

Incoming Interns' Perspectives on the Institute of Medicine Recommendations for Residents' Duty Hours

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Abstract

Background The Accreditation Council for Graduate Medical Education (ACGME) has announced revisions to the resident duty hour standards in light of a 2008 Institute of Medicine report that recommended further limits. Soliciting resident input regarding the future of duty hours is critical to ensure trainee buy-in.

Purpose To assess incoming intern perceptions of duty hour restrictions at 3 teaching hospitals.

Methods We administered an anonymous survey to incoming interns during orientation at 3 teaching hospitals affiliated with 2 Midwestern medical schools in 2009. Survey questions assessed interns' perceptions of maximum shift length, days off, ACGME oversight, and preferences for a "fatigued post-call intern who admitted patient" versus "well-rested covering intern who just picked up patient" for various clinical scenarios.

Results Eighty-six percent (299/346) of interns responded. Although 59% agreed that residents should

not work over 16 hours without a break, 50% of interns favored the current limits. The majority (78%) of interns desired ability to exceed shift limit for rare cases or clinical opportunities. Most interns (90%) favored oversight by the ACGME, and 97% preferred a well-rested intern for performing a procedure. Meanwhile, only 48% of interns preferred a well-rested intern for discharging a patient or having an end of life discussion. Interns who favored 16-hour limits were less concerned with negative consequences of duty hour restrictions (handoffs, reduced clinical experience) and more likely to choose the well-rested intern for certain scenarios (odds ratio 2.33, 95% confidence interval 1.42–3.85, $P = .001$).

Conclusions Incoming intern perceptions on limiting duty hours vary. Many interns desire flexibility to exceed limits for interesting clinical opportunities and favor ACGME oversight. Clinical context matters when interns consider the tradeoffs between fatigue and discontinuity.

Editor's Note: The online version of this article contains the survey instrument used in this study.

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Background

The Accreditation Council for Graduate Medical Education (ACGME) has recently announced proposed revisions to the duty hour standards, partly in response to a 2008 Institute of Medicine (IOM) report recommending further restrictions in resident duty hours.^{1,2} Public pressure on the ACGME to adopt the IOM recommendations has been

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evident, yet there are some notable differences between the 2 proposals.^{3,4} The IOM recommendations and the new 2010 ACGME proposed duty hour standards both suggest limiting maximum shifts to 16 hours, but the ACGME requires this for first-year residents only. Although the IOM report and the new ACGME standards call for onsite supervision by an attending physician, the ACGME only requires this level of supervision for first-year residents. Interestingly, the IOM recommendations called for residents to have 1 day off in every 7 days without “averaging,” making it difficult to honor resident preferences for days off on weekends (eg, “golden weekends”). However, the new proposed duty hour limits specify 1 day off a week with “averaging,” so that residents are still able to request that 2 of their days off in a 4-week rotation fall on the same weekend. This means residents could work more than 7 days in a row to receive the weekend off, which is often dubbed “golden” because most other weekends residents are working for at least 1 weekend day if not both. The ACGME asked for public comment on their proposed recommendations.

Soliciting resident input regarding these potential changes to duty hour regulations is critical to ensure that forthcoming reforms are well received by future trainees. Of note, resident input has been solicited by the IOM and ACGME on the future of duty hours. Both the IOM committee and ACGME task force on duty hours include resident representatives, and various residents have been invited to testify to the IOM and ACGME as representatives of various medical professional organizations (ie, American Medical Association, Association of American Medical Colleges, Committee on Intern and Residents, etc).⁵ In addition to hearing from current residents, understanding perspectives of incoming interns are especially important. Because this group will experience the system before and after any proposed changes, they are in the critical position to champion or undermine future work hour reforms.

Critics of duty hour reforms argue that gains in safety due to alleviating resident fatigue will be offset by harm from increased handoffs.⁶ Interestingly, balancing the risks to patients between fatigue and discontinuity may vary for different clinical tasks.⁷ Nevertheless, few studies have explored these tradeoffs by clinical task. This study aims to assess incoming intern perceptions of duty hour restrictions in light of these tradeoffs at 3 teaching hospitals affiliated with 2 Midwestern medical schools.

Methods

Based on the IOM duty hour recommendations and deliberations at the ACGME Duty Hours Task Force, an anonymous survey was created to assess perceptions of maximum shift length, days off, oversight (ie, ACGME Joint Commission or other regulatory body), and supervision. The goal was to limit the survey to 1 page to facilitate ease of completion during a required orientation.

