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GoodWork in Surgical Education

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THE CASE OF LIBBY ZION

The flurry of reforms currently sweeping through the world of surgical education can be traced back to a Spring night in 1984. In the dark hours just past midnight, Libby Zion, the 18 year old daughter of a prominent journalist, was admitted by the teaching staff of a New York City hospital with intermittent jerking movements and fevers (Lerner, 2009). Upon admission to the emergency room Ms. Zion had reported her history of depression, but had left her history of cocaine abuse undisclosed.

Over the course of those early morning hours, Ms. Zion was seen by both an intern and a resident, and her case was discussed with the attending (physician) on staff. While she was not actually seen by this attending, he knew her medical history and had agreed, over the phone, with the resident's plan of care. At approximately 6 AM, the intern in charge of Ms. Zion and dozens of other patients was called by the floor nurse with a report of the patient's increasing agitation. The intern had been at Ms. Zion's bedside less than 30 minutes before receiving this phone call and, hearing the nurse's description of the patient's symptoms, discerned no clinical change since her examination. Therefore, without revisiting the patient or repeating a physical exam, the intern prescribed both physical restraints and a standard antipsychotic medication commonly used to "chemically restrain" agitated patients. Both orders were given over the phone. At approximately 6:30 AM the patient's agitation had decreased but her temperature was recorded at a life threatening 107 degrees Fahrenheit. Despite

aggressive attempts to cool her body temperature, Ms. Zion died soon thereafter (Lerner 2009, Spitz 1991).

The story might have ended there had it not been for the fact that Ms. Zion's father was a prominent journalist who subsequently spent significant time, energy and personal resources attempting to uncover the cause of his daughter's death. In retrospect, given the gravity of this case and its importance in shaping the future of graduate medical education, it is interesting to note that an exact medical cause of this young woman's death was never discovered.

What was revealed, however, were various facts about the *circumstances* under which Ms. Zion received her care that morning. It became clear, for example, that not only had she not been seen by an attending level physician in the 6 hours between her admission and her death, but that this level of resident oversight was an accepted standard of care. The residents often, it seemed, cared for patients without the direct supervision of senior attendings, particularly overnight.

While various aspects of this case were highlighted by the Zion attorney in charge of pursuing the circumstances of her death, one of the most salient points was that of resident work hours. The reliance of residency programs on 36 hour shifts and 100 hour work weeks for their trainees was discovered to be relatively commonplace, raising the concern that sleep deprivation could have, in this instance, contributed to compromised care.

While the intern and resident involved in Ms. Zion's case were ultimately brought before a grand jury in the State of New York, receiving "censure and reprimand" with respect to their conduct that evening, the larger story continues to unfold, particularly

with respect to resident work hour reform (Spitz, 1991). In this paper I attempt to understand this larger story. The ongoing challenges to graduate medical education are discussed in light of the GoodWork framework. In particular, the GoodWork definitions of the components of a profession—the individual practitioners, domain, field and other stakeholders—and what constitutes good work within that profession—excellence, ethics and engagement—are used to reframe the growing tensions in this field. Graduate surgical education specifically is highlighted as a particularly revealing exemplar given its historical reliance upon excessively long duty hours.

THE GOOD WORK FRAMEWORK AND GRADUATE MEDICAL EDUCATION

The repercussions of the preceding case, first noted over 20 years ago in a single state, have now been felt by all residents and professionals in graduate medical education across the country. Not only are the reforms resulting from this one fatal case ongoing but the debate surrounding the risks and benefits to resident education appears to be intensifying. I review the history of graduate medical education in the United States, comparing its development to that of a comparable system in the United Kingdom. The recent reforms in duty hour regulations are emphasized, with attention to how these rules are contributing to a fundamental structural shift in the means by which residents are educated. I also review the abundant but conflicting and methodologically limited results of data pertaining to the effect of these changes on educational outcomes, resident quality of life, and patient care.

This background is necessary to understand the current state of controversy regarding the future of graduate medical education. In my view the GoodWork framework yields two unique insights into the tension between senior attending surgeons

and younger generations of surgical residents. The first insight uses the language of the GoodWork diamond (of individual, field, domain and stakeholder) to highlight the importance of the perceived impetus for reform in shaping the response of the medical profession. The second insight uses the GoodWork elements of excellence, ethics and engagement to reframe the concerns of senior attendings, providing perspective on why the controversy remains so intense and polarizing.

