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A Commentary on the New York State Recommendations for Housestaff Working Hours and Supervision: The AAMC Position

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INTRODUCTION

In 1984, Libby Zion, an eighteen year old woman, was admitted to a major New York City teaching hospital where she died in less than 24 hours. A Grand Jury investigation was conducted of the circumstances surrounding her death. While the Grand Jury returned no indictments, it made several recommendations concerning emergency room staffing, the supervision of residents in training and the hours assigned to residents. In response to the Grand Jury, the New York State Commissioner of Health, David Axelrod, M.D., appointed an Ad Hoc Advisory Committee on Emergency Services to analyze the Grand Jury's recommendations. That committee has now recommended detailed policies for staffing emergency services, for limiting the hours assigned residents and for specifying required supervision of residents.

The death of Miss Zion was unfortunate, whatever its circumstances. Nevertheless, her death has stimulated a chain of events which requires the medical education community to review and evaluate the assignments of residents and the policies governing their supervision. As the representative of medical schools, faculties, and teaching hospitals, the Association of American Medical Colleges has a responsibility to help ensure that the debate about resident assignments and supervision are

not based upon one unfortunate incident dealing with a single patient in one hospital.

This paper reviews briefly the history of residency training; summarizes the recommendations made in New York State; considers the implications of the recommendations for patient access to care, graduate medical education, and health care costs; and offers suggestions dealing with alterations in how training is conducted.

Brief History

In the United States, physicians in training were first introduced into hospital settings during the latter part of the 19th Century. These positions were filled by graduates of one of the many medical schools in existence in this country at the time. The programs were not evaluated or accredited and amounted to little more than hospital-based apprenticeships. The first true residency programs were introduced by Osler in medicine and Halsted in surgery at the Johns Hopkins Hospital in 1897. These residency programs involved graded responsibility in patient care. The first year a trainee or intern was closely supervised by the assistant resident, and it was not until the individual in training became a true resident-physician that he assumed independent responsibility for patients. In some instances, individuals served as resident-physicians for 6 to 8 years, and

were seasoned physicians and surgeons at the time they entered practice. This type of intense training provided at Johns Hopkins and subsequently a few other teaching hospitals was the exception rather than the rule. However, one year of graduate medical education, the internship, became the norm for graduates of most American medical schools by 1920 and subsequently was adopted by most states as a criterion for licensure.

After World War II, residency programs expanded rapidly to meet the needs of the flood of physicians returning from service who requested specialized training. By 1950, Boards in all of the primary specialties had been created to certify to the competence of trained specialists. Residency programs improved their standards by the creation of residency review committees, a system that was firmly in place by the 1960's. Most Certifying Boards are now issuing certificates of special or added qualifications in subspecialties of primary boards, and the residency review committees are assuming progressively greater responsibility for accrediting programs in the subspecialties.

Hours of Housestaff

The concept of "resident physician" carried with it responsibility for patients 24 hours a day, 7 days a week. Indeed, the early residents were expected to live in the hospital. Marriage, if not interdicted, was discouraged. As

residency programs proliferated and the number of residents increased, it became evident that the monastic life styles prescribed for residents before World War II needed to be altered. In the 1950's, most interns and junior residents worked every other night and every other weekend. In the 1960's the on-call schedules changed to every 3rd night and, at most, one of two weekend days. In many residency programs, every 4th and 5th night on call is not uncommon. While it may be argued that residency training has become easier, in point of fact, this is not the case. To be sure, training practices have resulted in well-trained physicians able to make critical decisions about seriously ill patients. At the same time, however, the teaching hospital has experienced dramatic changes in the past few years: patient stays are shorter, more procedures and treatments are scheduled to be carried out in a shorter period of time and the less ill are treated on an ambulatory basis. As a result, residents are called upon to make more decisions about sicker patients than their predecessors. In the light of these changes in the environment, training practices that were appropriate to an earlier time may need to be reexamined to insure that they meet sound educational objectives and satisfy the need for excellent service to patients.

