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Measurement of nonbillable service value activities by nurse practitioners, physician assistants, and clinical nurse specialists in ambulatory specialty care

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ABSTRACT

Background: Revenue-generating health care activities, generally accepted as a measure of productivity, do not account for the full range of health care activities that enhance patient care.

Purpose: We analyzed the quantity, duration, and type of "service value activities" performed by nurse practitioners (NPs), physician assistants (PAs), and clinical nurse specialists (CNSs), which are nonbillable service activities that contribute to billable service provision, quality of care, and value of care.

Methods: Data were obtained from ambulatory specialties at one health care institution over a 13-month period. First, descriptive statistics were calculated by time-based code for each category of provider (medical, surgical, transplant, hematology/oncology, and anesthesia). Then qualitative comments were analyzed for frequency of key words.

Results: Each provider spent an estimated average of between 3.7 and 36.5 hours per month on service value activities, with the greatest number of these activities related to orders, chart review, and documentation.

Implications for practice: More thorough exploration of the quantity and type of service value activities performed may lead to a better understanding of the role and contribution of NPs, PAs, CNSs, and other health care professionals to patient care.

Keywords: Advanced practice; ambulatory; nurse practitioner; physician assistant; specialty; value.

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Background

As health care payment systems move from fee-for-service to value-based payment, it is becoming increasingly important to account for care activities that may not be reimbursable in a fee-for-service system but that enhance the quality and value of health care services. Greater attention to fostering high-value, high-quality care in an increasingly complex interprofessional health care environment raises the need to examine the role of all members of the health care team in promoting positive patient outcomes.

Nurse practitioners (NPs) and physician assistants (PAs) are being employed in increasing numbers in medical and surgical specialty settings. Between 2008 and 2016, NPs and PAs were employed in approximately 28% of all specialty practices in the United States (Martsolf et al., 2018). The quality of care provided by these NPs has been found to be comparable with care provided by physicians in various settings, including acute care, the emergency department, and primary care (Kurtzman & Barnow, 2017; Laurent et al., 2009; Mundinger et al., 2000; Newhouse et al., 2011; Timmermans et al., 2017). These individuals perform

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direct care for patients, including diagnosis, creating a plan of care, ordering medications and other treatments, performing procedures, and ordering and interpreting laboratory and imaging tests.

Under traditional fee-for-service payment models, clinician services are usually compensated through the generation of work relative value units (wRVUs) for performing activities that involve direct patient care (e.g., a clinical encounter or performing a procedure) (Luong et al., 2018). It is often the case that compensation is tied to productivity, as measured by wRVUs (Luong et al., 2018).

Although the wRVU compensation system rewards clinicians and practices for increased volume of patients and procedures, it is designed to cover the profit generated by seeing a certain number of patients through billable encounters, but it does not account for the nonbillable activities that may be integral to patient care. Those activities might include collaboration with other members of the care team, testing follow-up, discussing care with patients and families, research, teaching, and quality improvement (Luong et al., 2018).

Nonbillable activities related to patient care have been termed in the literature as service value activities, or service value activities (SVAs) (Ogunfiditimi et al., 2013). Previous studies have measured these activities, including the study by Dunn et al. (1988), which measured physicians' preservice and postservice activities by surveying physicians and mathematically extrapolating time spent. The study found that, on average, physicians spent 25–50% of the workday on preservice and postservice SVAs. Another small observational study of physicians found that in the surgery and neurology settings, physicians spent an average of only 61% of time on direct patient care (Jacobson et al., 2011). The study identified multiple nondirect care activities, including prescription refills, making referrals and appointments, and interactions with other staff and providers (Jacobson et al., 2011). A more recent time-and-motion study examined time utilization of physicians in internal medicine, family medicine, orthopedics, and cardiology and found that 49.2% of time was spent on the electronic health record, including documentation, reviewing test results, and orders (Sinsky et al., 2016).

A time-and-motion study that quantified the nonbillable activities of 19 NPs and PAs over 44 days found that in inpatient settings, about 61.6% of time was spent on revenue-generating activities, and 35.1% was spent on SVAs (Ogunfiditimi et al., 2013). In the outpatient setting, about 59% of time was spent on revenue-generating activities, with 38.2% of time on SVAs (Ogunfiditimi et al., 2013). The most commonly reported SVAs were reviewing clinical data, discussions with the health care team, and telephone encounters (Ogunfiditimi et al., 2013).

SVAs that promote higher quality of care, which may have not been billable under a fee-for-service reimbursement system, may now warrant increased attention because of recent legislation and payment system changes. The shift toward incentivizing high-value, high-quality care, and away from fee-for-service payment, was facilitated by the 2015 passage of the Medicare Access and Chip Reauthorization Act (Mulvany, 2016). Medicare Access and Chip Reauthorization Act linked reimbursement from the Centers for Medicare and Medicaid to institutional benchmarks for cost, quality, electronic health record use, and practice improvement activities (Hirsch et al., 2017). With new value-based payment systems, health care institutions are increasingly being incentivized to focus not just on directly billable services but also on the overall quality of care provided.

