

## Reasons for after-hours calls

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### KEY POINTS FOR CLINICIANS

- High utilizers (6 or more calls per year) represented 0.6% of active patients but accounted for 23% of calls.
- The most common reasons for after-hours calls were medication refills and concerns, pain, issues of pregnant patients, and fever.
- The number of after-hours calls peaked in the spring and summer, and doubled on Saturdays.

Previous studies of after-hours calls to family physicians focused on caller demographics, medical triage skills, and patient satisfaction, and were usually conducted for a limited time. We examined the frequency and nature of calls to a family practice residency over 1 year. Caller and patient information, date, time, and chief complaint were obtained from answering service logs. The 5 most frequent chief complaints related to medications, pain, obstetric issues, fever, and nausea. Interestingly, 56 “high utilizers” (0.6% of all patients) accounted for 23% of the calls.

■ **KEY WORDS** Family practice; triage; emergency service. (*J Fam Pract* 2002; 51:567–569)

Although telephone calls may account for 10% to 25% of all patient contacts,<sup>1,2</sup> few studies have examined the frequency and nature of these calls over an extended time. A month-long study<sup>3</sup> found that patients who telephoned after hours were 3 times more likely to rate their problem in the highest severity category compared with the physician’s rating of the problem. This study, done in July, may not reflect the diversity of patient problems, because of seasonal variations; also, it did not appear to include obstetric problems, which are a prominent reason for calls to family practice physicians.<sup>4,5</sup> Many physician groups use answering services to screen calls as a method for decreasing the number of calls. The purpose of this study was to document the frequency and nature of after-hours calls to a family practice office over 1 year.

### METHODS

All after-hours telephone calls (5 PM to 8 AM, weekends and holidays) made to a freestanding community-based family practice training program were collected for the 12-month period between April 2000 and March 2001. A recorded message directed the caller to call 911 for a life-threatening emergency or stay on the line for operator assistance. Emergency calls were forwarded to the resident physician on call. Sixteen family medicine residents supported by 8 faculty physicians took primary calls on a rotating basis. The practice had approximately 9000 active patients (at least 1 visit in the last 3 years), and about 1350 patient visits per month. Approximately 30% were covered by Medicaid, 10% by Medicare, 35% by managed care, and 12% by indemnity insurance; 13% were uninsured.

The operator recorded date and time, caller’s and patient’s first and last names, primary care physician, patient’s pregnancy status, date of last office visit, chief complaint(s), and whether the caller felt the situation was an emergency.

Previous studies variously classified patient calls based on diagnostic group, chief complaint, symptom, treatment and medication, injury, and organ system affected.<sup>1,3,6–10</sup> We followed the lead of Benjamin<sup>8</sup> and Perkins and colleagues,<sup>1</sup> who used the patient’s chief complaint to categorize calls. We classified the patient’s chief complaint by searching for key words such as “heart” (eg, “fast heartbeat,” “pains near heart,” or “isn’t feeling well, heart failure a couple of years ago”). This allowed for the broad inclusion of chief complaints while avoiding the risk of premature diagnosis.

A research assistant entered information from the operator’s records into a Microsoft Access Database. Patients who called more than 6 times after hours during the year were arbitrarily defined as “high utilizers.” We also gathered data on these callers’ hospital emergency room visits and admissions to affil-

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**TABLE 1**

**Percentage of after-hours calls, by chief complaint**

Chief complaint	Number of complaints (%)*	
	All subjects except utilizers (n = 1564)	High utilizers (n = 56)
Medication	288 (15.1)	110 (19.7)
Pain	197 (10.3)	107 (19.1)
Obstetric†	195 (10.2)	32 (5.7)
Fever	191 (10.0)	28 (5.0)
Nausea/vomiting	108 (5.7)	31 (5.5)
Blood/bleeding	84 (4.4)	32 (5.7)
Infection	72 (3.8)	24 (4.3)
Stomach	70 (3.7)	16 (2.9)
Headache/migraine	67 (3.2)	19 (3.4)
Asthma/breathing	58 (3.0)	32 (5.7)
Back	55 (2.9)	16 (2.9)
Laboratory results	54 (2.8)	8 (1.4)
Cough	46 (2.4)	6 (1.1)
Eye	42 (2.2)	8 (1.4)
Diarrhea	41 (2.2)	7 (1.2)
Throat	38 (2.0)	6 (1.1)
Fall	36 (1.9)	10 (1.8)
Rash	34 (1.8)	3 (0.5)
Ear	33 (1.7)	7 (1.2)
Chest	30 (1.6)	19 (3.4)
<b>Total of top 20 complaints</b>	1739	521
All other complaints	625 (32.7)	184 (32.9)
Total complaints	2364	705
Total calls	1906	559
Multiple complaint calls	458 (24.0)	146 (26.1)
Average calls per subject	1.3	10.0

