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ACGME Duty-Hour Recommendations – A National Survey of Residency Program Directors

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Taking into consideration the Institute of Medicine's 2008 recommendations regarding residents' duty hours,¹ the 16-member Duty Hour Task Force of the Accreditation Council for Graduate Medical Education (ACGME) recently published proposed new recommendations,² which, as eventually approved, would go into effect in July 2011. These recommendations represent a continuing commitment by the ACGME to both "foster a humanistic environment for graduate medical education" and ensure "excellent and safe patient care."² The ACGME has solicited comments from the educational community and will modify its proposal as needed.

The recommendations represent an attempt to address elements of the 2003 ACGME standards that generated widespread criticism, raising questions about conflicts between duty-hour limits and professional responsibilities to patients, the lack of changes in the larger learning environment, and the debate over the effects of sleep loss.² It remains unclear, however, whether residency program directors, who are responsible for overseeing graduate medical education, agree with and are prepared to implement the ACGME's recommendations. Moreover, residency programs are heterogeneous, varying not only in size but also in specialty — and therefore in requisite education and training. As a result, residency program directors from different specialties may react to the new recommendations quite differently. Although physicians tend to agree in the abstract that better-rested residents provide better and safer care, program directors may be unwilling to endorse the proposed restrictions on the number and continuity of duty hours.

In July 2010, we attempted to survey all 823 U.S. residency program directors in internal medicine, pediatrics, and general surgery (see Table 1). As part of a three-section, self-administered e-mail survey on the proposed duty-hour recommendations, program directors responded to 22 items related to the new requirements and indicated which proposals were already operative within their programs. They were asked to indicate their level of agreement or disagreement with specific proposals from the 11 categories specified by the ACGME: supervision, workload, maximum hours per week, maximum length of duty period, in-hospital call frequency, minimum time off between scheduled duty periods, maximum frequency of inhospital duty, mandatory off-duty time, moonlighting, duty-hour exceptions, and home call (see Table 2 for the specific proposals).

We found publicly available e-mail addresses for 742 of the directors of the 823 programs in medicine, pediatrics, and surgery in the United States and Puerto Rico, but 23 (3%) of these addresses were nonfunctional. Of the remaining 719 eligible participants, 429 returned completed surveys within 2 weeks, for a response rate of 60%. Response rates did not vary significantly among specialties: 187 of 308 (61%) in medicine, 118 of 189 (62%) in pediatrics, and 124 of 222 (56%) in surgery.

As Table 2 shows, a large majority of respondents agreed with the ACGME recommendations regarding mandatory off-duty time (94%), workload (92%), and moonlighting (93%). Most also agreed with the specific proposals regarding maximum hours per week (83%), maximum frequency of in-hospital duty (74%), supervision (72%), minimum time off between scheduled duty periods (67%), and home call (63%). By contrast, only 14% agreed with the ACGME's proposal for a maximum duty period of 16 hours for first-postgraduate-year (PGY-1) residents. Program directors were divided regarding whether exceptions allowing up to 88 duty hours per week should be permitted for select programs (49% agreed, 29% disagreed, and 22% were neutral).

Currently, the vast majority of programs (94%) do not adhere to a 16-hour limit for the duty period in PGY-1. Similarly, the majority of programs (70%) do not have policies in place regarding duty-hour exceptions. A substantial minority of programs have not implemented the ACGME's recommended changes in supervision (29%), home call (25%), in-hospital on-call frequency (25%), or maximum frequency of in-hospital duty (16%).

In multivariate logistic regression models, academic rank, years as program director, and average hours per week spent in direct teaching or supervision of residents were not significantly associated with responses to ACGME proposals, but program directors' age, specialty, and program type were. As shown in Table 3, general surgery program directors were one fifth as likely as internal medicine program directors to agree with the ACGME proposed mandates limiting the maximum duty hours to 80 per week and the maximum duty period to 16 hours for PGY-1 residents. Surgery program directors were also half as likely as internal medicine program directors to agree that residents should not be scheduled for more than six consecutive nights of duty. Directors of pediatrics and surgery residencies were less likely than directors of internal medicine residencies to agree with the proposal for an in-hospital on-call frequency of every third night, with no averaging allowed, for residents in PGY-2 and later years (odds ratios, 0.5 and 0.1, respectively). However, they were more likely to agree with including time spent on home call in the 80-hour weekly limit (odds ratios, 1.7 for pediatrics and 1.6 for surgery). Surgery program directors were half as likely — but pediatrics program directors were nearly twice as likely — as internal medicine program directors to agree with the proposal for minimum time off between scheduled duty periods.

