

# Office Telephone Calls in Family Practice

Leif I. Solberg, MD, Thomas R. Mayer, MD, Milton H. Seifert, Jr, MD,  
Patricia M. Cole, MD, and Richard L. Holloway, PhD  
Minneapolis, Minnesota

Depending upon specialty, from 1.7 to 25.2 percent<sup>1</sup> of physician-patient encounters occur over the telephone (11.8 percent for family physicians) and those calls consume 10 to 27 percent of the physician's working day.<sup>2,3</sup> Despite the amount of activity telephone calls generate, this important aspect of medical care and practice management has been remarkably free of documentation and study.

In family practice, only three American studies<sup>2,4,5</sup> and one Canadian study<sup>6</sup> concern office telephone calls, and they, as do virtually all other reports, examine only the calls physicians personally receive and handle. Thus, when the Research Panel of the Minnesota Academy of Family Physicians (MAFP)<sup>7</sup> was searching for a topic for its first collaborative research project in private practice, a descriptive study of incoming office telephone calls seemed both useful and necessary.

## Methods

Members of the MAFP Research Panel,<sup>7</sup> a group of practicing family physicians from nine clinics in the metropolitan Minneapolis-St. Paul area, developed the research design and ran a pilot test in their own practices. A one-page data collection form was constructed permitting one entry to indicate simultaneously the day and time of call,

type of call, who handled it, and how it was handled.

All members of the Minnesota academy were then invited to participate in a multiclinic study, and 65 private clinics expressed interest. During the six-week test period during the summer of 1979, each clinic was asked to choose one week that would be reasonably typical in terms of personnel and activities and then to carefully record every incoming call received during that week.

The resulting data were summarized by computer, and a report was sent to each participating clinic. The report provided each clinic with its own results, compared them with averages for the whole group, and offered suggestions for interpreting and using the information in practice management. Finally, clinics were asked to return a card indicating their feelings about the study. Specifically, they were asked whether (1) the data collection was disruptive to the practice, (2) the data are interesting, (3) the data are useful, (4) the data will be used to make practice changes, and (5) they would participate in another study.

## Results

Thirty-three clinics (51 percent) completed the study. Many of those that did not do so reported that unique local problems (eg, staff turnover or vacations) had prevented their participation during the specified time period. Where a clinic's data were incomplete or inaccurately recorded for a particular parameter, they were omitted from that

Continued on page 611

From the Department of Family Practice and Community Health, University of Minnesota Medical School, Minneapolis, Minnesota. Requests for reprints should be addressed to Dr. Leif I. Solberg, Nokomis Clinic, 5251 Chicago Avenue South, Minneapolis, MN 55417.

**Azo Gantrisin®**  
Each tablet contains 0.5 Gm sulfisoxazole/Roche and 50 mg phenazopyridine HCl.

Before prescribing, please consult complete product information, a summary of which follows:

**INDICATIONS:** Initial treatment of uncomplicated urinary tract infections caused by susceptible strains of *Escherichia coli*, *Klebsiella* species, *Enterobacter* species, *Proteus mirabilis*, *Proteus vulgaris* and *Staphylococcus aureus* when relief of pain, burning or urgency is needed during first 2 days of therapy. Azo Gantrisin treatment not to exceed 2 days. Evidence lacking that sulfisoxazole plus phenazopyridine HCl better than sulfisoxazole alone after 2 days. Treatment beyond 2 days should only be continued with Gantrisin (sulfisoxazole/Roche). (See DOSAGE AND ADMINISTRATION.) *Important Note:* Coordinate *in vitro* sulfonamide sensitivity tests with bacteriologic and clinical response. With ongoing therapy, add aminobenzoic acid to culture media. Increasing resistance of organisms may limit sulfonamide usefulness. As identical doses produce wide variations, measure blood levels in patients receiving sulfonamides for serious infections: 12 to 15 mg/100 ml is optimal; adverse reactions are more frequent above 20 mg/100 ml.

**CONTRAINDICATIONS:** Children under 12; known sensitivity to either component; pregnancy at term and during nursing period; in glomerulonephritis, severe hepatitis, uremia and pyelonephritis of pregnancy with gastrointestinal disturbances.

**WARNINGS:** Sulfonamides are bacteriostatic; organisms causing common infections are often resistant. Sulfas won't eradicate group A streptococci or prevent sequelae like rheumatic fever and glomerulonephritis. Deaths from hypersensitivity reactions, hepatocellular necrosis, agranulocytosis, aplastic anemia and other blood dyscrasias have been reported. Sore throat, fever, pallor, purpura or jaundice may be early signs of serious blood disorders. Perform blood counts and renal function tests.