During survey development, we excluded IOM recommendations that did not seem feasible to implement, thereby excluding the 5-hour protected sleep time “nap” recommendation. Because the adoption of a 16-hour maximum shift would eliminate overnight call and be the most dramatic change to residency, we chose to lead with this question. In addition, there were concerns of reduced clinical experience and increased handoffs, as described in Europe after the elimination of overnight call duty with the European Working Time Directive. We also queried interns on this topic. Lastly, due to concerns of “shift-work mentality,” we decided to explore whether preferences of interns who preferred a 16-hour maximum shift limit differed from those that did not. The survey was developed by 2 authors (V.A. and J.F.) and reviewed by the remaining authors (M.L., A.A., H.H.) for consistency, ease of readability, and relevance to sites. The resulting survey was an 18-item, 1-page survey.

Interns rated their agreement on a Likert scale ranging from 5 (Strongly Agree) to 1 (Strongly Disagree) for the following statements: (1) “Residents should NOT work more than 16 hours continuously without break time” and (2) “Duty hours for residents should be continued in their present form (80 hours/week, maximum 30 consecutive hours).” Using the same scale, incoming interns also rated whether restricting maximum shift length to 16 hours would improve patient safety due to reduced resident fatigue, worsen patient safety due to increased handoffs, improve resident learning due to reduced fatigue, or worsen resident learning due to decreased clinical exposure and more night work. We also asked interns if they desired the ability to exceed shift limit for a rare case or clinical opportunity. To elicit preferences regarding days off and the ability to obtain a “golden weekend,” interns reported whether they preferred either that “days off on a month rotation fall on a Saturday or Sunday when possible even if I have to work for over 7 days straight without a day off” or that they have “1 day off every 7 days even if I have to take that day off on a weekday in lieu of a weekend day.” Interns also rated whether they thought the presence of an onsite attending supervisor would improve resident education or patient safety.

Interns were asked to choose between “a fatigued post-call intern who admitted patient” and a “well-rested covering intern who just picked up patient” for a hospitalized loved one who (1) needed an arterial line, (2) is short of breath and has multiple medical problems, (3) needed an end of life discussion, and (4) needed to be discharged home.

Surveys were distributed to all incoming interns at orientation (late June 2009) using paper at 2 sites and electronically at another site. One of the sites is a large public university-based hospital with 172 incoming interns, of whom 19% are surgical. The other site is a private university-based hospital with 119 incoming interns, of

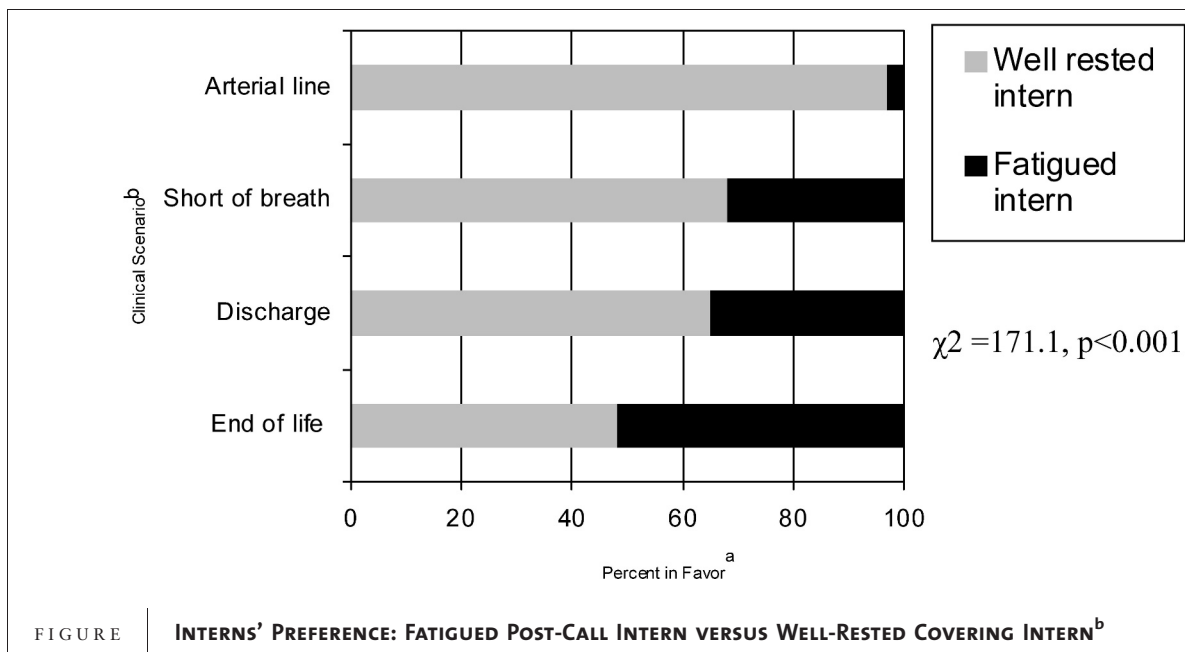


FIGURE | **INTERNS' PREFERENCE: FATIGUED POST-CALL INTERN VERSUS WELL-RESTED COVERING INTERN^b**

^an = 299 incoming interns at 3 affiliated hospitals with 2 Midwestern medical schools.