Few studies have systematically quantified the amount of time non-physician providers across ambulatory specialty care departments spend on SVAs. Additionally, few health systems have developed mechanisms with which to account for time spent on SVAs. The purpose of this exploratory study was to quantify the amount of time NPs, PAs, and clinical nurse specialists (CNSs) in the ambulatory specialty setting spent on SVAs as recorded by the providers in the electronic health record and to qualitatively identify these SVAs, in the context of the shift from fee-for-service to value-based payment systems.

Methods

Research design

This mixed-methods exploratory cross-sectional study was approved by the institutional review board of the academic institution at which it took place.

Data collection

The administrative leadership of the health care institution created a time-based code system to address the problem of not being able to account for nonbillable activities performed by NPs, PAs, and CNSs who bill for their services to begin to understand and quantify the amount of time these providers spend on non–revenue-generating activities that contribute to quality and effectiveness of care. Four time-based codes were created for various lengths of time spent on nonbillable activities: activities lasting 1–15 minutes, 15–30 minutes, 30–45 minutes, and longer than 45 minutes. Nurse practitioners, PAs, and CNSs were instructed to document their activities that were not billable to insurance in the electronic health record using these codes, with unique entries for each activity and each patient. These codes did not need to be entered at the time of a billable encounter, but they could be entered any time a provider was performing nonbillable activities on behalf of a specific patient. There was also an optional free-text section where providers could record the specific activities they performed.

Nonbillable in this context meant that the health care activities were not directly billable to insurance. It should be noted that there are nonbillable encounters that take

place under surgical global payment systems. Surgical global payment is when a health care institution receives a payment package that encompasses services provided in conjunction with a particular procedure. This payment covers the immediate preoperative period, the procedure, and a certain number of postoperative days. Coverage and payments vary based on the type of procedure (Department of Health and Human Services, Centers for Medicare and Medicaid Services, Medicare Learning Network, 2013). Encounters with the current procedural technology (CPT) code 99024, which is a code used for encounters under surgical global payment packages, were excluded from the analysis.

Human resources data were extracted to calculate full-time equivalent (FTE) status of individuals included in this study.

Sample selection

The data used for this study were the nonbillable time-based codes that were documented by NPs, PAs, and CNSs in all ambulatory specialty departments between November 1, 2017 and December 31, 2018. Inclusion criteria for this study were NPs, PAs, and CNSs who billed for their services, worked at this academic medical center, and had documented at least one nonbillable code. Physicians were excluded from the analysis, as were individuals who worked in psychiatric specialties, primary care and internal medicine, radiology, and inpatient departments.

Data from ambulatory specialty departments were preliminarily extracted from the electronic medical record by a data analyst at the health care center, who removed patient information from the dataset. Data were then cleaned by one researcher familiar with the departmental structure of the health care institution. Physicians were removed from the dataset. The remaining providers were grouped into medical specialties, surgical specialties, hematology/oncology specialties, transplant specialties, and surgical/anesthesia specialties (i.e., pain management and pre-anesthesia), to account for differences in type of patient care activities performed across these respective patient populations.

Statistical analysis

Data were transferred to Microsoft Excel and then to Stata IC 15.1 statistical software package for analysis.

For each specialty group developed by the research team, summary statistics were calculated for each nonbillable code type, including total number of codes recorded (calculated in Stata), mean, SD, minimum and maximum (calculated in Microsoft Excel). The total number of codes for each group was then divided by number of FTE positions in the group to determine the average number of nonbillable codes per FTE over the 13-month period. This figure was used to calculate the total number of codes per FTE per month. One subject with missing FTE data was estimated to have an FTE of 1.

The number of hours spent on nonbillable activities was calculated: 1–15 minutes codes were rounded to 15 minutes, 15–30 minutes codes were rounded to 30 minutes, 30–45 minutes codes were rounded to 45 minutes, and 45+ minute codes were rounded to 60 minutes. The calculation of average number of nonbillable codes per FTE was used to determine approximately how many hours per FTE position were spent on nonbillable activities over the 13-month period. This figure was then used to calculate the total number of hours spent on SVAs per FTE per month.

A word count analysis of the qualitative commentary in the dataset was conducted in Excel using word stems for selective words to indicate activities that have been identified in the literature as SVAs. These comments were optional free-text inputs, without specific guidelines as to which terminology should be used to identify activities. The words that were selected for analysis, based on relevant prior literature, were “order,” “result,” “document,” “phone,” “letter,” “teach,” “coordinat-,” “refill,” “team,” “family,” “triage,” “medication,” “labs,” “schedule-,” “symptom management,” “med management,” “medication management,” “chart rev-” “[patient portal name]” and “message” (with “myhealth” and “messages” reported as patient messages).