While there are numerous anecdotes about how many hours per week housestaff are assigned to care for patients, there are

little systematic data bearing on this question. Most of the information that exists is limited from two points of view. First, many studies of housestaff hours have been developed to compare the time spent providing service with the time spent in distinct educational activities. As a result, these studies often report their findings as the percentage of time spent in different activities, and the total number of assigned hours is often not reported (IOM). Secondly, residency programs are organized and managed on a specialty-specific basis. As a result, the assigned hours reported may mask substantial differences in different specialties. In point of fact, while a given study may report the average number of hours assigned, no individual resident may actually work "the average."

In response to a federally funded grant to investigate the financing of graduate medical education, Arthur Young and Company collected and reported data on resident hours in thirty-six teaching hospitals stratified into four categories by level of educational activity. The study used a two week diary in which residents as well as attending physicians and nurses reported their activities using 30 minute entry intervals. The results are shown in Table 1. Two significant observations should be made:

- residents in all four types of teaching hospitals worked at least 70 hours per week when all "on-call" hours are included,

- except in type 2 hospitals, the number of hours assigned to residents was not substantially different from the number of professional hours worked by physicians in teaching and non-teaching hospitals.

Table 2 provides additional information by year of training. It shows substantial variation in housestaff hours by type of hospital and year of training.

If the Arthur Young study had published data by specialty, significant variations across the specialties surely would have been observed. However, even lacking this important piece of information, the data show that residents spend long hours in training and that the hours vary by years of training. It is equally noteworthy, however, that attending physicians in both teaching and non-teaching hospitals generally work comparable hours. The conclusion is that the mental and physical stamina expected of residents is not dramatically out of line with the stamina expected of practicing physicians.

New York Recommendations

The Grand Jury report which investigated the Libby Zion case made five recommendations; in its review of the Grand Jury report, the Ad Hoc Advisory Committee made additional comments and recommendations. While many of the recommendations of both groups addressed emergency medical service staffing and resources, two Grand Jury and subsequent Ad Hoc Committee recommendations directly address graduate medical education:

"THE STATE DEPARTMENT OF HEALTH SHOULD PROMULGATE REGULATIONS TO INSURE THAT INTERNS AND JUNIOR RESIDENTS IN LEVEL ONE HOSPITALS ARE SUPERVISED CONTEMPORANEOUSLY AND IN-PERSON BY ATTENDING PHYSICIANS OR THOSE MEMBERS OF THE HOUSE STAFF WHO HAVE COMPLETED AT LEAST A THREE YEAR POSTGRADUATE RESIDENCY PROGRAM. THESE REGULATIONS SHOULD NARROWLY DEFINE THE CIRCUMSTANCES UNDER WHICH INTERNS MAY PRACTICE MEDICINE WITHOUT DIRECT SUPERVISION."

The committee endorses this recommendation:

1) "The Ad Hoc Committee has extensively discussed the recommendation of the Grand Jury regarding the supervision of junior residents and interns in level one hospitals. The Committee endorses the principle of

appropriate contemporaneous and in-person supervision of resident and intern physicians by attending physicians or appropriately credentialed supervisory physicians. Such an endorsement requires that hospitals make available 24 hours a day seven days a week such supervisory physicians. The Committee endorses this concept. The ramifications of this recommendation will require further study and in-depth analysis. Toward this end and in view of the critical nature of this recommendation, the Ad Hoc Committee further recommends continuation of our efforts through formation of a subcommittee with further expertise in graduate medical education. This group will define the method, means, and timetable for implementation of this recommendation. In the interim, emphasis must be placed on contemporaneous supervisory physician involvement in patient care provided by resident physicians.

It is important to point out that patient care in the teaching hospital is conducted by a team of physicians and nurses with the attending physician ultimately responsible. In the process of making more explicit the levels of supervision required of residents, the specific roles and responsibilities of

the personal attending physician and of nurses in teaching hospitals should be considered."

THE STATE DEPARTMENT OF HEALTH SHOULD PROMULGATE REGULATIONS TO LIMIT CONSECUTIVE WORKING HOURS FOR INTERNS AND JUNIOR RESIDENTS IN TEACHING HOSPITALS.