DEFINITIONS

As defined by the GoodWork framework, professions can be divided into four realms: the individual, the domain, the field and society. In one sense all physicians might be considered the *individuals* within the larger profession of surgery or medicine. But in the more circumscribed realm of surgical education, the individuals are limited to Program Directors and Attending level physicians at teaching hospitals (i.e. those hospitals that participate in a Medicare funded post-graduate training program for residents). The Program Directors and Attendings are individuals who have undertaken not only the profession of a physician but that of physician educator as well. While this choice often results in a somewhat enhanced professional standing, Program Directors do not typically receive a significant financial bonus for their efforts, and Attending physicians at teaching hospitals are in fact typically paid less for their efforts than their counterparts in private practice (largely due to the tendency for teaching positions to be salaried as opposed to fee-for-service).

The *domain* of surgical education continues to evolve. Various textbooks of surgery provide a Program Director or Attending with an exhaustive “course curriculum”. These texts typically focus heavily upon the anatomy, physiology, and

operative technique underpinning the work of practicing surgeons, providing a well defined set of knowledge that surgical educators are then responsible for passing on to residents.

More recently, a second component of this domain, the “ethical dimension” of graduate medical education, has been bolstered. An effort has been made to foreground and standardize this less obvious but no less critical element of the curricula. The Accreditation Council of Graduate Medical Education (ACGME), the non-governmental non-profit professional body charged with accrediting all surgical and medical training programs in the US, has embarked on an ambitious “Outcome Project”. The goal of this project, initiated in various phases over the past decade, has been emphasize key educational outcomes, including “professionalism”. The ACGME’s definition of professionalism for a resident includes the ability to demonstrate respect, compassion and integrity; to commit to the ethical principles of the profession; and to demonstrate sensitivity and responsiveness to patients’ culture, age, gender and disabilities (ACGME).

Surgery provides a good example of the trends within graduate medical education. As the domain of surgical education has expanded, the profession of surgical education has moved in concert to formalize the *field*. Organizations such as the Association of Program Directors in Surgery (APDS), founded in 1977, work in concert with the ACGME Residency Review Committee for Surgery to promote the standardization of a surgical curriculum. These organizations represent the primary “gatekeepers” of the profession and hold as part of their mission the development of the role of the professional surgical educator.

As defined by the GoodWork Project, the field of a profession is also composed of expert practitioners and apprentices or students. Expert practitioners in surgical education are widely recognized by honors, grants and awards provided by the various gatekeepers, including both the ACGME and the APDS. Less well developed, however, is the role of an apprentice or “student” surgical educator. Traditionally, Program Directors have been senior surgeons within the hierarchy of the teaching hospital who were promoted to this relatively esteemed position. Prior to that promotion, however, there is little in the way of “professional training” for the added responsibility of physician educator.

Likewise, until now the expert practitioners at the attending level have typically been clinicians with a demonstrated history of excellence in their surgical profession. While most attendings would readily admit to a “passion for teaching”, thus explaining their willingness to accept a lower salary in exchange for a position in a teaching hospital, there is no required training or apprenticeship in surgical education. In many ways, this relatively underdeveloped aspect of the field holds more similarities to the profession of journalism than to medicine.

The fourth and final professional realm is that of the “other stakeholders”, including but not limited to the general public. Other stakeholders might include the hospital or hospitals in which the residency is based and the medical school and/or university with which it is associated. In an age of increasing concern with the cost of medical care, for example, the hospital’s bottom line becomes an increasingly important factor affecting the program director’s ability to fulfill his or her mission of providing quality surgical education.

GRADUATE MEDICAL EDUCATION: PAST AND PRESENT

For decades, surgical training was based on a formalized apprentice model established by William Halstead at Johns Hopkins in 1889 (Rutkow, 1978). This system remained largely unchanged until the latter half of the 20th century (O’Shea, 2008). Beginning in the late 1980’s, there existed a growing public interest in the concept of the over-tired resident and the impact of his or her fatigue on patient safety. The death of Libby Zion spurred the creation of the Bell Commission whose final report cited both insufficient resident oversight and excessive resident work hours as possible factors in the young girl’s death (Holzman, 2000). The subsequent enactment of the NY Department of Health Code 405 legislated duty hour limits for residents, sounding an ominous warning to professionals in graduate education, underscoring the strength and influence of the growing public interest.

