Changes intended to improve resident working conditions and supervision must take into account the complex realities governing teaching services. The American College of Physicians supports the ongoing reexamination of these issues, and recommends the following: 1) change be systematic and coordinated, balancing patient care and teaching needs; 2) changes in the medical care system itself are necessary in this process; 3) efforts be continued to reduce preventable medical error on teaching services within the limits of uncertainty intrinsic to medical practice; 4) reasonable restriction be placed on total continuous duty hours, but residents not disengage themselves prematurely from care of their patients; 5) residency training specifically teach techniques for balancing patient service, education, and personal life; 6) the issue of resident workload be addressed; and 7) formal evaluation of supervisory competence, explicit attention to the spirit of resident-supervisor relationships, respect for the evaluation of supervisory competence, explicit attention to the spirit of resident-supervisor relationships, respect for the principle of meaningful patient responsibility, and formal resident credentialing all be taken into account in improving resident supervision.

The recent enactment of regulations in the State of New York governing resident working conditions has provoked a flood of commentary, both in the United States and abroad (1-24). At least four other states have considered legislation in this area (25). While the effects of such regulatory initiatives are still uncertain, their potential impact on both graduate medical education and patient care could be great.

These events have occurred concurrently with a serious reassessment of key issues in graduate medical education that has been ongoing within the profession for several years (26-31). The American College of Physicians believes it is important to contribute to an informed debate on duty hours and supervision. The College has, therefore, developed recommendations concerning resident working conditions and supervision which are presented here, accompanied by background information and rationale. Because the issues that bear on working conditions may be substantially different for residents in disciplines other than internal medicine (16, 17), these recommendations are intended primarily for residencies in internal medicine.

Although the College believes the educational rationale for residency training in internal medicine is basically sound, it recognizes that supporting data to justify many specific elements of residency programs are lacking, and supports the conduct of rigorous educational research to provide the missing data.

I. General Considerations

As reflected in public hearings and published discourse related to the New York State initiative, various untested assumptions appear to underlie this recent regulatory history. Among the more prominent of these assumptions are the following:

1. Excessive demands on residents are a new problem, hence requiring new regulatory solutions.
2. Inadequacies in the rules or guidelines governing medical residencies are the primary source of adverse medical outcomes on clinical teaching services.
3. Improvement in resident working conditions will eliminate medical error on teaching services.

The American College of Physicians joins others (9, 11, 12, 16) in asserting that the underlying realities are more complex than implied by these assumptions, whether taken separately or together. The College believes that the first step to improving resident working conditions and the medical care on teaching services is the development of a clear understanding of the complexity of these issues. This understanding must be coupled with thoughtful, systematic application of the fundamental principles of good patient care and education if the needs of both teaching service patients and residents in training are to be served optimally.

Assumption 1: Excessive demands on residents are a new problem, hence requiring new regulatory solutions.

There is little doubt that the health care system has changed with increasing speed in recent years: increased complexity and intensity of patient illness, requiring greater hour-to-hour attention; more powerful therapies; shorter patient stays; increased cost imperatives; greater patient expectations; and more demanding technology. It has been widely concluded that resident stress has increased to unprecedented and serious levels, specifically in response to those changes in demand for patient care service (8, 13, 14, 26). For similar reasons, the consequences of resident dysfunction due to extreme service demand are seen as being po-
tentially more damaging to patients now than previously. Whether or not these assertions are demonstrably valid, the historical record indicates that service demand on residents has been a serious and conscious concern of medical educators for at least 100 years.

In the 1850s and 1860s the duties of house pupils became much more demanding, largely as a result of the growing amount of surgery performed in hospitals following the introduction of anesthesia. By the 1880s and 1890s, the work of house pupils had become tantamount to that of present-day interns, overworked and overstressed. In 1892, members of the surgical staff at the Massachusetts General Hospital pleaded with the trustees to increase the number of house officers. The responsibilities of the house staff had become so great that “few men finish the hospital curriculum without some illness, plainly due to the weight they have been carrying.” (32)

The directors of residency training programs in this country have thus struggled with the competing demands of service and education for over one hundred years. It would be naive to pretend that graduate medical residents. At the same time, it is appropriate to recognize that program directors have changed the working conditions in the residents’ favor—progressively and dramatically—over the years. In 19th century American hospitals:

It was only natural that ambitious young medical men should have competed eagerly for a handful of unpaid hospital appointments. Hospitals could casually refer to the “advantages of place” as a fair substitute for salary . . . . Throughout the century, such young men were expected to eat and sleep in the hospital [the origin of the term “resident physician”], to serve as the hands and eyes of the institution’s attending physicians. (33)

Change in resident working conditions has continued at an accelerated pace in recent years. Thus:

- instead of being on call every night or every other night, as was the case until 20 to 30 years ago, call is now a maximum of every third or fourth night;
- rather than facing serious resistance to marriage from residency programs, residents now marry freely;
- salaries, while not generous, are an order of magnitude greater than they were 20 or 30 years ago; and,
- programs increasingly provide resources for social and emotional support of their residents.