The committee agrees with this recommendation and suggests the following:

1) House officers and attending physicians who have direct patient care responsibilities which have Emergency Medical Services of over 15,000 visits per year, shall not work for more than 12 consecutive hours per shift in the Emergency Service; shifts of 12 hours shall be separated by no less than 8 hours of non-working time.

2) House officers and attendings, who have direct patient care responsibilities and who work in areas other than the emergency service, shall not in general work for more than 16 consecutive hours per shift; shifts of 16 hours shall be separated by no less than eight hours of non-working time.

3) In no case shall an individual person who has worked the maximum consecutive hours in one hospital, work in a different hospital in a consecutive fashion.

The Ad Hoc Committee is continuing to analyze the ramifications of the recommendations and to propose refinements while state officials are preparing proposed changes in the regulations of the health code. A precise timetable for initial publication, comment, and final publication of any changes in the health code is not known, but the Commissioner appears to be working rapidly to implement change. Final action by New York officials is being monitored by officials in other states and by the news media. Therefore, the medical education community must promptly address the issue of resident assignment and supervision raised in New York.

Implications of These Recommendations

A. Graded Responsibility for Housestaff. In the public media and in the professional press, most of the comment about these recommendations has focused on the provisions to limit housestaff hours. This concern should be balanced by an equal concern with the impact

of the recommendation of the Grand Jury that ". . . interns and junior residents in level one hospitals are supervised contemporaneously and in-person by attending physicians or those members of the house staff who have completed at least a three year postgraduate residency program." This recommendation would change the role of both the faculty and the resident in training. By requiring the faculty to be present in person when services are performed by interns and/or junior residents, faculty time for other activities would be substantially reduced. By requiring the junior resident to perform all of his activities under the immediate supervision of a senior resident or attending physician, the junior resident looses all opportunity to develop and experience the responsibility of providing patient care. For this reason, this recommendation attacks a core concept of graduate medical education: supervised responsibility of housestaff with increasing levels of freedom as housestaff gain experience and competence.

B. Natural Course of Illness. One of us (RGP) is quoted in the public media as having made the cryptic statement that "illness knows no shift." It is certainly true that certain medical illnesses such as diabetic ketoacidosis, a cardiac arrythmia, an episode of acute

upper GI bleeding, or a bout of septic shock transcend the usual time frames which are prescribed in the New York State recommendations. Likewise, a number of surgical operations are longer than the 16 hours mandated in the recommendations. More importantly, following the acutely ill post-operative patient during the first 24 hours after surgery demands more flexibility than the recommendations allow. We believe that the understanding of and experience with clinical situations irrespective of time constraints are a integral part of housestaff training. It is argued, however, that many specialties employ the concept of on-duty shifts which require that the patients be turned over to another physician or team of physicians. This practice is extant in operating rooms, emergency departments and intensive care units. It is implicit in on-call systems in practice. Nevertheless, it should be applied only by physicians that have experience with the natural history of disease and should, in our view, not be an integral part of training.

C. Need to Provide Service. Ideally, residency programs should be designed, conducted and evaluated from the educational perspective. This ideal is seldom achieved for at least four reasons. Residency programs involve

learning by participating with responsibility in the basic activities of a hospital, clinic, or other settings deemed appropriate for serving as an educational milieu and a setting for providing health care. The resident is not simply a student or a passive observer. He is a responsible member of the team involved in and committed to the care of patients. The resident is responsible for both his/her own education and for the care of the patients. Participation in the care of patients imbues in residency training a strong service orientation.

Second, residency programs are supported primarily by the revenues of hospitals. The 1986 AAMC survey of members of the Council of Teaching Hospitals shows that 81% of resident stipends and 61% of clinical fellow stipends are funded from the general operating revenues of the hospital. As a result of hospital funding, residency programs must contribute to the hospital's program of patient services to avoid undermining the hospital's economic viability. Residencies do add some costs and inefficiencies, but they must fit within the economic resources of the hospital or they will destroy the very structure of their host institution.

