Between-Visit Workload in Primary Care

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BACKGROUND: The time spent and complexity of work done by primary internal medicine physicians between office visits has not been well studied.

OBJECTIVE: To measure the time and complexity of this care.

DESIGN: Cross-sectional study.

SETTING: General internists practicing on primary care teams with electronic medical records at a tertiary Veterans Health Administration Medical Center.

PARTICIPANTS: Ten physicians.

MAIN MEASURES: The project was designed to measure physician work between office visits. The electronic record was used to record the number and complexity of work events by physicians for 1 month. Complexity of work was measured on five levels ranging from Level I with no change in management, Level II with change in management of one disease, Level III of two diseases, Level IV of three diseases, and Level V of four or more diseases. Time sampling was done over 5 days to determine the time spent by level of complexity. Total time per physician was calculated by multiplying the number of events each physician captured by the average time for that physician for that level of complexity.

KEY RESULTS: Physicians worked a median of 7.9 h per week between office visits. Work was apportioned among Level I (18.3%), Level II (38.3%), Level III (36.5%), Level IV (4.6%), and Level V (2.3%).

LIMITATIONS: Single VA population and self-reported data. Findings may not be generalizable to other practice settings.

CONCLUSION: Primary internists spent a median of 7.9 h per week in work between office visits with 82% of the time involved in changes in management.

BACKGROUND

Increasing attention is being paid to the impending shortage of primary care internists. A number of causes have been

discussed elsewhere, including the time demands to meet current guidelines for prevention and chronic disease management, higher rates of reimbursement in competing specialties, increasingly complex and aging patients, and other factors leading to high rates of burnout.[1–5] Uncompensated work between office visits may also add to physician dissatisfaction. In 2005, Gottschalk and Flocke reported that family physicians spent almost one fifth of their workday caring for patients who were not currently in the office.[6] Subsequent studies found similar amounts of time spent in an academic geriatric medicine practice,[7] and in a private internal medicine practice with an electronic medical record (EMR).[8] Our study provides additional data on time spent on patient work between office visits, but differs from prior studies in that it measures the complexity of care in a new concise manner and was conducted in a Veterans Administration Medical Center (VAMC) under mandates that physicians report all test results promptly to patients.[9,10]

METHODS

The Atlanta VAMC carried out an internal project to understand the patient-specific work done between office visits. The work measured was done at the office or from home on the evenings or weekends via an electronic virtual private network.

Our primary physicians have a standard panel of 1,200 patients, work 36 h/week in office visits, are members of a primary care team, and use a computerized patient record system (CPRS). Physicians receive a salary plus a bonus based on individual performance on health outcome measures, but not on office visit volume. To maximize open access, patients can only have visits scheduled less than 1 month in advance and can walk into the clinic unscheduled. The ten physicians have a median age of 50, median panel size of 1,149, median patient age of 60, and mean patient complexity as measured by Diagnostic Cost Groups (DCGs) concurrent relative risk score of 0.63, consistent with the national mean[11,12]. The study was done in 2008 on three similar primary teams including the Purple Team located in the hospital and two satellite locations in Decatur and Cobb. Teams differ by nurse/physician staffing ratios (Purple 0.9 vs. Decatur and Cobb 1.3) and percent of physician time spent in office practice versus inpatient care (Purple has 10 months/year office and 2 months/year inpatient, whereas Decatur and Cobb are 100% ambulatory). Teams include physicians, nurse practitioners, physician assistants, registered nurses, licensed practical nurses, social workers, clinical pharmacists, nutritionists, and clerical staff. Nurses manage many quality indicators; nurses and pharmacists perform chronic disease management.

The project was designed to capture the number of work events outside office visits, their complexity, and duration. Using the "event capture" capability of CPRS, each physician recorded the number and complexity of events over a 1 to 3 month period. To measure complexity we developed a five-level scale (appendix) based on whether diagnostic or treatment plans changed and the number of diagnoses involved, similar to CPT evaluation and management codes. Level I events include simple transactions with patients with no new diagnostic testing and/or change in management. Level II–V events include assessment, communication, and execution of plans for new diagnostic testing and/or change in management depending on the number of diseases involved: Level II involving one disease, Level III two diseases, Level IV three diseases, and Level V four or more diseases. For situations that involved extensive paperwork for medical review and/or documentation without a change in management, the level could be based on time. Due to the very high volume of brief follow-ups on normal diagnostic results or routine prescription renewals, the physicians involved in the study were instructed to record Level I encounters for only 5 days. Level II–V events were captured for 1 month.