While the threat of national legislation was far from imminent, the impulse was clearly to maintain regulatory power over graduate education within the folds of the profession. In 2003, the ACGME introduced the 80 hour work week which, in conjunction with various other limitations, marked the first effort by the gatekeepers of graduate medical education to restrict the work hours of residents (Woodrow, 2006).

Some perspective on the extent of US reforms is gained by comparing them to recent changes within the UK graduate medical education system. Current European Union (EU) work hour regulations are based upon the 1993 Working Time Directive (WTD) (Woodrow, 2006). Relative to the US reforms, this directive reflects a much broader effort to regulate the work hours of all EU citizens. Specifically, it outlines “a 48-hour work week for all salaried EU citizens” for the express purpose of reducing the

negative impact of prolonged work hours on their health and safety (Woodrow, 2006). While physician house officers (UK “residents”) were initially excluded from this directive, they were ultimately included under a 2004 amendment (Ramsey, 2007).

When compared to what is currently in place in the US, this EU directive constitutes a significantly more restrictive set of rules. As of 2009, junior doctors are limited to 48 hours of work per week, with no more than one night or two half-nights of call per week and a limit of one Sunday call per month. They are also guaranteed a post-call respite equivalent in length to their on-call duty (Ramsey, 2007).

In contrast, US residents are limited to 80 hours of work per week, with an additional 8 hours of work granted to certain time-intensive programs such as surgery. Overnight call in the hospital can be taken as often as every third night with a “recommendation” of 10 hours off between shifts. There are no absolute rules guiding the number of weekend calls allowed per month (ACGME). While numerous comparisons could be made between the UK and US systems of medical education, this contrast in duty hour regulations provides some perspective, emphasizing the fact that what is a controversial “limited work week” in the US would be considered excessive in a comparable country.

As the US model for graduate surgical education continues to evolve, it is also important to note that this change increasingly represents a shift away from the tradition of apprenticeship (Whitehouse, 2007). For all of the potential benefits, apprenticeships pose the unavoidable risk of an unpredictable training experience, increasing the difficulty of both standardizing and assessing surgical education. Modern approaches have thus focused on standardizing the length, content, and assessment tools used in

surgical training. A pre-determined pathway for surgical residents, from medical school through their national board examinations, is standard across the country. Graduation standards for operative case volume and breadth are also nationally set by the ACGME, and all surgical residents in accredited programs must take a yearly standardized exam written by the American Board of Surgery.

In addition to the standardization of more routine aspects of surgical training (e.g., anatomy, physiology, operative technique), the ACGME has recently mandated the incorporation of “core competencies” of the profession into residency curricula. As mentioned earlier, professionalism, for example, has thus become an explicit focus of the modern surgical trainee (Iramaneerat, 2009).

Ethics, another core competency, is also included in this new curriculum. While medical ethics is an accepted part of medical school training, this mandate constitutes the first methodical and standardized attempt to include ethics in graduate surgical education (Helft, 2008). In fact, this observation raises the larger parallel between the standardization and regulation of US medical schools that took place a century ago following the publication of the Flexner report, and the very similar process now being observed across residency programs (Markel, 2001)

EFFECTS OF THE ACGME DUTY HOUR LIMITS

While the final effects of duty hour reforms are likely to be many, compelling data regarding these effects remains relatively scattered and conflicting, preventing any definitive conclusions. The original goals of US duty hour reforms included improved patient safety, resident education, and resident quality of life. As discussed, patient safety was clearly the dominant inciting concern. Quality of life, however, has become

increasingly important as the younger generation continues to prioritize this element more highly than previous generation (Barshes 2004, Dorsey 2005). In fact, it is interesting to note that the single most consistent result gleaned from the studies related to work hour reform post 2003 has been the nearly unanimous conclusion that residents' perceived quality of life has improved (Curet, 2008)

Ultimately, the data relating to the consequences of US duty hour reforms on educational outcomes have been mixed. Subjectively, program directors in general surgery report that the ACGME duty hours have significantly limited the educational opportunities of their residents (Willis, 2009). Operative experience and standardized examination performance have been evaluated as more objective educational outcomes. While some evidence appears to indicate a trend toward decreasing numbers of operative cases (Damadi 2007, Shin 2008, Weatherby 2007), larger studies report a slight overall increase (Baskies 2004, Schneider 2007). Additional reviews have focused on resident performance on yearly in-service and board certification examinations and seem to reflect a similar positive trend (Durkin 2008, Schneider 2007).