Program directors 50 years of age or older were less likely than their younger counterparts to agree with including time on home call in the 80-hour weekly limit (odds ratio, 0.6) and more likely to agree with limiting the maximum duty period to 16 hours for PGY-1 residents (odds ratio, 1.8). Program directors who spend more than 15 hours per week directly teaching or supervising residents were significantly less likely than those who spend less time working with residents to agree with the proposal for in-hospital on-call frequency of every third night, with no averaging, for residents in PGY-2 or later years, as well as the proposal that time on home call should be included in the 80-hour weekly limit (odds ratio in both cases, 0.6). Finally, as compared with directors of large, university-based programs, directors of small, community-hospital-based programs were significantly less likely to agree both with limiting the maximum PGY-1 duty period to 16 hours (odds ratio, 0.2) and with the recommended supervision requirements (odds ratio, 0.5).

These data provide important insight into the attitudes of those who will be charged with implementing any new duty-hour recommendations. First, although large proportions of residency program directors agree with several of the recommendations, especially those pertaining to topics such as total workload, off-duty time, and maximal hours, a similarly large proportion disagree on more specific aspects of the proposed changes, such as limiting the duty period for PGY-1 residents to 16 hours. Second, most residency programs currently lack the policies and plans necessary for compliance with the proposed new requirements, which suggests that most will need to radically overhaul schedules and curricula in order to comply with new recommendations by the proposed July 2011 implementation date. Third, surgery program directors were considerably less enthusiastic about both the 80-hour work-week requirement and the 16-hour duty-period limit than their counterparts in internal medicine and pediatrics. These differences may reflect differences in specialty culture as well as pragmatic considerations pertaining to the nature of specialty workflow that may limit the feasibility of implementing the proposed duty-hour requirements. Finally, our finding that directors of small programs at community hospitals are less enthusiastic about limiting the duty-hour period may suggest that implementation may face more challenges in such settings.

The diverse opinions expressed by program directors reflect lingering concerns and tensions over balancing residents' fatigue and patients' safety and well-being against the demands of educational quality, financial costs, and the need to instill professional responsibility. Some have argued that despite the financial costs and the necessary restructuring of clinical work, the ACGME should limit duty hours just as other hazardous industries do.³ Recent studies, however, fail to show that the restrictions enacted in 2003 had a positive effect on patient safety.⁴ This uncertainty about demonstrable effects on outcomes may explain some of the disagreement we saw. Further work is needed to describe the outcomes associated with different duty-hour designs. Finally, our finding that surgery program directors are more likely than other directors to disagree with the requirements regarding maximum work hours and length of duty period is of a piece with previous efforts by the American College of Surgeons to emphasize differences among training programs in different specialties.⁵ Although our data indicate that program directors are divided regarding exceptions permitting residents to work up to 88 hours per week, such an option would provide flexibility for select specialties.

Of course, our study has some important limitations. Associations found in a cross-sectional study cannot establish causal relationships. The attitudes of the program directors who did not respond to the survey may be different from those who did respond. Our results reflect only the perspectives of program directors in internal medicine, pediatrics, and general surgery, not all specialties. Also, we measured the degree of agreement on only one proposal from each of the 11 categories of recommendations.

Nevertheless, our results suggest that though the majority of program directors agree with the overall workload recommendations, they disagree regarding limiting duty periods to 16 hours for PGY-1 residents. More work addressing the different needs of the various specialties and program types may be required to achieve broader agreement on and compliance with the newest duty-hour recommendations.

