
Survey of Telephone Encounters in Three Pediatric Practice Sites

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REQUESTS FOR MEDICAL CONSULTATION by telephone represent a significant portion of all physician encounters (estimated at 11 percent), and this proportion is doubled when contacts specific to children are considered (1). According to one study, practicing pediatricians spend one-eighth of their working time on the telephone (2). Despite this high demand for telephone service, little is known about the nature of the telephone encounters. Studies of present practice, using simulated complaints or "shill calls," point up serious deficiencies in telephone management of patients by practicing pediatricians (3,4). Moreover, pediatric training programs apparently do not improve the competence of house officers in diagnosing complaints of pediatric patients by telephone (5,6). Efforts to improve telephone services have been hampered by the absence of systematic data on the use of telephone consultation and by concern that uniform recommendations for managing this aspect of care are not feasible because of significant variation in individual physicians' telephone behavior (7) or in the care-seeking practices of particular populations of patients served (8).

As part of an attempt to develop a new system for providing telephone services (9) at the Children's Hospital Medical Center in Boston (a paraprofessional

administering health protocols), we surveyed telephone encounters in the emergency room (ER) during three seasons of the year. To assess whether these findings could be generalized to structurally different pediatric settings that serve different population subgroups, a more limited survey of telephone calls to a suburban private pediatric group practice and a large prepaid group practice was subsequently carried out during two of these seasons. The findings on the nature of telephone encounters in these three general pediatric programs are presented here.

Methods

The survey was designed to ascertain (a) a description of the types of telephone requests and (b) the outcome or disposition of the encounter. In the ER, calls were sampled from 9 am to 11 pm on weekdays and 9 am to 5 pm on weekends. (In the initial phase of the survey, calls also were sampled from 11 pm to 8 am, but so few calls were received that monitoring was discontinued during these hours.) In the two group practices, calls were sampled during practice hours (9 am to 5 pm on weekdays). At each site, all calls received during specific time intervals were monitored to conform to a sampling frame designed to sample intervals equally by time of day and day of week. The research staff obtained informed consent from 3,265 callers and transcribed their conversations verbatim. Fewer than 5 percent of the callers refused to grant consent during the sampling intervals. Provider staff in the three settings had given blanket consent for the study, but they did not know when calls were being monitored.

Seven survey periods were included. The first was a 3-week interval in August 1975 in the ER. The remaining survey data were collected at each of the three sites during 2-week intervals between January and May

At the time this work was done, Dr. Levy and Dr. Lamb were co-principal investigators, Ms. Strasser was project director, and Dr. Rosekrans, Dr. Friedman, Dr. Kaplan, and Dr. Sanofsky were members of the research staff of a study on development of pediatric telephone protocols, Children's Hospital Medical Center, Boston. The study was supported by grant No. HSO 1705 2 from the National Center for Health Services Research, Department of Health, Education, and Welfare.

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1976. The group practice sites were the Harvard Community Health Plan (Kenmore Center) Pediatrics Center, a large urban health maintenance organization (HMO), and Dedham Medical Associates (a private group practice). The distribution of calls by site and by season follows:

Site	Summer	Winter	Spring	Total
Emergency room	619	468	418	1,505
Health maintenance organization	0	738	511	1,249
Private group practice	0	297	214	511
Total	619	1,503	1,143	3,265

Results

Chief complaints. Nearly three-fourths (73 percent) of all calls were for advice or information on the management of symptomatic children. The remaining 27 percent of the calls were not related to current symptoms—they were requests for information about medication, laboratory results, health maintenance, or illness. When the 2,136 “illness” calls were classified according to chief complaint, 85 percent concerned 5 complaint categories—respiratory, fever, gastrointestinal system, skin and infectious disease, and trauma (table 1).

For the distribution of chief complaints in the three settings (table 2), only winter and spring survey data are included, because the summer subsurvey was conducted only in the ER. For each site, the five chief complaint categories previously mentioned accounted for 85 to 90 percent of all calls about symptomatic children. The rank order of the complaint categories by frequency was the same, except that the ER received a higher proportion of calls regarding trauma, ingestions, and gastrointestinal complaints and a lower proportion of calls concerning respiratory illness. This finding was

surprising because, despite differences in organizational structure and populations served, the types of symptoms promoting calls were similar among the three sites.

