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Time providing care outside visits in a home-based primary care program

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Abstract

Background/Objectives—Homebound elderly patients with chronic medical illnesses face multiple barriers to care. Primary care physicians (PCPs) devote a significant amount of time to care apart from actual office visits, but there is little quantification of such time by physicians who provide primary care in the home. This article assesses exactly how much time physicians in a large home based primary care (HBPC) program spend providing care outside of home visits. Unreimbursed time, as well as patient and provider-related factors that may contribute to that increased time, are considered.

Design—Mount Sinai Visiting Doctors (MSVD) providers filled out research forms for every interaction involving care provision outside of home visits. Data collected included: length of interaction, mode, nature, and whom the interaction was with for 3 weeks.

Setting/Participants—MSVD is an academic home-visit program in Manhattan, NY. All PCPs in MSVD (n=14) agreed to participate.

Measurements—Time data were analyzed using a comprehensive estimate and conservative estimates to quantify unbillable time.

Results—Data on 1151 interactions for 537 patients were collected. An average 8.2 hours/week were spent providing non-home visit care for a full-time provider. Using the most conservative estimates, 3.6 hours/week was estimated to be unreimbursed per full-time provider. No significant

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differences in interaction times were found among dementia vs. non-dementia patients, new vs. non-new patients, and primary-panel vs. covered patients.

Conclusion—Findings suggest that HBPC providers spend substantial time providing care outside home visits, much of which goes unrecognized in the current reimbursement system. These findings may help guide practice development and creation of new payment systems for HBPC and similar models of care.

Keywords

home care; geriatrics; reimbursement

INTRODUCTION

The number of homebound adults continues to rise as the elderly population grows(1). Homebound elderly have multiple chronic medical conditions requiring multidisciplinary care(2). Their poor health is made worse by significant barriers to care, which leads to a disproportionate number of emergency department visits and hospitalizations(3, 4).

Home-based primary care (HBPC) programs provide multidisciplinary care to homebound patients, and proper coordination of care is essential(5). Physicians must communicate with other care providers, family members, pharmacists, and home health agencies, and this may often be time-consuming.

Time outside of visits is generally not separately reimbursed by Medicare or commercial insurers except for some modest pre- and post-visit work. One of the few times Medicare does reimburse this time is through Care Plan Oversight (CPO). To bill via CPO, specific strict requirements must be met: 1) the patient must be under the care of a Medicare-certified home care agency; 2) the patient must have had a face-to-face encounter with a primary care physician (PCP) within 6 months; 3) greater than 30 minutes per calendar month must be devoted to the coordination, monitoring, and adjustment of medical care with medical professionals; and 4) interactions must occur outside of pre- and post-service work related to a home visit(6).

Mount Sinai Visiting Doctors (MSVD) is the nation's largest academic home visit program. The patients are generally elderly, with a significant disease burden. Almost all enrollees require assistance with at least one activity of daily living(2). MSVD provides a full spectrum of medical services to the homebound, which requires significant care coordination. The amount of time spent on this care coordination has not been quantified previously.

The Centers for Medicare and Medicaid Services have recently initiated the Independence at Home (IAH) Demonstration and Accountable Care Organizations (ACOs), in order to align incentives away from traditional fee-for-service to longitudinal population management. While neither program directly reimburses for time outside of visits, each recognizes that the coordination of care outside of outpatient encounters may improve high-quality care and provide incentives to providers by permitting gain-sharing of savings(7, 8).

The U.S. faces a geriatrician and primary care provider shortage(9, 10). One commonly cited reason is their lower compensation compared to other medical specialties(10, 11). Reimbursement systems largely favor procedures over longitudinal primary care. Most payment systems do not recognize the value of avoiding more expensive care, which can often be accomplished by providing care outside of home and office visits, work which is inadequately reimbursed(11, 12). Our study aims to provide policymakers with data on how much time physicians spend coordinating care between visits.

