

Self-reporting of Internal Medicine House Staff Work Hours

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Abstract

Introduction: *The 80-hour workweek became a reality for residency programs nationwide on July 1, 2003. In this review of administrative data, we examine the self-reporting of work hours by a cohort of Internal Medicine residents.*

Methods: *Data was collected from 27 residents in training at Tripler Army Medical Center over a 4 month period from September 1 to December 31 2002. House staff reported their hours on a daily basis by responding to an email message, as well as on a monthly basis utilizing the Army's UCAPERs (Uniform Chart of Account Personnel System) mandatory monthly workload tracking system. Data from the two separate reporting systems was compared for accuracy, completeness and internal consistency.*

Results: *Compliance with daily reporting was variable (67-97% with overall compliance rate of 86%) but lower when compared with the mandatory military monthly reporting system (95-100%). There were large differences in reporting of average weekly work hours among individual residents when monthly reporting was compared to daily reporting of data with higher averages with monthly data reporting. Weekly totals averaged nearly 12 hours higher when reported monthly compared to reporting on a daily basis ($p < 0.0001$). A total of 18 residents reported that they worked more than 80 hours per week during one month using monthly data, while only 7 reported that they averaged more than 80 hours with the daily reporting data. When average weekly hours reported on a daily basis were compared with the total number of inpatient days worked over the four month period using a simple regression model, there was a significant relationship with average hours increasing with increasing number of inpatient days worked (adjusted R square = 0.19, $p = 0.01$).*

Conclusions: *Little internal consistency was found in the comparison of daily versus monthly work hour reporting, indicating that self-reporting may not provide accurate data. Complying with the 80-hour workweek is crucial for residency programs to maintain accreditation, and thus programs will need a way to accurately capture consistent resident work hour data. Further studies are indicated to determine the most accurate way of assessing house staff work hours.*

Introduction

The Association of American Medical Colleges (AAMC) and Accreditation Council for Graduation Medical Education (ACGME) have mandated an 80-hour workweek for resident physicians in training, and this has become the accepted standard throughout the country as of July 1, 2003. Residency programs in New York have had similar laws regulating resident work hours since July 1989. However, recent studies have shown that compliance remains a major issue¹⁻⁶. There is little scientific data in the literature on the quality or validity of work hour data or how it is currently collected. The typical method used by most programs is resident self-reported hours on an "honor system" basis without mechanisms to verify or validate the data. Our goal in this review was to define the accuracy of self-reported work hour data from a cohort in an Internal Medicine Residency.

Methods

The Tripler Army Medical Center (TAMC) Internal Medicine Residency program is an ACGME accredited military residency averaging 24 residents in training. In this retrospective review of administrative data, house staff reported their hours on a daily basis by responding to an email message. This required roughly 3-4 keystrokes daily to complete. Policy was widely disseminated through house staff meetings, the house staff manual and personal communications in addition to daily e-mail. Data from September 1 to December 31 2002 was reviewed. Residents worked a total of 125 4-week blocks over this period of which 70 were inpatient rotations (56% of the total). There were 27 residents in training (7 female, 10 PGY-1, 8 PGY-2, 9 PGY-3) with an average age of 28 years who reported their work hours. This data was then compared to the Army's UCAPERs (Uniform Chart of Account Personnel System) mandatory monthly workload tracking system for the same period in an attempt to validate the usefulness of self-reporting. All Army personnel are required to enter this data monthly. This monthly requirement does not have a specific mandated frequency of data entry (unstructured monthly reporting). If data was not self-reported, scheduled work hours were used, and it was assumed that house staff had 1 day off per week.

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Daily reported data was adjusted for compliance with an assumption that average hours were roughly the same for individual residents on days that were not reported. Two out of 27 residents did not provide data as they did not report their work hours on a daily basis at all. The daily self-reported data on average weekly work hours was compared using simple regression with the total number of days worked by each resident on inpatient rotations (which typically account for the highest average weekly work hours). Data was tabulated and statistical analysis was performed using Microsoft Excel 2000.

Results

Individual compliance with daily reporting was variable, ranging from 59-97% with overall compliance rate of 86%. Quartile means for compliance were 79% for the lowest quartile and 94% for 3rd quartile (n=25). Compliance with the monthly reporting system is mandatory. In a few cases where monthly reports were not submitted in a timely fashion, monthly data was completed by program staff using scheduled work hours.

There were large differences in reporting of average weekly work hours among individual residents when monthly and daily reporting methods were compared (see figure 1). The range was from +34 to -6 hours per week. The vast majority of residents (23/25) reported higher average hours with monthly reporting than they did with daily reporting.