^bInterns were asked to choose between "a fatigued post-call intern who admitted patient" and a "well-rested covering intern who just picked up patient" for a hospitalized loved one who (1) needed an arterial line, (2) is short of breath and has multiple medical problems, (3) needed an end of life discussion, and (4) needed to be discharged home.

whom 15% are surgical. The third site is a university-affiliated community hospital with 55 incoming interns, none of whom are surgical. Data were merged into a Microsoft Excel (Microsoft Corp, Redmond, WA) spreadsheet with a code denoting site. Site-adjusted analysis of variance and logistic regression were performed to assess the differences between those interns who were in favor of a 16-hour shift from those that were not. This research was deemed exempt by the Institutional Review Boards at the University of Chicago and the University of Michigan. To account for multiple comparisons, *P* values of .006 were used to denote statistical significance after Bonferroni correction.

Results

Eighty-six percent of interns (299/346) responded to the survey. Response rates varied by site and are listed throughout in no particular order. Site response rates are 89%, 98%, and 80%, $\chi^2 = 13.33, P < .001$. Interns represented 103 medical schools in 21 specialties. Although 59% of interns agreed that residents should not work over 16 hours without a break, 50% also felt duty hour restrictions should continue in present form. Of note, 73 (24%) interns reported agreement with both restricting duty hours to 16 hours maximum and also preserving the 2003 duty hour restrictions in their present form. Site agreement with limiting shifts to 16 hours varied significantly: 45%, 62%, and 85% ($\chi^2 = 26.02, P < .001$). There were no site differences observed for agreement with continuing ACGME duty hours in their present form: 48%, 46%, and

55% ($\chi^2 = 1.61, P = .448$). Interestingly, most interns indicated that the presence of an onsite attending supervisor at night would improve resident education (76%) and patient safety (89%).

A minority of interns (114, 38%) desired to have 1 day off in every 7 without averaging. In contrast, 55% (165) preferred working more than 7 days straight to have a day off preferentially fall on a weekend ($P < .001$ compared to previous). Of note, the majority (78%) of interns desired the ability to exceed shift limits for a rare case or clinical opportunity. Additionally, most interns (90%) favored oversight by the ACGME with 41% favoring oversight by the Joint Commission, and only 14% favoring oversight by the Center for Medicare and Medicaid Services. Preferences regarding days off, exceeding limits, or oversight did not vary by site.

Most notably, our results demonstrated that the tradeoff between fatigue and discontinuity varied by clinical context. A well-rested intern who just assumed care of a patient was preferred by 97% of interns for arterial line placement, 68% if a patient with multiple comorbidities was short of breath, 65% if a patient needed to be discharged, and 48% for an end of life discussion ($\chi^2 = 171.1, P < .001$) (FIGURE).

In site-adjusted analyses, interns favoring 16-hour shifts were more likely to believe further restrictions would improve patient safety and resident learning and less likely to be concerned with increased handoffs affecting patient safety or reduced learning opportunities (TABLE). Although

TABLE PERCEPTIONS OF DUTY HOURS BY PREFERENCE FOR 16-HOUR LIMIT (N = 299)

Item	Favors 16-h Limit Mean (95% CI)	Not in Favor Mean (95% CI)	P Value ^a
Duty hours: Restricting maximum shift length to 16 hours will...			
Improve patient safety due to less fatigue	4.24 (4.22–4.26)	3.27 (3.25–3.30)	<.001
Improve resident learning due to less fatigue	4.23 (4.21–4.26)	3.18 (3.16–3.21)	<.001
Worsen patient safety due to handoffs	2.72 (2.69–2.75)	3.53 (3.51–3.56)	<.001
Worsen resident learning due to less clinical exposure	2.64 (2.63–2.66)	3.52 (3.50–3.53)	<.001
Days off: I prefer to have...			
1 day off every 7 days even if I have the day off on a weekday in lieu of a weekend	3.31 (3.30–3.32)	2.91 (2.90–2.93)	<.001
Days off fall on a Saturday or Sunday when possible even if I have to work more than 7 days straight	3.46 (3.46–3.47)	3.66 (3.64–3.66)	.11
Supervision: The presence of an on-site attending supervisor at night will...			
Improve education	4.05 (4.04–4.05)	3.79 (3.78–3.80)	.02
Improve patient safety	4.28 (4.28–4.29)	4.02 (4.01–4.03)	.002

Abbreviation: CI, confidence interval.