Results

Table 1 shows results of the summary statistics for each grouping, separated by time-based code, including total codes per grouping over the 13-month period, mean, SD, minimum, maximum, average encounters per FTE, and calculation of average hours per FTE. **Figure 1** is a graphic representation of number of codes per FTE by specialty group. For 1- to 15-minute nonbillable encounters, surgical/anesthesia had the lowest average encounters per FTE per month, with 0.61 codes. Hematology/oncology specialties had the highest number of encounters, with 10.53 encounters per FTE per month, followed by surgical specialties, with 7.30 encounters per FTE per month. For 15- to 30-minute nonbillable encounters, transplant had the lowest number of encounters, with 0.35 encounters per FTE per month, followed by surgical/anesthesia, with 2.21 encounters per FTE per month. Hematology/oncology, surgical, and medical specialties each had between 3.14 and 4.20 encounters per FTE per month. For 30- to 45-minute encounters, hematology/oncology had the lowest number of encounters per FTE per month, at 0.82; surgical/anesthesia had the highest number of 30- to 45-minute encounters per FTE per month, at 8.14. For nonbillable encounters of greater than 45 minutes, surgical/anesthesia specialties again had the highest number of encounters, at 29.12 encounters per FTE per month, and transplant had the lowest number of encounters, at 0.86 encounters per FTE per month.

Table 1. Summary statistics of nonbillable encounters, by specialty group and by time-based code

Specialty	Medical	Surgical	Hematology/oncology	Surgical/anesthesia	Transplant
1- to 15-minute encounters					
Total encounters (13 months)	3,973	6,851	10,011	45	124
Mean per person	49.65	87.83	127.32	6.43	13.78
SD	93.20	220.71	316.30	9.78	20.31
Minimum–maximum	0–484	0–1,548	0–2,189	0–27	0–62
Encounters/FTE (13 months)	58.15	94.89	136.88	7.89	13.93
Encounters/FTE/month	4.47	7.30	10.53	0.61	1.07
Hours/FTE (13 months)	14.54	23.72	34.22	1.97	3.50
Hours/FTE/month	1.12	1.82	2.36	0.15	0.27
15- to 30-minute encounters					
Total encounters (13 months)	3,725	3,122	3,047	164	41
Mean per person	46.56	40.01	37.94	23.43	4.56
SD	91.72	80.23	66.60	36.46	7.45
Minimum–maximum	0–646	0–498	0–387	0–102	0–21
Encounters/FTE (13 months)	54.54	43.23	40.78	28.77	4.61
Encounters/FTE/month	4.20	3.33	3.14	2.21	0.35
Hours/FTE (13 months)	27.27	21.62	20.39	14.39	2.31
Hours/FTE/Month	2.10	1.67	1.57	1.11	0.18
30- to 45-minute encounters					
Total encounters (13 months)	2,827	1,160	798	603	365
Mean per person	35.33	14.87	9.97	86.14	40.56
SD	82.25	27.69	19.34	220.04	11.35
Minimum–maximum	0–571	0–138	0–110	0–585	0–337
Encounters/FTE (13 months)	41.39	16.07	10.72	105.77	41.01
Encounters/FTE/month	3.18	1.24	0.82	8.14	3.15
Hours/FTE (13 months)	31.04	12.05	8.04	79.33	30.76
Hours/FTE/month	2.39	0.93	0.62	6.10	2.37
>45-minute encounters					
Total encounters (13 months)	1,922	1,699	1,048	2,158	99
Mean per person	24.03	21.78	12.92	308.29	11
SD	52.08	52.28	36.40	416.7	25.88
Minimum–maximum	0–329	0–355	0–213	0–1,195	0–79
Encounters/FTE (13 months)	28.14	23.53	13.89	378.53	11.12
Encounters/FTE/month	2.16	1.81	1.07	29.12	0.86
Hours/FTE (13 months)	28.14	23.53	13.89	378.53	11.12
Hours/FTE/month	2.16	1.81	1.07	29.12	0.86

(*continued*)

Table 1. Summary statistics of nonbillable encounters, by specialty group and by time-based code, *continued*

Specialty	Medical	Surgical	Hematology/oncology	Surgical/anesthesia	Transplant
Total encounters					
Total encounters (13 months)	12,449	12,832	14,904	2,970	629
Mean per person	155.58	164.5	188.15	424.29	69.89
SD	222.86	255.82	360.76	463.32	146.55
Minimum–maximum	1–1,337	1–1,551	1–2,408	1–1,226	1–454
Encounters/FTE (13 months)	182.22	177.71	202.28	520.96	70.67
Encounters/FTE/month	14.02	13.67	15.56	40.07	5.44
Hours/FTE (13 months)	100.99	80.92	76.54	474.22	47.69
Hours/FTE/month	7.77	6.22	5.89	36.48	3.67

Note: FTE = full-time equivalent.

