

How Much Time Do Physicians Spend Providing Care Outside of Office Visits?

Jeffrey Farber, MD; Albert Siu, MD, MSPH; and Patricia Bloom, MD

Background: People with chronic illness require care outside of office visits, much of which is not reimbursed under current Medicare guidelines.

Objective: To describe the amount of time geriatricians spend and the nature of care they provide outside of office visits.

Design: Cross-sectional study on the time spent by physicians in clinical interactions outside of patient visits during 3 randomly sampled, 1-week periods.

Setting: An academic geriatric medicine ambulatory practice.

Participants: 16 physicians.

Measurements: Information on the method, content, outcome, and participants in clinical interactions outside of office visits was collected on a structured form.

Results: There were 472 discrete interactions, representing 296 episodes of care for 226 patients. Fifty-four percent of interactions were linked as multistep episodes, whose mean duration (range; 25th, 75th percentiles) was 18.9 minutes (3 to 70 minutes; 9, 21 minutes). Thirty-six percent of episodes involving a new medical

symptom resulted in medication use, 27% resulted in an office visit, and 9% resulted in a referral to another physician. Mean time spent per physician per week was 112.2 minutes (range, 36 to 260 minutes), which represents an additional 6.7 minutes (range, 1.7 to 13.8) of care provided outside of office visits for every 30 minutes of time spent scheduled to see ambulatory patients. For a full-time physician scheduled to see 14 patients per day in 30-minute visits over a 5-day workweek, this would represent an extra 7.8 hours of clinical work per week.

Limitation: Data were self-reported and were limited to an academic geriatric medicine practice.

Conclusion: Physicians spend a considerable amount of time providing care outside of office visits for patients with chronic illness. This study suggests that collecting empirical data on the amount and nature of nonreimbursed care activities is feasible and should be done in more generalizable settings to inform debates about reimbursement reform.

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For author affiliations, see end of text.

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Primary care is becoming increasingly focused on the management of chronic disease in a health care system that is more suited for episodic care of an acute illness. Seventy-eight percent of Medicare beneficiaries have 1 or more chronic health conditions and 46% have 3 or more chronic conditions (1). The 23% of Medicare beneficiaries with 5 or more chronic conditions account for 68% of all Medicare spending (2). Patients with chronic disease take more medications, see more specialists, and receive more formal and informal care.

It is widely maintained that the care of patients with chronic illness involves nonreimbursed interactions with patients, caregivers, and others outside of the standard office visit (1). However, no data are available to support this claim. Because chronic disease management and coordinated care are particularly necessary in geriatric medicine, we evaluated the amount of time geriatricians spend and the nature of care they provide outside of office visits (3-5).

METHODS

Two of the authors documented all clinical interactions that occurred outside of office visits during a 5-day workweek and used the information to develop a structured interaction form that collected the time spent (in minutes) in the interaction, type of participant (patient or family), method of interaction (telephone or electronic),

content of the interaction (new symptom or chronic disease management), and outcome of the interaction (office visit or medication use). The form was then used by the authors in a 5-day workweek and was further modified. The final version of the interaction form was used to document all clinical interactions outside of office visits during 3 randomly selected, 1-week periods (excluding weeks with legal holidays) in late 2005 and early 2006.

Forms were completed by physicians in a large urban, academic geriatric medicine ambulatory practice. Eighteen attending physicians and 13 geriatric medicine fellows, who spent varying amounts of time in the practice, formed the staff. Four office assistants, 3 social workers, 2 nurse practitioners, and 2 registered nurses also worked at the practice when the study was conducted. The practice had no electronic health record (staff used paper charts), and it provided care for about 2300 community-dwelling older adults.

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Context

Much of primary care takes place outside of office visits and is not reimbursed.

Contribution

By using the information recorded by physicians in an academic geriatrics practice, the authors estimate that providers spent an additional 6.7 minutes providing care outside of every 30-minute office visit, which amounted to an estimated extra 7.8 hours of clinical work per week for a full-time provider.

Caution

The findings may not be generalizable to full-time clinicians in community practices.