Studies have documented that general internists and family physicians spend 20% and 23% of their day respectively on activities outside of visits(13–15). General internists at a Veterans Administration Medical Center worked a median of 7.9 hours/week between office visits. Full-time ambulatory geriatricians worked an extra 7.8 hours/week(16, 17). According to a 1983 study, house-call doctors spent 39% of their work time on phone calls and administrative duties outside of home visits(18).

There is a need to broaden this research to include the current home visit population. We hypothesize that this population may require more care coordination due to their complex disease burden. Furthermore, it is important to examine this issue in the context of a highly advanced Electronic Medical Record (EMR) system, since healthcare systems are increasingly adopting this technology. This study assesses how much time physicians in a large HBPC program spend providing care outside of home visits, including unreimbursed time. We also test the impact of patient-related factors, which we hypothesize may lead to increased unreimbursed time, including 1) patients with a diagnosis of dementia; 2) recent admission to the practice; and 3) coverage by a physician other than their PCP. This is a novel study, which examines home care physicians caring for patients with multiple, complex conditions and employs several methodologies to assess the unreimbursed time of those physicians.

METHODS

Setting

The MSVD program(2), is staffed by 13 physicians, two nurse practitioners, four social workers, and two nurses along with seven administrative staff. One of the nurse practitioners acts as a PCP and the other does office-based clinical work such as medication refills and triage. The social workers work on a referral basis. The nurses perform telephone triage and new referrals. The administrative assistants answer all phone calls, order labs and durable medical equipment (DME), and schedule appointments and referrals.

Participants

All PCPs in MSVD (13 physicians and one nurse practitioner) agreed to participate in the study. Fourteen PCPs care for 818 homebound patients.

Data Collection

The "Interaction Assessment Instrument" was created and piloted based on direct observation of four physicians' use of the instrument. The final research form included the

patient's name and date of birth, with whom the interaction took place (e.g., patient, nurse), the duration, mode, nature, outcome, and brief description of the interaction, and whether it was CPO eligible. Patient identifiers were not recorded, but each patient was coded so interactions could be linked to a single patient for a given week. All providers participated in data collection for one or two weeks, for a total of 18 provider-weeks. All protocols received Institutional Review Board approval at the Icahn School of Medicine at Mount Sinai.

Measures

Interaction time was measured with a stopwatch and rounded down to the nearest 30 seconds. During each provider's specific data collection week(s), he/she recorded every interaction that occurred outside of home visits during the regular workday. On call hours and calls that came in after 5pm were excluded. Three different measures to assess time spent outside of home visits were employed:

- Comprehensive: This was the total time outcome based on all times reported by the PCPs.
- 2. Conservative: This was a conservative estimate of unreimbursed time that removed interactions for which there was a home visit one week prior- or post-interaction. Based on methodology used in a similar study(17), these interactions were removed to ensure that they were not associated with a recent visit, since Medicare bundles pre- and post-service work related to a home visit in its reimbursement model.
- 3. Conservative minus potential CPO: This was the most conservative estimate of unreimbursed time, which removed interactions when there was a visit before or after and all interactions that were CPO eligible. Since CPO can only be billed if the 30-minute threshold has been met, all providers had to indicate that the interaction was CPO eligible, i.e. an interaction that could count as part of the 30 minutes.

The following data were drawn from the EMR: 1) patient's dementia status; 2) date of admission to MSVD; 3) whether the patient had had a home visit one week prior to, or after, an interaction; and 4) whether that patient was covered by a physician other than the PCP.

Statistical Analysis

For each time outcome, average time/week spent on a given patient in a physician's patient panel was calculated. This was done by dividing the average total time/week result by the comprehensive patient panel of all of the physicians. Then average time/week for a full-time (FT) physician at MSVD was calculated by multiplying by 95 (number of patients in a FT provider's panel). We also calculated the percentage of total clinical time providers were spending on the time outside home visits. Because full-time MSVD providers are expected to spend 40 hours/week on clinical duties, we divided the average total time/week results by 40 hours. We tested whether dementia status, new patient status, or covered patient status was associated with duration of interactions. Median time and interquartile range (IQR) were calculated and a Wilcoxon signed-rank test was used to test for significant difference.