When adjusted for compliance, aggregated mean hours using daily reporting were 61.5 per week (standard deviation 8.6) versus 71 hours per week (std. dev. 10.6) with monthly reporting (average difference was +9 hours per week) for interns. For residents, the aggregate difference was greater with an average of 54 hours per week (std. dev. 7.0) with daily reporting versus 68 hours per week (std. dev. 9.6) with monthly reporting for an average difference of +14 hours per week (see figure 2). The difference in mean work hours for all house staff was 11.9.

Figure 3 shows the number of residents reporting that they worked more than an average of 80 hours per week by month. A total of 18 residents reported that they worked more than 80 hours per week during a single month using monthly data, while only 7 reported that they averaged more than 80 hours with daily reported data.

Average weekly hours reported on a daily basis were compared with the total number of inpatient days worked over the four month period using a simple regression model. There was a significant positive relationship between average weekly work hours and number of inpatient days worked (adjusted R square = 0.19, $p = 0.01$, see Figure 4). There was no significant relationship between average weekly hours reported on a monthly basis and number of inpatient days worked ($p=0.3$).

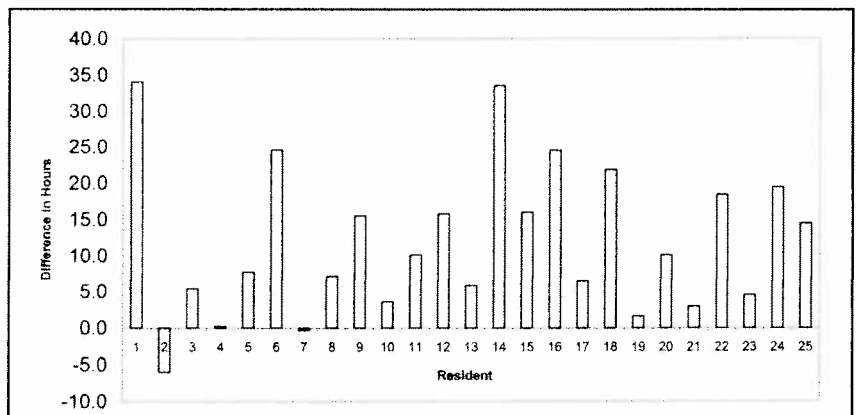


Figure 1.— Average difference in reported weekly work hours for individual residents - monthly vs. daily self-reporting, September-December 2002.

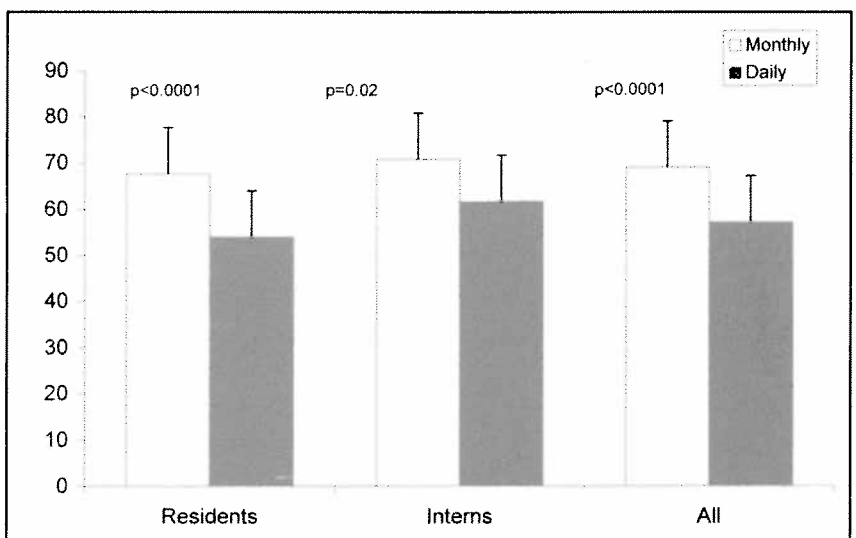


Figure 2.— Difference in aggregate mean weekly resident work hours, monthly vs. daily self-reporting, September-December 2002.

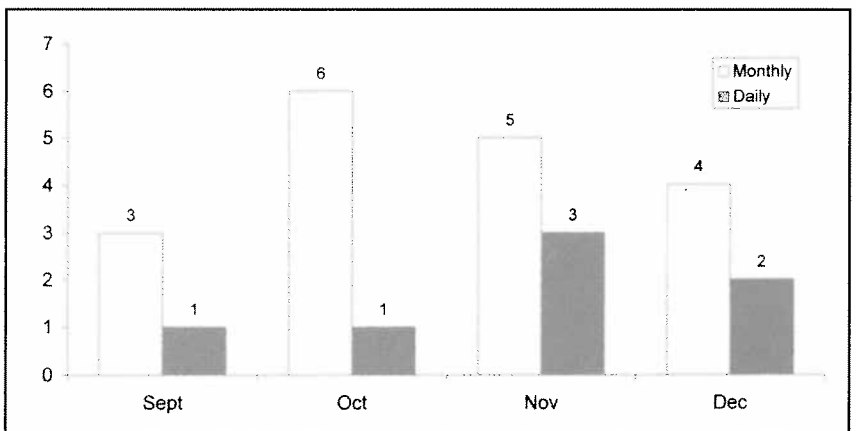


Figure 3.— Residents reporting over 80 hours per week by month, monthly vs. daily self-reporting, September-December 2002.