References

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Table 1

Characteristics of the 429 Survey Respondents. *

Characteristic	No. (%)
Male sex	295 (69)
Age	
<50 yr	187 (44)
50 yr	242 (56)
Region	
Northeast	153 (36)
Midwest	110 (26)
South	100 (23)
West	66 (15)
Field	
Medicine	187 (44)
Surgery	124 (29)
Pediatrics	118 (28)
Specialty	
General internal medicine, general pediatrics, or general surgery	322 (75)
Other specialty	107 (25)
Academic rank	
Instructor	6 (1)
Assistant professor	83 (19)
Associate professor	169 (39)
Professor	149 (35)
Other	22 (5)
Years as program director	
0–5	175 (41)
6–10	114 (27)
11–15	69 (16)
16–20	46 (11)
>20	25 (6)
Average hours/week of direct teaching or supervision of residents	
0–5	14 (3)
6–10	87 (20)
11–15	927 (21)
16–20	89 (21)
>20	147 (34)
Program type	
Large university-based	160 (37)
Small university-based	47 (11)
Large community-based	30 (7)
Small community-based	49 (11)

Characteristic	No. (%)
Community hospital, university-affiliated	127 (30)
Other	16 (4)

* Percentages may not sum to 100 because of rounding.

Table 2

Distribution of Responses to Key ACGME Categories and Whether or Not The Standards in Question Are Already in Place.*

Category	Proposal	Program Directors' Responses to Proposal no. (%)					Standard already in place? no. (%)	
		Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree	Yes	No
Supervision	PGY1 residents must have direct supervision from an M.D. who is physically present with the resident or the supervising M.D. must be on site and available to provide direct supervision	33 (8)	53 (13)	32 (8)	115 (27)	191 (45)	297 (71)	122 (29)
Workload	Learning objectives must not be compromised by excessive nonphysician service obligations	3 (1)	7 (2)	22 (5)	119 (28)	273 (64)	380 (91)	39 (9)
Maximum hr/wk	Maximum duty hours of 80/week, averaged over 4 weeks	11 (3)	25 (6)	36 (8)	172 (41)	180 (42)	415 (99)	4 (1)
Maximum length of duty period	Duty period for PGY-1 residents must not exceed 16 hours	239 (56)	96 (23)	29 (7)	39 (9)	21 (5)	26 (6)	393 (94)
In-hospital on-call frequency	Residents in PGY-2 or later years limited to in-hospital on-call frequency of every third night, with no averaging	51 (12)	50 (12)	30 (7)	135 (32)	158 (37)	316 (75)	103 (25)
Minimum time off between scheduled duty periods	Residents should have 10 hours off between duty shifts and must have 8 hours free of duty between duty periods	19 (4)	58 (14)	63 (15)	172 (41)	112 (26)	393 (94)	26 (6)
Maximum frequency of in-hospital duty	Residents must not be scheduled for more than 6	22 (5)	36 (8)	53 (13)	162 (38)	151 (36)	352 (84)	67 (16)

Category	Proposal	Program Directors' Responses to Proposal no. (%)					Standard already in place? no. (%)	
		Strongly Disagree	Moderately Disagree	Neutral	Moderately Agree	Strongly Agree	Yes	No
Mandatory off-duty time	consecutive nights of night duty 24 hours off per 7-day period, when averaged over 4 weeks	2 (0.5)	7 (2)	18 (4)	148 (35)	249 (59)	416 (99)	3 (1)
Moonlighting	PGY-1 residents must not be permitted to moonlight	4 (1)	9 (2)	17 (4)	33 (8)	361 (85)	387 (92)	32 (8)
Duty hour exceptions	Duty-hour exceptions up to 88 hours/week averaged are permissible for select programs with a sound educational rationale	47 (11)	76 (18)	95 (22)	105 (25)	101 (24)	125 (30)	294 (70)
Home call	Time on home call spent by residents in hospital must count toward 80-hour maximum weekly limit	50 (12)	41 (10)	66 (16)	116 (27)	151 (36)	313 (75)	106 (25)

* Numbers may not sum to 429 because not all respondents answered all the questions.