Figure 2 is a graphic representation of the calculation of total hours per FTE for each specialty group, separated by nonbillable encounter type. Aggregating all time-based encounters for each specialty group, the total time spent on nonbillable encounters per FTE was 7.77 hours per month in medical specialties, 6.22 hours per month in surgical specialties, 5.89 hours per month in hematology/oncology specialties, 36.48 hours per month in surgery/anesthesia specialties, and 3.67 hours per month in transplant specialties.

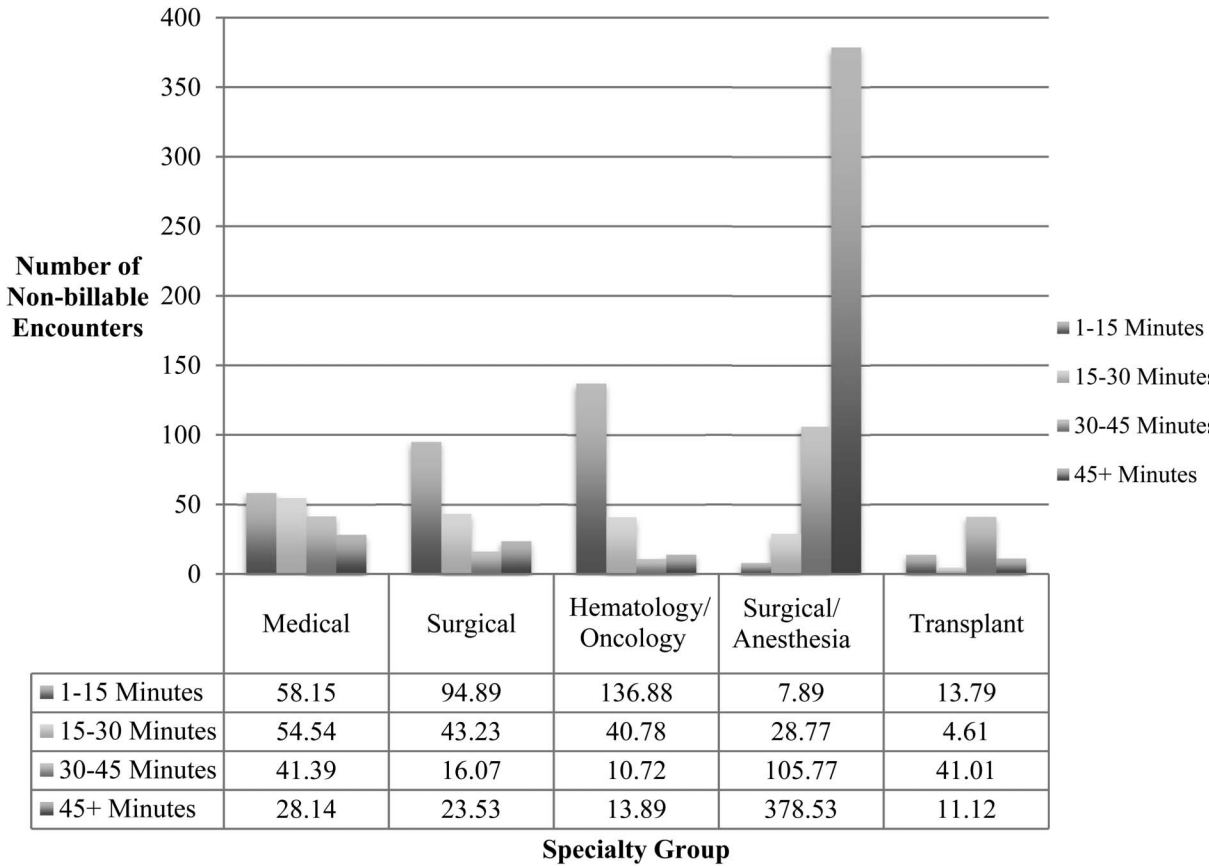
In total, there were 12,890 qualitative comments entered in conjunction with nonbillable codes (**Figure 3**). There were no official definitions for these qualitative comments, and their meaning is subject to the interpretation of the individual that recorded them. The most commonly mentioned terms were "order" (2,116 entries) and "chart rev-" (1,855 entries), followed by "document" (1,190 entries), "coordinat-" (725 entries), "phone" (520 entries), and "team" (556 entries).