Policies governing residencies have tended to change gradually and incrementally, rather than in large steps, but the American College of Physicians agrees that fragmented changes, hastily implemented, in the structure of medical residencies are likely to produce major disruptions in the enormously complex system of patient care and education that characterizes the modern medical teaching service (9, 11, 12). For example, rigid limitation of continuous duty hours makes it difficult to schedule residents in medical clinics, particularly on the day after a night on call. Disruption of clinic function is of particular concern, both because many persons, particularly the medically indigent, receive much of their care in that setting, and because of the increasing importance of ambulatory-care teaching.

Furthermore, at least in the short term, rigid limitation of resident duty hours reduces available resident personnel. Consequently, “core” university hospitals are under increased pressure to staff their own teaching services by moving residents out of less solvent county or city hospitals in the same teaching program. Moreover, individual programs may respond to their own perceived resident shortage by recruiting more residents. Stringent regulations that affect isolated elements of a complex system might be expected to generate such inappropriate responses, but these responses are particularly problematic in view of constraints on the number of candidates for residency positions, limited funding for residency positions, and the projected oversupply of practicing physicians.

The College’s first recommendation, therefore, is directed at the scope, balance, and coordination of changes:

**Recommendation 1**

Changes in graduate medical education programs must be systematic and coordinated, rather than addressed to isolated elements of the system.

Changes must support the goal of providing the best possible clinical education within the context of providing the best patient care.

Planning for changes in policy governing residency training must be coordinated among the many jurisdictions responsible for maintaining this balance.

Included among these jurisdictions are directors of medical residencies; chairs of academic departments of medicine; hospital directors and chiefs of staff; certifying specialty and subspecialty Boards, the Accreditation Council on Graduate Medical Education (ACGME) and the appropriate Residency Review Committees; and, finally, certain agencies of local, state and Federal government.

**Assumption 2:** Inadequacies in the rules or guidelines governing medical residencies are the primary source of adverse medical outcomes on clinical teaching services.

The move to regulate medical residencies implies that the existing system of rules and guidelines that formally govern medical teaching services are considered insufficient to protect either residents or patients. In fact, the General and Special Requirements set forth by the Accreditation Council for Graduate Medical Education (ACGME) and its Residency Review Committees (34) provide extensive and highly specific rules and requirements governing the conduct of resid-
dencies. These Requirements have evolved over many years in response to just the kinds of concerns expressed above about service versus education, and explicitly require that "excellence in patient care must not be compromised or jeopardized by needs and prerogatives of educational programs or of research." (35)

The General and Special Requirements are regularly revised in response to the changing environment of medical practice and medical education. They serve as the criteria for program accreditation, and hence control the very existence of medical residencies.

Although the rules governing medical residencies must be open to continued critical scrutiny, the College also believes that fundamental deficiencies in the hospital care system are major determinants of any existing deficiencies in medical residencies and of less than optimal patient care on certain teaching services. These deficiencies must be corrected if patient care is to be kept as effective and safe as possible, and if residency training is to be optimal on these services.

Indeed, the regulations recently enacted in New York state explicitly recognize the impact of inadequacies in the care system on residency training programs, since these regulations require extensive and costly improvements in the hospital care system as a condition for changes in the rules governing resident duty hours and supervision.

The U.S. hospital system developed in response to the need to provide medical care for the indigent, with separate private services a major feature of U.S. hospitals only since World War I (33). Indeed, a cliché from the 1920s warned that the best medical care could only be purchased "... with the dollars of the rich or the dignity of the poor." (36)

As a consequence many U.S. hospitals, particularly those serving primarily the less affluent, have labored from the beginning under heavy social and fiscal constraints that have led to substantial inequities in care. Medical residencies are conducted within this system, with potentially deleterious consequences that were summarized as follows in a recent in-depth sociological study:

American health care delivery occurs in a two-tiered system of private and public health care facilities. Public health care has always been understaffed, underfunded, and generally provided with facilities inferior to the so-called private sector. ... mandating that underpaid, overworked doctors treat patients as quickly as possible and get rid of them expeditiously. Technology, far from reducing the work load, actually increases it and reduces the physician's observations in the calculus of diagnosis, turning it into what house staff calls a "numbers game." It also increases the amount of "scut" work and bureaucratic red tape. (37)

At the same time, the availability of inexpensive assistance from medical residents (interns and residents currently "earn" approximately $5 to $6/hour) has been one factor that has "enabled" the perpetuation of many of these same deficiencies in the health care system.