Implication

Providers spend a lot of unreimbursed time outside of office visits providing care. The time can be quantified, and similar data should be collected in broader settings to inform debates over reimbursement reform.

—The Editors

Because geriatricians typically work in many settings outside of the office (for example, hospitals, nursing homes, or home health care), we asked participants to record only interactions related to their ambulatory care practice. We included only physicians with at least 2 half-days of office visits scheduled in the week as eligible to participate, because we did not want to include physicians who had only minimal involvement in the practice. Physician eligibility was measured separately for each study week. A given physician, therefore, might be eligible to participate in 1, 2, or all 3 weeks of data collection, depending on the number of patient sessions scheduled that week. Participating physicians were briefed and were provided a written protocol with the structured interaction forms.

Physicians were encouraged to complete the interaction forms at the time the work was done to minimize uncaptured events and document the time spent to the nearest minute. Time measurement reflects the time involved in performing the interaction itself and not in documenting the interaction on either the chart or the interaction form. Physician participants typically did not have the chart available to document these interactions at the time they occurred.

We used the office's electronic scheduling system, which captures all visits to the practice with any provider, to determine whether interactions were temporally related to an office visit. We defined an interaction as related to an office visit if it occurred within 1 week of an office visit (that is, up to and including 7 days before and after the interaction). We used the practice's electronic database of clinical information to determine whether a patient had a di-

agnosis of dementia for those interactions that lacked such documentation. A diagnosis of dementia was assigned if the patient's record documented dementia, use of a cholinesterase inhibitor or memantine (a typical medication used to treat dementia), or a Mini-Mental State Examination score less than 23.

Information on the content of the interaction was classified into 10 categories: physician ordering, follow-up laboratory tests, scheduling, referrals, correspondence, new (acute) medical symptoms, medication management, chronic disease management, coordinating care with family members (family counseling), and coordinating care with other health care professionals (professional collaboration). When an interaction had more than 1 component, it was assigned to a category on the basis of the most time-consuming component. Interactions that involved changes in any single medication in the absence of other care-plan adjustments were categorized as medication management, and interactions that involved anything more than titrating a single medication (for example, instructions about monitoring glycemic control) were categorized as chronic disease management.

Multistep or linked interactions involving the same patient were grouped into episodes of care to more accurately represent the time spent on and type of work done in an episode of care involving a specific patient. By consensus, we developed 4 categories for these episodes. We then prioritized the categories into new medical symptoms, management of chronic disease and medications, family counseling, and miscellaneous. For example, speaking on the telephone with a patient's home health aide to discuss a new symptom, scheduling an urgent visit with the practice's front desk (scheduling), then speaking with the physician on duty who will see the patient later that day (professional collaboration) are 3 interactions grouped into 1 episode of care involving 1 patient, categorized as involving a new medical symptom.

This project was exempted by the institutional review board at Mount Sinai School of Medicine, New York, New York.

Statistical Analysis

We present data on time spent in interactions and episodes of care involving physicians and patients. We created sample weights for each week, taking into account the number of eligible and participating physicians for each week of data collection. This was done to account for variability in the ambulatory clinical effort of individual physicians and physician nonparticipation, and because some physicians participated in more than 1 week of data collection. Our estimates accounted for clustering of interactions and episodes by patients and physicians.

Some interaction forms had incomplete data. One author directly approached physicians to obtain the missing data, after which only the diagnosis of dementia sometimes remained uncertain. For these case-patients, the lead au-

thor used the patient's medical record to determine whether the patient had dementia, as previously described. Complete information on patient characteristics, obtained from medical record review, was not available for 12 patients (5%). Observations were reduced if missing data were involved in that specific analysis.

All analyses were done by using SAS software, version 9.1 (SAS Institute, Cary, North Carolina).

Role of the Funding Source

The National Institute on Aging played no role in the design, conduct, and analysis of the study or in the decision to submit the manuscript for publication.