Discussion

Findings from this study indicate that NPs, PAs, and CNSs in ambulatory specialties are performing many hours of tasks that are relevant to patient care but are not billable under current fee-for-service billing systems. This study showed that in medical, surgical, and hematology/oncology specialties, there are greater amounts of shorter duration (1–30 minutes) nonbillable encounters, and in surgical/anesthesia and transplant specialties, there are higher numbers of longer duration (30+ minutes) nonbillable encounters. This finding is consistent with models wherein providers in surgical and anesthesia specialties may perform care for patients whose care is reimbursed under global payment systems, which is not coded under the global payment CPT code. Qualitative results indicate that a significant amount of time is spent on activities that constitute interaction with the electronic medical record, namely, chart review and documentation, as well as on placement of orders required for care and communication with other parties to coordinate care.

Previous studies have examined the amount of time spent on nonbillable activities by physicians in primary care, with estimates ranging from just over 45 minutes per half-day clinic session to 20% of all activities (Chen et al., 2011; Farber et al., 2007). A more recent time and motion study specifically focusing on NPs and PAs also found that the shortest amount of time spent on nonbillable activities was in transplant specialties, and the bulk of nonbillable activities were spent on documentation and analysis of clinical data (Ogunfiditimi et al., 2013). Those findings correspond to the results of this study regarding the large amount of time spent on accessing the medical record, documentation, and chart review. Other studies to ascertain how practice environment affects nonbillable hours by NPs found that primary care provider status, amount of support staff, and type of office were associated with amount of nonbillable activities (Kippenbrock et al., 2018).

This study reinforces previous findings from a limited number of studies about the extent and type of nonbillable activities performed by billing providers. Unlike previous studies, which were either self-report from surveys or observations over a number of days or weeks, this study aggregates nonbillable hours and encounters over a period of months. Building on the work of Ogunfiditimi et al. (2013), participants in this study were separated into practice type groupings to assess differences in practice patterns based on specialty type (surgical, medical, etc.). Additionally, this study included a wider range of specialty types across an academic medical center's ambulatory specialty departments and excluded primary care.



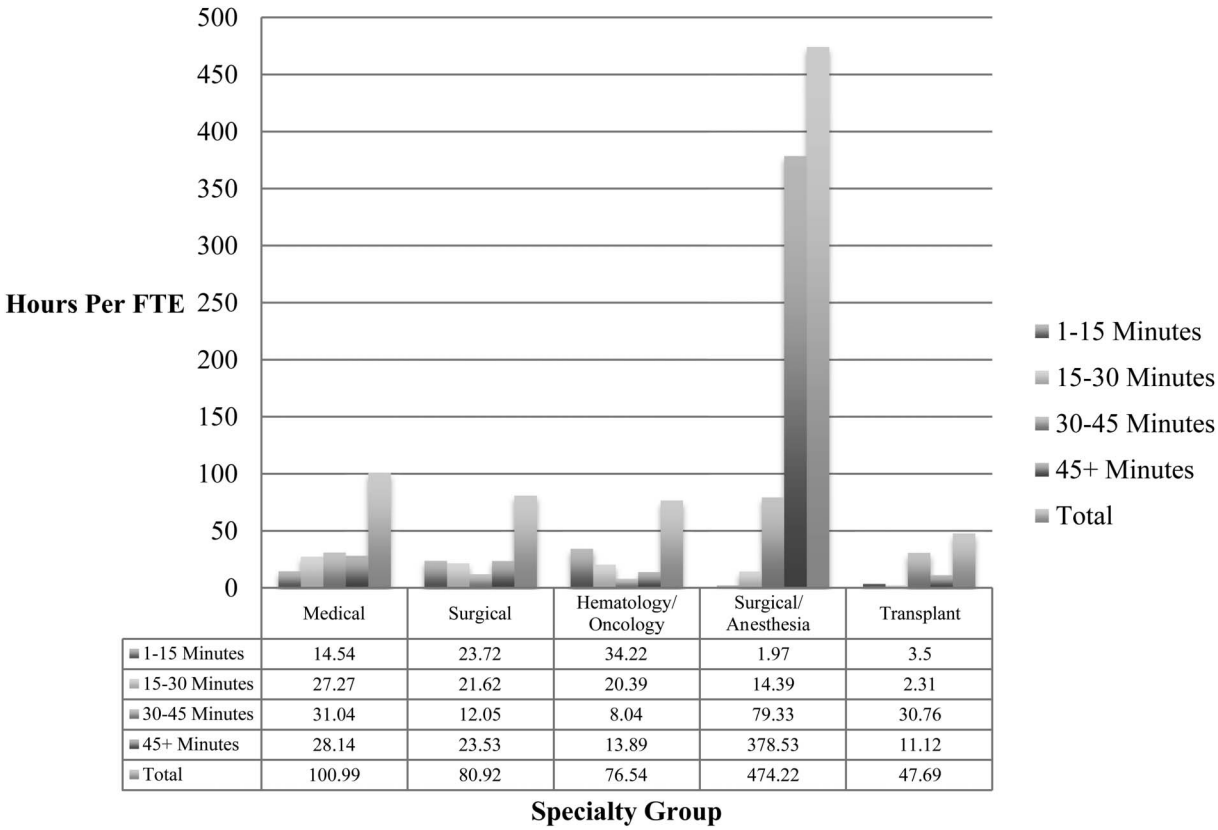
	Medical	Surgical	Hematology/ Oncology	Surgical/ Anesthesia	Transplant
1-15 Minutes	58.15	94.89	136.88	7.89	13.79
15-30 Minutes	54.54	43.23	40.78	28.77	4.61
30-45 Minutes	41.39	16.07	10.72	105.77	41.01
45+ Minutes	28.14	23.53	13.89	378.53	11.12