There are no simple or immediate solutions to the enormous, interlocking problems in the health care system, particularly those problems such as the large numbers of uninsured and underinsured patients facing the hospital sector. However, in the light of these concerns, the College's second recommendation addresses requisite changes in the health care system itself:

Recommendation 2

Elimination of certain problems in residency training depends strongly on the solution of certain key fiscal and organizational problems in the medical care delivery system itself.

More specifically, because up to 30% of a resident's on-call time is spent on routine service activities that are of limited educational value, hospitals that sponsor all approved residency programs should be required to provide 24-hour coverage by intravenous teams, phlebotomists, technicians, and transport personnel. Improved patient care itself is at least as important as improved resident education as the rationale for a thoughtful and systematic re-examination of the role of such support services. For example, the data in a recent study by Makadon and colleagues argued strongly for the value of routine performance of blood cultures in reducing morbidity and the period of hospitalization for inpatients who become febrile, concluding that:

Reliance on house officers to perform this important task ... may have been a false economy. ... Use of a phlebotomy team might be a more effective means of insuring that these tests are performed regularly and promptly. (38)

In addition, sufficient skilled clerical staff, and efficient information (for example, reporting and retrieving laboratory data) and communication systems (for example, for transmitting messages between resident and attending, physician paging) must be available.

Some of these changes in the care delivery system, particularly in hospitals, will require added resources: funds, personnel, and institutional support; and these resources will have to be found. In some instances, these changes may be accomplished through increased efficiency, reorganization, and changes in priorities, without an increase in human and financial costs. More generally, the College believes such efforts should be part of a broader effort to eliminate the two-level system of health care.

Assumption 3: Improvement in resident working conditions will eliminate errors in medical decisions on teaching services.

Medical practice is intrinsically uncertain—it has been characterized as a "probabilistic enterprise" (39)—and less than optimal decisions are, therefore, unavoidable in medicine. Thus, presented with a patient with a set of symptoms, the physician makes a diagnosis and decides on an interven-
Recommendation 3

Uncertainty is intrinsic to medicine. The system governing resident working conditions must reduce preventable medical error to the minimum achievable within the limits dictated by medical uncertainty.

II. Duty Hours

The usual justification given for long duty hours is that the course of acute illness can only be properly taught through prolonged, continuous contact with patients. Although this educational rationale plays a role in determining resident schedules, other factors are even more fundamental. Thus, the College believes that learning to assume responsibility for other human beings' lives and well-being is perhaps the single most important task of clinical training. The hallmark of physicians' responsibility to their patients is continuity: Failure to provide for continuous care represents abandonment, which is morally unacceptable, professionally unethical, and legally proscribed. In contrast to reading and lectures, which serve well for teaching medical facts and logic, continued contact with patients over extended periods of time provides the primary opportunity for modeling the taking of responsibility.

In learning to take continuing responsibility for their patients, physicians have much in common with parents. All understand and applaud the dedication of parents who stay up all night with dependent, needy offspring. By the same token, it is unrealistic to expect residents to absorb the full meaning of responsibility for medically fragile or unstable patients who depend on them for care if their working hours are fixed according to rigid, arbitrary schedules.

There is, in addition, a deeper social and psychological meaning embedded in the historical tradition of extended residency duty hours, whether or not heavy demands on residents are seen as inevitable or desirable. The anthropologist and physician Melvin Konner has underscored this meaning, in noting that healers in many cultures,

... take great risks and experience great pain—especially when they are learning. ... As a sometime apprentice in both systems.... I can say that the confidence to heal comes in part through the pain; that you feel justified in exercising such terrible power over your fellow human beings to the extent that you have suffered to get the power; and, last but not least, your patients feel it too. (43)

The American College of Physicians recognizes that excessive hours on duty may ultimately be harmful to patient care. At the same time, the College asserts that a strict limit on consecutive hours to be spent with the sick is not fully compatible with the fundamental goals of either the best patient care or optimal clinical education. Thus, patient care is inevitably more fragmented by rigid duty hour restrictions (11), because transfer of responsibility between residents will occur with increased frequency, thus increasing the opportunity for errors in information transfer. Moreover, the resident who has developed the primary relationship with the patient through first and most extensive contact is less likely to be involved in important decisions affecting patient care. The College's fourth recommendation is, therefore, directed at flexibility in setting duty hours.