Because event capture does not record time, event duration was sampled separately using digital stop watches. To lessen the burden involved in stop watch measurement, physicians recorded the duration of each event by level for only 5 days, while registering events for at least 1 month. Total time for each physician was calculated by multiplying the number of events captured by the average time for that physician for that level of event. For events in which a physician captured events but did not personally capture time measurements for that level, the mean times per event for all other physicians by level were used. Participants estimated the percent of between-visit work episodes that they captured after the project ended. Data were normalized to standard panels of 1,200 patients and a 5-day work week adjusted for federal holidays, sick days, and vacation days.

The Emory University Institutional Review Board ruled that this project did not require IRB Review.

RESULTS

Of 24 physicians on the teams, 12 were willing to provide a full month of event recording due to the time required. After review of the data, two outliers—one low and one high—were removed because of obvious lack of compliance with the coding rules. The low outlier recorded an average of 1.88 min/event across all five coding levels, while the high outlier had disproportionately high counts of Level 4 and Level 5 events, translating into an implausible 53 h per week.

The remaining ten physicians performed a total of 567 brief Level I events in 1 week or an average of 57 encounters per physician-week. We collected a total of 57 physician weeks of Level II through V events; 6 physicians participated for 1 month, 3 for 2 months, and 1 for 3 months. These encounters totaled 1,984 Level II events, 899 Level III events, 100 Level IV events, and 13 Level V events for a total of 2,996 discrete work episodes. The average number of events per week for each of the five levels is shown in Table 1.

Eight physicians recorded the duration of each event for 5 days. Mean time per event was 1.6 min for Level I, 5 min for Level II, 12 min for Level III, 13.1 min for Level IV, and 40.3 min for Level V. Table 2 details the hours per week between office visits for the ten physicians who captured events for 1 month or more.

DISCUSSION

Primary physicians spent a median of 7.9 h per week on patient work between office visits. Because study physicians estimated their capture rate to be only 80%, the real time spent may be closer to 10 h per week. This estimate is consistent with that reported in two other recent studies: a family practice averaged almost one fifth of the workday on patients not currently in the office, and an academic geriatric clinic averaged an extra 7.8 h of work/physician outside of office visits.[6,7] In contrast to those two studies, this work was

Table 1. Event Counts of Work Between Office Visits per Week

Physician	Level 1 Events per week	Level II Events per week	Level III Events per week	Level IV Events per week	Level V Events per week	Unadjusted total events/week	Percent of full panel	Panel adjusted total events/week
C1	69	40.7	32.6	4.5	0.0	146.9	110	138.7
C2	64	19.5	2.9	0.3	0.3	86.9	80	114.1
C3	33	29.6	38.7	6.0	0.2	107.4	110	98.2
D1	30	47.9	10.0	0.5	0.0	88.3	100	86.5
D2	116	40.3	5.8	0.8	0.8	163.5	70	219.5
D3	62	26.4	1.9	0.2	0.0	90.6	100	89.5
D4	16	98.1	37.5	1.7	0.0	153.2	100	153.4
D5	61	17.1	0.7	0.0	0.0	78.9	90	86.1
P1	46	27.6	5.0	0.2	0.2	79.1	70	109.2
P2	70	13.3	4.5	0.9	0.9	89.5	40	231.5
Total events/week	567.0	360.3	139.5	15.0	2.3	1,084.3		1,326.5
Percent events/week	52.3%	33.2%	12.9%	1.4%	0.2%	100.0%		
Mean	56.7	36.0	14.0	1.5	0.2			132.7
Standard deviation	27.9	24.5	15.7	2.1	0.3			53.8
Median	61.5	28.6	5.4	0.6	0.1			111.7

C=Cobb, D=Decatur, P=Purple

Table 2. Primary Physicians Hours per Week of Work Between Office Visits

Physician	Level I	Level II	Level III	Level IV	Level V	Total hours/ week	Panel size	Percent of full panel	Panel adjusted hours per week
	Minutes/ week	Minutes/ week	Minutes/ week	Minutes/ week	Minutes/ week				
C1	19	198	339	75		10.5	1,271	110	9.6
C2	196	134	61	3	11	6.8	914	80	8.4
C3	50	159	531	79	9	13.8	1,313	110	12.5
D1	46	257	137	6		7.4	1,226	100	7.4
D2	70	90	29	5	31	3.7	894	70	5.3
D3	176	158	29	3		6.1	1,214	100	6.1
D4	25	492	450	22		16.5	1,199	100	16.5
D5	96	86	9			3.2	1,099	90	3.5
P1	57	90	40	3	6	3.3	869	70	4.7
P2	101	81	40	14	48	4.7	464	40	11.8
Percent minutes/ week	18.3%	38.3%	36.5%	4.6%	2.3%				
Mean	84	175	166	23	21				8.6
Standard deviation	60	125	197	31	18				4.1
Median	63.3	146.2	50.3	6.2	10.6				7.9

C=Cobb, D=Decatur, P=Purple

measured in a system with an EMR and a mandate to report all results to patients within 2 weeks.[9,10] This study provides new data on the complexity of care performed between office visits in primary care revealing that 82% of the time was spent on events involving change in diagnosis or management, with almost half the time involving two or more diagnoses.