Figure 1. Number of nonbillable encounters per full-time equivalent over a 13-month period, by specialty group and time-based code.

As payment systems move toward value-based care and paying for quality of care, it becomes increasingly important for health care institutions to recognize the merit of activities that may enhance care beyond billable services such as procedures and visits. This nonbillable wrap-around care, such as scheduling procedures, discussing laboratory results, teaching, and medication management, takes significant amounts of provider time. There have been past efforts to account for care coordination activities that arise from meeting the needs of patients with chronic conditions, such as the development of CPT codes for management of chronic illness. However, these codes have very specific requirements that must be met to be applied, and they may not fully cover the care necessary for complex patient management (Peters & Bunkers, 2015). In surgical settings, it has been shown that an implicit patient expectation in receiving surgical care is communication between providers and patients as patients move through different stages in their care (Brooke et al., 2018). Greater visibility of previsit and postvisit activities, and more recognition from health care institutions of their importance, may motivate providers to provide more holistic care by financially incentivizing both billable and nonbillable activities.

An assessment of clinician productivity should not focus only on the wRVU generation of the clinician. In this study, the thousands of patient care activities that were documented as nonbillable care demonstrated that NPs, PAs, and CNSs perform many patient care activities that do not result in RVU generation. Using a system of documenting nonbillable care activities performed, such as the nonbillable time-based code system described in this study, provides a means for health care managers and systems to account for and understand how many total hours are spent by clinicians performing patient care. Additionally, value-based care reimbursement systems have created opportunities for new models of specialty care, such as the Patient-Centered Specialty Practice model, which promotes improved coordination between patients and clinicians and focuses on overall quality and safety of care across a population of patients (Ward et al., 2017).

In this study, documentation and chart review were some of the most frequently reported nonbillable activities. This finding is consistent with previous research on the time-intensiveness of electronic medical record documentation, which has been shown to correlate with provider burnout and decreased career satisfaction (Babbott et al., 2014; Harris et al., 2018; Kroth et al., 2018; Linzer, et al, 2014; Payne et al., 2015; Robertson et al., 2017; Shanafelt et al., 2016). Extensive time spent on documentation may also interfere with direct patient care time, which in turn



	Medical	Surgical	Hematology/ Oncology	Surgical/ Anesthesia	Transplant
1-15 Minutes	14.54	23.72	34.22	1.97	3.5
15-30 Minutes	27.27	21.62	20.39	14.39	2.31
30-45 Minutes	31.04	12.05	8.04	79.33	30.76
45+ Minutes	28.14	23.53	13.89	378.53	11.12
Total	100.99	80.92	76.54	474.22	47.69

Figure 2. Hours of nonbillable encounters per full-time equivalent over a 13-month period, by specialty group and time-based code.

may indirectly affect access issues such as wait times and patient scheduling (Read-Brown et al., 2017; Vahdat et al., 2018). These results underscore the necessity of the growing body of research on how to improve the efficiency of documentation and utilization of electronic medical records and how to ensure that these activities do not detract from patient care.

Care coordination and team interaction also featured prominently in the qualitative comments on nonbillable encounters, demonstrating that teams of professionals are needed to provide care effectively. It has been suggested that value-based payment systems may incentivize team-based care because payment becomes less tied to individual services and more to an evaluation of the quality of care (Mose & Jones, 2018). In considering how to incentivize high-quality care, it is important to account for activities such as interprofessional collaboration and discussions with patients and families that may not directly provide revenue but that may improve quality of care and health outcomes while reducing costs.