The preliminary data on patient safety may be slightly more consistent. While no prospective studies have been published documenting the effect of duty hour limits on patient safety, the three primary retrospective studies published were large and relatively well designed. None of these three studies demonstrated an increase in either mortality or morbidity following the institution of the 2003 ACGME regulations (Morrison 2008, Volpp et al 2007a,b).

Perhaps more important than these early data on education, quality of life, or patient safety, is the observation that duty hour reform has clearly required a substantive re-

structuring of residency programs. Historical acceptance of long work weeks, weekend call and extended 36 hour shifts has given way to a more circumscribed approach. The institution of a “night float” system of shift work, an increasing reliance on “handoffs” between residents, and the growing use of physician extenders (physician assistants and nurse practitioners) have become the new norm in inpatient care (Chung 2007, Gordon 2006).

This structural adaptation to the duty hour limits clearly represents an important change in how the education of a resident is accomplished. What is less obvious, but perhaps more to the point, is that this structural change is perceived by many as an attitudinal change in the residents themselves. The increasing reliance upon shifts, handoffs, and limited hours in the work week are considered an unprecedented and potentially unacceptable change in the priorities and values of future surgeons.

Limited evidence exists addressing the concern that the restructuring of surgical residency has weakened the professionalism of surgical residents. Some evidence has been gathered relating to US residents and their understanding of professionalism. Residents, including surgical trainees, value the concept of professionalism, and in general relate professionalism to a sense of ethical obligation to the patient (Iramaneerat 2009). No evidence, exists, however to determine if this sense of professionalism is qualitatively different from that fostered by the traditional apprenticeship model of education.

LESSONS FROM THE UK

The UK model of surgical education has several structural similarities to the US model (such as the progression of residents through various stages, the length of training,

and the technical expertise expected upon graduation) that make it a particularly revealing source of comparison. Also similar to the US, the UK has clearly made a shift from the classic apprenticeship model to a system based on standardized curricula and assessment expectations (Kelly 2007). The British experience may therefore offer additional insight into the potential outcomes of modern surgical education reform.

Following the inclusion of residents into the European Working Time Directive, physician educators in the UK have reported concerns with a perceived decrease in the “hands on training” received by junior doctors. Senior House Officers (SHO), the equivalent of more senior residents in the US, likewise report a subjective sense of “deterioration in the quality and quantity of training” following the implementation of the work hour limitations (Tsouroufli 2008).

Some of the concerns voiced by senior physicians reflect the belief that the older, tougher system of long hours in apprenticeship may have offered a lower quality of life but better prepared trainees for the difficulties of actual practice. The idea that newer trainees will be “less able to deal with the stress of the real job”, not having been “toughened...up for real life” is a theme voiced by many, as exemplified by this physician interviewed in the UK:

When they (trainees/residents) have to work, out of hours or work very intensively for a short period of time, I don't think they're really got that sort of experience that they can necessarily cope ...I think a lot of them do find it quite stressful when they have to say look after three very sick patients all at the same time...they just can't cope. Whereas, in the old days it would be part and parcel of your training really and you would cope. (Tsouroufli 2008).

Clearly the focus of this senior physician's concern is the perceived inability of the system to adequately prepare residents or trainees for the reality of the profession.

The idea that surgical education has divorced itself from the reality of the surgical career has recently been echoed in reports from the US. Dr. Thomas Nasca, CEO of the ACGME, was recently quoted in an interview responding to this issue of excessive work hours in residency and the goal of preparing physicians for equivalent situations in practice:

We have to prepare young doctors for the reality of practicing in the American system, in what are often less-than-ideal circumstances.... A neurosurgeon in Missouri, for example, will have to cover four counties and must go to the E.R. and operate regardless of how tired he or she is....This is the reality of practice in many areas of the country, and our responsibility is to address that reality (Chen 2009).

As in the UK, much of the focus seems to be on the discrepancy between the skills and stamina acquired by surgical residents today and the reality of their job as surgeons.

THE FUTURE OF GOODWORK IN GRADUATE MEDICAL EDUCATION

This situation creates a challenging set of circumstances for those seeking to do good work in surgical education. The pace of change has been rapid and seems to be accelerating. A recent 2009 report released by the Institute of Medicine (IOM), for example, proposes a revised set of regulations, increasing the limitations placed on resident working conditions (Shapira 2010). Meanwhile, the current generation of Program Directors and Attending surgeons, trained under the considerably more intense model of apprenticeship, continue to struggle to accept and accommodate the original wave of ACGME duty hour reforms.

This tension is reflected in comments such as those by Dr. Glen Silas, an obstetrician who recently described a troubling interaction with a young resident in a Washington Post interview on resident duty hours. Dr. Silas had invited the resident to a unique surgical opportunity, and was astounded to find his offer turned down due to duty hour limitations. The resident declined, telling Silas, "I am at the end of my shift anyhow, so I will see it another time."

Even those at the attending level still learn from this surgeon, so for a resident to say that . . . is a special thing," Silas said. "I just told the resident, 'Wow. That is disappointing that the restrictions on your hours keep you from participating.' I don't even think I got a response. (Shapira 2010)

This exchange distills much of the controversy surrounding graduate medical education down to these two alternate perspectives on a single conversation. Dr. Silas's comments endorse an older system in which no limits were placed on duty hours if an educational opportunity presented itself. In contrast, the resident's actions reflect the modern expectations of reasonable work hour limits.

The first insight gained by applying the GoodWork framework to the controversy of duty hour reform is the importance of the source of the reform. As described in the introduction, the four corners of the GoodWork professional diamond are made up of the Individual, Field, Domain and Society (or other stakeholders). The impetus for work hour reform originated from societal stakeholders invested in ensuring patient safety in the setting of resident education. While gatekeepers in the field of graduate medical education subsequently adopted a comparable position toward work hour reform, they did not initiate this change. The prevailing stance within the profession has therefore been one of skepticism and caution in defense of an internally developed status quo.

This defensiveness is not meant to imply a sense of irrational obstructionism. Professionals in the field may justly feel they are acting in the best interests of their residents and, more importantly, the patients they will eventually be treating. In the best cases, therefore, this defensiveness is in noble alignment with the mission of the profession. The long term goals of the old and new guard in terms of resident education are not in question, just the means by which those goals are achieved. Alignment, per se, is not the issue. Instead, it may be the natural, self-protective instinct of any well developed profession that is at fault, the impulse being to preserve well demarcated professional boundaries and the privilege of self-regulation that follows. In maintaining these distinctions and the importance of self-regulatory privilege, however, the profession fails to recognize social stakeholders as valid sources of input and change. When this disjunction constitutes the starting point for conversations about duty hour reform, it becomes clear why consensus can be difficult to achieve.

The second insight into the source of controversy surrounding duty hour limitations can be gained by evaluating the profession of graduate medical education in terms of the GoodWork categories: Excellence, Engagement and Ethics. Using this lens, the concerns of senior attendings and program directors can be distilled to a common theme: the perception of duty hour reform as a fundamental threat to each of these core elements of the profession of surgery.

The culture of surgery fully endorses the spirit of Dr. William Osler's quote: "*The practice of medicine is an art, not a trade; a calling, not a business; a calling in which your heart will be exercised equally with your head*". Medicine is an art that demands emotional dedication as well as, and equivalent to, cognitive attention. The GoodWork

understanding of Engagement touches on many of these qualities and is what draws generations of medical students to the practice of surgery. The operating room might be described as the ultimate setting in which the ability to reach “flow” is, if not guaranteed, constantly encouraged and often found.

This conceptualization of Engagement leaves Attendings bewildered by a resident’s decision to decline an educational opportunity such as that offered by Dr. Silas. The senior surgeon’s reaction implied that the junior resident was somehow less passionate about his calling, that he was so “detached” from his commitment to education and patient care that he prioritized something as arbitrary as duty hour limits over a singular chance to learn.

Excellence might be equally at risk in the eyes of senior surgeons. In a field as complex and challenging as surgery, the demand for excellence in clinical acumen, interpersonal relationships with both patients and members of the health care team, and in one’s operative skills can, not surprisingly, require a meticulous devotion to detail, practice and study. The achievement of excellence in not one but all of these spheres demands time; the exact dimensions of which undoubtedly vary between individuals depending upon their native talents. Artificially limiting the time provided to accumulate this knowledge and skill naturally concerns senior attendings who fear a direct threat to the practice of excellence in surgery.

Adding to the complexity of this issue, the threat to Excellence in this profession is related not only to the excellence of the surgical resident but of the educator as well. Dr. Silas may, in other words, be reacting to a situation in which he senses a compromise

of the excellent practice of surgery by the resident and the excellent practice of surgical education by himself and other attendings.

Ethics in surgery is the final potential victim of duty hour reform. A surgeon's dedication and responsibility to the patient are universally considered of paramount importance. Despite this fact, residents are frequently engaged in the ongoing care of sick patients when coming to the end of a shift. At its worst, when patients are at their sickest, the decision of a resident to stick to the ACGME duty hour limitations and pass off his or her patient to the incoming resident would be considered by some "old guard" surgeons as equivalent to abandonment. While this extreme might not occur often, the Attending's concern that a resident's ethical duty to the patient is directly compromised by an over-zealous dedication to the duty hour limits should not be underestimated.

CONCLUSION

Duty hour restrictions are widely accepted as a fact in both the present and the future of graduate medical education. Given this reality, a better understanding of the nature of the controversy generated by the reforms would benefit residents, physicians, and potentially their patients. In this paper I sought to demonstrate the insights gained by applying the GoodWork concepts of social stakeholders and excellence, engagement and ethics in professions. These insights provide a novel framework on which to restructure and ultimately resolve the policy disagreements which persist in the wake of 2003.

Ultimately, we are left with the remaining question: Can good work be accomplished amidst the challenges of this new era? While it may be difficult to formulate a consensus answer from the published data, I would hazard a cautious 'yes' along with the following points. While engagement in one's job may entail a certain

degree of wholehearted passion for the work, it is not by definition mutually exclusive of a balanced lifestyle. While this point may seem obvious to those outside of surgery, it is important to recognize the potential novelty of this concept within the field. Only 20 years ago, no more than 2% of practicing general surgeons were women. While this percentage has risen to 20% as of 2009, these numbers speak to the culture of surgery (Troppmann, 2009). The balance necessary to practice surgery and raise a family has grown into an increasingly relevant issue for residents as the number of women in surgery continues to increase (Mayer, 2001). As individuals dedicated to the role of surgeon, as well as the roles of parent or spouse, demonstrate engagement across arenas, it should become easier to draw a distinction between a passion for one's work and an unhealthy immersion in it.

With respect to Excellence, it may be that surgery requires unusually long hours of training in order to achieve the high standards set out by the field. Irrespective of this possibility, however, other factors may have an equally powerful effect on the achievement of Excellence in surgery. The new and increasingly important societal stakeholders, for instance, may become a force for positive change. While this change may take the form of unwelcome but unavoidable reform, as in the case of Libby Zion, it is also possible to frame it in terms of open collaboration.

An example of such open collaboration between patients and professionals has been described by the well known physician Atul Gawande (Gawande, 2004). This author describes the reflections and experiences of patients and physicians as they embarked on a process of open disclosure with respect to individual hospital's cystic fibrosis treatment outcomes. This open disclosure was, for the most part, unprecedented

in medical practice and was (and is) viewed with much skepticism by physicians. The fear that full transparency with respect to medical outcomes will lead not to better patient care but to patient confusion and misunderstanding is pervasive. Gawande demonstrates the potential to gain from a collaborative rather than paternalistic relationship with patients. If the profession and the interests of the patients (and societal stakeholders) are kept in alignment, this “external” pressure may well act as a positive motivator for the pursuit of Excellence within the medical professions.

Finally, the concern that the Ethics of the surgical profession might suffer from the modern system of graduate surgical education rings somewhat hollow. While shift work and limited duty hours may prevent a physician from following a given patient for 36 hours straight, this does not diminish the fact that the resident has chosen to devote his or her career to patient care. What is lacking from this argument is a larger perspective, an understanding of the context in which residents today make their decision to commit to a surgical career. Gone are the days when nurses stood to attention as a surgeon entered a room. Doctors today find themselves reviewed and ranked on websites such as Angie’s List, next to plumbers, electricians and moving companies. The financial incentives to join the surgical profession are also less compelling than they might once have been. While a general surgeon in an academic teaching hospital clearly makes a comfortable living, he or she can hardly compete with incomes that have been generated recently in business or finance. Even within the field of surgery, certain specialties such as trauma or general surgery are significantly less well compensated than the more highly sought-after “sub-specialties”.

In light of this changing backdrop of surgical prestige and financial compensation, I suggest that those voluntarily entering this field despite an acute sense of the time, money, personal energy and sacrifice involved, are at least as well vetted as surgeons of old, particularly with respect to their ethical devotion to patient care.

The field of graduate medical education is clearly in a state of flux. The repercussions of the ongoing reforms have yet to be determined. During this change, it is clear that tensions have arisen between supporters of the traditional system and champions of a more modern approach. The GoodWork model highlights two important points for consideration. First, the perception that reform has been brought to, as opposed to generated from, the profession sets the stage for a confrontational stance on behalf of senior medical educators. Second, the reactions of senior attendings to the behavior mandated by duty hour limits speak to a deeper fear. The core of that fear: resident choices today may reflect a degradation of the Excellent, Engaged and Ethical care senior surgeons hope to foster in their successors. While the GoodWork framework may not offer any definitive answers, it undoubtedly clarifies the critical elements of the ongoing debate and the changing mindset that is necessary to further good work in graduate medical education.

REFERENCES

Accreditation Council for Graduate Medical Education Information Website:

http://www.acgme.org/acWebsite/dutyHours/dh_index.asp

Barshes, N. R., Vavra, A. K., Miller, A., Brunicardi, F. C., Goss, J. A., & Sweeney, J. F.

(2004). General surgery as a career: A contemporary review of factors central to medical student specialty choice. *Journal of the American College of Surgeons*, 199(5), 792-799.

Baskies MA, Ruchelsman DE, Capeci CM, et al. (2008). Operative experience in an orthopaedic surgery residency program: the effect of work-hour restrictions. *J Bone Joint Surg Am*, 90(4), 924-7.

Chen, Pauline W. (2009). On Young Doctors and Long Workdays. *New York Times*. March 2, 2009.

Chung RS, Ahmed N. (2007). How surgical residents spend their training time: the effect of a goal-oriented work style on efficiency and work satisfaction. *Arch Surg*, 142(3), 249-52.

Curet, M. J. (2008). Resident work hour restrictions: Where are we now? *Journal of the American College of Surgeons*, 207(5), 767-776.

Damadi A, Davis AT, Saxe A, et al. (2007). ACGME duty-hour restrictions decrease resident operative volume: a 5-year comparison at an ACGME-accredited university general surgery residency. *Journal of Surgical Education*, 64(5), 256-9.

Dorsey, E. R., Jarjoura, D., & Rutecki, G. W. (2005). The influence of controllable lifestyle and sex on the specialty choices of graduating U.S. medical students,

- 1996-2003. *Academic Medicine : Journal of the Association of American Medical Colleges*, 80(9), 791-796.
- Durkin ET, McDonald R, Munoz A, et al. (2008). The impact of work hour restrictions on surgical resident education. *Journal of Surgical Education*, 65(1), 54-60.
- Gawande, Atul. (2004). The Bell Curve: What happens when patients find out how good their doctors really are? *The New Yorker*, Dec. 6, 2004.
- Gordon CR, Axelrad A, Alexander JB, et al. (2006). Care of critically ill surgical patients using the 80-hour Accreditation Council of Graduate Medical Education work-week guidelines: a survey of current strategies. *Am Surg*, 72(6), 497-9.
- Helft PR, Eckles RA, Torbeck L. (2008). Ethics Education in Surgical Residency Programs: A Review of the Literature. *Journal of Surgical Education*, 65(3), 35-42.
- Holzman IR, Barnett SH. (2000) The Bell Commission: ethical implications for the training of physicians. *Mt Sinai Journal of Medicine*, 67(2), 136-139.
- Iramaneerat, C. (2009). Instruction and assessment of professionalism for surgery residents. *Journal of Surgical Education*, 66(3), 158-162.
- Kelly A, Canter R. (2007). A New Curriculum for Surgical Training within the United Kingdom: Context and Model. *Journal of Surgical Education*, 64(1), 10-19.
- Lerner, Barron H. (2009). A Life-Changing Case for Doctors in Training. *New York Times* March 2, 2009.
- Markel H. (2010). Abraham Flexner and his remarkable report on medical education: a century later, 303(9), 888-90.

- Mayer KL, Ho HS, Goodnight JE Jr. (2001). Childbearing and child care in surgery. *Arch Surg*, 136(6), 649-55.
- Morrison CA, Wyatt MM, Carrick MM. (2008). Impact of the 80-Hour Work Week on Mortality and Morbidity in Trauma Patients: An Analysis of the National Trauma Data Bank. *J Surg Res*, 144(2), 340.
- O'Shea JS. (2008). Becoming a Surgeon in the Early 20th Century: Parallels to the Present. *Journal of Surgical Education*, 65(3), 236-41.
- Ramsey RA, Anand R, Harmer SG, et al. (2007). Continuity of care and the European working time directive: a maxillofacial perspective. *Br J Oral Maxillofac Surg*, 45(3), 221-2.
- Rutkow IM. (1978). William Stewart Halsted and the Germanic influence on education and training programs in surgery. *Surg Gynecol Obstet*, 147, 602-606.
- Schneider JR, Coyle JJ, Ryan ER, et al. (2007). Implementation and evaluation of a new surgical residency model. *J Am Coll Surg*, 205(3), 393-404.
- Shapira Ian. (2010). Doctors Fear Work Caps for Residents May be Bad Medicine. *Washington Post*, March 18; B01.
- Shin S, Britt R, Britt LD. (2008). Effect of the 80-hour work week on resident case coverage: corrected article. *J Am Coll Surg*, 207(1), 148-50.
- Spitz, Norton. (1991). Oversight of Physicians' Conduct by State Licensing Agencies: Lessons from New York's Libby Zion Case. *Annals of Internal Medicine*, 115:219-222.
- Troppmann KM, Palis BE, Goodnight JE Jr., et al. (2009). Women Surgeons in the New Millennium. *Arch Surg*, 144(7), 635-42.

- Tsouroufli M, Payne H. (2008). Consultant medical trainers, modernizing medical careers (MMC) and the European time directive (EWTD): tensions and challenges in a changing medical education context. *BMC Med Educ*, 8, 31.
- Volpp KG, Rosen AK, Rosenbaum PR, et al. (2007a). Mortality Among Hospitalized Medicare Beneficiaries in the First 2 Years Following ACGME Resident Duty Hour Reform. *JAMA*, 298(9), 975-983.
- Volpp KG, Rosen AK, Rosenbaum PR, et al. (2007b). Mortality among patients in VA hospitals in the first 2 years following ACGME resident duty hour reform. *JAMA*, 298(9), 984-992.
- Weatherby BA, Rudd JN, Ervin TB, et al. (2007). The effect of resident work hour regulations on orthopaedic surgical education. *J Surg Orthop Adv*, 16(1), 19-22.
- Whitehouse J, Albright E, Bosbous M, et al. (2007). Residents' Perspectives on Professionalism *Journal of Surgical Education*, 64(6), 431-432.
- Willis RE, Coverdill JE, Mellinger JD, et al. (2009). Views of Surgery Program Directors on the Current ACGME and Proposed IOM Duty-Hour Standards. *Journal of Surgical Education*, 66(4), 216-221.
- Woodrow SI, Segouin C, Armbruster et al. (2006). Duty hours reforms in the United States, France, and Canada: is it time to refocus our attention on education? *Acad Med*, 81(12), 1045-51.