The wide variability observed among the providers may be due to multiple factors, including practice efficiency, which may be within a provider's control, patient severity/complexity, which is generally outside the provider's control, and inaccurate measurement, which does not represent true variability in time spent. This study did not have the statistical power to confirm whether or not a significant relationship does exist between DCG scores and workload. Future studies may address this. Practice efficiency factors include variation in ensuring that patients have diagnostic testing completed preceding visits so results can be discussed during the visit, nurse/physician staffing ratios, communication style (phone versus letter), and delegation of chronic disease management to nurses and pharmacists. Now that the time and complexity is known, each team is working to improve efficiency. Sources of inaccurate measurement include variation in capture rate and varying interpretations of the complexity levels despite concise rules and uniform training. For example, in Table 1 D2 and P2 were high outliers in total events per week, because they were two of the three physicians with the highest capture rates (measurement) and also two of the three physicians with the most complex patients as measured by DCG score (patient complexity).

The higher complexity of much of this work between visits has implications as to the amount of work that could be delegated to non-physicians. Future studies may explore how much efficiency can be improved through the use of algorithms by nurses or pharmacists for simple medication changes, diagnostic test ordering, and chronic disease management.

Limitations of this study include: a VA population that is 95% male versus the US population. Standard panel size on our teams is 1,200 patients. To the extent that patients represented in this study also had non-VA physicians from whom they obtained (even the bulk) of their care, the conclusions regarding non-visit-based time may be underestimated. Data were self reported and capture incomplete.

The quantity of unreimbursed, complex work between office visits may contribute to the high burnout rate of existing primary internists and the diminishing interest of medical student graduates in primary care. Fair compensation for this work could be reasonably addressed in multiple ways. In primary care, flat capitation payments could be made to cover between-visit work and panel management activity aimed at optimizing patients' health based on current evidence-based standards. This mechanism would be an incentive to improve efficiency. Alternatively, additional CPT codes for evaluation and management services could be established to compensate fairly for high-volume physician patient interactions conducted over the phone, by secure e-mail, letters, and even secure video. Decreasing the frequency of office visits would also benefit patients, for whom travel to the office may be logistically difficult, unaffordable, or simply inconvenient. A smarter, more equitable reimbursement design could improve the efficiency and effectiveness of the health care system for both providers and patients.

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APPENDIX

Coding rules for physicians for patient care between visits
Rules for transactions including mailed letters, faxes, or telephone calls to and from the patient:

Level I: Focus on simple transactions with no change in new diagnostic testing and/or management.

- Communication to or from physician including laboratory, imaging, or procedure results.
- Results essentially normal. No further follow-up orders or workup required.
- No interpretation of results is really necessary.
- Prescription renewals

Level II: Focus on one disease requiring new diagnostic testing and/or change in management

- Communication to or from physician including laboratory, imaging, or procedure results.
- Usually, physician interpretation of results is brief and simple.

- Change in management involves new diagnostic testing and/or change in therapeutic regimen for single disease and instructions for follow-up.

Level III: Focus on two diseases, both requiring new diagnostic testing and/or change in management

- Communication to or from physician including laboratory, imaging, or procedure result.
- Results mostly uncomplicated, but do require some follow-up orders and/or further workup.
- Physician interpretation of results is usually basic and straightforward, and communicated in layman's terms.

Level IV: Focus on three diseases, with at least three requiring new diagnostic testing and/or change in management.

- Communication to or from physician including laboratory, imaging, or procedure result.
- Results mostly complex with more extensive follow-up and additional orders required.
- Physician interpretation of results is usually lengthy, detailed, and communicated in layman's terms.

Level V: Focus on four or more diseases requiring new diagnostic testing and/or change in management or extensive communication or counseling requiring 45 min.

- Communication to or from the physician, including laboratory, imaging, or procedure result.
- Results mostly complex with more extensive follow-up and additional orders required.
- Physician interpretation of results is usually lengthy, detailed, and communicated in layman's terms.
- Level V episodes are expected to be infrequent.

Time can be used as the basis of coding for that small percentage of situations involving time-consuming paperwork for extensive patient-specific medical review and/or documentation issues not involving change in management. Examples include: insurance, disability, or work documentation requirements, review of inside or outside hospital discharges or consultant reports, and conversion of multiple VA prescriptions to non-VA prescriptions at patient request for patient cost-saving purposes. The latter is a time-consuming three-step process involving rewriting of prescriptions for non-VA pharmacies, discontinuation of VA prescriptions, and new recording of outside prescription orders in a different file within CPRS.

Level I: under 2 min
Level II: 2–8 min
Level III: 8–15 min
Level IV: 15–45 min (infrequent)
Level V: >45 min (rare)