RESULTS

Sixteen of the 22 physicians who were invited to participate in the study provided data. Nine were geriatric medicine fellows, and 7 were attending geriatricians. Physician participants were mostly women (88%), with a mean age of 37 years (range, 30 to 58 years). Mean attending physician experience was 10 years out of training (range, 2 to 27 years), whereas mean fellowship experience was 13.2 months (range, 6 to 18.5 months). The participating physicians accounted for 68% of the ambulatory office sessions scheduled for physicians who were eligible to participate in the study. Physician participants and nonparticipants did not differ in attending status (44% vs. 47%) or mean number of 3.5-hour half-day clinical sessions in the week (2.4 vs. 2.3 sessions). Nine physicians (56%) participated in 2 weeks of data collection, 6 (38%) contributed to 1 week, and 1 (6%) participated in all 3 weeks. This resulted in information on a total of 27 physician-weeks. Patients involved in the study were mostly women (83%) who were elderly (mean age, 83 years [range, 67 to 101 years]), had several medical problems, took many medications (mean, 11 medications [range, 1 to 26 medications]), and were community-dwelling (that is, not institutionalized or living in a nursing home) (Table 1). Physicians reported 472 discrete interactions within 296 episodes of care involving 226 patients. There were a mean of 2.0 (range, 1 to 10) interactions per patient, 1.6 (range, 1 to 9) interactions per episode, 1.3 (range, 1 to 10) episodes per patient, 18.0 (range, 1 to 53) interactions per physician-week, and 11.4 (range, 1 to 23) episodes per physician-week. The mean total time spent per physician-week on nonreimbursable clinical interactions was 112.2 minutes (range, 36 to 260 minutes). Over a mean of 2.4 (range, 2 to 8) half-day clinical sessions per physician per week, this breaks down to 46.8 minutes (range, 12.1 to 130 minutes) per 3.5-hour session or 6.7 minutes (range, 1.7 to 13.8 minutes) per 30 minutes of time spent scheduled to see ambulatory patients. The wide variation among physicians in the range of time spent per week reflects the varying amount of time participants spend seeing patients in the ambulatory care practice.

Table 1. Physician and Patient Characteristics

Characteristic	Mean Value (Range)	Weighted Frequency, %
Physicians		
Attending physicians (<i>n</i> = 7)		
Age, y	43.6 (33–58)	–
Women, %	100	–
Experience, y	10.0 (2–27)	–
Fellows (<i>n</i> = 9)		
Age, y	32.6 (30–36)	–
Women, %	77.8	–
Experience, mo	13.2 (6–18.5)	–
Patients*		
Mean age (range)†	–	83 (67–101)
≤80 y	–	32.5
>80 y	–	67.5
Women‡	–	83.5
Mean number of medications (range)	–	11 (1–26)
0–3	–	6.2
4–8	–	28.3
≥9	–	65.5
Active medical problems		
Hypertension‡	–	74.5
Arthritis‡	–	63.7
Dementia	–	48.5
Gait disorder‡	–	43.0
Dyslipidemia§	–	42.8
Depression§	–	41.6
Cerebrovascular disease§	–	25.0
Diabetes§	–	21.3
Coronary artery disease§	–	21.4
Heart failure§	–	12.3

* Patient characteristics are presented as weighted frequencies, which are representative of all patients in the practice. There were 226 patients in the sample.

† Values based on 219 patients.

‡ Values based on 215 patients.

§ Values based on 214 patients.

Seventy-eight percent of interactions lasted 8 minutes or fewer, whereas 38% lasted 4 minutes or fewer. The mean duration of interaction (range; 25th, 75th percentiles) was 6.4 minutes (0.5 to 120 minutes; 3, 8 minutes). Approximately one quarter (23.9%) of interactions occurred with the patient, 26% occurred with 1 or more family members, and 23.8% occurred with other medical professionals (for example, a physician or visiting nurse). A minority (22.9%) of interactions occurred with physician's office staff, a pharmacy, a home health aide, or a social worker. Some interactions (3.4%) did not involve person-to-person communication, but rather the use of the patient's medical record (for example, to complete medical forms).