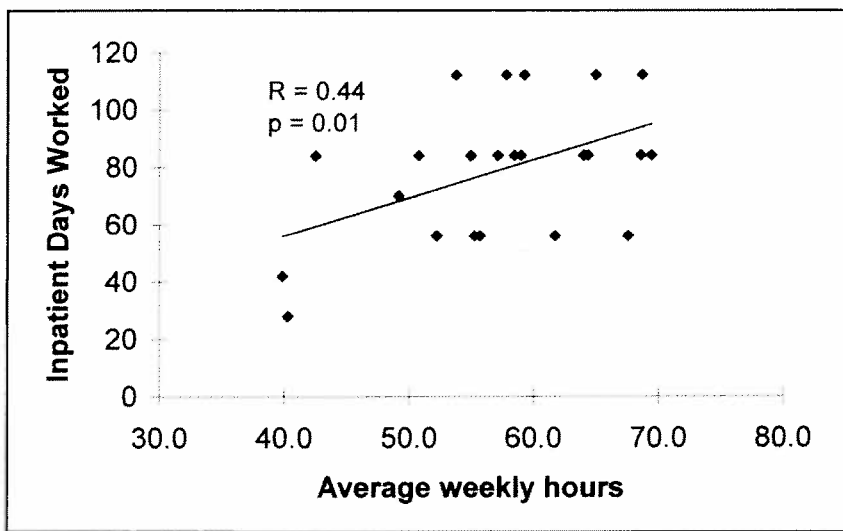


Figure 4.— Average weekly hours (reported daily) vs. number of inpatient days, TAMC House staff, September-December 2002.

Conclusions

In comparing the two methods of self reporting work hours, we found little internal consistency between daily and monthly self-reported work hours. Self reported work hours vary considerably depending on the method of collection. Compliance policy for the 80 hour work week should be based on reliable and consistent strategies to collect work hours. Such methods have yet to be defined. ACGME program requirements and legal mandates demand urgent validation of standardized data collection methods. Monthly self-reporting appears on average to inflate actual hours worked by over 20% (up to 12 hours per week on average) compared with a daily assessment in our program. Daily reporting was cumbersome, and compliance was only 86% for participating residents. This experience reinforces a need to accurately collect work hour data if we are to structure learning experiences efficiently and effectively.

There are important incentives which introduce biases in self-reported work hour data. Residents may feel that they are overworked and may inflate their hours to bring about changes in scheduling policies. Conversely, aware that program accreditation now rests in part on newly implemented work-hour standards, they may underreport data to prevent their program from being sanctioned by regulatory agencies. Finally, depending on the frequency of data collection (eg. monthly, weekly, daily) – residents may simply have difficulty actually recalling the exact hours that they worked, and may see the recently intensifying efforts at data collection as simply another administrative task to be dispensed with expeditiously. The biases are problematic for legislation and regulatory compliance decisions based on self-reported data. This study points out the inherent problems among a group of motivated

residents with a high compliance rate for the reporting itself, but clear discrepancies in the number of hours reported. Although this data is reported from a single institution over a 4 month period, it seems unlikely that significant differences in the accuracy of self-reported data would be found at other institutions. On a reassuring note, weekly house staff hours for both residents and interns in Internal Medicine at TAMC were both well below the mandated standard when averaged over 4 months.

Studies are needed to determine the most accurate way of assessing house staff work hours to produce data of sufficient quality on which to base legislation and regulatory decisions. However, it is has yet to be established that an 80 hour work week by medical house staff will lead to a reduction in diagnostic and treatment-related errors or improved patient outcomes. In fact, recent data from an academic medical center found no relationship between prescribing errors and resident work hours⁷. Early reports from the media and academic sources indicate that the restrictions have been difficult to implement with 92 citations for work hours violations issued to 1,753 residency programs reviewed by ACGME in the first year⁸. Questions have also been raised regarding the potential negative impact of restrictions on the quality of GME training programs, and the continuity of patient care and safety^{9,10}. Raw work-hour numbers do not provide any indication of the amount of time spent in actual diagnostic and treatment decisions versus administrative tasks, the actual amount of responsibility delegated to that individual for a given treatment decision by a particular supervising physician, the degree of supervision provided while doing invasive procedures, the number of patients that the resident was responsible for at a given time, the amount of sleep that the individual got on call, or the acuity and volume of patients admitted or treated on cross-cover duties. These and other factors introduce a great deal of variability and complexity into the larger task of improving patient safety which recent legislation has attempted to address.

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