**PRECAUTIONS:** *General:* Use with caution in patients with impaired renal or hepatic function, severe allergy, bronchial asthma. Hemolysis may occur in glucose-6-phosphate dehydrogenase-deficient individuals.

The more soluble sulfonamides are associated with fewer renal complications. Maintain adequate fluid intake to prevent crystalluria and stone formation.

*Information for Patients:* Maintain adequate fluid intake; urine will turn reddish-orange.

*Laboratory Tests:* Perform urinalysis with careful microscopic examination at least once a week and regular blood counts after 2 weeks therapy; measure blood levels in patients with serious infection (see INDICATIONS). *Drug Interactions:* Sulfonamides may displace oral anticoagulants from plasma protein binding sites, increasing anticoagulant effect. Can also displace methotrexate. *Drug Laboratory Test Interactions:* May affect liver function tests in hepatitis.

*Carcinogenesis, Mutagenesis, Impairment of Fertility:* *Carcinogenesis:* Azo Gantrisin has not undergone adequate trials relating to carcinogenicity; each component, however, has been evaluated separately. Rats appear especially susceptible to goitrogenic effects of sulfonamides; long-term administration has resulted in thyroid malignancies in this species. Long-term administration of phenazopyridine HCl has induced neoplasia in rats (large intestine) and mice (liver). No association between phenazopyridine HCl and human neoplasia reported; adequate epidemiological studies have not been conducted. *Mutagenesis:* No studies available. *Impairment of Fertility:* The components of Azo Gantrisin have been evaluated in animal reproduction studies. In rats given 800 mg/kg/day sulfisoxazole, there were no effects on mating behavior, conception rate or fertility index. Fertility was not affected in a two-litter study of rats given 50 mg/kg/day phenazopyridine.

*Pregnancy: Teratogenic Effects:* Pregnancy Category C. The components of Azo Gantrisin have been evaluated. At 800 mg/kg/day sulfisoxazole was nonteratogenic in rats and rabbits, with no perinatal or postnatal effects in rats. In two other studies, cleft palates developed in rats and mice after 500 to 1000 mg/kg/day sulfisoxazole. No congenital malformations developed in rats given 50 mg/kg/day phenazopyridine. As there are no satisfactory animal or human studies, it is not known whether Azo Gantrisin can cause fetal harm or affect reproduction capacity. Use during pregnancy only if the potential benefit justifies the potential risk to the fetus. *Nonteratogenic Effects, Nursing Mothers and Pediatric Use:* See CONTRAINDICATIONS.

**ADVERSE REACTIONS:** *Allergic:* Anaphylaxis, generalized allergic reactions, angioneurotic edema, arteritis and vasculitis, myocarditis, serum sickness, conjunctival and scleral injection, periarteritis nodosa, systemic lupus erythematosus. *Cardiovascular:* Tachycardia, palpitations, syncope, cyanosis. *Dermatologic:* Rash, urticaria, pruritus, erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis, exfoliative dermatitis, photosensitivity. *Endocrine:* Goiter production, diuresis, hypoglycemia. Cross-sensitivity with some goitrogens, diuretics (acetazolamide and the thiazides) and oral hypoglycemic agents may exist. *Gastrointestinal:* Nausea, emesis, abdominal pain, anorexia, diarrhea, glossitis, stomatitis, flatulence, salivary gland enlargement, G.I. hemorrhage, pseudomembranous enterocolitis, melena, pancreatitis, hepatic dysfunction, jaundice, hepatocellular necrosis. *Genitourinary:* Crystalluria, hematuria, BUN and creatinine elevation, nephritis and toxic nephrosis with oliguria and anuria, acute renal failure, urinary retention. *Hematologic:* Leukopenia, agranulocytosis, aplastic anemia, thrombocytopenia, purpura, hemolytic anemia, anemia, eosinophilia, clotting disorders including hypoprothrombinemia and hypofibrinogenemia, sulfhemoglobinemia, methemoglobinemia. *Musculoskeletal:* Arthralgia, chest pain, myalgia. *Neurologic:* Headache, dizziness, peripheral neuritis, paresthesia, convulsions, tinnitus, vertigo, ataxia, intracranial hypertension. *Psychiatric:* Psychosis, hallucinations, disorientation, depression, anxiety. *Miscellaneous:* Edema (including periorbital), pyrexia, incontinence, weakness, fatigue, lassitude, rigors, flushing, hearing loss, insomnia, pneumonitis.