Seventy-seven percent of interactions were primarily by telephone, 8% were electronic, 8% were face-to-face with someone other than the patient (for example, with a family member), and 6% involved writing or faxing. Interactions involving handling a new medical symptom and professional collaboration, which involved communicating with other physicians, nurse practitioners, social workers, or staff at assisted-living facilities or adult day centers, were the most frequent categories of interaction by content, each

Table 2. Frequency, Duration, and Content of Interactions and Episodes*

Content	Interaction Frequency, %†	Mean Duration (Range; 25th, 75th Percentiles), min	Examples
Interaction			
Professional collaboration	14.6	7.4 (1–120; 3, 10)	Discussing an urgent care visit with covering physician or discussing home health care needs with social worker
New medical symptoms	14.6	6.1 (0.5–15; 5, 8)	A fall, pain, or dysuria
Family counseling	14.2	8.5 (1–45; 5, 10)	Discussing advanced care planning or reviewing plan of care after an office visit
Chronic disease management	13.8	7.6 (1–30; 5, 10)	Symptom management of dementia or managing glucose control in diabetic patients
Medication management	12.5	5.1 (1–40; 3, 5)	Call in medication dose change to pharmacy or renewing prescriptions
Physician ordering	11.2	5.6 (1–30; 2, 5)	Ordering home blood draw or physical therapy through home care agency
Follow-up laboratory tests	8.3	4.9 (2–15; 3, 5)	Reviewing results of blood tests or radiologic studies
Scheduling	5.9	4.0 (1–10; 3, 5)	Scheduling an urgent appointment with specialist or overbooking a follow-up visit
Referrals	3.6	6.9 (1–20; 2, 10)	Coordinating referral to outside consultant with office staff or providing information on referrals to patient
Correspondence	1.3	3.4 (1–5; 3, 5)	Letter of medical need for change in housing or updated medical summary for adult day care facility
Episode			
Chronic disease and medication management	30.1	10.9 (1–72; 5, 25)	See Interaction above
New medical symptoms	19.6	11.9 (0.5–69; 8, 19)	See Interaction above
Family counseling	14.0	12.1 (1–120; 6, 45)	See Interaction above
Miscellaneous	36.3	7.9 (1–71; 4, 13)	Speaking on the phone with a case manager at an assisted-living facility and then completing a requested medical summary, or discussing a referral with a consultant and arranging with office staff for a quicker appointment

* Estimates are from a weighted analysis and are representative of all eligible physicians in the practice.
 † For 472 interactions and 296 episodes.

accounting for 14.6% of all interactions. Interactions that involved family counseling and communication (14.2%) and managing chronic disease (13.8%) were nearly as common (Table 2).

Episodes of care (*n* = 296) most commonly occurred for miscellaneous reasons (36.3%), followed by chronic disease and medication management (30.1%), new medical symptoms (19.6%), and family counseling (14%). Mean episode duration (range; 25th, 75th percentiles) was 10.2 minutes (0.5 to 120 minutes; 5, 11 minutes) overall, 12.1 minutes (1 to 120 minutes; 6, 45 minutes) for family counseling, 11.9 minutes (0.5 to 69 minutes; 8, 19 minutes) for new medical symptoms, 10.9 minutes (1 to 72 minutes; 5, 25 minutes) for chronic disease or medication management, and 7.9 minutes (1 to 71 minutes; 4, 13 minutes) for miscellaneous episodes (Table 2).

Episodes of care lasted somewhat longer if they involved a family member (versus the patient or other participants involved in the episode, such as a visiting nurse, home health aide, or pharmacist), were temporally unrelated to an office visit, involved one’s own patient (versus coverage for another physician), or involved a patient with dementia. Episode duration was similar between attending physicians and fellows and between younger (≤ 80 years) and older (> 80 years) patients (Table 3).

Most episodes of care involving a new medical symptom had clearly identifiable associated outcomes. Thirty-six percent resulted in medication use (either a change in the dose of an existing medication or a prescription for a new medication), 27% resulted in a new (previously unscheduled) office visit, and 9% resulted in a referral to another physician. Twenty-eight percent of these interactions were not readily identifiable with such tangible outcomes.