All analyses were done using SAS software, version 9.2 (SAS institute, Cary, North Carolina).

RESULTS

The patient characteristics are based on all active MSVD patients (n=818). 84% are 70 years and older. 78% of patients are female, and 85% are covered by Medicare, with 51% covered by both Medicare and Medicaid. 15% are new to the practice (within the last 6 months).

The median age of MSVD providers (n=14) is 38 and 71% are female. The average number of years working in HBPC is 6.8 (range: 1–18 years), and the average number of years since their highest level of medical training is 6.6 (range: 1–18 years). A majority is board certified in Internal Medicine (11 of 14), 7 of 14 are board certified in Palliative Medicine, and 3 of 14 are board certified in Geriatrics. The average patient panel size is 63.

Data were collected over three weeks by design and represented 18 provider-weeks. There were a total of 1151 interactions involving 215 unique patients during week one, 201 unique patients during week two, and 121 unique patients during week three (537 unique patients total). 55% of interactions were 3 minutes or less and 90% were 10 minutes or less. There was a mean of 10.2 minutes/week spent on a given patient in the study.

The highest proportion of interactions was with the Visiting Nurse (24.8%). Only 8.4% of interactions were directly with the patient. 18.9% of interactions were with the patient's family. 27.0% of interactions involved only the use of the EMR. 61.2% were via telephone. Almost half of interactions were related to coordination of care or status update/change such as a patient or family member calling about a worsening or improving condition. While a large portion of interactions resulted in no change in care (41.6%), 11.2% involved medication use/change and 11.0% involved reassurance and counseling. A smaller percentage of interactions resulted in determining that the patient required an urgent visit or had to go the emergency room (2.9% and 2.0% respectively) (Table 1).

Full-time PCPs spent an average of 8.2 hours/week on time outside visits or 20.5% of their total expected clinical time. The two actual FT MSVD physicians had comprehensive weekly times of 8.5 hours/week and 7.8 hours/week, an average of 8.2 hours/week, the same comprehensive time determined by extrapolating all provider times to FT equivalents. Using a conservative estimate of unreimbursed time, a provider spent 3.6 hours/week or 9.0% of their total expected clinical time on this work. Based on the conservative minus potential CPO outcome, providers spent 2.4 hours/week on care outside of home visits or 6.0% of their total expected clinical time(Table 2).

There were no significant differences found in the median interaction times for patients with and without dementia (p value= 0.88), patients covered by their PCP vs. another clinician (p value= 0.33), and new vs. existing practice patients (p value= 0.42) (Table 3).

DISCUSSION

The results demonstrate that providers in MSVD spend substantial time providing care for patients outside of home visits. In total, a FT provider spends an average of 8.2 hours/week on this care. In other words, if the total amount of time were spent evenly on every patient in a provider's panel, a provider would spend 5.2 minutes/week on each patient. A MSVD FT provider is expected to spend 40 hours/week on clinical duties. Therefore, 20.5% of clinical time is spent on providing care outside home visits. The comprehensive time/week and percentage of clinical time is comparable or slightly higher than care outside of office visits found in studies with similar methodologies(13–16). We attempted to estimate unreimbursed time by including a range of estimates from most conservative to a least conservative estimate that includes any time even potentially reimbursable. By factoring in existing CPO and home visit reimbursements to all potential time spent covered by these programs, a FT provider still faces 2.4 hours/week of unreimbursed time not covered by these systems. This suggests current reimbursement systems are failing to capture all time spent providing care outside of home visits.