\*Information-only calls (n = 1073) not included.  
 †Includes nonobstetric problems in pregnant patients.

were used to classify them under chief complaint headings. If a caller had a multiple-symptom complaint (ie, fever and headache), it was classified under all appropriate headings and counted twice. The total number of complaints is therefore higher than the total number of calls. Table 1 presents the frequency and percentage of after-hours clinical calls for all subjects, and separately for high utilizers. Table 2 presents the average number of clinical calls organized by season and day of the week. Thirty-three percent of all calls were made by the patient, 31% by a proxy (spouse, parent, friend), and 36% by other parties (nurse, pharmacy, unidentified party).

Although the rankings of calls for all patients and high utilizers in Table 1 were similar, several differences stand out. High utilizers account for only 0.6% of patients, but 23% of all calls. High utilizers called substantially more for complaints relating to medication, pain, asthma/breathing and chest problems; 39% of their calls were for medication or pain concerns. Of the high utilizers, 39% (22/56) made 46 emergency room visits, but only 7% (4/56) were hospitalized during the year.

**DISCUSSION**

This study expands on previous work by describing the total variety of after-hours phone calls to a family practice office over an entire year. Our findings on reasons for call, time of call, and demographics are similar to those of previous work.<sup>3,10</sup> However, our study is one of the first to describe the subset of high utilizers. Introducing a patient health handbook, practice Web site, pharmacy help line, or other practice management tools might reduce the number of “information only” calls. Contrary to our expectation, the highest numbers of average daily calls were in the spring and summer and not in the winter. Saturdays and Sundays were the busiest days of the week for such calls.

Patients called for diverse clinical reasons (Table 1)

ated hospitals. The HealthOne Institutional Review Board approved the study.

**RESULTS**

A total of 3538 calls were made by 1564 patients; 2465 were clinical calls, and key words or phrases

**TABLE 2**

**Average number of clinical calls by season and day of week**

Season	Mon	Tue	Wed	Thur	Fri	Sat	Sun	Seasonal average
Winter (Dec–Feb)	8.9	8.7	6.1	8.1	9.1	16.6	11.5	<b>9.9</b>
Spring (March–May)	10.0	8.5	8.2	8.5	8.2	16.2	13.6	<b>10.4</b>
Summer (Jun–Aug)	12.5	8.8	8.8	8.8	8.2	15.5	12.0	<b>10.6</b>
Fall (Sep–Nov)	9.1	6.5	8.4	6.7	8.4	12.3	9.0	<b>8.6</b>
<b>Daily average</b>	<b>10.1</b>	<b>8.1</b>	<b>7.8</b>	<b>8.0</b>	<b>8.5</b>	<b>15.6</b>	<b>11.5</b>	

and therefore physicians might focus their attention on the most frequent reasons for calls, in order to improve the effectiveness of their educational efforts. For example, physicians might discuss the patient's medication concerns, give specific recommendations to talk to the pharmacist, and possibly offer an automated medication "tracking system" to alert patients during the week when their medications were running out, as a way of reducing the number of calls and allaying patient concerns.

Pain symptoms clearly account for a substantial number of calls. Although some of these calls might be serious emergencies (chest pain) and require immediate action, other calls, such as for migraine headaches, may point to a need to educate and set limits with patients during their regular appointments. For example, patients could be told that migraine headaches are not a "life-threatening" emergency and be urged to use self-management strategies until the next day.

Discussing fever management with new parents at well-child visits might decrease future calls. There is some research to suggest that providing new parents with specific guidelines about when to call if their child has a fever can dramatically reduce after-hours visits to the emergency room.<sup>11</sup> Obstetric calls represent an important group requiring immediate call-back with very specific questions (eg, fetal movement, bleeding), and might be a target area for physician education.

Out of approximately 9000 patients in the practice and 1564 patients who called the practice during the year, we identified 56 high utilizers (0.6% of all patients). They averaged nearly 10 calls per year in contrast to 1.3 calls for all other callers. Future research might be directed at trying to determine why these patients feel a need to call at nearly 10 times the rate of other patients.

These findings should be interpreted in light of several limitations. Because our findings are based on a

family practice residency, the patient population may be different from the typical private family practice office and have less continuity. However, the wide range of calls is likely to be typical of the diverse problems managed by family physicians. This study did not collect information on the management and disposition of these after-hours calls. Certainly, understanding the entire episode of after-hours contact (reason for call, management, outcome, satisfaction) is important, and is the next step in our research.

The diversity and seriousness of medical problems addressed by the after-hours physician highlight the need to provide specific training to physicians for dealing with patient calls and educating patients on the many issues leading to after-hours calls.

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