Table 3
Odds of Endorsing Key ACGME Recommendations According to Age, Field, Average Number of Hours Per Week Spent Supervising or Teaching Residents, and Program Type.*

Agreement with ACGME category proposals											
	Supervision	Workload	Maximum hr/week	Maximum length of duty period	In-hospital on-call frequency	Minimum time off between scheduled duty periods	Maximum frequency of in-hospital duty	Mandatory off-duty time	Moonlighting	Duty-hour exceptions	Home call
odds ratio (95% confidence interval)											
Age											
<50 yr	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
50 yr	1.1 (0.7-1.8)	1.0 (0.5-2.2)	0.9 (0.5-1.5)	1.8 [‡] (1.0-3.3)	0.7 (0.4-1.0)	1.2 (0.8-1.8)	1.3 (0.8-2.0)	1.7 (0.8-3.7)	2.2 (1.0-4.6)	1.2 (0.8-1.8)	0.6 [‡] (0.4-1.0)
Field											
Medicine	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Pediatrics	0.7 (0.4-1.3)	0.8 (0.3-1.9)	0.9 (0.4-1.9)	0.7 (0.3-1.3)	0.5 [‡] (0.3-0.8)	1.9 [‡] (1.1-3.3)	1.1 (0.6-1.9)	1.7 (0.5-5.7)	1.2 (0.5-3.2)	1.0 (0.6-1.7)	1.7 [‡] (1.1-2.9)
Surgery	0.6 (0.4-1.1)	1.0 (0.4-2.4)	0.2 [‡] (0.1-0.3)	0.2 [‡] (0.1-0.5)	0.1 [‡] (0.1-0.2)	0.5 [‡] (0.3-0.8)	0.5 [‡] (0.3-0.9)	0.5 (0.2-1.1)	1.1 (0.5-2.6)	1.3 (0.8-2.1)	1.6 [‡] (1.0-2.6)
Average hrs/wk or direct teaching or supervision of residents											
0-15	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
>15	0.8 (0.5-1.2)	0.4 (0.2-1.0)	0.7 (0.4-1.2)	0.6 (0.4-1.1)	0.6 [‡] (0.4-1.0)	0.9 (0.6-1.4)	0.9 (0.5-1.3)	1.2 (0.5-2.6)	0.9 (0.4-1.9)	1.0 (0.7-1.5)	0.6 [‡] (0.4-0.9)
Program type											
Large university-based	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Small university-based	0.7 (0.4-1.5)	‡	0.9 (0.4-2.0)	0.6 (0.2-1.8)	0.9 (0.5-1.9)	2.0 (0.9-4.3)	1.0 (0.5-2.1)	1.0 (0.3-3.8)	1.2 (0.3-4.6)	0.6 (0.3-1.1)	0.7 (0.3-1.3)
Large community-based	1.8 (0.6-5.0)	1.5 (0.3-7.0)	0.8 (0.3-2.2)	0.7 (0.2-2.3)	1.2 (0.5-2.7)	1.0 (0.5-2.3)	0.8 (0.3-1.9)	0.4 (0.1-1.5)	0.3 (0.1-1.0)	0.8 (0.4-1.8)	0.4 (0.2-1.0)
Small community-based	0.5 [‡] (0.2-0.9)	1.3 (0.4-4.1)	0.7 (0.3-1.7)	0.2 [‡] (0.04-0.8)	0.6 (0.3-1.3)	1.2 (0.6-2.3)	0.7 (0.4-1.5)	0.7 (0.2-2.4)	1.9 (0.4-8.7)	0.8 (0.4-1.5)	0.7 (0.3-1.4)
Community hospital, university affiliated	1.1 (0.6-2.0)	1.1 (0.5-2.6)	1.2 (0.6-2.3)	0.9 (0.5-1.7)	1.3 (0.8-2.3)	1.3 (0.8-2.3)	1.7 (0.9-3.0)	1.3 (0.4-3.79)	1.4 (0.5-3.6)	0.6 (0.4-1.0)	0.7 (0.4-1.1)
Other	1.1 (0.3-3.5)	‡	0.8 (0.2-3.2)	0.7 (0.1-3.2)	6.9 (0.9-54.4)	1.3 (0.4-4.1)	1.6 (0.4-6.1)	‡	‡	1.1 (0.4-3.0)	0.7 (0.2-2.0)

* All odds ratios have been adjusted for age (as a continuous variable), sex, and geographic region. Ref denotes referent.

[‡] P < 0.05

[‡]Odds ratio and confidence interval cannot be estimated due to small numbers.