To assess variations in chief complaints by season, we compared calls for each survey period in the ER where all three seasons were sampled (table 3). As expected, respiratory illness and fever calls peaked in winter, and problems relating to the skin, including insect bites,

Table 1. Chief reasons for telephone calls to three pediatric settings (all data combined)

Calls	Number	Percent
All calls	3,276	100
Related to current symptoms	2,399	73
Not related to current symptoms	533	16
Not stated or recorded (hung up or disconnected)	344	11
Symptomatic	2,136	100
Respiratory and associated	564	27
Upper respiratory and general	316	15
Related (earache, nosebleed)	132	6
Throat	98	5
Lower respiratory	18	1
Fever	435	20
Gastrointestinal	396	19
Skin, infectious disease	257	12
Trauma	174	8
Irritability and miscellaneous	141	7
Neurological and psychological	70	3
Ingestions, foreign bodies	56	3
Genitourinary	41	2
Not classified elsewhere	263	
Nonsymptomatic	522	100
Medication information	163	31
Laboratory results	140	27
Health maintenance information	114	22
Information about illness	105	20

Note: Figures do not total because some calls were for more than 1 symptom.

Table 2. Chief complaints by site (spring and winter combined)

Chief complaint	ER		HMO		PGP		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Respiratory	83	19	268	29	160	46	511	30
Fever	100	23	201	22	64	18	365	21
Gastrointestinal	93	21	178	19	36	10	307	18
Skin, infectious disease	39	9	102	11	26	7	167	10
Trauma	57	13	38	4	23	7	118	7
Irritability and miscellaneous	20	4	74	9	19	6	113	7
Neurological and psychological	16	4	33	4	9	3	58	3
Ingestions, foreign bodies	25	6	4	0	4	1	33	2
Genitourinary	11	2	15	2	6	2	32	2
Total	444	100	913	100	347	100	1,704	100

were more frequent during the summer. Once again, however, the five most common complaints in the combined surveys were the most common in each of the three seasons.

In 51 percent of all encounters, the caller focused on one complaint. A second complaint within the same

general category (for example, nasal congestion and cough) was reported by 12 percent, 23 percent reported fever and one other complaint. Only 14 percent of the callers reported two complaints referable to different symptom complexes. In sum, 86 percent of the calls related to a single category of illness, alone or associated

Telephone Triage: Time for the Bell to Stop Tolling

Despite the public health significance of telephone triage—up to one-third of all medical encounters (1)—there has been little investigation in this field. Perhaps this gap results from the fallacious assumption that primary care providers will automatically acquire expertise at telephone triage since they spend up to 3 hours of their working day doing it (2). An analogy can be drawn to many house staff training programs that, until recently, did not formally teach primary care. It was reasoned that if the physician could learn tertiary care, then surely adeptness at primary care, a lesser activity, would naturally ensue.

What is known about telephone triage can be summarized as follows:

1. When protocols are not used, most health care providers show serious deficiencies (3-5).
2. The level of medical knowledge or length of experience in performing primary care is not correlated with level of performance (4-6).
3. Mid-level health workers such as nurse practitioners are as good as, if not better than, physicians (6).
4. There is enormous variation in physicians' behavior on the telephone (7).
5. Protocols are safe, practical, and can be used by most health care providers (8).

What contribution is made by the accompanying paper, "Survey of Telephone Encounters in Three Pediatric Practice Sites"? The descriptive data provide the framework for

the development and validation of protocols (9,10) covering the great majority of calls about illness. Since the nature of calls was similar in three diverse practice settings, the feasibility and generalizability of this type of telephone management system was thus established. As with process-oriented medical audits, however, the protocols would need to be adapted to conform to local standards of medical practice.

Most workers feel that the use of protocols is the best way to achieve appropriate telephone medical advice and disposition. Secondary advantages of quality assurance monitoring, medical recordkeeping, and education are apparent. Yet, protocols are not a panacea. There will always be calls for which a protocol has not been written. Then, the problem of suboptimal triaging recurs, because high-quality triaging requires the combination of medical knowledge, interviewing skills, and patient education skills. The latter two are quite difficult to learn or to teach.

With or without protocols, it is crucial to ascertain that the caller understands the instructions, since avoidable morbidity occurs all too often when the instructions are vague or unclear. Courts recognize the liability of any provider who gives inappropriate or insufficient advice. While failure to document all recommendations is not, in itself, sufficient cause for litigation, it may become an important factor in such an action. In addition, patients often misunderstand or do not hear what they are told.

This paper raises several questions, such as why "30 per-

with fever. These findings underscore the potential utility of simple guidelines for telephone management, oriented to common chief complaints and including assessment of fever.