Recommendation 4

Resident duty hours must be kept within reasonable, specific bounds. However, consecutive hours residents spend with their sick patients must not be rigidly limited to an extent that produces undesirable consequences for patient care and resident education.

Residents must not disengage themselves from care of their patients until proper management and continuity of care are assured.

More specifically, the College believes that it may be important to constrain the physical and emotional demands on residents by enforcing explicit guidelines for reasonable duty hours. The principal guidelines for development of these limits should be the comprehensive Special Requirements provided by Residency Review Committees. Such limits should only be developed in a context that is in accord with the fundamental principles of education and patient care discussed above. Because of the wide variation in needs and resources dictated by variations among hospitals in size, patient mix, and physical facilities, individual training programs must, however, be given substantial flexibility in developing these plans within the prescribed guidelines.

If plans to constrain resident duty hours are developed within individual internal medicine residencies, an upper limit of 80 to 90 hours per week, averaged over 4 weeks, for PGY1 residents on general medical services allows flexibility in scheduling and represents
and learning to balance the competing demands of pa-
apertures and psychological well-being. The College's fifth
professional development of medical residents.

Current educational initiatives to increase the pro-
portion of residency experience in ambulatory settings,
particularly as block rotations interspersed with in-
hospital rotations, may provide important additional
periods of lesser demand for night and weekend cover-
age. The College believes these initiatives in ambulato-
ry care should be actively pursued both for their edu-
cational value and their usefulness in varying duty
hour demands.

Physicians must be responsible for their own physi-
cal and psychological well-being. The College's fifth
recommendation is directed at the personal and pro-
fessional development of medical residents.

Recommendation 5

Residency teaching must explicitly include techniques
for recognizing physical and emotional limitations, ob-
taining outside help for significant physical or emo-
tional distress, sharing responsibility for patient care,
and learning to balance the competing demands of pa-
tient service, education, and personal life.

III. Workload

The College believes that excessive focus on the issue
of resident duty hours has obscured the broader and
more fundamental issue of total resident workload. For
example, admitting 13 complex, critically ill pa-
tients during a single 16-hour tour of duty clearly pos-
es a greater threat to the well-being of both patient and
resident than admitting 2 or 3 stable patients on each
of several 36-hour tours during a 1-week period.

In addition to the influence of the number of pa-
tients admitted in a given period of time, workload
also depends on the number of patients for which each
resident is responsible (both mean and range), the
complexity of illness, the pressure to accelerate hospi-
tal discharge, and the availability of adequate support
services. Ongoing responsibility by residents for an ex-
cessively large number of patients obviously carries
certain risks, including inattention to important medi-
cal detail and difficulty in devoting the requisite time
to the various elements of humane care. Responsibility
for too few patients provides inadequate learning op-
opportunities and is destructive to morale.

The College's sixth recommendation, therefore, is
addressed to controlling resident workload.

Recommendation 6

Training programs must provide appropriate relief for
residents teams during and after excessively demand-
ing nights on call.

Specific guidelines must be established for acceptable
numbers of patients to be admitted per resident during
tours of continuous duty hours, as well as for the size
of a resident's ongoing patient load.

Relief for Resident Teams during Nights on Call

Various mechanisms, some of which are already in use
in residency programs throughout the country, can be
considered for this purpose, as follows:

Limitation or Redistribution of Teaching Service
Admissions

Although residents can learn from every patient, not
all patients, whether on "service" or "private" units,
need to be assigned to residents at admission or fol-
lowed by residents during hospitalization. Attending
physicians who are involved with teaching institutions
must recognize increasingly that they have no absolute
right to the services of medical residents in the care of
every patient. It may be useful for attending physi-
cians explicitly to inform the admitting resident team
of the major anticipated educational opportunities for
each teaching service admission.

Where appropriate and workable, admissions could
be more equitably distributed by the "night float" sys-
tem, or by the use of overnight holding beds in the
emergency room area, recognizing that implementa-
tion of this system inevitably occurs at the expense of
some continuity of care.

Primary coverage of some patients on subspecialty
services could be shifted from general service resident
teams to fellows in those subspecialty programs and
residents rotating on those services, particularly when
such patients are admitted briefly for routine proce-
dures, for example, cardiac catheterization. At the
same time, care must be taken not to dilute the educa-
tional experience of fellows and residents on these ro-
tations. Faculty could reduce redundancy of effort in
the admission of such patients by assuming responsi-
bility for recording the history and physical examina-
tion in the chart.

Use of Additional Physician Resources and Physician
Extenders

Physician assistants or nurse practitioners can be
made part of the health care team on teaching services
and could be available during the night to respond to
less urgent calls.