Third, some teaching hospitals are located in communities with a shortage of physicians. In this setting the hospital becomes the primary provider of both hospital and physician services. The hospital must hire physicians to staff ambulatory clinics, high volume emergency services, and other hospital units. The factors which originally made a community unattractive to office-based physicians remain even for hospital-based salaried physicians. To obtain an adequate number of physicians in this circumstance, some hospitals have developed residency programs and recruited residents, that substitute for attending physicians. While some of these programs are attractive to U.S. graduates who welcome the large volume of "hands-on" experience, many of the programs have attracted primarily foreign medical graduates whose goals include both training and entry into the United States. In short, the community's needs for physicians are being met by the resident's need for service experience.

Finally, in communities with a shortage of nurses, technicians and other health care providers, hospitals may be using residents-in-training as substitutes for such personnel. Residents, whose annual salary is fixed

and whose hours are open-ended, may be expected to transport patients to ancillary services, to perform nursing functions, or to routinely perform tasks generally assigned to allied health personnel. This situation can be compounded if the hospital's revenues for patient services are tightly constrained, but where its reimbursement for residency programs is more generous. Unable to obtain the revenues necessary to attract nurses or allied health staff, the hospital uses its medical education revenues to obtain a greater number of residents to meet its service needs.

While the ideal residency should be developed on the basis of its educational criteria, the structure and financing of residency programs adds a strong service orientation. As a result, proposals to limit resident hours have impacts on both the educational and the service component of residency training.

Other Issues

The New York recommendations limiting housestaff hours have a number of other impacts which should not be ignored. For example, the recommendations do not recognize differences by type of specialty or year of training. A dermatology program which relies heavily upon scheduled ambulatory visits and includes few

life threatening illnesses may be able to comply with the proposal with far less difficulty than a cardiology program caring for unscheduled patients at a genuine risk of death. Likewise, a fourth year resident in radiology may have a far less demanding schedule than a second year surgery resident who needs to concentrate on developing his/her operating skills. By failing to address the problems of particular specialties or year of training, the recommendations ignore the well-known fact that graduate medical education is characterized by great diversity. There is also the secondary impact on aggregate clinical skills. For example, if the general surgery resident can no longer develop the necessary surgical skills and techniques in five years, program directors may be forced to consider lengthening programs to retain the quantity and quality of clinical experiences that they deem to be necessary for the independent practice of surgery. An unintended effect of the recommendations may be a proposal to add a year of training in several disciplines.

The differential impacts on hospitals also cannot be ignored. A university hospital with a full-time geographic faculty and clinical fellows in multiple specialties may alter its supervisory practices more readily than a community affiliate relying on voluntary attendings with offices scattered around the community, or a public hospital already stretching its budget to

the utmost to pay its current staff. The recommendations may pose particular difficulties in expanding residencies in ambulatory sites and nursing homes because they may limit the resident's ability to follow a patient admitted to the hospital (because the resident hours are limited) and by imposing requirements for supervision that cannot be economically met by practicing physicians.

Another matter that warrants consideration are the long-term implications on physician manpower inherent in these recommendations. If the mandate to shorten housestaff hours is met by increasing the number of individuals appointed to the housestaff (vide infra) then consideration must be given to what will ultimately happen to these individuals who are trained in medical, surgical and support specialties that are already overcrowded. New York State itself serves as an example of this dilemma. In that state, the Commission on Graduate Medical Education (the Gelhorn Commission) has recommended that:

- the annual number of medical education's first year appointments be gradually reduced over five years to near parity with the number of MD and DO graduates of Liaison Committee on Medical Education and American Osteopathic Association-approved schools in New York. This means a reduction of approximately 30 percent.

- Further that in order for GME to qualify for funding, the majority of trainees completing residency must be in training in the primary care specialties (general medicine, family medicine, general pediatrics, general obstetrics/gynecology) by 1990. There should be a five year evaluation to reassess the training patterns and health care needs in New York State.

It will be difficult to meet these manpower mandates in New York State (and other states) if more housestaff are required in order to meet educational and service requirements.