^aResults are estimated means and 95% confidence intervals from site-adjusted analyses of variance examining the association between preferences for a 16-hour maximum shift limit and responses to questions regarding duty hours, days off, and supervision. To account for multiple comparisons, *P* values of .006 were used to denote statistical significance after Bonferroni correction.

not statistically significant, more interns preferred 1 day off per every 7 days without averaging (69% favor 16-hour shift vs 53% did not favor 16-hour shift; $P = .007$). There was no relationship between preference for 16-hour limit and favoring oversight by the ACGME. Finally, interns who favored 16-hour shifts also were more likely to choose the well-rested intern for the dyspneic patient (odds ratio 3.04, 95% confidence interval 1.77–5.24, $P < .001$) and for the end of life discussion (odds ratio 2.33, 95% confidence interval 1.42–3.85, $P = .001$).

Discussion

Incoming intern opinions about further reductions in work hours vary. Although many (60%) interns favor further restrictions in shift length, 50% also wished to continue with the 2003 ACGME rules. Furthermore, intern support for 16-hour maximum shifts varies significantly by site of training. Regardless of site differences, those interns who favor 16-hour limits are less concerned with negative consequences of duty hour restrictions (handoffs, reduced clinical experience). Many interns desire flexibility to exceed limits for interesting clinical opportunities and favor ACGME oversight. Interestingly, interns are also in favor of attending in-house supervision. Lastly, clinical context appears to matter when interns considered balancing the risks between being cared for by a fatigued intern with knowledge of a patient and a well-rested intern who is just learning about a patient. Interns universally preferred a

well-rested intern for performing an arterial line.

Meanwhile, fewer interns preferred a well-rested intern for discharging a patient or having an end of life discussion.

It is important to explore the mechanisms for these findings. First, the site differences observed could reflect the important role of hospital culture in selection and recruitment of interns or the knowledge of existing systems in the program such as night float. Although all hospitals used overnight call in 2009–2010 to some degree, interns who oppose 16-hour shifts may be more likely to rank a program with a widespread tradition of overnight call or a culture of staying until the work is done. It is also possible that specialty differences are driving site differences due to the variability in the percentage of surgical residents at each site, who are known to differ from other residents on their perceptions of duty hour regulations.⁸ Furthermore, the fact that some portion of interns agreed with both restricting maximum shift limit to 16 hours and continuing duty hours in their present form indicates that incoming interns may not even know what current duty hour restrictions are. Anecdotally, our team has noted that students on the interview trail had asked how programs were responding to the IOM “rules” on duty hours, highlighting the confusion and lack of awareness of the IOM’s advisory nature in issuing recommendations as opposed to the ACGME’s ability to create “rules.” Incoming interns’ preferences for direct attending supervision may reflect their fear of taking call during their internship.

The findings regarding preferences of well-rested intern versus a fatigued intern by clinical context are also worth discussing. These findings are consistent with other literature highlighting that “vigilance tasks,” or those requiring focused attention, are more susceptible to fatigue.⁹ In contrast, certain tasks may depend on a high degree of familiarity with the patient and prone to handoff errors. Given the robust research on vigilance tasks, understanding tasks that could be susceptible to discontinuity of care seems vital to ensuring patient safety with duty hour reform. Furthermore, the acknowledgment that end of life discussions and discharge are different from placing an arterial line also highlight the challenges in applying uniform rules to all types of clinical tasks. Given recent concerns of shift-work mentality and erosions of professionalism and obligation to patients, the finding that end of life care was difficult to “hand off” to the well-rested intern may be reassuring. This finding is also consistent with our prior work that suggests that interns view staying past duty hours to complete patient care work as “professional.”¹⁰

This study has several implications for the current debate on resident duty hours. First and foremost, perspectives of incoming interns should be considered during this debate, as well as how clinical context might affect duty hour restrictions. Perhaps interns could be prohibited from doing vigilance tasks at a prespecified limit of time but could remain in the hospital to continue to work on “familiarity tasks.” Considering clinical context when discussing duty hours provides a new paradigm for further reforms. As the process of approving the new duty hours proposed by the ACGME is underway, it is also crucial that program directors explain the process to interns and medical students so they can understand the actions that will be taken.

There are several limitations to this study. First, we only sampled interns from 3 Midwestern hospitals. Although a diverse array of medical schools was represented, regional

preferences may prevent generalization. Second, we assessed intern perceptions before beginning internship and have no data on intern performance. Perceptions regarding duty hours may change with clinical experience. Lastly, interns may purposively answer questions in an effort to influence institutional policy.

Conclusions

In summary, incoming intern perceptions on future duty hour reforms vary. Regardless, many interns desire flexibility to exceed limits for interesting clinical opportunities and favor ACGME oversight. Lastly, clinical context appears to matter when considering balancing the risks between fatigue and discontinuity. These perceptions should be taken into consideration when designing resident duty hour restrictions.

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