**OVERDOSAGE:** *Signs:* Anorexia, colic, nausea, vomiting, dizziness, drowsiness, unconsciousness; possibly pyrexia, hematuria, crystalluria. Blood dyscrasias and jaundice may occur later. *Treatment:* Institute gastric lavage or emesis; force oral fluids; administer intravenous fluids if urine output is low with normal renal function. Monitor blood counts and appropriate blood chemistries, including electrolytes. In cyanosis, consider methemoglobinemia and treat with intravenous 1% methylene blue. Institute specific therapy for blood dyscrasias or jaundice.

**DOSAGE AND ADMINISTRATION:** Azo Gantrisin is intended for the acute, painful phase of urinary tract infections. The recommended dosage in adults is 4 to 6 tablets initially, followed by 2 tablets four times daily for up to 2 days. Treatment with Azo Gantrisin should not exceed 2 days. Treatment beyond 2 days should only be continued with Gantrisin (sulfisoxazole/Roche).

**HOW SUPPLIED:** Tablets, each containing 0.5 Gm sulfisoxazole/Roche and 50 mg phenazopyridine HCl—bottles of 100 and 500.

Continued from page 609

aspect of the analysis. Thus, the total number of responses varies for each analysis.

### Clinic Description

The 33 clinics were geographically diverse. Eight were located in towns of under 5,000 people, 14 in cities of 5,000 to 100,000, and 11 in various parts of the Minneapolis-St. Paul metropolitan area. Most clinics were small (18 were practices with one or two physicians, and only one had more than ten physicians) and solely family practices (only six were multispecialty). Of the 139 physicians in all clinics, 108 were family physicians. The median clinic age was ten years, and the average patient load was four office visits per physician-hour.

### Call Volume

A total of 16,733 calls were recorded in the 33 clinics over a one-week period. The mean number of clinic calls per week per physician was 172 ( $\pm 55$ ), or about 34 calls daily. As patient care visits per physician varied considerably among clinics, the ratio of calls per visit was calculated as a way to facilitate interclinic comparisons. The clinic average was 1.99 ( $\pm 0.61$ ) calls for each patient seen in the office.

Clinics in the metropolitan area received about 75 percent more calls per office visit than did those in small towns. There was no relationship, however, between call volume per visit and clinic size. Finally, if the usual wait for a routine appointment exceeded one week, the call volume increased by 50 percent.

### Call Timing

Practitioners may be surprised to learn that there was no statistically significant difference in call volume by day of week (ie, Monday was not busier). The first hour of any day, however, was disproportionately busy (20 percent of all calls) and both noon and the last hour were quieter than average.



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Nutley, New Jersey 07110

Type of Call	Percentage of Total Calls	Calls per Office Visit ± 1 Standard Deviation
Administrative (nonpatient)	<b>11.4</b>	<b>0.25</b>
Personal	4.9	0.11 ± 0.05
Office administration	2.8	0.06 ± 0.06
Other	3.7	0.08 ± 0.05
Administrative (patient)	<b>48.9</b>	<b>0.93</b>
Appointments	38.7	0.76 ± 0.22
Accounts receivable	5.7	0.09 ± 0.06
Patient arrangements	4.5	0.08 ± 0.07
Patient Care	<b>39.7</b>	<b>0.81</b>
Medical advice	16.4	0.34 ± 0.18
Prescription refill	10.7	0.22 ± 0.19
Test results	3.8	0.08 ± 0.04
Hospital/nursing home	3.2	0.07 ± 0.06
Other	5.6	0.10 ± 0.03
Total	100	1.99 calls per office visit

\*n ≠ 33 because of data missing from some clinics' reports

### Call Types

Table 1 illustrates the relative frequency of each type of incoming call to the office as a whole. Only two significant variations were found by community size. Clinics in the metropolitan area had twice as many prescription refill calls as their colleagues in medium or small towns. In compensation, metropolitan area clinics had only one half as many "other" patient care calls.

### Physician Calls

Calls in which physicians were involved were analyzed separately. These calls constituted 19.1 percent of all calls recorded, although there was considerable variation among clinics in this proportion. There was an even greater variation in the way these calls were handled by the physician. In some clinics virtually all physician calls were taken directly (at the time of the original call), although the most common pattern seemed to be

to take most calls as messages. Interestingly, whether physicians took calls directly or as messages had no effect on either the number of calls or the percentage of calls handled by the physician. However, clinics that allowed callers to speak to a physician (if that was their request) had about 40 percent more total calls per office visit than did clinics that used a nurse or assistant intermediary.

