EDITORIAL

Managing the Most Precious Resource in Medicine

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Many health care institutions appear to have lost sight of the truism that our health professionals are our most precious resource. With increasing commoditization, commercialization, productivity targets, and administrative burdens, the volunteerism and soul that have typified our profession for generations are suffering. It is increasingly clear that many residents and physicians are focused on surviving rather than thriving. The residents who participated in the iCOMPARE (Individualized Comparative Effectiveness of Models Optimizing Patient Safety and Resident Education) trial,[1] reported now in the *Journal*, may provide the clearest signal yet of the distress they feel and may also help us identify the way forward.

This was a cluster-randomized trial that compared two duty-hour structures (standard policies of the Accreditation Council for Graduate Medical Education, adopted in 2011, versus more flexible policies with no limits on shift length or time off between shifts) and evaluated the attitudes, educational activities, and test performance of internal medicine residents across a wide variety of programs in the United States. The patient safety outcome data are not yet available.

Although the study was randomized, multicentered, and large, there are several important limitations — including generalizability, desirability bias in survey responses, low response rates to some elements, difficulties in characterizing the true differences between the intervention group and the control group in hours worked, and other components — along with a large variation in outcomes across programs. In addition, the flexible programs applied that flexibility to only a small minority of their trainees' rotations. Nevertheless, the results are informative. Medicine residents in the flexible programs were substantially more dissatisfied overall than were those in the standard programs. This dissatisfaction was expressed on surveys of overall well-being, morale, personal health, interpersonal relationships, professionalism, job satisfaction, ability to attend educational programming, and perceived effects of fatigue on safety. These alarming differences in the perceptions of the trainees under these controlled conditions cannot be justified by the small positive effects on continuity of care that were reported among residents in flexible programs who had the option of working longer shifts.

Residents in this study had distressingly high rates of burnout, with more than two thirds of all respondents reporting high or moderate levels of emotional exhaustion, depersonalization, and low perceptions of personal accomplishment. High rates of burnout have been previously documented among physicians, nurses, and other health care workers, but it deserves focused attention. Burnout among health care professionals is generally attributed to work-related factors, such as overload, loss of meaning, and lack of autonomy, and ultimately affects many dimensions of care quality, including rate of errors, patient mortality, teamwork, malpractice suits, patient satisfaction, productivity, and costs.[2] For the individual and the program, burnout can be especially disastrous when it contributes to depression, alcohol and drug abuse, and even suicide.[3] Since burnout tends to peak at midcareer, the finding of this degree of burnout among residents portends even greater problems for internal medicine in future years if we do not transform our clinical and learning environments.[2]

Program directors and residents were quite

discrepant in their satisfaction with flexible and standard work hours, with program directors reporting more dissatisfaction with standard policies. This mismatch between faculty ratings and resident ratings suggests that many program directors are unaware of their residents' perceptions and thus may be making well-intentioned but ultimately ill-informed decisions about the design and delivery of the residency program.

The results from iCOMPARE can be analyzed in conjunction with the findings of the FIRST (Flexibility in Duty Hour Requirements for Surgical Trainees) trial,[4] which examined several of the same issues among surgical residents using similar outcome measures. Both surgical and medical residents who were subject to flexible hours were more dissatisfied with their general well-being and amount of time for rest and less dissatisfied with the continuity of care of patients and ease of handoffs than were residents who were subject to standard hours. However, the ratings of medical and surgical residents were not completely aligned (Table 1).

A clear feature of the results of the study regarding internal medicine programs is the extent to which residents were unhappy with the current training environment — whether flexible or standard. There is a risk that regulators and program leaders will be tempted to revert to standard work hours rather than revisiting the entire clinical learning environment for both clinicians and trainees. It is apparent that what works for surgical trainees may not be appropriate for internal medicine trainees, and regulatory expectations may need to differ accordingly across specialties.

It is also important to acknowledge that neutral, satisfied, and highly satisfied residents made up the majority of the respondents in every group, a finding that acknowledges the effect of the important and valuable work of educators, program directors, and regulators. Nevertheless, the spectrum of dissatisfaction among residents, along with their high rate of burnout, should inspire training organizations to examine their stated commitment to education and examine how they are funding and supporting educators and mentors, how they are supporting and managing individual growth, how they are providing sufficient time for electives and remediation, and how they are creating work environments that promote deliberate practice, reflection, and feedback without excessive clerical or clinical burden.

As patients have come to expect sophisticated

Table 1. Comparison of Dissatisfaction between Internal Medicine Residents and Surgery Residents in Programs with Flexible and Standard Duty-Hour Policies.*

Response Expressing Dissatisfaction	Internal Medicine Group			Surgery Group		
	Flexible Programs	Standard Programs	Odds Ratio	Flexible Programs	Standard Programs	Odds Ratio
	percentage of respondents			*percentage of respondents*		
Overall well-being	30	15	2.47†	15	12	1.31
Overall quality of education	15	9	1.67†	11	11	1.08
Amount of time for rest	34	17	2.43†	19	15	1.41†
Patient safety	6	4	1.40	4	4	0.85
Duty-hour regulations of the program	13	5	2.78†	8	9	0.99
Work hours and scheduling	21	11	2.21†	12	13	0.95
Continuity of care	5	7	0.80	5	10	0.44†
Quality and ease of handoffs and transitions in care	6	7	0.89	7	10	0.69†

* The odds ratios are for dissatisfaction among respondents in the flexible programs, as compared with the standard programs. Data regarding the surgery group are from the FIRST trial.[4]
† $P<0.05$ with no adjustment for multiple comparisons.

expertise across the entire range of competencies from their medical providers, so training needs to evolve — both in residency and in subsequent professional development.[5] The contribution of the iCOMPARE trial may not be the determination of whether flexible or standard duty hours are preferred, but rather whether health system and education leaders hear the sentinel plea of residents to reform our clinical learning environments to prioritize people.[6] The response of our profession to these clear warning signs should become the durable legacy of this trial.

Disclosure forms provided by the author are available with the full text of this editorial at NEJM.org.

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