Dispositions. Of all the callers to all sites, 30 percent were advised to have their children seen by a physician. Disposition was related to type of complaint; only one-sixth of the calls related to allergy led to advice that the child be seen, while one-half of the children with neurological or psychological complaints were asked to come in. Providers in the prepaid group practice were less likely to advise medication than providers in the other two sites, but when they did suggest medication they were more likely to mention drugs that require prescriptions. In 7 of 10 calls, no medication was prescribed.

In the ER, where calls were handled by many different staff members, there was little variation by type of provider. Physicians and nurses spent the same amount of time talking to patients (about 2 minutes). There

were no differences by provider distributions of chief complaints or dispositions (treat children at home, bring children in, or refer callers to another medical facility). Nurses (18 percent) consulted with another provider more frequently than physicians (7 percent) and suggested medication less frequently (23 percent) than physicians (32 percent).

The ER staff often failed to obtain essential baseline information, regardless of who handled the telephone encounter. In 46 percent of the calls to the ER, the age of the child was neither offered by the caller nor elicited by the provider. In some instances, advice was given without adequate information. For example, antipyretics were prescribed for a 4-month-old infant with "high fever" without ascertaining the height of the fever or possible causes of it. Several anecdotes illustrate the somewhat cavalier management of potentially serious complaints:

1. The mother of a 2-month-old infant, with previously diagnosed pneumonia who had "trouble breathing and a high fever," was told to use nose drops.

cent of all callers to all sites were advised to have their children seen by a physician" when the literature predicts fewer visits for patients followed in primary care settings (7). Questions that other studies should address include:

1. Is reliability of information more accurate in higher SES groups?
2. How can the proxy use of the caller's eyes, nose, and ears be made more reliable?
3. How can one ascertain that the caller understands the advice given?
4. Is the level of understanding inversely correlated with the severity of the perceived problem?
5. How does telephone protocol-based advice compare with self-help or self-treatment books?
6. Is the nature of the telephone encounter, including disposition, different in pediatrics than in other specialties? If so, does it need to be?
7. Are protocols the best way to reduce unnecessary patient visits and safeguarding against too few?

There is a need for further clinical and health services research in this field. One hopes that the past attitude among potential investigators of "don't call me, I'll call you" has been laid to rest.

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Table 3. Chief complaint telephoned to an emergency room over three seasons

Chief complaint	Summer		Winter		Spring	
	Number	Percent	Number	Percent	Number	Percent
Respiratory	55	13	48	22	35	16
Fever	70	16	69	32	31	14
Gastrointestinal	89	21	44	20	49	22
Skin, infectious disease	90	21	16	7	23	10
Trauma	56	13	18	8	39	17
Irritability and miscellaneous	28	6	5	2	15	7
Neurological and psychological	12	3	9	4	7	3
Ingestion, foreign bodies	23	5	7	3	18	8
Genitourinary	9	2	3	1	8	3
Total	432	100	219	100	225	100

2. A caller reported that an 8-month-old-infant with otitis media, who was receiving antibiotics, was delirious and confused. This caller was not given further advice and was not asked to come in.

3. A caller seeking advice about treatment for constipation was told to use "a hot bath and clear fluids."

The wide variation in the amount of information elicited and advice given even for the same chief complaints, suggests a lack of consistency among individual providers and a lack of adequate training for providers handling telephone encounters.

Finally, the impersonal nature of care advice provided by telephone in the ER was apparent. Few providers identified themselves by name and little responsibility was taken for the subsequent care of the child on an individual basis.

Discussion

This survey of telephone calls to three ambulatory pediatric programs yielded three main findings:

1. A small number of complaints (respiratory, fever, gastrointestinal symptoms, skin and infectious disease, and trauma) accounted for most of the calls.
2. Despite some variation in the proportions of each complaint in each setting, the same complaints were the most frequent in all settings.
3. Apart from the expected increase in the number of calls pertaining to colds and fever in winter, other complaints remained about constant throughout the year.

These findings suggest that a more structured response to telephone demand for service is desirable. For example, from a profile of common calls to pediatric settings, we developed guidelines for management of the calls that can be adapted to the setting and to the severity of signs and symptoms reported (10). Such guidelines include (a) basic data to be collected for

each chief complaint category, (b) a range of appropriate dispositions, and (c) advice for home management when the child does not require an immediate medical visit.

Use of the telephone as an important component of, and adjunct to, pediatric care has been a neglected focus of clinical research. We believe the descriptive data presented can serve to focus attention on educational and service strategies to improve this aspect of care.

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