Table 2 shows the types of calls in which the physician became involved. Nearly all physician telephone time was spent in patient-related business. Physicians averaged somewhat less than one half a call (0.38) for every patient visit in the office.

### Clinic Response to Study

Twenty-one reply cards were received from the 33 clinics (64 percent). Nearly all found the study results to be useful and interesting enough that they would participate again in another study. Almost one half used the results to make changes in office procedures.



Type of Call	Percentage of Total Calls	Calls per Office Visit
Administrative (nonpatient)	<b>9.0</b>	<b>0.04</b>
Personal	4.5	0.02
Office administration	2.3	0.01
Other	2.2	0.01
Administrative (patient)	<b>9.3</b>	<b>0.02</b>
Appointments	1.0	0
Accounts receivable	0.9	0
Patient arrangements	7.4	0.02
Patient Care	<b>81.7</b>	<b>0.32</b>
Medical advice	30.2	0.12
Prescription refill	19.0	0.07
Test results	12.4	0.04
Hospital/nursing home	9.5	0.05
Other	10.6	0.04
Total	100.0	0.38

\*n ≠ 33 because of data missing from some clinics' reports

## Comment

The only other potentially relevant studies in the family practice area looked at aspects of practice and telephone calls different from those in this study. Riley et al<sup>2</sup> had observers in upstate New York follow 51 urban and 52 rural general practitioners in 1966 to observe their activities. They found an average of ten calls handled per day, and one half the physicians spent at least one hour on the telephone each day. Fischer and Smith studied three small-town practices and one urban residency clinic in Connecticut in 1978,<sup>4</sup> but only studied all symptom-related calls, both during and after office hours. They found that of those symptom calls handled by the receptionist, 15 percent were referred to the physician. The physicians called in prescriptions on 26 percent of their calls, gave advice alone in 43 percent, and suggested to 31 percent that they come in to be seen. Knopke and colleagues<sup>8</sup> found that 100 Wisconsin rural family physicians averaged 14.5 percent of their encounters by telephone. Westbury,<sup>6</sup> a solo family physician in Calgary, Canada, kept careful records of several months of calls in 1970-1971. He handled 12 calls per day (28 percent of office visits)

and spent 30 minutes doing it. As in this study, he found no relation between the day of the week and time spent on the telephone.

Aside from supplying information about what goes on in family practice, many of these findings may be useful for practice management. A good understanding of their own telephone calls should allow clinics to develop a more efficient and effective way of handling those calls. Since physician time is usually the most costly and least available, it would be helpful if many physician-handled calls could be taken care of by others. The wide variation in the percentage of calls handled by physicians in the various clinics, for instance, suggests that the variation may be due more to a difference in clinic policies than to any difference in the type of requests being made by patients. In corroboration of that, Greenlick and colleagues<sup>9</sup> found that within their internal medicine section there was an enormous variation (from 0.21 to 1.26) in the physician call per office visit ratio among different physicians. There was also a great variation by type of call, by disposition, and by percentage of

Continued on page 616

**Motrin® Tablets (ibuprofen)**

**Contraindications:** Hypersensitivity reactions have occurred in individuals hypersensitive to Motrin Tablets or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin, iodides, or other nonsteroidal anti-inflammatory agents.

**Warnings:** Peptic ulceration and GI bleeding, sometimes severe, have been reported. Ulceration, perforation and bleeding may end fatally. An association has not been established. Use Motrin Tablets under close supervision in patients with a history of upper gastrointestinal tract disease, after consulting ADVERSE REACTIONS. In patients with active peptic ulcer and active rheumatoid arthritis, try nonulcerogenic drugs, such as gold. If Motrin Tablets are used, observe the patient closely for signs of ulcer perforation or GI bleeding.

Chronic studies in rats and monkeys have shown mild renal toxicity with papillary edema and necrosis. Renal papillary necrosis has rarely been shown in humans treated with Motrin Tablets.

**Precautions:** Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue Motrin Tablets and the patient should have an ophthalmologic examination, including central visual fields and color vision testing.

**Fluid retention and edema** have been associated with Motrin Tablets; use with caution in patients with a history of cardiac decompensation or hypertension. In patients with renal impairment, reduced dosage may be necessary. Prospective studies of Motrin Tablets safety in patients with chronic renal failure have not been done.

Motrin Tablets can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and on anticoagulant therapy.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, skin rash, weight gain, or edema.

Patients on prolonged corticosteroid therapy should have therapy tapered slowly when Motrin Tablets are added.