It is difficult to define resident salaries that are "suf-
ficient" in a generic sense. However, the College gen-
erally supports the payment of salaries at levels that
reduce the pressure on residents to generate income by
“moonlighting” outside their training programs. At the same time, it is obvious that financial resources for salaries are limited, and that excessive salary inflation is not appropriate because residents are primarily trainees, not employees.

An alternative to “external moonlighting,” that is, outside the parent training institution, already used in some institutions, involves employment of selected senior residents and fellows on a limited basis during their off-duty hours to provide additional coverage to teaching and nonteaching patients within their own residency training hospital or hospitals—a form of “internal moonlighting.”

In addition to providing personnel that can supplement on-call teams, “internal moonlighting” possesses certain other features that distinguish it from the “external” practice:

- residents working in this fashion are already familiar with the institution and many of the patients;
- the parent institution has greater influence and control over the amount of time residents spend in this form of activity and over the nature of that activity;
- opportunities for adequate supervision and learning are greater.

The full implications of such “internal moonlighting” for education and service are not yet clear; this practice will need continued monitoring and serious re-examination over time.

A new type of career hospital physician can be recruited who will work on a salaried basis, particularly on nights and weekends, and who could also provide primary coverage to some patients now on teaching services. This mechanism would be more expensive and may not be possible unless there is a substantial physician surplus.

Redistribution of Present Housestaff Workload

Because internal medicine programs place the heaviest burden on interns, it would be appropriate to shift some of the workload to more senior residents, if care is taken to accomplish this change without compromising the fundamental educational principle of graded, progressive responsibility. Thus, some patients on resident-intern services could receive their primary work-up and care from the supervising resident rather than the intern.

Guidelines for Patient Load

These guidelines should include specific numerical ranges, but should also be broad enough to accommodate the many local variations in those factors that determine workload, including general level of acuity and complexity of illness, patient mix, length of stay, and adequacy of support services. The College believes the primary responsibility for defining these guidelines should rest with the Residency Review Committee in Internal Medicine. Program directors should develop simple, accurate systems to monitor patient load, including mean and range, for individual residents.

IV. Resident Supervision

Optimal resident supervision is a balance between independence and control. When the balance shifts too far towards independence, patients may be at risk of unnecessary harm; education also suffers because residents will not be made aware of their mistakes. On the other hand, residents trained under excessive supervisory control do not gain sufficient experience in making independent judgments. Physicians who have not learned to act independently during their training may create serious problems when they enter practice, for example, through over-use of consultants and ordering excessive and inappropriate diagnostic tests.

Although the intensity and quality of resident supervision have increased over the past 100 years, the American College of Physicians recognizes that supervision remains one of the most complex and challenging aspects of residency training, and that the system for resident supervision requires further serious attention.

The College agrees with the requirement that senior physicians be physically present to supervise the important elements of care for all patients on teaching services. The College asserts, however, that imposing additional layers of supervision, by itself, is unlikely to produce consistent improvement in the nature and quality of that supervision. The effectiveness of supervision depends, rather, on the spirit and manner in which it is implemented. For example, increased presence and involvement of senior attendings in teaching settings, if implemented in a forced and arbitrary manner, may even detract from the quality of patient care.

For example, under a system where involvement of attending physicians was not carefully worked out it was noted that:

... it seems evident that it is in the attendings' self-interest to have fewer patients admitted to their teams and to discharge patients as quickly as possible: the fewer the patients, the less work for them, and the lower the possibility ofiatrogenesis. (45)

Moreover, the College suggests that seniority itself does not guarantee that supervision will fully meet the needs of residents. Although clinical judgment generally improves with time and experience, certain clinical skills—particularly the complex, technological skills used in hospitals—may fade with time when they are infrequently used, as may occasionally be the case with senior attendings. In consequence, PGY3 or PGY4 medical residents may be better equipped than some senior attendings to help a PGY1 or PGY2 resident who is having difficulty, at least with those technical tasks.

The College’s seventh recommendation is, thus, concerned with supervisors and supervision.

Recommendation 7

Resident and faculty competence to supervise junior colleagues must be established by appropriate review of past performance.
The spirit of the relationship between residents and supervisors, and the manner of supervision are as important as formal rules governing supervision; that relationship needs to be defined and monitored by program directors.

Although attending physicians bear ultimate responsibility for care of their patients, residents and attending physicians must share that responsibility in a manner that respects the principle of meaningful patient responsibility for residents.

Residents should be credentialed to perform, supervise, and teach certain clinical skills, particularly procedures, by performing those tasks under direct supervision.

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