One of the major goals of the American College of Physicians (ACP), the national organization for physicians and trainees in internal medicine and all its subspecialties, is optimizing the training of the next generation of internal medicine specialists and subspecialists. As a result, the ACP is keenly interested in the effect that duty hour requirements have had on residency education in internal medicine, as well as their additional impact on teaching faculty time, medical student education, and the quality of patient care. This report specifically focuses on the impact of duty hour requirements on the education and training of internal medicine residents; it does not address the impact on patients and quality of patient care, nor does it address the impact on medical student education or on teaching faculty time and clinical responsibilities.

As background information for preparation of this report, requests were sent to members of several Committees and Councils of ACP to provide their perspective about the impact of duty hour requirements on residency training and the educational experience. The specific ACP Committees and Councils whose members provided input included: 1) the Education Committee; 2) the Council of Associates (representing internal medicine trainees, including both residents and subspecialty fellows); and 3) the Council of Young Physicians (including many young faculty involved in residency training). In addition, ACP works closely with other internal medicine stakeholders on issues relating to internal medicine training, and we received data and individual comments from the Association of Program Directors in Internal Medicine (APDIM).\(^1\) This report also includes summary information from some of the published literature as well as both published and unpublished data collected from the questionnaire administered with the Internal Medicine In-Training Examination (IM-ITE), which is produced as a collaborative effort of ACP, APDIM, and the Association of Professors of Medicine (APM).

Unfortunately, there is little available information about measurable educational outcomes since the time that duty hours have been implemented. Rather, the available information comes primarily from resident and faculty perception of the impact of duty hours on residency training. Interestingly, residents and faculty (particularly program directors) have a somewhat different perception of the effect of duty hours on training.

\(^1\) We would like to acknowledge Mr. Charles Clayton, Interim Executive Vice President of the Alliance for Academic Internal Medicine, for his assistance.
This discrepancy is not surprising, particularly since program directors and other faculty have a perspective that often spans a number of years (both pre- and post-implementation of duty hour requirements), whereas residents have a more limited time perspective that does not readily permit pre- and post-implementation comparisons. Given that limitation, one can still identify a number of generally accepted positive and negative aspects of the impact of duty hours on resident education.

On the negative side, there is clearly less time available for formal educational activities and conferences. Similarly, informal educational interaction (the informal “teaching moment” arising from resident-resident and resident-faculty contact surrounding patient care) has also become more infrequent. Another major concern has been the impact of duty hours on ambulatory training of residents. When residents have an ambulatory practice session during an inpatient rotation (as is typically the case with longitudinal half-day outpatient assignments), it is difficult to simultaneously fulfill responsibilities for inpatient care, see one’s scheduled outpatients, and leave the hospital at the necessary time. Ambulatory sessions are typically canceled after overnight call, potentially decreasing the overall amount of ambulatory training for the resident.

Duty hour requirements have clearly increased the number of “handoffs” from resident to resident, thus giving each resident less of a sense of individual “ownership” and personal responsibility toward his or her patients. Given the short lengths of inpatient stay and the need for handoffs during the hospitalization, it is more difficult for residents to provide continuous care throughout an inpatient illness and to get the education and clinical experience provided by less interrupted care. Additionally, although the number of hours that residents spend in the hospital has decreased, often the amount of work they must do has not. Consequently, they are doing the same work in less time, with a resulting increase in the intensity of their days and a decrease in the “quality of life” when they are in the hospital. Finally, the need to leave the hospital by a predetermined time, independent of patient care needs and responsibilities, has led to a “shift work mentality” and a reciprocal decrease in the sense of professional responsibility towards patients.

On the other hand, there are clearly positive aspects to duty hour requirements. The quality of a resident’s life outside the hospital is clearly perceived to have improved. Residents are getting more sleep, and they are less tired for both clinical care of their patients and for educational activities, including conferences and rounds. The problem listed above with ambulatory education also has a potential positive side, if it catalyzes much-needed reform in the structure and scheduling of ambulatory experiences.

