Work compression is doing the same amount of work in fewer hours. The term is often used to describe an effect of the restriction of residents’ work hours by the Accreditation Council for Graduate Medical Education (ACGME). But before work hour limitations were implemented in 2003, residents were already experiencing work compression. From 1990 to 2010, annual admissions to major teaching hospitals increased by 46% (Katherine Brandenburg, Association of American Medical Colleges, written communication, December 11, 2012), while first-year residency positions, limited by restrictions in Graduate Medical Education funding, grew only 13%.

During the same period, length of stay fell by almost one-third, and intensity of care per admission greatly increased. In short, by the time ACGME restrictions were implemented, residents were already doing much more, in less time and for more and sicker patients, than were previous generations of house staff.

Work hour limitations, by restricting the length of hospital shifts and spacing them, smooth out the peaks and valleys of work and ensure more regular sleep periods. But they do not change the total amount of work by residents in our teaching hospitals; they simply redistribute it.

Two serious problems remain. First, the current work hour limitations, which became more stringent in 2011, are too inflexible, particularly in the absolute restrictions they impose on the length of shifts (interns are restricted to 16-hour shifts, and other house staff are restricted to 24-hour shifts). This leads to overly complicated scheduling, which greatly increases handoffs, a known cause of errors. It also can prevent residents from taking advantage of educational opportunities, including seeing patients through critical times in their hospital course.

The second problem is more fundamental but receives less attention. Limiting work hours without commensurately decreasing workload exacerbates the already extreme work compression for residents. Some teaching hospitals have shifted some patient care to nonresident services or have hired more residents, but most have relied heavily on simply redistributing workload among existing residents, and wresting some additional patient care out of a mostly reluctant faculty. Residents still perform most of the work but are now racing the clock. In large part, long work hours before the work hour limitations reflected the choices residents made to handle their workload rather than specific scheduling requirements. In focusing on work hours rather than workload, the ACGME—under intense pressure from many groups, both within and outside medicine—treated the symptom, not the disease.

Why this conspicuous lack of attention to workload, despite the logic of dealing with it directly? One reason is that many teaching hospitals are heavily dependent on the work provided by residents. Shifting patients to nonresident services is more expensive than implementing work hour limitations, at least in direct costs. In fact, estimates of the costs of implementing work hour limitations assumed that not all of the work corresponding to lost hours would be transferred to other providers. Work compression makes changes in work hours affordable. The critical wager is that the gains from more alert residents will offset the losses from work compression and from decreased flexibility in scheduling and continuity of care.

Has the wager worked? Findings following the implementation of the 2003 work hour limitations, which established the 80-hour workweek, were inconclusive in terms of patient safety and educational outcomes. But residents and faculty consistently reported concerns about the effects on quality of care and education. Recently, studies have begun to evaluate the 2011 work hour limitations. Desai et al, elsewhere in this issue of the journal, examined effects of the 2011 work hour limitations on sleep, education, and continuity of care at The Johns Hopkins Hospital, Baltimore, Maryland. Residents were randomized to a schedule compliant with the 2003 work hour regulations or to 1 of 2 schedules compliant with the 2011 regulations. The authors found an increase in sleep during the on-call period with the 2011-compliant schedules and found more consistency in the duration of sleep. However, no difference was observed in average sleep per day. Handoffs more than doubled, and time for education decreased. Of most concern, residents and nurses reported a steep drop in the quality of care, so much so that one of the two 2011 schedules was abandoned before completion of the study.

The findings are consistent with those of other studies that have compared 2003 and 2011 schedules; these studies found that residents believe the quality of care and their education suffered. When the ACGME sur-
veyed residents following the implementation of the 2011 regulations, more residents reported a negative effect than a positive effect on patient safety and resident education; almost half disapproved of the regulations, more than twice as many as approved of them.7

These results stand in contrast to the small but growing body of literature in which residents’ workload rather than work hours was targeted as the intervention. Several studies8–11 have compared standard resident services with experimental services in which patient load was reduced. Resident satisfaction dramatically increased,8–10 as did time spent on educational activities.8,9 Duty hour violations (including for shift length) decreased,9 lending support to the idea that decreased workload would lead to a reduction in work hours and sleep deprivation.

It is time to address the crucial issue of residents’ workload directly. This could be done in 2 ways. First, resident positions should be increased to reduce resident work intensity, which would simultaneously address the perceived national shortage of physicians. Second, administrators of teaching hospitals should shift service burden from residents to nonresident providers in settings of high work intensity. Of course, these measures are costly and will face substantial hurdles. Vigorous and targeted advocacy, as well as public education by the ACGME and other professional organizations and leaders, is essential.

If we can effectively advocate for accepting the initial direct costs of reducing resident workload, we suspect that in the long term it will substantially pay for itself. Studies8–11 of reduced resident workload have demonstrated reductions in length of stay, 30-day readmission rates, and need for intensive care unit admission. In addition, an observational study12 of teaching hospital admissions found a linear association between the number of monthly admissions to a team and the overall 30-day readmission rate, which steadily increased from 14.4% to 17.8% from the first to the fifth quintiles. These findings suggest not only benefits to patients but also the potential for significant cost savings. According to the chair of the department of medicine at The Johns Hopkins Bayview Medical Center, where one of these studies was conducted,13 the savings to payers from reduced readmissions for congestive heart failure alone largely offset the costs of shifting approximately half of the patients from a resident service to a hospitalist service without residents. In addition, overwhelmed residents may adopt a shotgun approach of excessive testing. Cost savings may result from providing residents the time for reflection and learning that would permit a more considered, targeted evaluation of patients. This hypothesis should be a focus for research.

While this agenda is pursued, the ACGME could immediately reduce the problem of inflexibility with residents’ work hours by removing the absolute restrictions on shift length, while limiting the weekly average hours and call frequency. Although some longer shifts would be permitted, in our view the restoration of continuity of care would be worth it. As a long-term goal, program accreditation could be contingent on measures of resident workload (eg, admissions per intern per year, with some adjustments) rather than work hours. This would indirectly permit a reduction in work hours, while preserving residents’ ability to respond to the individual needs of their patients and their own education.

Residents should no longer be asked to do an increasing amount of work in less time and with less flexibility. The ACGME national survey of residents shows that the plurality of residents would rather work longer hours and tolerate more sleep deprivation than jeopardize patients’ safety and their own education.7 We owe better to our residents and to their patients. It is time to address the disease, not just the symptom.

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Additional Information: Per Katherine Brandenburg, senior database specialist, Institutional Data Operations and Services, Association of American Medical Colleges, data are from the Annual Survey of Hospital Operations and Financial Performance. Annual admissions are calculated from reported discharges and deaths. Data represent those Council of Teaching Hospitals members reporting total discharges and patient days.