DISCUSSION

We did a systematic search of MEDLINE (January 1970 to March 2007) by using a combination of the terms *care coordination*, *reimbursement*, and *time*, but we found no studies documenting the overall amount of time that physicians spend providing care between office visits. Thus, we believe that our study is the first to document the amount and nature of time that physicians spend providing care outside of office visits. We found that for every 30 minutes of time spent scheduled to see ambulatory patients, physicians in an urban, academic geriatric medicine ambulatory practice spent an average 6.7 minutes in non-face-to-face clinical interactions. For a full-time ambulatory geriatrician scheduled to see 14 patients per day in

30-minute visits during a 5-day workweek, this translates into an extra 7.8 hours of clinical work per week.

Mean episode duration was 10.2 minutes (range, 0.5 to 120 minutes; IQR, 6). Episodes were longer when they were temporally unrelated to an office visit or involved a family member, a patient with dementia, or one's own patient. Episodes involving a new medical symptom, chronic disease or medication management, or family counseling were longer than episodes in all other categories.

Previous research in telephone medicine (that is, speaking with a patient on the telephone instead of a face-to-face interaction in the office) evaluated the volume of telephone calls received in primary care practices (6) and the outcomes of telephone interactions between covering physicians and patients with symptoms (7). The latter study found that in the week after a telephone interaction with a medical resident, 9% filled a prescription medication, 48% kept an earlier office appointment, and 8% visited a specialist. Similarly, a published review of telephone medicine found that after the telephone interaction, 19% to 49% of case-patients made early appointments and 12% to 38% received prescriptions (8). These findings are similar to our findings that 36% of interactions involving a new medical symptom resulted in medication use, 27% resulted in a new previously unscheduled office visit, and

9% resulted in a referral to another physician. Another study of patient calls to a headache clinic found that such calls averaged 28 minutes per scheduled hour of headache clinic (9). By comparison, our data, which include all forms of interactions with patients and other persons, demonstrate a mean of 13.4 minutes (range, 3.4 to 27.6 minutes) per scheduled hour of ambulatory practice.

Our study has advantages over these previous studies involving telephone medicine because it encompasses all forms of communication with all potential contacts. Twenty-three percent of interactions in our study were not by telephone, and most (76%) occurred with someone other than the patient. This comprehensive assessment enables us to more accurately describe the complexity of care provided outside of office visits.

Our study is limited by the fact that data are self-reported. It is likely that participants did not document some interactions, leading to an underestimation of the time spent providing care outside of office visits. On the other hand, because participants were aware of the nature of the study, they may have tended to overestimate their time spent. Most interactions, however, were short—78% lasted 8 minutes or less, and 38% lasted 4 minutes or less. Few lengthy electronic, written, or facsimile interactions occurred, with only 8 lasting more than 10 minutes. To

Table 3. Interaction and Episode Characteristics*

Characteristic	Interaction		Episode	
	Frequency, %†	Mean Duration (Range; 25th, 75th Percentiles), min	Frequency, %†	Mean Duration (Range; 25th, 75th Percentiles), min
Individual involved				
Patient	23.9	6.9 (1–30; 5, 10)	27.0	9.4 (1–35; 5, 10)
Family	26.0	7.9 (1–45; 5, 10)	29.8	12.3 (1–69; 5, 10)
Other	50.1	5.4 (0.5–120; 3, 5)	43.2	9.2 (0.5–120; 5, 10)
Relationship to office visit				
Unrelated	66.6	6.9 (0.5–120; 3, 8)	63.0	11.0 (0.5–120; 5, 12)
Related	33.4	5.8 (1–30; 3, 6)	37.0	8.7 (1–69; 3, 10)
Type of interaction				
Single	46.1	6.9 (0.5–120; 3, 10)	72.5	6.9 (0.5–120; 3, 10)
Part of a multistep episode	53.9	6.1 (1–45; 3, 7)	27.5	18.9 (3–72; 9, 21)
Physician type				
Attending	65.3	6.3 (1–120; 3, 7)	61.1	10.8 (1–120; 5, 13)
Fellow	34.7	6.6 (0.5–45; 3, 10)	38.9	9.3 (0.5–72; 3, 10)
Patient type				
Own patients	86.0	6.7 (0.5–120; 3, 8)	86.9	10.4 (0.5–120; 4, 12)
Coverage	14.0	5.0 (1–15; 3, 5)	13.1	8.7 (2–27; 5, 10)
Patient characteristics				
Dementia	47.5	7.0 (1–120; 3, 10)	45.9	11.4 (1–120; 5, 14)
No dementia	52.5	5.9 (0.5–45; 3, 7)	54.1	9.1 (0.5–71; 4, 10)
Age ≤80 y‡	29.7	6.7 (1–40; 4, 8)	30.8	10.0 (1–30; 5, 10)
Age >80 y‡	70.3	6.0 (0.5–30; 3, 7)	69.2	9.7 (0.5–25; 4, 13)