Based on previous study methodologies, we eliminated any work outside of home visits that was within a week prior or post a visit, which likely results in an underestimate of time. Many interactions within a week of a home visit are not associated with the actual visit. MSVD patients are seen often, on average every 6–8 weeks, so it is likely that many visits were not directly associated with the interactions preceding or following a visit occurring within the 1-week window. For example, a patient with dementia may be currently stable and seen every 8 weeks. If his hospital bed breaks 3 days before a visit and the physician needs to write a prescription for the DME company to repair the bed, the 10 minutes it takes to talk with the daughter and write the prescription has nothing to do with the subsequent home visit. Yet in this study, that encounter would have been excluded in our conservative estimates of time. Similarly, our estimates of potential CPO are also likely to be underestimates since many CPO possible interactions are never billed due to strict guidelines. The physician has to spend an accumulative minimum of 30 minutes with one patient over a month, but cannot bill for more than 30 minutes if more time is accumulated. We removed all of these in order to provide the most conservative measure possible of unreimbursed time.

This is in addition to several factors contributing to an underestimation of time spent outside of home visits. Many of our physicians end up providing care outside of visits after hours and when they are not physically in the office. However, this study did not include on-call or weekend hours or work after 5pm. All of these considerations lead us to believe that the actual amount of time spent on unreimbursed work outside of visits is likely somewhere between the comprehensive and conservative estimate (8.2 hours/week and 3.6 hours/week) (Table 2).

The study also highlights how important it is to consider unreimbursed time in the context of the EMR. More than one quarter of interactions involved using the patients' EMR. This is noteworthy because some previous studies looking at time spent outside office visits were in practices that did not use an EMR system(15, 17). For example, one study demonstrated

geriatricians spend an average of 7.8 hours per week providing care outside of office visits(17). This study used a time outcome most comparable to our conservative estimate outcome of 3.6 hours as they excluded interactions where there was a visit one week pre- or post-visit. However, the other practice used paper records. It is possible that the use of EMR may make our practice more efficient, which would contribute to the decreased time in our practice comparatively.

Our study explored how and with whom providers were interacting. This underscores the amount of care coordination being provided by the physicians in the time outside of home visits. The physicians are speaking with other providers, pharmacists, and the patient's family members, in addition to others who play an important role in the patient's care. The low number of physician-patient interactions may also explain the lack of significant time differences when analyzing differences related to dementia status. In all likelihood, these differences do not exist, because the individual patients were not involved in the interactions. Our findings suggest that the involvement of a covering physician in caring for another provider's panel of patients is efficient and does not result in extra time being spent on care coordination activities. We hypothesized that new patients would require more time, but we did not find that to be the case. There was no change in the amount of time spent. Future studies may want to examine other issues that may affect unreimbursed time, such as diagnosis of a new illness.

One finding that should be highlighted is the number of serious medical decisions being made in these telephone interactions. 48.8% of interactions involved coordination of care and status update/change. Many of these calls included medication changes, dose changes, and ordering laboratory tests and imaging. A home visit was thereby avoided. In many practices these things would have only occurred in an office interaction.

The results of this study cannot be generalized to any population other than home visit physicians in an urban academic medical center using an EMR. The teaching responsibilities of PCPs in academic medicine reduce their patient panel sizes. Practices with larger panel sizes would likely have a greater amount of absolute time spent on care outside of home visits. Also, it is possible that the familiarity of the providers with their relatively small patient panels and the availability of support services such as a nurse practitioner, social work, and triage nurses lessen the amount of time providers need to spend on care outside of visits.

This research is timely with the initiation of Medicare's IAH Demonstration and ACOs. Both programs provide alternative payments (shared savings) for high quality, coordinated care that is needed for the frail homebound elderly. Appropriate reimbursement for care coordination activities for geriatricians and other PCPs may prevent burnout and potentially increase the number of medical school graduates pursuing primary care.

In early 2013, Medicare introduced 2 new transitional care management codes to recognize the work involved in transitioning a patient from a higher acuity care setting back to the community(19). As our health care reimbursement system shifts away from quantity and

towards value, empiric data such as those presented in this paper are important to inform stakeholders and decisionmakers.