Response to the Mandate that Housestaff Should Work Fewer Hours

The recommendations on assigned hours for residents which have been made in New York do not differentiate the factors contributing to resident hours. Hospitals where residents are assigned heavy schedules may be providing (1) superb, stimulating and well-supervised training or (2) struggling to meet the needs of a medically underserved community or (3) using medical education programs and reimbursement for them to mitigate the harsh regulatory environment. These different motivations constitute different tactical situations and call for different solutions. Limiting the hours in a first-class training program may weaken its educational attractiveness; limiting the hours in

an underserved community may undermine access to care. Because applying a uniform policy to resident hours in different circumstances has different impacts, the implications and options facing hospitals vary.

In some circumstances, limiting the hours of individual residents may lead to an interest in increasing the number of residents to preserve total resident hours. The implications for fulfilling board or residency review committee requirements and the ultimate effect on specialty physician manpower of increasing the number of residents has already been discussed. Many institutions will conclude that simply appointing more residents to comply with the mandate of fewer working hours is probably inappropriate.

Where hospitals conclude that increasing the number of residents is inappropriate, the requirements for patient services may be met by employing others under the supervision of physicians. Nurse anesthetists may be used in place of anesthesia residents, surgical technicians may be used in place of junior surgery residents, and nurse practitioners may be used to see primary care ambulatory patients and to triage emergency patients. The precise type of health professional required must be determined by the needs of patients, the availability of alternative personnel, and the acceptability of such personnel to

the medical staff. Even where all factors encourage the use of "physician extenders", time and effort are needed to plan, recruit and integrate them into a hospital which has formerly used residents for the performance of these tasks.

One option that might be considered is to substitute fully-trained physicians for housestaff whose efficiency and cost-effectiveness have become compromised by truncation of their shifts. While, at first glance, this strategy appears to be much more expensive, it has been shown that in certain patient settings (emergency room, intensive care units and operating rooms) the use of fully-trained physicians who do not themselves require further supervision eventually will be cost-effective. While the cost of these individuals may be three to five fold greater (per physician), it well may be that the team of a salaried physician, augmented by physician extenders (technicians or resident extenders) is the wave of the future. Certainly it merits experimentation and trial particularly in an environment that is anticipated to have an excess of trained specialists, and that does not need graduate training programs of the magnitude that are presently in existence.

Some hospitals cannot or should not expand their housestaff in response to the regulations requiring decreased working hours for housestaff. They may respond by abolishing their housestaff

programs altogether. Such a step would put the greater onus for patient care on attending physicians themselves. This is the modus vivendi in many community hospitals that do not have housestaff training programs. Progressively, over the past 10 years, such hospitals have cared for sicker and sicker patients. It means that practicing physicians will need to assume progressively greater responsibility. Given the sophisticated products of our specialty training programs, a number of physicians should be well qualified to assume these additional duties.

The hours residents are assigned are busy hours. While learning, they are seeing and caring for patients. As a result, efforts to decrease resident hours, either by an internal hospital decision or by external regulation will leave tasks which need to be done. Increasing the number of residents, hiring physician extenders, employing hospital-salaried physicians, or increasing the involvement of attending physicians are alternative responses to a reduction in housestaff hours. While the responses are different, they share the common element of increased costs. Increasing the hospital's complement of residents, physician extenders or salaried physicians immediately and visibly increases hospital personnel costs. These can be met only through higher revenues, greater productivity using existing resources, or reduced hospital income. Increasing the

responsibilities of attending staff also increases costs, albeit more indirectly because they do not show up on the hospital's books. As the attendings provide more service, more fees will be billed. In addition, where academic attending physicians spend more time caring for hospital inpatients, additional physicians will be needed to perform the educational, research, or administrative services formerly performed by the attending. These additional physicians need to be paid; it is likely that these costs will be shifted to other cost centers in the hospital, or, as seems more likely, the medical school. No matter what course is chosen to address the problem, the economic implications of limiting resident hours are clear: tasks previously performed by residents will need to be performed by others who must be paid. These payments will increase total costs to the hospital and its parent medical school.

The Matter of Housestaff Fatigue

The investigation in New York City was initiated in response to a single death in a single hospital. To date, no published report has demonstrated that excessive working hours or fatigue contributed to or was responsible for the patient's death. Nevertheless, the recommendations for change focus heavily on assigned working hours. By focusing efforts on assigned hours rather than quality of care or quality of education, the recommendations have made working hours the subject of a policy

debate in its own right. This may stimulate a renewed debate about housestaff "working conditions" and rekindle past efforts to unionize housestaff. The AAMC has vigorously opposed housestaff unionization because, in its view, the confrontational model of union relations is antithetical to the collegial model necessary for education and patient care.