Some objective information from published studies and from the unpublished results of the 2005 Program Directors’ Survey accompanying the Internal Medicine In-Training Examination is presented below. In the study by Reed et al. from the *Archives of Internal Medicine*, 111 “key clinical faculty” from 39 internal medicine training programs gave their perception of how duty hour regulations have affected multiple aspects of residents’ patient care, education, professionalism, and well-being. These are shown in the following figure:
Data from the Program Directors’ questionnaire administered with the 2005 Internal Medicine In-Training Examination provided perceptions of program directors about the global effects of duty hour regulations on residency education, as well as their impact on specific aspects of training. These results are shown in the following two figures:

**Program Directors’ Viewpoint**

Do you think the duty-hour regulations have an adverse impact on your ability to educate your residents?

<table>
<thead>
<tr>
<th></th>
<th>All Programs</th>
<th>USA, but not NY</th>
<th>NY only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>57% (117)</td>
<td>59% (101)</td>
<td>45% (13)</td>
</tr>
<tr>
<td>No</td>
<td>43% (89)</td>
<td>41% (69)</td>
<td>55% (16)</td>
</tr>
</tbody>
</table>
In a study by Myers et al. of residents’ perception of the effect of duty hour regulations on several aspects of training, there was generally a negative sense about their impact. In the following figure, a value of 3.0 was neutral, indicating no change. Values of 1 and 5 set the extreme limits of the responses, with the specifics of the scale noted on the figure. This particular study was done at only 3 institutions, all of which are highly selective, highly academic training programs. In this study, residents perceived all aspects of training to be worse, with the exception of the amount of non-educational work.
However, a much broader representation of internal medicine residents, queried through the questionnaire administered with the Internal Medicine In-Training Examination, found results that were quite different, as summarized in the figure below.
Program directors are quite consistent in stating that the primary problem that negatively affects resident education is the so-called “24+6” rule, which provides little flexibility for handling specific or unexpected patient care needs that may arise at the end of a shift. The need for residents to complete their work and the pressure to leave the hospital become paramount, trumping any individual resident’s desire for flexibility on a given day to meet the needs of patient care or the resident’s education. The rule for 10 hours between shifts is somewhat less problematic, and the 80 hour work week receives little concern from program directors for any negative impact on resident education.

The duty hour requirements pose a number of challenges for training programs and for both the departmental and institutional structure within which the training programs reside. Residents must be provided with protected time for their education, ideally taking into account the importance of both scheduled/structured educational experiences and unscheduled educational opportunities. Redesign of ambulatory training experiences is particularly critical; ambulatory education clearly suffers as program directors struggle to adhere to both duty hour and ambulatory training requirements of the Residency Review Committee (RRC). The greater intensity of work during the shortened hospital stays needs to be ameliorated, perhaps in part through decreasing the administrative (“scut”) tasks of residents. Departments and hospitals must provide the necessary resources to hire personnel who can assume patient care responsibilities that residents are no longer able to handle. There must be better use of healthcare teams in patient care, with models that include both physician and non-physician healthcare providers. These models must aim equally to optimize education and both continuity and quality of patient care.

Finally, as our understanding of sleep physiology becomes more sophisticated, we must apply this knowledge to the appropriate design of resident schedules, taking into account how resident sleepiness and performance are affected by naps and by varying shifts.

Individual programs, the RRC, and the ACGME must each take responsibility for meeting these challenges. Programs must find the resources for personnel who can handle those clinical responsibilities no longer falling on the shoulders of residents. Scheduling of resident clinical and educational experiences must be handled in creative ways that are often customized to the individual institutional environment. Better team models for care must be developed and utilized, and the system for handing off patient care across members of the team must optimize communication and the delivery of high quality patient care.

Fortunately, the RRC in Internal Medicine is currently rewriting the program requirements for internal medicine residency programs. Thus, the timing is good for the RRC to incorporate any changes in the program requirements, particularly relating to ambulatory education, that will enhance ambulatory training and minimize the current conflict with inpatient responsibilities. And last, but certainly not least, this is a reasonable time for the ACGME to step back, assess how the initial formulation of duty hour requirements has affected both resident education and patient care, and attempt to design a “version 2.0” that will best meet the educational needs of our trainees and the healthcare needs of our patients.