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 Table 1

 Characteristics of Interactions^a Providing Care for Patients Outside of Home Visits (N=1151)

Variable	Frequency (%)
Whom/what the interaction was with, n (%)	
Patient	97 (8.4)
Patient's family	218 (18.9)
Visiting nurse	285 (24.8)
Home aide	38 (3.3)
Other physician	49 (4.3)
Pharmacy	56 (4.9)
Visiting Doctors office staff	53 (4.6)
No one (eg Review EMR only)	271 (23.5)
Physical Therapist/Occupational Therapist /Speech therapy	20 (1.7)
Durable Medical Equipment (DME) vendor	8 (0.7)
Outside social work	13 (1.1)
Agency	20 (1.7)
Other	10 (0.9)
Mode of interaction/event, n (%)	
Telephone	704 (61.2)
Email	29 (2.5)
EMR	311 (27.0)
Fax	11 (1.0)
Written (eg letter)	41 (3.6)
Face-to-face	31 (2.7)
Other	0 (0.0)
Nature of interaction/event, n (%)	
Electronic prescription refill	108 (9.4)
Printed prescription refill	33 (2.9)
Prescription preapproval	5 (0.4)
DME Rx	46 (4.1)
Review labs/imaging/chart	128 (11.1)
Left message	71 (6.2)
Coordination of care and status update/change	562 (48.8)
Caregiver stress	29 (2.5)
Family meeting	1 (0.1)
Health form completion	48 (4.2)
Noted work by office staff	66 (5.7)
Other	5 (0.4)
Outcome, n (%)	
Medication use/change	129 (11.2)
Medication refill	139 (12.1)
Referral	91 (7.9)

Pedowitz et al.

Variable Frequency (%) Order labs 46 (4.0) Order imaging 14 (1.2) Discharge planning 47 (4.1) Urgent visit 33 (2.9) Emergency Room visit 23 (2.0) 126 (11.0) Reassurance/Counseling 75 (6.5) Change in management of care 479 (41.6) No change in care 352 (30.6) Other 141 (26.4) Prior visit, n $(\%)^{b}$ Urgent visit 21 (14.8) 104 (19.5) Post visit, n (%) b Urgent visit 29 (27.4)

Abbreviations: EMR=Electronic medical records; PT=Physical therapy; OT=Occupational therapy; SW=Social work; DME=Durable medical equipment

Page 10

 $[^]a$ Total number of interactions in 3 weeks: 1151; Total duration in 3 weeks: 5515 minutes (92 hours)

 $[^]b\mathrm{N}=537$ unique patients; Prior visit in the seven days before the interaction or post visit in the seven days after the interaction

 Table 2

 Time Spent Providing Care Outside of Home Visits Including Unbillable Time Estimates

Time outcome	Total time/week per full-time provider ^a (hours)	% of total clinical time b for full-time provider
Comprehensive ^C	8.2	20.5%
Conservative ^d	3.6	9.0%
Conservative - potential CPO^e	2.4	6.0%

Abbreviations: CPO=Care plan oversight

aFull-time provider with 95 patients in patient panel

 $^{^{}b}40$ hours per week of expected total clinical time for a full-time physician

^cTotal time outside of home visits

 $d_{\hbox{\small Time outside of home visits NOT including interactions where there was a visit one-week prior- or post-interaction}$

^eTime outside of home visits NOT including interactions where there was a visit one-week prior- or post-interaction and NOT including interactions that were CPO potentially billable

Table 3

Time Spent Providing Care Outside of Home Visits Based on Patient Characteristics

Patient characteristics (N=537)	Frequency (%)	Median total interaction time in minutes (IQR)	p value
Dementia status			
Yes	253 (47.1)	6.0 (2.0, 12.5)	0.88
No	281 (52.3)	5.5 (2.0, 11.5)	
Covered patient ^a			
Yes	28 (5.21)	4.5 (2.0, 9.3)	0.33
No	506 (94.2)	5.5 (2.5, 12.3)	
New patient ^b			
Yes	59 (11.0)	7.0 (2.0, 13.0)	0.42
No	475 (88.5)	5.5 (2.0, 11.5)	

Abbreviations: IQR= interquartile range

 $^{^{}a}$ Interaction occurred for provider who was covering the patient

 $^{{}^}b\mathrm{Patient}$ admitted to Mount Sinai Visiting Doctors program in the last 6 months