The antipyretic, anti-inflammatory activity of Motrin Tablets may mask inflammation and fever.

As with other nonsteroidal anti-inflammatory drugs, borderline elevations of liver tests may occur in up to 15% of patients. These abnormalities may progress, may remain essentially unchanged, or may be transient with continued therapy. Meaningful elevations of SGPT or SGOT (AST) occurred in controlled clinical trials in less than 1% of patients. Severe hepatic reactions, including jaundice and cases of fatal hepatitis, have been reported with ibuprofen as with other nonsteroidal anti-inflammatory drugs. If liver disease develops or if systemic manifestations occur (e.g. eosinophilia, rash, etc.), Motrin should be discontinued.

**Drug interactions:** Aspirin: used concomitantly may decrease Motrin blood levels.

Coumarin: bleeding has been reported in patients taking Motrin and coumarin.

**Pregnancy and nursing mothers:** Motrin should not be taken during pregnancy or by nursing mothers.

**Adverse Reactions:** The most frequent type of adverse reaction occurring with Motrin is gastrointestinal of which one or more occurred in 4% to 16% of the patients.

**Incidence Greater than 1% (but less than 3%)—Probable Causal Relationship**

**Gastrointestinal:** Nausea,\* epigastric pain,\* heartburn,\* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence); **Central Nervous System:** Dizziness,\* headache, nervousness; **Dermatologic:** Rash\* (including maculopapular type), pruritus; **Special Senses:** Tinnitus; **Metabolic/Endocrine:** Decreased appetite; **Cardiovascular:** Edema, fluid retention (generally responds promptly to drug discontinuation; see PRECAUTIONS).

**Incidence less than 1%—Probable Causal Relationship\*\***

**Gastrointestinal:** Gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, gastritis, hepatitis, jaundice, abnormal liver function tests; **Central Nervous System:** Depression, insomnia, confusion, emotional lability, somnolence, aseptic meningitis with fever and coma; **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme, Stevens-Johnson syndrome, alopecia; **Special Senses:** Hearing loss, amblyopia (blurred and/or diminished vision, scotomata, and/or changes in color vision) (see PRECAUTIONS); **Hematologic:** Neutropenia, agranulocytosis, aplastic anemia, hemolytic anemia (sometimes Coombs positive), thrombocytopenia with or without purpura, eosinophilia, decreases in hemoglobin and hematocrit; **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure, palpitations; **Allergic:** Syndrome of abdominal pain, fever, chills, nausea and vomiting; anaphylaxis; bronchospasm (see CONTRAINDICATIONS); **Renal:** Acute renal failure in patients with pre-existing significantly impaired renal function, decreased creatinine clearance, polyuria, azotemia, cystitis, hematuria; **Miscellaneous:** Dry eyes and mouth, gingival ulcer, rhinitis.

**Incidence less than 1%—Causal Relationship Unknown\*\***

**Gastrointestinal:** Pancreatitis; **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities, pseudotumor cerebri; **Dermatologic:** Toxic epidermal necrolysis, photoallergic skin reactions; **Special Senses:** Conjunctivitis, diplopia, optic neuritis; **Hematologic:** Bleeding episodes (e.g., epistaxis, menorrhagia); **Metabolic/Endocrine:** Gynecomastia, hypoglycemic reaction; **Cardiovascular:** Arrhythmias (sinus tachycardia, sinus bradycardia); **Allergic:** Serum sickness, lupus erythematosus syndrome, Henoch-Schönlein vasculitis; **Renal:** Renal papillary necrosis.

\*Reactions occurring in 3% to 9% of patients treated with Motrin. (Those reactions occurring in less than 3% of the patients are unmarked.)

\*\*Reactions are classified under "Probable Causal Relationship (PCR)" if there has been one positive rechallenge or if three or more cases occur which might be causally related. Reactions are classified under "Causal Relationship Unknown" if seven or more events have been reported but the criteria for PCR have not been met.

**Overdosage:** In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine so alkaline diuresis may be beneficial.

**Dosage and Administration:** Rheumatoid arthritis and osteoarthritis. Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Do not exceed 2400 mg per day. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary.

**Caution:** Federal law prohibits dispensing without prescription.

Continued from page 613

calls initiated by the physician. Thus, getting the physicians at a clinic to agree on telephone-answering protocols would allow more calls to be handled by nonphysicians. Indeed, most of the after-study changes described by clinics in this study were in this area.

Other clinics that study their telephone call patterns and compare them with these data may be able to improve both their efficiency and responsiveness to patients, which, in an increasingly competitive world, may be very important.

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