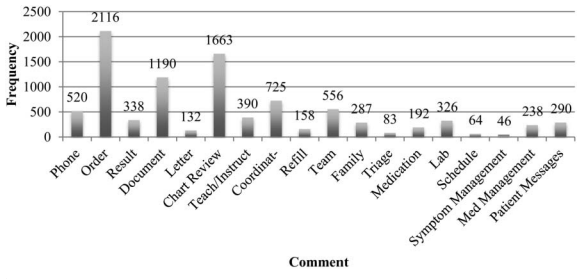


Figure 3. Frequency of qualitative comments attached to all time-based codes for nonbillable encounters over a 13-month period.

Limitations

This study examines the nonbillable activities performed by NPs, PAs, and CNSs in ambulatory specialty care. There are several limitations to this study. There were varying degrees to which providers self-reported their nonbillable time, and there was no mechanism by which to ensure that they were correctly documenting time spent on nonbillable activities. The codes were attributed to the provider only if he or she was the billing provider. The qualitative data are limited and possibly biased because inclusion of comments about nonbillable visits was optional, and free-text comments were not standardized. Providers in certain specialties may have been more motivated to include comments. Multiple activities could be attached to each nonbillable code, even if the codes were for only one patient. The number of encounters may have been underreported due to incomplete uptake of the new policy of documenting nonbillable encounters or due to gradual

adoption of this policy. Time calculations may be overestimated due to rounding up to the nearest 15-minute interval to calculate time based on time-based code type. Several data checks were performed to ensure that only NPs, PAs, and CNSs were included in the data, but other categories of provider may have been inadvertently included in the analysis. Also, this analysis does not account for attrition or onboarding of individuals included in the study during the 13-month analysis period.

Conclusion

As health care moves toward reimbursement systems based on quality, further attention should be paid to the nonbillable preencounter and postencounter activities that increase quality of care. Systems of care should allocate time and resources for these activities to take place. Further studies are needed to assess how these service value activities vary in type and in time in different work environments, such as varying clinic structures and diverse types of support and administrative staff. Health care systems should support and recognize the contribution of all staff, as well as recognize the value of their activities beyond wRVU generation, and how these activities facilitate and improve care for patients and strengthen the health care system.

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References

Babbott, S., Manwell, L. B., Brown, R., Montague, E., Williams, E., Schwartz, M., Hess, E., & Linzer, M. (2014). Electronic medical records and physician stress in primary care: Results from the MEMO Study. *Journal of the American Medical Informatics Association*, 21, e100–e106.

Brooke, B. S., Slager, S. L., Swords, D. S., & Weir, C. R. (2018). Patient and caregiver perspectives on care coordination and transitions of surgical care. *Translational Behavioral Medicine*, 8, 429–438.

Chen, M. A., Hollenberg, J. P., Michelen, W., Peterson, J. C., & Casalino, L. P. (2011). Patient care outside of office visits: A primary care physician time study. *Journal of General Internal Medicine*, 26, 58–63.

Department of Health and Human Services, Centers for Medicare & Medicaid, Medicare Learning Network. (2013). *Global surgery fact sheet*. http://www.sccma-mcms.org/Portals/19/assets/docs/-GloballSurgery%20Aug%202013.pdf

Dunn, D., Hsiao, W. C., Ketcham, T., & Braun, P. (1988). A method for estimating the preservice and postservice work of physicians' services. *JAMA*, 260, 2371–2378.

Farber, J., Siu, A., & Bloom, P. (2007). How much time to physicians spend providing care outside of office visits? *Annals of Internal Medicine*, 147, 693–698.

Harris, D. A., Haskell, J., Cooper, E., Crouse, N., & Gardner, R. (2018). Estimating the association between burnout and electronic health record stress among advanced practice registered nurses. *Applied Nursing Research*, 43, 36–41.

Hirsch, J. A., Rosenkrantz, A. B., Ansari, S. A., Manchikanti, L., & Nicola, G. N. (2017). MACRA 2.0: Are you ready for MIPS? *Journal of Neurointerventional Surgery*, 9, 714–716.

Jacobson, C. J. Jr., Bolon, S., Elder, N., Schroer, B., Batthews, G., Szaflarski, J. P., Raphaelson, M., & Horner, R. D. (2011). Temporal and subjective work demands in office-based patient care: An exploration if the dimensions of physician work intensity. *Medical Care*, 49, 52–58.

Kippenbrock, T., Lo, W. J., Emory, J., Buron, B., Odell, E., & Reimers, J. (2018). Nurse practitioners' time on nonbillable activities. *Journal of the American Association of Nurse Practitioners*, 30, 480–490.

Kroth, P. J., Morioka-Douglas, N., Veres, S., Pollack, K., Babbott, S., Poplau, S., Corrigan, K., & Linzer, M. (2018). The elephant in the room: Physicians and the electronic health record. *JAMIA Open*, 1, 49–56.

Kurtzman, E. T., & Barnow, B. S. (2017). Comparison of nurse practitioners, physician assistants, and primary care physicians' patterns of practice and quality of care in health centers. *Medical Care*, 55, 615–622.