A number of studies have documented that the performance of fatigued residents is impaired. What is not clear, however, is how often such a state of fatigue occurs. To be sure, residents are required to be awake and become involved in patient activities while they are "on-call." It is equally clear, however, that there are many on-call nights or weekends when on-call time can be spent in study or sleep. The caricature of the resident who collapses from exhaustion at the conclusion of 36 straight hours of patient service, is more often just that, an exaggerated rather than a real phenomenon.

Moonlighting

The New York recommendations address moonlighting practices obliquely: "In no case shall an individual person who has worked the maximum consecutive hours in one hospital, work in a different hospital in a consecutive fashion." This recommendation does not require the same eight hours of

non-working time that is required if a resident stays in the same hospital.

The present tolerance of moonlighting becomes an important issue in the context of the New York State recommendations. The recommendations are based on the premise that residents are assigned too many hours and that the state must impose limitations on assigned hours. Moreover, the recommendations assume that residents in the first three years of training, even if they hold a valid license to practice in New York State, must be supervised at nearly all times. These recommendations are not consistent with allowing residents to moonlight in their non-working hours. If it is inappropriate for a resident to provide patient services in Hospital A without a minimum eight hour break, it is equally inappropriate to allow the same resident to provide patient services in Hospital B without an eight hour break. Likewise, if it is inappropriate for a second year resident to provide services in Hospital A without detailed supervision, it is even more inappropriate to allow the same resident to provide unsupervised patient services in Hospital B while moonlighting. The continuing acceptance of moonlighting must be re-examined.

Residency training exists to provide physicians with the clinical skills necessary to enter independent practice. It

demands substantial mental and physical energy. It includes structured arrangements for supervision of the resident's actions. Moonlighting adds to the fatigue burden of the resident and generally includes little or no supervision. It places the young physicians' need and desire to learn in direct conflict with his/her economic self-interest. For these reasons, the AAMC has historically opposed moonlighting for residents and has recommended that it be allowed only for advanced residents and only with the approval of the residency program director. The program director, therefore, must be responsible to see that the moonlighting does not compete with and detract from the training.

Conclusions and Recommendations

1. The AAMC supports the efforts of New York State to examine the working hours of housestaff and agrees with the attempts to alter these consistent with the primary educational goals of graduate medical education.

2. The AAMC supports the need for graded supervision of housestaff in emergency rooms, and inpatient and ambulatory settings. This implies that as housestaff training advances, the ability of housestaff to make independent decisions must be preserved because it is an integral part of the learning process.

3. The AAMC wants to be certain that whatever changes are made, the educational, service and fiscal implications of these changes are considered.

4. Because of the far-flung implications of these recommendations, the AAMC recommends that changes be phased in gradually, consistent with preserving the educational goals of training programs and with the least disruption in patient care.

5. The accrediting authorities, medical schools, teaching hospitals, residency program directors, and faculty should work actively to halt the practice of moonlighting.

TABLE 1

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Resident Hours of Service Per Week, by Year of Training

Hospital Type	Year of Training					
	One	Two	Three	Four	Five	Six
4 (University Type)	83.2	73.9	73.8	74.0	81.1	88.0
3 (Comprehensive Affiliate)	75.0	74.9	69.1	77.4	108.5	80.0
2 (Basic Affiliate)	77.7	74.2	67.1	60.7	61.0	--
1 (Limited Programs)	95.2	100.7	81.3	--	--	--

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TABLE 2

Attending and Resident Hours of Service Per Week

Type of Hospital	Hours per Week	
	Attending Physicians	Residents
4 (University Type)	72.1	77.7
3 (Comprehensive Affiliate)	68.8	75.3
2 (Basic Affiliate)	59.9	72.4
1 (Limited Programs)	79.9	84.3
0 (Non-teaching)	72.5	--

* Includes on-call time

Source: