
Didn't want to wait any longer
Needed to be seen now
Child is sick
Emergency
This is serious

POSITIVE VIEW OF ER / ER PREFERABLE TO CHILD'S DOCTOR

His doctor doesn't give anything for a cold
Weren't satisfied with the doctor's advice on
  the phone - feel put off
Always get good service here
Thought this was the best place
Good results last time
You need an appointment in clinic
I knew she could be seen here
Yale is the best
Figured he'd get better care here
Didn't want to go his regular doctor
It's better over here than at the health center
You have to wait in clinic
You get seen quicker here
Yale is the only place I'd take her
That's where she always comes when she's sick
We came over from the PCC, I always come here
If I call, they'd just tell me to go the ER
This always happens at night
I bring all my kids here
Always come here when he's sick
This is where I usually bring her
You're suppose to come here at this hour
That's where I always come when she's sick at night
He goes to the PCC, his doctor is usually in the ER

Didn't want to wait until tomorrow
Covering doctors are too far away
Convenient
It's the only place open at night when I get off work
Only closest place to home
It's around the corner
We couldn't get to her doctor
Dad's insurance covers ER better than doctor's bills
Couldn't go to regular doctor (no medical card)

Doctor told me to come in
24. [For those who do not regularly use the child's doctor for sick care] Why not?

   NEED APPOINTMENT FOR THE REGULAR DOCTOR 1
   ER IS BETTER DEPENDING ON THE SEVERITY OF THE ILLNESS 2
   ER IS A MORE CONVENIENT LOCATION 3
   CHILD MOSTLY GETS SICK AT NIGHT 4
   ER IS BETTER 5

28a. [For those who are less than very satisfied with the child's regular doctor or clinic]: What is the biggest problem with the care?

   BAD ATTITUDE 1
     Snotty
     Snobby
     No respect
     Not friendly with kids

   INEFFECTUAL / POOR TREATMENT 2
     Get nothing done
     Not enough attention
     It's all an experiment
     You see a different doctor each time

   INCONVENIENCE 3
     You can't go when you want to

60b. [For those who are less than very satisfied with the ER]: What is the biggest problem with the care?

   WAIT / SLOW SERVICE 1
   BAD ATTITUDE / IMPERSONALITY / HURRIEDNESS 2
   PREFERENCES REGULAR MD 3
   OTHER 4

     Poor triage
     Bad waiting room atmosphere
     Too many procedures
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