Laurent, M., Harmsen, M., Wollersheim, H., Grol, R., Faber, M., & Sibbald, B. 2009. The impact of nonphysician clinicians: Do they improve the quality and cost-effectiveness of health care services? *Medical Care Research and Review*, 66(6 suppl), 36S–89S.

Linzer, M., Levine, R., Meltzer, D., Poplau, S., Warde, C., & West, C. P. (2014). 10 Bold steps to prevent burnout in general internal medicine. *Journal of General Internal Medicine*, 29, 18–20.

Luong, P., Bojansky, A. M., & Kalra, A. (2018). Academic physician compensation in the United States: Should provers' work at academic medical centres [sig] be judged by just one metric, the relative value unit (RVU)? *European Heart Journal*, 39, 3633–3634.

Martsolf, G. R., Barnes, H., Richards, M. R., Ray, K. N., Brom, H. M., & McHugh, M. D. (2018). Employment of advanced practice clinicians in physician practices. *JAMA Internal Medicine*, 178, 988–990.

Mose, J. N., & Jones, C. B. (2018). Alternative payment models and team-based care. *North Carolina Medical Journal*, 79, 231–234.

Mulvany, C. (2016). MACRA: The Medicare physician payment system continues to evolve. *Healthcare Financial Management*, 70, 32–35.

Mundinger, M. O., Kane, R. L., Lenz, E. R., Totten, A. M., Tsai, W., Cleary, P. D., Friedewald, W. T., Siu, A. L., & Shelanski, M. L. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: A randomized trial. *JAMA*, 283, 59–68.

Newhouse, R. P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., Wilson, R. F., Fountain, L., Steinwatchs, D. M., Heindel, L., & Weiner, J. P. (2011). Advanced practice nurse outcomes 1990–2008: A systematic review. *Nursing Economics*, 29, 230–250.

Ogunfiditimi, F., Takis, L., Paige, V., Wyman, J., Marlow, E. (2013). Assessing the productivity of advanced practice providers using a time and motion study. *Journal of Healthcare Management*, 58, 173–185.

Payne, T. H., Corley, S., Cullen, T. A., Gandhi, T. K., Harrington, L., Kuperman, G. J., Mattison, J. E., McCallie, D. P., McDonald, C. J., Tang, P. C., Tierney, W. M., Weaver, C., Weir, C. R., & Zaroukian, M. H. (2015). Report of the AMIA EHR-2020 Task Force on the status and future

direction of EHRs. *Journal of the American Medical Informatics Association*, 22, 1102–1110.
Peters, S. G., & Bunkers, K. S. (2015). Chronic care coordination. *Chest*, 148, 1115–1119.
Read-Brown, S., Hribar, M. R., Reznick, L. G., Lombardi, L. H., Parikh, M., Chamberlain, W. D., Bailey, S. T., Wallace, J. B., Yackel, T. R., & Chiang, M. F. (2017). Time requirements for electronic health record use in an academic ophthalmology center. *JAMA Ophthalmology*, 135, 1250–1257.
Robertson, S. L., Robinson, M. D., & Reid, A. (2017). Electronic health record effects on work-life balance and burnout within the I^3 Population Collaborative. *Journal of Graduate Medical Education*, 9, 479–484.
Shanafelt, T. D., Dyrbye, L. N., Sinsky, C., Hasan, O., Satale, D., & West, C. P. (2016). Relationship between clerical burden and characteristics of the electronic environment with physician burnout and professional satisfaction. *Mayo Clinic Proceedings*, 91, 836–848.
Sinsky, C., Colligan, L., Li, L., Prgomet, M., Reynolds, S., Goeders, L., Westbrook, J., Tutty, M., & Blike, G. (2016). Allocation of physician time in ambulatory practice: A time and motion study in 4 specialties. *Annals of Internal Medicine*, 165, 753–760.
Timmermans, M. J. C., van Vught, A. J. A. H., Peters, Y. A. S., Meermans, G., Peute, J. G. M., Postma, C. T., Smit, P. C., Verdaasdonk, E., de Vries Reilingh, T. S., Wensing, M., & Laurant, M. G. H. (2017). The impact of the implementation of physician assistants in inpatient care: A multicenter matched-controlled study. *PLoS One*, 12, e0178212.
Vahdat, V., Griffin, J. A., Stahl, J. E., & Yang, F. C. (2018). Analysis of the effects of EHR implementation on timeliness of care in a dermatology clinic: A simulation study. *Journal of the American Medical Informatics Association*, 25, 827–832.
Ward, L., Powell, R. E., Scharf, M. L., Chapman, A., & Kavuru, M. (2017). Patient-centered specialty practice: Defining the role of specialists in value-based health care. *Chest*, 151, 930–935.

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