* Estimates are from a weighted analysis and are representative of all eligible physicians in the practice.

† Frequency for 472 interactions and 296 episodes.

‡ Twelve interactions and 7 episodes were excluded because of missing data on age.

verify the reasonableness of these 8 long interactions, we investigated their content and found that they involved activities that could reasonably be expected to take a long time (completing home health plans of care for several patients or obtaining medication preapproval from a pharmacy). This included one 120-minute interaction that involved an extended family meeting.

Another limitation centers on ambulatory practice organizational issues, which are known to vary widely from practice to practice. Depending on the extent to which certain tasks are allocated to nonphysician office staff, a similar study in a different practice may find different results. Arguing against an overestimation of time in the current study, however, is the presence of ample nonphysician staffing and support infrastructure that included 3 full-time social workers, 2 nurse practitioners, 2 registered nurses, a dedicated medication refill line, and a reliable call center that handles all incoming calls.

A third limitation involves the study's external validity. The practice that we studied is not generalizable to most community practices. The physicians whom we studied are not in full-time ambulatory practice and participate in additional clinical activities (inpatient, nursing home, and home health care), research, and education. In a typical community practice, the extent of effort involved in providing care outside of office visits may actually be more or less. Less time may be spent because community practices may see fewer older patients with multiple or advanced chronic diseases. On the other hand, more time may be spent because a typical community practice has a larger patient panel and more care may occur outside of office visits.

In addition, our estimate of the time spent providing care outside of office visits was based on the conservative assumption that all scheduled patient slots were filled. Because we know that physicians did not always see 7 patients in a scheduled half-day patient session, our estimate of 6.7 minutes per 30 minutes of time spent scheduled to see ambulatory patients may be underrepresentative.

Despite these limitations, the patients seen in the study practice are similar to other older adult patients with chronic illnesses who receive care in more typical community practices, many of which are not as well staffed as the study practice. Internal medicine practices are caring for a growing number of these patients, and our study describes

the extent of time outside of office visits that physicians might typically spend on such patients.

By developing a method to document the amount of time spent providing care outside of face-to-face patient interactions, we demonstrate that providers and researchers can feasibly gather empirical data on the number and nature of nonreimbursed care activities. Further work in this field in broader clinical settings is important to inform debates about reimbursement reform.

From Mount Sinai School of Medicine, New York, and Bronx Veterans Affairs Medical Center, Bronx, New York.

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Requests for Single Reprints: Jeffrey Farber, MD, Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1070, New York, NY 10029-6574; e-mail, jeffrey.farber@mssm.edu.

Current author addresses and author contributions are available at www.annals.org.

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Current Author Addresses: Drs. Farber and Bloom: Mount Sinai School of Medicine, One Gustave L. Levy Place, Box 1070, New York, NY 10029-6574.

Dr. Siu: Bronx Veterans Affairs Medical Center, 130 West Kingsbridge Road, Bronx, NY 10468.

Author Contributions: Conception and design: J. Farber, A. Siu, P. Bloom.

Analysis and interpretation of the data: J. Farber, A. Siu.

Drafting of the article: J. Farber, A. Siu, P. Bloom.

Critical revision of the article for important intellectual content: J. Farber, A. Siu.

Final approval of the article: J. Farber, A. Siu, P. Bloom.

Provision of study materials or patients: J. Farber, P. Bloom.

Collection and assembly of data: J. Farber.